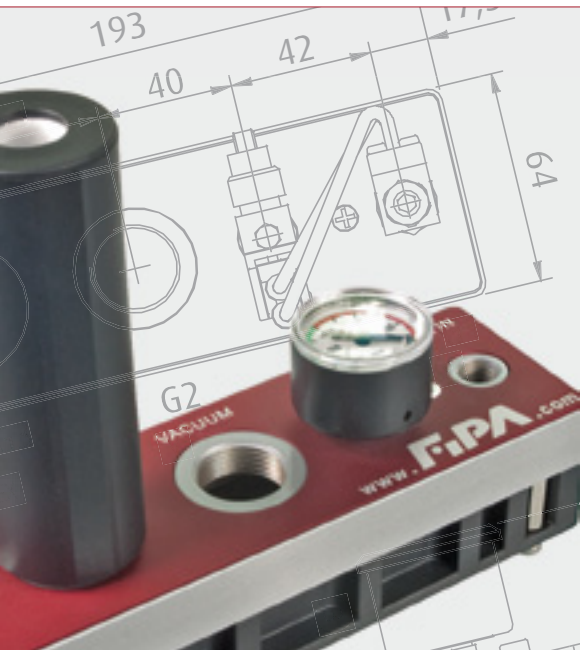


FIPA Vacuum Technology



www.fipa.com

FIPA

Material in Motion

„Only those who think ahead stay ahead.“



Vacuum Technology Expertise

With the headquarter in Ismaning / Germany, just outside of Munich, FIPA specialises in developing and marketing innovative vacuum technology for handling a wide variety of products.

In doing so we cover the entire process chain, from vacuum generation to system peripherals, through to vacuum cups and gripper systems at the interface with your product.

Our aim is to offer the right solution for every customer and every requirement. Either by selecting a suitable product from our extensive standard range or by developing a customised solution that is tailored to your exact requirements.

Our modular product and component construction kit forms the basis for this. The construction kit is being continually expanded and developed, allowing us to respond promptly to shifting market requirements.

Our innovative product solutions, combined with a competent workforce, a practiced service culture, an international sales network and reliable partners make FIPA a pioneering company in the field of vacuum technology.

This catalogue represents our extensive range of vacuum cups and vacuum components. Please contact us if you need a customised solution. We would be pleased to develop it for you.

FIPA: vacuum technology for streamlining your material flow!



Best regards, Rainer Mehrer
CEO of FIPA GmbH

Order information

- > Please add the part number with the respective material code to your order.
- > Please turn the page for available materials and material selection!

Overview of vacuum cup materials

| Short designation | Material code | Hardness [Shore A ± 5°] | Commercial designation | Commercial name (example) | Short-term working temperature [°C] | Abrasion resistance | Flexibility | Oil-resistance | Fuel resistance | Ozone and weathering resistance | Acid resistance | Leaching resistance |
|-------------------|---------------|-------------------------|---|---------------------------|-------------------------------------|---------------------|-------------|----------------|-----------------|---------------------------------|-----------------|---------------------|
| BR-AS | 10-AS | 60 | Butadiene rubber, anti-static | | -50 / +100 | ++ | + | 0 | 0 | 0 | + | ++ |
| CR | 9 | 50 - 60 | Chloroprene | Neoprene® | -40 / +110 | + | + | ++ | 0 | ++ | + | + |
| EPDM | 15 | 50 | | Vistalon® | -40 / +130 | + | ++ | 0 | 0 | ++++ | +++ | +++ |
| FKM | 7 | 65 | Fluor rubber (FPM) | Viton® | -10 / +230 | 0 | 0 | ++++ | ++++ | ++++ | +++ | +++ |
| Foam rubber | 12 | | | | | | ++++ | | | | | |
| HNBR | 14 | 55 | Hydrogenated acrylonitrile-butadiene rubber | Therban® | -30 / +160 | ++ | + | ++++ | ++ | +++ | + | + |
| NBR | 1 | 50 - 60 | Nitrile rubber | Perbunan® | -30 / +90 | + | + | +++ | + | 0 | 0 | 0 |
| NBR-AS | 1-AS | 50 - 70 | Nitrile rubber, anti-static | | -30 / +90 | + | + | +++ | ++ | 0 | 0 | + |
| NR | 4 | 35 - 45 | Natural rubber | SMR | -40 / +80 | ++ | ++++ | 0 | 0 | 0 | + | ++ |
| NR | 3 | 50 - 65 | Natural rubber | SMR | -40 / +80 | ++ | +++ | 0 | 0 | 0 | + | ++ |
| PU | 5 | 50 - 65 | Polyurethane (EU/AU) | Urepan® | -20 / +80 | ++ | + | +++ | ++ | + | 0 | 0 |
| SBR | 13 | 50 - 60 | Styrene-butadiene-rubber (SBR) | Buna® | -30 / +80 | +++ | ++ | 0 | 0 | + | + | + |
| SI | 8 | 35 - 45 | Silicone rubber | Elastosil® | -40 / +200 | 0 | ++++ | 0 | 0 | +++ | 0 | 0 |
| SI | 2 | 50 - 65 | Silicone rubber | Elastosil® | -40 / +200 | 0 | +++ | 0 | 0 | +++ | 0 | 0 |
| SI-AS | 2-AS | 50 - 60 | Silicone rubber, anti-static | | -40 / +200 | 0 | +++ | 0 | 0 | +++ | 0 | 0 |
| SI-FS | 2-FS | 40 | Fluorosilicone | | -50 / +190 | 0 | +++ | + | + | +++ | ++ | +++ |
| Tepuflex® | 17 | 50 | Thermoplastic elastomer | | 0 / +60 | +++ | ++ | 0 | 0 | +++ | 0 | 0 |
| Thermalon® | 19 | 60 | | | 0 / +160 | ++ | + | +++ | ++ | 0 | + | + |
| TPU | 18 | 60 | Thermoplastic elastomer | Elastollan® | 0 / +65 | +++ | 0 | +++ | ++ | +++ | 0 | + |
| Varioflex® | 16 | 30 / 60 | Polyurethane (2 Shore Hardnesses) | | +10 / +50 | +++ | ++++ | +++ | +++ | ++ | 0 | +++ |
| Vinyl | V | 50 - 55 | PVC (soft) | | 0 / +60 | +++ | ++ | + | + | ++ | ++ | ++ |
| Vulkollan® | 11 | 75 | | Vulkollan® | -40 / +80 | ++++ | + | +++ | ++ | +++ | + | + |

++++ = Excellent +++ = Very good ++ = Good + = Fair 0 = Low to satisfactory

Ordering example: Flat vacuum cup made of silicone 50° Shore A

Item No.

102.030.222.* > Add material code > 102.030.222.2

Note!

- > Depending on the application, vacuum cups are subject to mechanical and chemical stresses. The data serve therefore only as guidelines.
- > Special vacuum cups fitted with felt linings are extremely low-marking and can be deployed at temperatures up to a max. of 500 °C.
- > Material colors may change, but the quality remains unaffected.
Material colors: bg = beige, bl = blue, br = brown, g = green, ge = yellow, gr = gray, or = orange, r = red, sw = black, tr = transparent, w = white

Sachgerechte Lagerung von Elastomeren

Some elastomer parts are stored for long periods. This can affect product quality. Changes are the result of individual or combined influences of special factors, such as deformation, oxygen, ozone, light, heat, moisture, oils and solvents. For this reason, precautions must be taken to ensure that the service life will not be considerably shortened by incorrect storage. Storage and the recording of time in storage is governed by ISO 2230 and DIN 7716.



Heat

- > Storage temperature of elastomers should preferably be between +5 °C and +25 °C.
- > Direct contact with heat sources (such as radiators) or direct sunlight should be avoided.
- > Storage at low temperatures can cause elastomers to harden. In this temperature range, therefore, moulded parts must be handled with great care to avoid deformations.

Moisture

- > Relative humidity in storage areas should be below 70 %. Avoid extremely wet or dry conditions. No condensation should be present.

Light, ozone

- > Elastomer parts should be stored away from light sources and ozone. In particular, direct sunlight or strong artificial light containing an ultraviolet band should be avoided. The use of individual containers, especially plastic bags, is preferred, provided they are UV-protected.

Deformation

- > Elastomer components should be stored free of compressions or deformations and in an unbent state. Items delivered in an unbent state should be kept in their original packaging.

Contact with liquids or grease

- > Moulded elastomer parts should not come into contact during storage with solvents, oils or grease, if not already so packed by the manufacturer.

Contact with metal and non-ferrous metals

- > Direct contact with certain metals such as manganese, iron, copper and its alloys, e.g. brass, damages some elastomers and should be avoided during storage.
- > Due to the potential for plasticiser migration or migration of other components, elastomers should not be stored in contact with PVCs.

Length of storage and inspection (empirical values)

The useful life of elastomeric products depends to a considerable degree on the type of elastomer. If the above-mentioned recommendations for storage are observed, the various elastomers can be stored for the times given below:

| | |
|-------------------------------------|----------|
| AU, EU, BR, SBR, NR, thermoplastics | 4 years |
| NBR, HNBR, CR | 6 years |
| EPDM | 8 years |
| FKM, SI, SI-FS | 10 years |

After the specified time, moulded elastomer parts should be inspected. An extension of shelf life is then possible. Elastomer parts and components less than 1.5 mm thick are more susceptible to attack by oxidation, even when stored under ideal conditions as recommended. The inspection interval should therefore be shorter than indicated above.

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The full FIPA product line

Criteria that affect quality, such as choice of materials or robustness can be taken for granted nowadays. At FIPA, we focus more on offering the right solution for every requirement.

Competence in vacuum cups and vacuum components

As a system provider, FIPA covers the entire process chain from vacuum generation, through system peripherals, to the optimal vacuum cups for your product.

A wide range of highly-efficient vacuum pumps and ejectors are available for optimum vacuum generation. This allows very short cycle times and compressed air savings up to 97 % to be achieved.

FIPA offers the widest range of vacuum cups in the world - perfectly tailored to the needs and application areas found in various industries.

Whatever the industry, FIPA produces complete gripper and vacuum systems that are individually tailored to customer requirements.

The high level of compatibility also allows third-party systems to be quickly and easily optimised with quality FIPA products.

Efficient and reliable

It is crucial that all components work together perfectly in order to ensure the proper functioning of vacuum cups and gripper systems.

FIPA components are designed on the basis of quality, efficiency, space-saving and market requirements, in collaboration with our clients. On the basis of extensive testing and always with an eye on market requirements.

The full FIPA product line:

Vacuum Technology



Generate



Generate



Regulate



Filter



Control



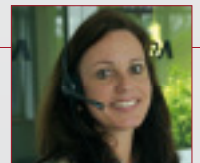
Check / Monitor



Suction

Service

> It's part of the package at FIPA.



End-of-Arm-Tooling

> Request a catalogue now
at www.fipa.com

Fix



Connect



Grab



Change



Grip



Grip



Cut



Expertise in End-of-Arm-Tooling (EOAT)

In addition to vacuum components and vacuum cups, FIPA is also your point of contact when it comes to End-of-Arm-Tooling, e.g. for industrial robot applications. Here, we continue to operate on the modular design principle and offer a comprehensive range of grippers, pneumatic air nippers and accessories. In addition, we provide complete gripper systems that are individually tailored to your requirements.

As a result of system compatibility, we ensure that existing systems from other providers can be quickly and easily expanded and optimised using FIPA products.

From base plates and extrusion systems to gripper parts and air nippers - all components are completely compatible with one another.

FIPA products are successfully utilised across all in various industries, such as the plastics, automotive, packaging and electronic industries.

Service as a company principle

FIPA is characterised by a strong service culture in combination with professional project management.

Our technical sales department will provide you with expert practical advice in all questions relating to product range, application options, system integration and system project management.

FIPA - your partner for material flow

FIPA listens to its clients carefully and finds the right product or tailor-made system solution for their application.



Structure of order number:

Using the example of a flat vacuum cup with a diameter of 30 mm made of silicone material

Item No.

102.030.222.2

Vacuum cup diameter

Material code
(derived from the material overview in the foldover)

Structure of the drawings

Drawing of the cup

Product feature

Item No. of the vacuum cup

(* Please always add the material code - to be derived from the material overview in the foldover)

Recommended connection parts for the vacuum cup shown (fitting)

| Item No. | Connection | see page |
|----------|------------|----------|
| 270.317 | M5-AG | 35 |
| 270.103 | M6-AG | 78 |
| 270.205 | G1/8-AG | 213 |
| 270.109 | G1/8-AG | 147 |
| 270.194 | G1/4-AG | 381 |

Recommended spring levels for direct snap-in

| Item No. | Stroke | see page |
|----------|--------|----------|
| 50.020 | 8,5 mm | 84 |

Stroke spring levels

Stroke vacuum cup

2 mm

Available material (colour)

Recommended connection parts for the vacuum cup shown (fitting)

Recommended spring levels for direct snap-in

Stroke spring levels

Stroke vacuum cup

Available material (colour)

All dimensions in this catalogue are given in mm. Changes in any form are reserved.

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FIPA vacuum cups for sheet metal handling

> Oil-resistant materials, such as NBR, are primarily used in the handling of sheet metal.



Flat vacuum cups for dynamic sheet handling - SM-F

- > Reliable, non-slip handling of oily sheets thanks to “anti-slip” supporting ribs.
 - Good absorption of lateral forces
- > Supports help to prevent deep-drawing or deformation of thin sheets
- > Vulcanised connection thread ensures a secure fit
- > Diameter: 30 - 125 mm

> See page 64



Bellows vacuum cups with 1.5 folds for dynamic sheet handling - SM-B

- > Reliable, non-slip handling of oily sheets thanks to “anti-slip” supporting ribs.
 - Good absorption of lateral forces
- > Internal supports help to prevent deep-drawing or deformation of thin sheets
- > Leak-free suction even with curved surfaces due to flexible sealing lip
- > Secure fit due to vulcanised connection thread
- > Diameter: 30 - 125 mm

> See page 133



Non-slip flat vacuum cups - SM-P

- > Distinct, radially encircling supporting ribs increase holding force
- > The firmly bolted fittings (from a diameter of 20 mm) ensure good process security
- > Diameter: 10 - 50 mm

> See page 62



Flat vacuum cups with safety sealing lips - SFU-S

- > High process reliability through multiple sealing lip
- > Good stability due to vulcanised retainer plate, as well as support surfaces for the product
- > Diameter: 30 - 225 mm

> See page 68

Continued on the next page →



FIPA Vacuum cups for sheet metal handling



Heavy-duty flat vacuum suction plates - SFPL-D

- > Vulcanised steel carrier plate allows lifting of very heavy loads
- > Secure gripping of uneven surfaces thanks to additional inner sealing lip
- > Diameter: 160 - 300 mm

> See page 73



Vacuum suction plate with foamed sealing lip - SP-PLM

- > Good sealing of heavily textured surfaces
- > Cost-effective replacement of worn seals
- > Diameter: 35 - 300 mm

> See page 72



Flat XXL suction rings - SFR

- > Large, flat suction seals vulcanised on steel ring for handling very large loads
- > Connection through circular, circumferentially placed thread holes
- > Diameter: 450 - 920 mm

> See page 74



Oval vacuum suction plates - SOPL-S

- > High suction force on a small footprint
- > Rubberised support surfaces help prevent warping of the product
- > Individual machine connection
- > Dimensions: 110x40 - 580x180 mm

> See page 160



Varioflex® bellows cups, 1.5 and 2.5 folds for dry sheets - SP-BX

- > Special polyurethane in two degrees of hardness (60° Shore A black, 30° Shore A red)
- > Soft lip for optimal sealing
- > Long service life and low wear
- > Short cycle times and high process reliability
- > Low marking

1.5 folds - SP-BX1

- > Good adaptation to uneven product surfaces
- > Supports (Ø 20 - 75 mm) stabilise the product
- > Diameter: 15 - 75 mm

> See page 107



2.5 folds - SP-BX2

- > Good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Diameter: 15 - 75 mm

> See page 110



FIPA Vacuum cups for sheet metal handling



Bellows vacuum suction plates - SBPL-E

- > Gentle handling of heavy, sensitive products
- > Good adaptation to concave or convex surfaces
- > Rubberised support surfaces prevent deformation of workpieces
- > Diameter: 150 - 350 mm

> See page 137



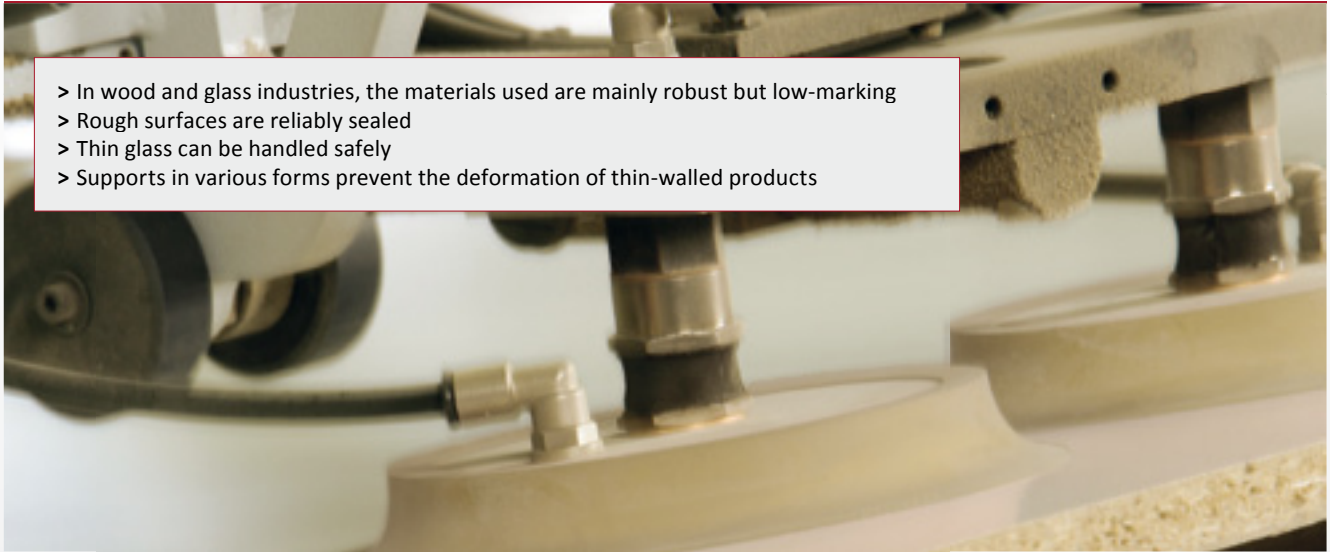
Suction plates with leakage reduction - SPLT

- > Reliable suction with variable product shapes in systems with multiple vacuum cups
- > Combination of 4x4 or 6x6 bellows vacuum cups with 2.5 folds
- > Flow restrictions prevent the collapse of the vacuum when individual vacuum cups are not in use

> See page 487



FIPA Vacuum cups for the wood and glass industries



- > In wood and glass industries, the materials used are mainly robust but low-marking
- > Rough surfaces are reliably sealed
- > Thin glass can be handled safely
- > Supports in various forms prevent the deformation of thin-walled products



Flat vacuum cups for textured surfaces - SFU-R

- > Optimal sealing of rough and uneven surfaces thanks to very fine sealing lips
- > Enhanced safety thanks to two-fold, internal safety sealing lip
- > Interlocking, clip-in retaining plate for quick and inexpensive replacement of the sealing lip
- > Diameter: 40 - 200 mm

> See page 66



Flat vacuum cups for porous products - SFU-RT

- > Separation of porous plate materials through simultaneous suction and punctual blow-off of the product
- > Enhanced safety thanks to two-fold, internal safety sealing lip
- > Diameter: 160 mm

> See page 67



Oval vacuum suction plates for textured surfaces - SOPL-R

- > Leak-free gripping of many problematic product surfaces thanks to very flexible, thinly tapered sealing lip
- > Increased security due to vulcanised carrier plate
- > Dimensions: 90x50 - 190x90 mm

> See page 158



Oval vacuum suction plates - SOPL-S and SOPL-A

- > High suction power with minimal space requirement
- > Rubberised support surfaces help prevent warping of the product
- > Available in the following materials: NBR (low-marking) and NR (wear-resistant)
- > Dimensions: 110x40 - 580x180 mm

> See page 160



FIPA Vacuum cups for the wood and glass industries



Varioflex® bellows cups, 1.5 and 2.5 folds - SP-BX

- > Special polyurethane in two degrees of hardness (60° Shore A black, 30° Shore A red)
- > Soft lip for optimal sealing
- > Long service life and low wear
- > Short cycle times and high process reliability
- > Low-marking

1.5 folds - SP-BX1

- > Good adaptation to uneven product surfaces
- > Supports (Ø 20 - 75 mm) stabilise the product
- > Diameter: 15 - 75 mm

> See page 107



2.5 folds - SP-BX2

- > Good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Diameter: 15 - 75 mm

> See page 110



Bellows vacuum suction plates Softgrip - SBPL-SG

- > Very gentle handling of sensitive products thanks to highly flexible fold walls
- > Combines the flexibility of bellows cups with the stability of flat vacuum suction plates
- > Central support block with safety sealing lip ensures a firm grip
- > Diameter: 150 - 210 mm

> See page 136



Short lift vacuum cups SFK

- > Minimal lift for flat, sensitive surfaces
- > Supports prevent deformation of the product and increase stability
- > Available in the following materials: NBR and SI
- > Particularly suited for use in clamping systems
- > Diameter: 65 - 150 mm

> See page 70



High temperature vacuum cups with felt pad - SX-F

- > Outstanding low-marking properties thanks to special felt coating
- > Highest temperature resistance (FKM briefly up to 300 °C; special silicone with an evaporated silicone lock made of aluminium briefly up to 500 °C)
- > Diameter: 25 - 160 mm

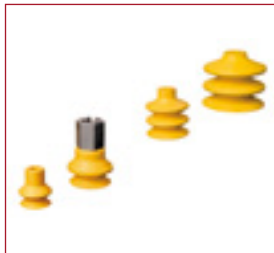
> See page 164



FIPA Vacuum cups for the plastics industry

- > The most common application in the plastics industry is the removal of plastic parts from the injection molding machine
- > Models which are able to take optimal advantage of the available space thanks to their design are primarily used for this purpose
- > Temperature-resistant vacuum cup materials which enable the subsequent painting of the parts are preferable for use

The industry recommendations listed here represent a selection of special materials. Vacuum cups made from standard materials (NBR, NR, silicone) can be found in the SF and SB series chapters.



HNBR vacuum cups

- > Standard material for removing hot plastic parts from an injection molding machine
- > Heat-resistant up to 160 °C
- > No silicones or other adhesive-repelling substances, enabling later painting of the products
- > Low-marking
- > Wear-resistant material

Bellows vacuum cups, 1.5 folds - SKH-B1

- > Good adaptation to uneven product surfaces
- > Bellows compensates for height differences
- > Diameter: 5 - 43 mm

> See page 86

Bellows vacuum cups, 2.5 folds - SKH-B2

- > Very good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Particularly gentle handling thanks to good cushioning
- > Diameter: 5 - 60 mm

> See page 94



Flat vacuum cups with a short lift - SFK

- > Flat vacuum cups with a short lift for flat surfaces
- > Minimal space requirement thanks to virtually vertical suction lip
- > Great suction power thanks to the largest active vacuum suction surface possible
- > Diameter: 20 - 45 mm

> See page 70

Oval vacuum cups - SKH-O

- > Flat vacuum cups in an oval design for the handling of narrow products
- > Narrow width enables the gripping of ribbed surfaces
- > Significantly greater suction power than round vacuum cups of equal width
- > Dimensions: 4x2 - 45x15 mm

> See page 146



FIPA Vacuum cups for the plastics industry



Thermalon® vacuum cups

- > Optimised material for less to marking
- > Heat-resistant up to 160 °C
- > No silicones or other adhesive-repelling substances, enabling later painting of the products

Bellows vacuum cups, 1.5 folds - SKT-B1

- > Good adaptation to uneven product surfaces
- > Diameter: 11 - 63 mm

> See page 84

Bellows vacuum cups, 2.5 folds - SKT-B2

- > Very good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Particularly gentle placement on product surfaces
- > Diameter: 5 - 62 mm

> See page 92



Oval vacuum cups - SKH-O

- > Oval-shaped flat vacuum cups for the handling of narrow products
- > Narrow width enables the gripping of ribbed surfaces
- > Significantly greater suction power than round vacuum cups of equal width
- > Dimensions: 4x2 - 45x15 mm

> See page 144

Flat vacuum cups - SKT-F

- > Flat vacuum cups with a flexible single sealing lip
- > Low internal volume saves energy
- > Diameter: 5 - 60 mm

> See page 36



Varioflex® bellows cups, 1.5 and 2.5 folds - SP-BX

- > Excellent service life and superior retention force
- > Special polyurethane in two degrees of hardness (60° Shore A black, 30° Shore A red)
- > Soft lip for optimal sealing
- > Short cycle times and high process reliability
- > Operating temperature: 10 - 50 °C
- > Low-marking

1.5 folds - SP-BX1

- > Good adaptation to uneven product surfaces
- > Supports (∅ 20 - 75 mm) stabilise the product
- > Diameter: 15 - 75 mm

> See page 107



2.5 folds - SP-BX2

- > Good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Diameter: 15 - 75 mm

> See page 110



FIPA Vacuum cups for the food industry



- > The requirements for vacuum cups in the food industry range from the handling of pre-packaged food up to the direct handling of unpackaged foodstuffs
- > The special shape and consistency of the products usually requires marked adjustments to the design of the cup
- > All FIPA vacuum cups for the food industry are manufactured from FDA-approved materials



Vacuum cups for chocolates - SL-P

- > Extremely flexible and adaptable suction lip for leak-free sealing of three-dimensional product surfaces
- > Low-marking and FDA-approved

Flat vacuum cups - SL-PF

- > Diameter: 16 - 22 mm

> See page 58

Bellows vacuum cups - SL-PB

- > Diameter: 12 - 16 mm

> See page 125



Vacuum cups for baked goods - SL-B

- > Multiple folds ensure a high degree of height adjustment and gentle product handling
- > FDA-approved
- > Diameter: 34 - 60 mm

> See page 126



Detectable vacuum cups for baked goods - SL-BD

- > Detectable, providing optimum assurance that the product is not contaminated by vacuum components
- > Multiple folds ensure a high degree of height adjustment and gentle product handling
- > FDA-approved
- > Diameter: 35 - 40 mm

> See page 128



Vacuum cups for eggs - SL-E

- > Bellows vacuum cups in a design specially optimised for handling eggs
- > Gentle attachment to the product and a high lifting motion thanks to a long vacuum cup lift
- > FDA-approved
- > Diameter: 33 - 34 mm

> See page 129



FIPA Vacuum cups for the packaging industry

> The packaging industry uses primarily wear-resistant vacuum cup materials which are resilient and flexible enough for complex applications (e.g. erection of boxes, handling of flexible goods, goods packaged in foil, palletising, etc.)



Vinyl bellows cups, 1.5 and 2.5 folds - SBV

- > Wear-resistant material - long service life
- > Good adaptation to curved or flexible product surfaces

1.5 folds - SBV 1

- > Diameter: 5 - 70 mm

> See page 113



2.5 folds - SBV 2

- > Diameter: 4 - 50 mm

> See page 116



Vinyl oval bellows cups - SO-BV

- > Compensates for height differences and enables gentle set down on the workpiece
- > Good adaptation to curved or flexible product surfaces
- > Wear-resistant material - long service life
- > Dimensions: 35x28 - 100x55 mm

> See page 149



Bellows vacuum cups 1.5 and 2.5 folds with special connection for standard packaging machines - SV-SB

- > Smooth suspension for gentle product handling
- > Available in NR and silicone (FDA-approved)
- > Diameter: 16 - 40 mm

> See page 130

Vacuum cups specially optimised for handling foils and foil-packaged goods can be found on p. 20



FIPA Vacuum cups for the packaging industry



Varioflex® bellows cups, 1.5 and 2.5 folds - SP-BX

- > Excellent service life and superior retention force
- > Special polyurethane in two degrees of hardness (60° Shore A black, 30° Shore A red)
- > Soft lip for optimal sealing
- > Long service life and low wear
- > Short cycle times and high process reliability
- > Low marking

1.5 folds - SP-BX1

- > Good adaptation to uneven product surfaces
- > Supports (Ø 20 - 75 mm) stabilise the product
- > Diameter: 15 - 75 mm

> See page 107



2.5 folds - SP-BX2

- > Good adaptation to uneven product surfaces
- > Large range of height and angle adjustment
- > Diameter: 15 - 75 mm

> See page 110



Silicone flat cups (FDA-approved) for use with tubes - SV-T

- > With straight or conical opening
- > Direct machine connection through pipe mounting
- > Handling of cans or tubes
- > Diameter: 11 - 46 mm

> See page 60



Silicone rectangular bellows cups, 2.5 and 3.5 folds - SV-RB

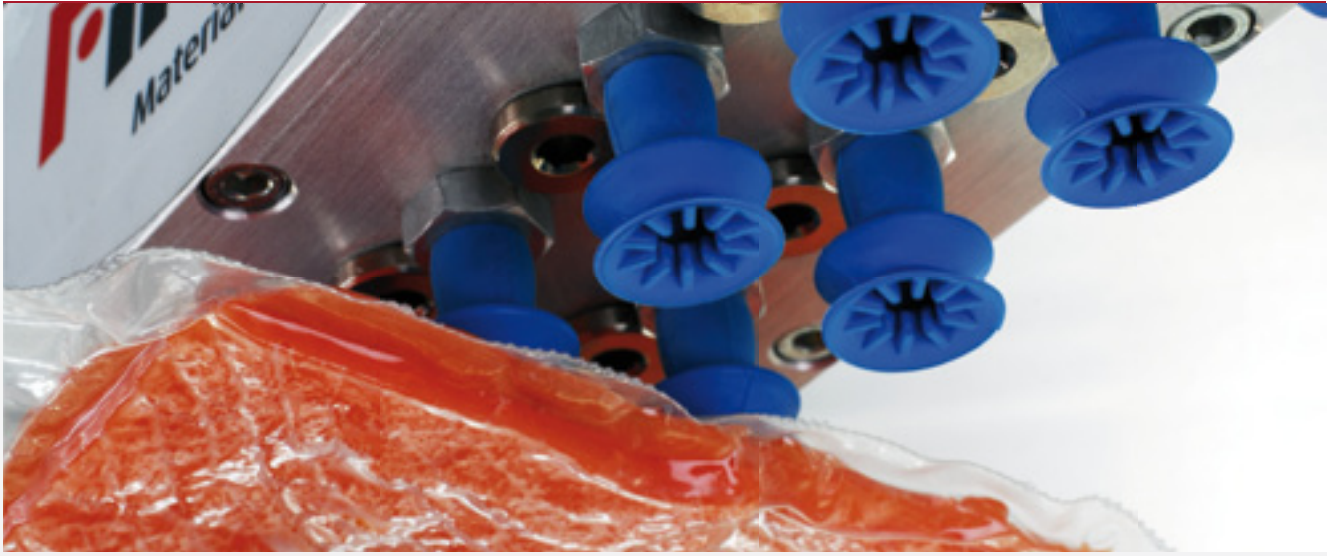
- > Handling of flexible parts and workpieces with uneven surfaces or products with flexible outer packaging
- > FDA-approved vacuum cup material
- > Dimensions: 52x25 - 80x50 mm

> See page 150

Vacuum cups specially optimised for handling foils and foil-packaged goods can be found on p. 20



FIPA Vacuum cups for the handling of foils and paper



Flat vacuum cups for foils and paper with and without supports - SD-F

- > Available in the materials NR, Vinyl, SI and NBR
- > Soft and flexible sealing lip for the optimum sealing of flexible substrates
- > Supports prevent the aspiration and wrinkling of foils and paper
- > Handling of foil-packaged goods

> See page 22



Bellows vacuum cups for foils and paper - SD-B

- > Available in the materials NR, NBR, CR and SI
- > Bellows allow for good compensation of height and angle differences
- > Soft and flexible sealing lip for the optimum sealing of flexible substrates
- > Supports prevent the aspiration and wrinkling of foils and paper
- > Handling of foil-packaged goods

> See page 23



Vacuum cups with connection, compatible to Mueller-Martini machines - SD-MM

- > Available in the materials NR, SI, Vinyl and Vulkollan®
- > High cycle times possible
- > Wear-resistant materials

> See page 24



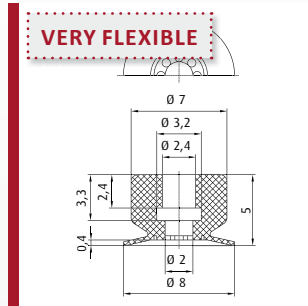
Suction discs - SD-S

- > Available in the materials NR and polyurethane
- > Suitable for universal use

> See page 26



Flat vacuum cups with cleats for Films & Paper - SD-FA

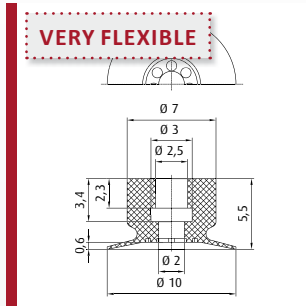


VERY FLEXIBLE

Item no. 104.008.070.*

Material
NBR (sw), SI-FS (r) 0.5 mm

Details see page 181

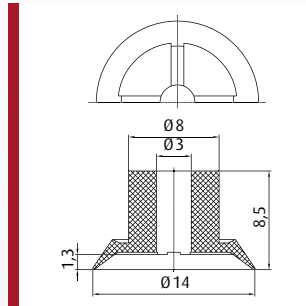


VERY FLEXIBLE

Item no. 104.010.071.*

Material
NBR (sw), SI-FS (r) 0.7 mm

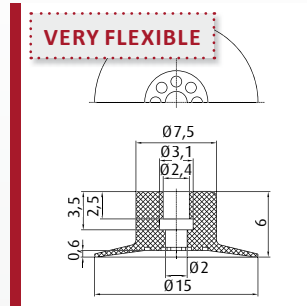
Details see page 184



Item no. 102.014.089.*

Material
NBR (sw) 1.5 mm

Details see page 188

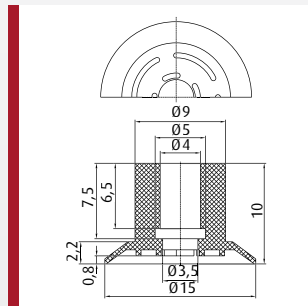


VERY FLEXIBLE

Item no. 104.015.072.*

Material
NBR (sw), SI-FS (r) 1.1 mm

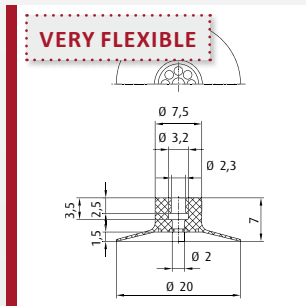
Details see page 190



Item no. 102.015.431.*

Material
SI (tr), NR (bg) 0.5 mm

Details see page 190

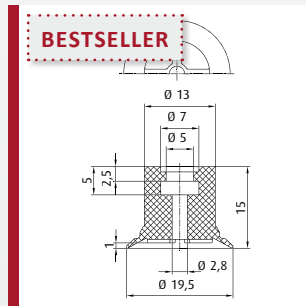


VERY FLEXIBLE

Item no. 104.020.073.*

Material
NBR (sw), SI-FS (r) 1.6 mm

Details see page 201

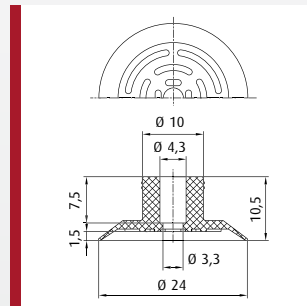


BESTSELLER

Item no. 102.020.083.*

Material
NBR (sw), SI (tr), SI (r) 1 mm

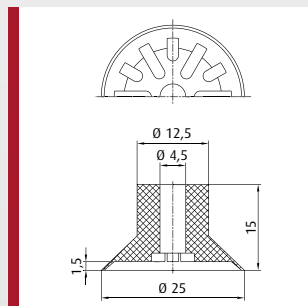
Details see page 198



Item no. 102.024.457.*

Material
SI (tr), NR (bg) 1.8 mm

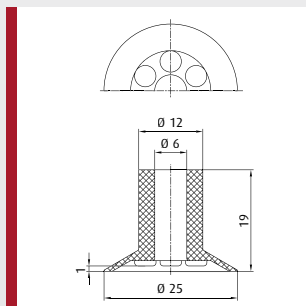
Details see page 207



Item no. 104.025.043.*

Material
Vinyl (bl) 1.5 mm

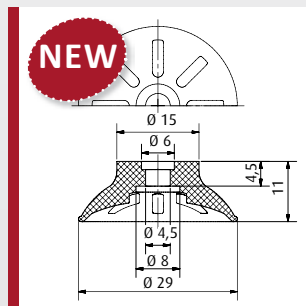
Details see page 211



Item no. 104.025.094.*

Material
NR (br) 1 mm

Details see page 211



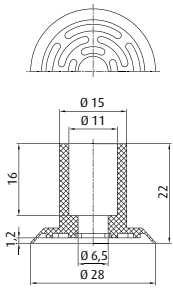
NEW

Item no. 102.029.509.*

Material
NR (br) 4 mm

Details see page 217

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760

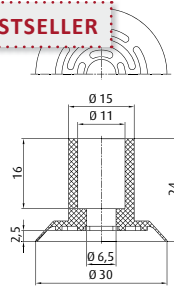


Item no. 104.029.093.*

Material NR (sw) 1 mm

Details see page 216

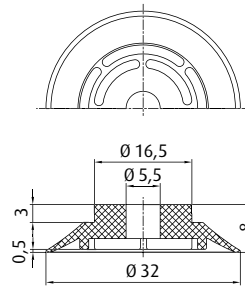
BESTSELLER



Item no. 104.030.009.*

Material NBR (sw), SI (w), SI (tr), NR (sw) 3 mm

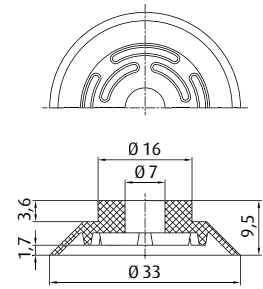
Details see page 221



Item no. 102.032.104.*

Material NR (bg) 1.8 mm

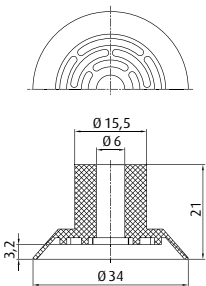
Details see page 224



Item no. 102.033.398.*

Material Vinyl (bl) 2 mm

Details see page 224

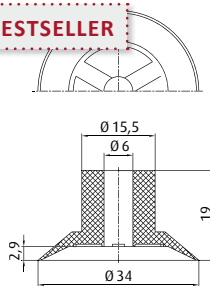


Item no. 104.034.036.*

Material NR (bg) 3 mm

Details see page 225

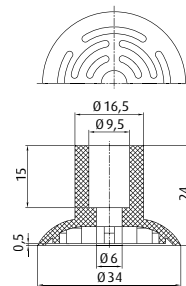
BESTSELLER



Item no. 104.034.054.*

Material Vinyl (bl) 3 mm

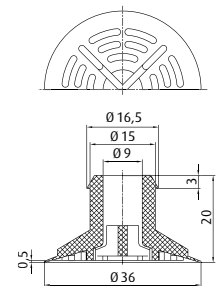
Details see page 226



Item no. 116.034.001.*

Material NR (sw), NR (bg) 0.5 mm

Details see page 226

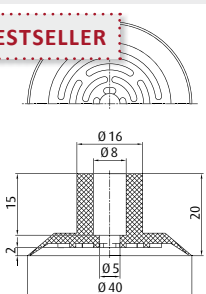


Item no. 102.036.342.*

Material SI (tr) 0.5 mm

Details see page 229

BESTSELLER



Item no. 104.040.018.*

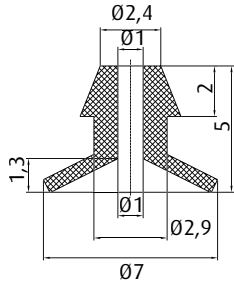
Material SI (tr), NR (sw), NR (br) 2 mm

Details see page 233

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



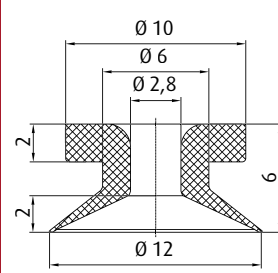
Flat vacuum cups for Film & Paper - SD-F



Item no. 102.007.266.*

Material
SI (tr) 1.5 mm

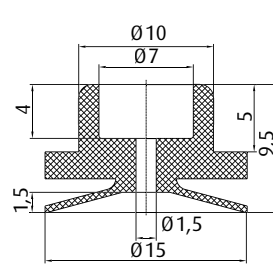
Details see page 179



Item no. 102.012.267.*

Material
NR (bg) 2.5 mm

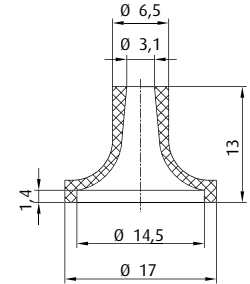
Details see page 186



Item no. 102.015.339.*

Material
Vinyl (bl) 1.5 mm

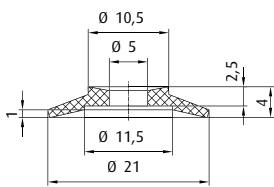
Details see page 189



Item no. 102.017.276.*

Material
NR (br) 3 mm

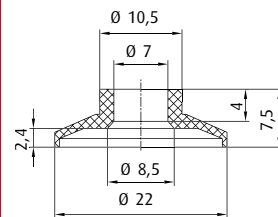
Details see page 195



Item no. 102.021.063.*

Material
NR (sw) 1 mm

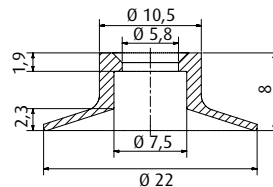
Details see page 204



Item no. 102.022.185.*

Material
NR (gr) 0.5 mm

Details see page 204



Item no. 102.022.526.*

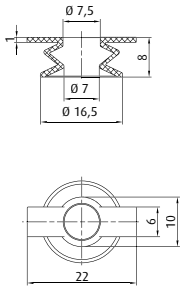
Material
NR (bl) 2 mm

Details see page 204

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups for Films & Paper - SD-B

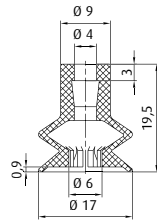


Item no. 23.017.102._*

Material
NR (sw) 5.5 mm

Details see page 300

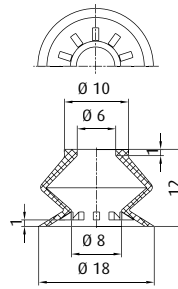
BESTSELLER



Item no. 23.018.175._*

Material
SI (tr), NR (bl) 5.5 mm

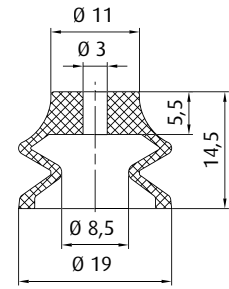
Details see page 300



Item no. 23.018.082._*

Material
SI (tr), NR (bl),
CR (sw) 5.5 mm

Details see page 301

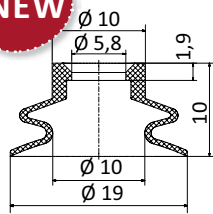


Item no. 23.019.168._*

Material
NR (bl), NR (br) 5.5 mm

Details see page 304

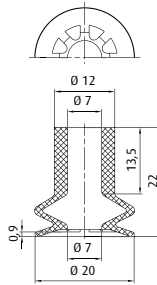
NEW



Item no. 23.019.254._*

Material
SI (tr) 3.5 mm

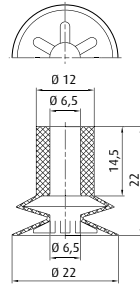
Details see page 304



Item no. 23.020.133._*

Material
NBR (sw), SI (tr) 4 mm

Details see page 305

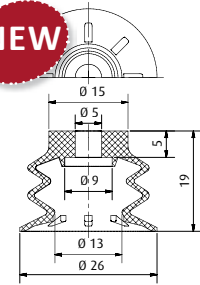


Item no. 23.023.099._*

Material
NR (br) 5 mm

Details see page 310

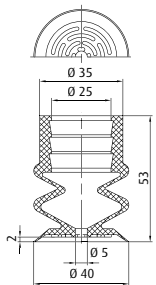
NEW



Item no. 21.026.162._*

Material
NR (br) 9 mm

Details see page 314



Item no. 21.040.141._*

Material
NR (bg) 18 mm

Details see page 328

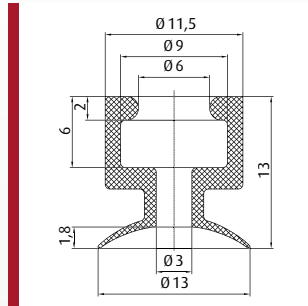
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Vacuum cups - Industries | Printing industry, Films & Paper

Ø 13 - 25 mm

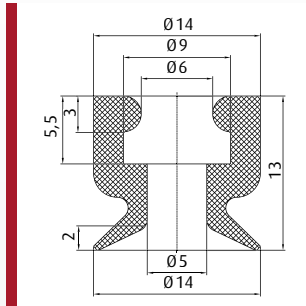
Vacuum cups compatible to machines manufactured by Mueller-Martini - SD-MM



Item no. 102.012.332. *_

Material NR (or) 1.5 mm

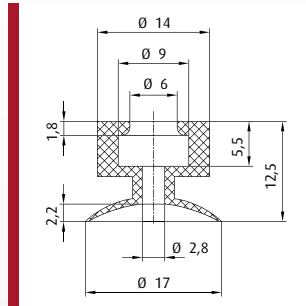
Details see page 187



Item no. 102.014.333. *_

Material NR (or) 2 mm

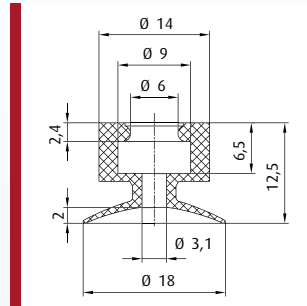
Details see page 187



Item no. 102.016.255. *_

Material SI (r) 3 mm

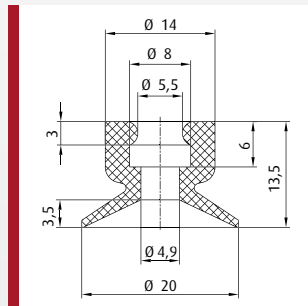
Details see page 193



Item no. 102.018.442. *_

Material NR (or) 2 mm

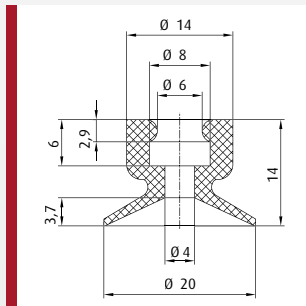
Details see page 196



Item no. 102.020.140. *_

Material NR (sw), NR (or) 3 mm

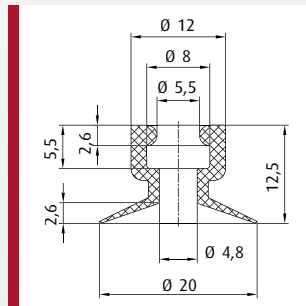
Details see page 198



Item no. 126.020.004. *_

Material NR (or) 3.5 mm

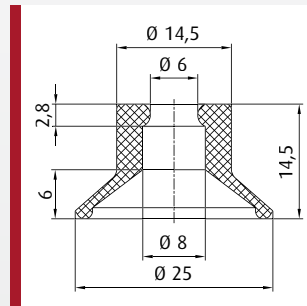
Details see page 198



Item no. 126.020.005. *_

Material SI (tr) 1 mm

Details see page 199

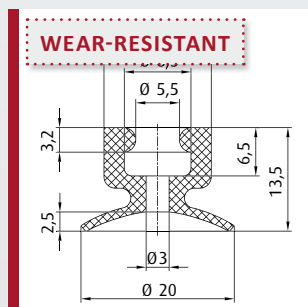


Item no. 102.025.102. *_

Material NR (g) 4 mm

Details see page 209

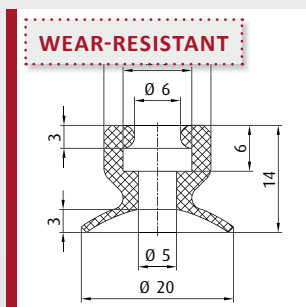
Vulkollan® flat vacuum cups - SD-MM-VU



Item no. 102.020.299. *_

Material Vulkollan® (br) 3.5 mm

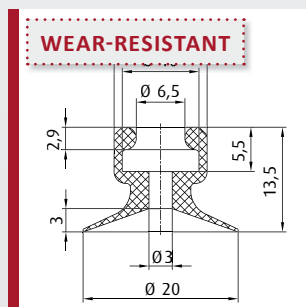
Details see page 199



Item no. 102.020.300. *_

Material Vulkollan® (br) 3 mm

Details see page 199



Item no. 102.020.308. *_

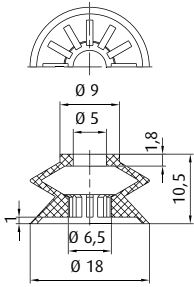
Material Vulkollan® (br) 1 mm

Details see page 199

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups - SD-MM



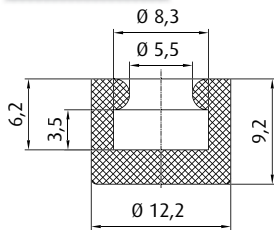
Item no. 23.018.183._*

Material NR (or)  5.5 mm

Details see page 300

Accessories - SD-MM

RUBBER CAP



Item no. 77.101

Material NR (r)

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Suction discs - SD-S



Ordering notes

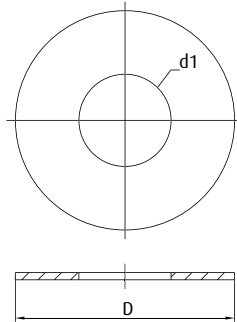
- > Packing unit = 100 pieces
- > When ordering, supplement the item no. with the material code according to ordering logic.

Ordering logic

| Material code | Material | Thickness | Colour |
|---------------|----------|-----------|--------|
| 01 | NR | 0.5 | green |
| 02 | NR | 0.8 | pink |
| 03 | NR | 1.0 | beige |

| Material code | Material | Thickness | Colour |
|---------------|----------|-----------|-------------|
| 04 | NR | 1.6 | white |
| 05 | NR | 2.0 | green |
| 06 | PU | 0.8 | transparent |

Dimensions



Technical Data

| Item no. | Material | Ø D [mm] | Ø d1 [mm] |
|--------------|----------|----------|-----------|
| 3.13.001._XX | NR, PU | 12.7 | 1.6 |
| 3.16.003._XX | NR, PU | 15.9 | 1.6 |
| 3.16.007._XX | NR, PU | 15.9 | 3.2 |
| 3.17.002._XX | NR, PU | 17.5 | 3.2 |
| 3.19.004._XX | NR, PU | 19.1 | 6.4 |
| 3.19.005._XX | NR, PU | 19.1 | 1.6 |
| 3.19.011._XX | NR, PU | 19.1 | 4.8 |
| 3.21.006._XX | NR, PU | 20.6 | 4.8 |
| 3.22.008._XX | NR, PU | 22.2 | 4.8 |
| 3.22.012._XX | NR, PU | 22.2 | 6.4 |
| 3.24.010._XX | NR, PU | 23.8 | 9.5 |
| 3.25.013._XX | NR, PU | 25.4 | 4.8 |
| 3.25.014._XX | NR, PU | 25.4 | 6.4 |
| 3.25.015._XX | NR, PU | 25.4 | 9.5 |
| 3.27.016._XX | NR, PU | 27.0 | 3.2 |
| 3.27.017._XX | NR, PU | 27.0 | 6.4 |

Technical Data

| Item no. | Material | Ø D [mm] | Ø d1 [mm] |
|--------------|----------|----------|-----------|
| 3.27.018._XX | NR, PU | 27.0 | 9.5 |
| 3.29.019._XX | NR, PU | 28.6 | 6.4 |
| 3.29.020._XX | NR, PU | 28.6 | 12.7 |
| 3.29.021._XX | NR, PU | 28.6 | 14.3 |
| 3.30.022._XX | NR, PU | 30.2 | 9.5 |
| 3.30.023._XX | NR, PU | 30.2 | 12.7 |
| 3.30.024._XX | NR, PU | 30.2 | 14.3 |
| 3.32.025._XX | NR, PU | 31.8 | 4.8 |
| 3.32.026._XX | NR, PU | 31.8 | 9.5 |
| 3.32.027._XX | NR, PU | 31.8 | 12.7 |
| 3.32.028._XX | NR, PU | 31.8 | 14.3 |
| 3.32.046._XX | NR, PU | 31.8 | 6.4 |
| 3.32.047._XX | NR, PU | 31.8 | 11.1 |
| 3.35.029._XX | NR, PU | 34.9 | 9.5 |
| 3.35.030._XX | NR, PU | 34.9 | 12.7 |
| 3.35.031._XX | NR, PU | 34.9 | 14.3 |

Technical Data

| Item no. | Material | Ø D [mm] | Ø d1 [mm] |
|--------------|----------|----------|-----------|
| 3.38.032._XX | NR, PU | 38.1 | 9.5 |
| 3.38.033._XX | NR, PU | 38.1 | 12.7 |
| 3.38.034._XX | NR, PU | 38.1 | 14.3 |
| 3.38.035._XX | NR, PU | 38.1 | 15.9 |
| 3.38.045._XX | NR, PU | 38.1 | 11.1 |
| 3.41.036._XX | NR, PU | 41.3 | 9.5 |
| 3.41.037._XX | NR, PU | 41.3 | 12.7 |
| 3.41.038._XX | NR, PU | 41.3 | 14.3 |
| 3.41.039._XX | NR, PU | 41.3 | 15.9 |
| 3.44.040._XX | NR, PU | 44.5 | 7.9 |
| 3.44.041._XX | NR, PU | 44.5 | 12.7 |
| 3.44.042._XX | NR, PU | 44.5 | 14.3 |
| 3.44.043._XX | NR, PU | 44.5 | 15.9 |
| 3.50.044._XX | NR, PU | 50.8 | 12.7 |

| | |
|------------------------------|-----|
| Flat vacuum cups SF | 28 |
| Bellows vacuum cups SB | 75 |
| Oval vacuum cups SO | 138 |
| Special vacuum cups SX | 162 |



FIPA Flat vacuum cups SF

- > Handling of flat products with smooth surfaces
- > Low cup volume enables short cycle times
- > Good stability allows the products to pivot



Universal flat vacuum cups - SFU-A

- > Very shallow cup with single sealing lip for handling smooth or slightly rough surfaces
- > Great stability allows high acceleration
- > Connection by means of plug-in nipple (up to a diameter of 50 mm), or vulcanised carrier plate (from a diameter of 60 mm)
- > Diameter: 1 - 200 mm

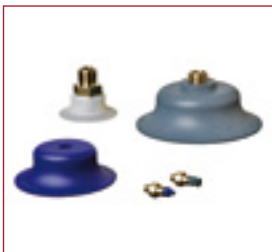
> See page 32



High temperature Thermalon® cups - SKT-F

- > Optimised special material for improved resistance to marking
- > Heat-resistant up to 160 °C
- > No silicones or paint-wetting-impairment substances (PWIS), enabling later painting of the products
- > Diameter: 5 - 60 mm

> See page 36



Universal flat vacuum cups - SFU-B

- > Very shallow cup with single sealing lip for handling smooth or slightly rough surfaces
- > Great stability allows high acceleration
- > Connection via firmly bolted nipple (from a diameter of 20 mm), thereby increasing process security
- > Diameter: 0.7 - 60 mm

> See page 38



Flat vacuum cups, modular - SP-F

- > Universal flat vacuum cups in even, supported or deep design
- > Design: Replacement sealing lip for attachment to fitting
- > Diameter: 5 - 150 mm

> See page 42



FIPA Flat vacuum cups SF



Flat vacuum cups with fixed mounted fittings - SP-F

- > Universal flat vacuum cups in even or supported design
- > Series with sensing valve prevents dropping of the product if individual vacuum cups in a system are not in contact with the product
- > Design: Complete with vacuum cup fitting and filter screen
- > Diameter: 20 - 150 mm

> See page 47



Flat vacuum cups with a flexible lip - SFU-F

- > Soft, very flexible single sealing lip for handling sensitive products
- > Good sealing to slightly rough surfaces
- > Diameter: 4 - 40 mm

> See page 50



Flat vacuum cups with curved lip - SFU-D

- > Universal flat vacuum cups with tapering curved sealing lip
- > Pre-tension of the sealing lip enables gripping of uneven, slightly curved products
- > Diameter: 4 - 85 mm

> See page 52



Flat vacuum cups with long shaft - SFU-L

- > Gentle handling of particularly sensitive, uneven and slightly curved products
- > Long, slim design enables pipe mounting and low gimbal leveling for uneven product surfaces
- > Diameter: 6 - 60 mm

> See page 56



Vacuum cups for chocolates - SL-PF

- > Extremely flexible and adaptable suction lip for leak-free sealing of three-dimensional product surfaces
- > Low-marking and FDA-approved
- > Diameter: 16 - 22 mm

> See page 58



Silicone cups (FDA-approved) for use with tubes - SV-T

- > With straight or conical opening
- > Direct machine connection through pipe mounting
- > Handling of cans or tubes

> See page 60

Continued on the next page →



| FIPA Flat vacuum cups SF | |
|---|--|
|  | <p>Non-slip vacuum cups - SM-P</p> <ul style="list-style-type: none">> Flat vacuum cups for the handling of sheet metal> Distinct, radially encircling supporting ribs increase holding force> Diameter: 10 - 50 mm <p>> See page 62</p> |
|  | <p>Flat vacuum cups for dynamic sheet handling - SM-F</p> <ul style="list-style-type: none">> Reliable, non-slip handling of oily sheets thanks to "anti-slip" supporting ribs. Good absorption of lateral forces> Supports help to prevent deep-drawing or deformation of thin sheets> Vulcanised connection thread ensures a secure fit> Diameter: 30 - 125 mm <p>> See page 64</p> |
|  | <p>Flat vacuum cups for textured surfaces - SFU-R</p> <ul style="list-style-type: none">> Optimal seal with rough and uneven surfaces thanks to very fine sealing lips> Enhanced safety due to two-fold, internal safety sealing lip> Interlocking, clip-in retaining plate for quick and inexpensive replacement of the sealing lip> Diameter: 40 - 200 mm <p>> See page 66</p> |
|  | <p>Flat vacuum cups for porous products - SFU-RT</p> <ul style="list-style-type: none">> Separation of porous plate materials by simultaneous suction and punctual blow-off of the product> Enhanced safety due to two-fold, internal safety sealing lip> Diameter: 160 mm <p>> See page 67</p> |
|  | <p>Flat vacuum cups with safety sealing lips - SFU-S</p> <ul style="list-style-type: none">> High process reliability through multiple sealing lip> Good stability due to vulcanised retainer plate, as well as support surfaces for the product> Diameter: 30 - 225 mm <p>> See page 68</p> |
|  | <p>Short lift vacuum cups SFK</p> <ul style="list-style-type: none">> Minimum lift for flat, sensitive surfaces> Supports prevent deformation of the product and increase stability> Particularly suited for use in clamping systems> Diameter: 20 - 150 mm <p>> See page 70</p> |



FIPA Flat vacuum cups SF



Vacuum suction plate with foamed sealing lip - SP-PLM

- > Good sealing of heavily textured surfaces
- > Cost-effective replacement of worn seals
- > Diameter: 35 - 300 mm

> See page 72



Heavy-duty flat vacuum suction plates - SFPL-D

- > Vulcanised steel carrier plate allows lifting of very heavy loads
- > Secure gripping of uneven surfaces thanks to additional inner sealing lip
- > Diameter: 160 - 300 mm

> See page 73



Flat XXL suction rings - SFR

- > Large, flat suction seals vulcanised on steel ring for handling very large loads
- > Connection through circular, circumferentially placed thread holes
- > Diameter: 450 - 920 mm

> See page 74



Series | Flat vacuum cups SF

Universal flat vacuum cups - SFU-A

Universal flat vacuum cups - SFU-A



Product Description

Very shallow cup with single-lip seal for handling various products with smooth or rough surfaces.
Connection up to \varnothing 50 mm by means of plug-in nipple, from \varnothing 60 mm with vulcanised carrier plate (bolttable)


Advantage

- > Great stability allows high acceleration
- > Fast cycle times are possible, due to the cup's low volume
- > Cost-effective replacement of worn seals

Ordering notes:

\varnothing 1 mm to \varnothing 3 mm: PU = 10 pieces

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour | Connection thread |
|---------------|------------------------|---|---|-------------------|
| 102.001.002.* | SFU-A -1.5 | 0.3 | NBR (sw), SI (tr) | -- |
| 102.002.004.* | SFU-A-2 | 0.4 | NBR (sw), NBR-AS (sw), SI (tr), SI-AS (sw), PU (bl) | -- |
| 102.003.005.* | SFU-A -3 | 0.5 | NBR (sw), NBR-AS (sw), SI (tr), SI-AS (sw), PU (bl), FKM (sw) | -- |
| 102.005.009.* | SFU-A -5 | 0.9 | NBR (sw), SI (tr), SI-AS (sw), FKM (sw) | -- |
| 102.006.013.* | SFU-A -6 | 1 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (sw) | -- |
| 102.008.017.* | SFU-A -8 | 1.4 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (sw) | -- |
| 102.010.024.* | SFU-A -10 | 1.2 | NBR (sw), NBR-AS (sw), SI (tr), SI-AS (sw), PU (bl) | -- |
| 102.015.030.* | SFU-A-15 | 2 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.015.309.* | SFU-A-15A | 1.9 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.020.041.* | SFU-A -20 | 2 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.025.047.* | SFU-A -25 | 2.5 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.030.053.* | SFU-A -30 | 2 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.035.056.* | SFU-A -35 | 3 | NBR (sw), SI (tr) | -- |
| 102.040.061.* | SFU-A -40 | 3.5 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.050.065.* | SFU-A -50 | 4 | NBR (sw), SI (tr), PU (bl) | -- |
| 102.060.303.* | SFU-A -60 | 5 | NBR (sw), SI (tr), PU (bl) | G1/4-female |
| 102.080.304.* | SFU-A -80 | 6 | NBR (sw), SI (tr), PU (bl) | G1/4-female |
| 102.095.305.* | SFU-A -95 | 6 | NBR (sw), SI (tr), PU (bl) | G1/4-female |
| 154.120.018.* | SFU-A -120 | 7 | NBR (sw), SI (tr) | -- |
| 154.150.020.* | SFU-A -150 | 9 | NBR (sw), SI (tr) | -- |
| 154.191.025.* | SFU-A -200 | 13 | NBR (sw), SI (tr), PU (bl) | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Accessories

| Item no. | Suitable fittings | | | | | | | | | | Suitable spring levelers (Snap-In) | |
|---------------|-------------------|-----------------|-----------------|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------------|----|
| | M3-male | M5-male | M5-female | M6-male | M10x1.25-female | G1/8-male | G1/8-female | G1/4-male | G1/4-female | G1/2-female | Spring leveler | |
| 102.001.002_* | 270.011 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.002.004_* | 270.014 (p.408) | 270.300 (p.411) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.003.005_* | 270.014 (p.408) | 270.300 (p.411) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.005.009_* | -- | 270.010 (p.411) | 270.005 (p.412) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | -- | 50.330 (p.454) | 10 |
| 102.006.013_* | -- | 270.010 (p.411) | 270.005 (p.412) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | -- | 50.330 (p.454) | 10 |
| 102.008.017_* | -- | 270.010 (p.411) | 270.005 (p.412) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | -- | 50.330 (p.454) | 10 |
| 102.010.024_* | -- | 270.010 (p.411) | 270.005 (p.412) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | -- | 50.330 (p.454) | 10 |
| 102.015.030_* | -- | 270.200 (p.411) | -- | -- | -- | 270.064 (p.418) | 270.065 (p.422) | -- | -- | -- | -- | -- |
| 102.015.309_* | -- | 270.010 (p.411) | 270.005 (p.412) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | -- | 50.330 (p.454) | 10 |
| 102.020.041_* | -- | 270.311 (p.411) | -- | -- | -- | 270.063 (p.419) | 270.061 (p.422) | -- | -- | -- | -- | -- |
| 102.025.047_* | -- | -- | -- | 270.312/19 (p.414) | -- | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- | -- |
| 102.030.053_* | -- | -- | -- | 270.312/19 (p.414) | -- | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- | -- |
| 102.035.056_* | -- | -- | -- | 270.312/19 (p.414) | -- | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- | -- |
| 102.040.061_* | -- | -- | -- | 270.312/19 (p.414) | -- | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- | -- |
| 102.050.065_* | -- | -- | -- | -- | -- | 270.490 (p.420) | 270.489 (p.423) | 270.491 (p.429) | 270.492 (p.434) | -- | -- | -- |
| 102.060.303_* | -- | -- | -- | -- | 270.090 (p.752) | -- | -- | 270.120 (p.750) | -- | -- | -- | -- |
| 102.080.304_* | -- | -- | -- | -- | 270.090 (p.752) | -- | -- | 270.120 (p.750) | -- | -- | -- | -- |
| 102.095.305_* | -- | -- | -- | -- | 270.090 (p.752) | -- | -- | 270.120 (p.750) | -- | -- | -- | -- |
| 154.120.018_* | -- | -- | -- | -- | -- | -- | -- | -- | -- | 270.056 (p.437) | -- | -- |
| 154.150.020_* | -- | -- | -- | -- | -- | -- | -- | -- | -- | 270.056 (p.437) | -- | -- |
| 154.191.025_* | -- | -- | -- | -- | -- | -- | -- | -- | -- | 270.056 (p.437) | -- | -- |

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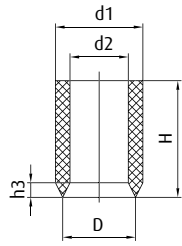
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



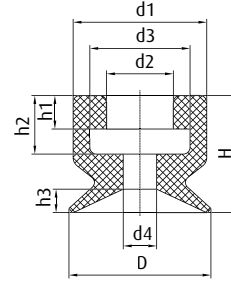
Series | Flat vacuum cups SF

Universal flat vacuum cups - SFU-A

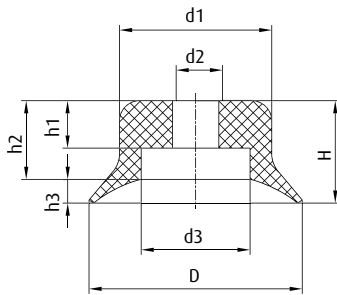
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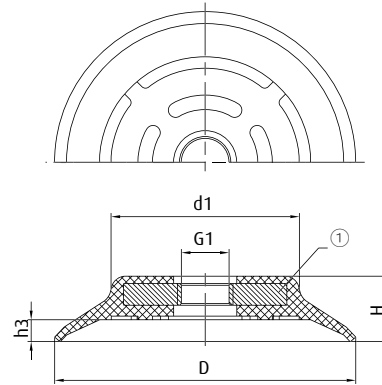
Drawing A



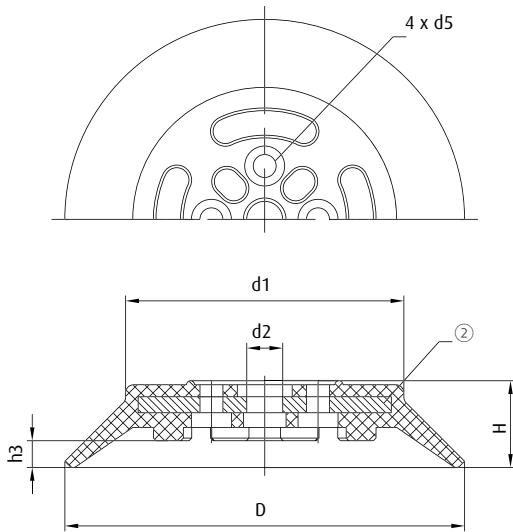
Drawing B



Drawing C



Drawing D



Drawing E

① = Aluminium ② = Steel

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | G1 | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|------|--------|---------|---------|---------|
| 102.001.002.* | A | 1.5 | 1.8 | 1.2 | -- | -- | -- | -- | 2.5 | -- | -- | 0.3 |
| 102.002.004.* | B | 2.5 | 4 | 2 | 3 | 1.2 | -- | -- | 4 | 1.5 | 2.5 | 0.5 |
| 102.003.005.* | B | 4 | 4 | 2 | 3 | 1.2 | -- | -- | 4 | 1.5 | 2.5 | 0.5 |
| 102.005.009.* | B | 5 | 7.5 | 3.8 | 6 | 1.3 | -- | -- | 6.5 | 1.8 | 3.9 | 0.8 |
| 102.006.013.* | B | 6.5 | 7.5 | 4 | 6 | 2 | -- | -- | 7 | 2 | 4 | 1 |
| 102.008.017.* | B | 8.5 | 8 | 4 | 6 | 2 | -- | -- | 7 | 2 | 3.5 | 1.4 |
| 102.010.024.* | B | 11 | 8.5 | 4 | 6 | 2 | -- | -- | 7.5 | 1.8 | 3.8 | 1.4 |
| 102.015.030.* | C | 15 | 12 | 4.5 | 7.5 | -- | -- | -- | 8 | 2.6 | 2.1 | 2.1 |
| 102.015.309.* | B | 15.5 | 9 | 3.8 | 6 | 2 | -- | -- | 8 | 2.2 | 4.4 | 2 |
| 102.020.041.* | C | 21 | 15 | 4.6 | 11 | -- | -- | -- | 10 | 4.5 | 8 | 2.4 |
| 102.025.047.* | C | 25 | 16 | 6 | 11 | -- | -- | -- | 14 | 7 | 11 | 3 |
| 102.030.053.* | C | 30 | 14 | 6 | 11 | -- | -- | -- | 12 | 7 | 10 | 2 |
| 102.035.056.* | C | 36 | 21 | 6 | 11 | -- | -- | -- | 14 | 7 | 11.2 | 2.8 |
| 102.040.061.* | C | 42 | 24 | 6 | 11 | -- | -- | -- | 14 | 7 | 11.2 | 2.8 |
| 102.050.065.* | C | 50 | 27 | 8 | 20 | -- | -- | -- | 15 | 7.4 | 11.5 | 3.5 |
| 102.060.303.* | D | 62 | 38 | -- | -- | -- | -- | G1/4 | 16 | -- | -- | 4.8 |
| 102.080.304.* | D | 83 | 52 | -- | -- | -- | -- | G1/4 | 18 | -- | -- | 6 |
| 102.095.305.* | D | 95 | 66 | -- | -- | -- | -- | G1/4 | 18 | -- | -- | 5.5 |
| 154.120.018.* | E | 117 | 90 | 14 | -- | -- | 8.5 | -- | 26 | -- | -- | 9 |
| 154.150.020.* | E | 150 | 104 | 13.5 | -- | -- | 8.5 | -- | 33 | -- | -- | 10 |
| 154.191.025.* | E | 193 | 142 | 13 | -- | -- | 8.5 | -- | 40 | -- | -- | 15.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

High temperature Thermalon® cups - SKT-F

High temperature Thermalon® cups - SKT-F

UP TO 160 °C & MINIMUM MARKING




Product Description

Flat vacuum cups for smooth surfaces especially suitable for removing hot plastic parts to be painted from an injection moulding machine. Thermalon® is a material mixture optimised for the plastics industry with a hardness of 60° Shore A. Connection up to Ø 50 mm by means of plug-in nipple, from Ø 60 mm with vulcanised carrier plate (boltable).




Advantage

- > Extremely low-marking
- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Great stability allows high acceleration

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour | Usage temperature [°C] |
|---------------|------------------------|---|-------------------|------------------------|
| 102.005.496.* | SKT-F-5 | 0.9 | Thermalon® (bl) | 0 - 160 |
| 102.008.497.* | SKT-F-8 | 1.3 | Thermalon® (bl) | 0 - 160 |
| 102.010.498.* | SKT-F-10 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 102.015.499.* | SKT-F-15 | 1.9 | Thermalon® (bl) | 0 - 160 |
| 102.020.500.* | SKT-F-20 | 2.3 | Thermalon® (bl) | 0 - 160 |
| 102.025.501.* | SKT-F-25 | 3 | Thermalon® (bl) | 0 - 160 |
| 102.030.502.* | SKT-F-30 | 2 | Thermalon® (bl) | 0 - 160 |
| 102.040.503.* | SKT-F-40 | 3.9 | Thermalon® (bl) | 0 - 160 |
| 102.050.504.* | SKT-F-50 | 4 | Thermalon® (bl) | 0 - 160 |
| 102.060.505.* | SKT-F-60 | 4.9 | Thermalon® (bl) | 0 - 160 |

Accessories

| Item no. |  Suitable fittings | | | | | | |  Suitable spring levelers (Snap-In) | |
|---------------|---|-----------------|--------------------|-----------------|-----------------|-----------------|-----------------|--|---|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler |  |
| 102.005.496.* | 270.010 (p.411) | 270.005 (p.412) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | 50.330 (p.454) | 10 |
| 102.008.497.* | 270.010 (p.411) | 270.005 (p.412) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | 50.330 (p.454) | 10 |
| 102.010.498.* | 270.010 (p.411) | 270.005 (p.412) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | 50.330 (p.454) | 10 |
| 102.015.499.* | 270.200 (p.411) | -- | -- | 270.064 (p.418) | 270.065 (p.422) | -- | -- | 50.330 (p.454) | 10 |
| 102.020.500.* | 270.311 (p.411) | -- | -- | 270.063 (p.419) | 270.061 (p.422) | -- | -- | -- | -- |
| 102.025.501.* | -- | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- |
| 102.030.502.* | -- | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- |

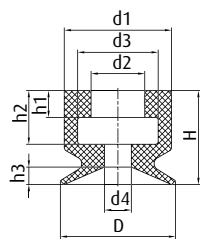
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



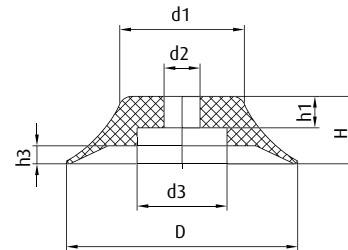
Accessories

| Item no. | Suitable fittings | | | | | | | Suitable spring levelers (Snap-In) | |
|---------------|-------------------|-----------|-----------------------|--------------------|--------------------|--------------------|--------------------|------------------------------------|----|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler | |
| 102.040.503.* | -- | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) | -- | -- |
| 102.050.504.* | -- | -- | -- | 270.012 (p.421) | 270.020 (p.423) | 270.491 (p.429) | 270.492 (p.434) | -- | -- |
| 102.060.505.* | -- | -- | -- | -- | -- | -- | -- | -- | -- |

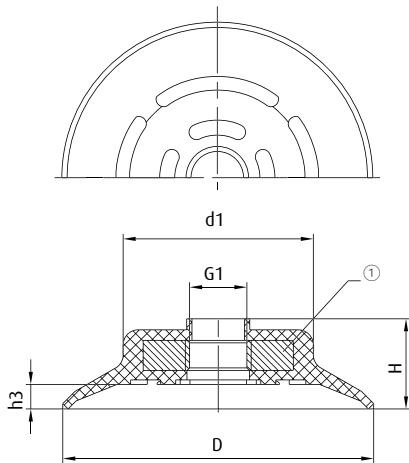
Dimensions



Drawing A



Drawing B



Drawing C

① = Aluminium

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | G1 | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|------|--------|---------|---------|---------|
| 102.005.496.* | A | 5.5 | 7.5 | 4 | 6 | 1.5 | -- | 6.5 | 2 | 4 | 0.9 |
| 102.008.497.* | A | 8.5 | 8 | 4 | 6 | 2 | -- | 7 | 2 | 4 | 1.3 |
| 102.010.498.* | A | 11 | 8.5 | 4 | 6 | 2 | -- | 7.5 | 2 | 4 | 1.4 |
| 102.015.499.* | B | 15.5 | 12 | 4.5 | 8 | -- | -- | 8 | 2.7 | -- | 1.8 |
| 102.020.500.* | B | 21 | 15 | 4.5 | 11 | -- | -- | 10 | 4.5 | -- | 2.2 |
| 102.025.501.* | B | 26 | 16 | 6 | 11 | -- | -- | 14 | 7 | -- | 2.8 |
| 102.030.502.* | B | 31 | 14.5 | 6 | 11 | -- | -- | 12 | 7 | -- | 2 |
| 102.040.503.* | B | 41 | 24 | 6 | 11 | -- | -- | 14 | 7 | -- | 3.9 |
| 102.050.504.* | B | 51 | 27.5 | 8 | 20 | -- | -- | 15 | 7 | -- | 4 |
| 102.060.505.* | C | 62 | 38 | -- | 30 | -- | G1/4 | 18 | -- | -- | 5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Universal flat vacuum cups - SFU-B

Universal flat vacuum cups - SFU-B




Product Description

Very shallow cup with single-lip seal for handling various products with smooth or slightly rough surfaces.
Connection up to \varnothing 15 mm by means of plug-in nipple, from \varnothing 20 mm with firmly screwed-in nipple.
Compatible "snap-in" spring levelers available.

Advantage

- > Great lateral stability allows high acceleration
- > Supported by support faces from \varnothing 30 mm
- > Fastest cycle times are possible due to the cup's low volume
- > Cost-effective replacement of worn seals
- > High process reliability due to fixed, non-rotating seat of the screw nipple

Technical data

| Item no. | Model / Lip dimensions | Material / Colour |  |
|---------------|------------------------|--|--|
| 102.001.425.* | SFU-B-0.7 | NBR (sw), SI-AS (sw) | 0 |
| 102.001.463.* | SFU-B-1 | NBR (sw), SI-AS (sw) | 0 |
| 102.002.464.* | SFU-B-1.5 | NBR (sw), SI-AS (sw) | 0 |
| 102.002.279.* | SFU-B-2 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.2 |
| 102.003.280.* | SFU-B-3 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.3 |
| 102.004.281.* | SFU-B-4 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.3 |
| 102.006.282.* | SFU-B-6 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.5 |
| 102.008.283.* | SFU-B-8 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 1 |
| 102.010.284.* | SFU-B-10 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 1 |
| 102.015.285.* | SFU-B-15 | NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 1.5 |
| 102.020.286.* | SFU-B-20 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2 |
| 102.025.287.* | SFU-B-25 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2 |
| 102.030.288.* | SFU-B-30 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2 |
| 102.040.289.* | SFU-B-40 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2 |
| 102.050.290.* | SFU-B-50 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2 |
| 102.060.291.* | SFU-B-60 | NBR (sw), SI (tr), PU (bl), FKM (gr) | 2.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Accessories

| Item no. | Suitable fittings | | | | | | | | Suitable spring levelers (Snap-In) | | | | | | | |
|---------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----|
| | M3-male | M5-male | M6-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | | |
| 102.001.425.* | 270.524 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.001.463.* | 270.524 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.002.464.* | 270.524 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.002.279.* | 270.427 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.003.280.* | 270.427 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.004.281.* | 270.427 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.006.282.* | -- | 270.283 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.008.283.* | -- | 270.283 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 102.010.284.* | -- | 270.010 (p.411) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | 50.103 (p.454) | 6 | 50.125 (p.454) | 10 | 50.126 (p.454) | 15 | 50.127 (p.454) | 20 |
| 102.015.285.* | -- | 270.010 (p.411) | -- | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- | 50.103 (p.454) | 6 | 50.125 (p.454) | 10 | 50.126 (p.454) | 15 | 50.127 (p.454) | 20 |
| 102.020.286.* | -- | 270.311 (p.411) | 270.459 (p.414) | -- | 270.480 (p.420) | 270.479 (p.423) | -- | -- | 50.095 (p.456) | 20 | 50.096 (p.456) | 30 | 50.097 (p.456) | 40 | 50.098 (p.456) | 50 |
| 102.025.287.* | -- | 270.311 (p.411) | 270.459 (p.414) | -- | 270.480 (p.420) | 270.479 (p.423) | -- | -- | 50.095 (p.456) | 20 | 50.096 (p.456) | 30 | 50.097 (p.456) | 40 | 50.098 (p.456) | 50 |
| 102.030.288.* | -- | -- | 270.460 (p.414) | -- | 270.482 (p.420) | 270.481 (p.423) | 270.483 (p.429) | 270.484 (p.433) | 50.095 (p.456) | 20 | 50.096 (p.456) | 30 | 50.097 (p.456) | 40 | 50.098 (p.456) | 50 |
| 102.040.289.* | -- | -- | 270.498 (p.414) | -- | 270.486 (p.420) | 270.485 (p.423) | 270.487 (p.429) | 270.488 (p.434) | 50.170 (p.456) | 20 | 50.171 (p.456) | 30 | 50.172 (p.456) | 40 | 50.173 (p.456) | 50 |
| 102.050.290.* | -- | -- | 270.499 (p.414) | -- | 270.490 (p.420) | 270.489 (p.423) | 270.491 (p.429) | 270.492 (p.434) | 50.174 (p.456) | 20 | 50.175 (p.456) | 30 | 50.176 (p.456) | 40 | 50.177 (p.456) | 50 |
| 102.060.291.* | -- | -- | -- | 270.512 (p.416) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Continued on the next page →

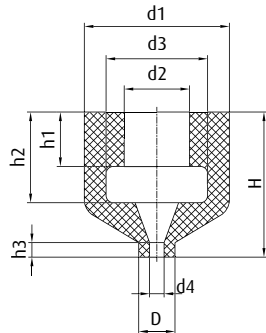
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



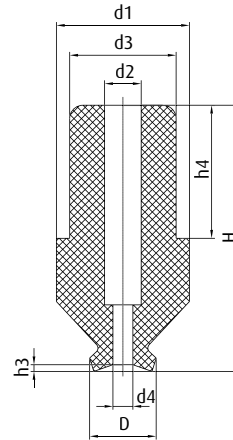
Series | Flat vacuum cups SF

Universal flat vacuum cups - SFU-B

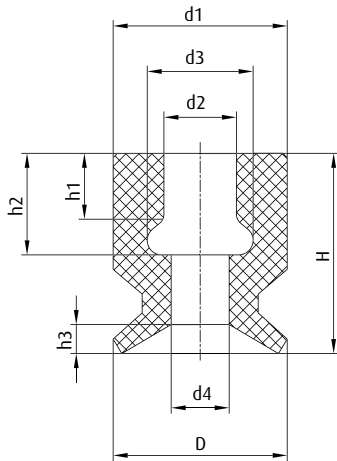
Dimensions



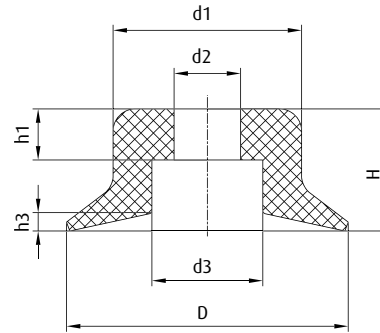
Drawing A



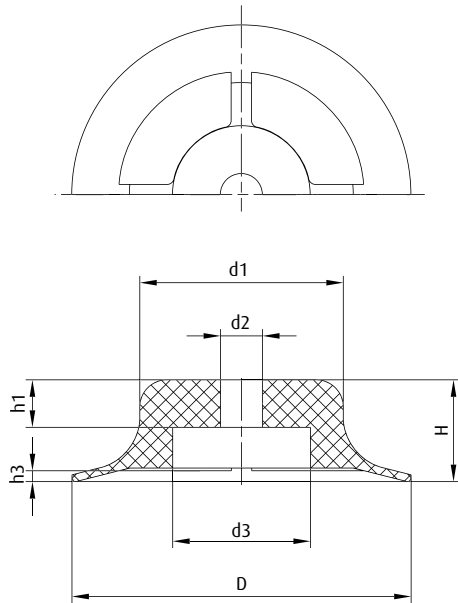
Drawing B



Drawing C



Drawing D



Drawing E

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | h4 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|---------|
| 102.001.425_* | A | 0.7 | 4 | 1.8 | 2.9 | 0.2 | 4 | 1.5 | 2.4 | 0.4 | -- |
| 102.001.463_* | A | 1 | 4 | 1.8 | 2.8 | 0.4 | 4 | 1.5 | 2.5 | 0.4 | -- |
| 102.002.464_* | A | 1.5 | 4 | 1.8 | 2.8 | 0.7 | 4 | 1.5 | 2.5 | 0.4 | -- |
| 102.002.279_* | B | 2 | 4 | 1.1 | 3.2 | 0.6 | 8 | -- | -- | 0.2 | 4 |
| 102.003.280_* | B | 3 | 4 | 1.2 | 3.3 | 0.8 | 8 | -- | -- | 0.3 | 4 |
| 102.004.281_* | B | 4 | 4 | 1.2 | 3.3 | 1.2 | 8 | -- | -- | 0.5 | 4 |
| 102.006.282_* | C | 6 | 6 | 2.5 | 3.6 | 2 | 7 | 2.3 | 3.5 | 1 | -- |
| 102.008.283_* | D | 8 | 6 | 2.6 | 3.6 | -- | 5.5 | 2.6 | -- | 1 | -- |
| 102.010.284_* | D | 10 | 10 | 4 | 6 | -- | 8 | 3 | -- | 1 | -- |
| 102.015.285_* | D | 15 | 11 | 3.9 | 6 | -- | 9 | 3.1 | -- | 2.4 | -- |
| 102.020.286_* | D | 20 | 15 | 6 | 10 | -- | 10 | 4.1 | -- | 1.7 | -- |
| 102.025.287_* | D | 25 | 17 | 6 | 10 | -- | 11 | 4.6 | -- | 1.7 | -- |
| 102.030.288_* | E | 30 | 17 | 6 | 12 | -- | 11 | 5 | -- | 1.9 | -- |
| 102.040.289_* | E | 40 | 25 | 6 | 15 | -- | 14 | 7 | -- | 1.6 | -- |
| 102.050.290_* | E | 50 | 30 | 6 | 20 | -- | 15 | 7 | -- | 1.6 | -- |
| 102.060.291_* | E | 60 | 40 | 10.5 | 28 | -- | 22 | 11 | -- | 2.3 | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups, modular - SP-F

Flat vacuum cups, modular - SP-F



Product Description

Universal flat vacuum cup in even, supported or deep design.
Design: Replacement sealing lip for attachment to fitting.





Advantage

- > High suction force
- > Fast cycle times possible
- > Very resistant to wear (Tepuflex®)
- > Compatible with established products from other vendors

Ordering notes:

Explanation of the ending of the accessory fitting:
> S: with screen

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour | Accessories |
|---|------------------------|--|----------------------------------|----------------|
| | | | | Retaining ring |
|  | | | | |
| Smooth design | | | | |
| 102.005.090._* | SP-F-5 | 0.5 | SI (tr), CR (sw) | -- |
| 102.007.091._* | SP-F-7 | 1 | SI (tr), CR (sw) | -- |
| 102.009.092._* | SP-F-9 | 1.5 | SI (tr), CR (sw) | -- |
| 102.011.093._* | SP-F-10 | 1 | SI (tr), CR (sw) | -- |
| 102.016.098._* | SP-F-15 | 2 | SI (tr), CR (sw) | -- |
| 102.020.095._* | SP-F-20 | 2.5 | SI (tr), CR (sw) | 78.011 (p.475) |
| 102.030.096._* | SP-F-30 | 3.5 | SI (tr), CR (sw) | 78.011 (p.475) |
| 102.040.094._* | SP-F-40 | 4 | SI (tr), CR (sw) | 78.012 (p.475) |
| 102.050.097._* | SP-F-50 | 6.5 | SI (tr), CR (sw) | 78.013 (p.475) |
|  | | | | |
| With cleats | | | | |
| 104.016.003._* | SP-FA-16 | 0.5 | SI (tr), CR (sw) | -- |
| 125.020.004._* | SP-FA-20 | 1 | Tepuflex® (or), SI (tr), CR (sw) | 78.011 (p.475) |
| 125.025.007._* | SP-FA-25 | 1 | Tepuflex® (or), SI (tr), CR (sw) | 78.011 (p.475) |
| 125.030.010._* | SP-FA-30 | 2 | Tepuflex® (or), SI (tr), CR (sw) | 78.011 (p.475) |
| 125.040.013._* | SP-FA-40 | 2 | Tepuflex® (or), SI (tr), CR (sw) | 78.012 (p.475) |
| 125.050.017._* | SP-FA-50 | 2.5 | Tepuflex® (or), SI (tr), CR (sw) | 78.013 (p.475) |
| 154.078.027._* | SP-FA-75 | 3 | Tepuflex® (or), SI (tr), CR (sw) | -- |
| 154.113.028._* | SP-FA-110 | 5 | Tepuflex® (or), SI (tr), CR (sw) | -- |
| 154.155.026._* | SP-FA-150 | 5 | Tepuflex® (or), SI (tr), CR (sw) | -- |
|  | | | | |
| Deep design | | | | |
| 122.016.012._* | SP-FD-16 | 1.5 | SI (tr), CR (sw) | -- |
| 122.022.022._* | SP-FD-20 | 2.5 | SI (tr), CR (sw) | 78.011 (p.475) |
| 122.032.036._* | SP-FD-30 | 5 | SI (tr), CR (sw) | 78.011 (p.475) |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Accessories

| Item no. | Suitable fittings | | | | | | | | | |
|----------------------|-------------------|-------------------|-----------------|----------------------------|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G3/8-male | G3/8-female | G1/2-female | G3/4-female |
| Smooth design | | | | | | | | | | |
| 102.005.090.* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.007.091.* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.009.092.* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 102.011.093.* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 102.016.098.* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 102.020.095.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 102.030.096.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 102.040.094.* | -- | -- | -- | -- | 270.251, 270.501-S (p.423) | 270.506-S (p.428) | 270.505-S (p.434) | -- | -- | -- |
| 102.050.097.* | -- | -- | -- | -- | 270.252, 270.502-S (p.424) | 270.504-S (p.429) | 270.507-S (p.435) | -- | -- | -- |
| With cleats | | | | | | | | | | |
| 104.016.003.* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 125.020.004.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 125.025.007.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 125.030.010.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 125.040.013.* | -- | -- | -- | -- | 270.251, 270.501-S (p.423) | 270.506-S (p.428) | 270.505-S (p.434) | -- | -- | -- |
| 125.050.017.* | -- | -- | -- | -- | 270.252, 270.502-S (p.424) | 270.504-S (p.429) | 270.507-S (p.435) | -- | -- | -- |
| 154.078.027.* | -- | -- | -- | -- | 270.527-S (p.424) | -- | -- | 270.528-S (p.436) | 270.529-S (p.436) | -- |
| 154.113.028.* | -- | -- | -- | -- | -- | -- | -- | 270.530-S (p.437) | 270.531-S (p.437) | -- |
| 154.155.026.* | -- | -- | -- | -- | -- | -- | -- | -- | 270.532-S (p.437) | 270.533-S (p.437) |
| Deep design | | | | | | | | | | |
| 122.016.012.* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 122.022.022.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 122.032.036.* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |

Continued on the next page

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups, modular - SP-F

Flat vacuum cups, modular

Example:



+



=



Assembly example



+



=

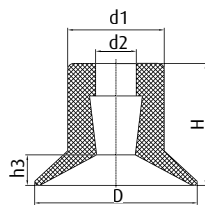


Assembly example

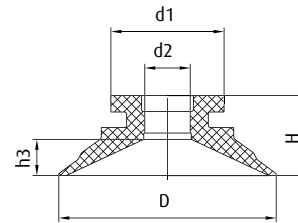
- * Fittings are optionally available with and without filter screen
- ** Fittings come fitted with filter screen as standard

- > The modular series allows you to assemble your own vacuum cups
- > Worn sealing lips can be replaced quickly, cost-effective and easily
- > High flexibility thanks to a large selection of fitting threads

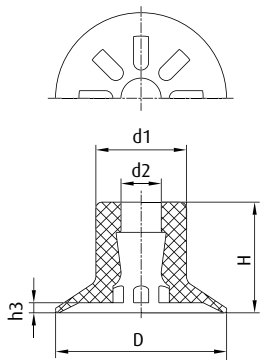
Dimensions



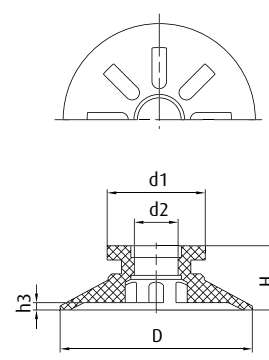
Drawing A



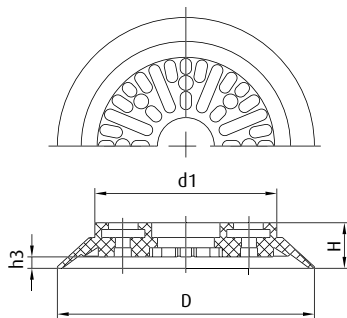
Drawing B



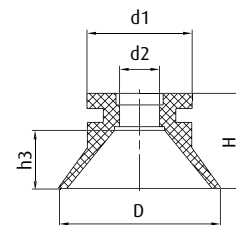
Drawing C



Drawing D



Drawing E



Drawing F

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | ∅ D [mm] | ∅ d1 [mm] | ∅ d2 [mm] | H [mm] | h3 [mm] |
|----------------------|---------|----------|-----------|-----------|--------|---------|
| Smooth design | | | | | | |
| 102.005.090.* | A | 5 | 4.5 | 2 | 6 | 0.5 |
| 102.007.091.* | A | 7 | 5 | 2 | 7 | 0.9 |
| 102.009.092.* | A | 9.5 | 5 | 2 | 7 | 1.1 |
| 102.011.093.* | A | 11 | 9 | 3.8 | 10.5 | 0.8 |
| 102.016.098.* | A | 16 | 9.5 | 4 | 12 | 3 |
| 102.020.095.* | B | 22 | 14.5 | 5.5 | 8 | 3 |
| 102.030.096.* | B | 32 | 14.5 | 6.5 | 10.5 | 4.7 |
| 102.040.094.* | B | 42 | 20 | 7 | 13.5 | 6 |
| 102.050.097.* | B | 52 | 27 | 11 | 19 | 8.5 |
| With cleats | | | | | | |
| 104.016.003.* | C | 17 | 9 | 4 | 11 | 1 |
| 125.020.004.* | D | 22 | 14.5 | 5.5 | 8 | 0.9 |
| 125.025.007.* | D | 28 | 14 | 5.5 | 9 | 1 |
| 125.030.010.* | D | 32 | 14.5 | 6.5 | 10.5 | 1.2 |
| 125.040.013.* | D | 42 | 20 | 7 | 13.5 | 2.1 |
| 125.050.017.* | D | 53 | 27 | 12 | 17.5 | 2 |
| 154.078.027.* | E | 78 | 55 | -- | 13 | 3 |
| 154.113.028.* | E | 113 | 80 | -- | 20 | 5 |
| 154.155.026.* | E | 155 | 109 | -- | 24 | 5 |
| Deep design | | | | | | |
| 122.016.012.* | F | 17.5 | 9 | 4 | 17 | 8 |
| 122.022.022.* | F | 22 | 14.5 | 5.5 | 13 | 8 |
| 122.032.036.* | F | 32 | 14.5 | 5.5 | 19.5 | 14.4 |






* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Flat vacuum cups with fully assembled fitting - SP-F



| Product Description | Advantage |
|---|--|
| Universal flat vacuum cups in even or supported design. Series with sensing valve prevents dropping of the product if individual vacuum cups in a system are not in contact with the product. Version: Complete with vacuum cup fitting and filter screen. | <ul style="list-style-type: none"> > High suction force > Fast cycle times possible > Very resistant to wear (Tepuflex®) > Compatible with established products from other vendors |

| Technical data | | | | | | Accessories |
|---|------------------------|----------------------|---|----------------------------------|------------------------|-------------|
| Item no. | Model / Lip dimensions | Connection thread |  | Material / Colour | Spare cup | |
|  | | | | | | |
| Smooth design with fitting & filter screen | | | | | | |
| 120.020.006._* | SP-F-20 | G1/8-male, M5-female | 2.5 | SI (tr), CR (sw) | 102.020.095._* (p.205) | |
| 120.030.013._* | SP-F-30 | G1/8-male, M5-female | 3.5 | SI (tr), CR (sw) | 102.030.096._* (p.223) | |
| 120.040.076._* | SP-F-40 | G1/8-female | 4 | SI (tr), CR (sw) | 102.040.094._* (p.234) | |
| 120.050.078._* | SP-F-50 | G1/8-female | 6.5 | SI (tr), CR (sw) | 102.050.097._* (p.242) | |
|  | | | | | | |
| Smooth design with fitting, filter screen & touch valve | | | | | | |
| 121.030.006._* | SP-F-30 | G1/8-male, M5-female | 2.5 | SI (tr), CR (sw) | 102.030.096._* (p.223) | |
| 121.040.007._* | SP-F-40 | G1/8-female | 4 | SI (tr), CR (sw) | 102.040.094._* (p.234) | |
| 121.050.008._* | SP-F-50 | G1/8-female | 2.5 | SI (tr), CR (sw) | 102.050.097._* (p.242) | |
|  | | | | | | |
| With cleats, fitting & filter screen | | | | | | |
| 123.020.003._* | SP-FA-20 | G1/8-male, M5-female | 1 | Tepuflex® (or), SI (tr), CR (sw) | 125.020.004._* (p.205) | |
| 123.025.010._* | SP-FA-25 | G1/8-male, M5-female | 1 | Tepuflex® (or), SI (tr), CR (sw) | 125.025.007._* (p.216) | |
| 123.030.019._* | SP-FA-30 | G1/8-male, M5-female | 2 | Tepuflex® (or), SI (tr), CR (sw) | 125.030.010._* (p.223) | |
| 123.040.028._* | SP-FA-40 | G1/8-female | 2 | Tepuflex® (or), SI (tr), CR (sw) | 125.040.013._* (p.235) | |
| 123.050.034._* | SP-FA-50 | G1/8-female | 2.5 | Tepuflex® (or), SI (tr), CR (sw) | 125.050.017._* (p.242) | |
| 152.078.133._* | SP-FA-75 | G1/8-female | 3 | Tepuflex® (or), SI (tr), CR (sw) | 154.078.027._* (p.252) | |
| 152.078.136._* | SP-FA-75 | G3/8-female | 3 | Tepuflex® (or), SI (tr), CR (sw) | 154.078.027._* (p.252) | |
| 152.078.139._* | SP-FA-75 | G1/2-female | 3 | Tepuflex® (or), SI (tr), CR (sw) | 154.078.027._* (p.252) | |
| 152.113.134._* | SP-FA-110 | G3/8-female | 5 | Tepuflex® (or), SI (tr), CR (sw) | 154.113.028._* (p.262) | |
| 152.113.137._* | SP-FA-110 | G1/2-female | 5 | Tepuflex® (or), SI (tr), CR (sw) | 154.113.028._* (p.262) | |
| 152.155.135._* | SP-FA-150 | G1/2-female | 5 | Tepuflex® (or), SI (tr), CR (sw) | 154.155.026._* (p.269) | |
| 152.155.138._* | SP-FA-150 | G3/4-female | 5 | Tepuflex® (or), SI (tr), CR (sw) | 154.155.026._* (p.269) | |
|  | | | | | | |
| With cleats, fitting, filter screen & touch valve | | | | | | |
| 124.030.002._* | SP-FA-30 | G1/8-male, M5-female | 2 | SI (tr), CR (sw) | 125.030.010._* (p.223) | |
| 124.040.006._* | SP-FA-40 | G1/8-female | 2 | SI (tr), CR (sw) | 125.040.013._* (p.235) | |
| 124.050.009._* | SP-FA-50 | G1/8-female | 2.5 | SI (tr), CR (sw) | 125.050.017._* (p.242) | |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for vacuum cups you will find on page 760

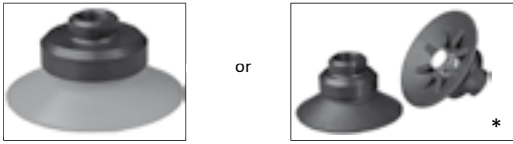


Series | Flat vacuum cups SF

Flat vacuum cups with fully assembled fitting - SP-F

Flat vacuum cups with fully mounted fitting

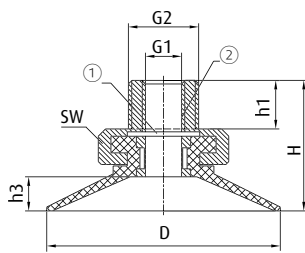
Example:



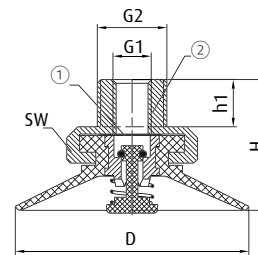
* Version with touch valve available only for flat vacuum cups in smooth design and flat vacuum cups with cleats

- > High process reliability thanks to permanently installed fitting
- > Worn sealing lips can be replaced if necessary

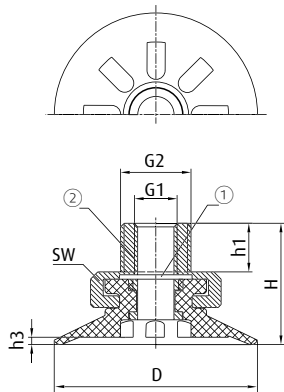
Dimensions



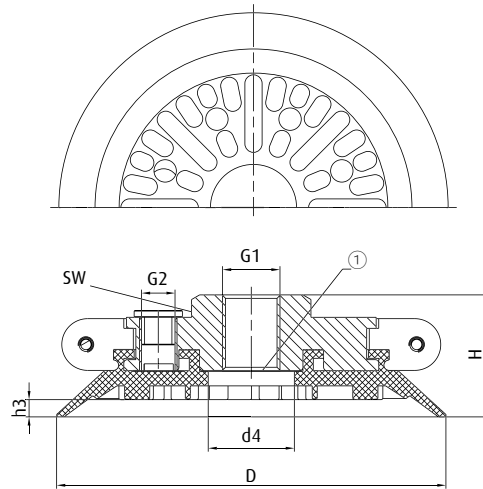
Drawing A



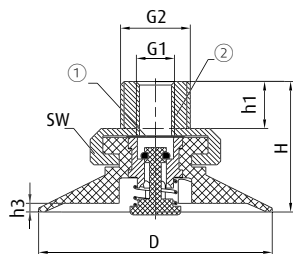
Drawing B



Drawing C



Drawing D



Drawing E

① = Filter screen ② = Aluminium

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | ∅ D [mm] | ∅ d4 [mm] | G1 | G2 | H [mm] | h1 [mm] | h3 [mm] | SW |
|--|---------|----------|-----------|------|------|--------|---------|---------|----|
| Smooth design with fitting & filter screen | | | | | | | | | |
| 120.020.006.* | A | 22 | -- | M5 | G1/8 | 15.5 | 6.5 | 3 | 17 |
| 120.030.013.* | A | 32 | -- | M5 | G1/8 | 18 | 6.5 | 4.5 | 17 |
| 120.040.076.* | A | 42 | -- | G1/8 | -- | 22 | -- | 6 | 12 |
| 120.050.078.* | A | 52 | -- | G1/8 | -- | 27 | -- | 8.5 | 12 |
| Smooth design with fitting, filter screen & touch valve | | | | | | | | | |
| 121.030.006.* | B | 32 | -- | M5 | G1/8 | 18 | 6.5 | -- | 17 |
| 121.040.007.* | B | 42 | -- | G1/8 | -- | 22 | -- | -- | 12 |
| 121.050.008.* | B | 52 | -- | G1/8 | -- | 27 | -- | -- | 12 |
| With cleats, fitting & filter screen | | | | | | | | | |
| 123.020.003.* | C | 22 | -- | M5 | G1/8 | 15.5 | 6.5 | 0.9 | 17 |
| 123.025.010.* | C | 28 | -- | M5 | G1/8 | 16.5 | 6.5 | 1 | 17 |
| 123.030.019.* | C | 32 | -- | M5 | G1/8 | 18 | 6.5 | 1.2 | 17 |
| 123.040.028.* | C | 42 | -- | G1/8 | -- | 22 | -- | 2.1 | 12 |
| 123.050.034.* | C | 53 | -- | G1/8 | -- | 26 | -- | 2 | 12 |
| 152.078.133.* | D | 78 | 10 | G1/8 | -- | 26 | -- | 3 | 28 |
| 152.078.136.* | D | 78 | 10 | G3/8 | -- | 26 | -- | 3 | 28 |
| 152.078.139.* | D | 78 | 10 | G1/2 | -- | 26 | -- | 3 | 28 |
| 152.113.134.* | D | 113 | 25 | G3/8 | G1/8 | 35 | -- | 5 | 30 |
| 152.113.137.* | D | 113 | 25 | G1/2 | G1/8 | 35 | -- | 5 | 30 |
| 152.155.135.* | D | 155 | 25 | G1/2 | G1/8 | 38 | -- | 5 | 38 |
| 152.155.138.* | D | 155 | 25 | G3/4 | G1/8 | 38 | -- | 5 | 38 |
| With cleats, fitting, filter screen & touch valve | | | | | | | | | |
| 124.030.002.* | E | 32 | -- | M5 | G1/8 | 18 | -- | 1.2 | 17 |
| 124.040.006.* | E | 42 | -- | G1/8 | -- | 22 | -- | 2.1 | 12 |
| 124.050.009.* | E | 53 | -- | G1/8 | -- | 26 | -- | 2 | 12 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups with a flexible lip - SFU-F

Flat vacuum cups with a flexible lip - SFU-F




Product Description

Flat vacuum cups with a soft, very flexible single-lip seal for handling highly sensitive products.
Connection via plug-in nipple.
Compatible "snap-in" spring levelers available.


















Advantage

- > Gentle product handling
- > Very good fit to the product surface
- > Good seal over a slightly rough surface
- > Low volume of the cup enables fast cycle times
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour |
|---------------|------------------------|---|-------------------|
| 102.004.216.* | SFU-F-4 | 1 | NBR (sw), SI (tr) |
| 102.006.217.* | SFU-F-6 | 1 | NBR (sw), SI (tr) |
| 102.008.218.* | SFU-F-8 | 1 | NBR (sw), SI (tr) |
| 102.010.219.* | SFU-F-10 | 1 | NBR (sw), SI (tr) |
| 102.015.220.* | SFU-F-15 | 2 | NBR (sw), SI (tr) |
| 102.020.221.* | SFU-F-20 | 2 | NBR (sw), SI (tr) |
| 102.030.222.* | SFU-F-30 | 2 | NBR (sw), SI (tr) |
| 102.040.223.* | SFU-F-40 | 2 | NBR (sw), SI (tr) |

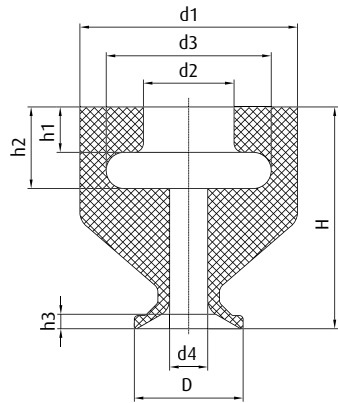
Accessories

| Item no. |  Suitable fittings | | | | |  Suitable spring levelers (Snap-In) | | | | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|--|---|----------------|----------------|---|---|-----|---|
| | M5-male | M6-male | G1/8-male | G1/8-female | G1/4-male | Spring leveler |  | Hose outside Ø | Spring leveler |  | Hose outside Ø | | |
| 102.004.216.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) |  | 8.5 | 4 | 50.019 (p.454) |  | 8.5 | 6 |
| 102.006.217.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) |  | 8.5 | 4 | 50.019 (p.454) |  | 8.5 | 6 |
| 102.008.218.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) |  | 8.5 | 4 | 50.019 (p.454) |  | 8.5 | 6 |
| 102.010.219.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) |  | 8.5 | 4 | 50.019 (p.454) |  | 8.5 | 6 |
| 102.015.220.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) |  | 8.5 | 4 | 50.019 (p.454) |  | 8.5 | 6 |
| 102.020.221.* | 270.317 (p.410) | 270.103 (p.413) | 270.205 (p.416) | 270.109 (p.421) | 270.194 (p.425) | -- | -- | -- | -- | 50.020 (p.454) |  | 8.5 | 6 |
| 102.030.222.* | 270.317 (p.410) | 270.103 (p.413) | 270.205 (p.416) | 270.109 (p.421) | 270.194 (p.425) | -- | -- | -- | -- | 50.020 (p.454) |  | 8.5 | 6 |
| 102.040.223.* | 270.317 (p.410) | 270.103 (p.413) | 270.205 (p.416) | 270.109 (p.421) | 270.194 (p.425) | -- | -- | -- | -- | 50.020 (p.454) |  | 8.5 | 6 |

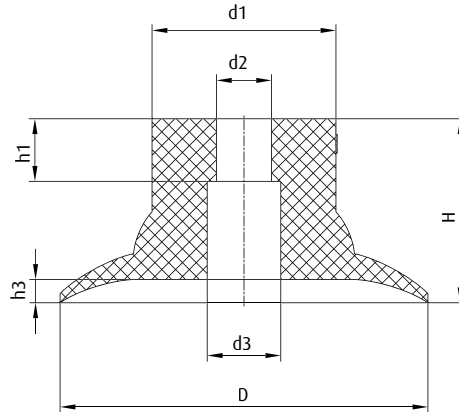
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| 102.004.216.* | A | 3.8 | 12 | 5 | 9 | 1.1 | 12 | 2.5 | 4.5 | 0.7 |
| 102.006.217.* | A | 6 | 12 | 5 | 9 | 2.1 | 12.5 | 2.5 | 4.5 | 0.8 |
| 102.008.218.* | A | 8 | 12 | 5 | 9 | 2 | 12.5 | 2.5 | 4.5 | 1.7 |
| 102.010.219.* | A | 10.5 | 12 | 5 | 9 | 3 | 14.5 | 2.5 | 4.5 | 4.2 |
| 102.015.220.* | A | 16 | 12 | 5 | 9.5 | 3.3 | 14 | 2.4 | 4.7 | 2.3 |
| 102.020.221.* | B | 20 | 12 | 4.5 | 6 | -- | 15 | 4.7 | -- | 2.1 |
| 102.030.222.* | B | 30 | 15 | 4.5 | 6 | -- | 15 | 5 | -- | 1.9 |
| 102.040.223.* | B | 40 | 19.5 | 4.7 | 6.5 | -- | 15 | 5 | -- | 2 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups with curved lip - SFU-D

Flat vacuum cups with curved lip - SFU-D




Product Description

Universal flat vacuum cups with tapering curved sealing lip. Connection via plug-in nipple.

Advantage

- > Pre-tension of the sealing lip enables gripping of uneven, slightly curved products
- > Large lift

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour |
|---------------|------------------------|---|----------------------------|
| 112.004.001.* | SFU-D-4 | 0.5 | NBR (sw), SI (r) |
| 112.005.002.* | SFU-D-5 | 0.7 | NBR (sw), SI (r) |
| 112.006.003.* | SFU-D-6 | 1 | NBR (sw), SI (r) |
| 112.008.007.* | SFU-D-8 | 1.5 | NBR (sw), SI (w), NR (sw) |
| 112.010.011.* | SFU-D-10 | 2 | NBR (sw), SI (w) |
| 112.012.015.* | SFU-D-12 | 2 | NBR (sw), SI (w), NR (sw) |
| 112.015.022.* | SFU-D-15 | 2 | NBR (sw), SI (w), NR (sw) |
| 112.018.024.* | SFU-D-18 | 2.3 | NBR (sw), SI (w), NR (sw) |
| 112.020.031.* | SFU-D-20 | 2.3 | NBR (sw), SI (w), NR (sw) |
| 112.022.037.* | SFU-D-22 | 2.5 | NBR (sw), SI (w) |
| 112.025.042.* | SFU-D-25 | 4.5 | NBR (sw), SI (w), NR (sw) |
| 112.030.052.* | SFU-D-30 | 4.5 | NBR (sw), SI (w) |
| 112.035.060.* | SFU-D-35 | 5 | NBR (sw), SI (w), NR (sw) |
| 112.040.071.* | SFU-D-40 | 4 | NBR (sw), SI (tr) |
| 112.045.077.* | SFU-D-45 | 7 | NBR (sw), SI (w), NR (sw) |
| 112.060.091.* | SFU-D-60 | 9 | NBR (sw), SI (tr) |
| 112.085.102.* | SFU-D-85 | 12 | NBR (sw), SI (tr), NR (sw) |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Accessories

| Item no. | Suitable fittings | | | | | | | |
|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | M3-male | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 112.004.001.* | 270.025 (p.408) | -- | -- | -- | -- | -- | -- | -- |
| 112.005.002.* | 270.025 (p.408) | -- | -- | -- | -- | -- | -- | -- |
| 112.006.003.* | 270.025 (p.408) | -- | -- | -- | -- | -- | -- | -- |
| 112.008.007.* | -- | 270.536 (p.409) | -- | -- | -- | -- | -- | -- |
| 112.010.011.* | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.012.015.* | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.015.022.* | -- | 270.134 (p.409) | -- | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.018.024.* | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.020.031.* | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.022.037.* | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 112.025.042.* | -- | 270.443 (p.410) | -- | -- | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |
| 112.030.052.* | -- | 270.443 (p.410) | -- | -- | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |
| 112.035.060.* | -- | -- | -- | -- | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 112.040.071.* | -- | -- | -- | -- | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 112.045.077.* | -- | -- | -- | -- | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 112.060.091.* | -- | -- | -- | -- | -- | -- | 270.042 (p.431) | -- |
| 112.085.102.* | -- | -- | -- | -- | -- | -- | 270.216 (p.431) | -- |

Continued on the next page →

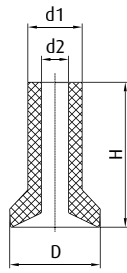
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



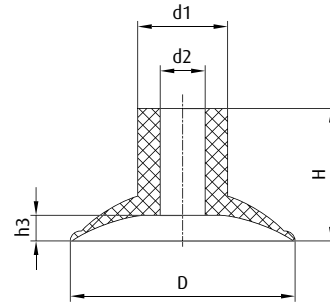
Series | Flat vacuum cups SF

Flat vacuum cups with curved lip - SFU-D

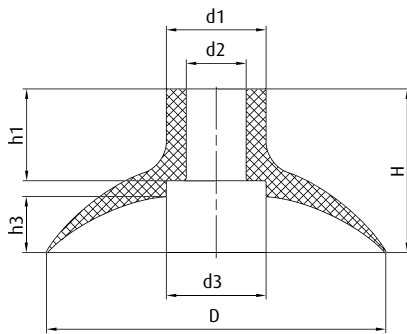
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | H [mm] | h1 [mm] | h3 [mm] |
|----------------|---------|----------|-----------|-----------|-----------|--------|---------|---------|
| 112.004.001._* | A | 4 | 3 | 1.5 | -- | 7.5 | -- | -- |
| 112.005.002._* | A | 5 | 3 | 1.5 | -- | 8 | -- | -- |
| 112.006.003._* | A | 6 | 3 | 1.5 | -- | 8 | -- | -- |
| 112.008.007._* | B | 8 | 5 | 2.8 | -- | 8 | -- | 1.6 |
| 112.010.011._* | B | 10 | 6.5 | 3.8 | -- | 10.5 | -- | 1.9 |
| 112.012.015._* | B | 12 | 8 | 4 | -- | 11 | -- | 1.7 |
| 112.015.022._* | B | 15 | 8 | 4 | -- | 12 | -- | 2.5 |
| 112.018.024._* | B | 18 | 8 | 3.9 | -- | 11.5 | -- | 2.3 |
| 112.020.031._* | B | 20 | 8 | 4 | -- | 12 | -- | 2.3 |
| 112.022.037._* | B | 22 | 8 | 4 | -- | 13 | -- | 2.5 |
| 112.025.042._* | B | 25 | 12 | 6 | -- | 16 | -- | 4.3 |
| 112.030.052._* | B | 30 | 12 | 6 | -- | 17 | -- | 4.4 |
| 112.035.060._* | B | 35 | 15 | 10 | -- | 16.5 | -- | 5.2 |
| 112.040.071._* | B | 40 | 15 | 10 | -- | 16 | -- | 4 |
| 112.045.077._* | B | 45 | 15.5 | 10 | -- | 17 | -- | 7.5 |
| 112.060.091._* | C | 60 | 15 | 10 | 25 | 23 | 10 | 9 |
| 112.085.102._* | C | 85 | 25 | 15 | 25 | 41 | 23 | 14 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Notes:

A large area for taking notes, featuring a vertical red line on the left side and horizontal grey lines for writing. The lines are evenly spaced and extend across the width of the page.



Series | Flat vacuum cups SF

Flat vacuum cups with long shaft - SFU-L

Flat vacuum cups with long shaft - SFU-L



Product Description

Flat vacuum cups for handling sensitive or uneven and slightly curved products. Long, slim design enables pipe mounting and low gimbal leveling for uneven product surfaces.

Advantage

- > Gentle handling of particularly sensitive products
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions | Lip height | Material / Colour |
|---------------|------------------------|------------|----------------------------|
| 122.006.002.* | SFU-L-6 | 1.5 | NBR (sw), SI (tr) |
| 122.010.005.* | SFU-L-10 | 1.5 | NBR (sw), SI (tr) |
| 122.016.009.* | SFU-L-16 | 5 | NBR (sw), SI (tr), NR (sw) |
| 122.025.025.* | SFU-L-25 | 5 | NBR (sw), SI (tr), NR (sw) |
| 122.040.043.* | SFU-L-40 | 4 | SI (tr), NR (sw) |
| 122.060.059.* | SFU-L-60 | 10 | NBR (sw), SI (tr), NR (sw) |

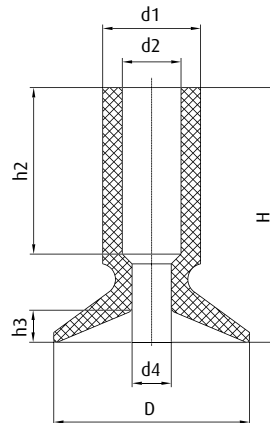
Accessories

| Item no. | Suitable fittings | | | | |
|---------------|-------------------|-----------------|-----------------|-------------------|-----------------|
| | M5-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 122.006.002.* | 270.001 (p.409) | -- | -- | -- | -- |
| 122.010.005.* | 270.022 (p.409) | -- | -- | -- | -- |
| 122.016.009.* | 270.013 (p.410) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 122.025.025.* | -- | 270.132 (p.417) | 270.114 (p.422) | 270.043 (p.425) | 270.178 (p.431) |
| 122.040.043.* | -- | -- | -- | 270.049-1 (p.426) | -- |
| 122.060.059.* | -- | -- | -- | 270.049-1 (p.426) | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



| Item no. | $\varnothing D$ [mm] | $\varnothing d1$ [mm] | $\varnothing d2$ [mm] | $\varnothing d4$ [mm] | H [mm] | h2 [mm] | h3 [mm] |
|---------------|----------------------|-----------------------|-----------------------|-----------------------|--------|---------|---------|
| 122.006.002.* | 6 | 4 | 2 | 1 | 12 | 8 | 1.3 |
| 122.010.005.* | 10 | 5 | 3 | 2 | 13 | 8.5 | 1.6 |
| 122.016.009.* | 16 | 8 | 4.8 | 3 | 20 | 13 | 3.8 |
| 122.025.025.* | 25 | 12 | 8 | 4 | 30 | 18 | 5.5 |
| 122.040.043.* | 43 | 20 | 11 | 4.4 | 41 | 22 | 10.2 |
| 122.060.059.* | 62 | 24 | 11 | 6 | 45 | 21 | 14.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups for chocolates - SL-PF

Flat vacuum cups for chocolates - SL-PF



Product Description

Flat vacuum cups made of FDA-approved material for handling delicate products with heavily textured surfaces.

Advantage

- > Gentle handling of the most sensitive surfaces
- > Also suitable for three-dimensional products, e.g. chocolates

Technical data

| Item no. | Model / Lip dimensions | Lip height | Material / Colour |
|---------------|------------------------|------------|-------------------|
| 107.016.008.* | SL-PF-16 | 2.4 | SI (tr) |
| 102.018.345.* | SL-PF-18 | -- | SI (tr) |
| 107.018.004.* | SL-PF-18A | -- | SI (tr) |
| 102.022.043.* | SL-PF-22 | 5 | SI (tr) |

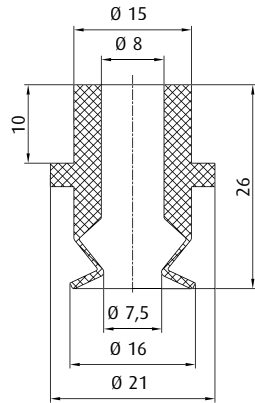
Accessories

| Item no. | Suitable fittings | | | | |
|---------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 107.016.008.* | -- | 270.132 (p.417) | 270.114 (p.422) | 270.043 (p.425) | 270.178 (p.431) |
| 102.018.345.* | 270.443 (p.410) | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |
| 107.018.004.* | 270.399 (p.410) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 102.022.043.* | -- | 270.112 (p.419) | 270.114 (p.422) | 270.113 (p.425) | 270.178 (p.431) |

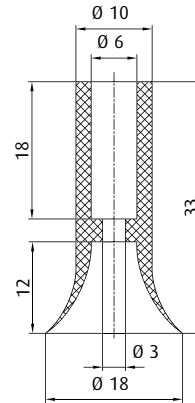
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



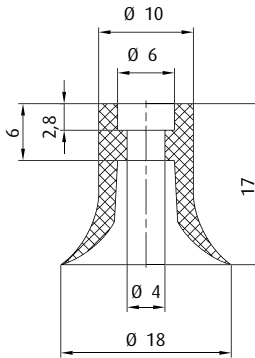
Dimensions



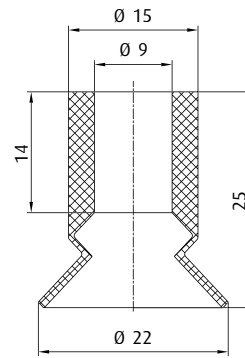
Drawing A



Drawing B



Drawing C



Drawing D

| Item no. | Drawing |
|---------------|---------|
| 107.016.008.* | A |
| 102.018.345.* | B |
| 107.018.004.* | C |
| 102.022.043.* | D |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Vacuum cups for handling tubes - SV-T

Vacuum cups for handling tubes - SV-T



Product Description

Special FDA-compliant seals for pipe mounting

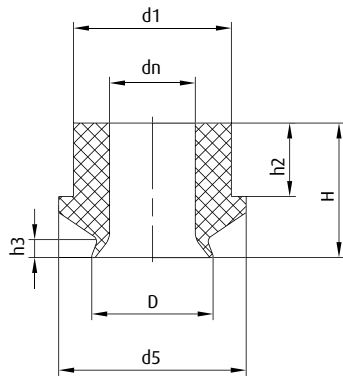
Technical data

| Item no. | Model / Lip dimensions | Material / Colour |
|--------------------------------------|------------------------|-------------------|
| With straight passage - SV-TG | | |
| 107.019.076._* | SV-TG-19 | SI (tr) |
| 107.019.112._* | SV-TG-20 | SI (tr) |
| 107.022.107._* | SV-TG-22 | SI (tr) |
| 107.025.109._* | SV-TG-25 | SI (tr) |
| 107.026.111._* | SV-TG-26 | SI (tr) |
| 107.028.108._* | SV-TG-28 | SI (tr) |
| 107.032.113._* | SV-TG-32 | SI (tr) |
| 107.037.114._* | SV-TG-37 | SI (tr) |
| 107.045.115._* | SV-TG-46 | SI (tr) |
| With conical passage - SV-TK | | |
| 107.011.103._* | SV-TK-11 | SI (tr) |
| 107.012.106._* | SV-TK-12 | SI (tr) |
| 107.013.101._* | SV-TK-13 | SI (tr) |
| 107.013.105._* | SV-TK-13A | SI (tr) |
| 107.015.102._* | SV-TK-15 | SI (tr) |
| 107.017.066._* | SV-TK-17 | SI (tr) |
| 107.018.104._* | SV-TK-18 | SI (tr) |

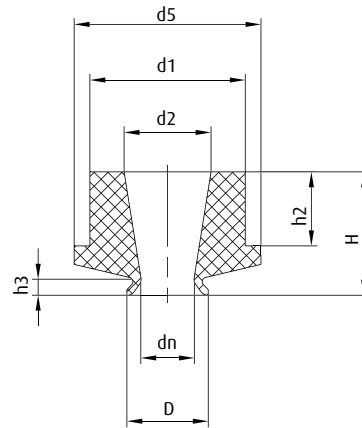
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d5 [mm] | Ø dn [mm] | H [mm] | h2 [mm] | h3 [mm] |
|--------------------------------------|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|
| With straight passage - SV-TG | | | | | | | | | |
| 107.019.076._* | A | 18.5 | 25 | -- | 30 | 14 | 21 | 12 | 2.2 |
| 107.019.112._* | A | 19.5 | 25 | -- | 30 | 14 | 22 | 12 | 2.9 |
| 107.022.107._* | A | 22 | 25 | -- | 30 | 17 | 21.5 | 12 | 2.5 |
| 107.025.109._* | A | 25 | 25 | -- | 31 | 17 | 22 | 12 | 2.6 |
| 107.026.111._* | A | 26 | 25 | -- | 30 | 17 | 23 | 12 | 5.5 |
| 107.028.108._* | A | 28 | 25 | -- | 30 | 19 | 24 | 12 | 5.5 |
| 107.032.113._* | A | 32 | 32 | -- | 40 | 25 | 25 | 13 | 2.3 |
| 107.037.114._* | A | 37 | 45 | -- | 53 | 29 | 31 | 17.5 | 2.7 |
| 107.045.115._* | A | 46 | 45 | -- | 54 | 37 | 32 | 17.5 | -- |
| With conical passage - SV-TK | | | | | | | | | |
| 107.011.103._* | B | 11 | 25 | 13.5 | 31 | 7.5 | 21 | 12 | 1.2 |
| 107.012.106._* | B | 12.5 | 25 | 14 | 30 | 10.5 | 21 | 12 | 1.9 |
| 107.013.101._* | B | 13 | 25 | 14 | 30 | 10.5 | 20 | 12 | 1.1 |
| 107.013.105._* | B | 13 | 25 | 14 | 30 | 8.5 | 20 | 12 | 2.6 |
| 107.015.102._* | B | 15 | 25 | 16 | 30 | 10.5 | 20 | 12 | 3 |
| 107.017.066._* | B | 17.5 | 25 | 17 | 31 | 12.5 | 20 | 12 | 2.7 |
| 107.018.104._* | B | 18 | 25 | 18 | 30 | 14 | 21 | 12 | 2.4 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Anti-slip flat vacuum cups - SM-P


Anti-slip flat vacuum cups - SM-P



Product Description

Flat vacuum cups of oil-resistant NBR for handling metal sheets. Distinct radially extending cleats increase the holding force and prevent “deep drawing” of the product as well as any slipping of oily sheets. The firmly bolted holder (from Ø 20 mm) provides a secure seating.

Technical data

| Item no. | Model / Lip dimensions | Connection thread |  | Material / Colour |
|-----------------------------------|------------------------|-------------------|---|-------------------|
| With female thread - SM-PI | | | | |
| 100.010.100.* | SM-PI-10 | G1/8-female | 0.5 | NBR (sw) |
| 100.020.101.* | SM-PI-20 | G1/8-female | 1.1 | NBR (sw) |
| 100.030.102.* | SM-PI-30 | G1/8-female | 1.8 | NBR (sw) |
| 100.040.103.* | SM-PI-40 | G1/8-female | 2.5 | NBR (sw) |
| 100.050.104.* | SM-PI-50 | G1/4-female | 3.1 | NBR (sw) |
| With male thread - SM-PI | | | | |
| 100.010.110.* | SM-PA-10 | G1/8-male | 0.5 | NBR (sw) |
| 100.020.111.* | SM-PA-20 | G1/8-male | 1.1 | NBR (sw) |
| 100.030.112.* | SM-PA-30 | G1/8-male | 1.8 | NBR (sw) |
| 100.040.113.* | SM-PA-40 | G1/8-male | 2.5 | NBR (sw) |
| 100.050.114.* | SM-PA-50 | G1/4-male | 3.1 | NBR (sw) |

Accessories

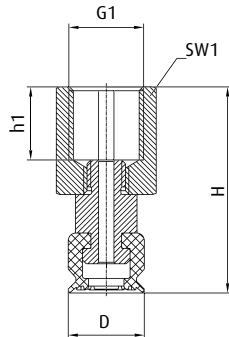
Spare cup

| |
|-----------------------|
| 104.010.065.1 (p.183) |
| 104.020.066.1 (p.201) |
| 104.030.067.1 (p.219) |
| 104.040.068.1 (p.231) |
| 104.050.069.1 (p.239) |
| 104.010.065.1 (p.183) |
| 104.020.066.1 (p.201) |
| 104.030.067.1 (p.219) |
| 104.040.068.1 (p.231) |
| 104.050.069.1 (p.239) |

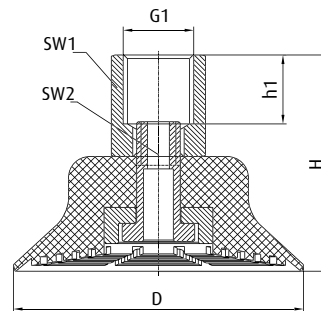
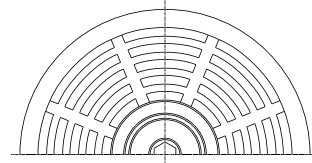
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



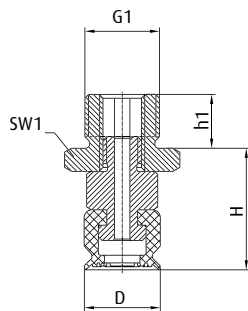
Dimensions



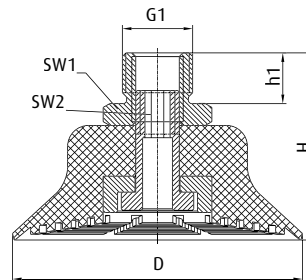
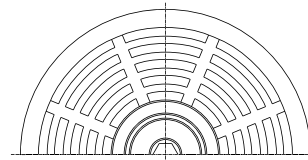
Drawing A



Drawing B



Drawing C



Drawing D

| Item no. | Drawing | Ø D [mm] | G1 | H [mm] | h1 [mm] | SW1 | SW2 |
|-----------------------------------|---------|----------|------|--------|---------|-----|-----|
| With female thread - SM-PI | | | | | | | |
| 100.010.100.* | A | 10 | G1/8 | 27 | 9.5 | 13 | -- |
| 100.020.101.* | B | 20 | G1/8 | 24 | 9.5 | 13 | 3 |
| 100.030.102.* | B | 30 | G1/8 | 26 | 9.5 | 13 | 3 |
| 100.040.103.* | B | 40 | G1/8 | 30 | 9.5 | 13 | 3 |
| 100.050.104.* | B | 50 | G1/4 | 35 | 11 | 17 | 3 |
| With male thread - SM-PI | | | | | | | |
| 100.010.110.* | C | 10 | G1/8 | 16 | 7 | 13 | -- |
| 100.020.111.* | D | 20 | G1/8 | 23 | 8 | 13 | 3 |
| 100.030.112.* | D | 30 | G1/8 | 25 | 8 | 13 | 3 |
| 100.040.113.* | D | 40 | G1/8 | 29 | 8 | 13 | 3 |
| 100.050.114.* | D | 50 | G1/4 | 32 | 10 | 17 | 3 |

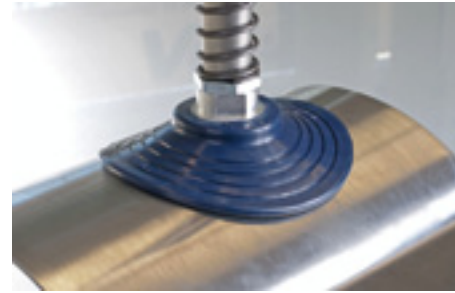
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups for dynamic sheet handling - SM-F

Flat vacuum cups for dynamic sheet handling - SM-F



Product Description

Robust, round NBR flat vacuum cups, 60° Shore A with vulcanised fitting made of aluminium and large area, multi-part "anti-slip" cleats. Various connection threads available. Silicone-free.

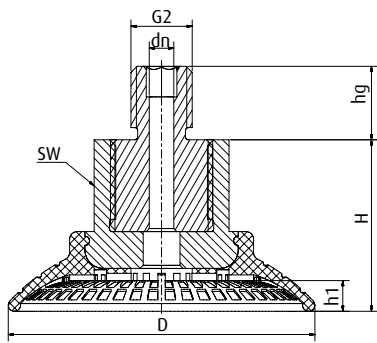
Advantage

- > Reliable, non-slip handling of oily sheets due to "anti-slip" cleats. Good absorption of lateral forces
- > Supports help to prevent deep-drawing or deformation of thin sheets
- > Leak-free suction even with slightly curved surfaces due to flexible sealing lip
- > Vulcanised connection thread ensures a secure fit

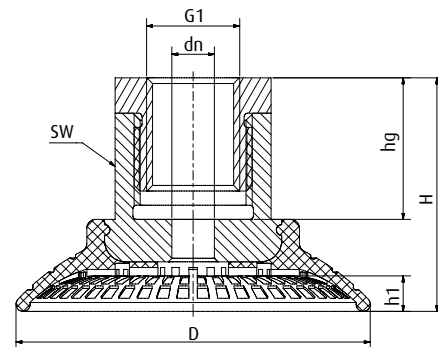
Technical data

| Model / Lip dimensions | Thread (Aluminium) | | | | | | |
|------------------------|--------------------|---------------|---------------|---------------|---------------|---------------------|------|
| | G1/4-male | G1/4-female | G3/8-female | M10-male | M14x1.5-male | Rectangular adapter | |
| SM-F-30 | 103.030.030.1 | 103.030.031.1 | 103.030.032.1 | 103.030.033.1 | 103.030.034.1 | 103.030.035.1 | 3 |
| SM-F-40 | 103.040.036.1 | 103.040.037.1 | 103.040.038.1 | 103.040.039.1 | 103.040.040.1 | 103.040.041.1 | 4 |
| SM-F-50 | 103.050.042.1 | 103.050.043.1 | 103.050.044.1 | 103.050.045.1 | 103.050.046.1 | 103.050.047.1 | 5 |
| SM-F-60 | 103.060.048.1 | 103.060.049.1 | 103.060.050.1 | 103.060.051.1 | 103.060.052.1 | 103.060.053.1 | 6 |
| SM-F-80 | 103.080.054.1 | 103.080.055.1 | 103.080.056.1 | 103.080.057.1 | 103.080.058.1 | 103.080.059.1 | 7.6 |
| SM-F-100 | 103.100.060.1 | 103.100.061.1 | 103.100.062.1 | 103.100.063.1 | 103.100.064.1 | 103.100.065.1 | 9.5 |
| SM-F-125 | 103.125.066.1 | 103.125.067.1 | 103.125.068.1 | 103.125.069.1 | 103.125.070.1 | 103.125.071.1 | 12.5 |

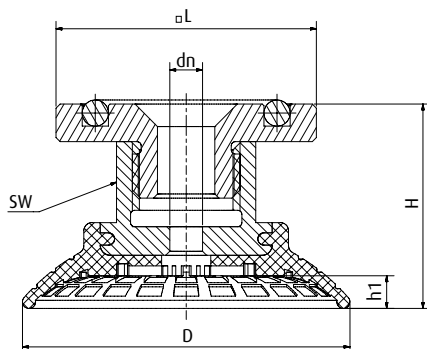
Dimensions



Drawing A



Drawing B



Drawing C



„Anti-Slip“-Cleats (SM-F-100)



| Item no. | Drawing | G1 (female) | G2 (male) | ∅ D [mm] | ∅ dn [mm] | □L [mm] | H [mm] | h1 [mm] | hg [mm] | SW |
|---------------|---------|-------------|-----------|----------|-----------|---------|--------|---------|---------|----|
| 103.030.030.* | A | -- | G1/4 | 30 | 4 | -- | 20 | 3 | 10 | 17 |
| 103.030.031.* | B | G1/4 | -- | 30 | 4 | -- | 20 | 3 | 12 | 17 |
| 103.030.032.* | B | G3/8 | -- | 30 | 4 | -- | 36 | 3 | 10 | 17 |
| 103.030.033.* | A | -- | M10 | 30 | 4 | -- | 20 | 3 | 12 | 17 |
| 103.030.034.* | A | -- | M14x1.5 | 30 | 4 | -- | 20 | 3 | 12 | 17 |
| 103.030.035.* | C | -- | -- | 30 | 4 | 32 | 23.2 | 3 | -- | 17 |
| 103.040.036.* | A | -- | G1/4 | 40 | 4 | -- | 22 | 4 | 10 | 17 |
| 103.040.037.* | B | G1/4 | -- | 40 | 4 | -- | 22 | 4 | 12 | 17 |
| 103.040.038.* | B | G3/8 | -- | 40 | 4 | -- | 38 | 4 | 10 | 17 |
| 103.040.039.* | A | -- | M10 | 40 | 4 | -- | 22 | 4 | 12 | 17 |
| 103.040.040.* | A | -- | M14x1.5 | 40 | 4 | -- | 22 | 4 | 12 | 17 |
| 103.040.041.* | C | -- | -- | 40 | 4 | 32 | 25 | 4 | -- | 17 |
| 103.050.042.* | A | -- | G1/4 | 50 | 6 | -- | 28 | 5 | 10 | 22 |
| 103.050.043.* | B | G1/4 | -- | 50 | 6 | -- | 33 | 5 | 20 | 22 |
| 103.050.044.* | B | G3/8 | -- | 50 | 6 | -- | 28 | 5 | 15 | 22 |
| 103.050.045.* | A | -- | M10 | 50 | 4 | -- | 28 | 5 | 12 | 22 |
| 103.050.046.* | A | -- | M14x1.5 | 50 | 6 | -- | 28 | 5 | 12 | 22 |
| 103.050.047.* | C | -- | -- | 50 | 6 | 32 | 27.5 | 5 | -- | 22 |
| 103.060.048.* | A | -- | G1/4 | 60 | 6 | -- | 31 | 6 | 10 | 22 |
| 103.060.049.* | B | G1/4 | -- | 60 | 8 | -- | 36 | 6 | 20 | 22 |
| 103.060.050.* | B | G3/8 | -- | 60 | 8 | -- | 31 | 6 | 15 | 22 |
| 103.060.051.* | A | -- | M10 | 60 | 4 | -- | 31 | 6 | 12 | 22 |
| 103.060.052.* | A | -- | M14x1.5 | 60 | 6 | -- | 31 | 6 | 12 | 22 |
| 103.060.053.* | C | -- | -- | 60 | 6 | 32 | 30.5 | 6 | -- | 22 |
| 103.080.054.* | A | -- | G1/4 | 80 | 6 | -- | 35 | 7.6 | 10 | 22 |
| 103.080.055.* | B | G1/4 | -- | 80 | 8 | -- | 40 | 7.6 | 20 | 22 |
| 103.080.056.* | B | G3/8 | -- | 80 | 8 | -- | 35 | 7.6 | 15 | 22 |
| 103.080.057.* | A | -- | M10 | 80 | 4 | -- | 35 | 7.6 | 12 | 22 |
| 103.080.058.* | A | -- | M14x1.5 | 80 | 6 | -- | 35 | 7.6 | 12 | 22 |
| 103.080.059.* | C | -- | -- | 80 | 8 | 32 | 34.5 | 7.6 | -- | 22 |
| 103.100.060.* | A | -- | G1/4 | 100 | 6 | -- | 36 | 9.5 | 10 | 22 |
| 103.100.061.* | B | G1/4 | -- | 100 | 8 | -- | 41 | 9.5 | 20 | 22 |
| 103.100.062.* | B | G3/8 | -- | 100 | 8 | -- | 36 | 9.5 | 15 | 22 |
| 103.100.063.* | A | -- | M10 | 100 | 4 | -- | 36 | 9.5 | 12 | 22 |
| 103.100.064.* | A | -- | M14x1.5 | 100 | 6 | -- | 36 | 9.5 | 12 | 22 |
| 103.100.065.* | C | -- | -- | 100 | 8 | 32 | 35.5 | 9.5 | -- | 22 |
| 103.125.066.* | A | -- | G1/4 | 125 | 6 | -- | 43 | 12.5 | 10 | 22 |
| 103.125.067.* | B | G1/4 | -- | 125 | 8 | -- | 48 | 12.5 | 20 | 22 |
| 103.125.068.* | B | G3/8 | -- | 125 | 8 | -- | 43 | 12.5 | 15 | 22 |
| 103.125.069.* | A | -- | M10 | 125 | 4 | -- | 43 | 12.5 | 12 | 22 |
| 103.125.070.* | A | -- | M14x1.5 | 125 | 6 | -- | 43 | 12.5 | 12 | 22 |
| 103.125.071.* | C | -- | -- | 125 | 8 | 32 | 42.5 | 12.5 | -- | 22 |



Series | Flat vacuum cups SF

Flat vacuum cups for textured surfaces - SFU-R

Flat vacuum cups for textured surfaces - SFU-R



Product Description

Flat vacuum cups with safety sealing lips to handle rough surfaces, as well as smooth but very uneven products. Connection via an interlocking, snap-in aluminium plate

Advantage

- > Leak-free gripping of many difficult product surfaces thanks to extremely flexible, thinly tapered sealing lip
- > High stability under lateral forces
- > Optimum process reliability due to additional double lip seal
- > Cleats help prevent warping of the product
- > Cost-effective, tool-free changing of worn seals

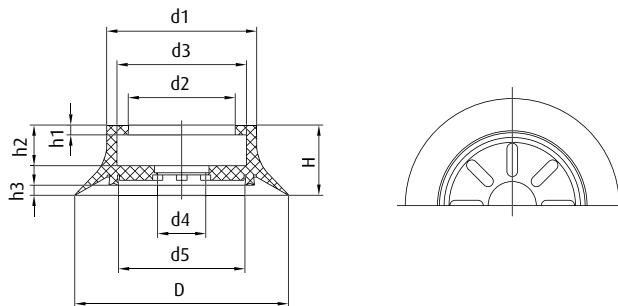
Technical data

| Item no. | Model / Lip dimensions | ↓ | Material / Colour |
|---------------|------------------------|---|---|
| 102.040.357.* | SFU-R-40 | 3 | SI (tr), NR (br) |
| 102.070.234.* | SFU-R-70 | 6 | NBR (gr), SBR (br), SI (tr), NR (bg), NR (br) |
| 102.100.269.* | SFU-R-100 | 5 | SBR (br), NBR (gr), NR (br) |
| 102.200.350.* | SFU-R-200 | 5 | NR (w) |

Accessories

| Item no. | Suitable fittings | | |
|---------------|-------------------|-----------------|-----------------|
| | G1/8-female | G1/4-female | G1/2-female |
| 102.040.357.* | 270.234 (p.438) | -- | -- |
| 102.070.234.* | -- | 270.179 (p.438) | -- |
| 102.100.269.* | -- | 270.180 (p.438) | -- |
| 102.200.350.* | -- | -- | 270.335 (p.438) |

Dimensions



| Item no. | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|---------------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| 102.040.357.* | 40 | 26 | 17.5 | 21 | 8 | 21 | 12.5 | 2.9 | 6 | 2.5 |
| 102.070.234.* | 70 | 50 | 33 | 43 | 14 | 40 | 30 | 3.5 | 17 | 5.4 |
| 102.100.269.* | 100 | 70 | 50 | 61 | 23 | 59 | 33 | 4.6 | 19 | 4.7 |
| 102.200.350.* | 200 | 168 | 148 | 158 | 25 | 158 | 31 | 5 | 18.5 | 3.2 |



Flat vacuum cups for separating porous products - SFU-RT



Product Description

Patented flat vacuum cups for stacking of partially air-permeable plate material that air is drawn through. Separates uppermost plate layer from underlying plate layers. Soft sealing lip made of abrasion-resistant NR. Secure handling even of rough surfaces thanks to additional internal safety sealing lip. High stability under lateral forces. Cost-effective replacement of the wear part, as it comes in two parts.

Ordering notes

Elastomer seal and carrier plate 270.380 must be ordered separately

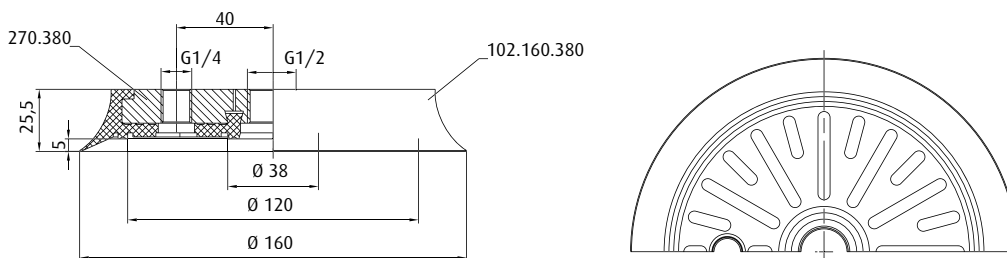
Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour | Suitable fittings |
|---------------|------------------------|---|-------------------|-------------------|
| 102.160.380.4 | SFU-RT-160 | 6 | NR (bg) | 270.380 |

Functional principle

Task: Access the top layer of porous materials without carrying along the lower layers. Simultaneous intake (outer chamber) and selective blowing in a separate central chamber breaks adhesive forces between the layers. The unwanted take-up of lower layers is prevented. The air pressure level should be between 1 and 3 bar and is dependent on the nature of the product.

Dimensions



Gripping force [N] at vacuum level [%]

| Item no. | 20 % Vacuum | 30 % Vacuum | 40 % Vacuum | 50 % Vacuum | 60 % Vacuum | 70 % Vacuum |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 102.160.380.4 | 83 | 137 | 186 | 230 | 280 | 324 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups with double safety sealing lips - SFU-S

Flat vacuum cups with double safety sealing lips - SFU-S




Product Description

Flat vacuum cups with dual internal safety sealing lip as well as vulcanised carrier plate made of aluminium.

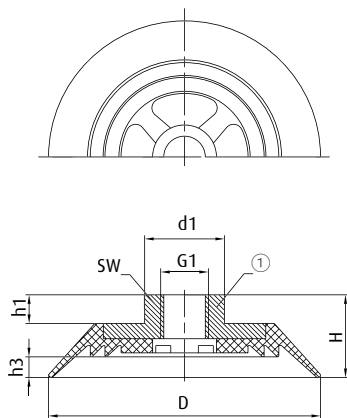
Advantage

- > High process reliability through multiple sealing lip
- > Excellent lateral stability due to vulcanised carrier plate, as well as rubberised support surfaces for the product

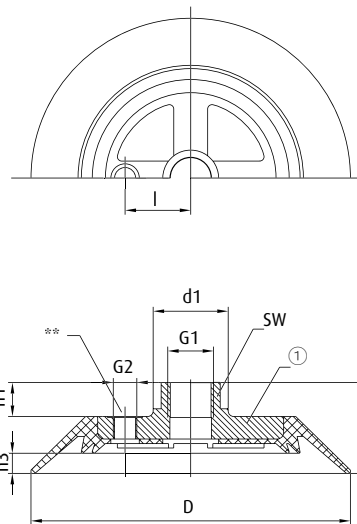
Technical data

| Item no. | Model / Lip dimensions | Connection thread |  | Material / Colour |
|----------------|------------------------|-------------------|---|---------------------------|
| 150.030.031._* | SFU-S-30 | M5-female | 3 | SI (r), CR (sw) |
| 150.050.032._* | SFU-S-50 | G1/8-female | 5.5 | SI (r), FKM (sw), CR (sw) |
| 150.075.033._* | SFU-S-75 | G1/4-female | 6 | SI (r), FKM (sw), CR (sw) |
| 150.100.034._* | SFU-S-100 | G3/8-female | 9 | NBR (sw), SI (tr), NR (w) |
| 150.150.010._* | SFU-S-150 | G1/2-female | 9 | SI (gr), CR (gr) |
| 150.225.018._* | SFU-S-225 | G3/4-female | 9.5 | SI (gr), CR (gr) |

Dimensions



Drawing A



Drawing B

① = Aluminium ** = Vacuum connection at the side possible

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Item no. | Drawing | ∅ D [mm] | l [mm] | ∅ d1 [mm] | G1 | G2 | H [mm] | h1 [mm] | h3 [mm] | SW |
|---------------|---------|----------|--------|-----------|-------|------|--------|---------|---------|----|
| 150.030.031.* | A | 29 | -- | 10 | M5 | -- | 17.5 | 7 | 3 | 8 |
| 150.050.032.* | A | 50 | -- | 18 | G1/8 | -- | 18.5 | 7 | 5.5 | 14 |
| 150.075.033.* | A | 75 | -- | 22 | G1/4 | -- | 23 | 8 | 5.5 | 17 |
| 150.100.034.* | A | 100 | -- | 30 | G 3/8 | -- | 30 | 10 | 9 | 24 |
| 150.150.010.* | B | 146 | 30 | 34 | G1/2 | G1/8 | 42 | 15.5 | 9 | 27 |
| 150.225.018.* | B | 223 | 50 | 49 | G3/4 | G1/8 | 52 | 20 | 9.5 | 40 |

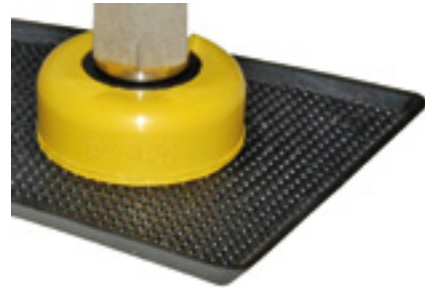
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Flat vacuum cups with a short lift - SFK

Flat vacuum cups with a short lift - SFK



Product Description

Flat vacuum cups with a minimum lift for flat surfaces. HNBR version especially suited for removing hot plastic parts from an injection moulding machine, as they are silicone-free and temperature-resistant up to 160 °C. SFK-G series particularly suitable for clamping elements. Connection via a form-locking, snap-in aluminium plate.

Advantage

- > Great suction power thanks to the largest active vacuum suction surface possible
- > Minimised wear, as the suction lip does not slide over the product during suction
- > Low space requirement
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions | Lip height | Material / Colour |
|---------------|------------------------|------------|---------------------------|
| | SFK-K | | |
| 102.020.458.* | SFK-K-20 | 0.5 | HNBR (ge), NR (br) |
| 102.030.459.* | SFK-K-30 | 0.8 | HNBR (ge), NR (br) |
| 102.045.460.* | SFK-K-45 | 1.2 | HNBR (ge), NR (br) |
| | SFK-G | | |
| 154.065.003.* | SFK-G-65 | 3 | NBR (sw), SI (w), NR (sw) |
| 154.110.014.* | SFK-G-110 | 1.5 | NBR (sw), SI (w) |
| 154.150.021.* | SFK-G-150 | 2 | NBR (sw), SI (w) |

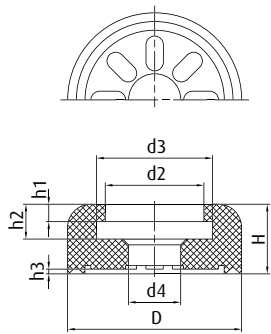
Accessories

| Item no. | Suitable fittings | | | | |
|---------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | G1/8-female | G1/4-female | G3/8-female | G1/2-female |
| SFK-K | | | | | |
| 102.020.458.* | 270.521 (p.412) | -- | -- | -- | -- |
| 102.030.459.* | -- | 270.234 (p.438) | -- | -- | -- |
| 102.045.460.* | -- | 270.235 (p.438) | -- | -- | -- |
| SFK-G | | | | | |
| 154.065.003.* | -- | 270.158 (p.438) | 270.264 (p.438) | 270.161 (p.438) | 270.286 (p.438) |
| 154.110.014.* | -- | -- | 270.224 (p.438) | 270.167 (p.438) | 270.266 (p.438) |
| 154.150.021.* | -- | -- | 270.171 (p.438) | 270.173 (p.438) | 270.268 (p.438) |

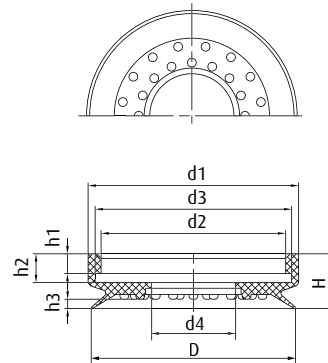
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



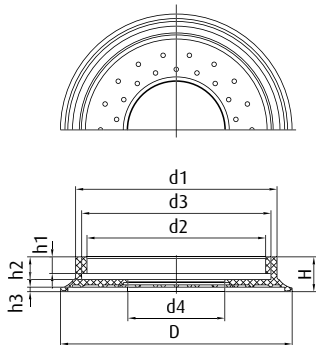
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|----------------|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| SFK-K | | | | | | | | | | |
| 102.020.458._* | A | 20 | 20 | 10 | 14 | 6.5 | 12 | 3 | 7 | 0.5 |
| 102.030.459._* | A | 30 | 30 | 17 | 20 | 9 | 12 | 3 | 6 | 0.8 |
| 102.045.460._* | A | 45 | 45 | 25 | 28 | 9 | 12 | 3.5 | 5.5 | 1.2 |
| SFK-G | | | | | | | | | | |
| 154.065.003._* | B | 65 | 67 | 59 | 63 | 27 | 17.5 | 6.3 | 9 | 3 |
| 154.110.014._* | C | 114 | 96 | 88 | 91 | 53 | 17 | 8 | 11 | 1.2 |
| 154.150.021._* | C | 153 | 133 | 118 | 125 | 64 | 23 | 11 | 15 | 3 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Flat vacuum cups SF

Vacuum suction plates with foam rubber sealing lip - SP-PLM

Vacuum suction plates with foam rubber sealing lip - SP-PLM



Product Description

Flat vacuum suction plate with a soft, foamed sealing lip made of EPDM. The sealing lip snaps (form-locking) into a support plate.

Advantage

- > Good sealing of heavily textured surfaces
- > Cost-effective replacement of worn seals

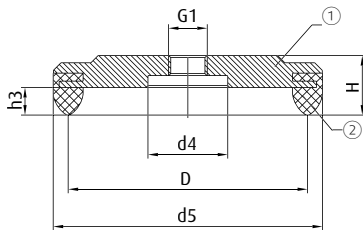
Technical data

| Item no. | Model / Lip dimensions | Connection thread | | Weight [g] | Material / Colour |
|----------------|------------------------|-------------------|-----|------------|-------------------|
| 160.042.001._* | SP-PLM-35 | G1/8-female | 1 | 22 | EPDM (sw) |
| 160.067.003._* | SP-PLM-60 | G1/8-female | 1 | 63 | EPDM (sw) |
| 160.107.006._* | SP-PLM-100 | G1/2-female | 1 | 234 | EPDM (sw) |
| 160.145.014._* | SP-PLM-140 | G1/2-female | 1 | 588 | EPDM (sw) |
| 160.215.009._* | SP-PLM-200 | G3/4-female | 2.5 | 1,220 | EPDM (sw) |
| 160.315.012._* | SP-PLM-300 | G3/4-female | 2.5 | 2,482 | EPDM (sw) |

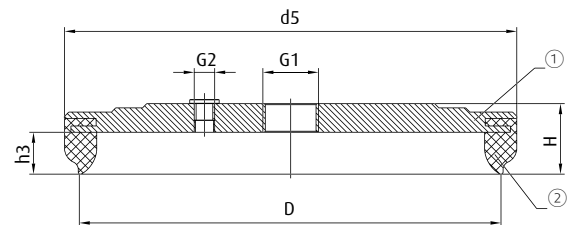
Accessories

| Spare cup | Touch valve |
|------------------------|-----------------|
| 102.038.451.15 (p.227) | 270.129 (p.670) |
| 102.060.452.15 (p.244) | 270.129 (p.670) |
| 102.100.453.15 (p.259) | 270.130 (p.670) |
| 102.140.454.15 (p.266) | 270.130 (p.670) |
| 102.210.455.15 (p.273) | -- |
| 102.310.456.15 (p.279) | -- |

Dimensions



Drawing A



Drawing B

① = Aluminium ② = EPDM foamed

| Item no. | Drawing | Ø D [mm] | Ø d4 [mm] | Ø d5 [mm] | G1 | G2 | H [mm] | h3 [mm] |
|----------------|---------|----------|-----------|-----------|------|------|--------|---------|
| 160.042.001._* | A | 35 | 20 | 43 | G1/8 | -- | 15 | 7 |
| 160.067.003._* | A | 60 | 20 | 68 | G1/8 | -- | 15 | 7 |
| 160.107.006._* | A | 100 | 30 | 108 | G1/2 | -- | 19 | 7 |
| 160.145.014._* | A | 138 | 30 | 145 | G1/2 | -- | 24 | 7 |
| 160.215.009._* | B | 201 | -- | 215 | G3/4 | G1/8 | 34 | 20 |
| 160.315.012._* | B | 300 | -- | 315 | G3/4 | G1/8 | 34 | 20 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Heavy-duty flat vacuum suction plates - SFPL-D




Product Description

Heavy-duty vacuum suction plate for both smooth and rough surfaces such as metal sheets, cut marble, granite, precast concrete, metal plates or rough-sawn wood. Central mounting connection - lateral vacuum port.

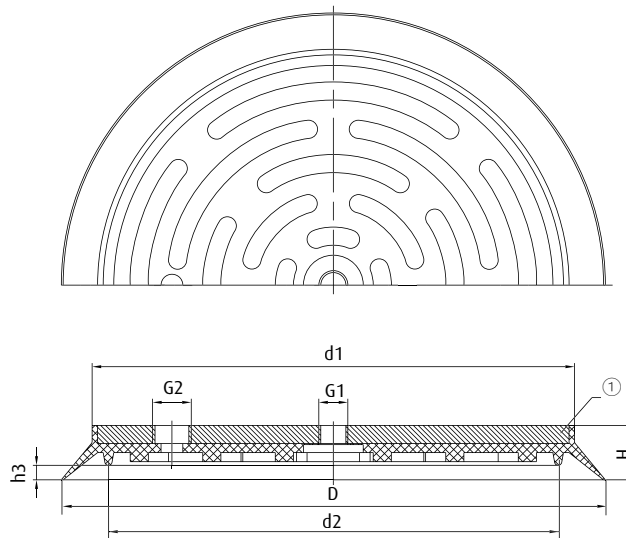
Advantage

- > Vulcanised steel carrier plate allows lifting of very heavy loads
- > Secure gripping of uneven surfaces thanks to additional inner sealing lip
- > Lateral vacuum connection

Technical data

| Item no. | Model / Lip dimensions | Connection thread |  | Weight [g] | Material / Colour |
|---------------|------------------------|-------------------|---|------------|-------------------|
| 152.160.127.* | SFPL-D-160 | M12-female | 9 | 970 | CR (sw) |
| 152.200.128.* | SFPL-D-200 | M12-female | 9 | 1,741 | CR (sw) |
| 152.250.129.* | SFPL-D-250 | M12-female | 9 | 2,990 | CR (sw) |
| 152.300.130.* | SFPL-D-300 | M16-female | 12 | 4,370 | NBR (sw) |
| 152.350.131.* | SFPL-D-350 | M16-female | 13 | 6,274 | NBR (sw) |

Dimensions



① = Steel

| Item no. | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | G1 | G2 | H [mm] | h3 [mm] |
|---------------|----------|-----------|-----------|-----|------|--------|---------|
| 152.160.127.* | 160 | 124 | 109 | M12 | G3/8 | 28 | 9 |
| 152.200.128.* | 200 | 166 | 146 | M12 | G3/8 | 27 | 7.5 |
| 152.250.129.* | 250 | 212 | 194 | M12 | G3/8 | 27 | 7 |
| 152.300.130.* | 300 | 266 | 248 | M16 | G1/2 | 30 | 8 |
| 152.350.131.* | 350 | 316 | 298 | M16 | G1/2 | 30 | 8 |



Series | Flat vacuum cups SF

Flat XXL suction rings - SFR


Flat XXL suction rings - SFR



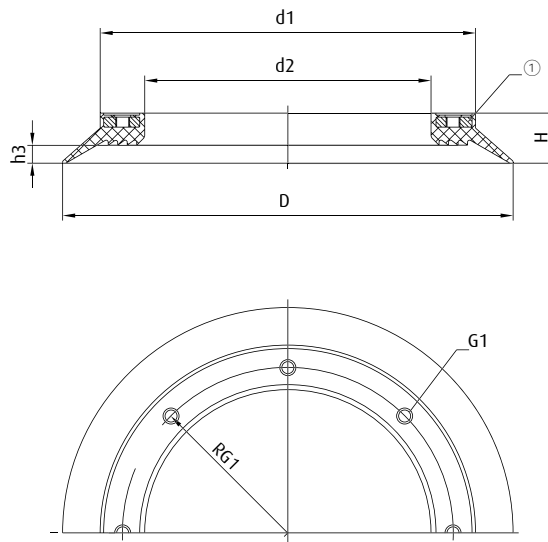
Product Description

Large flat suction seals vulcanised on steel ring for handling very large loads. Mounting through circular, circumferentially placed thread holes.

Technical data

| Item no. | Material / Colour |  |
|---------------|-------------------|---|
| 152.285.099.* | NBR (sw) | 11 |
| 152.450.105.* | NBR (sw) | 18 |
| 152.540.106.* | NBR (sw) | 18 |
| 152.630.107.* | NBR (sw) | 18 |
| 152.720.108.* | NBR (sw) | 18 |
| 152.920.109.* | NBR (sw) | 18 |

Dimensions



① = Ring made of vulcanised ST37

| Item no. | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | G1 | R G1 | H [mm] | h3 [mm] |
|---------------|----------|-----------|-----------|--------|-------|--------|---------|
| 152.285.099.* | 285 | 250 | 160 | 4xM12 | 102.5 | 32 | 11 |
| 152.450.105.* | 450 | 375 | 286 | 8xM12 | 165 | 50 | 18 |
| 152.540.106.* | 540 | 465 | 375 | 8xM12 | 210 | 50 | 18 |
| 152.630.107.* | 630 | 556 | 464 | 12xM12 | 255 | 50 | 18 |
| 152.720.108.* | 720 | 646 | 554 | 12xM12 | 300 | 50 | 18 |
| 152.920.109.* | 920 | 846 | 754 | 12xM12 | 400 | 50 | 18 |



FIPA Bellows vacuum cups SB

- > Gentle handling of delicate products
- > Bellows allow for height and angle compensation
- > Good adaptation to curved surfaces
- > Lifting of the product occurs via the lifting movement of the bellows



Bellows vacuum cups, universal, 1.5 folds - SBU 1

- > Universal bellows vacuum cups for handling sensitive or uneven products
- > Diameter: 5 - 88 mm

> See page 81



High temperature Thermalon® bellows cups, 1.5 folds - SKT-B1

- > Material blend especially suited for removing hot plastic parts to be painted from an injection molding machine
- > Very low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Diameter: 11 - 63 mm

> See page 84



High temperature HNBR bellows cups, 1.5 folds - SKT-B1

- > Universal vacuum cup for removing hot plastic parts to be painted from an injection molding machine
- > Low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Diameter: 5 - 43 mm

> See page 86



Bellows vacuum cups, universal, 2.5 folds - SBU 2

- > Universal vacuum cup with large stroke for handling sensitive or uneven products
- > Diameter: 4 - 88 mm

> See page 89

Continued on the next page →



FIPA Bellows vacuum cups SB



High temperature Thermalon® bellows cups, 2.5 folds - SKT-B2

- > Material blend especially suited for removing hot plastic parts to be painted from an injection molding machine
- > Very low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Diameter 5 - 62 mm

> See page 92



High temperature HNBR bellows cups, 2.5 folds - SKH-B2

- > Universal vacuum cup with large stroke for removing hot plastic parts to be painted from an injection molding machine
- > Low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Diameter: 5 - 60 mm

> See page 94



Bellows vacuum cups, universal, 3.5 folds - SBU 3

- > Gentle handling of sensitive products
- > Very large lifting movement
- > Diameter: 18 - 25 mm

> See page 96



Vulkollan® bellows cups, universal, 1.5 to 2.5 folds - SBU-VU

- > Sturdy vacuum cup with minimal wear and a long service life - thereby offering long maintenance intervals
- > Short cycle times thanks to very good retraction
- > Diameter: 9 - 62 mm

> See page 97



Bellows vacuum cups, 1.5 and 4.5 folds, modular - SP-B

- > Widely spread out bellows vacuum cups with a short or long stroke
- > Design: Replacement sealing lip for attachment to fitting
- > Diameter: 5 - 160 mm

> See page 100



Bellows vacuum cups, 1.5 and 4.5 folds, with fixed mounted fittings - SP-B

- > Widely spread out bellows vacuum cups with a short or long stroke
- > Design: Complete with vacuum cup fitting and filter screen
- > Diameter: 20 - 160 mm

> See page 104



FIPA Bellows vacuum cups SB



Varioflex® bellows cups, 1.5 and 2.5 folds - SP-BX

- > Excellent service life and superior retention force
- > Special polyurethane in two degrees of hardness (60° Shore A black, 30° Shore A red)
- > Soft lip for optimal sealing
- > Long service life and low wear
- > Short cycle times and high process reliability
- > Low-marking

1.5 folds - SP-BX1

- > Supports (Ø 20 - 75 mm) stabilise the product
- > Diameter: 15 - 75 mm

> See page 107

2.5 folds - SP-BX2

- > Diameter: 15 - 75 mm

> See page 110



Vinyl bellows cups, 1.5 and 2.5 folds - SBV

- > Wear-resistant material - long service life
- > Good adaptation to curved or flexible product surfaces

1.5 folds - SBV 1

- > Diameter: 5 - 70 mm

> See page 113

2.5 folds - SBV 2

- > Diameter: 4 - 50 mm

> See page 116



Bellows vacuum cups, 1.5 folds - SBF-A

- > High degree of holding force thanks to supports at the sealing lip
- > Fine, flexible sealing lip suitable for uneven surfaces
- > Supporting ribs prevent the deformation of thin-walled products
- > High process reliability due to fixed, non-rotating seat of the screw fitting
- > Diameter: 10 - 80 mm

> See page 119



Bellows vacuum cups, 1.5 folds - SBF-B

- > Soft sealing lip and soft bellows enable adaptation to curved or flexible product surfaces
- > Extremely gentle handling of sensitive products
- > Cost-effective replacement of worn seals thanks to plug-in fittings
- > Diameter: 6 - 20 mm

> See page 122

Continued on the next page →



FIPA Bellows vacuum cups SB



Bellows vacuum cups, 4.5 folds - SBF-C

- > Fine, flexible sealing lip fits in perfectly with irregularities of the product (e.g. bag-packaged goods)
- > Large stroke for the gentle handling of sensitive products
- > Connection via screwed fittings (hollow bolt + adapter)
- > Diameter: 10 - 50 mm

> See page 124



Bellows vacuum cups for chocolates - SL-PB

- > Extremely flexible and adaptable suction lip for leak-free sealing of three-dimensional product surfaces
- > Low-marking and FDA-approved
- > Diameter: 12 - 16 mm

> See page 125



Vacuum cups for baked goods SL-B

- > Multiple folds ensure a high degree of height adjustment and gentle product handling
- > FDA-approved
- > Diameter: 34 - 60 mm

> See page 126



Detectable vacuum cups for baked goods - SL-BD

- > Detectable, providing optimum assurance that the product is not contaminated by vacuum components
- > Multiple folds ensure a high degree of height adjustment and gentle product handling
- > FDA-approved
- > Diameter: 35 - 40 mm

> See page 128



Vacuum cups for eggs - SL-E

- > Bellows vacuum cups in a design specially optimised for handling eggs
- > Gentle attachment to the product and a high lifting motion thanks to a long vacuum cup stroke
- > FDA-approved
- > Diameter: 33 - 34 mm

> See page 129



Bellows vacuum cups 1.5 and 2.5 folds with special connection for standard packaging machines - SV-SB

- > Smooth suspension for gentle product handling
- > Available in silicone (FDA-approved) and NR
- > Diameter: 16 - 40 mm

> See page 130



FIPA Bellows vacuum cups SB



Bellows vacuum cups, 1.5 folds for dynamic sheet handling - SM-B

- > Reliable, non-slip handling of oily sheets thanks to “anti-slip” supporting ribs.
Good absorption of lateral forces
- > Internal supports help to prevent deep-drawing or deformation of thin sheets
- > Leak-free suction even with curved surfaces due to flexible sealing lip
- > Secure fit thanks to vulcanised connecting thread
- > Diameter: 30 - 125 mm

> See page 133



Bellows vacuum suction plates softgrip - SBPL-SG

- > Very gentle handling of sensitive products thanks to highly flexible fold walls
- > Combines the flexibility of bellows cups with the stability of flat vacuum suction plates
- > Central support block with safety sealing lip ensures a firm grip
- > Diameter: 150 - 210 mm

> See page 136



Bellows vacuum suction plates - SBPL-E

- > Gentle handling of heavy, sensitive products
- > Good adaptation to concave or convex surfaces
- > Rubberised support surfaces prevent deformation of workpieces
- > Diameter: 150 - 350 mm

> See page 137



Bellows vacuum cups, universal, 1.5 folds - SBU 1




Product Description

Universal bellows vacuum cups with 1.5 folds for handling sensitive or uneven products.
Connection up to \varnothing 75 mm by means of plug-in nipple, from \varnothing 88 mm with vulcanised bracket.

Advantage

- > Bellows compensates for differences in height and enables good adaptation to curved or uneven product surfaces
- > Soft attachment for sensitive products
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour | Connection thread |
|--------------|------------------------|---|-----------------|----------------------------|-------------------|
| 23.005.181.* | SBU 1-5 | 2 | 1.5 | NBR (sw), SI (tr) | -- |
| 23.011.008.* | SBU 1-11 | 4.5 | 1.5 | NBR (sw), SI (tr) | -- |
| 23.013.120.* | SBU 1-13 | 4 | 1.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 23.016.016.* | SBU 1-16 | 6 | 1.5 | NBR (sw), SI (tr) | -- |
| 23.019.119.* | SBU 1-19 | 4 | 1.5 | NBR (sw), SI (tr) | -- |
| 23.022.028.* | SBU 1-22 | 8 | 1.5 | NBR (sw), SI (tr) | -- |
| 23.025.137.* | SBU 1-25 | 9 | 1.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 23.033.039.* | SBU 1-33 | 12 | 1.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 23.043.096.* | SBU 1-43 | 12 | 1.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 23.053.033.* | SBU 1-53 | 11 | 1.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 23.075.151.* | SBU 1-75 | 20 | 1.5 | NBR (sw), SI (tr) | -- |
| 22.088.158.* | SBU 1-88 | 23 | 1.5 | NBR (sw), SI (tr) | G1/4-male |
| 22.088.159.* | SBU 1-88 | 23 | 1.5 | NBR (sw), SI (tr) | G1/4-female |

Continued on the next page 

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



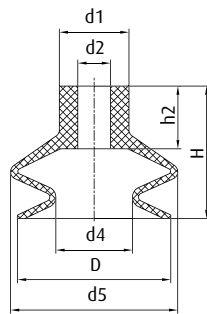
Series | Bellows vacuum cups SB

Bellows vacuum cups, universal, 1.5 folds - SBU 1

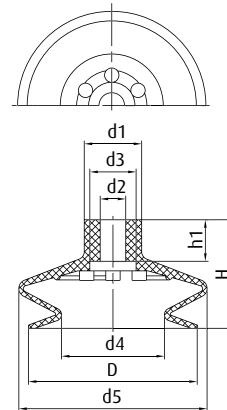
Accessories

| Item no. | Suitable fittings | | | | | | | |
|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | M5-male | M5-female | M6-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 23.005.181._* | 270.195 (p.409) | -- | -- | -- | -- | -- | -- | -- |
| 23.011.008._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.013.120._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.016.016._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.019.119._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 23.022.028._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 23.025.137._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 23.033.039._* | -- | -- | 270.315 (p.414) | -- | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.043.096._* | -- | -- | 270.315 (p.414) | -- | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.053.033._* | -- | -- | 270.315 (p.414) | -- | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.075.151._* | -- | -- | -- | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 22.088.158._* | -- | -- | -- | -- | -- | -- | -- | -- |
| 22.088.159._* | -- | -- | -- | -- | -- | -- | -- | -- |

Dimensions



Drawing A

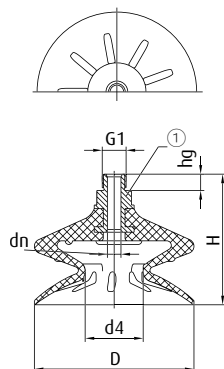


Drawing B

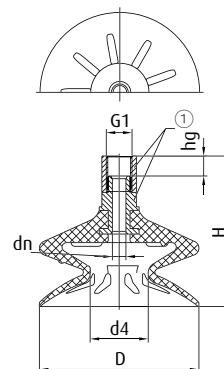
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing C



Drawing D

① = Aluminium fitting, vulcanised

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | Ø dn [mm] | G1 | H [mm] | h1 [mm] | h2 [mm] | hg [mm] |
|--------------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------|--------|---------|---------|---------|
| 23.005.181.* | A | 5 | 3 | 1.5 | -- | 2 | 5 | -- | -- | 13 | -- | 9.5 | -- |
| 23.011.008.* | A | 12 | 10 | 5 | -- | 4.5 | 12 | -- | -- | 16 | -- | 9 | -- |
| 23.013.120.* | A | 13.5 | 10 | 3.8 | -- | 5 | 13.5 | -- | -- | 16 | -- | 9 | -- |
| 23.016.016.* | A | 16 | 10 | 5 | -- | 8 | 17 | -- | -- | 19 | -- | 9 | -- |
| 23.019.119.* | A | 18.5 | 10 | 4.5 | -- | 11 | 19.5 | -- | -- | 15 | -- | 8.5 | -- |
| 23.022.028.* | A | 22 | 10 | 4.5 | -- | 11 | 24 | -- | -- | 19 | -- | 9 | -- |
| 23.025.137.* | A | 24 | 10 | 4 | -- | 10 | 24 | -- | -- | 23 | -- | 9 | -- |
| 23.033.039.* | B | 33.5 | 18 | 8 | 16.5 | 17 | 36 | -- | -- | 28 | 13 | -- | -- |
| 23.043.096.* | B | 43 | 18 | 8 | 14.5 | 23 | 45 | -- | -- | 27 | 12 | -- | -- |
| 23.053.033.* | B | 53 | 18 | 8 | 14.5 | 32 | 59 | -- | -- | 34 | 13 | -- | -- |
| 23.075.151.* | B | 75 | 27 | 11 | -- | 43 | 70.5 | -- | -- | 52 | -- | 22 | -- |
| 22.088.158.* | C | 88 | -- | -- | -- | 32 | 88 | 7.5 | G1/4 | 72 | -- | -- | 9 |
| 22.088.159.* | D | 88 | -- | -- | -- | 32 | 88 | 7.5 | G1/4 | 83 | -- | -- | 11 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

High temperature Thermalon® bellows cups, 1.5 folds - SKT-B1

High temperature Thermalon® bellows cups, 1.5 folds - SKT-B1

UP TO 160 °C & MINIMUM MARKING




Product Description

Bellows vacuum cups for uneven surfaces especially suited for removing hot plastic parts to be painted from an injection moulding machine. Thermalon® is a material mixture specially optimised for the plastics industry with a hardness of 60° Shore A. Connection via plug-in nipple.


Advantage

- > Extremely low-marking
- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Bellows compensate differences in height and enable good adaptation to curved or uneven product surfaces

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour | Usage temperature [°C] |
|--------------|------------------------|---|-----------------|-------------------|------------------------|
| 23.011.234.* | SKT-B1-11 | 5.5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.014.235.* | SKT-B1-14 | 5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.016.236.* | SKT-B1-16 | 8.5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.018.237.* | SKT-B1-18 | 5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.020.238.* | SKT-B1-20 | 5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.022.239.* | SKT-B1-22 | 8 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.025.240.* | SKT-B1-25 | 12 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.033.241.* | SKT-B1-33 | 11 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.043.242.* | SKT-B1-43 | 12.5 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.053.243.* | SKT-B1-53 | 15 | 1.5 | Thermalon® (bl) | 0 - 160 |
| 23.063.244.* | SKT-B1-63 | 15 | 1.5 | Thermalon® (bl) | 0 - 160 |

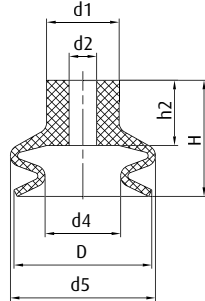
Accessories

| Item no. |  Suitable fittings | | | | | | |
|--------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 23.011.234.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.014.235.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.016.236.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.018.237.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.020.238.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.022.239.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.025.240.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.033.241.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.043.242.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.053.243.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 23.063.244.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |

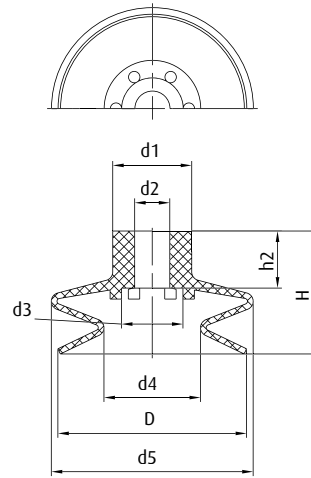
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h2 [mm] |
|--------------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|
| 23.011.234.* | A | 11 | 10 | 3.8 | -- | 5 | 12 | 16 | 9 |
| 23.014.235.* | A | 13 | 10 | 3.8 | -- | 5 | 14 | 16 | 9 |
| 23.016.236.* | A | 16 | 10 | 3.8 | -- | 8 | 17.5 | 19 | 9 |
| 23.018.237.* | A | 18 | 10 | 3.8 | -- | 8 | 18 | 16.5 | 9 |
| 23.020.238.* | A | 19 | 10 | 3.8 | -- | 10.5 | 20 | 16 | 9 |
| 23.022.239.* | A | 22 | 10 | 3.8 | -- | 11 | 24 | 19 | 9 |
| 23.025.240.* | A | 24 | 10 | 3.8 | -- | 9.5 | 25 | 23 | 9 |
| 23.033.241.* | B | 33 | 18 | 8 | 14 | 17 | 36 | 28 | 13 |
| 23.043.242.* | B | 43 | 18 | 8 | 14 | 22 | 46 | 28 | 13 |
| 23.053.243.* | B | 53 | 18 | 8 | 14 | 33 | 59 | 34 | 13 |
| 23.063.244.* | B | 63 | 18 | 8 | 14 | 44 | 67 | 34 | 13 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

High temperature HNBR bellows cups, 1.5 folds - SKH-B1

High temperature HNBR bellows cups, 1.5 folds - SKH-B1

UP TO 160 °C &
MINIMUM MARKING



Product Description

Bellows vacuum cups for uneven surfaces with suitability for removing hot plastic parts to be painted from an injection moulding machine. Connection via plug-in nipple.

Advantage

- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Minimum-marking
- > Bellows compensate differences in height and enable good adaptation to curved or uneven product surfaces

Technical data

| Item no. | Model / Lip dimensions | Height | Number of folds | Material / Colour | Usage temperature [°C] |
|---------------|------------------------|--------|-----------------|-------------------|------------------------|
| 23.005.178._* | SKH-B1-5 | 2 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.008.166._* | SKH-B1-8 | 3.5 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.011.008._* | SKH-B1-11 | 4.5 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.015.122._* | SKH-B1-15 | 5 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.016.016._* | SKH-B1-16 | 6 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.020.124._* | SKH-B1-20 | 8 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.030.125._* | SKH-B1-30 | 9 | 1.5 | HNBR (ge) | 0 - 160 |
| 23.043.096._* | SKH-B1-43 | 12 | 1.5 | HNBR (ge) | 0 - 160 |

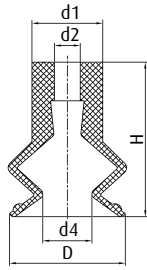
Accessories

| Item no. | Suitable fittings | | | | | | |
|---------------|-------------------|-----------------|--------------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 23.005.178._* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- |
| 23.008.166._* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- |
| 23.011.008._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.015.122._* | 270.010 (p.411) | 270.005 (p.412) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- |
| 23.016.016._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.020.124._* | 270.311 (p.411) | -- | -- | 270.063 (p.419) | 270.061 (p.422) | -- | -- |
| 23.030.125._* | -- | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) |
| 23.043.096._* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |

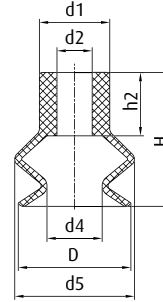
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



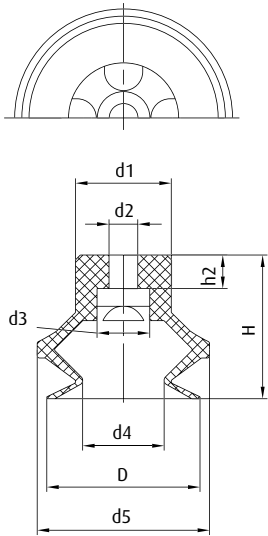
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h2 [mm] |
|--------------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|
| 23.005.178.* | A | 6 | 5 | 2 | -- | 2.2 | -- | 9 | -- |
| 23.008.166.* | A | 9 | 5.5 | 2 | -- | 3.8 | -- | 12 | -- |
| 23.011.008.* | B | 12 | 10 | 5 | -- | 4.5 | 12 | 16 | 9 |
| 23.015.122.* | C | 15 | 8.5 | 3.6 | 6 | 8 | 17 | 16 | 1.7 |
| 23.016.016.* | B | 16 | 10 | 5 | -- | 8 | 17 | 19 | 9 |
| 23.020.124.* | C | 21.5 | 15 | 4.5 | 11 | 10 | 23.5 | 20 | 4.6 |
| 23.030.125.* | C | 32 | 20 | 6 | 11 | 17 | 36 | 30 | 7 |
| 23.043.096.* | B | 43 | 18 | 8 | -- | 23 | 45 | 27 | 12 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups, universal, 2.5 folds - SBU 2




Product Description

Universal bellows vacuum cups with 2.5 folds for handling sensitive or uneven products over large lift movements.
Connection up to Ø 75 mm by means of plug-in nipple, from Ø 88 mm with vulcanised bracket.

Advantage

- > Bellows compensate for differences in height and enable good adaptation to curved or uneven product surfaces
- > Soft attachment for sensitive products
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour | Connection thread |
|--------------|------------------------|---|-----------------|---|-------------------|
| 21.004.083.* | SBU 2-4 | 3 | 2.5 | SI (tr) | -- |
| 21.005.057.* | SBU 2-5 | 3 | 2.5 | NBR (gr), SI (g), SI-AS (sw) | -- |
| 21.006.093.* | SBU 2-6A | 3 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.006.087.* | SBU 2-6 | 3.5 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.008.094.* | SBU 2-8 | 4 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.009.002.* | SBU 2-9 | 2 | 2.5 | NBR (sw), SI (tr), SI-AS (sw), NR (gr), PU (bl) | -- |
| 21.010.119.* | SBU 2-10 | 8 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.012.135.* | SBU 2-12 | 7 | 2.5 | NBR (sw), SI (tr), NR (gr), PU (bl) | -- |
| 21.014.133.* | SBU 2-14A | 11 | 2.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 21.014.007.* | SBU 2-14 | 12 | 2.5 | NBR (sw), SI (tr), PU (bl) | -- |
| 21.018.010.* | SBU 2-18 | 8 | 2.5 | NBR (sw), SI (tr), PU (bl) | -- |
| 21.020.016.* | SBU 2-20 | 9 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.025.060.* | SBU 2-25 | 19 | 2.5 | NBR (sw), SI (tr) | -- |
| 21.032.075.* | SBU 2-32 | 13 | 2.5 | NBR (sw), SI (tr), NR (gr), PU (bl) | -- |
| 21.043.049.* | SBU 2-43 | 19 | 2.5 | NBR (sw), SI (tr), NR (gr) | -- |
| 21.062.055.* | SBU 2-62 | 25 | 2.5 | NBR (sw), SI (tr) | -- |
| 20.088.123.* | SBU 2-88 | 36 | 2.5 | NBR (sw), SI (tr) | G1/4-male |
| 20.088.124.* | SBU 2-88 | 36 | 2.5 | NBR (sw), SI (tr) | G1/4-female |

Continued on the next page →

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



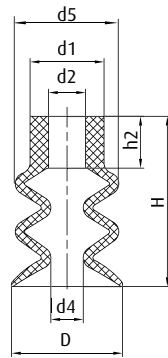
Series | Bellows vacuum cups SB

Bellows vacuum cups, universal, 2.5 folds - SBU 2

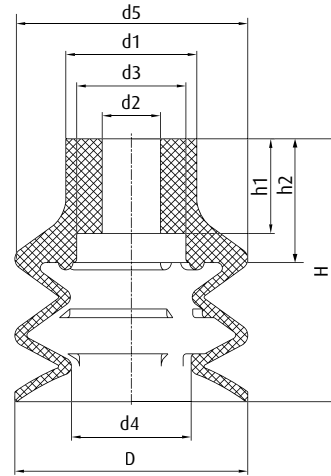
Accessories

| Item no. | Suitable fittings | | | | | | |
|---------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 21.004.083._* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.005.057._* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.006.093._* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.006.087._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.008.094._* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.009.002._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.010.119._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.012.135._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.014.133._* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.014.007._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.018.010._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.020.016._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 21.025.060._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 21.032.075._* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.043.049._* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.062.055._* | -- | -- | 270.315 (p.414) | -- | -- | 270.540 (p.429) | 270.539 (p.434) |
| 20.088.123._* | -- | -- | -- | -- | -- | -- | -- |
| 20.088.124._* | -- | -- | -- | -- | -- | -- | -- |

Dimensions



Drawing A

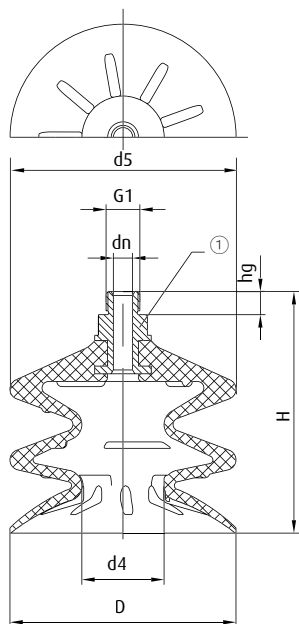


Drawing B

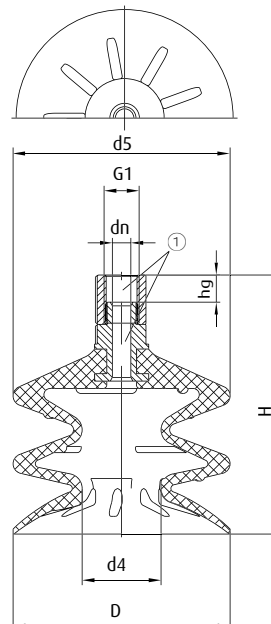
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing C



Drawing D

① = Aluminium fitting, vulcanised

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | Ø dn [mm] | G1 | H [mm] | h1 [mm] | h2 [mm] | hg [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------|--------|---------|---------|---------|
| 21.004.083._* | A | 4.5 | 7 | 4 | -- | 2 | 6.5 | -- | -- | 14 | -- | 8 | -- |
| 21.005.057._* | A | 5.5 | 7 | 4 | -- | 2.5 | 6.5 | -- | -- | 14 | -- | 8.5 | -- |
| 21.006.093._* | A | 6 | 8 | 4 | -- | 3 | 8 | -- | -- | 15 | -- | 8 | -- |
| 21.006.087._* | A | 6.5 | 9 | 5 | -- | 2.5 | 6.5 | -- | -- | 14.5 | -- | 7.5 | -- |
| 21.008.094._* | A | 7.5 | 8 | 4 | -- | 4 | 7.5 | -- | -- | 15 | -- | 8.5 | -- |
| 21.009.002._* | A | 9 | 9 | 5 | -- | 4 | 9 | -- | -- | 15 | -- | 7 | -- |
| 21.010.119._* | A | 10 | 10 | 5 | -- | 4.5 | 10 | -- | -- | 21 | -- | 7 | -- |
| 21.012.135._* | A | 12 | 10 | 5 | -- | 5 | 12 | -- | -- | 21 | -- | 9 | -- |
| 21.014.133._* | A | 14 | 10 | 3.8 | -- | 5.5 | 14 | -- | -- | 23 | -- | 7.5 | -- |
| 21.014.007._* | A | 15 | 10 | 5 | -- | 4.5 | 15 | -- | -- | 23 | -- | 7 | -- |
| 21.018.010._* | A | 18 | 10 | 4.5 | -- | 7 | 18 | -- | -- | 22 | -- | 8.5 | -- |
| 21.020.016._* | A | 20 | 10 | 4.5 | -- | 10 | 20 | -- | -- | 23 | -- | 9 | -- |
| 21.025.060._* | A | 25 | 10 | 4.8 | -- | 10 | 25 | -- | -- | 33 | -- | 8 | -- |
| 21.032.075._* | B | 32 | 18 | 8 | 15 | 16.5 | 32 | -- | -- | 36 | 13 | 17 | -- |
| 21.043.049._* | B | 42 | 20 | 8 | 15 | 15.5 | 42 | -- | -- | 46 | 13 | 17 | -- |
| 21.062.055._* | B | 62 | 21 | 8.5 | 14.5 | 27.5 | 62 | -- | -- | 54 | 13 | 14.7 | -- |
| 20.088.123._* | C | 88 | -- | -- | -- | 32 | 88 | 7.5 | G1/4 | 94 | -- | -- | 9 |
| 20.088.124._* | D | 88 | -- | -- | -- | 32 | 88 | 7.5 | G1/4 | 105 | -- | -- | 11 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

High temperature Thermalon® bellows cups, 2.5 folds - SKT-B2

High temperature Thermalon® bellows cups, 2.5 folds - SKT-B2

UP TO 160 °C & MINIMUM MARKING




Product Description

Bellows vacuum cups for uneven surfaces especially suited for removing hot plastic parts to be painted from an injection moulding machine. Thermalon® is a material mixture specially optimised for the plastics industry with a hardness of 60° Shore A. Connection via plug-in nipple.


Advantage

- > Extremely low-marking
- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Long vacuum cup lift and good adaptation to curved or uneven product surfaces

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour | Number of folds | Usage temperature [°C] |
|--------------|------------------------|---|-------------------|-----------------|------------------------|
| 21.005.146.* | SKT-B2-5 | 3 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.007.147.* | SKT-B2-7 | 3 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.009.148.* | SKT-B2-9 | 3 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.012.149.* | SKT-B2-12 | 7 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.014.150.* | SKT-B2-14 | 10 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.018.151.* | SKT-B2-18 | 10 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.020.152.* | SKT-B2-20 | 10 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.025.153.* | SKT-B2-25 | 20 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.032.154.* | SKT-B2-32 | 14.5 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.042.155.* | SKT-B2-42 | 22 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.052.156.* | SKT-B2-52 | 27 | Thermalon® (bl) | 2.5 | 0 - 160 |
| 21.062.157.* | SKT-B2-62 | 31 | Thermalon® (bl) | 2.5 | 0 - 160 |

Accessories

| Item no. |  Suitable fittings | | | | | | |
|--------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 21.005.146.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.007.147.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.009.148.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.012.149.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.014.150.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.018.151.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.020.152.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.025.153.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.032.154.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.042.155.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |

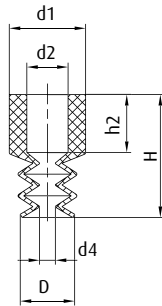
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



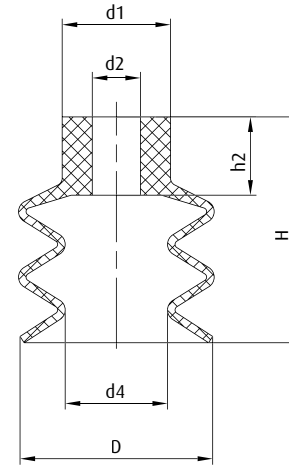
Accessories

| Item no. | Suitable fittings | | | | | | |
|--------------|-------------------|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 21.052.156.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.062.157.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |

Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d4 [mm] | H [mm] | h2 [mm] |
|--------------|---------|----------|-----------|-----------|-----------|--------|---------|
| 21.005.146.* | A | 5.5 | 7 | 4 | 2.2 | 13.5 | 8 |
| 21.007.147.* | A | 6 | 8.5 | 4.5 | 1.8 | 14 | 6.5 |
| 21.009.148.* | A | 9.5 | 9 | 4.4 | 4 | 15 | 7.5 |
| 21.012.149.* | B | 12 | 10 | 3.8 | 5 | 21 | 9 |
| 21.014.150.* | B | 14 | 10 | 3.8 | 5 | 23 | 9 |
| 21.018.151.* | B | 17.5 | 10 | 3.8 | 7.5 | 23 | 9 |
| 21.020.152.* | B | 20 | 10 | 3.8 | 10 | 23 | 9 |
| 21.025.153.* | B | 25 | 10 | 3.8 | 10 | 34 | 9 |
| 21.032.154.* | B | 32 | 18 | 8 | 17 | 38 | 13 |
| 21.042.155.* | B | 42 | 18 | 8 | 18.5 | 46 | 13 |
| 21.052.156.* | B | 52 | 18 | 8 | 25 | 49 | 13 |
| 21.062.157.* | B | 62 | 21 | 8 | 30 | 55 | 13 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

High temperature HNBR bellows cups, 2.5 folds - SKH-B2

High temperature HNBR bellows cups, 2.5 folds - SKH-B2

UP TO 160 °C &
MINIMUM MARKING



Product Description

Bellows vacuum cups for uneven surfaces with suitability for removing hot plastic parts to be painted from an injection moulding machine. Connection via plug-in nipple.

Advantage

- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Minimum-marking
- > Long vacuum cup lift and good adaptation to curved or uneven product surfaces

Technical data

| Item no. | Model / Lip dimensions | | Number of folds | Material / Colour | Usage temperature [°C] |
|--------------|------------------------|----|-----------------|-------------------|------------------------|
| 21.005.057.* | SKH-B2-5 | 3 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.007.089.* | SKH-B2-7 | 3 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.009.002.* | SKH-B2-9 | 2 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.012.135.* | SKH-B2-12 | 7 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.014.053.* | SKH-B2-14 | 9 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.018.010.* | SKH-B2-18 | 8 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.020.016.* | SKH-B2-20 | 9 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.032.075.* | SKH-B2-32 | 13 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.043.049.* | SKH-B2-43 | 19 | 2.5 | HNBR (ge) | 0 - 160 |
| 21.060.051.* | SKH-B2-60 | 25 | 2.5 | HNBR (ge) | 0 - 160 |

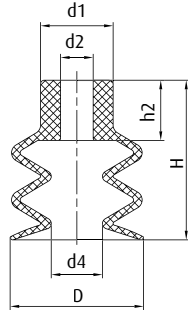
Accessories

| Item no. | Suitable fittings | | | | | | |
|--------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 21.005.057.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.007.089.* | 270.010 (p.411) | 270.005 (p.412) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- |
| 21.009.002.* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.012.135.* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.014.053.* | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.018.010.* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.020.016.* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 21.032.075.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.043.049.* | -- | -- | 270.315 (p.414) | 270.196 (p.420) | 270.114 (p.422) | 270.190 (p.428) | 270.192 (p.432) |
| 21.060.051.* | -- | -- | 270.315 (p.414) | -- | -- | 270.540 (p.429) | 270.539 (p.434) |

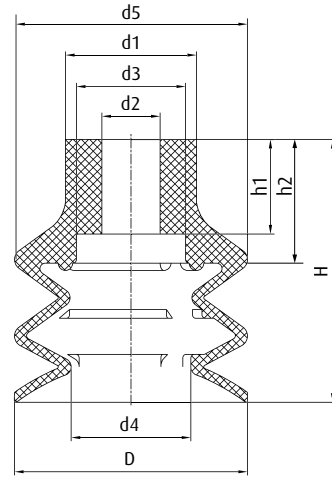
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h1 [mm] | h2 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------|
| 21.005.057._* | A | 5.5 | 7 | 4 | -- | 2.5 | -- | 14 | -- | 8.5 |
| 21.007.089._* | B | 7 | 7.5 | 4 | 5.5 | 3 | 7 | 10 | 2 | 3.5 |
| 21.009.002._* | A | 9 | 9 | 5 | -- | 4 | -- | 15 | -- | 7 |
| 21.012.135._* | A | 12 | 10 | 5 | -- | 5 | -- | 21 | -- | 9 |
| 21.014.053._* | A | 14 | 8 | 4 | -- | 5.5 | -- | 18 | -- | 5.5 |
| 21.018.010._* | A | 18 | 10 | 4.5 | -- | 7 | -- | 22 | -- | 8.5 |
| 21.020.016._* | A | 20 | 10 | 4.5 | -- | 10 | -- | 23 | -- | 9 |
| 21.032.075._* | B | 32 | 18 | 8 | 15 | 16.5 | 32 | 36 | 13 | 17 |
| 21.043.049._* | B | 42 | 20 | 8 | 15 | 15.5 | 42 | 46 | 13 | 17 |
| 21.060.051._* | B | 61 | 22 | 8 | 14 | 28 | 61 | 57 | 14 | 18.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups, universal, 3.5 folds - SBU 3

Bellows vacuum cups, universal, 3.5 folds - SBU 3



Product Description

Universal bellows vacuum cups with 3.5 folds for handling sensitive or uneven products over very large lift movements. Connection via plug-in nipple.


Advantage

- > Bellows compensate for differences in height and enable good adaptation to curved or uneven product surfaces
- > Soft attachment for sensitive products
- > Cost-effective replacement of worn seals

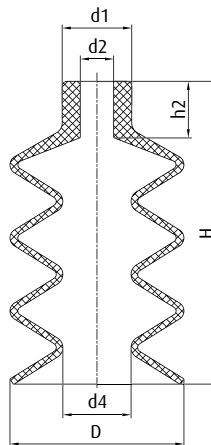
Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---------------|------------------------|---|-----------------|-------------------|
| 25.018.031._* | SBU 3-18 | 12 | 3.5 | NBR (sw), SI (tr) |
| 25.025.005._* | SBU 3-25 | 24 | 3.5 | NBR (sw), SI (tr) |

Accessories

| Item no. |  Suitable fittings | | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male |
| 25.018.031._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) |
| 25.025.005._* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) |

Dimensions



| Item no. | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d4 [mm] | H [mm] | h2 [mm] |
|---------------|----------|-----------|-----------|-----------|--------|---------|
| 25.018.031._* | 18 | 9.5 | 5 | 8 | 29 | 7 |
| 25.025.005._* | 25 | 10 | 4.8 | 10 | 44 | 8 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Vulkollan® bellows cups, universal, 1.5 to 2.5 folds - SBU-VU



SBU1-VU

SBU2-VU




Product Description


Extremely robust universal bellows vacuum cups, material made from Vulkollan®

Advantage

- > Minimal abrasion
- > Very long life cycle
- > Very good resetting, enabling fast cycle times
- > Bellows compensate differences in height and enable good adaptation to curved or uneven product surfaces
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---|---|--|-----------------|-------------------|
|  | Bellows vacuum cups, 1.5 folds - SBU1-VU | | | |
| 23.020.169._* | SBU1-VU-20 | 7 | 1.5 | Vulkollan® (br) |
| 23.030.170._* | SBU1-VU-30 | 8 | 1.5 | Vulkollan® (br) |
| 23.050.171._* | SBU1-VU-50 | 10 | 1.5 | Vulkollan® (br) |
|  | Bellows vacuum cups, 2.5 folds - SBU2-VU | | | |
| 21.009.106._* | SBU2-VU-9 | 2 | 2.5 | Vulkollan® (br) |
| 21.020.090._* | SBU2-VU-20 | 8 | 2.5 | Vulkollan® (br) |
| 21.032.091._* | SBU2-VU-30 | 16 | 2.5 | Vulkollan® (br) |
| 21.030.076._* | SBU2-VU-31 | 14 | 2.5 | Vulkollan® (br) |
| 21.051.097._* | SBU2-VU-50 | 18 | 2.5 | Vulkollan® (br) |
| 21.062.092._* | SBU2-VU-60 | 25 | 2.5 | Vulkollan® (br) |

Continued on the next page 

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



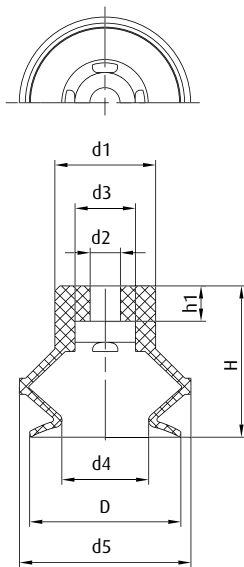
Series | Bellows vacuum cups SB

Vulkollan® bellows cups, universal, 1.5 to 2.5 folds - SBU-VU

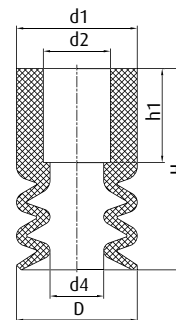
Accessories

| Item no. | Suitable fittings | | | | | | | |
|---|--------------------|--------------------|-----------------------|--------------------|--------------------|--------------------|--------------------------------|--------------------------------|
| | M5-male | M5-female | M6-male | M8-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| Bellows vacuum cups, 1.5 folds - SBU1-VU | | | | | | | | |
| 23.020.169.* | -- | -- | 270.312/19 (p.414) | -- | 270.482 (p.420) | 270.481 (p.423) | 270.483 (p.429) | 270.484 (p.433) |
| 23.030.170.* | -- | -- | 270.312/19 (p.414) | -- | 270.482 (p.420) | 270.481 (p.423) | 270.483 (p.429) | 270.484 (p.433) |
| 23.050.171.* | -- | -- | 270.314 (p.415) | -- | 270.490 (p.420) | 270.489 (p.423) | 270.491 (p.429) | 270.492 (p.434) |
| Bellows vacuum cups, 2.5 folds - SBU2-VU | | | | | | | | |
| 21.009.106.* | 270.013 (p.410) | 270.005 (p.412) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.020.090.* | 270.024 (p.410) | -- | 270.104 (p.413) | -- | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 21.032.091.* | -- | -- | 270.315 (p.414) | -- | 270.132 (p.417) | 270.114 (p.422) | 270.190, 270.540 (p.428) | 270.192, 270.539 (p.432) |
| 21.030.076.* | -- | -- | -- | 270.255 (p.415) | 270.486 (p.420) | 270.485 (p.423) | 270.487 (p.429) | 270.488 (p.434) |
| 21.051.097.* | -- | -- | -- | -- | 270.132 (p.417) | 270.114 (p.422) | 270.204 (p.427) | 270.324 (p.432) |
| 21.062.092.* | -- | -- | 270.315 (p.414) | -- | -- | -- | 270.540 (p.429) | 270.539 (p.434) |

Dimensions



Drawing A

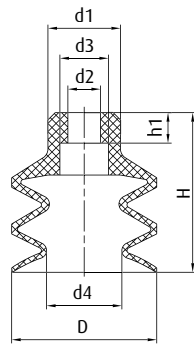


Drawing B

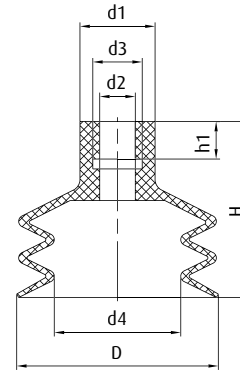
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



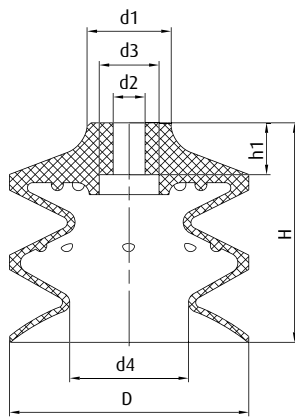
Dimensions



Drawing C



Drawing D



Drawing E

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h1 [mm] |
|---|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|
| Bellows vacuum cups, 1.5 folds - SBU1-VU | | | | | | | | | |
| 23.020.169._* | A | 20 | 15 | 6 | 12 | 12.5 | 22 | 22 | 7 |
| 23.030.170._* | A | 30 | 20 | 6 | 12 | 17 | 34 | 30 | 7 |
| 23.050.171._* | A | 50 | 29 | 9 | 20 | 31 | 56 | 37 | 7 |
| Bellows vacuum cups, 2.5 folds - SBU2-VU | | | | | | | | | |
| 21.009.106._* | B | 9 | 9 | 5 | -- | 4 | -- | 15 | 7 |
| 21.020.090._* | C | 20 | 10 | 4.5 | 6.5 | 10.5 | -- | 22 | 4.2 |
| 21.032.091._* | B | 30 | 18 | 8 | 15 | 17 | -- | 38 | 13 |
| 21.030.076._* | C | 31 | 18.5 | 8 | 15 | 19.5 | -- | 29 | 7 |
| 21.051.097._* | D | 51 | 19 | 9 | 12.5 | 32 | -- | 45 | 9.5 |
| 21.062.092._* | E | 60 | 21 | 8 | 15 | 30 | -- | 55 | 13 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups with 1.5 and 4.5 folds, modular - SP-B

Bellows vacuum cups with 1.5 and 4.5 folds, modular - SP-B





Product Description


Bellows vacuum cups with a short or long lift.
Version: Replacement sealing lip for attachment to fitting

Advantage

- > High suction force
- > Fast cycle times possible
- > Very resistant to wear (Tepuflex®)
- > Compatible with established products from other vendors

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---|------------------------|---|-----------------|----------------------------------|
|  Bellows vacuum cups, 1.5 folds | | | | |
| 23.005.178._* | SP-B1-5 | 2 | 1.5 | SI (r), SI-AS (sw), CR (sw) |
| 23.008.166._* | SP-B1-8 | 3.5 | 1.5 | SI (r), SI-AS (sw), CR (sw) |
| 23.011.007._* | SP-B1-10 | 5 | 1.5 | SI (tr), SI-AS (sw), CR (sw) |
| 23.016.015._* | SP-B1-15 | 7 | 1.5 | SI (tr), SI-AS (sw), CR (sw) |
| 23.020.026._* | SP-B1-20 | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.030.037._* | SP-B1-30 | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.040.045._* | SP-B1-40 | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.050.054._* | SP-B1-50 | 12 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.078.065._* | SP-B1-75 | 22 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.117.069._* | SP-B1-110 | 29 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |
| 23.160.072._* | SP-B1-150 | 41 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) |

| | | | | |
|---|----------|----|-----|------------------|
|  Bellows vacuum cups, 4.5 folds | | | | |
| 25.020.025._* | SP-B4-20 | 16 | 4.5 | SI (tr), CR (sw) |
| 25.030.026._* | SP-B4-30 | 21 | 4.5 | SI (tr), CR (sw) |
| 25.040.027._* | SP-B4-40 | 20 | 4.5 | SI (tr), CR (sw) |
| 25.050.028._* | SP-B4-50 | 25 | 4.5 | SI (tr), CR (sw) |

Accessories

| Filter disc | Retaining ring | Stiffening ring |
|----------------|----------------|-----------------|
| -- | -- | -- |
| -- | -- | -- |
| -- | -- | -- |
| -- | -- | -- |
| 78.200 (p.474) | 78.011 (p.475) | -- |
| 78.201 (p.474) | 78.011 (p.475) | -- |
| 78.202 (p.474) | 78.012 (p.475) | -- |
| 78.203 (p.474) | 78.013 (p.475) | -- |
| -- | -- | -- |
| -- | -- | -- |
| -- | -- | -- |
| -- | -- | -- |
| -- | 78.011 (p.475) | 78.000 (p.475) |
| -- | 78.012 (p.475) | 78.001 (p.475) |
| -- | 78.012 (p.475) | 78.002 (p.475) |
| -- | 78.013 (p.475) | 78.003 (p.475) |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Accessories

| Item no. | Suitable fittings | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-----------------|----------------------------|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G3/8-male | G3/8-female | G1/2-female | G3/4-female |
| Bellows vacuum cups, 1.5 folds | | | | | | | | | | |
| 23.005.178._* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23.008.166._* | 270.153 (p.409) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23.011.007._* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 23.016.015._* | 270.134 (p.409) | -- | 270.104 (p.413) | -- | -- | -- | -- | -- | -- | -- |
| 23.020.026._* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 23.030.037._* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 23.040.045._* | -- | -- | -- | -- | 270.251, 270.501-S (p.423) | 270.506-S (p.428) | 270.505-S (p.434) | -- | -- | -- |
| 23.050.054._* | -- | -- | -- | -- | 270.252, 270.502-S (p.424) | 270.504-S (p.429) | 270.507-S (p.435) | -- | -- | -- |
| 23.078.065._* | -- | -- | -- | -- | 270.527-S (p.424) | -- | -- | 270.528-S (p.436) | 270.529-S (p.436) | -- |
| 23.117.069._* | -- | -- | -- | -- | -- | -- | -- | 270.530-S (p.437) | 270.531-S (p.437) | -- |
| 23.160.072._* | -- | -- | -- | -- | -- | -- | -- | -- | 270.532-S (p.437) | 270.533-S (p.437) |
| Bellows vacuum cups, 4.5 folds | | | | | | | | | | |
| 25.020.025._* | -- | 270.500-S (p.413) | -- | 270.250, 270.503-S (p.418) | -- | -- | -- | -- | -- | -- |
| 25.030.026._* | -- | -- | -- | -- | 270.251, 270.501-S (p.423) | 270.506-S (p.428) | 270.505-S (p.434) | -- | -- | -- |
| 25.040.027._* | -- | -- | -- | -- | 270.251, 270.501-S (p.423) | 270.506-S (p.428) | 270.505-S (p.434) | -- | -- | -- |
| 25.050.028._* | -- | -- | -- | -- | 270.252, 270.502-S (p.424) | 270.504-S (p.429) | 270.507-S (p.435) | -- | -- | -- |

Ordering notes:

Explanation of the ending of the accessory fitting:
 > S with screen

Continued on the next page →

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for vacuum cups you will find on page 760

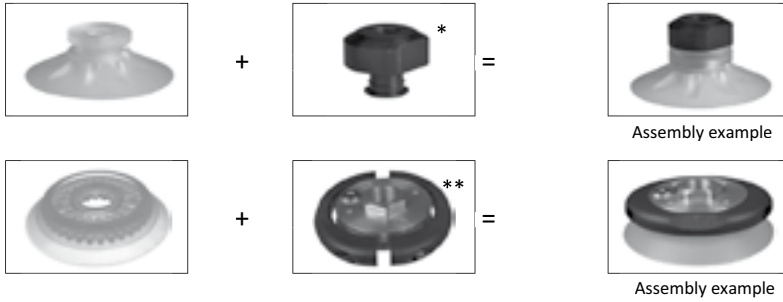


Series | Bellows vacuum cups SB

Bellows vacuum cups with 1.5 and 4.5 folds, modular - SP-B

Bellows vacuum cups - modular

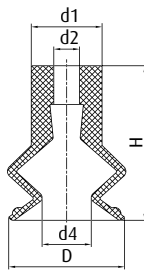
Example:



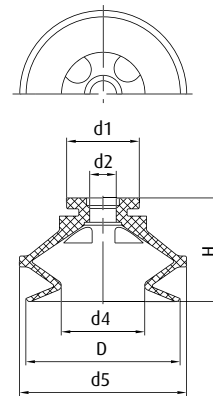
- * Fittings are optionally available with and without filter screen
- ** Fittings come fitted with filter screen as standard

- > The modular series allows you to assemble your own vacuum cups
- > Worn sealing lips can be replaced quickly, cost-effective and easily
- > High flexibility thanks to a large selection of fitting threads

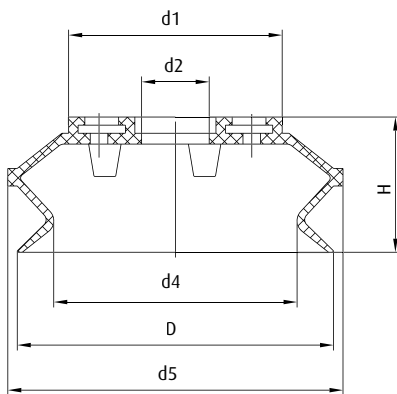
Dimensions



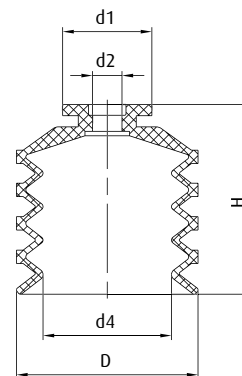
Drawing A



Drawing B



Drawing C



Drawing D

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] |
|---------------------------------------|---------|----------|-----------|-----------|-----------|-----------|--------|
| Bellows vacuum cups, 1.5 folds | | | | | | | |
| 23.005.178._* | A | 6 | 4.5 | 2 | 2.2 | -- | 9 |
| 23.008.166._* | A | 9 | 5.5 | 2 | 3.8 | -- | 12 |
| 23.011.007._* | A | 11 | 9 | 3.9 | 5.5 | -- | 17 |
| 23.016.015._* | A | 16 | 9 | 3.9 | 8 | -- | 19 |
| 23.020.026._* | B | 21 | 14.5 | 5.5 | 11 | 24 | 19.5 |
| 23.030.037._* | B | 33 | 15 | 5.5 | 18.5 | 37 | 28 |
| 23.040.045._* | B | 43 | 20 | 7.5 | 23 | 46 | 29 |
| 23.050.054._* | B | 53 | 26 | 10.5 | 32 | 58 | 35 |
| 23.078.065._* | C | 81 | 55 | 10 | 59 | 84 | 37 |
| 23.117.069._* | C | 117 | 79 | 25 | 90 | 124 | 50 |
| 23.160.072._* | C | 160 | 110 | 24 | 112 | 166 | 67 |
| Bellows vacuum cups, 4.5 folds | | | | | | | |
| 25.020.025._* | D | 20 | 14.5 | 5 | 14 | -- | 23 |
| 25.030.026._* | D | 31 | 20 | 6.5 | 22 | -- | 32 |
| 25.040.027._* | D | 41 | 20 | 6.5 | 29 | -- | 43 |
| 25.050.028._* | D | 51 | 27 | 10.5 | 37 | -- | 53 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760






Series | Bellows vacuum cups SB

Bellows vacuum cups, 1.5 and 4.5 folds, with fully assembled fitting - SP-B

Bellows vacuum cups, 1.5 and 4.5 folds, with fully assembled fitting - SP-B



| Product Description | Advantage |
|--|--|
| Bellows vacuum cups with a short or long lift. Version: Complete with vacuum cup fitting and filter screen. | <ul style="list-style-type: none"> > High suction force > Fast cycle times possible > Very resistant to wear (Tepuflex®) > Compatible with established products from other vendors |

| Technical data | | | | | | Accessories | | |
|---|------------------------|----------------------|---|-------------------|----------------------------------|-----------------------|-----------------|----------------|
| Item no. | Model / Lip dimensions | Connection thread |  Number of folds | Material / Colour | Spare cup | Filter disc | Stiffening ring | |
|  | | | | | | | | |
| Complete vacuum cups, 1.5 folds with fitting & filter screen | | | | | | | | |
| 22.020.020._* | SP-B1-20 | G1/8-male, M5-female | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.020.026._* (p.308) | 78.200 (p.474) | -- |
| 22.030.033._* | SP-B1-30 | G1/8-male, M5-female | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.030.037._* (p.321) | 78.201 (p.474) | -- |
| 22.040.045._* | SP-B1-40 | G1/8-female | 9 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.040.045._* (p.332) | 78.202 (p.474) | -- |
| 22.050.056._* | SP-B1-50 | G1/8-female | 12 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.050.054._* (p.338) | 78.203 (p.474) | -- |
| 22.078.163._* | SP-B1-75 | G1/8-female | 22 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.078.065._* (p.349) | -- | -- |
| 22.078.166._* | SP-B1-75 | G3/8-female | 22 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.078.065._* (p.349) | -- | -- |
| 22.078.169._* | SP-B1-75 | G1/2-female | 22 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.078.065._* (p.349) | -- | -- |
| 22.117.164._* | SP-B1-110 | G3/8-female | 29 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.117.069._* (p.355) | -- | -- |
| 22.117.167._* | SP-B1-110 | G1/2-female | 29 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.117.069._* (p.355) | -- | -- |
| 22.160.165._* | SP-B1-150 | G1/2-female | 41 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.160.072._* (p.358) | -- | -- |
| 22.160.168._* | SP-B1-150 | G3/4-female | 41 | 1.5 | Tepuflex® (or), SI (tr), CR (sw) | 23.160.072._* (p.358) | -- | -- |
|  | | | | | | | | |
| Complete vacuum cups, 4.5 folds with fitting & filter screen | | | | | | | | |
| 24.020.033._* | SP-B4-20 | G1/8-male, M5-female | 16 | 4.5 | SI (tr), CR (sw) | 25.020.025._* (p.308) | -- | 78.000 (p.475) |
| 24.030.039._* | SP-B4-30 | G1/8-female | 21 | 4.5 | SI (tr), CR (sw) | 25.030.026._* (p.318) | -- | 78.001 (p.475) |
| 24.040.074._* | SP-B4-40 | G1/8-female | 20 | 4.5 | SI (tr), CR (sw) | 25.040.027._* (p.330) | -- | 78.002 (p.475) |
| 24.050.087._* | SP-B4-50 | G1/8-female | 30 | 4.5 | SI (tr), CR (sw) | 25.050.028._* (p.337) | -- | 78.003 (p.475) |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups with fully assembled fitting

Example:

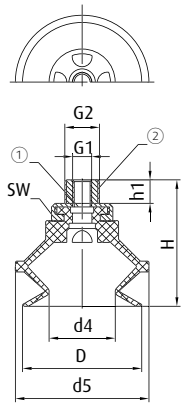


or

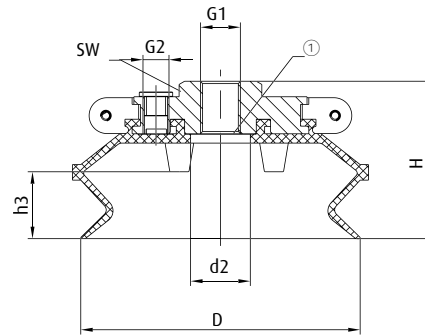


- > High process reliability thanks to permanently installed fitting
- > Worn sealing lips can be replaced if necessary

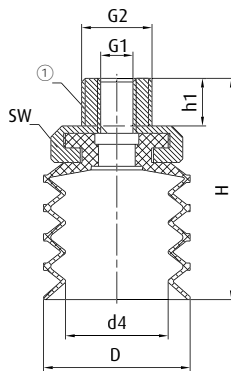
Dimensions



Drawing A



Drawing B



Drawing C

① = Filter screen ② = Aluminium

Continued on the next page →

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups, 1.5 and 4.5 folds, with fully assembled fitting - SP-B

| Item no. | Drawing | ∅ D [mm] | ∅ d2 [mm] | ∅ d4 [mm] | ∅ d5 [mm] | G1 | G2 | H [mm] | h1 [mm] | h3 [mm] | SW |
|---|---------|----------|-----------|-----------|-----------|------|------|--------|---------|---------|----|
| Complete vacuum cups, 1.5 folds with fitting & filter screen | | | | | | | | | | | |
| 22.020.020._* | A | 21 | -- | 11 | 24 | M5 | G1/8 | 27 | 6.5 | -- | 17 |
| 22.030.033._* | A | 33 | -- | 18.5 | 37 | M5 | G1/8 | 35 | 6.5 | -- | 17 |
| 22.040.045._* | A | 43 | -- | 23 | 46 | G1/8 | -- | 35 | -- | -- | 12 |
| 22.050.056._* | A | 53 | -- | 32 | 58 | G1/8 | -- | 42 | -- | -- | 12 |
| 22.078.163._* | B | 81 | 10 | -- | -- | G1/8 | -- | 50 | -- | 21.6 | 28 |
| 22.078.166._* | B | 81 | 10 | -- | -- | G3/8 | -- | 50 | -- | 21.6 | 28 |
| 22.078.169._* | B | 81 | 10 | -- | -- | G1/2 | -- | 50 | -- | 21.6 | 28 |
| 22.117.164._* | B | 117 | 25 | -- | -- | G3/8 | G1/8 | 66 | -- | 28 | 30 |
| 22.117.167._* | B | 117 | 25 | -- | -- | G1/2 | G1/8 | 66 | -- | 28 | 30 |
| 22.160.165._* | B | 160 | 24 | -- | -- | G1/2 | G1/8 | 81.5 | -- | 42 | 38 |
| 22.160.168._* | B | 160 | 24 | -- | -- | G3/4 | G1/8 | 81.5 | -- | 42 | 38 |
| Complete vacuum cups, 4.5 folds with fitting & filter screen | | | | | | | | | | | |
| 24.020.033._* | C | 20 | -- | 14 | -- | M5 | G1/8 | 30 | 6.5 | -- | 17 |
| 24.030.039._* | C | 31 | -- | 22 | -- | G1/8 | -- | 40 | -- | -- | 12 |
| 24.040.074._* | C | 41 | -- | 29 | -- | G1/8 | -- | 51 | -- | -- | 12 |
| 24.050.087._* | C | 51 | -- | 37 | -- | G1/8 | -- | 61 | -- | -- | 12 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



NEW



COMPOSITE MATERIAL 60°/30°

Varioflex® bellows cups, 1.5 folds - SP-BX1



Product Description

Bellows vacuum cups with 1.5 folds made of an extremely wear-resistant polymer.
Soft, flexible sealing lip in 30° Shore A (red).
Stable body in 60° Shore A (black).
Cleats stabilise the product.

Advantage



- > Long life cycle reduces machine downtimes
- > Perfect sealing performance on rough or uneven surface
- > High stability and fast reset
- > Oil and Ozone resistant
- > Extremely low-marking
- > Bellows compensate for height differences
- > Cleats allow for fast acceleration

Notes:

Explanation of the type description:

- > SP-BX1 = series name of the bellows vacuum cup with 1.5 folds
- > -xx = nominal diameter
- > Example: SP-BX1-15 = bellows vacuum cup with 1.5 folds and a nominal diameter of 15 mm

Technical data

| Model / Lip dimensions | Ø [mm] | Connection thread 1 | Item no. | Connection thread 2 | Item no. | Connection thread 3 | Item no. | Usage temperature [°C] | | |
|---|--|---------------------|---------------|---------------------|---------------|---------------------|---------------|------------------------|---------|---|
|  | Bellows vacuum cups 1.5 folds - SP-BX1 fully assembled with fitting | | | | | | | | |  |
| SP-BX1-15 | 16 | M5-male | 22.016.253.16 | M6-male | 22.016.254.16 | -- | -- | 4.5 | 10 - 50 | 23.016.263.16 |
| SP-BX1-20 | 21 | G1/8-male | 22.021.255.16 | -- | -- | -- | -- | 5 | 10 - 50 | 23.021.264.16 |
| SP-BX1-25 | 26 | G1/8-male | 22.026.256.16 | -- | -- | -- | -- | 5 | 10 - 50 | 23.026.265.16 |
| SP-BX1-35 | 37 | G1/8-female | 22.037.257.16 | G1/4-male | 22.037.258.16 | -- | -- | 9 | 10 - 50 | 23.037.266.16 |
| SP-BX1-50 | 53 | G1/8-female | 22.053.259.16 | G1/4-male | 22.053.260.16 | G3/8-male | 22.053.261.16 | 10 | 10 - 50 | 23.053.267.16 |
| SP-BX1-75 | 75 | G3/8-male | 22.075.262.16 | G3/8-female | 22.075.263.16 | -- | -- | 18 | 10 - 50 | -- |

Accessories

Spare cup

Continued on the next page →

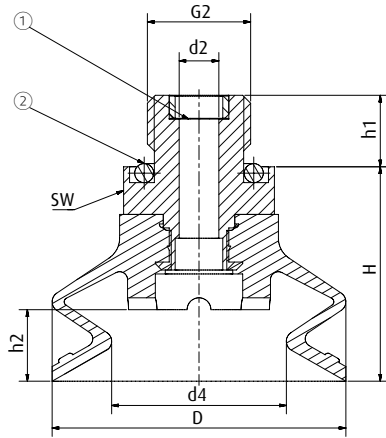
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



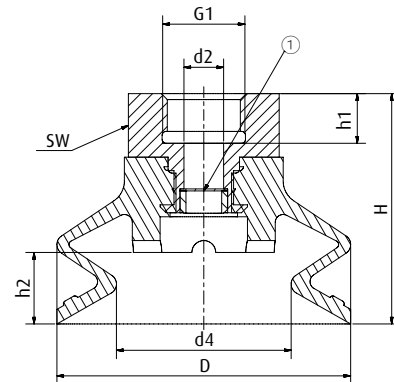
Series | Bellows vacuum cups SB

Varioflex® bellows cups, 1.5 folds - SP-BX1

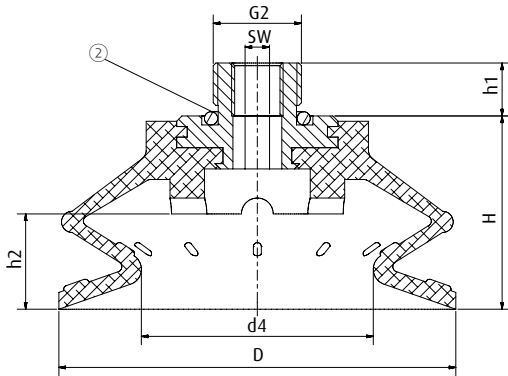
Dimensions



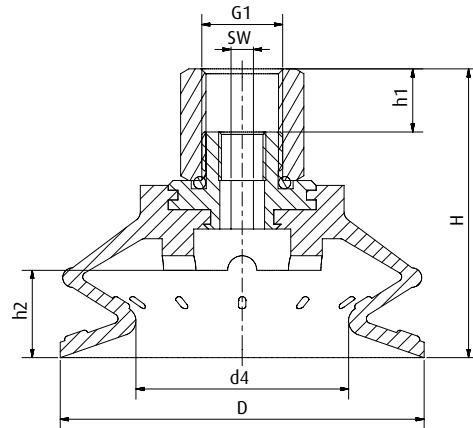
Drawing A



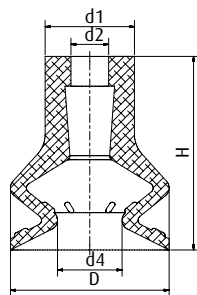
Drawing B



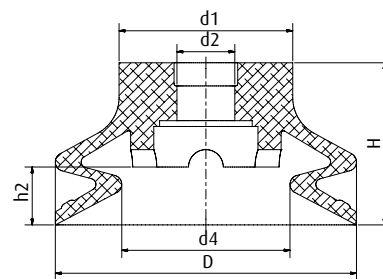
Drawing C



Drawing D



Drawing E



Drawing F

① = Filter screen ② = O-ring

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d4 [mm] | G1 (female) | G2 (male) | H | h1 [mm] | h2 [mm] | SW |
|--|---------|-------------|--------------|--------------|--------------|----------------|--------------|------|------------|------------|----|
| Bellows vacuum cups 1.5 folds - SP-BX1 fully assembled with fitting | | | | | | | | | | | |
| 22.016.253.* | A | 16 | -- | 2.5 | 6.5 | -- | M5 | 25 | 3.6 | -- | 8 |
| 22.016.254.* | A | 16 | -- | 2.5 | 6.5 | -- | M6 | 24 | 6 | -- | 13 |
| 22.021.255.* | A | 21 | -- | 4 | 12 | -- | G1/8 | 19 | 7 | 5 | 13 |
| 22.026.256.* | A | 26 | -- | 4 | 14.5 | -- | G1/8 | 19 | 7 | 5 | 13 |
| 22.037.257.* | B | 37 | -- | 5 | 22 | G1/8 | -- | 29 | 6.3 | 9 | 19 |
| 22.037.258.* | A | 37 | -- | 5 | 22 | -- | G1/4 | 27 | 9 | 9 | 19 |
| 22.053.259.* | B | 53 | -- | 8 | 32.5 | G1/8 | -- | 35 | 9 | 10 | 22 |
| 22.053.260.* | A | 53 | -- | 6 | 32.5 | -- | G1/4 | 32 | 9 | 10 | 22 |
| 22.053.261.* | A | 53 | -- | 6 | 32.5 | -- | G3/8 | 32 | 10 | 10 | 22 |
| 22.075.262.* | C | 75 | -- | -- | 44 | -- | G3/8 | 36.5 | 10 | 18 | 8 |
| 22.075.263.* | D | 75 | -- | -- | 44 | G3/8 | -- | 55 | 13 | 18 | 8 |
| Spare cups | | | | | | | | | | | |
| 23.016.263.* | E | 16 | 9 | 4 | 6.5 | -- | -- | 19.5 | -- | -- | -- |
| 23.021.264.* | F | 21 | 11 | 5 | 12 | -- | -- | 14 | -- | 5 | -- |
| 23.026.265.* | F | 26 | 15 | 5 | 14.5 | -- | -- | 14 | -- | 5 | -- |
| 23.037.266.* | F | 37 | 20 | 7 | 22 | -- | -- | 21 | -- | 9 | -- |
| 23.053.267.* | F | 53 | 26 | 10.5 | 32.5 | -- | -- | 26 | -- | 10 | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Varioflex® bellows cups, 2.5 folds - SP-BX2

Varioflex® bellows cups, 2.5 folds - SP-BX2

NEW



COMPOSITE MATERIAL 60°/30°



Product Description

Bellows vacuum cups with 2.5 folds made of an extremely wear-resistant polymer.
Soft, flexible sealing lip in 30° Shore A (red).
Stable body in 60° Shore A (black).

Advantage

- > Long life cycle reduces machine downtimes
- > Perfect sealing performance on rough or uneven surface
- > High stability and fast reset
- > Oil and Ozone resistant
- > Extremely low-marking
- > Excellent height and angle compensation
- > Optional: Filter disc from Ø 26 mm installed between the bellows

Notes:

Explanation of the type description:

- > SP-BX2 = series name of the bellows vacuum cup with 2.5 folds
- > -xx = nominal diameter
- > Example: SP-BX2-15 = bellows vacuum cup with 2.5 folds and a nominal diameter of 15 mm

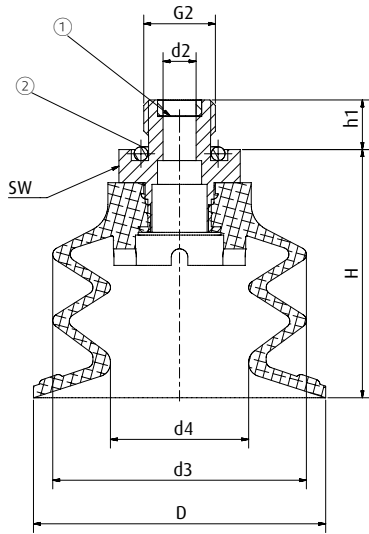
Technical data

| Model / Lip dimensions | Ø [mm] | Connection thread 1 | Item no. | Connection thread 2 | Item no. | Connection thread 3 | Item no. | Usage temp. [°C] | Accessories | |
|---|--------|---------------------|------------------|---------------------|------------------|---------------------|------------------|------------------|-------------|------------------|
| Bellows vacuum cups 2.5 folds - SP-BX2 fully assembled with fitting | | | | | | | | | | |
| SP-BX2-15 | 16 | M5-male | 20.016.145.16 | M6-male | 20.016.146.16 | -- | -- | 5,5 | 10 - 50 | 21.016.175.16 |
| SP-BX2-20 | 21 | G1/8-male | 20.021.147.16 | -- | -- | -- | -- | 6,5 | 10 - 50 | 21.021.176.16 |
| SP-BX2-25 | 26 | G1/8-male | 20.026.148.16 | -- | -- | -- | -- | 8 | 10 - 50 | 21.026.177.16 |
| SP-BX2-35 | 37 | G1/8-female | 20.037.149.16 | G1/4-male | 20.037.150.16 | -- | -- | 14 | 10 - 50 | 21.037.177.16 |
| SP-BX2-50 | 53 | G1/8-female | 20.053.151.16 | G1/4-male | 20.053.152.16 | G3/8-male | 20.053.153.16 | 19 | 10 - 50 | 21.053.178.16 |
| SP-BX2-75 | 77 | G3/8-male | 20.077.154.16 | G3/8-female | 20.077.155.16 | -- | -- | 25 | 10 - 50 | -- |
| Bellows vacuum cups 2.5 folds - SP-BX2 fully assembled with fitting and filter | | | | | | | | | | |
| SP-BX2-25 | 26 | G1/8-male | 20.026.148.16-FI | -- | -- | -- | -- | 8 | 10 - 50 | 21.026.177.16-FI |
| SP-BX2-35 | 37 | G1/8-female | 20.037.149.16-FI | G1/4-male | 20.037.150.16-FI | -- | -- | 14 | 10 - 50 | 21.037.177.16-FI |
| SP-BX2-50 | 53 | G1/8-female | 20.053.151.16-FI | G1/4-male | 20.053.152.16-FI | G3/8-male | 20.053.153.16-FI | 19 | 10 - 50 | 21.053.178.16-FI |
| SP-BX2-75 | 77 | G3/8-male | 20.077.154.16-FI | G3/8-female | 20.077.155.16-FI | -- | -- | 25 | 10 - 50 | -- |

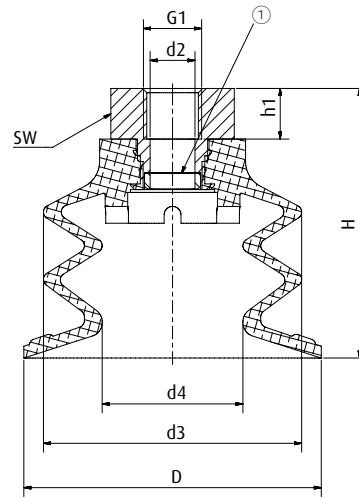
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



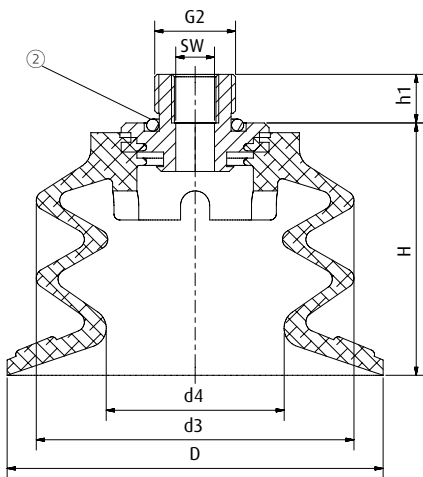
Dimensions



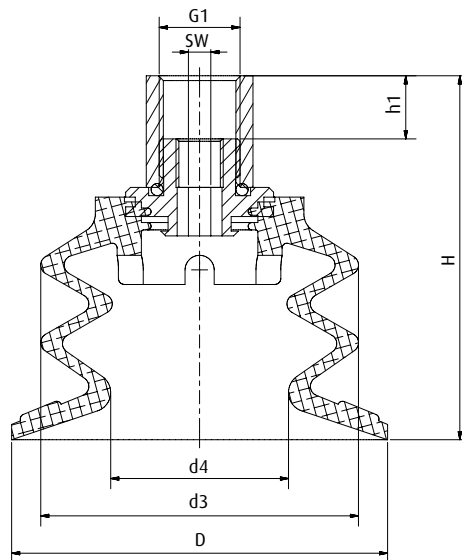
Drawing A



Drawing B



Drawing C



Drawing D

① = Filter screen ② = O-ring

Continued on the next page →

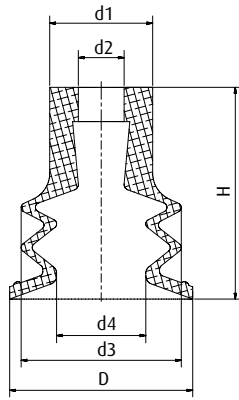
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



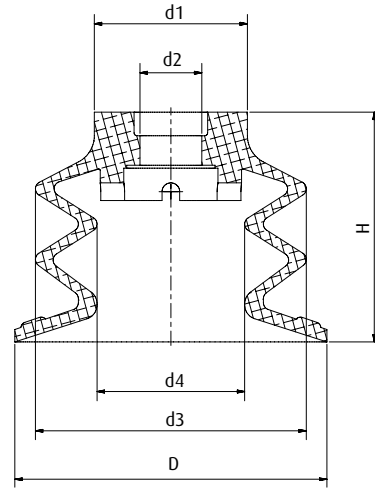
Series | Bellows vacuum cups SB

Varioflex® bellows cups, 2.5 folds - SP-BX2

Dimensions



Drawing E



Drawing F

① = Filter screen ② = O-ring

| Item no. | Drawing | ∅ D [mm] | ∅ d1 [mm] | ∅ d2 [mm] | ∅ d3 [mm] | ∅ d4 [mm] | G1 (female) | G2 (male) | H | h1 [mm] | SW |
|--|---------|----------|-----------|-----------|-----------|-----------|-------------|-----------|------|---------|----|
| Bellows vacuum cups 2.5 folds - SP-BX2 fully assembled with fitting | | | | | | | | | | | |
| 20.016.145.* | A | 16 | -- | 2.8 | 14 | 9 | -- | M5 | 24 | 4 | 8 |
| 20.016.146.* | A | 16 | -- | 2.5 | 14 | 9 | -- | M6 | 23 | 6 | 13 |
| 20.021.147.* | A | 21 | -- | 4 | 20 | 12 | -- | G1/8 | 20.2 | 7 | 13 |
| 20.026.148.* | A | 26 | -- | 4 | 23 | 12 | -- | G1/8 | 24 | 7 | 13 |
| 20.037.149.* | B | 37 | -- | 5 | 31 | 18 | G1/8 | -- | 34.8 | 6.3 | 19 |
| 20.037.150.* | A | 37 | -- | 5 | 31 | 18 | -- | G1/4 | 32.8 | 9 | 19 |
| 20.053.151.* | B | 53 | -- | 8 | 46 | 25 | G1/8 | -- | 48 | 9 | 22 |
| 20.053.152.* | A | 53 | -- | 6 | 46 | 25 | -- | G1/4 | 45 | 9 | 22 |
| 20.053.153.* | A | 53 | -- | 6 | 46 | 25 | -- | G3/8 | 45 | 10 | 22 |
| 20.077.154.* | C | 77.5 | -- | -- | 65.5 | 37 | -- | G3/8 | 52 | 10 | 8 |
| 20.077.155.* | D | 77.5 | -- | -- | 65.5 | 37 | G3/8 | -- | 75 | 13 | 8 |
| Spare cups | | | | | | | | | | | |
| 21.016.175.* | E | 16 | 9 | 4 | 14 | 9 | -- | -- | 18.5 | -- | -- |
| 21.021.176.* | F | 21 | 11 | 5 | 20 | 12 | -- | -- | 15.2 | -- | -- |
| 21.026.177.* | F | 26 | 15 | 5 | 23 | 12 | -- | -- | 19 | -- | -- |
| 21.037.177.* | F | 37 | 20 | 7 | 31 | 18 | -- | -- | 27 | -- | -- |
| 21.053.178.* | F | 53 | 26 | 10.5 | 46 | 25 | -- | -- | 39 | -- | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Vinyl bellows cups, 1.5 folds - SBV 1




Product Description

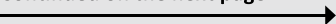
Durable bellows vacuum cups with 1.5 folds from snug-fitting, wear-resistant material. Very well suited for handling abrasive products such as cardboard. Flexible material enables low-leakage gripping of highly flexible products such as foil-packaged goods. Connection via plug-in nipple.

Advantage

- > Bellows compensate differences in height and enable good adaptation to curved or uneven product surfaces
- > Flexible, soft lips
- > Long life cycle
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---------------|------------------------|---|-----------------|-------------------|
| 23.005.095._* | SBV 1-5 | 2 | 1.5 | Vinyl (bl) |
| 23.007.112._* | SBV 1-7 | 2 | 1.5 | Vinyl (bl) |
| 23.013.097._* | SBV 1-13 | 5 | 1.5 | Vinyl (bl) |
| 23.015.098._* | SBV 1-15 | 5 | 1.5 | Vinyl (bl) |
| 23.019.109._* | SBV 1-19 | 8 | 1.5 | Vinyl (bl) |
| 23.020.114._* | SBV 1-20 | 6 | 1.5 | Vinyl (bl) |
| 23.022.028._* | SBV 1-22 | 8 | 1.5 | Vinyl (bl) |
| 23.028.113._* | SBV 1-28 | 9 | 1.5 | Vinyl (bl) |
| 23.030.107._* | SBV 1-30 | 10.5 | 1.5 | Vinyl (bl) |
| 23.031.192._* | SBV 1-31 | 6 | 1.5 | Vinyl (bl) |
| 23.035.111._* | SBV 1-35 | 12 | 1.5 | Vinyl (bl) |
| 23.052.116._* | SBV 1-52 | 6 | 1.5 | Vinyl (bl) |
| 23.070.060._* | SBV 1-70 | 20 | 1.5 | Vinyl (bl) |

Continued on the next page 

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



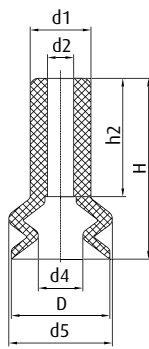
Series | Bellows vacuum cups SB

Vinyl bellows cups, 1.5 folds - SBV 1

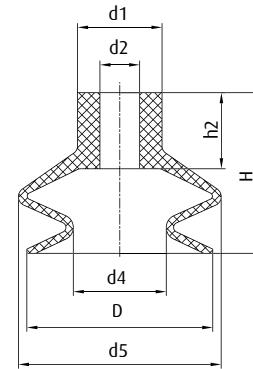
Accessories

| Item no. | Suitable fittings | | | | | |
|--------------|-------------------|--------------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 23.005.095.* | 270.195 (p.409) | -- | -- | -- | -- | -- |
| 23.007.112.* | 270.001 (p.409) | -- | -- | -- | -- | -- |
| 23.013.097.* | 270.013 (p.410) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 23.015.098.* | 270.134 (p.409) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.019.109.* | -- | -- | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) |
| 23.020.114.* | 270.134 (p.409) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.022.028.* | 270.013 (p.410) | 270.103 (p.413) | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 23.028.113.* | 270.134 (p.409) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 23.030.107.* | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) |
| 23.031.192.* | -- | 270.312/19 (p.414) | 270.030 (p.419) | 270.019 (p.423) | 270.274 (p.427) | 270.275 (p.432) |
| 23.035.111.* | 270.443 (p.410) | -- | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |
| 23.052.116.* | -- | -- | 270.132 (p.417) | -- | 270.208 (p.425) | 270.452 (p.431) |
| 23.070.060.* | -- | -- | -- | -- | 270.184 (p.431) | -- |

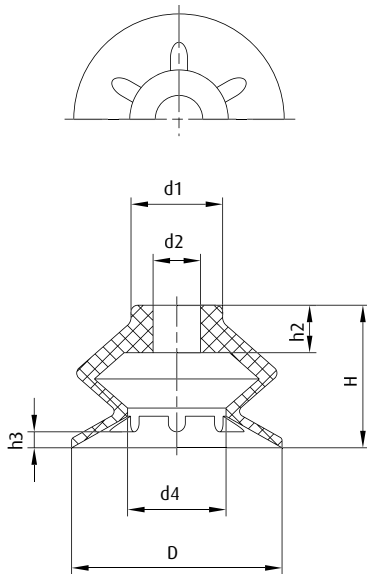
Dimensions



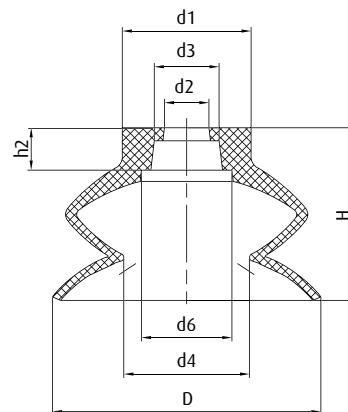
Drawing A



Drawing B



Drawing C



Drawing D

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | Ø d6 [mm] | H [mm] | h2 [mm] | h3 [mm] |
|--------------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------|
| 23.005.095.* | A | 4.5 | 3 | 1.5 | -- | 2.5 | 4 | -- | 12.5 | 10 | -- |
| 23.007.112.* | A | 6 | 3.7 | 1.6 | -- | 2.5 | 6.5 | -- | 11 | 7 | -- |
| 23.013.097.* | B | 13 | 7.5 | 3.5 | -- | 7.5 | 12.5 | -- | 14.5 | 6.5 | -- |
| 23.015.098.* | B | 15.5 | 9 | 3.4 | -- | 8.5 | 17 | -- | 20.5 | 11.5 | -- |
| 23.019.109.* | B | 19 | 13 | 7 | -- | 12 | 19 | -- | 18 | 7.5 | -- |
| 23.020.114.* | B | 20 | 9.5 | 3.5 | -- | 11 | 19 | -- | 20 | 9.5 | -- |
| 23.022.028.* | A | 22 | 10 | 4.5 | -- | 11 | 24 | -- | 19 | 9 | -- |
| 23.028.113.* | B | 28 | 12.5 | 3.5 | -- | 13 | 26 | -- | 21 | 9 | -- |
| 23.030.107.* | B | 30 | 13 | 7 | -- | 15 | 29.5 | -- | 22 | 7 | -- |
| 23.031.192.* | C | 31 | 13.5 | 7 | -- | 14.5 | -- | -- | 21 | 7 | 2.4 |
| 23.035.111.* | B | 35 | 17 | 6 | -- | 20 | 33 | -- | 30 | 16 | -- |
| 23.052.116.* | B | 51 | 18.5 | 9.5 | -- | 30 | 50 | -- | 41 | 21 | -- |
| 23.070.060.* | D | 70 | 34 | 11.5 | 17 | 33 | -- | 24 | 45 | 11 | -- |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Vinyl bellows cups, 2.5 folds - SBV 2

Vinyl bellows cups, 2.5 folds - SBV 2




Product Description

Durable bellows vacuum cups with a long lift, made of snug-fitting, wear-resistant material. Very well suited for handling abrasive products such as cardboard. Flexible material enables low-leakage gripping of highly flexible products such as foil-packaged goods. Connection via plug-in nipple.


Advantage

- > Long vacuum cup lift and good adaptation to curved or uneven product surfaces
- > Flexible, soft lips
- > Long life cycle
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---------------|------------------------|--|-----------------|-------------------|
| 21.004.142._* | SBV 2-4 | 1.3 | 2.5 | Vinyl (bl) |
| 21.006.001._* | SBV 2-6 | 3.5 | 2.5 | Vinyl (bl) |
| 21.010.070._* | SBV 2-10 | 5 | 2.5 | Vinyl (bl) |
| 21.018.068._* | SBV 2-18 | 11 | 2.5 | Vinyl (bl) |
| 21.023.066._* | SBV 2-23 | 9 | 2.5 | Vinyl (bl) |
| 21.029.069._* | SBV 2-29 | 10 | 2.5 | Vinyl (bl) |
| 21.032.082._* | SBV 2-32 | 14 | 2.5 | Vinyl (bl) |
| 21.040.027._* | SBV 2-40 | 16 | 2.5 | Vinyl (bl) |
| 21.050.084._* | SBV 2-50 | 20 | 2.5 | Vinyl (bl) |

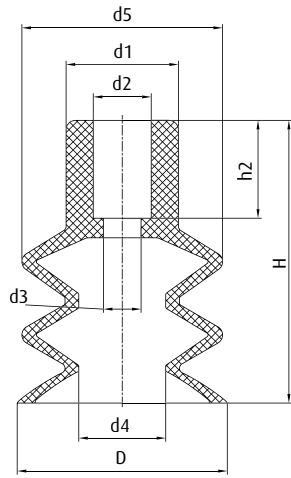
Accessories

| Item no. |  Suitable fittings | | | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M5-male | M6-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 21.004.142._* | 270.195 (p.409) | -- | -- | -- | -- | -- | -- |
| 21.006.001._* | 270.013 (p.410) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.010.070._* | 270.013 (p.410) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | -- | -- |
| 21.018.068._* | 270.013 (p.410) | 270.103 (p.413) | -- | 270.003 (p.416) | 270.015 (p.421) | 270.194 (p.425) | -- |
| 21.023.066._* | -- | -- | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 21.029.069._* | -- | -- | -- | 270.132 (p.417) | 270.114 (p.422) | 270.043 (p.425) | 270.178 (p.431) |
| 21.032.082._* | -- | -- | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 21.040.027._* | -- | -- | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |
| 21.050.084._* | -- | -- | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |

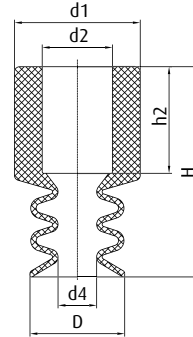
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



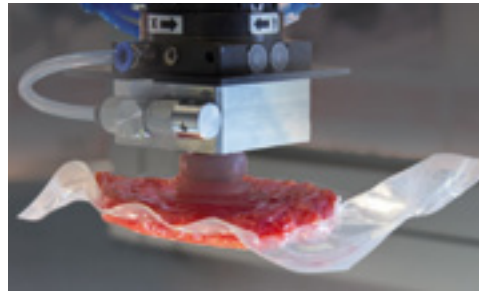
Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø d5 [mm] | H [mm] | h2 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|
| 21.004.142._* | A | 3.5 | 3 | 1.5 | 1.5 | 2 | 4.5 | 12.5 | 9 |
| 21.006.001._* | B | 6.5 | 8.5 | 5 | -- | 2.5 | -- | 14 | 7 |
| 21.010.070._* | B | 10 | 10 | 5 | -- | 5 | -- | 15.5 | 7.5 |
| 21.018.068._* | A | 19 | 10 | 5 | 5 | 9 | 19 | 24 | 9 |
| 21.023.066._* | A | 23 | 17 | 11 | 11 | 13.5 | 23 | 26 | 12 |
| 21.029.069._* | A | 29 | 15.5 | 8 | 5 | 12 | 28 | 39 | 13.5 |
| 21.032.082._* | A | 32 | 17 | 11 | 11 | 19.5 | 32 | 35 | 14 |
| 21.040.027._* | A | 40 | 20 | 10.5 | 8 | 18.5 | 40 | 53 | 13.5 |
| 21.050.084._* | A | 50 | 19.5 | 10.5 | 6.5 | 30 | 50 | 49 | 13.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups, 1.5 folds - SBF-A



Product Description

Bellows vacuum cup with soft, very flexible single sealing lip for handling highly sensitive products with high leveling adjustment. Connection with fixed screwed nipple or attachment frame (Ø 80 mm). Compatible "snap-in" spring levelers available.

Advantage

- > Large holding force
- > Fine, flexible sealing lip fits in perfectly with irregularities of the product
- > Cleats for the sealing lip prevent retraction of flexible products (e.g. films)
- > Cost-effective replacement of worn seals
- > High process reliability due to fixed, non-rotating seat of the screw nipple

Technical data

| Item no. | Model / Lip dimensions | | Number of folds | Material / Colour |
|----------------------|---|-----|-----------------|-------------------|
| | Rubber sealing lip for attachment to fitting | | | |
| 23.010.139._* | SBF-A -10 | 4 | 1.5 | NBR (sw), SI (tr) |
| 23.020.140._* | SBF-A -20 | 6 | 1.5 | NBR (sw), SI (tr) |
| 23.030.141._* | SBF-A -30 | 8 | 1.5 | NBR (sw), SI (tr) |
| 23.040.142._* | SBF-A -40 | 9.5 | 1.5 | NBR (sw), SI (tr) |
| 23.050.143._* | SBF-A -50 | 11 | 1.5 | NBR (sw), SI (tr) |
| 23.080.144._* | SBF-A -80 | 10 | 1.5 | NBR (sw), SI (tr) |

Accessories

Spare cup

| | | | | | |
|----------------------|---|----|-----|-------------------|-----------------------|
| | Full vacuum cups with receptacle | | | | |
| 22.080.161._* | SBF-A -80 | 10 | 1.5 | NBR (sw), SI (tr) | 23.080.144._* (p.348) |

Accessories

| Item no. | Suitable fittings | | | | | | | | Suitable spring levelers (Snap-In) | | | | | | | |
|---|-------------------|-----------------|-----------------|----------|-----------------|-----------------|-----------|-------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----|
| | M4-male | M5-male | M6-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | | |
| Rubber sealing lip for attachment to fitting | | | | | | | | | | | | | | | | |
| 23.010.139._* | 270.458 (p.408) | 270.134 (p.409) | 270.104 (p.413) | -- | -- | -- | -- | -- | 50.103 (p.454) | 6 | 50.125 (p.454) | 10 | 50.126 (p.454) | 15 | 50.127 (p.454) | 20 |
| 23.020.140._* | -- | 270.311 (p.411) | 270.459 (p.414) | -- | 270.480 (p.420) | 270.479 (p.423) | -- | -- | 50.095 (p.456) | 20 | 50.096 (p.456) | 30 | 50.097 (p.456) | 40 | 50.098 (p.456) | 50 |

Continued on the next page

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



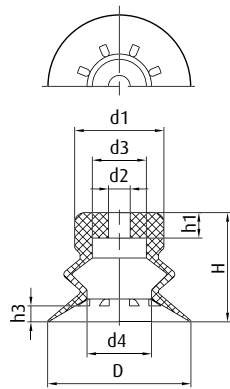
Series | Bellows vacuum cups SB

Bellows vacuum cups, 1.5 folds - SBF-A

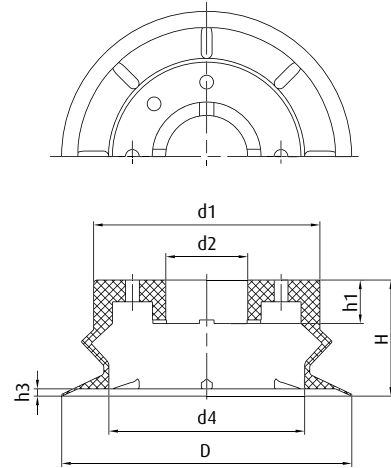
Accessories

| Item no. | Suitable fittings | | | | | | | | Suitable spring levelers (Snap-In) | | | | | | | |
|---|-------------------|---------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----|
| | M4-male | M5-male | M6-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | Spring leveler | |
| 23.030.141._* | -- | -- | 270.460 (p.414) | -- | 270.482 (p.420) | 270.481 (p.423) | 270.483 (p.429) | 270.484 (p.433) | 50.095 (p.456) | 20 | 50.096 (p.456) | 30 | 50.097 (p.456) | 40 | 50.098 (p.456) | 50 |
| 23.040.142._* | -- | -- | 270.498 (p.414) | -- | 270.486 (p.420) | 270.485 (p.423) | 270.487 (p.429) | 270.488 (p.434) | 50.170 (p.456) | 20 | 50.171 (p.456) | 30 | 50.172 (p.456) | 40 | 50.173 (p.456) | 50 |
| 23.050.143._* | -- | -- | 270.499 (p.414) | -- | 270.490 (p.420) | 270.489 (p.423) | 270.491 (p.429) | 270.492 (p.434) | 50.174 (p.456) | 20 | 50.175 (p.456) | 30 | 50.176 (p.456) | 40 | 50.177 (p.456) | 50 |
| 23.080.144._* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Full vacuum cups with receptacle | | | | | | | | | | | | | | | | |
| 22.080.161._* | -- | -- | -- | 270.462 (p.416) | -- | -- | 270.514 (p.429) | 270.513 (p.434) | -- | -- | -- | -- | -- | -- | -- | -- |

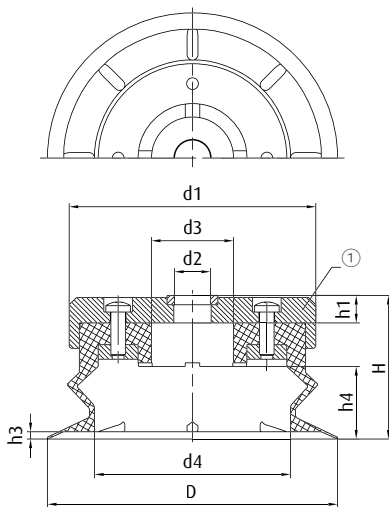
Dimensions



Drawing A



Drawing B



Drawing C

① = Aluminium

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | ∅ D [mm] | ∅ d1 [mm] | ∅ d2 [mm] | ∅ d3 [mm] | ∅ d4 [mm] | H [mm] | h1 [mm] | h3 [mm] | h4 [mm] |
|---|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| Rubber sealing lip for attachment to fitting | | | | | | | | | | |
| 23.010.139._* | A | 10 | 10 | 4 | 6 | 5 | 15.5 | 3 | 1 | -- |
| 23.020.140._* | A | 20 | 15 | 6 | 10 | 11 | 19 | 4 | 2 | -- |
| 23.030.141._* | A | 30 | 17 | 6 | 12 | 14 | 23 | 5 | 2.8 | -- |
| 23.040.142._* | A | 40 | 25 | 6 | 15 | 18 | 30 | 7 | 4.4 | -- |
| 23.050.143._* | A | 50 | 30 | 6 | 21 | 21 | 32 | 7 | 4 | -- |
| 23.080.144._* | B | 80 | 62 | 23 | -- | 54 | 32 | 12 | 2 | -- |
| Full vacuum cups with receptacle | | | | | | | | | | |
| 22.080.161._* | C | 80 | 68 | 10 | 23 | 54 | 40 | 7.5 | 2 | 20 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups, 1.5 folds - SBF-B

Bellows vacuum cups, 1.5 folds - SBF-B




Product Description

Bellows vacuum cup, 1.5 folds with soft sealing lip and a soft bellows for handling curved or uneven product surfaces. Connection via plug-in nipple. Compatible "snap-in" spring levelers available.





Advantage

- > Bellows compensate height differences
- > Good adaptation to curved or uneven product surfaces
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|--------------|------------------------|---|-----------------|-------------------|
| 23.006.145.* | SBF-B-6 | 5 | 1.5 | NBR (sw), SI (tr) |
| 23.008.146.* | SBF-B-8 | 5 | 1.5 | NBR (sw), SI (tr) |
| 23.010.147.* | SBF-B-10 | 5 | 1.5 | NBR (sw), SI (tr) |
| 23.015.148.* | SBF-B-15 | 7 | 1.5 | NBR (sw), SI (tr) |
| 23.020.149.* | SBF-B-20 | 6 | 1.5 | NBR (sw), SI (tr) |

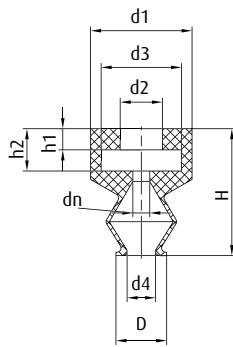
Accessories

| Item no. |  Suitable fittings | | | | |  Suitable spring levelers (Snap-In) | | | | | | |
|--------------|---|-----------------|-----------------|-----------------|-----------------|--|---|----------------|----------------|---|----------------|--|
| | M5-male | M6-male | G1/8-male | G1/8-female | G1/4-male | Spring leveler |  | Hose outside Ø | Spring leveler |  | Hose outside Ø | |
| 23.006.145.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) | 8.5 | 4 | 50.019 (p.454) | 8.5 | 6 | |
| 23.008.146.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) | 8.5 | 4 | 50.019 (p.454) | 8.5 | 6 | |
| 23.010.147.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) | 8.5 | 4 | 50.019 (p.454) | 8.5 | 6 | |
| 23.015.148.* | 270.200 (p.411) | -- | 270.064 (p.418) | 270.065 (p.422) | -- | 50.018 (p.454) | 8.5 | 4 | 50.019 (p.454) | 8.5 | 6 | |
| 23.020.149.* | 270.317 (p.410) | 270.103 (p.413) | 270.205 (p.416) | 270.109 (p.421) | 270.194 (p.425) | -- | -- | -- | 50.020 (p.454) | 8.5 | 6 | |

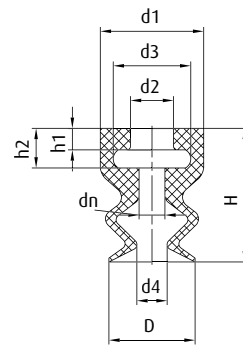
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | Ø dn [mm] | H [mm] | h1 [mm] | h2 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------|
| 23.006.145._* | A | 6 | 12 | 5 | 9.5 | 3.4 | 2 | 15 | 2.5 | 5 |
| 23.008.146._* | B | 8 | 12 | 5 | 9 | 4 | 2 | 14.5 | 2.5 | 4.5 |
| 23.010.147._* | B | 10 | 12 | 5 | 9 | 3.5 | 3 | 15.5 | 2.5 | 4.5 |
| 23.015.148._* | B | 15 | 12 | 5 | 9 | 5.5 | 3 | 17 | 2.5 | 4.5 |
| 23.020.149._* | B | 20 | 12 | 4.5 | 6 | 6 | 6 | 20 | 5 | 9.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups, 4.5 folds - SBF-C

Bellows vacuum cups, 4.5 folds - SBF-C




Product Description

Bellows vacuum cup, 4.5 folds, with a very thin, flexible sealing lip and a large lift. Fine, flexible sealing lip fits in perfectly with irregularities of the product (e.g. groceries packaged in bags).
Connection via screw nipples (hollow bolt + adapter)


Advantage

- > Optimal height and angle compensation
- > Very good fit to irregular products
- > Gentle handling of sensitive products
- > A very safe seat, bolted down with a bracket from the bottom
- > Cost-effective replacement of worn seals

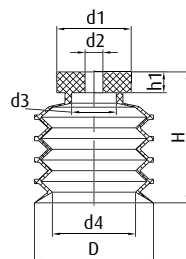
Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---------------|------------------------|---|-----------------|-------------------|
| 25.010.044._* | SBF-C-10 | 4 | 4.5 | NBR (sw), SI (tr) |
| 25.020.045._* | SBF-C-20 | 10 | 4.5 | NBR (sw), SI (tr) |
| 25.030.046._* | SBF-C-30 | 14 | 4.5 | NBR (sw), SI (tr) |
| 25.040.047._* | SBF-C-40 | 19 | 4.5 | NBR (sw), SI (tr) |
| 25.050.048._* | SBF-C-50 | 26 | 4.5 | NBR (sw), SI (tr) |

Accessories

| Item no. |  Suitable fittings | | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M4-male | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 25.010.044._* | 270.458 (p.408) | -- | 270.009 (p.417) | 270.007 (p.422) | -- | -- |
| 25.020.045._* | -- | 270.459 (p.414) | 270.480 (p.420) | 270.479 (p.423) | -- | -- |
| 25.030.046._* | -- | 270.460 (p.414) | 270.482 (p.420) | 270.481 (p.423) | 270.483 (p.429) | 270.484 (p.433) |
| 25.040.047._* | -- | -- | 270.486 (p.420) | 270.485 (p.423) | 270.487 (p.429) | 270.488 (p.434) |
| 25.050.048._* | -- | -- | 270.490 (p.420) | 270.489 (p.423) | 270.491 (p.429) | 270.492 (p.434) |

Dimensions



| Item no. | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] |
|---------------|----------|-----------|-----------|-----------|-----------|--------|---------|
| 25.010.044._* | 10 | 10 | 4 | -- | 6 | 14.5 | 3 |
| 25.020.045._* | 20 | 15 | 6 | 10 | 14 | 25 | 4 |
| 25.030.046._* | 30 | 18 | 6 | 12 | 19 | 38.5 | 5 |
| 25.040.047._* | 40 | 25 | 6 | 15 | 28 | 44 | 7 |
| 25.050.048._* | 50 | 30 | 6 | 19 | 32 | 54 | 7 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups for chocolates - SL-PB



Product Description

Bellows vacuum cups made of FDA-approved material for handling delicate products with heavily textured surfaces.

Advantage

- > Gentle handling of the most sensitive surfaces
- > Also suitable for three-dimensional products, e.g. chocolates

Technical data

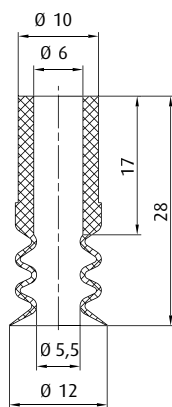
| Item no. | Model / Lip dimensions |  | Material / Colour | Number of folds |
|---------------|------------------------|---|-------------------|-----------------|
| 21.012.079._* | SL-PB-12 | 7 | SI (w) | 2.5 |
| 27.016.001._* | SL-PB-16 | 6 | SI (tr) | 1.5 |

Accessories

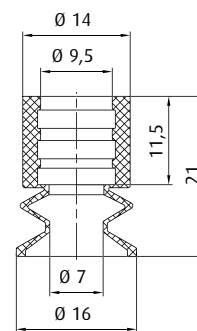
Suitable fittings

| Item no. | M5-male | M10-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 21.012.079._* | 270.443 (p.410) | -- | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |
| 27.016.001._* | 270.244 (p.410) | 270.177 (p.416) | -- | -- | 270.451 (p.426) | 270.452 (p.431) |

Dimensions



Drawing A



Drawing B

| Item no. | Drawing |
|---------------|---------|
| 21.012.079._* | A |
| 27.016.001._* | B |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Vacuum cups for baked goods - SL-B

Vacuum cups for baked goods - SL-B



Product Description

Bellows vacuum cups especially suitable for baked goods such as waffles, bread, rolls, pizzas and donut.

Advantage

- > Large degree of leveling
- > Gentle attachment to the product
- > Good holding strength through optimised lip geometry
- > FDA-compliant

Ordering notes:

Matching assembly aid for special fitting 270.419: Item No. 90.007

Technical data

| Item no. | Model / Lip dimensions | Number of folds | Number of folds | Material / Colour |
|---------------|------------------------|-----------------|-----------------|-------------------|
| 21.034.179._* | SL-B-34 | 12 | 2.5 | SI (tr) |
| 25.038.016._* | SL-B-38 | 24 | 4.5 | SI (tr) |
| 27.039.017._* | SL-B-38A | 20 | 5.5 | SI (tr) |
| 25.040.043._* | SL-B-40 | 24 | 4.5 | SI (tr) |
| 25.040.058._* | SL-B-40A | 25 | 4.5 | SI (bl) |
| 21.060.074._* | SL-B-60 | 12 | 2.5 | SI (tr) |

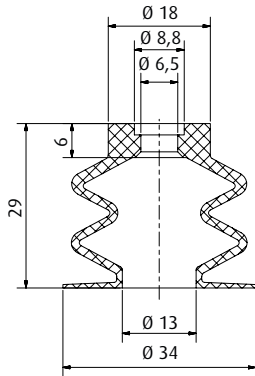
Accessories

| Item no. | Suitable fittings | | | | |
|---------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| | Without Thread | M6-male | G1/4-male | G1/4-female | G1/2-male |
| 21.034.179._* | -- | 270.039 (p.414) | -- | -- | -- |
| 25.038.016._* | 270.419 (p.441) | -- | 270.183 (p.431) | 270.182 (p.434) | -- |
| 27.039.017._* | 270.419 (p.441) | -- | 270.183 (p.431) | 270.182 (p.434) | -- |
| 25.040.043._* | 270.419 (p.441) | -- | 270.183 (p.431) | 270.182 (p.434) | -- |
| 25.040.058._* | 270.419 (p.441) | -- | 270.183 (p.431) | 270.182 (p.434) | -- |
| 21.060.074._* | -- | -- | -- | -- | 270.372 (p.437) |

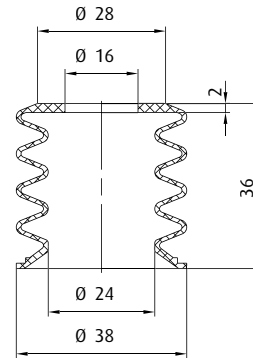
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



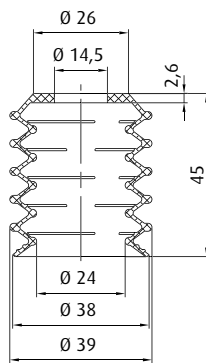
Dimensions



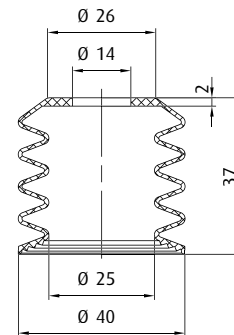
Drawing A



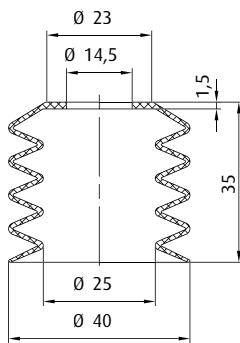
Drawing B



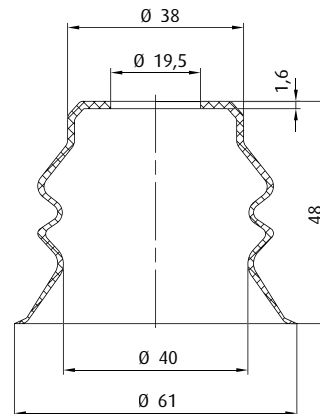
Drawing C



Drawing D



Drawing E



Drawing F

| Item no. | Drawing |
|---------------|---------|
| 21.034.179._* | A |
| 25.038.016._* | B |
| 27.039.017._* | C |
| 25.040.043._* | D |
| 25.040.058._* | E |
| 21.060.074._* | F |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Detectable vacuum cups for baked goods - SL-BD

Detectable vacuum cups for baked goods - SL-BD

DETECTABLE



Product Description

Bellows vacuum cups especially suitable for baked goods such as bread, rolls or pizza. The vacuum cup material used is a special mixture that can be detected, for example by metal detectors from SAFELINE, and then separated and discarded.


Advantage

- > Detectable
- > FDA-compliant

Ordering notes:

Matching assembly aid for special fittings 270.419: Item No. 90.007

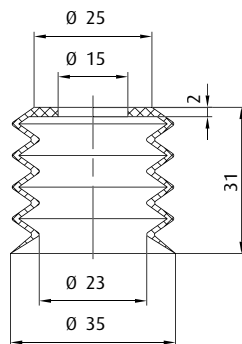
Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---------------|------------------------|--|-----------------|-------------------|
| 25.035.069._* | SL-BD-35 | 25 | 4.5 | SI (r) |
| 25.040.066._* | SL-BD-40 | 28 | 4.5 | SI (br), SI (bl) |

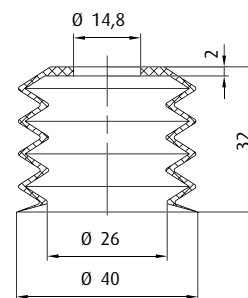
Accessories

| Item no. | Without Thread |
|---------------|-----------------|
| 25.035.069._* | 270.419 (p.441) |
| 25.040.066._* | 270.419 (p.441) |

Dimensions



Drawing A



Drawing B

| Item no. | Drawing |
|---------------|---------|
| 25.035.069._* | A |
| 25.040.066._* | B |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Vacuum cups for eggs - SL-E



Product Description

Bellows vacuum cups made of FDA-compliant silicone in a design specially optimised for handling eggs. Very long vacuum cup lift.

Advantage

- > Good absorption
- > Great stroke movement

Technical data

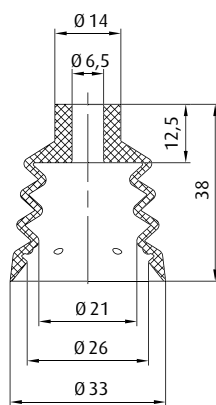
| Item no. | Model / Lip dimensions | Number of folds | Material / Colour |
|---------------|------------------------|-----------------|-------------------|
| 27.033.008._* | SL-E-33 | 16 | SI (tr) |
| 27.034.023._* | SL-E-34 | 39 | SI (r) |

Accessories

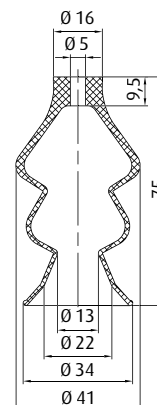
Suitable fittings

| Item no. | M5-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 27.033.008._* | -- | 270.132 (p.417) | 270.114 (p.422) | 270.208 (p.425) | 270.178 (p.431) |
| 27.034.023._* | 270.443 (p.410) | 270.238 (p.417) | 270.110 (p.422) | 270.534 (p.425) | -- |

Dimensions



Drawing A



Drawing B

| Item no. | Drawing |
|---------------|---------|
| 27.033.008._* | A |
| 27.034.023._* | B |

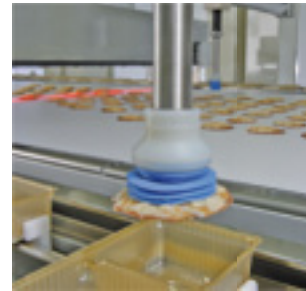
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum cups, 1.5 and 2.5 folds - SV-SB

Bellows vacuum cups, 1.5 and 2.5 folds - SV-SB




Product Description

Bellows vacuum cups, 1.5 and 2.5 folds, for standard packaging machines. Soft, flexible sealing lip for smooth contact. FDA-compliant materials (SI).


Advantage

> Gentle handling of sensitive products

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour |
|---|------------------------|---|-----------------|-------------------|
| Bellows vacuum cups 1.5 folds - SV-SB1 | | | | |
| 23.016.232._* | SV-SB1-16 | 6 | 1.5 | SI (tr) |
| 23.030.230._* | SV-SB1-30 | 7 | 1.5 | NR (gr) |
| Bellows vacuum cups 2.5 folds - SV-SB2 | | | | |
| 21.030.030._* | SV-SB2-30 | 13 | 2.5 | SI (tr), NR (bl) |
| 21.040.132._* | SV-SB2-40 | 11 | 2.5 | SI (tr), SI (bl) |

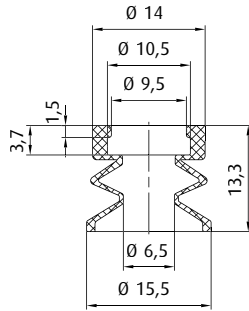
Accessories

| Item no. |  Suitable fittings | | | | |
|---|---|--------------------|-----------------|-----------------|-----------------|
| | M5-male | M6-male | M10-male | G1/4-male | G1/4-female |
| Bellows vacuum cups 1.5 folds - SV-SB1 | | | | | |
| 23.016.232._* | 270.311 (p.411) | 270.312/19 (p.414) | -- | -- | -- |
| 23.030.230._* | -- | -- | 270.177 (p.416) | 270.451 (p.426) | 270.452 (p.431) |
| Bellows vacuum cups 2.5 folds - SV-SB2 | | | | | |
| 21.030.030._* | -- | -- | 270.177 (p.416) | 270.451 (p.426) | 270.452 (p.431) |
| 21.040.132._* | -- | -- | -- | -- | -- |

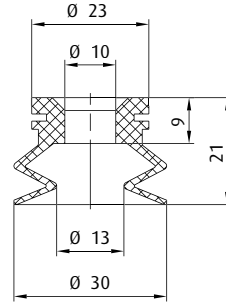
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



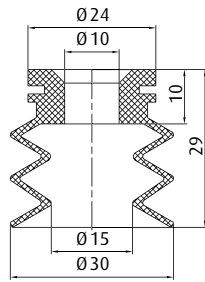
Dimensions



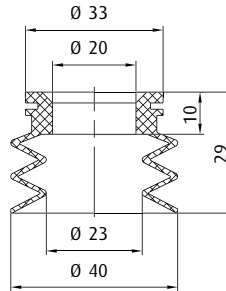
Drawing A



Drawing B



Drawing C



Drawing D

| Item no. | Drawing |
|---|---------|
| Bellows vacuum cups 1.5 folds - SV-SB1 | |
| 23.016.232.* | A |
| 23.030.230.* | B |
| Bellows vacuum cups 2.5 folds - SV-SB2 | |
| 21.030.030.* | C |
| 21.040.132.* | D |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum cups with 1.5 folds for dynamic sheet handling - SM-B

NEW



Product Description

Robust, round NBR bellows vacuum cups, 60° Shore A with vulcanised fitting made of aluminium and large area, multi-part "anti-slip" cleats. Various connection threads available. Silicone-free.

Advantage

- > Internal supports help to prevent deep-drawing or deformation of thin sheets
- > Leak-free suction even with curved surfaces due to flexible sealing lip
- > Fold geometry allows handling of three dimensional shaped sheets
- > Secure fit due to vulcanised connection thread

Technical data

| Model / Lip dimensions | Thread (Aluminium) | | | | | | |
|------------------------|--------------------|--------------|--------------|--------------|--------------|---------------------|------|
| | G1/4-male | G1/4-female | G3/8-female | M10-male | M14x1.5-male | Rectangular adapter | |
| SM-B-30 | 22.030.171.1 | 22.030.172.1 | 22.030.173.1 | 22.030.174.1 | 22.030.175.1 | 22.030.176.1 | 9 |
| SM-B-40 | 22.040.177.1 | 22.040.178.1 | 22.040.179.1 | 22.040.180.1 | 22.040.181.1 | 22.040.182.1 | 10 |
| SM-B-50 | 22.050.183.1 | 22.050.184.1 | 22.050.185.1 | 22.050.186.1 | 22.050.187.1 | 22.050.188.1 | 11.5 |
| SM-B-60 | 22.060.189.1 | 22.060.190.1 | 22.060.191.1 | 22.060.192.1 | 22.060.193.1 | 22.060.194.1 | 14.5 |
| SM-B-80 | 22.080.195.1 | 22.080.196.1 | 22.080.197.1 | 22.080.198.1 | 22.080.199.1 | 22.080.200.1 | 22 |
| SM-B-100 | 22.100.201.1 | 22.100.202.1 | 22.100.203.1 | 22.100.204.1 | 22.100.205.1 | 22.100.206.1 | 26 |
| SM-B-125 | 22.125.207.1 | 22.125.208.1 | 22.125.209.1 | 22.125.210.1 | 22.125.211.1 | 22.125.212.1 | 32 |

"Anti-Slip" Cleats (SM-B-80)



Continued on the next page

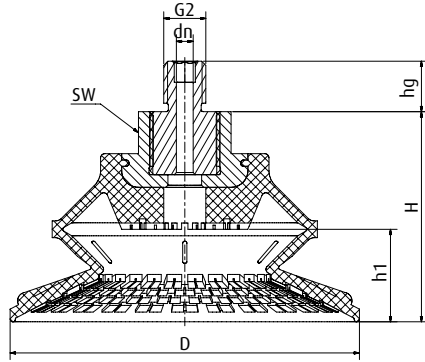
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



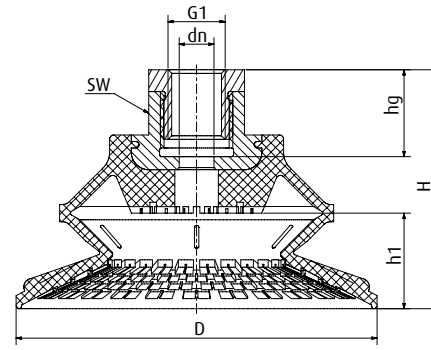
Series | Bellows vacuum cups SB

Bellows vacuum cups with 1.5 folds for dynamic sheet handling - SM-B

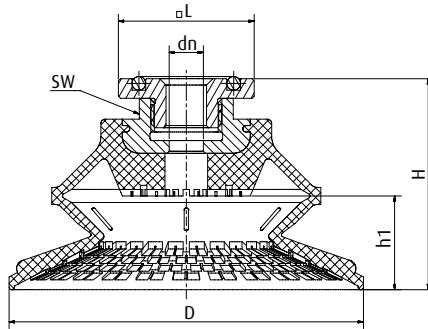
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | Ø D [mm] | Ø dn [mm] | G1 (female) | G2 (male) | □L [mm] | H [mm] | h1 [mm] | hg [mm] | SW |
|--------------|---------|----------|-----------|-------------|-----------|---------|--------|---------|---------|----|
| 22.030.171.* | A | 32 | 4 | -- | G1/4 | -- | 28 | 9 | 10 | 17 |
| 22.030.172.* | B | 32 | 4 | G1/4 | -- | -- | 28 | 9 | 12 | 17 |
| 22.030.173.* | B | 32 | 4 | G3/8 | -- | -- | 44 | 9 | 10 | 17 |
| 22.030.174.* | A | 32 | 4 | -- | M10 | -- | 28 | 9 | 12 | 17 |
| 22.030.175.* | A | 32 | 4 | -- | M14x1.5 | -- | 28 | 9 | 12 | 17 |
| 22.030.176.* | C | 32 | 4 | -- | -- | 32 | 31.2 | 9 | -- | 17 |
| 22.040.177.* | A | 42 | 4 | -- | G1/4 | -- | 29 | 10 | 10 | 17 |
| 22.040.178.* | B | 42 | 4 | G1/4 | -- | -- | 29 | 10 | 12 | 17 |
| 22.040.179.* | B | 42 | 4 | G3/8 | -- | -- | 45 | 10 | 10 | 17 |
| 22.040.180.* | A | 42 | 4 | -- | M10 | -- | 29 | 10 | 12 | 17 |
| 22.040.181.* | A | 42 | 4 | -- | M14x1.5 | -- | 29 | 10 | 12 | 17 |
| 22.040.182.* | C | 42 | 4 | -- | -- | 32 | 31.2 | 10 | -- | 17 |
| 22.050.183.* | A | 52 | 6 | -- | G1/4 | -- | 37 | 11.5 | 10 | 22 |
| 22.050.184.* | B | 52 | 6 | G1/4 | -- | -- | 42 | 11.5 | 20 | 22 |
| 22.050.185.* | B | 52 | 6 | G3/8 | -- | -- | 37 | 11.5 | 15 | 22 |
| 22.050.186.* | A | 52 | 4 | -- | M10 | -- | 37 | 11.5 | 12 | 22 |
| 22.050.187.* | A | 52 | 6 | -- | M14x1.5 | -- | 37 | 11.5 | 12 | 22 |
| 22.050.188.* | C | 52 | 6 | -- | -- | 32 | 36.5 | 11.5 | -- | 22 |
| 22.060.189.* | A | 63 | 6 | -- | G1/4 | -- | 41.5 | 14.5 | 10 | 22 |
| 22.060.190.* | B | 63 | 8 | G1/4 | -- | -- | 46.5 | 14.5 | 20 | 22 |
| 22.060.191.* | B | 63 | 8 | G3/8 | -- | -- | 41.5 | 14.5 | 15 | 22 |
| 22.060.192.* | A | 63 | 4 | -- | M10 | -- | 41.5 | 14.5 | 12 | 22 |
| 22.060.193.* | A | 63 | 6 | -- | M14x1.5 | -- | 41.5 | 14.5 | 12 | 22 |
| 22.060.194.* | C | 63 | 8 | -- | -- | 32 | 41 | 14.5 | -- | 22 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



| Item no. | Drawing | ∅ D [mm] | ∅ dn [mm] | G1 (female) | G2 (male) | □L [mm] | H [mm] | h1 [mm] | hg [mm] | SW |
|--------------|---------|----------|-----------|-------------|-----------|---------|--------|---------|---------|----|
| 22.080.195.* | A | 83 | 6 | -- | G1/4 | -- | 50 | 22 | 10 | 22 |
| 22.080.196.* | B | 83 | 8 | G1/4 | -- | -- | 55 | 22 | 20 | 22 |
| 22.080.197.* | B | 83 | 8 | G3/8 | -- | -- | 50 | 22 | 15 | 22 |
| 22.080.198.* | A | 83 | 4 | -- | M10 | -- | 50 | 22 | 12 | 22 |
| 22.080.199.* | A | 83 | 6 | -- | M14x1.5 | -- | 50 | 22 | 12 | 22 |
| 22.080.200.* | C | 83 | 8 | -- | -- | 32 | 49.5 | 22 | -- | 22 |
| 22.100.201.* | A | 103 | 6 | -- | G1/4 | -- | 57 | 26 | 10 | 22 |
| 22.100.202.* | B | 103 | 8 | G1/4 | -- | -- | 62 | 26 | 20 | 22 |
| 22.100.203.* | B | 103 | 8 | G3/8 | -- | -- | 57 | 26 | 15 | 22 |
| 22.100.204.* | A | 103 | 4 | -- | M10 | -- | 57 | 26 | 12 | 22 |
| 22.100.205.* | A | 103 | 6 | -- | M14x1.5 | -- | 57 | 26 | 12 | 22 |
| 22.100.206.* | C | 103 | 8 | -- | -- | 32 | 56.5 | 26 | -- | 22 |
| 22.125.207.* | A | 128 | 6 | -- | G1/4 | -- | 68 | 32 | 10 | 22 |
| 22.125.208.* | B | 128 | 8 | G1/4 | -- | -- | 73 | 32 | 20 | 22 |
| 22.125.209.* | B | 128 | 8 | G3/8 | -- | -- | 68 | 32 | 15 | 22 |
| 22.125.210.* | A | 128 | 4 | -- | M10 | -- | 68 | 32 | 12 | 22 |
| 22.125.211.* | A | 128 | 6 | -- | M14x1.5 | -- | 68 | 32 | 12 | 22 |
| 22.125.212.* | C | 128 | 8 | -- | -- | 32 | 67.5 | 32 | -- | 22 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Bellows vacuum cups SB

Bellows vacuum suction plates softgrip - SBPL-SG

Bellows vacuum suction plates softgrip - SBPL-SG




Product Description

Vacuum suction plate with 1.5 folds for gentle handling of heavy but sensitive products (e.g. glass plates). Divided support surfaces prevent deformation of the product and provide a firm grip. Additional safety sealing lip on the support block positions the product orthogonally to the ground.
Connection via an interlocking, snap-in aluminium plate.

Advantage

- > Very careful handling due to soft sealing lip and lightly compressing bellows
- > Cleats provide product support
- > Cost-effective replacement of worn seals

Technical data

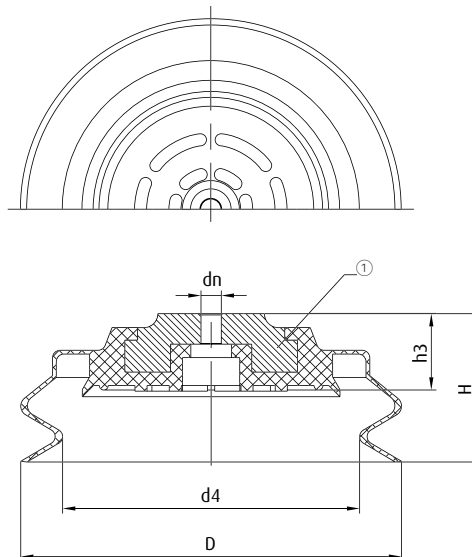
| Item no. | Model / Lip dimensions |  | Weight [g] | Material / Colour | Number of folds |
|---------------|------------------------|--|------------|-------------------|-----------------|
| 22.150.109._* | SBPL-SG-150 | 28 | 353 | NBR (sw) | 1.5 |
| 22.210.115._* | SBPL-SG-210 | 32 | 860 | NBR (sw) | 1.5 |

Accessories

Spare cup

| |
|----------------------|
| 23.150.090.1 (p.357) |
| 23.210.009.1 (p.360) |

Dimensions



① = Aluminium

| Item no. | Ø D [mm] | Ø d4 [mm] | Ø dn [mm] | H [mm] | h3 [mm] |
|---------------|----------|-----------|-----------|--------|---------|
| 22.150.109._* | 150 | 117 | 8 | 58 | 30 |
| 22.210.115._* | 212 | 180 | 8 | 65 | 31 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Bellows vacuum suction plates - SBPL-E



Product Description

Vacuum suction plate, 1.5 folds, vulcanised carrier plate made of steel. Soft sealing lip from a low-marking NBR blend and lightly compressing bellows for gentle handling of heavy but sensitive products (e.g. glass plates). Divided support surfaces provide a firm grip for all loads.


Advantage

- > Gentle handling of heavy, sensitive products
- > Good adaptation to both concave and convex surfaces
- > Rubberised support surfaces prevent deformation of workpieces
- > Low-marking

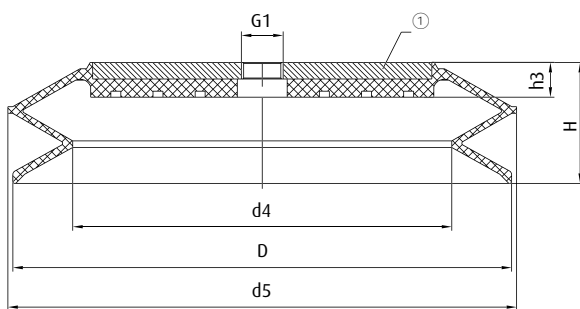
Ordering notes:

Customised drilling patterns on request

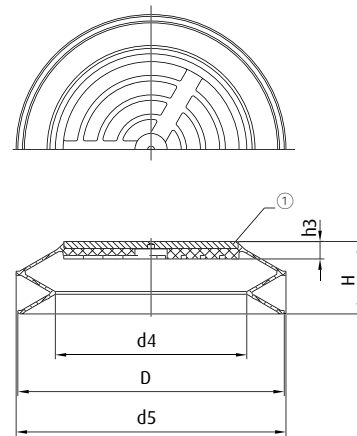
Technical data

| Item no. | Model / Lip dimensions | Connection thread |  | Weight [g] | Number of folds | Material / Colour |
|---------------|------------------------|-------------------|--|------------|-----------------|-------------------|
| 22.150.084._* | SBPL-E-150 | G1/2-female | 32 | 460 | 1.5 | NBR (gr) |
| 22.200.087._* | SBPL-E-200 | G1/2-female | 30 | 860 | 1.5 | NBR (gr) |
| 22.250.088._* | SBPL-E-250 | G1/2-female | 38 | 1,900 | 1.5 | NBR (gr) |
| 22.300.091._* | SBPL-E-300 | without | 60 | 4,200 | 1.5 | NBR (gr) |
| 22.350.102._* | SBPL-E-350 | without | 55 | 4,200 | 1.5 | NBR (gr) |

Dimensions



Drawing A



Drawing B

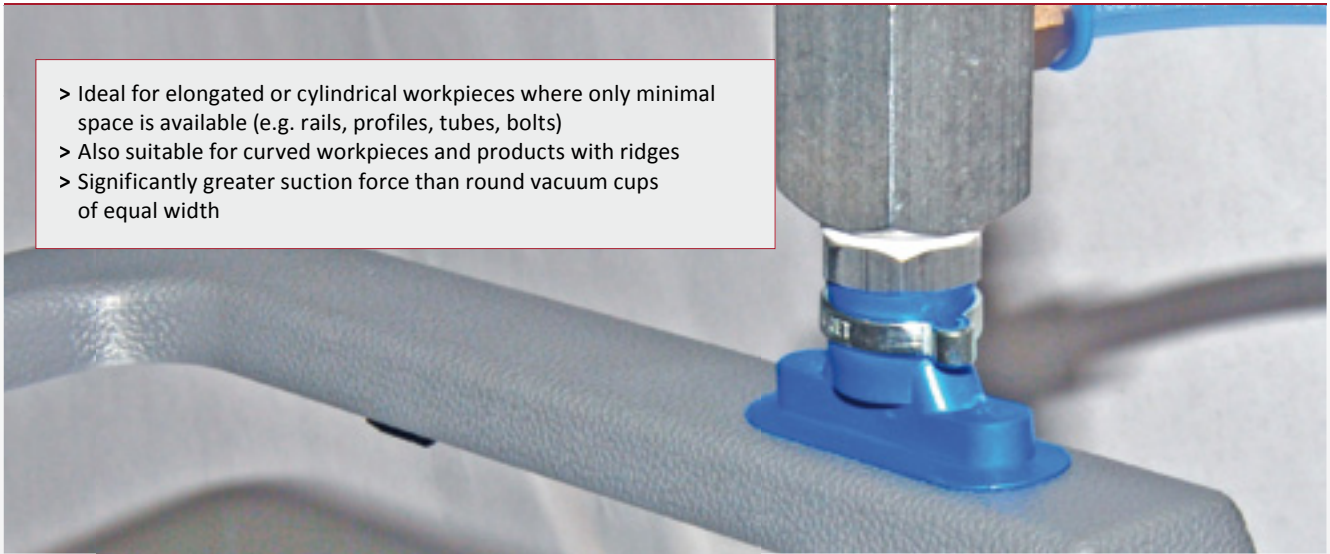
① = Steel

| Item no. | Drawing | Ø D [mm] | Ø d4 [mm] | Ø d5 [mm] | G1 | H [mm] | h3 [mm] |
|---------------|---------|----------|-----------|-----------|------|--------|---------|
| 22.150.084._* | A | 150 | 94 | 157 | G1/2 | 54 | 15.5 |
| 22.200.087._* | A | 200 | 140 | 206 | G1/2 | 57 | 17 |
| 22.250.088._* | A | 250 | 190 | 255 | G1/2 | 61 | 17.5 |
| 22.300.091._* | B | 306 | 220 | 310 | -- | 83 | 20 |
| 22.350.102._* | B | 350 | 262 | 350 | -- | 84 | 21 |



FIPA Oval vacuum cups SO

- > Ideal for elongated or cylindrical workpieces where only minimal space is available (e.g. rails, profiles, tubes, bolts)
- > Also suitable for curved workpieces and products with ridges
- > Significantly greater suction force than round vacuum cups of equal width



Oval vacuum cups, flat, universal - SO-FU

- > Soft sealing lip also allows for the pick-up of curved products
- > Supports help to prevent warping of the product
- > Dimensions: 4x2 - 100x30 mm

> See page 141



High temperature-resistant Thermalon® oval cups - SKT-O

- > Material blend especially suited for removing hot plastic parts to be painted from an injection molding machine
- > Very low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Dimensions: 4x2 - 75x25 mm

> See page 144



High temperature-resistant HNBR oval cups - SKH-O

- > Universal vacuum cups for removing hot plastic parts to be painted from an injection molding machine
- > Low-marking and free of silicone and other paint-wetting-impairment substances (PWIS)
- > Heat-resistant up to 160 °C
- > Dimensions: 4x2 - 45x15 mm

> See page 146



Oval vacuum cups, 2.5 folds, universal - SO-BU

- > Bellows compensate for level differences and enable gentle attachment to sensitive products
- > The reinforcement wires fitted into the folds help prevent collapse at excessive vacuum levels
- > Dimensions: 25x8 - 75x25 mm

> See page 148



FIPA Oval vacuum cups SO

**Vinyl oval bellows cups - SO-BV**

- > Compensates for height differences and enables gentle set down on the workpiece
- > Good adaptation to curved or flexible product surfaces
- > Wear-resistant material - long service life
- > Dimensions: 35x28 - 100x55 mm

> See page 149

**Silicone rectangular bellows cups, 2.5 and 3.5 folds - SV-RB**

- > Handling of flexible parts, workpieces with uneven surfaces or products with flexible outer packaging
- > FDA-approved vacuum cup material
- > Dimensions: 52x25 - 80x50 mm

> See page 150

**Oval vacuum cups, flat - SO-E**

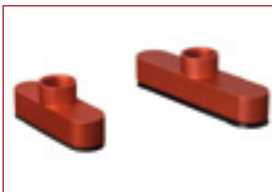
- > Very slim design in a number of graduations
- > Antistatic version also available
- > Interlocking clip-in fittings ensure torsional rigidity and security against rotation
- > Cost-effective replacement of worn seals
- > Dimensions: 10x4 - 30x8 mm

> See page 152

**Oval vacuum cups for cylindrical products - SO-Z**

- > Greater suction force over normal oval vacuum cups due to three-dimensional oval suction lip contour partially encompassing the workpiece
- > Suitable for cylindrical products with diameters of 2 - 18 mm

> See page 154

**Oval vacuum cups, flat - SO-C**

- > Vacuum cup housing of anodised aluminium enables torsion-resistant handling
- > Screwed rubber clamping plate fixes rubber sealing lip
- > Dimensions: 30x12 - 55x12 mm

> See page 157

**Oval vacuum suction plates for textured surfaces - SOPL-R**

- > Leak-free gripping of many problematic product surfaces thanks to extremely flexible, thinly tapered sealing lip
- > Increased security due to vulcanised carrier plate
- > Dimensions: 90x50 - 190x90 mm

> See page 158

**Oval vacuum suction plates - SOPL-S and SOPL-A**

- > Durable vacuum suction plates for handling heavy, narrow products
- > Rubberised support surfaces prevent the deformation of products
- > Available in the following materials: NBR (low-marking) and NR (wear-resistant)
- > Dimensions: 110x40 - 580x180 mm

> See page 160



Oval vacuum cups, flat, universal - SO-FU



Product Description

Flat vacuum cups in oval design for elongated workpieces where only minimal space is available (e.g., rails, profiles, tubes, bolts, etc.). Size 100x35 mm reinforced with metal inserts. Connection via plug-in nipple.


Advantage

- > Significantly increased suction force compared to round vacuum cups of the same width
- > Soft sealing lip also allows adhesion to curved products
- > Cleats help to prevent warping of the product
- > Cost-effective replacement of worn seals

Ordering notes:

From size 15x5 mm upward, a gripper clamp (available separately) is recommended to prevent inadvertent rotation.

Technical data

| Item no. | Model / Lip dimensions |  | Material / Colour |
|-------------------------|------------------------|---|----------------------------|
| 132.4x2.001._* | SO-FU-4x2 | 0.5 | NBR (sw), SI (tr), PU (bl) |
| 132.4x2.031._* | SO-FU-4x2A | 0.5 | NBR (sw), SI (tr), PU (bl) |
| 132.7x4.002._* | SO-FU-7x4 | 0.8 | NBR (sw), SI (tr) |
| 132.7x4.034._* | SO-FU-7x4A | 0.8 | NBR (sw), SI (tr) |
| 132.12x4.004._* | SO-FU-12x4 | 0.5 | NBR (gr), SI (tr) |
| 132.15x5.008._* | SO-FU-15x5 | 1 | NBR (gr), SI (tr), PU (bl) |
| 132.18x6.012._* | SO-FU-18x6 | 1 | NBR (gr), SI (tr), PU (bl) |
| 132.24x8.016._* | SO-FU-24x8 | 1 | NBR (gr), SI (tr), PU (bl) |
| 132.30x10.018._* | SO-FU-30x10 | 2 | NBR (gr), SI (tr), PU (bl) |
| 132.36x12.019._* | SO-FU-36x12 | 2 | NBR (gr), SI (tr), PU (bl) |
| 132.45x15.020._* | SO-FU-45x15 | 3 | NBR (gr), SI (tr), PU (bl) |
| 132.60x20.022._* | SO-FU-60x20 | 3 | NBR (gr), SI (tr), PU (bg) |
| 132.75x25.023._* | SO-FU-75x25 | 3 | NBR (gr), SI (tr) |
| 132.100x35.26._* | SO-FU-100x35 | 3 | NBR (sw) |

Accessories

Clamp

| |
|----------------|
| -- |
| -- |
| -- |
| -- |
| -- |
| 78.030 (p.476) |
| 78.030 (p.476) |
| 78.032 (p.476) |
| 78.032 (p.476) |
| 78.032 (p.476) |
| 78.032 (p.476) |
| 78.033 (p.476) |
| 78.033 (p.476) |
| 78.034 (p.476) |
| 78.034 (p.476) |

Continued on the next page 

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



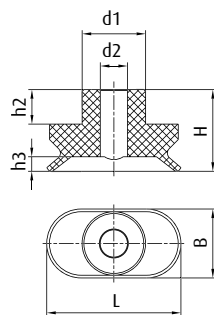
Series | Oval vacuum cups SO

Oval vacuum cups, flat, universal - SO-FU

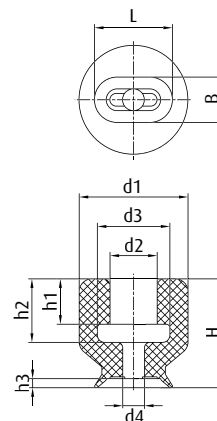
Accessories

| Item no. | Suitable fittings | | | | | | | | |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | M3-male | M4-male | M5-male | M5-female | M6-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 132.4x2.001.* | 270.011 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- |
| 132.4x2.031.* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- | -- | -- | -- |
| 132.7x4.002.* | 270.025 (p.408) | -- | -- | -- | -- | -- | -- | -- | -- |
| 132.7x4.034.* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- | -- | -- | -- |
| 132.12x4.004.* | -- | -- | 270.134 (p.409) | 270.347 (p.412) | 270.104 (p.413) | 270.033 (p.416) | 270.478 (p.421) | -- | -- |
| 132.15x5.008.* | -- | -- | 270.094 (p.411) | 270.005 (p.412) | -- | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.18x6.012.* | -- | -- | 270.094 (p.411) | 270.005 (p.412) | -- | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.24x8.016.* | -- | -- | 270.094 (p.411) | 270.005 (p.412) | -- | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.30x10.018.* | -- | -- | 270.094 (p.411) | 270.005 (p.412) | -- | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.36x12.019.* | -- | -- | 270.094 (p.411) | 270.005 (p.412) | -- | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.45x15.020.* | -- | -- | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 132.60x20.022.* | -- | -- | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 132.75x25.023.* | -- | -- | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 132.100x35.26.* | -- | -- | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |

Dimensions



Drawing A

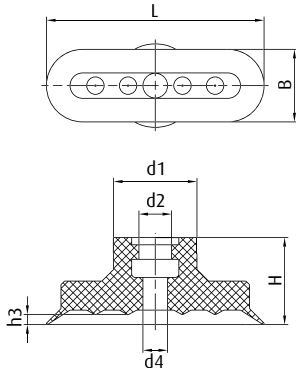


Drawing B

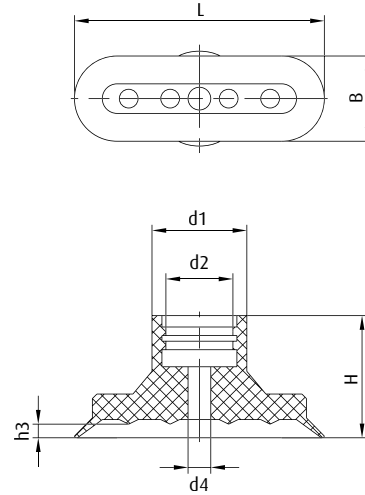
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing C



Drawing D

| Item no. | Drawing | L [mm] | B [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|-----------------|---------|--------|--------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| 132.4x2.001.* | A | 5 | 2.7 | 2 | 1 | -- | -- | 3 | -- | 1.3 | 0.5 |
| 132.4x2.031.* | B | 4.3 | 2.5 | 6 | 2.6 | 4 | 1.2 | 6 | 2.5 | 3.5 | 0.5 |
| 132.7x4.002.* | A | 7.5 | 3.8 | 3.5 | 1.5 | -- | -- | 4.5 | -- | 1.9 | 0.8 |
| 132.7x4.034.* | B | 7.5 | 4 | 6 | 2.4 | 3 | 1.4 | 6 | 2.3 | 3 | 0.7 |
| 132.12x4.004.* | B | 12 | 4 | 8 | 4 | -- | 1.5 | 15 | -- | 9.5 | 1 |
| 132.15x5.008.* | C | 15 | 5 | 9 | 5 | -- | 2 | 12 | -- | -- | 0.8 |
| 132.18x6.012.* | C | 18 | 6 | 9 | 4.5 | -- | 2 | 12 | -- | -- | 1.3 |
| 132.24x8.016.* | C | 24 | 8 | 11.5 | 4.5 | -- | 3 | 12 | -- | -- | 1.3 |
| 132.30x10.018.* | C | 30 | 10 | 11.5 | 4.5 | -- | 3.4 | 12 | -- | -- | 1.4 |
| 132.36x12.019.* | C | 36 | 12 | 12 | 5 | -- | 4 | 12 | -- | -- | 1.2 |
| 132.45x15.020.* | D | 44 | 15 | 16.5 | 12 | -- | 4 | 22 | -- | -- | 2.4 |
| 132.60x20.022.* | D | 60 | 20 | 16.5 | 11.5 | -- | 4 | 22 | -- | -- | 2.2 |
| 132.75x25.023.* | D | 75 | 25 | 17.5 | 11 | -- | 3.5 | 22 | -- | -- | 3 |
| 132.100x35.26.* | D | 100 | 35 | 17.5 | 11.5 | -- | 8 | 22 | -- | -- | 3.1 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

High temperature-resistant Thermalon® oval cups - SKT-O

High temperature-resistant Thermalon® oval cups - SKT-O

UP TO 160 °C & MINIMUM MARKING



Product Description

Oval vacuum cups for smooth surfaces suitable for removing hot plastic parts to be painted from an injection moulding machine. Thermalon® is a material mixture specially optimised for the plastics industry with a hardness of 60° Shore A. Connection via plug-in nipple.


Advantage

- > Extremely low-marking
- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Significantly increased suction force compared to round vacuum cups of the same width
- > Soft sealing lip also allows adhesion to curved products

Ordering notes:

From size 24x8 mm upward, a gripper clamp (available separately) is recommended to prevent inadvertent rotation.

Technical data


| Item no. | Model / Lip dimensions |  | Material / Colour | Usage temperature [°C] |
|------------------|------------------------|---|-------------------|------------------------|
| 132.4x2.079._* | SKT-O-4x2 | 0.4 | Thermalon® (bl) | 0 - 160 |
| 132.7x4.080._* | SKT-O-7x4 | 0.5 | Thermalon® (bl) | 0 - 160 |
| 132.15x5.081._* | SKT-O-15x5 | 0.6 | Thermalon® (bl) | 0 - 160 |
| 132.18x6.082._* | SKT-O-18x6 | 1 | Thermalon® (bl) | 0 - 160 |
| 132.24x8.083._* | SKT-O-24x8 | 1 | Thermalon® (bl) | 0 - 160 |
| 132.30x10.084._* | SKT-O-30x10 | 1 | Thermalon® (bl) | 0 - 160 |
| 132.45x15.085._* | SKT-O-45x15 | 2 | Thermalon® (bl) | 0 - 160 |
| 132.60x20.086._* | SKT-O-60x20 | 2.5 | Thermalon® (bl) | 0 - 160 |
| 132.75x25.087._* | SKT-O-75x25 | 2.5 | Thermalon® (bl) | 0 - 160 |

Accessories

Clamp

| |
|----------------|
| -- |
| -- |
| -- |
| -- |
| 78.032 (p.476) |
| 78.032 (p.476) |
| 78.033 (p.476) |
| 78.033 (p.476) |
| 78.034 (p.476) |

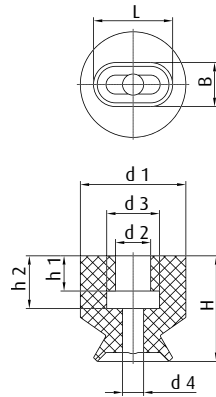
Accessories

| Item no. |  Suitable fittings | | | | | | |
|------------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M3-male | M4-male | M5-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
| 132.4x2.079._* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- | -- |
| 132.7x4.080._* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- | -- |
| 132.15x5.081._* | -- | -- | 270.094 (p.411) | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.18x6.082._* | -- | -- | 270.094 (p.411) | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.24x8.083._* | -- | -- | 270.094 (p.411) | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.30x10.084._* | -- | -- | 270.094 (p.411) | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 132.45x15.085._* | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 132.60x20.086._* | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 132.75x25.087._* | -- | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |

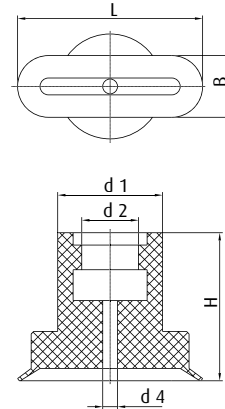
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



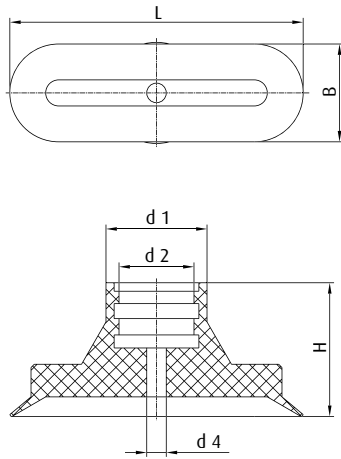
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | L [mm] | B [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] |
|------------------|---------|--------|--------|-----------|-----------|-----------|-----------|--------|
| 132.4x2.079._* | A | 4.5 | 2.5 | 6 | 2 | 3 | 1.2 | 6 |
| 132.7x4.080._* | A | 7 | 3.5 | 6 | 2 | 3 | 1.4 | 6 |
| 132.15x5.081._* | B | 15 | 5 | 8.5 | 4.6 | -- | 1.2 | 12 |
| 132.18x6.082._* | B | 18 | 6 | 8.5 | 4.6 | -- | 1.5 | 12 |
| 132.24x8.083._* | B | 24 | 8 | 11.5 | 5.5 | -- | 1.5 | 12 |
| 132.30x10.084._* | B | 30 | 10 | 11.5 | 5.5 | -- | 2.5 | 12 |
| 132.45x15.085._* | C | 45 | 15 | 15.5 | 11.5 | -- | 3 | 21 |
| 132.60x20.086._* | C | 60 | 20 | 15.5 | 11.5 | -- | 4 | 21 |
| 132.75x25.087._* | C | 75 | 25 | 17.5 | 11.5 | -- | 4 | 21 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

High temperature-resistant HNBR oval cups - SKH-O

High temperature-resistant HNBR oval cups - SKH-O

UP TO 160 °C & MINIMUM MARKING



Product Description

Oval vacuum cups for smooth surfaces suitable for removing hot plastic parts to be painted from an injection moulding machine. Connection via plug-in nipple.


Advantage

- > Free of silicone and other paint-wetting-impairment substances (PWIS)
- > Minimum-marking
- > Significantly increased suction force compared to round vacuum cups of the same width
- > Soft sealing lip also allows adhesion to curved products

Ordering notes:

From size 15x5 mm upward, a gripper clamp (available separately) is recommended to prevent inadvertent rotation

Technical data


| Item no. | Model / Lip dimensions |  | Material / Colour | Usage temperature [°C] |
|------------------|------------------------|---|-------------------|------------------------|
| 132.4x2.031._* | SKH-O-4x2A | 0.5 | HNBR (ge) | 0 - 160 |
| 132.7x4.034._* | SKH-O-7x4 | 0.8 | HNBR (ge) | 0 - 160 |
| 132.15x5.067._* | SKH-O-15x5 | 1 | HNBR (ge) | 0 - 160 |
| 132.24x8.066._* | SKH-O-24x8 | 1 | HNBR (ge) | 0 - 160 |
| 132.36x12.068._* | SKH-O-36x12 | 2 | HNBR (ge) | 0 - 160 |
| 132.45x15.064._* | SKH-O-45x15 | 3 | HNBR (ge) | 0 - 160 |

Accessories

Clamp

--
--
78.030 (p.476)
78.032 (p.476)
78.032 (p.476)
78.033 (p.476)

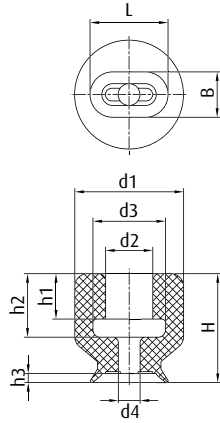
Accessories

| Item no. |  Suitable fittings | | | | | |
|------------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| | M3-male | M4-male | M5-male | G1/8-male | G1/4-male | G1/4-female |
| 132.4x2.031._* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- |
| 132.7x4.034._* | 270.014 (p.408) | 270.111 (p.408) | 270.300 (p.411) | -- | -- | -- |
| 132.15x5.067._* | -- | -- | -- | 270.431 (p.418) | -- | -- |
| 132.24x8.066._* | -- | -- | -- | 270.431 (p.418) | -- | -- |
| 132.36x12.068._* | -- | -- | -- | 270.431 (p.418) | -- | -- |
| 132.45x15.064._* | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |

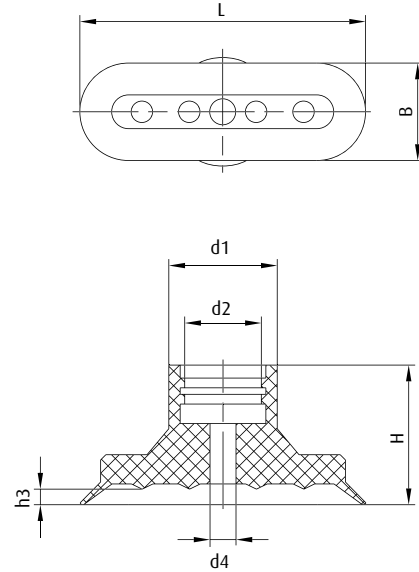
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

| Item no. | Drawing | L [mm] | B [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] |
|------------------|---------|--------|--------|-----------|-----------|-----------|-----------|--------|---------|---------|---------|
| 132.4x2.031._* | A | 4.3 | 2.5 | 6 | 2.6 | 4 | 1.2 | 6 | 2.5 | 3.5 | 0.5 |
| 132.7x4.034._* | A | 7.5 | 4 | 6 | 2.4 | 3 | 1.4 | 6 | 2.3 | 3 | 0.7 |
| 132.15x5.067._* | B | 15 | 5 | 9 | 5 | -- | 2 | 12 | -- | -- | 0.8 |
| 132.24x8.066._* | B | 24 | 8.5 | 12.5 | 5 | -- | 3 | 13 | -- | -- | 1.5 |
| 132.36x12.068._* | B | 36 | 12 | 12 | 5 | -- | 4 | 12 | -- | -- | 1.6 |
| 132.45x15.064._* | B | 44 | 15 | 16.5 | 12 | -- | 4 | 22 | -- | -- | 2.4 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

Universal oval vacuum cups, 2.5 folds - SO-BU

Universal oval vacuum cups, 2.5 folds - SO-BU



Product Description

Bellows vacuum cups in oval design for elongated workpieces where only minimal space is available (e.g., rails, profiles, tubes, bolts, etc.). The reinforcement wires fitted into the folds helps prevent collapse at excessive vacuum levels. Connection via plug-in nipple.

Advantage

- > Significantly increased suction force compared to round vacuum cups of the same width
- > Bellows compensate for height differences
- > Soft sealing lip also allows adhesion to curved products

Ordering notes:

> For fastening, the use of a gripper clamp (available separately) is recommended to prevent inadvertent rotation

Technical data

| Item no. | Model / Lip dimensions | Nipple | Number of folds | Material / Colour |
|------------------|------------------------|--------|-----------------|-------------------|
| 138.25x8.002._* | SO-BU-25x8 | 6 | 2.5 | NBR (gr), SI (tr) |
| 138.45x15.003._* | SO-BU-45x15 | 8 | 2.5 | NBR (gr), SI (tr) |
| 138.75x25.004._* | SO-BU-75x25 | 11 | 2.5 | NBR (gr), SI (tr) |

Accessories

Clamp

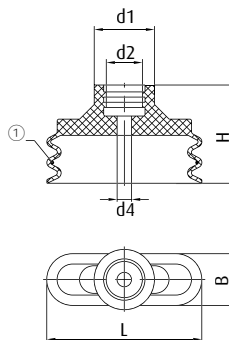
| |
|----------------|
| 78.031 (p.476) |
| 78.033 (p.476) |
| 78.034 (p.476) |

Accessories

Suitable fittings

| Item no. | M5-male | M5-female | G1/8-male | G1/8-female | G1/4-male | G1/4-female |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 138.25x8.002._* | 270.094 (p.411) | 270.005 (p.412) | 270.095 (p.418) | 270.096 (p.422) | -- | -- |
| 138.45x15.003._* | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |
| 138.75x25.004._* | -- | -- | -- | -- | 270.097 (p.426) | 270.098 (p.432) |

Dimensions



① = Wire strap stiffening

| Item no. | L [mm] | B [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d4 [mm] | H [mm] |
|------------------|--------|--------|-----------|-----------|-----------|--------|
| 138.25x8.002._* | 25 | 8 | 10 | 4.5 | 2 | 18.5 |
| 138.45x15.003._* | 45 | 15 | 17.5 | 10.5 | 4 | 29 |
| 138.75x25.004._* | 75 | 25 | 17.5 | 10.5 | 6 | 35 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Vinyl oval bellows cups - SO-BV



Product Description

Durable oval vacuum cup with height adjustment made of snug-fitting, wear-resistant material. Very well suited for handling abrasive products such as cardboard. Flexible material enables low-leakage gripping of highly flexible products such as foil-packaged goods. Connection via plug-in nipple or vulcanised carrier plate.

Advantage

- > Significantly increased suction force compared to round vacuum cups of the same width
- > Bellows compensates for differences in height and enables good adaptation to curved or uneven product surfaces
- > Flexible, soft lips
- > Long life cycle

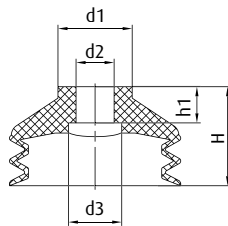
Technical data

| Item no. | Model / Lip dimensions | Number of folds | Material / Colour |
|-----------------|------------------------|-----------------|-------------------|
| 138.35x28.001.* | SO-BV-35x28 | 9 | Vinyl (bl) |
| 138.45x28.013.* | SO-BV-45x28 | 9 | Vinyl (bl) |
| 130.97x55.126.* | SO-BV-100x55 | 11 | Vinyl (bl) |

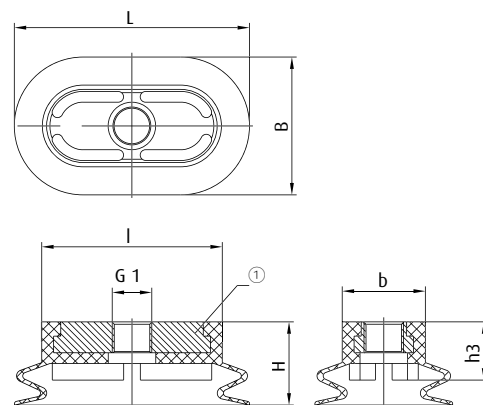
Accessories

| Item no. | Suitable fittings | | |
|-----------------|-------------------|-----------------|-----------------|
| | M10-male | G1/4-male | G1/4-female |
| 138.35x28.001.* | 270.177 (p.416) | 270.451 (p.426) | 270.452 (p.431) |
| 138.45x28.013.* | 270.177 (p.416) | 270.451 (p.426) | 270.452 (p.431) |
| 130.97x55.126.* | -- | -- | -- |

Dimensions



Drawing A



Drawing B

① = Aluminium

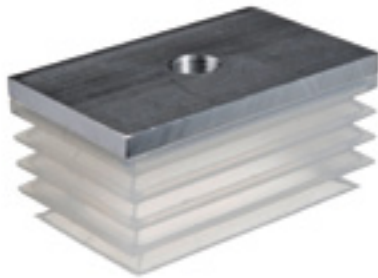
| Item no. | Drawing | L [mm] | B [mm] | l [mm] | b [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | G1 | H [mm] | h1 [mm] | h3 [mm] |
|-----------------|---------|--------|--------|--------|--------|-----------|-----------|-----------|------|--------|---------|---------|
| 138.35x28.001.* | A | 35 | 28 | -- | -- | 19.5 | 10 | 14 | -- | 24 | 8.5 | -- |
| 138.45x28.013.* | A | 45 | 28 | -- | -- | 19.5 | 10 | 14 | -- | 26 | 9.5 | -- |
| 130.97x55.126.* | B | 99 | 58 | 76 | 35 | -- | -- | -- | G3/8 | 35 | -- | 25 |



Series | Oval vacuum cups SO

Rectangular bellows vacuum cups - SV-RB

Rectangular bellows vacuum cups - SV-RB



Product Description

Bellows vacuum cups in rectangular design made of FDA-compliant material (SI). Particularly suitable for film-packaged products and filled pouches. Also available with wire stiffening. Connection via an interlocking snap-in carrier plate.


Advantage

- > Large suction surface due to rectangular design
- > Bellows compensate differences in height and enable good adaptation to curved or uneven product surfaces
- > Gentle attachment to the product
- > Good fit for irregularities and folds thanks to soft sealing lip

Ordering notes:

Optional: Wire strap reinforcement available.
When ordering, please add "-VERS" to item number

Technical data

| Item no. | Model / Lip dimensions |  | Number of folds | Material / Colour | Accessories Wire strap reinforcement |
|---|------------------------|---|-----------------|-------------------|---|
| Bellows vacuum cups, 2.5 folds, for cylindrical products | | | | | |
| 201.79x29.002.* | SV-RB-79x29 | 16 | 2.5 | SI (tr) | X 0020 |
| Bellows vacuum cups, 2.5 folds, with flat sealing lip | | | | | |
| 209.52x25.006.* | SV-RB-52x25 | 13 | 2.5 | SI (tr) | X 0022 |
| 209.60x29.001.* | SV-RB-60x29 | 13 | 2.5 | NBR (sw), SI (tr) | X 0024 |
| Bellows vacuum cups, 3.5 folds, with thinly tapering, flexible sealing lip | | | | | |
| 209.80x30.003.* | SV-RB-80x30 | 20 | 3.5 | SI (tr) | X 0020 |
| 209.80x40.004.* | SV-RB-80x40 | 20 | 3.5 | SI (tr) | X 0023 |
| 209.80x50.005.* | SV-RB-80x50 | 20 | 3.5 | SI (tr) | X 0041 |

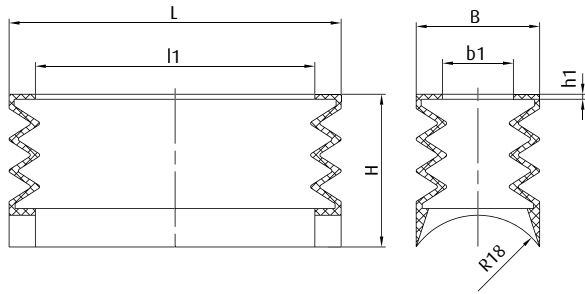
Accessories

| Item no. | Suitable fittings | |
|---|-------------------|-----------------|
| | G1/8-female | G1/4-female |
| Bellows vacuum cups, 2.5 folds, for cylindrical products | | |
| 201.79x29.002.* | -- | 270.392 (p.439) |
| Bellows vacuum cups, 2.5 folds, with flat sealing lip | | |
| 209.52x25.006.* | 270.508 (p.439) | -- |
| 209.60x29.001.* | -- | 270.509 (p.439) |
| Bellows vacuum cups, 3.5 folds, with thinly tapering, flexible sealing lip | | |
| 209.80x30.003.* | -- | 270.392 (p.439) |
| 209.80x40.004.* | -- | 270.510 (p.439) |
| 209.80x50.005.* | -- | 270.511 (p.439) |

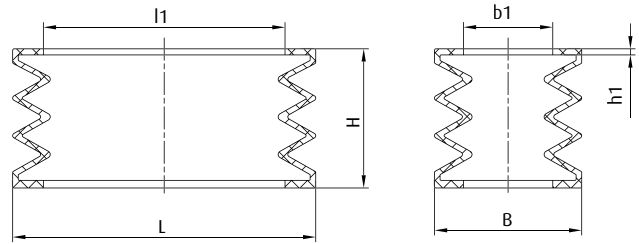
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



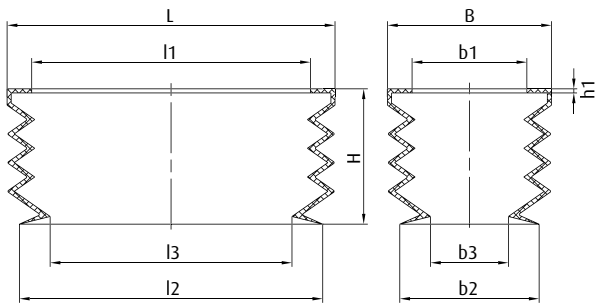
Dimensions



Drawing A



Drawing B



Drawing C

| Item no. | Drawing | L [mm] | B [mm] | l1 [mm] | l2 [mm] | l3 [mm] | b1 [mm] | b2 [mm] | b3 [mm] | H [mm] | h1 [mm] |
|---|---------|--------|--------|---------|---------|---------|---------|---------|---------|--------|---------|
| Bellows vacuum cups, 2.5 folds, for cylindrical products | | | | | | | | | | | |
| 201.79x29.002._* | A | 80 | 30 | 67 | -- | -- | 17 | -- | -- | 37 | 1.2 |
| Bellows vacuum cups, 2.5 folds, with flat sealing lip | | | | | | | | | | | |
| 209.52x25.006._* | B | 53 | 26 | 40 | -- | -- | 13 | -- | -- | 28 | 1.2 |
| 209.60x29.001._* | B | 60 | 29 | 48 | -- | -- | 17.5 | -- | -- | 27 | 1.2 |
| Bellows vacuum cups, 3.5 folds, with thinly tapering, flexible sealing lip | | | | | | | | | | | |
| 209.80x30.003._* | C | 81 | 31 | 69 | 75 | 60 | 18 | 25 | 9 | 34 | -- |
| 209.80x40.004._* | C | 80 | 40 | 68 | 74 | 59 | 28 | 34 | 19 | 33 | -- |
| 209.80x50.005._* | C | 80 | 50 | 67 | 74 | 57 | 37 | 44 | 27 | 33 | -- |

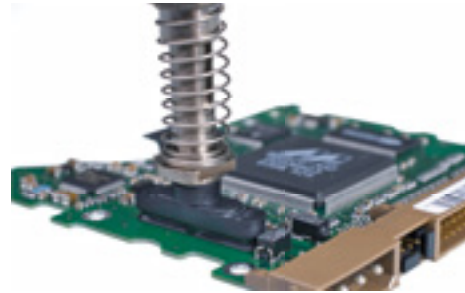
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

Oval vacuum cups, flat - SO-E

Oval vacuum cups, flat - SO-E



Product Description

Small flat vacuum cups in oval design for elongated workpieces where only minimal space is available (e.g. semiconductors, carrier plates, etc.). Connection via an interlocking snap-in plug-in nipple.

Advantage

- > Significantly increased suction force compared to round vacuum cups of the same width
- > Optimum bending strength due to elongated carrier plate in the plug-in nipple
- > Secured against rotation
- > Antistatic version available
- > Cost-effective replacement of worn seals

Ordering notes:

The cups are delivered fully assembled with fitting.
The listed fittings are spare parts.

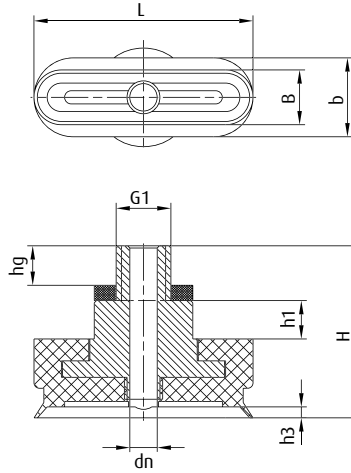
Technical Data

| Model / Lip dimensions | Item no. | |  | Material / Colour | Spare cup | Spare fittings | |
|------------------------|-----------------|-----------------|---|-------------------------------|-----------------|----------------|---------|
| | M5-male | M6-male | | | | M5-male | M6-male |
| SO-E-10x4 | 130.10x4.115._* | 130.10x4.068._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.10x4.003._* | 270.463 | 270.339 |
| SO-E-10x5 | 130.10x5.116._* | 130.10x5.071._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.10x5.007._* | 270.463 | 270.339 |
| SO-E-10x6 | 130.10x6.117._* | 130.10x6.073._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.10x6.011._* | 270.463 | 270.339 |
| SO-E-20x4 | 130.20x4.118._* | 130.20x4.069._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.20x4.005._* | 270.464 | 270.340 |
| SO-E-20x5 | 130.20x5.119._* | 130.20x5.081._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.20x5.009._* | 270.464 | 270.340 |
| SO-E-20x6 | 130.20x6.120._* | 130.20x6.074._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.20x6.013._* | 270.464 | 270.340 |
| SO-E-20x8 | 130.20x8.121._* | 130.20x8.076._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.20x8.015._* | 270.464 | 270.340 |
| SO-E-30x5 | 130.30x5.123._* | 130.30x5.072._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.30x5.010._* | 270.464 | 270.340 |
| SO-E-30x6 | 130.30x6.124._* | 130.30x6.075._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.30x6.014._* | 270.464 | 270.340 |
| SO-E-30x8 | 130.30x8.125._* | 130.30x8.077._* | 0.9 | NBR (sw), SI (tr), BR-AS (sw) | 132.30x8.017._* | 270.464 | 270.340 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



| Item no. | L [mm] | B [mm] | b [mm] | Ø dn [mm] | G1 | H [mm] | h1 [mm] | h3 [mm] | hg [mm] |
|-----------------|--------|--------|--------|-----------|----|--------|---------|---------|---------|
| 130.10x4.115._* | 10 | 4.6 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.10x4.068._* | 10 | 4.6 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.10x5.116._* | 10 | 5 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.10x5.071._* | 10 | 5 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.10x6.117._* | 10 | 6 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.10x6.073._* | 10 | 6 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.20x4.118._* | 20 | 4.3 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.20x4.069._* | 20 | 4.3 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.20x5.119._* | 20 | 5 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.20x5.081._* | 20 | 5 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.20x6.120._* | 20 | 6 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.20x6.074._* | 20 | 6 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.20x8.121._* | 20 | 8 | 8 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.20x8.076._* | 20 | 8 | 8 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.30x5.123._* | 30 | 5 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.30x5.072._* | 30 | 5 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.30x6.124._* | 30 | 6 | 7 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.30x6.075._* | 30 | 6 | 7 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |
| 130.30x8.125._* | 30 | 8 | 8 | 2.5 | M5 | 15.5 | 3.5 | 1 | 3.6 |
| 130.30x8.077._* | 30 | 8 | 8 | 2 | M6 | 15.5 | 3.5 | 1 | 4 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

Oval vacuum cups for cylindrical products - SO-Z

Oval vacuum cups for cylindrical products - SO-Z



Product Description

Oval vacuum cup for cylindrical products such as pins, needles, tubes, etc. Connection via plug-in nipple, hollow screw (SO-Z-10-18) or direct plug-in to the machine (SO-Z-4-10).

Advantage

- > Significantly greater suction force over normal oval vacuum cups due to three-dimensional oval suction lip contour partially encompassing the workpiece
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions | Suitable for cylindrical products with \varnothing [mm] | Material / Colour |
|-----------------|------------------------|---|-------------------|
| 201.10x3.005._* | SO-Z-2-4 | 2 - 4 | NBR (sw), SI (tr) |
| 201.10x6.006._* | SO-Z-3-7 | 3 - 7.5 | NBR (sw), SI (tr) |
| 132.15x7.073._* | SO-Z-4-10 | 4 - 10 | SI (r) |
| 201.12x9.007._* | SO-Z-6-13 | 6 - 13 | NBR (sw), SI (tr) |
| 9.23x11.036._* | SO-Z-10-18 | 10 - 18 | SI (tr) |

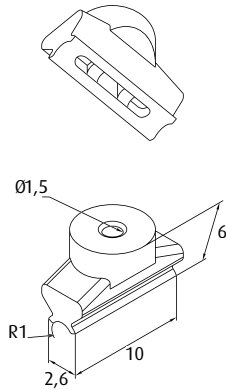
Accessories

| Item no. | Suitable fittings | | |
|-----------------|-------------------|-----------------|-----------------|
| | M5-male | G1/8-male | G1/8-female |
| 201.10x3.005._* | 270.300 (p.411) | -- | -- |
| 201.10x6.006._* | 270.300 (p.411) | -- | -- |
| 132.15x7.073._* | -- | -- | -- |
| 201.12x9.007._* | 270.300 (p.411) | -- | -- |
| 9.23x11.036._* | 270.310 (p.411) | 270.493 (p.420) | 270.494 (p.423) |

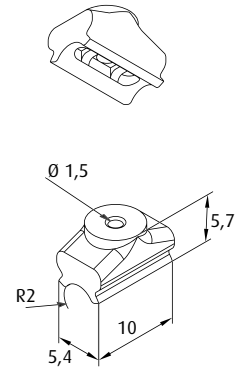
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



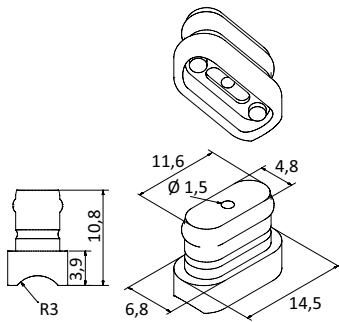
Dimensions



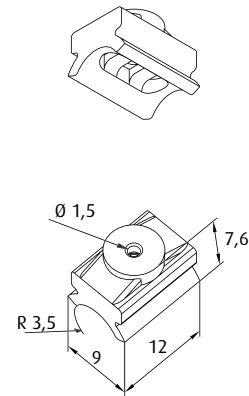
Drawing A



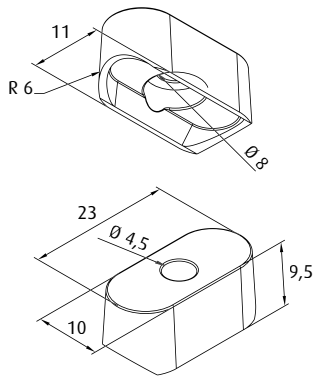
Drawing B



Drawing C



Drawing D



Drawing E

| Item no. | Drawing |
|-----------------|---------|
| 201.10x3.005._* | A |
| 201.10x6.006._* | B |
| 132.15x7.073._* | C |
| 201.12x9.007._* | D |
| 9.23x11.036._* | E |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Oval vacuum cups, flat - SO-C




Product Description

Flat vacuum cups in oval design for elongated workpieces where only minimal space is available (e.g. rails, profiles, tubes, bolts, etc.). Vacuum chamber housing of anodised aluminium. Rubber sealing lip is fixed by a screwed rubber clamping plate.

Advantage

- > Significantly increased suction force compared to round vacuum cups of the same width
- > Warp-resistant aluminium housing
- > Cost-effective replacement of worn seals

Technical data

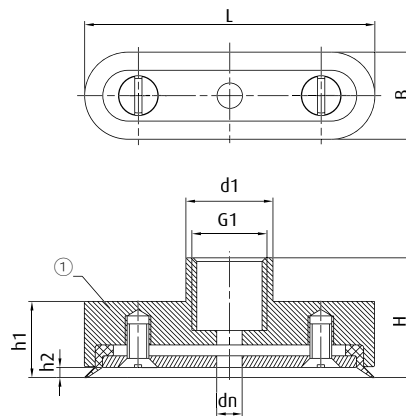
| Item no. | Model / Lip dimensions | Connection thread |  | Material / Colour |
|-----------------|------------------------|-------------------|---|----------------------------|
| 130.30x12.057.* | SO-C-30x12 | G1/8-female | 1 | SI (tr), NR (sw) |
| 130.40x12.058.* | SO-C-40x12 | G1/8-female | 1 | SI (tr), NR (sw) |
| 130.55x12.082.* | SO-C-55x12 | G1/8-female | 1 | NBR (sw), SI (tr), NR (sw) |

Accessories

Spare cup

| |
|-------------------------|
| 132.30x12.025.* (p.374) |
| 132.40x12.027.* (p.375) |
| 132.55x12.029.* (p.378) |

Dimensions



① = Aluminium

| Item no. | L [mm] | B [mm] | Ø d1 [mm] | Ø dn [mm] | G1 | H [mm] | h1 [mm] | h2 [mm] |
|-----------------|--------|--------|-----------|-----------|------|--------|---------|---------|
| 130.30x12.057.* | 30 | 12 | 12 | 3.5 | G1/8 | 16.5 | 10 | 1.3 |
| 130.40x12.058.* | 40 | 12 | 12 | 3.5 | G1/8 | 16.5 | 10 | 1.4 |
| 130.55x12.082.* | 55 | 12 | 12 | 3.5 | G1/8 | 16.5 | 10 | 1.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

Oval vacuum suction plates for textured surfaces - SOPL-R

Oval vacuum suction plates for textured surfaces - SOPL-R




Product Description

Oval vacuum cups for handling both rough surfaces and smooth, markedly uneven products.
Connection via vulcanised aluminium plate.

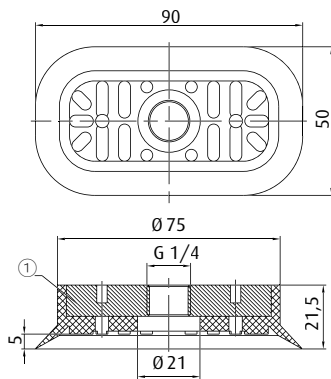
Advantage

- > Leak-free gripping of difficult product surfaces thanks to extremely flexible, thinly tapered sealing lip
- > Cleats help prevent warping of the product
- > Optimum process reliability due to vulcanised backing plate, as well as additional internal safety sealing lip (190x90 mm and 120x65 mm)

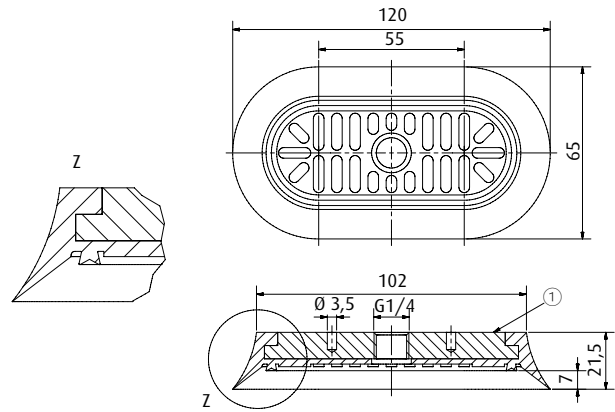
Technical data

| Item no. | Model / Lip dimensions | Connection thread | Material / Colour |  | Weight [g] |
|-----------------|------------------------|-------------------|-------------------|--|------------|
| 130.90x50.113.* | SOPL-R-90x50 | G1/4-female | NR (bg) | 5 | 72 |
| 9.120x65.088.* | SOPL-R-120x65 | G1/4-female | NR (bg) | 7 | 131 |
| 9.190x90.061.* | SOPL-R-190x90 | G1/4-female | NR (bg) | 5.5 | 295 |

Dimensions



Drawing A



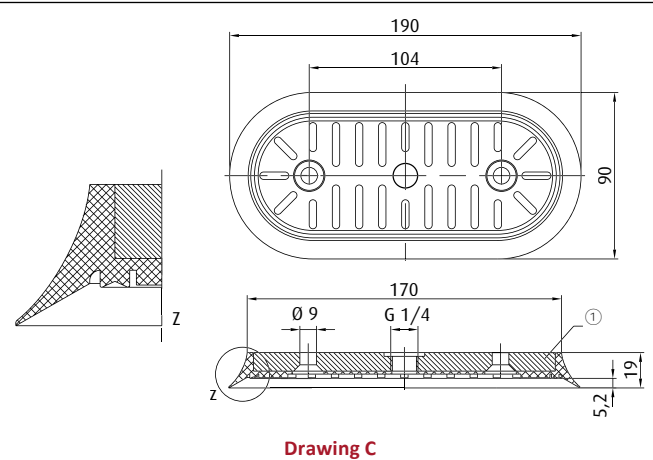
Drawing B

① = Aluminium

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing C

① = Aluminium

| Item no. | Drawing |
|------------------|---------|
| 130.90x50.113._* | A |
| 9.120x65.088._* | B |
| 9.190x90.061._* | C |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Oval vacuum cups SO

Oval vacuum suction plates - SOPL-S and SOPL-A

Oval vacuum suction plates - SOPL-S and SOPL-A



Product Description

Oval vacuum cups, vulcanised, on a carrier plate of steel/aluminium for the handling of long, narrow products such as strips, profiles or frames. Rubberised support surfaces prevent deformation of the product and increase lateral stability.


Advantage

- > High suction force on a small footprint
- > Low-marking
- > High process reliability due to vulcanised carrier plate
- > Individual machine connection possible

Ordering notes:

Customised drilling patterns available on request for Series SOPL-S

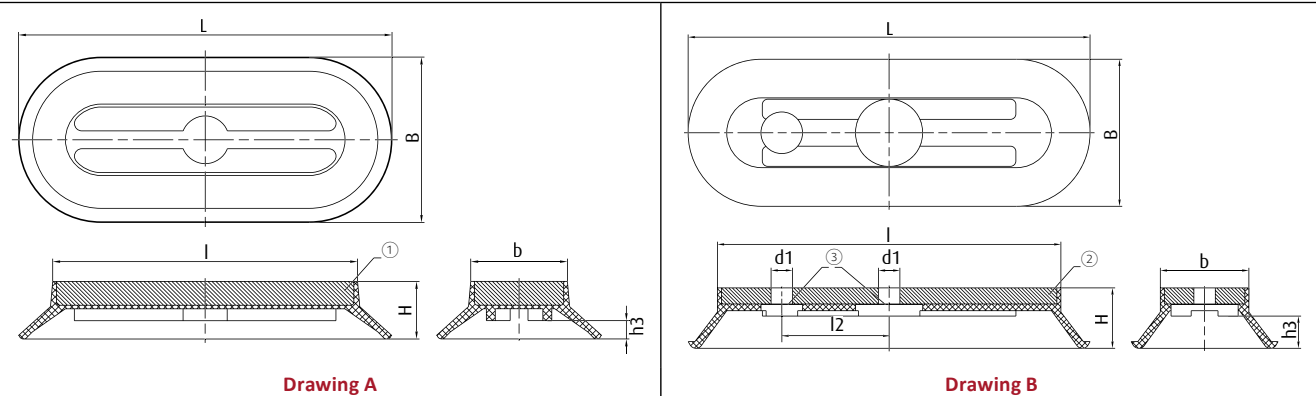
Technical data

| Item no. | Model / Lip dimensions | Material / Colour |  | Weight [g] | Support surfaces |
|--|------------------------|-------------------|---|------------|------------------|
| SOPL-S: NBR material, grey, with steel carrier plate | | | | | |
| 9.200x40.010.* | SOPL-S-200x40 | NBR (gr) | 9 | 140 | lengthwise |
| 9.110x40.009.* | SOPL-S-110x40 | NBR (gr) | 9 | 122 | lengthwise |
| 9.125x55.012.* | SOPL-S-125x55 | NBR (gr) | 9 | 320 | lengthwise |
| 9.150x55.013.* | SOPL-S-150x55 | NBR (gr) | 7 | 255 | lengthwise |
| 9.200x55.014.* | SOPL-S-200x55 | NBR (gr) | 7 | 538 | lengthwise |
| 9.250x55.016.* | SOPL-S-250x55 | NBR (gr) | 8 | 770 | lengthwise |
| 9.300x55.019.* | SOPL-S-300x55 | NBR (gr) | 8 | 902 | lengthwise |
| 9.370x70.022.* | SOPL-S-370x70 | NBR (gr) | 10 | 1,895 | lengthwise |
| 9.200x100.015.* | SOPL-S-200x100 | NBR (gr) | 8 | 595 | lengthwise |
| 9.280x100.017.* | SOPL-S-280x100 | NBR (gr) | 10 | 1,880 | lengthwise |
| 9.450x130.025.* | SOPL-S-450x130 | NBR (gr) | 6 | 2,660 | crosswise |
| 9.430x180.024.* | SOPL-S-430x180 | NBR (gr) | 6 | 3,720 | selective |
| 9.580x180.029.* | SOPL-S-580x180 | NBR (gr) | 10 | 3,500 | lengthwise |
| SOPL-A: NR material, orange, with aluminium carrier plate | | | | | |
| 9.100x55.020.* | SOPL-A-100x55 | NR (or) | 8 | 65 | lengthwise |
| 9.150x55.083.* | SOPL-A-150x55 | NR (or) | 8 | 114 | lengthwise |
| 9.200x55.020.* | SOPL-A-200x55 | NR (or) | 8 | 159 | lengthwise |
| 9.300x55.046.* | SOPL-A-300x55 | NR (or) | 8 | 300 | lengthwise |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



① = Steel ② = Aluminium ③ = Sealed with rubber

| Item no. | Drawing | L [mm] | B [mm] | l [mm] | l2 [mm] | b [mm] | Ø d1 [mm] | H [mm] | h3 [mm] |
|--|---------|--------|--------|--------|---------|--------|-----------|--------|---------|
| SOPL-S: NBR material, grey, with steel carrier plate | | | | | | | | | |
| 9.200x40.010.* | A | 195 | 36 | 176 | -- | 15 | -- | 19 | 6 |
| 9.110x40.009.* | A | 113 | 43 | 87 | -- | 17 | -- | 19 | 8.5 |
| 9.125x55.012.* | A | 126 | 56 | 103 | -- | 33 | -- | 19 | 6 |
| 9.150x55.013.* | A | 151 | 56 | 128 | -- | 33 | -- | 19 | 6 |
| 9.200x55.014.* | A | 200 | 55 | 178 | -- | 33 | -- | 19 | 6.3 |
| 9.250x55.016.* | A | 250 | 55 | 228 | -- | 33 | -- | 19 | 6 |
| 9.300x55.019.* | A | 300 | 55 | 227 | -- | 33 | -- | 19 | 6 |
| 9.370x70.022.* | A | 378 | 82 | 349 | -- | 53 | -- | 26 | 9 |
| 9.200x100.015.* | A | 190 | 90 | 161 | -- | 61 | -- | 22 | 8.5 |
| 9.280x100.017.* | A | 278 | 100 | 250 | -- | 72 | -- | 25 | 9 |
| 9.450x130.025.* | A | 449 | 131 | 420 | -- | 102 | -- | 20 | 6.5 |
| 9.430x180.024.* | A | 430 | 180 | 402 | -- | 158 | -- | 20 | 6 |
| 9.580x180.029.* | A | 579 | 179 | 570 | -- | 150 | -- | 25 | 9 |
| SOPL-A: NR material, orange, with aluminium carrier plate | | | | | | | | | |
| 9.100x55.020.* | B | 99 | 54 | 78 | 25 | 33 | 8 | 22.5 | 9 |
| 9.150x55.083.* | B | 150 | 55 | 128 | 40 | 33 | 8 | 22.5 | 9 |
| 9.200x55.020.* | B | 201 | 56 | 178 | 50 | 33 | 8 | 22.5 | 9 |
| 9.300x55.046.* | B | 300 | 55 | 278 | 100 | 33 | 8 | 22.5 | 9 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



FIPA Special vacuum cups SX



Temperature-resistant, felt coated vacuum cups - SX-F

- > Virtually mark-free special vacuum cups for high temperature requirements, e.g. in the glass industry
- > Highest temperature resistance (FKM briefly up to 300 °C; special silicone with an evaporated silicone lock made of aluminium briefly up to 500 °C)
- > Special felt pad vulcanised inseparably to elastomer carrier
- > Diameter: 25 - 160 mm

> See page 164



Vacuum cups with sponge pad - SX-SH

- > Flat vacuum cups with contact surface made from special silicone sponge
- > Very low-marking on polished surfaces
- > Flat sealing prevents leakage for rough, porous surfaces
- > Diameter: 8 - 40 mm

> See page 166



Bernoulli vacuum cups - SX-B

- > Non-contact, deformation-resistant transport of thin and sensitive products
- > No ejector, requires compressed air only
- > High holding force: Bernoulli vacuum cups can move up to 1,200 g of mass
- > Perfectly suited for porous products thanks to high volume flow at low vacuum level
- > Series made of PEEK (approval according to FDA / EC 1935 / 2004) for direct contact with food and ease of cleaning

> See page 498



Foam grippers

- > Handling of individual products or layers without the need to change the gripper and regardless of workpiece positioning
- > Integrated vacuum generation or external compressor for use with particularly air-permeable workpieces
- > Versions available with leakage reduction or flow valves

> See page 477



FIPA Special vacuum cups SX



Hand grippers - SX-G

- > Sturdy gripper for the manual handling of flat, smooth products
- > No vacuum source required
- > Simple handling - release of the product via a release button

> See page 168



Sealing cords - SX-D

- > Long-length version for DIY production of individual vacuum suction plates
- > Ideal adaptation to special product shapes

> See page 169



Series | Special vacuum cups SX

High temperature vacuum cups with felt pad - SX-F

High temperature vacuum cups with felt pad - SX-F

**HEAT RESISTANT
& LOW MARKING**



Product Description

Almost mark-free special vacuum cup for high temperature requirements, e.g. in the glass industry. Special felt pad vulcanised to elastomer carrier. Migration of silicone particles is prevented by vapour-deposited aluminium layer. Connection up to \varnothing 70 mm by means of plug-in nipple, from \varnothing 90 mm with bolted bracket plate.


Advantage

- > Temperature-resistant up to 500 °C (SI)
- > Almost mark-free
- > Cost-effective replacement of worn seals


Notes:

There is a small leak at first use resulting from the texture of the special felt, but after a brief period of use this will be significantly reduced by the thickening of the felt layer.

Technical data

| Item no. | Model / Lip dimensions |  | Weight [g] | Max. operating temperature [°C] | Material / Colour | Number of bellows |
|---------------|------------------------|---|------------|---------------------------------|-------------------------|-------------------|
| 26.025.009._* | SX-F-25 | 2 | 6 | 500 | SI (tr/ge) | -- |
| 26.037.010._* | SX-F-40 | 3 | 10 | 500 | SI (tr/ge) | -- |
| 26.070.011._* | SX-F-70 | 7 | 24 | 500 | SI (tr/ge) | -- |
| 26.090.001._* | SX-F-90 | 17 | 80 | 500, 300 | SI (tr/ge), FKM (sw/ge) | 1.5 |
| 26.120.002._* | SX-F-120 | 18 | 140 | 300 | FKM (sw/ge) | 1.5 |
| 26.160.003._* | SX-F-160 | 18 | 205 | 300 | FKM (sw/ge) | 1.5 |

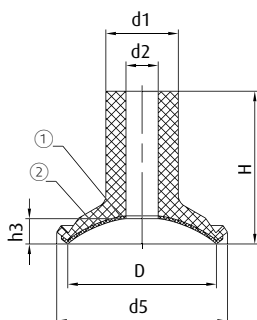
Accessories

| Item no. |  Suitable fittings | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|
| | G1/8-male | G1/8-female | G1/4-male | G1/4-female | G3/8-female |
| 26.025.009._* | 270.132 (p.417) | 270.114 (p.422) | 270.208 (p.425) | 270.178 (p.431) | -- |
| 26.037.010._* | 270.132 (p.417) | 270.114 (p.422) | 270.208 (p.425) | 270.178 (p.431) | -- |
| 26.070.011._* | 270.132 (p.417) | 270.114 (p.422) | 270.208 (p.425) | 270.178 (p.431) | -- |
| 26.090.001._* | -- | -- | -- | -- | 270.400 (p.436) |
| 26.120.002._* | -- | -- | -- | -- | 270.402 (p.436) |
| 26.160.003._* | -- | -- | -- | -- | 270.404 (p.436) |

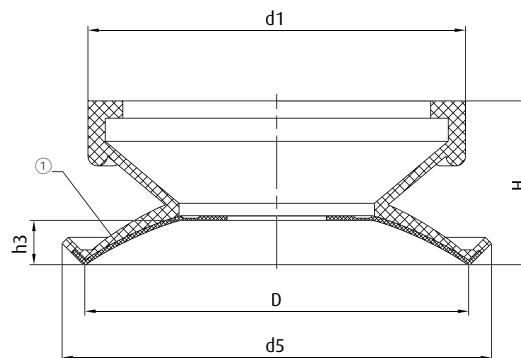
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

① = Felt pads ② = For silicone vacuum cups: Silicone membrane by evaporated aluminium layer

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d5 [mm] | H [mm] | h3 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|--------|---------|
| 26.025.009._* | A | 24 | 16 | 8 | 29 | 36 | 3.3 |
| 26.037.010._* | A | 37 | 18 | 8 | 42 | 38 | 6.5 |
| 26.070.011._* | A | 67 | 21 | 8 | 71 | 36 | 8 |
| 26.090.001._* | B | 89 | 87 | -- | 99 | 38 | 10.5 |
| 26.120.002._* | B | 120 | 108 | -- | 129 | 45 | 17.5 |
| 26.160.003._* | B | 150 | 130 | -- | 161 | 48 | 16.5 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Special vacuum cups SX

Vacuum cups with sponge pad - SX-SH

Vacuum cups with sponge pad - SX-SH




Product Description

Low-marking flat vacuum cup with contact surface of special silicone sponge.
Soft sponge coating compensates for unevenness.
Connection via an interlocking snap-in plug-in nipple.







Advantage

- > Very low-marking on polished surfaces
- > Flat sealing prevents leakage
- > Cost-effective replacement of worn seals

Technical data

| Item no. | Model / Lip dimensions |  | Max. operating temperature [°C] | Material / Colour |
|---------------|------------------------|---|---------------------------------|-------------------|
| 104.008.082.* | SX-SH-8 | 0.5 | 200 | SI (bl/r) |
| 104.009.083.* | SX-SH-9 | 0.5 | 200 | SI (bl/r) |
| 104.013.084.* | SX-SH-13 | 0.5 | 200 | SI (bl/r) |
| 104.015.085.* | SX-SH-15 | 1 | 200 | SI (bl/r) |
| 104.020.086.* | SX-SH-20 | 1.5 | 200 | SI (bl/r) |
| 104.030.087.* | SX-SH-30 | 1.5 | 200 | SI (bl/r) |
| 104.040.088.* | SX-SH-40 | 2.5 | 200 | SI (bl/r) |

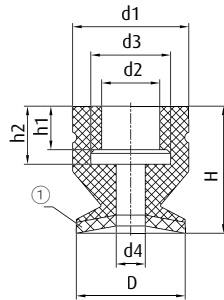
Accessories

| Item no. |  Suitable fittings | | | | |  Suitable spring levelers (Snap-In) | | | | | |
|---------------|---|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|----|
| | M5-male | G1/8-male | G1/8-female | G1/4-male | G1/4-female | Spring leveler |  Spring leveler |  Spring leveler |  Spring leveler |  Spring leveler | |
| 104.008.082.* | 270.200 (p.411) | 270.064 (p.418) | 270.065 (p.422) | -- | -- | 50.018 (p.454) | 8.5 | 50.141 (p.456) | 10 | -- | -- |
| 104.009.083.* | 270.200 (p.411) | 270.064 (p.418) | 270.065 (p.422) | -- | -- | 50.018 (p.454) | 8.5 | 50.141 (p.456) | 10 | -- | -- |
| 104.013.084.* | 270.200 (p.411) | 270.064 (p.418) | 270.065 (p.422) | -- | -- | 50.018 (p.454) | 8.5 | 50.141 (p.456) | 10 | -- | -- |
| 104.015.085.* | -- | 270.012 (p.421) | 270.020 (p.423) | 270.034 (p.428) | 270.038 (p.432) | 50.005 (p.456) | 5 | 50.145 (p.456) | 10 | 50.146 (p.456) | 30 |
| 104.020.086.* | -- | 270.012 (p.421) | 270.020 (p.423) | 270.034 (p.428) | 270.038 (p.432) | 50.005 (p.456) | 5 | 50.145 (p.456) | 10 | 50.146 (p.456) | 30 |
| 104.030.087.* | -- | 270.012 (p.421) | 270.020 (p.423) | 270.034 (p.428) | 270.038 (p.432) | 50.005 (p.456) | 5 | 50.145 (p.456) | 10 | 50.146 (p.456) | 30 |
| 104.040.088.* | -- | 270.012 (p.421) | 270.020 (p.423) | 270.034 (p.428) | 270.038 (p.432) | 50.005 (p.456) | 5 | 50.145 (p.456) | 10 | 50.146 (p.456) | 30 |

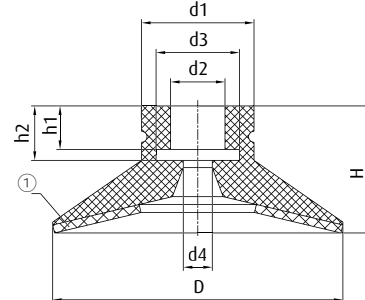
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

① = Silicone sponge

| Item no. | Drawing | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | Ø d4 [mm] | H [mm] | h1 [mm] | h2 [mm] |
|---------------|---------|----------|-----------|-----------|-----------|-----------|--------|---------|---------|
| 104.008.082.* | A | 8 | 10.5 | 5 | 7 | 3 | 14 | 3 | 5 |
| 104.009.083.* | A | 9 | 10.5 | 5 | 7 | 3 | 14 | 3 | 5 |
| 104.013.084.* | A | 13 | 10.5 | 5 | 7 | 3 | 14 | 3 | 5 |
| 104.015.085.* | A | 15 | 15.5 | 7.5 | 11.5 | 4 | 17.5 | 6 | 8 |
| 104.020.086.* | A | 20 | 15.5 | 7.5 | 11.5 | 4 | 17.5 | 6 | 8 |
| 104.030.087.* | B | 30 | 15.5 | 7.5 | 11.5 | 4 | 17.5 | 6 | 8 |
| 104.040.088.* | B | 40 | 15.5 | 7.5 | 11.5 | 4 | 17.5 | 6 | 8 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760



Series | Special vacuum cups SX

Hand grippers - SX-G

Hand grippers - SX-G



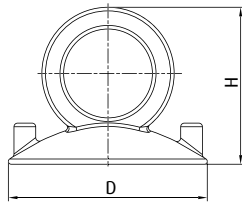
Product Description

Sturdy gripper for the manual handling of flat, smooth products.
No vacuum source required. Simple handling.
Release of the product via a release button.

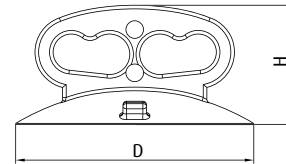
Technical data

| Item no. | Model / Lip dimensions | Tearing force [kg] | Material / Colour |
|----------|------------------------|--------------------|-------------------|
| 64.001.* | SX-G-55 | 14 | Vinyl (sw) |
| 64.002.* | SX-G-65 | 19 | Vinyl (sw) |
| 64.003.* | SX-G-75 | 22 | Vinyl (sw) |
| 64.004.* | SX-G-125 | 25 | NBR (sw) |
| 64.005.* | SX-G-130 | 28 | Vinyl (sw) |

Dimensions



Drawing A



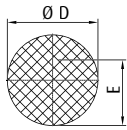
Drawing B

| Item no. | Drawing | Ø D [mm] | H [mm] |
|----------|---------|----------|--------|
| 64.001.* | A | 54 | 42 |
| 64.002.* | A | 66 | 48 |
| 64.003.* | B | 82 | 42 |
| 64.004.* | B | 115 | 63 |
| 64.005.* | B | 121 | 65 |



Sealing cord, round - SX-D

Long-length version for production of individual vacuum suction plates



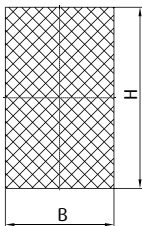
| Technical data | | | | Dimensions |
|----------------------|------------------------|---------------------------------------|-------------------|------------|
| Item no. | Model / Lip dimensions | Recommended installation depth E [mm] | Material / Colour | Ø D [mm] |
| 231.05.026.12 | SX-D-5 | 3.7 | CR (sw) | 5 |
| 231.06.011.12 | SX-D-6 | 4.5 | CR (sw) | 6 |
| 231.08.012.12 | SX-D-8 | 6 | CR (sw) | 8 |
| 231.10.013.12 | SX-D-10 | 7 | CR (sw) | 10 |
| 231.12.014.12 | SX-D-12 | 8.5 | CR (sw) | 12 |

Ordering notes:

Minimum standard length: 1,000 mm

Sealing cord, rectangular - SX-D

Long-length version for production of individual vacuum suction plates



| Technical data | | | Dimensions | |
|-------------------------|------------------------|-------------------|------------|--------|
| Item no. | Model / Lip dimensions | Material / Colour | B [mm] | H [mm] |
| 231.10x6.006.12 | SX-D-10x6 | CR (gr) | 6 | 10 |
| 231.20x10.027.12 | SX-D-20x10 | EPDM (sw) | 10 | 20 |

Ordering notes:

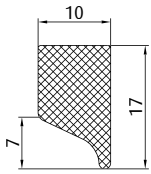
Minimum standard length: 1,000 mm



Series | Special vacuum cups SX

Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

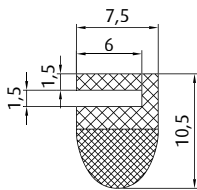
| | |
|-------------------------|--------------------------|
| Item no. | Material / Colour |
| 231.17x10.025.12 | NR (gr) |

Ordering notes:

Minimum standard length: 1,000 mm

Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

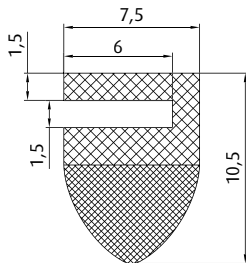
| | |
|----------------------------|-----------------------------|
| Item no. | Material / Colour |
| 231.10,5x7,5.001.12 | EPDM (sw) - 80°/30° Shore A |

Ordering notes:

Minimum standard length: 1,000 mm

Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

| | |
|----------------------------|-----------------------------|
| Item no. | Material / Colour |
| 231.10,5x7,5.002.12 | EPDM (sw) - 80°/30° Shore A |

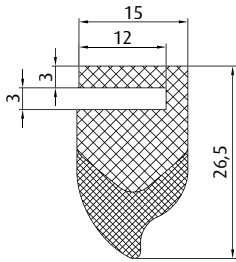
Ordering notes:

Minimum standard length: 1,000 mm



Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

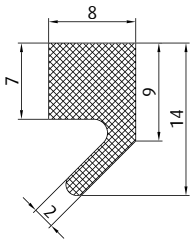
| | |
|---------------------------|-----------------------------|
| Item no. | Material / Colour |
| 231.26,5x15.003.12 | EPDM (sw) - 80°/30° Shore A |

Ordering notes:

Minimum standard length: 1,000 mm

Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

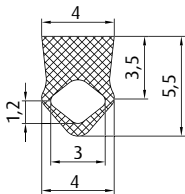
| | |
|--------------------------|--------------------------|
| Item no. | Material / Colour |
| 231.14x8x2.009.12 | Sponge rubber (gr) |

Ordering notes:

Minimum standard length: 1,000 mm

Sealing cord, profiled - SX-D

Long-length version for production of individual vacuum suction plates



Technical data

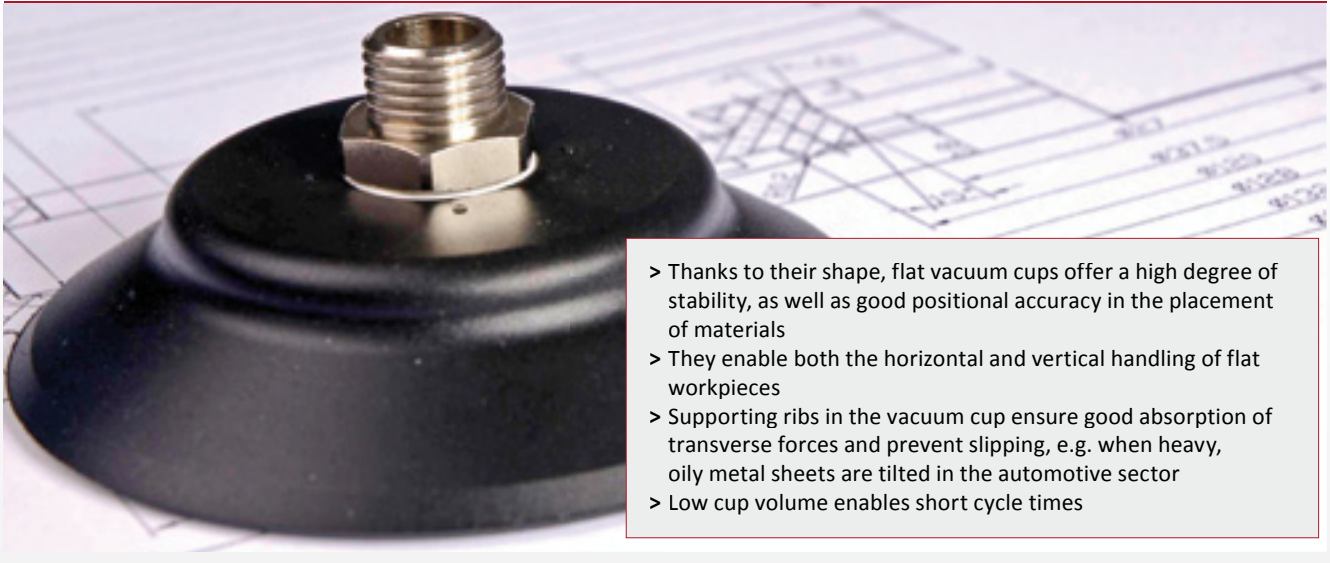
| | |
|--------------------------|--------------------------|
| Item no. | Material / Colour |
| 231.5,5x4.015.2tr | SI (tr) |

Ordering notes:

1 packaging unit = 25 m

| | |
|--|-----|
| Flat vacuum cups by \varnothing | 174 |
| Bellows vacuum cups by \varnothing | 283 |
| Oval vacuum cups by size | 363 |
| Ring and segment vacuum cups | 404 |

Application / Uses



- > Thanks to their shape, flat vacuum cups offer a high degree of stability, as well as good positional accuracy in the placement of materials
- > They enable both the horizontal and vertical handling of flat workpieces
- > Supporting ribs in the vacuum cup ensure good absorption of transverse forces and prevent slipping, e.g. when heavy, oily metal sheets are tilted in the automotive sector
- > Low cup volume enables short cycle times

Designs



- > FIPA flat vacuum cups are available with or without supporting ribs
- > Support ribs in the vacuum cup ensure significantly better suction by enlarging the active suction surface
- > They prevent the sucking in and deformation of flexible workpieces
- > Support ribs are especially recommended for:
 - flexible products
 - rapid acceleration of the machine

Methods of connection



Vacuum cups for attaching to the fittings (plug-in)

- > Secure hold
- > Quick replacement
- > Cost-efficient and environmentally-friendly, as only the rubber part needs to be replaced



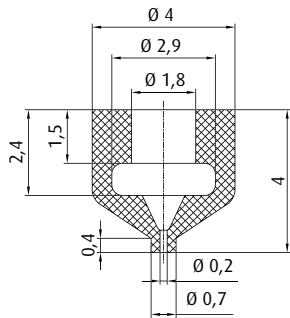
Bolted fittings

- > Vacuum cups are bolted from below into a threaded counterpart using a hollow bolt
- > Extremely secure hold
- > Eliminates twisting of the vacuum cups
- > Cost-efficient and environmentally-friendly, as only the rubber part needs to be replaced



Vulcanised fittings / retainer plate

- > Very secure hold
- > Secured against rotation
- > High degree of dimensional stability



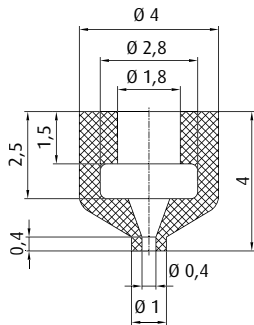
| | Connection | see page |
|---------|------------|----------|
| 270.524 | M3-male | 408 |

Item no.
102.001.425._*

Material
NBR (sw), SI-AS (sw)

0 mm

Additional sizes available are found on p. 38.



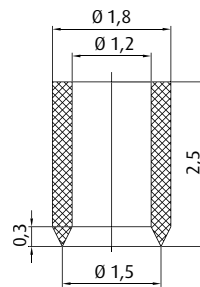
| | Connection | see page |
|---------|------------|----------|
| 270.524 | M3-male | 408 |

Item no.
102.001.463._*

Material
NBR (sw), SI-AS (sw)

0 mm

Additional sizes available are found on p. 38.



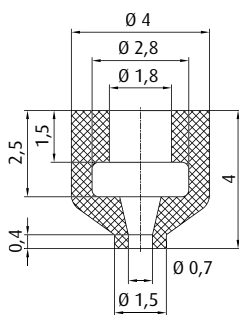
| | Connection | see page |
|---------|------------|----------|
| 270.011 | M3-male | 408 |

Item no.
102.001.002._*

Material
NBR (sw), SI (tr)

0.3 mm

Additional sizes available are found on p. 32.
Ordering notes: Packing unit = 10 pieces



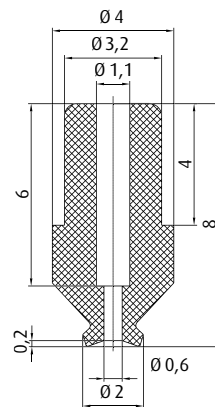
| | Connection | see page |
|---------|------------|----------|
| 270.524 | M3-male | 408 |

Item no.
102.002.464._*

Material
NBR (sw), SI-AS (sw)

0 mm

Additional sizes available are found on p. 38.



| | Connection | see page |
|---------|------------|----------|
| 270.427 | M3-male | 408 |

Item no.
102.002.279._*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (gr)

0.2 mm

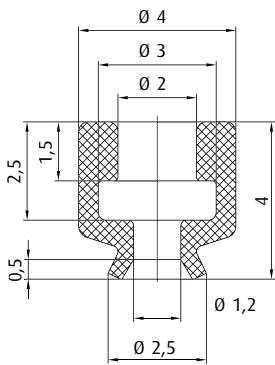
Additional sizes available are found on p. 38.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

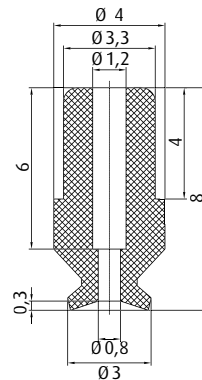
Ø 2 - 4 mm



| | Connection | see page |
|---------|------------|----------|
| 270.014 | M3-male | 408 |
| 270.300 | M5-male | 411 |

| | | |
|-----------------------------------|---|--------|
| Item no. 102.002.004._* | Material NBR (sw), NBR-AS (sw), SI (tr), SI-AS (sw), PU (bl) | 0.4 mm |
|-----------------------------------|---|--------|

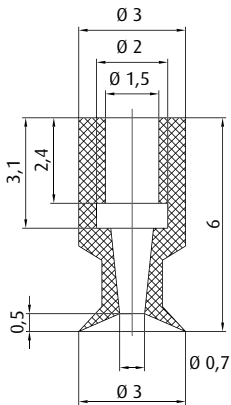
Additional sizes available are found on p. 32.
Ordering notes: Packing unit = 10 pieces



| | Connection | see page |
|---------|------------|----------|
| 270.427 | M3-male | 408 |

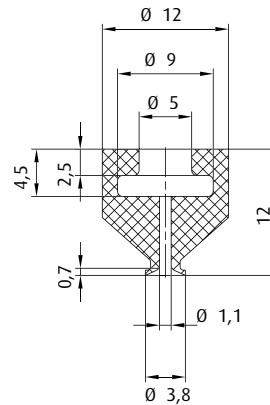
| | | |
|-----------------------------------|--|--------|
| Item no. 102.003.280._* | Material NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.3 mm |
|-----------------------------------|--|--------|

Additional sizes available are found on p. 38.



| | Connection | see page |
|---------|------------|----------|
| 270.025 | M3-male | 408 |

| | | |
|-----------------------------------|-----------------------------|--------|
| Item no. 102.003.480._* | Material NBR (sw) | 0.3 mm |
|-----------------------------------|-----------------------------|--------|

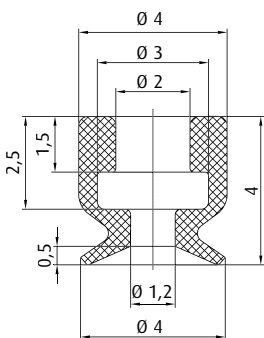


| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

| | | |
|-----------------------------------|--------------------------------------|------|
| Item no. 102.004.216._* | Material NBR (sw), SI (tr) | 1 mm |
|-----------------------------------|--------------------------------------|------|

Additional sizes available are found on p. 50.

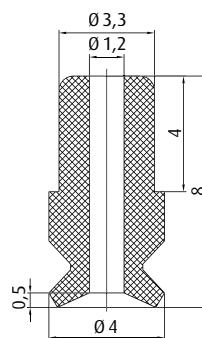


| | Connection | see page |
|---------|------------|----------|
| 270.014 | M3-male | 408 |
| 270.300 | M5-male | 411 |

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| | | |
|-----------------------------------|---|--------|
| Item no. 102.003.005._* | Material NBR (sw), NBR-AS (sw), SI (tr), SI-AS (sw), PU (bl), FKM (sw) | 0.5 mm |
|-----------------------------------|---|--------|

Additional sizes available are found on p. 32.
Ordering notes: Packing unit = 10 pieces

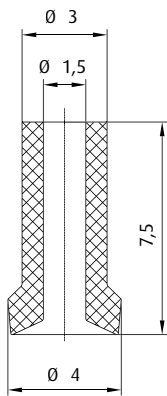


| | Connection | see page |
|---------|------------|----------|
| 270.427 | M3-male | 408 |

| | | |
|-----------------------------------|--|--------|
| Item no. 102.004.281._* | Material NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) | 0.3 mm |
|-----------------------------------|--|--------|

Additional sizes available are found on p. 38.

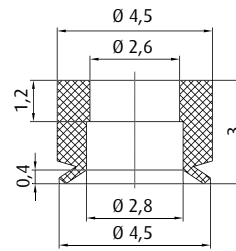
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|------------|----------|
| 270.025 | M3-male | 408 |

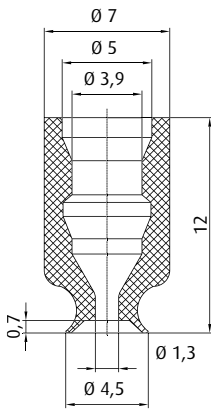
| | | |
|----------------------------------|-------------------------------------|--------|
| Item no. 112.004.001.* | Material NBR (sw), SI (r) | 0.5 mm |
|----------------------------------|-------------------------------------|--------|

Additional sizes available are found on p. 52.



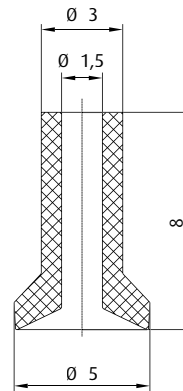
| | Connection | see page |
|---------|------------|----------|
| 270.014 | M3-male | 408 |
| 270.111 | M4-male | 408 |

| | | |
|----------------------------------|--------------------------------------|--------|
| Item no. 102.005.115.* | Material NBR (sw), SI (tr) | 0.5 mm |
|----------------------------------|--------------------------------------|--------|



| | Connection | see page |
|---------|------------|----------|
| 270.399 | M5-male | 410 |

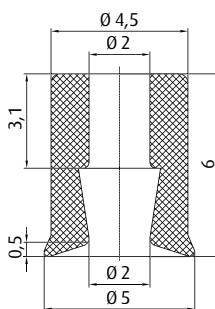
| | | |
|----------------------------------|----------------------------|--------|
| Item no. 102.005.391.* | Material SI (tr) | 0.5 mm |
|----------------------------------|----------------------------|--------|



| | Connection | see page |
|---------|------------|----------|
| 270.025 | M3-male | 408 |

| | | |
|----------------------------------|-------------------------------------|--------|
| Item no. 112.005.002.* | Material NBR (sw), SI (r) | 0.7 mm |
|----------------------------------|-------------------------------------|--------|

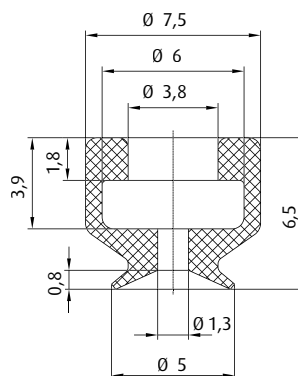
Additional sizes available are found on p. 52.



| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

| | | |
|----------------------------------|-------------------------------------|--------|
| Item no. 102.005.090.* | Material SI (tr), CR (sw) | 0.5 mm |
|----------------------------------|-------------------------------------|--------|

Additional sizes available are found on p. 42.



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

| | | see page |
|--------|-------|----------|
| 50.330 | 10 mm | 454 |

| | | |
|----------------------------------|--|--------|
| Item no. 102.005.009.* | Material NBR (sw), SI (tr), SI-AS (sw), FKM (sw) | 0.9 mm |
|----------------------------------|--|--------|

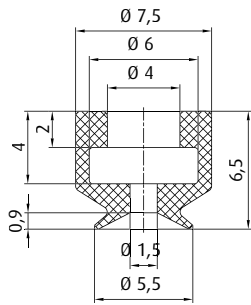
Additional sizes available are found on p. 32.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

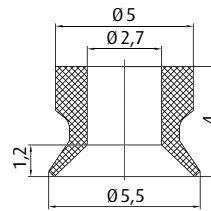
Ø 5 - 6 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |
| | | see page |
| 50.330 | 10 mm | 454 |

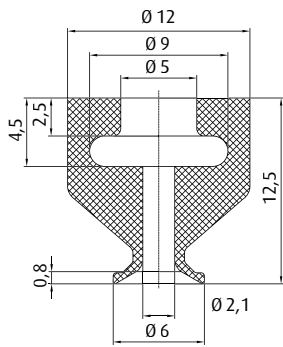
Item no. 102.005.496._* **Material** Thermalon® (bl) 0.9 mm

Additional sizes available are found on p. 36.



| | Connection | see page |
|---------|------------|----------|
| 270.014 | M3-male | 408 |

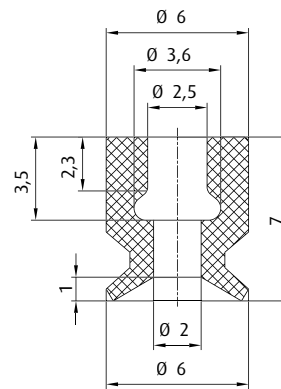
Item no. 102.005.081._* **Material** NBR (sw), SI (tr), SI-AS (sw) 0.9 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |
| | | see page |
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

Item no. 102.006.217._* **Material** NBR (sw), SI (tr) 1 mm

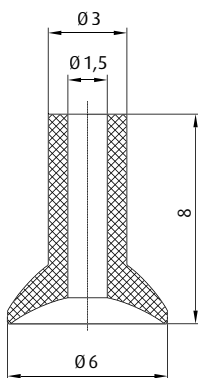
Additional sizes available are found on p. 50.



| | Connection | see page |
|---------|------------|----------|
| 270.283 | M5-male | 409 |

Item no. 102.006.282._* **Material** NBR (sw), SI (tr), SI-AS (sw), PU (bl), FKM (gr) 0.5 mm

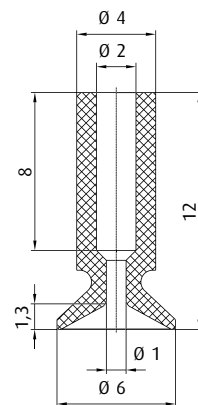
Additional sizes available are found on p. 38.



| | Connection | see page |
|---------|------------|----------|
| 270.025 | M3-male | 408 |

Item no. 112.006.003._* **Material** NBR (sw), SI (tr) 1 mm

Additional sizes available are found on p. 52.

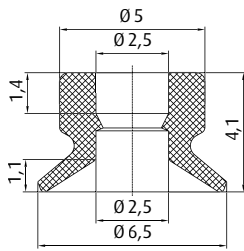


| | Connection | see page |
|---------|------------|----------|
| 270.001 | M5-male | 409 |

Item no. 122.006.002._* **Material** NBR (sw), SI (tr), Vulkollan® (br) 1.5 mm

Additional sizes available are found on p. 56.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

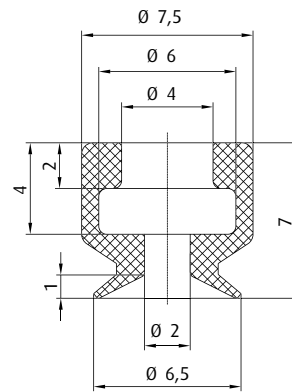


| | Connection | see page |
|---------|------------|----------|
| 270.111 | M4-male | 408 |
| 270.300 | M5-male | 411 |

Item no.
102.006.297._*

Material
NBR (sw)

0.8 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

| | | see page |
|--------|-------|----------|
| 50.330 | 10 mm | 454 |

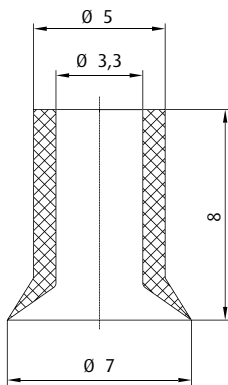
BESTSELLER

Item no.
102.006.013._*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (sw)

1 mm

Additional sizes available are found on p. 32.

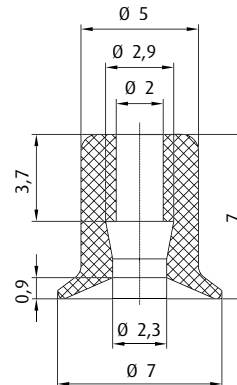


| | Connection | see page |
|---------|------------|----------|
| 270.536 | M5-male | 409 |

Item no.
112.006.004._*

Material
NBR (sw), SI (tr)

1 mm



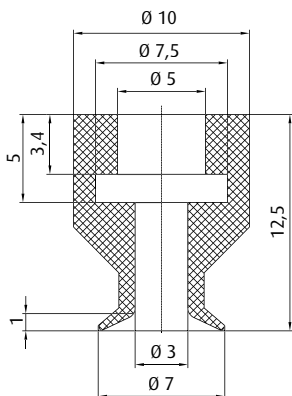
| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

Item no.
102.007.091._*

Material
SI (tr), CR (sw)

1 mm

Additional sizes available are found on p. 42.

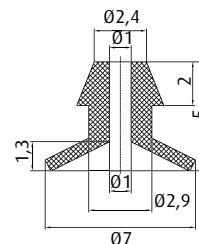


| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

Item no.
102.007.109._*

Material
SI (r), SI-AS (sw)

1.6 mm



| | Connection | see page |
|---------|------------|----------|
| 270.025 | M3-male | 408 |

Item no.
102.007.266._*

Material
SI (tr)

1.5 mm

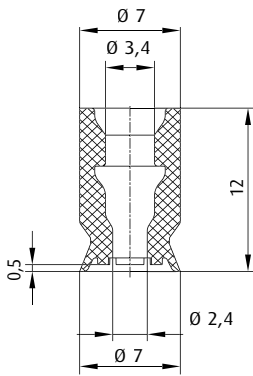
Additional sizes available are found on p. 22.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 7 - 8 mm

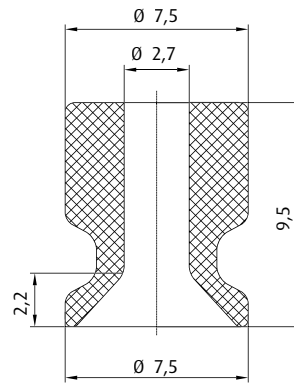


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 410 |

Item no.
102.007.484._*

Material
SI (tr)

0.8 mm

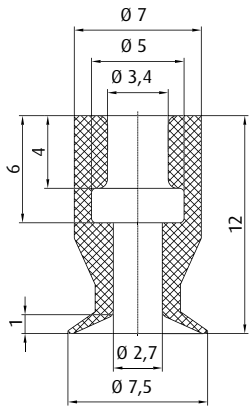


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
102.008.187._*

Material
NR (sw)

1.5 mm

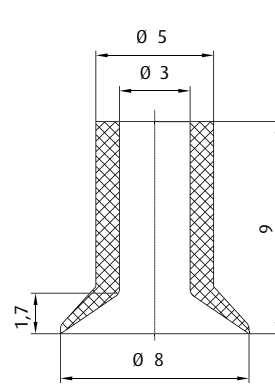


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

Item no.
102.008.392._*

Material
SI (tr)

0.5 mm

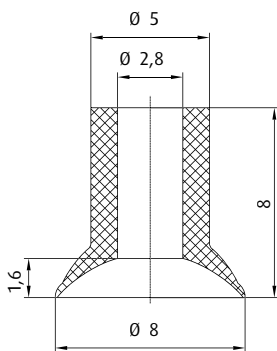


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
102.008.395._*

Material
NBR (sw)

0.9 mm

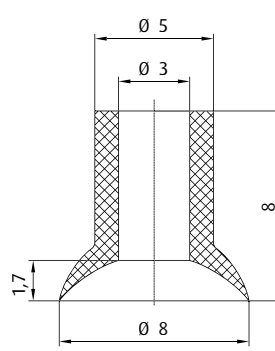


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
112.008.007._*

Material
NBR (sw), SI (w), NR (sw)

1.5 mm



| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

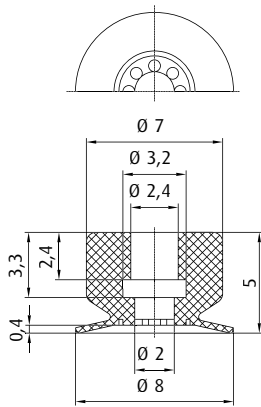
Item no.
112.008.009._*

Material
SI (tr), NR (sw), NR (br)

1 mm

Additional sizes available are found on p. 52.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|--|------------|----------|
| | M5-male | 409 |

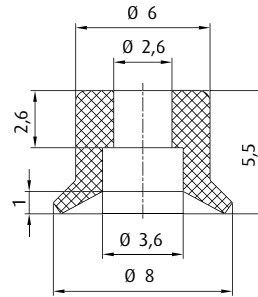
VERY FLEXIBLE

Item no.
104.008.070.*

Material
NBR (sw), SI-FS (r)

0.5 mm

Additional sizes available are found on p. 20.
This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 20 mm



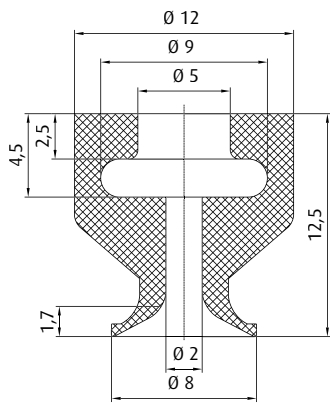
| | Connection | see page |
|--|------------|----------|
| | M5-male | 409 |

Item no.
102.008.283.*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (gr)

1 mm

Additional sizes available are found on p. 38.



| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

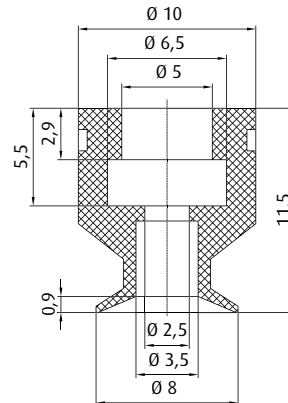
| | see page |
|--|------------|
| | 8.5 mm 454 |
| | 8.5 mm 454 |

Item no.
102.008.218.*

Material
NBR (sw), SI (tr)

1 mm

Additional sizes available are found on p. 50.

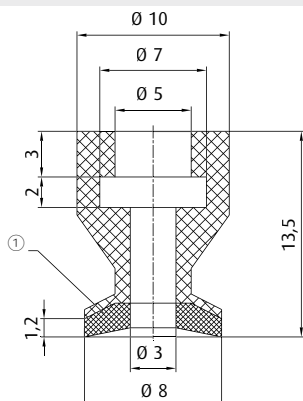


| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

Item no.
102.008.227.*

Material
SI (tr)

0.5 mm



① = Silicone sponge

| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

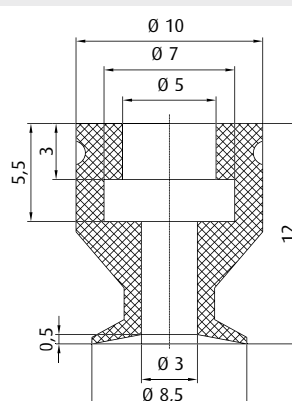
| | see page |
|--|------------|
| | 8.5 mm 454 |
| | 10 mm 456 |

Item no.
104.008.082.*

Material
SI (bl/r)

0.5 mm

Additional sizes available are found on p. 166.



| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

| | see page |
|--|------------|
| | 8.5 mm 454 |
| | 10 mm 456 |

Item no.
102.008.362.*

Material
SI (bl)

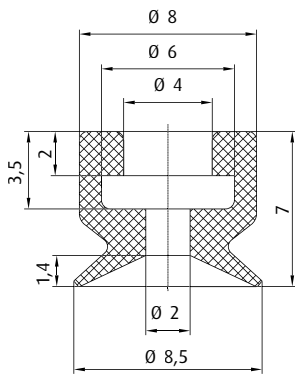
0.6 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 8 - 9 mm



| Connection | see page |
|----------------------------|----------|
| 270.010 M5-male | 411 |
| 270.005 M5-female | 412 |
| 270.009 G1/8-male | 417 |
| 270.007 G1/8-female | 422 |

| Connection | see page |
|---------------------|----------|
| 50.330 10 mm | 454 |

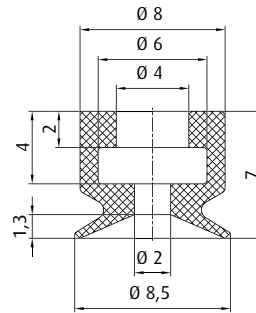
BESTSELLER

Item no.
102.008.017._*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (sw)

1.4 mm

Additional sizes available are found on p. 32.



| Connection | see page |
|----------------------------|----------|
| 270.010 M5-male | 411 |
| 270.005 M5-female | 412 |
| 270.009 G1/8-male | 417 |
| 270.007 G1/8-female | 422 |

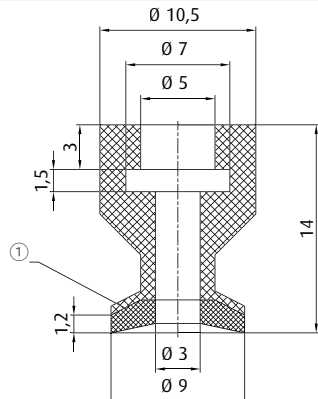
| Connection | see page |
|---------------------|----------|
| 50.330 10 mm | 454 |

Item no.
102.008.497._*

Material
Thermalon® (bl)

1.3 mm

Additional sizes available are found on p. 32.



① = Silicone sponge

| Connection | see page |
|----------------------------|----------|
| 270.200 M5-male | 411 |
| 270.064 G1/8-male | 418 |
| 270.065 G1/8-female | 422 |

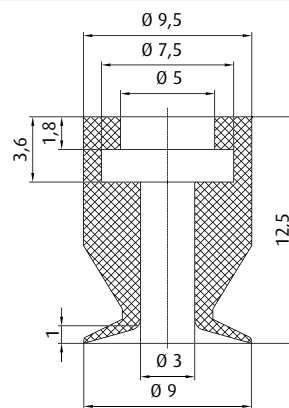
| Connection | see page |
|----------------------|----------|
| 50.141 10 mm | 456 |
| 50.018 8.5 mm | 454 |

Item no.
104.009.083._*

Material
SI (bl/r)

0.5 mm

Additional sizes available are found on p. 166.



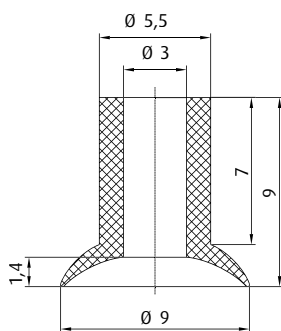
| Connection | see page |
|----------------------------|----------|
| 270.200 M5-male | 411 |
| 270.064 G1/8-male | 418 |
| 270.065 G1/8-female | 422 |

| Connection | see page |
|----------------------|----------|
| 50.018 8.5 mm | 454 |
| 50.141 10 mm | 456 |

Item no.
102.009.111._*

Material
SI (tr)

1 mm

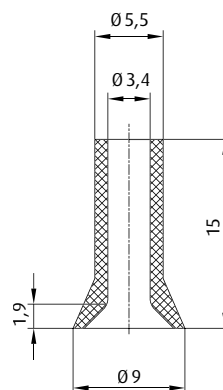


| Connection | see page |
|------------------------|----------|
| 270.536 M5-male | 409 |

Item no.
102.009.174._*

Material
Vinyl (bl)

1 mm



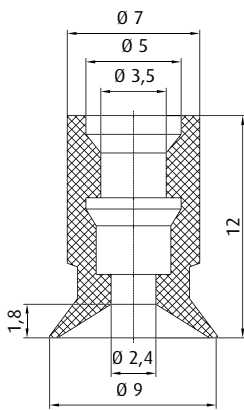
| Connection | see page |
|----------------------------|----------|
| 270.134 M5-male | 409 |
| 270.104 M6-male | 413 |
| 270.033 G1/8-male | 416 |
| 270.478 G1/8-female | 421 |

Item no.
107.009.001._*

Material
SI (tr), NR (br)

1.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

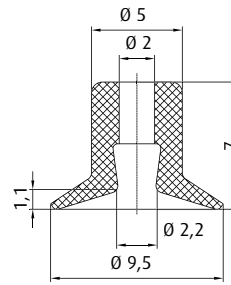


| | Connection | see page |
|---------|------------|----------|
| 270.399 | M5-male | 410 |

Item no.
102.008.228._*

Material
SI (tr)

0.8 mm



| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

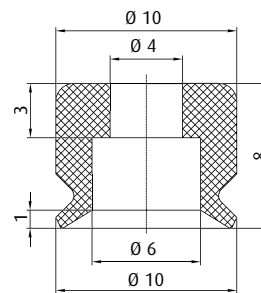
BESTSELLER

Item no.
102.009.092._*

Material
SI (tr), CR (sw)

1.5 mm

Additional sizes available are found on p. 42.



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

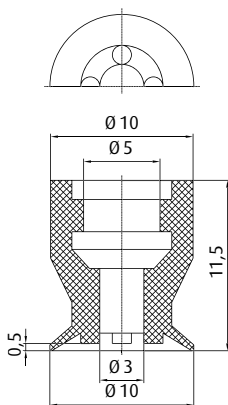
| | | see page |
|--------|-------|----------|
| 50.103 | 6 mm | 454 |
| 50.104 | 6 mm | 454 |
| 50.125 | 10 mm | 454 |
| 50.126 | 15 mm | 454 |
| 50.127 | 20 mm | 454 |

Item no.
102.010.284._*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (gr)

1 mm

Additional sizes available are found on p. 38.



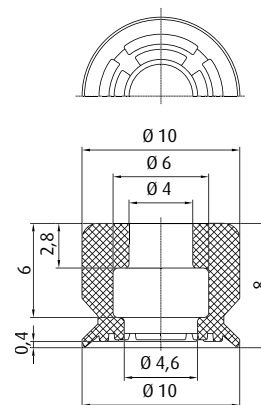
| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
104.010.001._*

Material
NBR (sw), SI (bl)

1.5 mm

This vacuum cup is also available in the following dimensions: 15 mm, 18 mm, 24 mm, 30 mm, 40 mm, 50 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

| | | see page |
|--------|-------|----------|
| 50.103 | 6 mm | 454 |
| 50.104 | 6 mm | 454 |
| 50.125 | 10 mm | 454 |
| 50.126 | 15 mm | 454 |
| 50.127 | 20 mm | 454 |

Item no.
104.010.065._*

Material
NBR (sw)

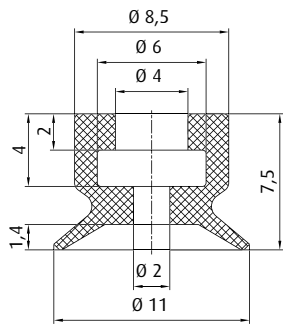
0.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 10 mm



| Connection | see page |
|---------------------|----------|
| 270.010 M5-male | 411 |
| 270.005 M5-female | 412 |
| 270.009 G1/8-male | 417 |
| 270.007 G1/8-female | 422 |

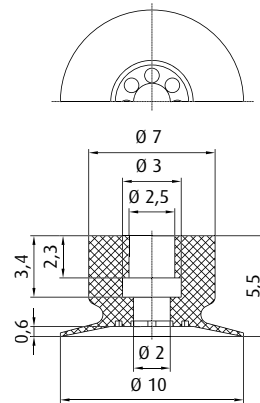
| Connection | see page |
|--------------|----------|
| 50.330 10 mm | 454 |

Item no.
102.010.498._*

Material
Thermalon® (bl)

1.5 mm

Additional sizes available are found on p. 36.



| Connection | see page |
|-----------------|----------|
| 270.283 M5-male | 409 |

VERY FLEXIBLE

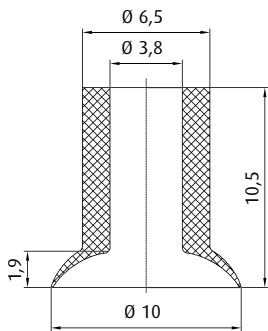
Item no.
104.010.071._*

Material
NBR (sw), SI-FS (r)

0.7 mm

Additional sizes available are found on p. 20.

This vacuum cup is also available in the following dimensions: 8 mm, 15 mm, 20 mm



| Connection | see page |
|---------------------|----------|
| 270.134 M5-male | 409 |
| 270.347 M5-female | 412 |
| 270.104 M6-male | 413 |
| 270.033 G1/8-male | 416 |
| 270.478 G1/8-female | 421 |

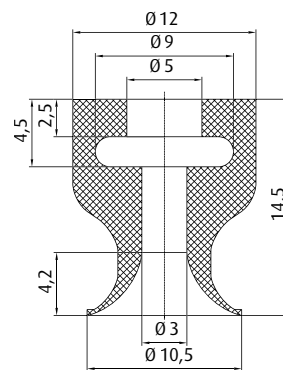
| Connection | see page |
|--------------|----------|
| 50.037 25 mm | 456 |

Item no.
112.010.011._*

Material
NBR (sw), SI (w)

2 mm

Additional sizes available are found on p. 52.



| Connection | see page |
|---------------------|----------|
| 270.200 M5-male | 411 |
| 270.064 G1/8-male | 418 |
| 270.065 G1/8-female | 422 |

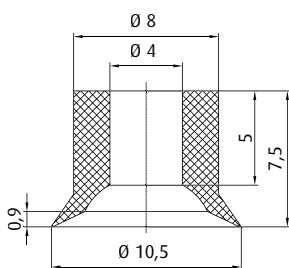
| Connection | see page |
|---------------|----------|
| 50.018 8.5 mm | 454 |
| 50.019 8.5 mm | 454 |

Item no.
102.010.219._*

Material
NBR (sw), SI (tr)

1 mm

Additional sizes available are found on p. 50.

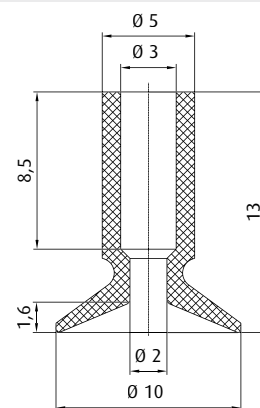


| Connection | see page |
|---------------------|----------|
| 270.010 M5-male | 411 |
| 270.005 M5-female | 412 |
| 270.009 G1/8-male | 417 |
| 270.007 G1/8-female | 422 |

Item no.
112.010.027._*

Material
NBR (sw), SI (bl)

1.5 mm



| Connection | see page |
|-----------------|----------|
| 270.022 M5-male | 409 |

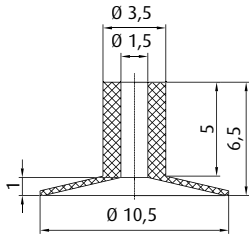
Item no.
122.010.005._*

Material
NBR (sw), SI (tr), Vulkollan® (br)

1.5 mm

Additional sizes available are found on p. 56.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

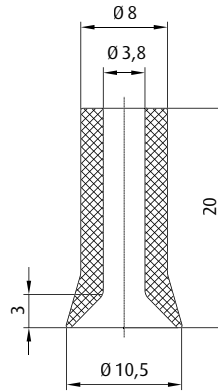


| Icon | Connection | see page |
|------|------------|----------|
| | M3-male | 408 |
| | M5-male | 409 |

Item no.
102.011.172.*

Material
Vinyl (bl)

0.5 mm

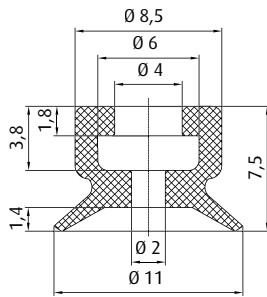


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
102.011.173.*

Material
Vinyl (bl)

1.5 mm



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

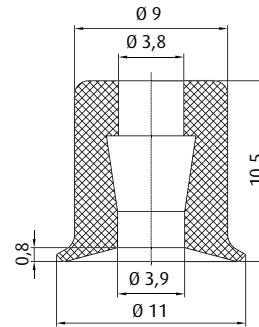
| Icon | Connection | see page |
|------|------------|----------|
| | 10 mm | 454 |

Item no.
102.010.024.*

Material
NBR (sw), NBR-AS (sw), SI (tr),
SI-AS (sw), PU (bl)

1.2 mm

Additional sizes available are found on p. 32.



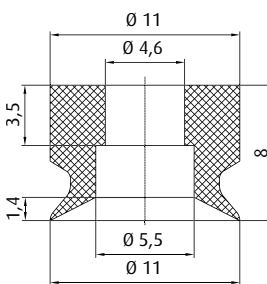
| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |
| | M6-male | 413 |

Item no.
102.011.093.*

Material
SI (tr), CR (sw)

1 mm

Additional sizes available are found on p. 42.

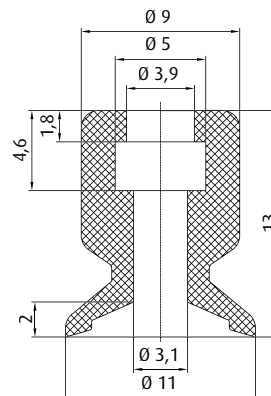


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

Item no.
102.011.181.*

Material
NBR (sw), SI (tr)

1 mm



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
102.011.171.*

Material
Vinyl (bl)

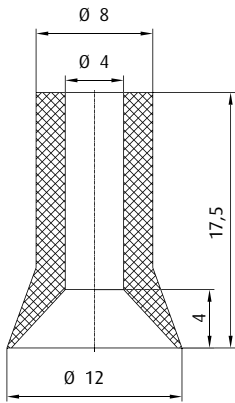
0.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 12 - 13 mm

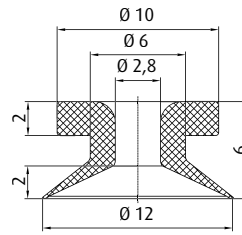


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.012.101._*

Material
NR (br)

2.5 mm



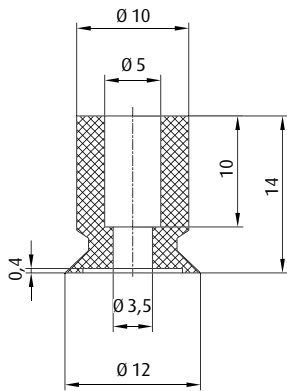
| | Connection | see page |
|---------|------------|----------|
| 270.283 | M5-male | 409 |

Item no.
102.012.267._*

Material
NR (bg)

2.5 mm

Additional sizes available are found on p. 22.

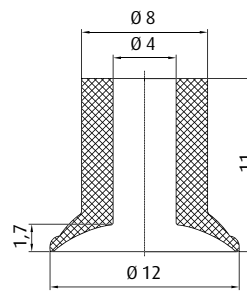


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
107.012.002._*

Material
NBR (sw), SI (tr), NR (bg)

0.4 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

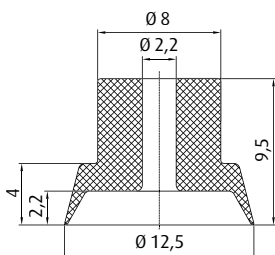
| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

Item no.
112.012.015._*

Material
NBR (sw), SI (w), NR (sw)

2 mm

Additional sizes available are found on p. 52.

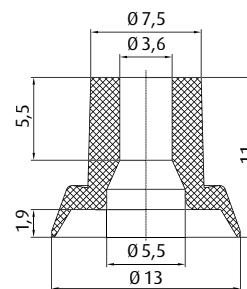


| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

Item no.
102.013.070._*

Material
NR (bg)

2 mm



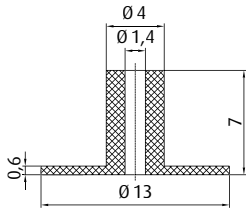
| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.013.077._*

Material
NR (bl)

2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

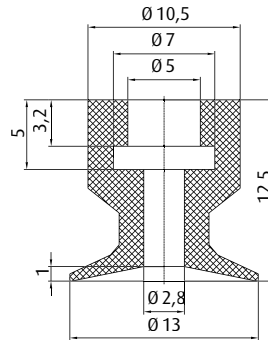


| Icon | Connection | see page |
|------|------------|----------|
| | M3-male | 408 |

Item no.
102.013.012._*

Material
SI (tr)

0 mm



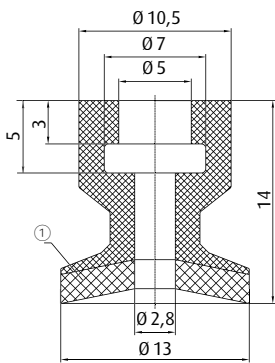
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

| Icon | Icon | see page |
|------|--------|----------|
| | 8.5 mm | 454 |
| | 10 mm | 456 |

Item no.
102.013.363._*

Material
SI (bl)

0.8 mm



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

| Icon | Icon | see page |
|------|--------|----------|
| | 8.5 mm | 454 |
| | 10 mm | 456 |

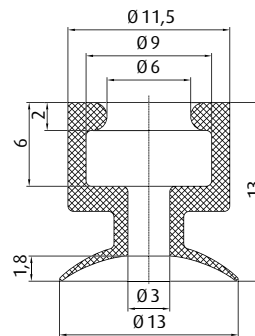
① = Silicone sponge

Item no.
104.013.084._*

Material
SI (bl/r)

0.5 mm

Additional sizes available are found on p. 166.



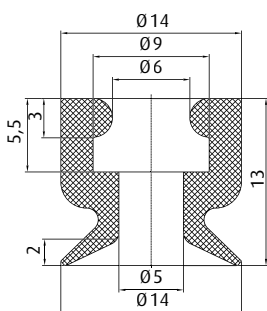
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M6-male | 413 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
102.012.332._*

Material
NR (or)

1.5 mm

Additional sizes available are found on p. 24.



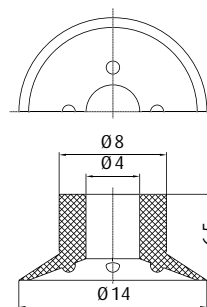
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M6-male | 413 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
102.014.333._*

Material
NR (or)

2 mm

Additional sizes available are found on p. 24.



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
104.014.020._*

Material
NBR (sw)

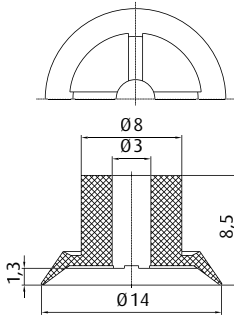
1.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 14 - 15 mm



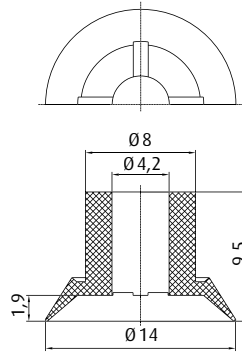
| | Connection | see page |
|---------|------------|----------|
| 270.536 | M5-male | 409 |

Item no.
102.014.089._*

Material
NBR (sw)

1.5 mm

Additional sizes available are found on p. 20.

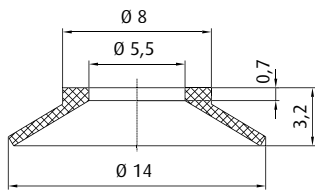


| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
104.014.025._*

Material
SI (tr), NR (sw)

2 mm

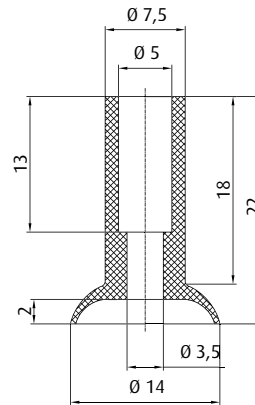


| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
107.014.005._*

Material
PU (tr)

1.5 mm

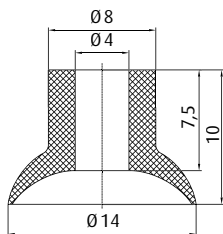


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
115.015.002._*

Material
NR (bg)

3 mm

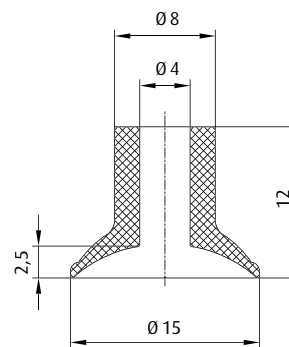


| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
112.015.021._*

Material
NBR (sw), SI (tr)

2 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

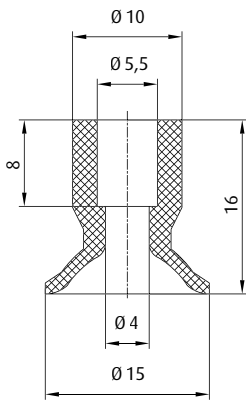
Item no.
112.015.022._*

Material
NBR (sw), SI (w), NR (sw)

2 mm

Additional sizes available are found on p. 52.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

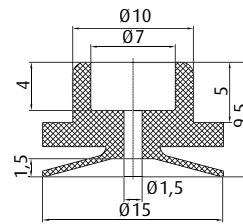


| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.013 M5-male | 410 |
| | 270.005 M5-female | 412 |
| | 270.103 M6-male | 413 |
| | 270.003 G1/8-male | 416 |
| | 270.015 G1/8-female | 421 |

Item no.
122.015.004.*

Material
CR (sw)

2 mm



| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.200 M5-male | 411 |
| | 270.064 G1/8-male | 418 |
| | 270.065 G1/8-female | 422 |

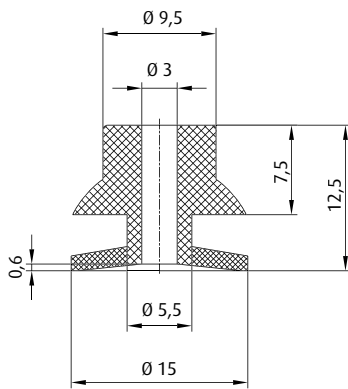
| Icon | Icon | see page |
|------|---------------|----------|
| | 50.018 8.5 mm | 454 |
| | 50.019 8.5 mm | 454 |

Item no.
102.015.339.*

Material
Vinyl (bl)

1.5 mm

Additional sizes available are found on p. 22.

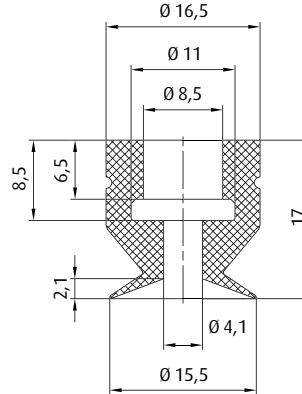


| Icon | Connection | see page |
|------|-----------------|----------|
| | 270.022 M5-male | 409 |

Item no.
107.015.062.*

Material
NR (sw)

1.5 mm



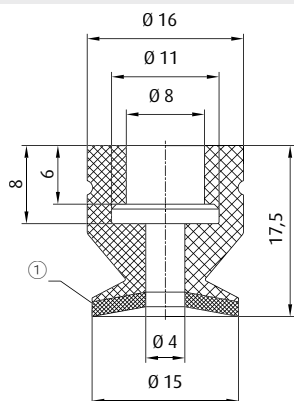
| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.012 G1/8-male | 421 |
| | 270.020 G1/8-female | 423 |
| | 270.034 G1/4-male | 428 |
| | 270.038 G1/4-female | 432 |

| Icon | Icon | see page |
|------|--------------|----------|
| | 50.005 5 mm | 456 |
| | 50.145 10 mm | 456 |
| | 50.146 30 mm | 456 |

Item no.
102.015.414.*

Material
SI (bl)

2 mm



| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.012 G1/8-male | 421 |
| | 270.020 G1/8-female | 423 |
| | 270.034 G1/4-male | 428 |
| | 270.038 G1/4-female | 432 |

| Icon | Icon | see page |
|------|--------------|----------|
| | 50.005 5 mm | 456 |
| | 50.145 10 mm | 456 |
| | 50.146 30 mm | 456 |

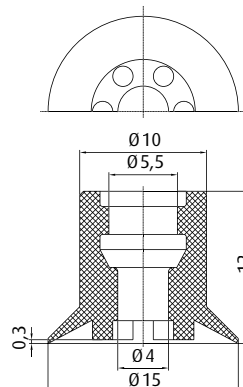
① = Silicone sponge

Item no.
104.015.085.*

Material
SI (bl/r)

1 mm

Additional sizes available are found on p. 166.



| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.094 M5-male | 411 |
| | 270.095 G1/8-male | 418 |
| | 270.096 G1/8-female | 422 |

Item no.
104.015.002.*

Material
NBR (sw), SI (bl)

1 mm

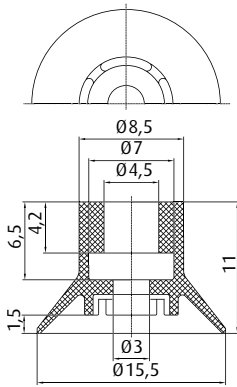
This vacuum cup is also available in the following dimensions: 10 mm, 18 mm, 24 mm, 30 mm, 40 mm, 50 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 15 mm

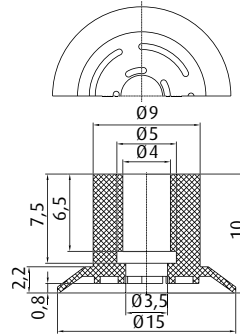


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
102.015.367.*

Material
Vulkollan® (br)

2 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

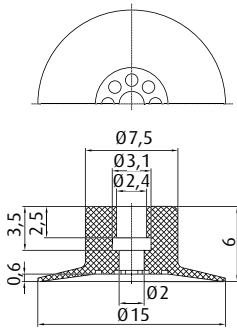
Item no.
102.015.431.*

Material
SI (tr), NR (bg)

0.5 mm

Additional sizes available are found on p. 20.

This vacuum cup is also available in the following dimensions: 24 mm, 28 mm, 30 mm, 40 mm



| | Connection | see page |
|---------|------------|----------|
| 270.283 | M5-male | 409 |

VERY FLEXIBLE

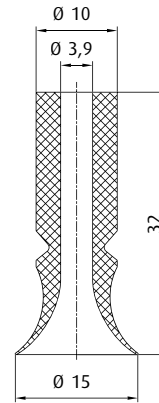
Item no.
104.015.072.*

Material
NBR (sw), SI-FS (r)

1.1 mm

Additional sizes available are found on p. 20.

This vacuum cup is also available in the following dimensions: 8 mm, 10 mm, 20 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

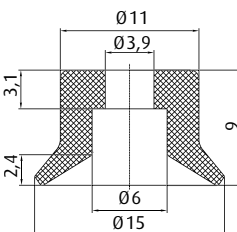
**FOR HIGHLY
STRUCTURED
SURFACES (3D)**

| | see page |
|--------|-----------|
| 50.037 | 25 mm 456 |

Item no.
126.015.002.*

Material
NR (sw), NR (bg)

6 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

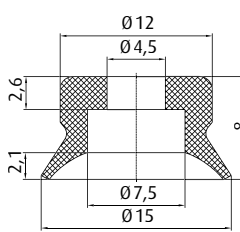
| | | see page |
|--------|-------|----------|
| 50.103 | 6 mm | 454 |
| 50.104 | 6 mm | 454 |
| 50.125 | 10 mm | 454 |
| 50.126 | 15 mm | 454 |
| 50.127 | 20 mm | 454 |

Item no.
102.015.285.*

Material
NBR (sw), SI (tr), SI-AS (sw),
PU (bl), FKM (gr)

1.5 mm

Additional sizes available are found on p. 38.



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

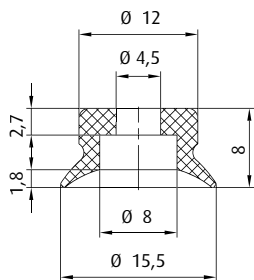
Item no.
102.015.030.*

Material
NBR (sw), SI (tr), PU (bl)

2 mm

Additional sizes available are found on p. 32.

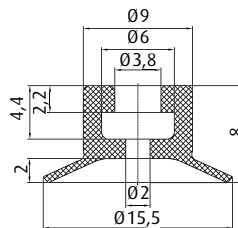
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |
| | | see page |
| 50.330 | 10 mm | 454 |

Item no.
102.015.499.* **Material**
Thermalon® (bl) 1.9 mm

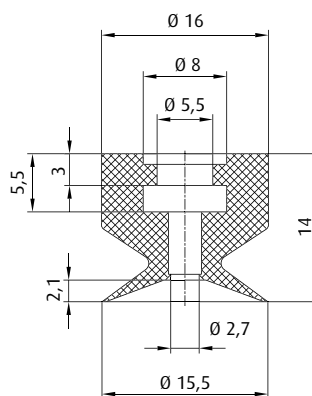
Additional sizes available are found on p. 36.



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |
| | | see page |
| 50.330 | 10 mm | 454 |

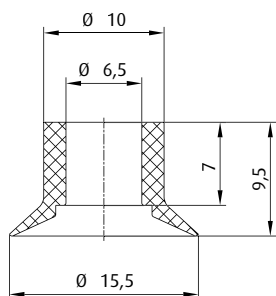
Item no.
102.015.309.* **Material**
NBR (sw), SI (tr), PU (bl) 1.9 mm

Additional sizes available are found on p. 32.



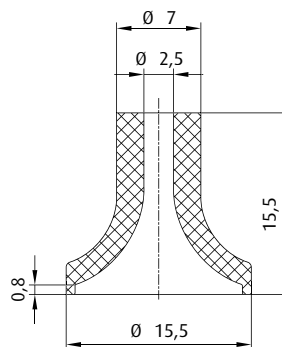
| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

Item no.
102.016.319.* **Material**
PU (bl) 2 mm



| | Connection | see page |
|---------|------------|----------|
| 270.250 | G1/8-male | 418 |

Item no.
102.016.146.* **Material**
NR (gr) 2 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

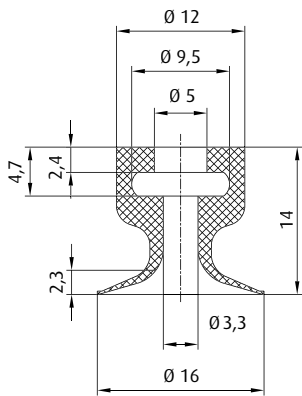
Item no.
102.016.138.* **Material**
NR (bg) 3.2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 16 mm

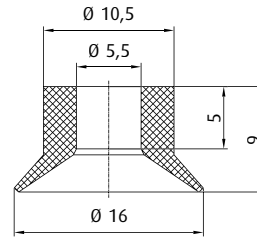


| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

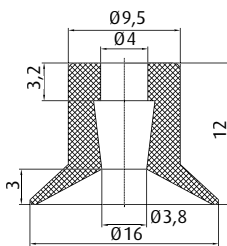
Item no. 102.015.220.* **Material** NBR (sw), SI (tr) 2 mm

Additional sizes available are found on p. 50.



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

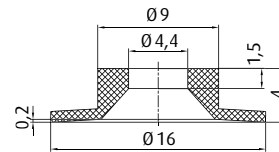
Item no. 126.016.003.* **Material** NR (bg) 3 mm



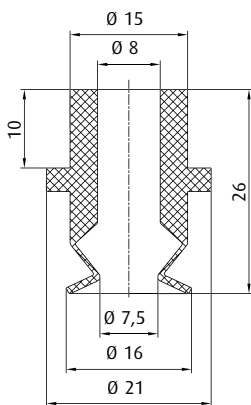
| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

Item no. 102.016.098.* **Material** SI (tr), CR (sw) 2 mm

Additional sizes available are found on p. 42.



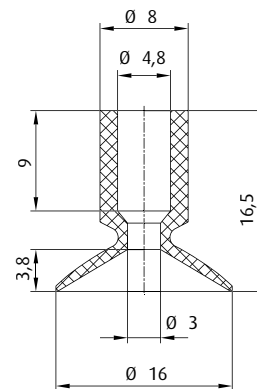
Item no. 102.016.145.* **Material** NR (bg) 0.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no. 107.016.008.* **Material** SI (tr) 2.4 mm

Additional sizes available are found on p. 58.

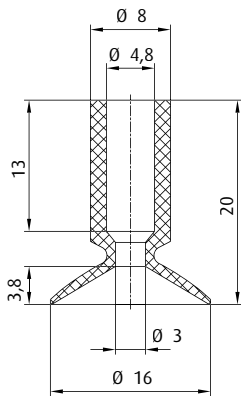


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

Item no. 122.016.006.* **Material** NBR (sw) 5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



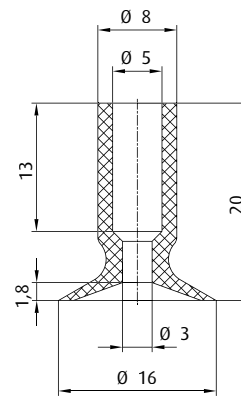
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 410 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |
| | G1/4-male | 425 |
| | 25 mm | see page |
| | 25 mm | 456 |

Item no.
122.016.009.*

Material
NBR (sw), SI (tr), NR (sw)

5 mm

Additional sizes available are found on p. 56.

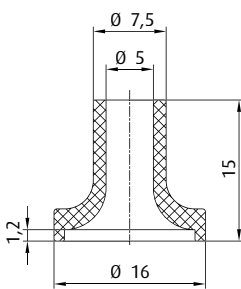


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 410 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |
| | G1/4-male | 425 |

Item no.
122.016.076.*

Material
Vulkollan® (br)

2.5 mm

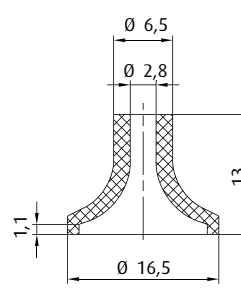


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 410 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
102.016.122.*

Material
NR (bg)

3 mm

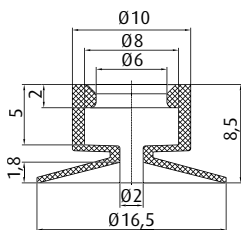


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
102.017.420.*

Material
NR (br)

3.5 mm

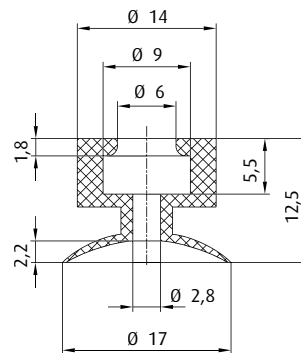


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M6-male | 413 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
102.016.151.*

Material
NR (gr)

0.5 mm



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | M6-male | 413 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
102.016.255.*

Material
SI (r)

3 mm

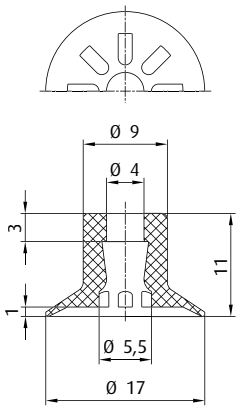
Additional sizes available are found on p. 24.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 17 - 18 mm



| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

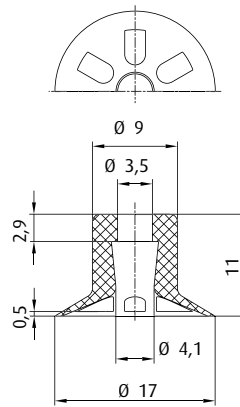
BESTSELLER

Item no.
104.016.003._*

Material
SI (tr), CR (sw)

0.5 mm

Additional sizes available are found on p. 42.

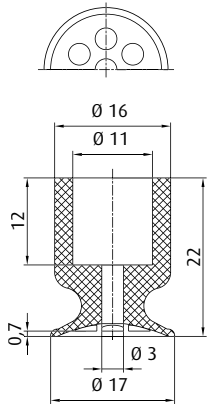


| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

Item no.
104.017.026._*

Material
NR (sw)

1 mm

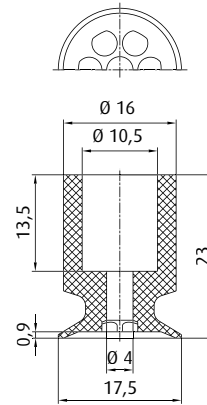


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
102.017.193._*

Material
Vulkollan® (br)

0.7 mm

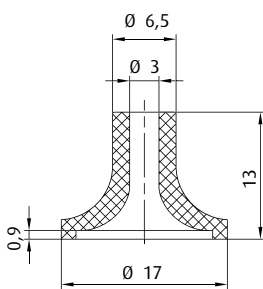


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.018.049._*

Material
Vinyl (bl)

2 mm

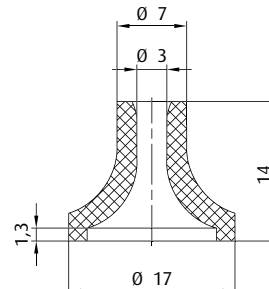


| | Connection | see page |
|---------|------------|----------|
| 270.536 | M5-male | 409 |

Item no.
102.017.132._*

Material
NR (bl)

3 mm



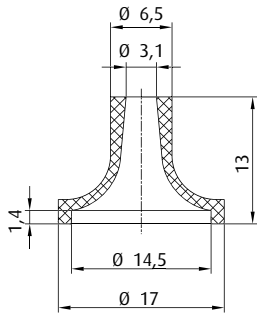
| | Connection | see page |
|---------|------------|----------|
| 270.536 | M5-male | 409 |

Item no.
102.017.133._*

Material
NR (g)

2.4 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



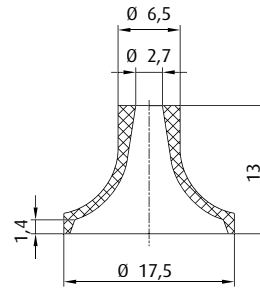
| Item no. | Connection | see page |
|----------|------------|----------|
| 270.536 | M5-male | 409 |

Item no.
102.017.276.*

Material
NR (br)

3 mm

Additional sizes available are found on p. 22.

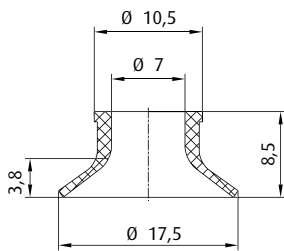


| Item no. | Connection | see page |
|----------|------------|----------|
| 270.024 | M5-male | 410 |
| 270.347 | M5-female | 412 |
| 270.033 | G1/8-male | 416 |

Item no.
102.018.277.*

Material
NR (bl)

0.6 mm

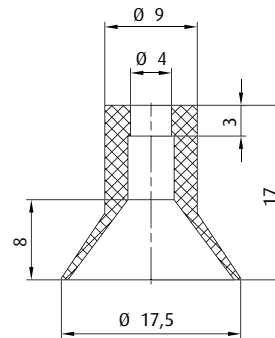


| Item no. | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Item no.
102.019.139.*

Material
NR (bg)

1 mm



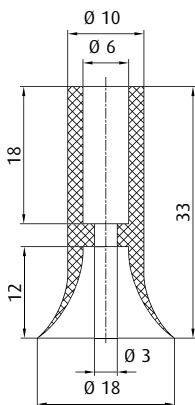
| Item no. | Connection | see page |
|----------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

Item no.
122.016.012.*

Material
SI (tr), CR (sw)

1.5 mm

Additional sizes available are found on p. 42.



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

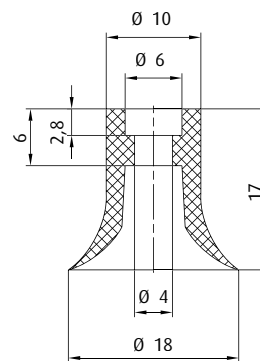
FLEXIBLE LIP

Item no.
102.018.345.*

Material
SI (tr)

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Additional sizes available are found on p. 58.



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.399 | M5-male | 410 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
107.018.004.*

Material
SI (tr)

--

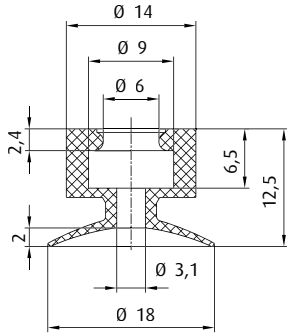
Additional sizes available are found on p. 58.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

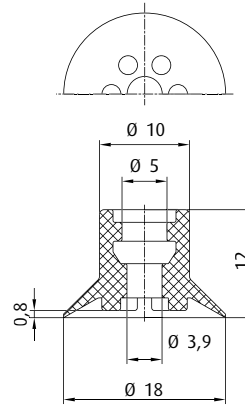
Ø 18 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

| | | |
|----------------------------------|----------------------------|------|
| Item no. 102.018.442.* | Material NR (or) | 2 mm |
|----------------------------------|----------------------------|------|

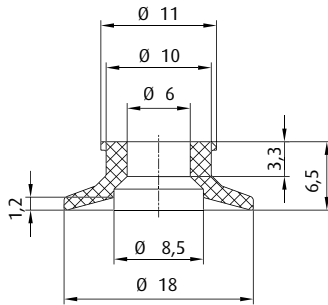
Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 104.018.005.* | Material NBR (sw), SI (bl) | 1 mm |
|----------------------------------|--------------------------------------|------|

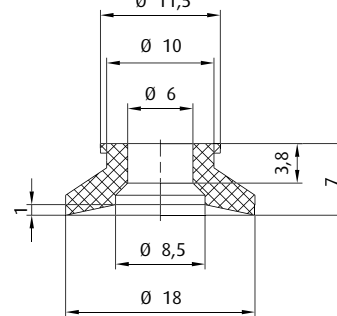
This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 24 mm, 30 mm, 40 mm, 50 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

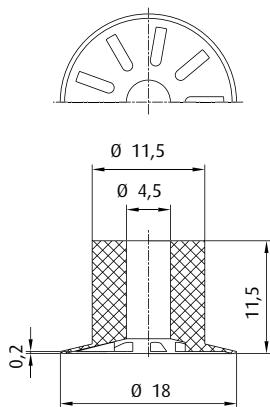
| | | |
|----------------------------------|----------------------------|--------|
| Item no. 102.018.143.* | Material NR (bg) | 0.5 mm |
|----------------------------------|----------------------------|--------|



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

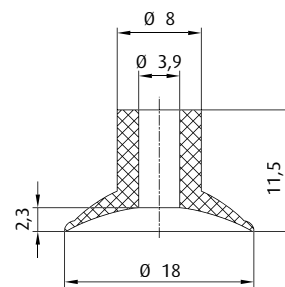
| | | |
|----------------------------------|----------------------------|--------|
| Item no. 102.018.144.* | Material NR (bg) | 0.5 mm |
|----------------------------------|----------------------------|--------|



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

| | | |
|----------------------------------|-------------------------------|--------|
| Item no. 104.018.051.* | Material Vinyl (bl) | 0.5 mm |
|----------------------------------|-------------------------------|--------|



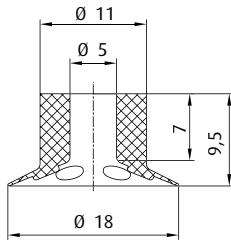
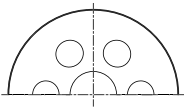
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

| | | |
|----------------------------------|--|--------|
| Item no. 112.018.024.* | Material NBR (sw), SI (w), NR (sw) | 2.3 mm |
|----------------------------------|--|--------|

Additional sizes available are found on p. 52.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

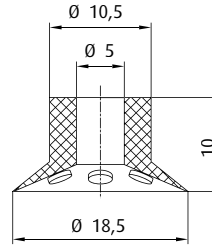
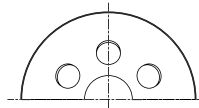


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
112.018.111._*

Material
SI (tr), NR (sw)

1 mm

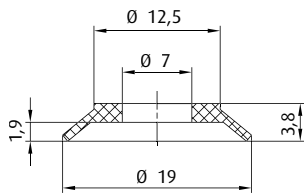


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
127.018.001._*

Material
NBR (sw), SI (tr), NR (bg)

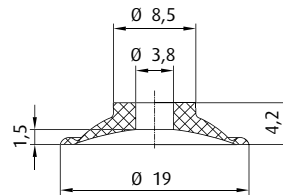
1.5 mm



Item no.
107.019.054._*

Material
NR (bl)

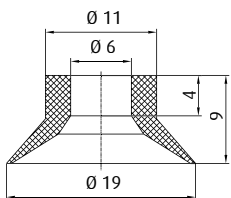
0.5 mm



Item no.
112.019.073._*

Material
NR (sw)

2 mm

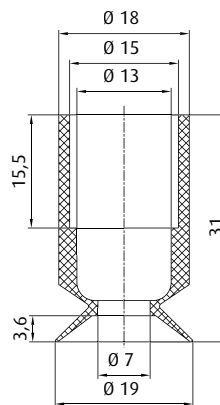


| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |
| 270.534 | G1/4-male | 425 |

Item no.
122.019.014._*

Material
SI (tr), NR (bg)

3 mm



| | Connection | see page |
|---------|------------|----------|
| 270.207 | G1/4-male | 426 |

Item no.
102.019.036._*

Material
NR (sw)

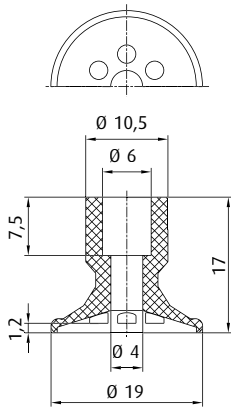
5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 19 - 20 mm

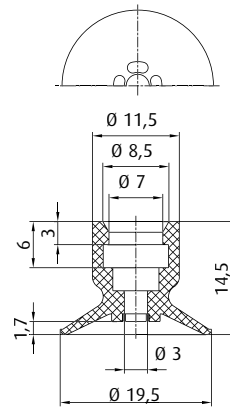


| | Connection | see page |
|---------|-------------|----------|
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
104.020.042._*

Material
Vinyl (bl)

0.5 mm



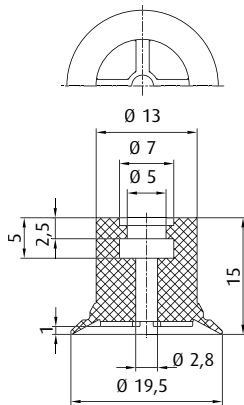
| | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

Item no.
102.020.355._*

Material
NBR (sw)

3 mm

This vacuum cup is also available in the following dimensions: 28 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

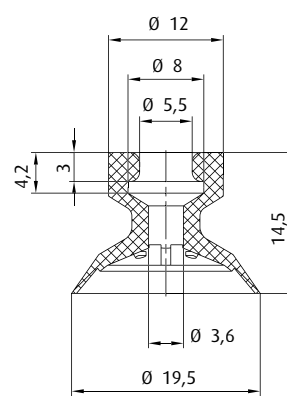
BESTSELLER

Item no.
102.020.083._*

Material
NBR (sw), SI (tr), SI (r)

1 mm

Additional sizes available are found on p. 20.

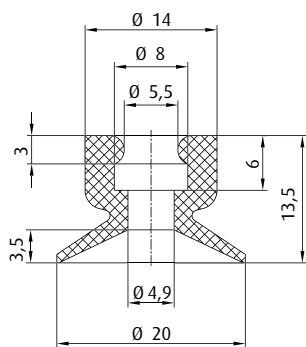


| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

Item no.
102.020.272._*

Material
NR (sw)

1 mm



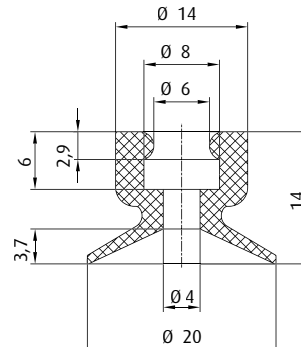
| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

Item no.
102.020.140._*

Material
NR (sw), NR (or)

3 mm

Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

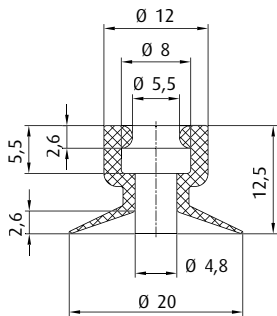
Item no.
126.020.004._*

Material
SI (tr), NR (or), NR (br)

3.5 mm

Additional sizes available are found on p. 24.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



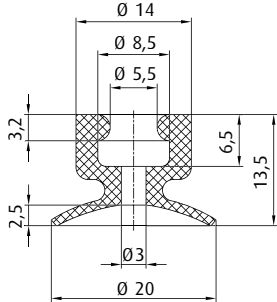
| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

Item no.
126.020.005._*

Material
NBR (sw), SI (tr), NR (sw)

1 mm

Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

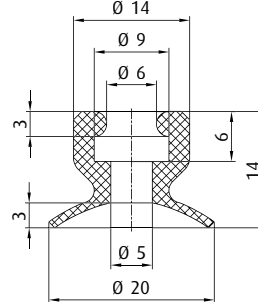
WEAR-RESISTANT

Item no.
102.020.299._*

Material
Vulkollan® (br)

3.5 mm

Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

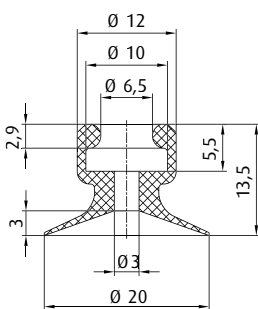
WEAR-RESISTANT

Item no.
102.020.300._*

Material
Vulkollan® (br)

3 mm

Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.037 | M5-male | 411 |
| 270.373 | M6-male | 413 |
| 270.085 | G1/8-male | 418 |
| 270.086 | G1/8-female | 422 |

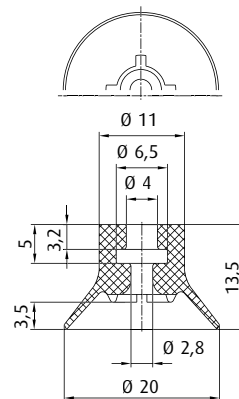
WEAR-RESISTANT

Item no.
102.020.308._*

Material
Vulkollan® (br)

1 mm

Additional sizes available are found on p. 24.



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
102.020.321._*

Material
Vulkollan® (br)

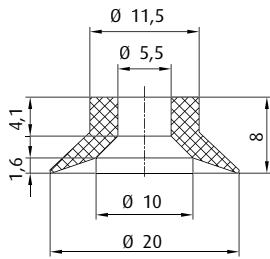
3.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 20 mm

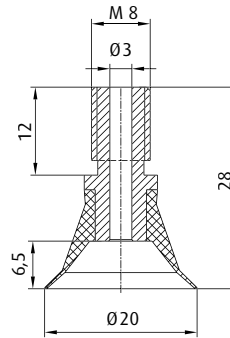


| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
102.019.110.*

Material
NR (bg)

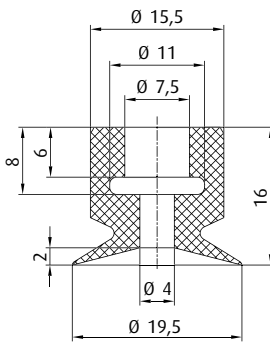
2 mm



Item no.
120.019.003.*

Material
NBR (sw), SI (tr), NR (sw)

2 mm



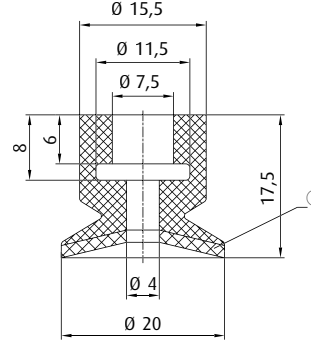
| | Connection | see page |
|---------|-------------|----------|
| 270.012 | G1/8-male | 421 |
| 270.020 | G1/8-female | 423 |
| 270.034 | G1/4-male | 428 |
| 270.038 | G1/4-female | 432 |

| | | see page |
|--------|-------|----------|
| 50.005 | 5 mm | 456 |
| 50.145 | 10 mm | 456 |
| 50.146 | 30 mm | 456 |

Item no.
102.020.365.*

Material
SI (bl)

1.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.012 | G1/8-male | 421 |
| 270.020 | G1/8-female | 423 |
| 270.034 | G1/4-male | 428 |
| 270.038 | G1/4-female | 432 |

| | | see page |
|--------|-------|----------|
| 50.005 | 5 mm | 456 |
| 50.145 | 10 mm | 456 |
| 50.146 | 30 mm | 456 |

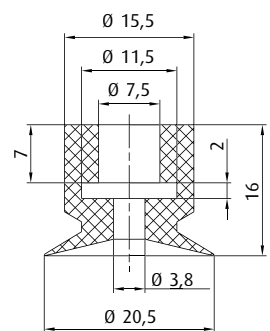
① = Silicone sponge

Item no.
104.020.086.*

Material
SI (bl/r)

1.5 mm

Additional sizes available are found on p. 166.



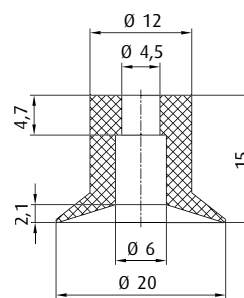
| | Connection | see page |
|---------|-------------|----------|
| 270.012 | G1/8-male | 421 |
| 270.020 | G1/8-female | 423 |
| 270.034 | G1/4-male | 428 |
| 270.038 | G1/4-female | 432 |

| | | see page |
|--------|-------|----------|
| 50.005 | 5 mm | 456 |
| 50.145 | 10 mm | 456 |
| 50.146 | 30 mm | 456 |

Item no.
107.020.014.*

Material
SI (tr)

1 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.317 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.205 | G1/8-male | 416 |
| 270.109 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| | | see page |
|--------|--------|----------|
| 50.020 | 8.5 mm | 454 |

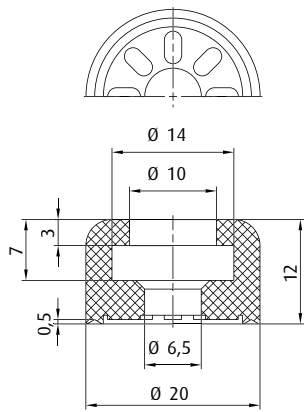
Item no.
102.020.221.*

Material
NBR (sw), SI (tr)

2 mm

Additional sizes available are found on p. 50.

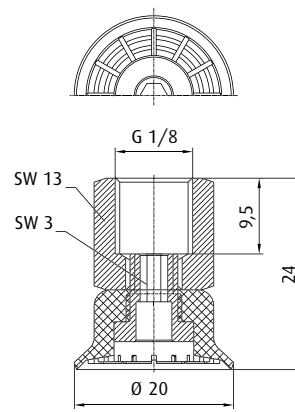
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Item no. | Connection | see page |
|----------|------------|----------|
| 270.521 | M5-male | 412 |

Item no. 102.020.458.* Material HNBR (ge), NR (br) 0.5 mm

Additional sizes available are found on p. 70.

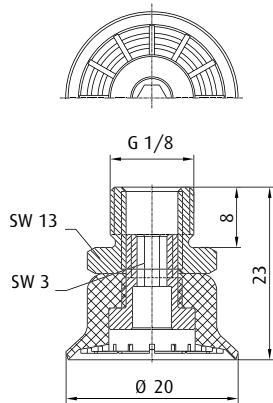


Item no. 100.020.101.* Material NBR (sw) 1.1 mm

Additional sizes available are found on p. 62.

NON-SLIP

Spare cup

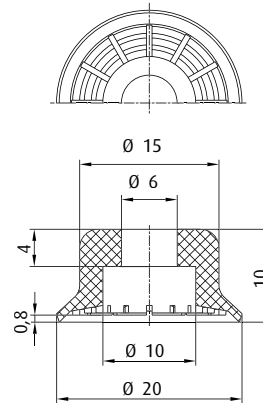


Spare cup

NON-SLIP

Item no. 100.020.111.* Material NBR (sw) 1.1 mm

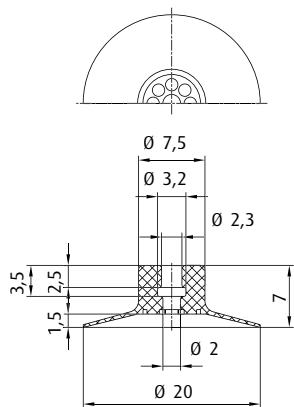
Additional sizes available are found on p. 62.



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

| Item no. | Connection | see page |
|----------|------------|----------|
| 50.085 | 6 mm | 454 |
| 50.128 | 10 mm | 454 |
| 50.129 | 15 mm | 454 |
| 50.130 | 20 mm | 454 |
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no. 104.020.066.* Material NBR (sw) 1.1 mm

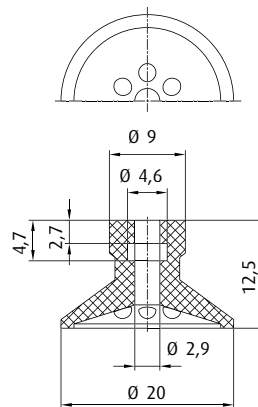


| Item no. | Connection | see page |
|----------|------------|----------|
| 270.283 | M5-male | 409 |

VERY FLEXIBLE

Item no. 104.020.073.* Material NBR (sw), SI-FS (r) 1.6 mm

Additional sizes available are found on p. 20.
This vacuum cup is also available in the following dimensions: 8 mm, 10 mm, 15 mm



| Item no. | Connection | see page |
|----------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |

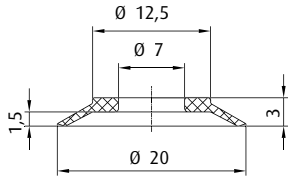
Item no. 104.020.075.* Material Vinyl (bl) 2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 20 mm

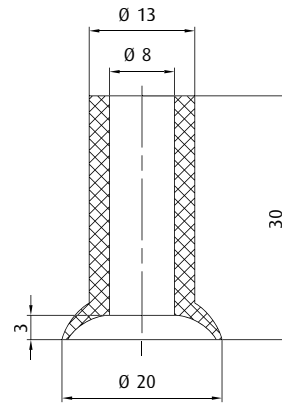


| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
102.020.271.*

Material
NR (sw)

1 mm

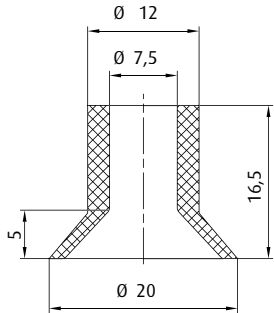


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
107.020.013.*

Material
SI (tr), NR (br)

4 mm

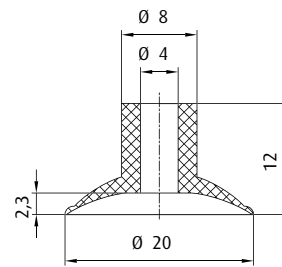


| | Connection | see page |
|---------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
107.020.015.*

Material
SI (tr), NR (sw), NR (br)

3 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

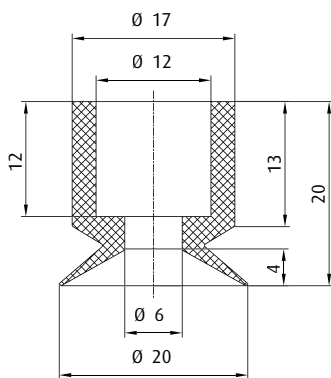
| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

Item no.
112.020.031.*

Material
NBR (sw), SI (w), NR (sw)

2.3 mm

Additional sizes available are found on p. 52.

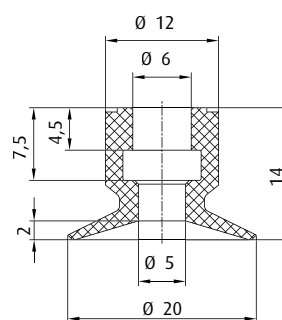


| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
122.020.017.*

Material
SI (tr), NR (bg)

3 mm



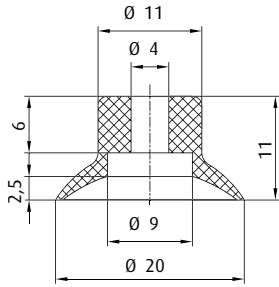
| | Connection | see page |
|---------|-------------|----------|
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no.
102.021.179.*

Material
Vinyl (bl)

0.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

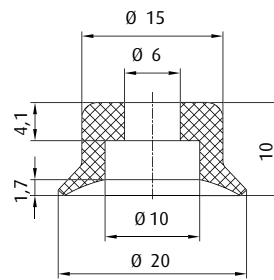


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
102.020.312._*

Material
SI (tr)

2.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

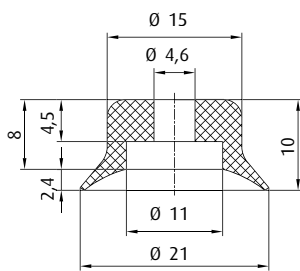
| | | see page |
|--------|-------|----------|
| 50.085 | 6 mm | 454 |
| 50.128 | 10 mm | 454 |
| 50.129 | 15 mm | 454 |
| 50.130 | 20 mm | 454 |
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
102.020.286._*

Material
NBR (sw), SI (tr), PU (bl),
FKM (gr)

2 mm

Additional sizes available are found on p. 38.



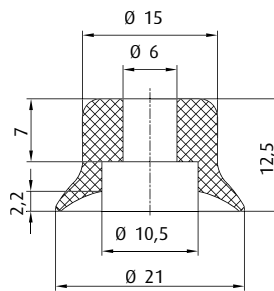
| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no.
102.020.041._*

Material
NBR (sw), SI (tr), PU (bl)

2 mm

Additional sizes available are found on p. 32.

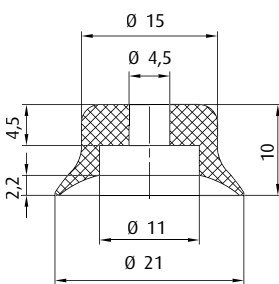


| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.020.330._*

Material
NBR (sw), SI (tr)

3 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no.
102.020.500._*

Material
Thermalon® (bl)

2.3 mm

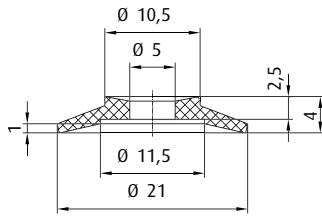
Additional sizes available are found on p. 36.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 21 - 22 mm

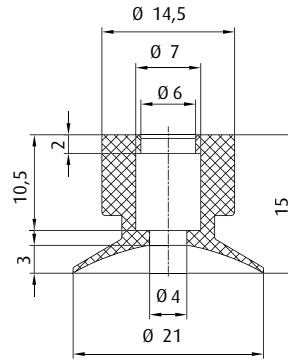


Item no.
102.021.063._*

Material
NR (sw)

1 mm

Additional sizes available are found on p. 22.



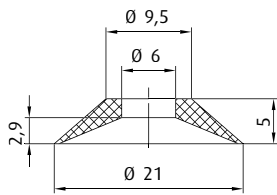
Item no.
102.021.399._*

Material
Vinyl (bl)

2.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

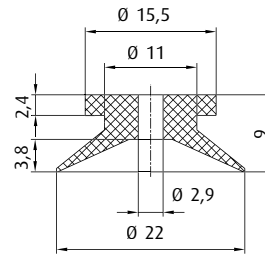
| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |



Item no.
107.021.049._*

Material
NR (bg)

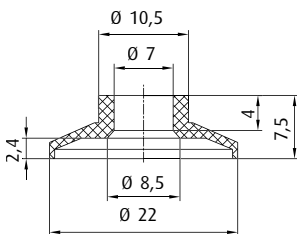
1.5 mm



Item no.
102.022.150._*

Material
Vinyl (bl)

2.5 mm



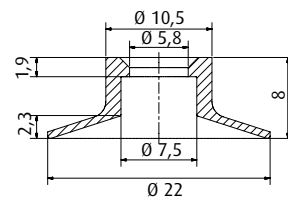
Item no.
102.022.185._*

Material
NR (gr)

0.5 mm

Additional sizes available are found on p. 22.

| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |



Item no.
102.022.526._*

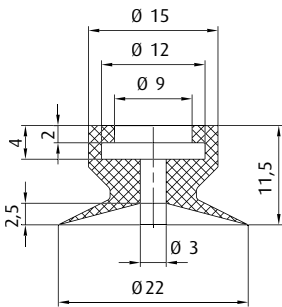
Material
NR (bl)

2 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

Additional sizes available are found on p. 22.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

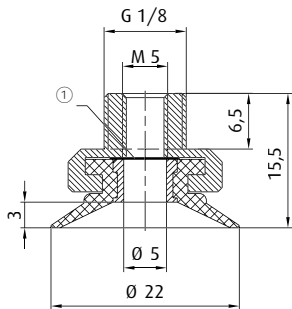


| | Connection | see page |
|---------|------------|----------|
| 270.541 | G1/8-male | 421 |

Item no.
102.022.406._*

Material
SI (r)

2 mm



① = Filter screen

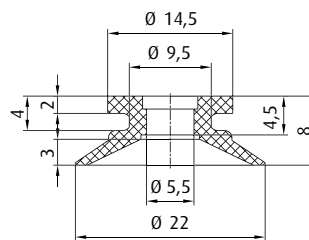
Item no.
120.020.006._*

Material
SI (tr), CR (sw)

2.5 mm

Additional sizes available are found on p. 47.

Spare cup



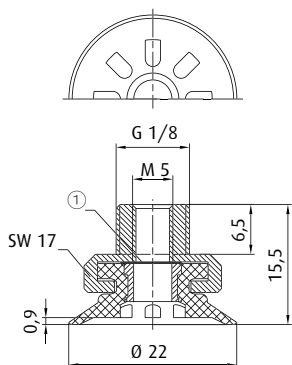
| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Item no.
102.020.095._*

Material
SI (tr), CR (sw)

2.5 mm

Additional sizes available are found on p. 42.



① = Filter screen

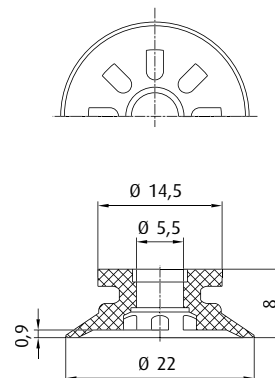
Item no.
123.020.003._*

Material
Tepuflex® (or), SI (tr), CR (sw)

1 mm

Additional sizes available are found on p. 47.

Spare cup



| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

BESTSELLER

Item no.
125.020.004._*

Material
Tepuflex® (or), SI (tr), CR (sw)

1 mm

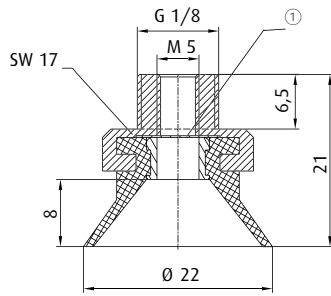
Additional sizes available are found on p. 42.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 22 mm



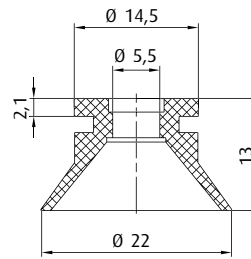
① = Filter screen

Item no.
120.022.011.*

Material
SI (tr), CR (sw)

2.5 mm

Spare cup



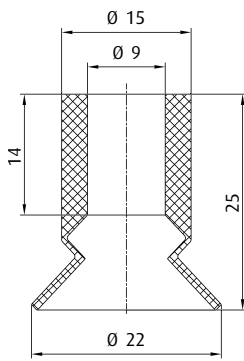
Item no.
122.022.022.*

Material
SI (tr), CR (sw)

2.5 mm

| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Additional sizes available are found on p. 42.



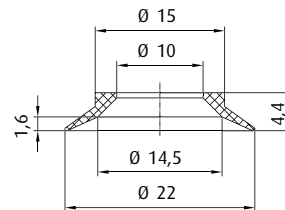
| | Connection | see page |
|---------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
102.022.043.*

Material
NBR (sw), SI (tr), NR (sw)

5 mm

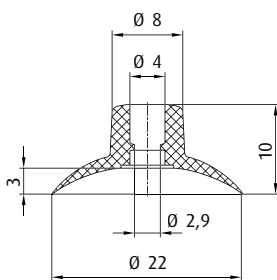
Additional sizes available are found on p. 58.



Item no.
107.022.016.*

Material
NR (sw)

1 mm



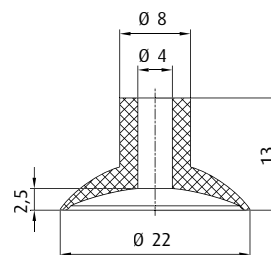
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
102.022.071.*

Material
PU (bl)

3 mm

This vacuum cup is also available in the following dimensions: 25 mm, 30 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

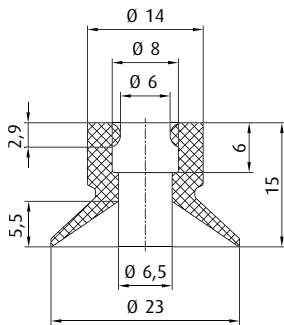
Item no.
112.022.037.*

Material
NBR (sw), SI (w)

2.5 mm

Additional sizes available are found on p. 52.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

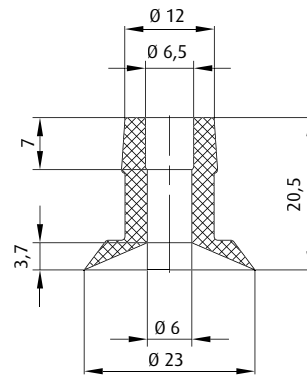


| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

Item no.
102.023.356.*

Material
Vinyl (bl)

3.8 mm

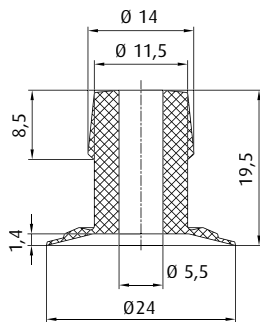


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |
| 270.043 | G1/4-male | 425 |

Item no.
102.023.331.*

Material
Vinyl (tr)

2.5 mm

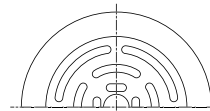


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
102.023.149.*

Material
Vinyl (tr)

0.5 mm



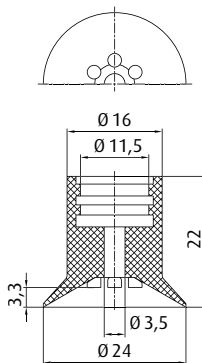
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.024.457.*

Material
SI (tr), NR (bg)

1.8 mm

Additional sizes available are found on p. 20.
This vacuum cup is also available in the following dimensions: 15 mm, 28 mm, 30 mm, 40 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
104.024.006.*

Material
NBR (sw)

1 mm

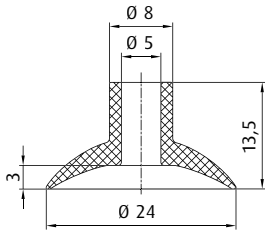
This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 30 mm, 40 mm, 50 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 24 - 25 mm

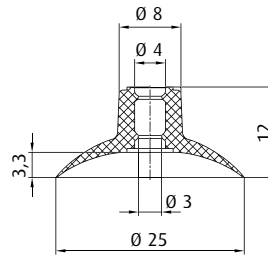


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.024.123.*

Material
NR (sw), NR (bg)

4 mm



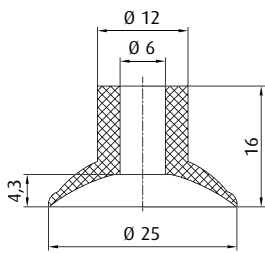
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.025.085.*

Material
PU (r)

4 mm

This vacuum cup is also available in the following dimensions: 22 mm, 30 mm



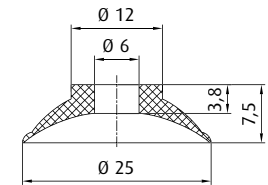
| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
112.025.042.*

Material
NBR (sw), SI (w), NR (sw)

4.5 mm

Additional sizes available are found on p. 52.

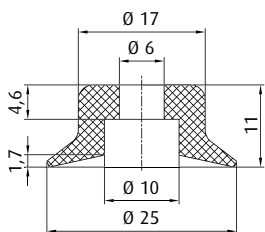


| | Connection | see page |
|---------|------------|----------|
| 270.039 | M6-male | 414 |

Item no.
112.025.043.*

Material
NBR (sw), SI (w), NR (sw)

2.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

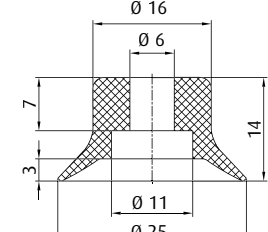
| | | see page |
|--------|-------|----------|
| 50.085 | 6 mm | 454 |
| 50.128 | 10 mm | 454 |
| 50.129 | 15 mm | 454 |
| 50.130 | 20 mm | 454 |
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
102.025.287.*

Material
NBR (sw), SI (tr), PU (bl),
FKM (gr)

2 mm

Additional sizes available are found on p. 38.



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.025.047.*


Material
NBR (sw), SI (tr), PU (bl)

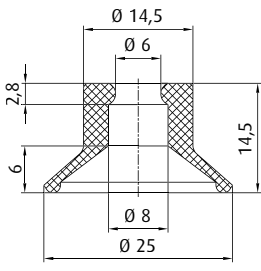
2.5 mm


Additional sizes available are found on p. 32.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




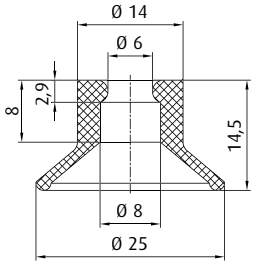
|  | Connection | see page |
|---|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |





| | | |
|-----------------------------------|------------------------------------|--|
| Item no. 102.025.102._* | Material NR (g), NR (sw) |  4 mm |
|-----------------------------------|------------------------------------|--|

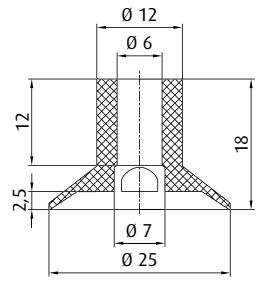
Additional sizes available are found on p. 24.


|  | Connection | see page |
|---|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |




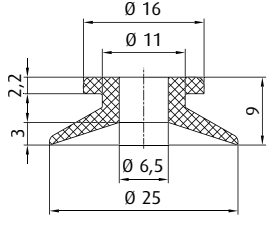
| | | |
|-----------------------------------|-----------------------------|--|
| Item no. 126.025.010._* | Material FKM (sw) |  5 mm |
|-----------------------------------|-----------------------------|--|


|  | Connection | see page |
|---|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |




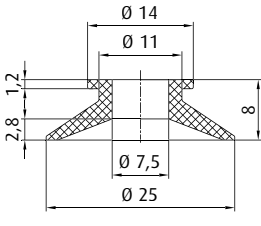
| | | |
|-----------------------------------|--------------------------------------|--|
| Item no. 102.025.113._* | Material NBR (sw), SI (tr) |  3.5 mm |
|-----------------------------------|--------------------------------------|--|


|  | Connection | see page |
|---|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |



| | | |
|-----------------------------------|----------------------------|--|
| Item no. 102.025.103._* | Material NR (sw) |  2.5 mm |
|-----------------------------------|----------------------------|--|

|  | Connection | see page |
|---|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |



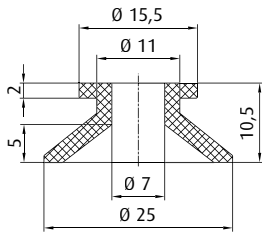
| | | |
|-----------------------------------|----------------------------|--|
| Item no. 102.025.119._* | Material NR (bg) |  1.5 mm |
|-----------------------------------|----------------------------|--|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

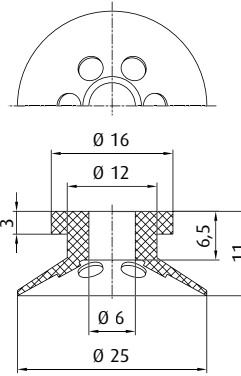
Ø 25 mm



Item no.
102.026.128._*

Material
NR (bg)

2.5 mm

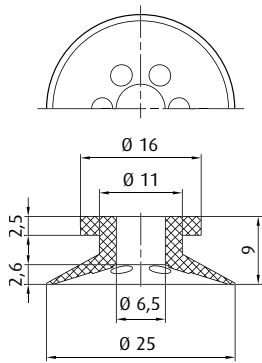


Item no.
104.025.027._*

Material
NR (bg)

3.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

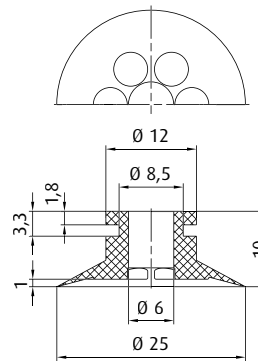


Item no.
104.025.031._*

Material
NR (bg), PU (sw)

1 mm

| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

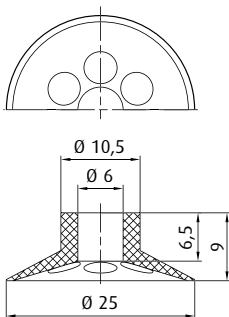


Item no.
102.025.225._*

Material
NR (br)

1.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

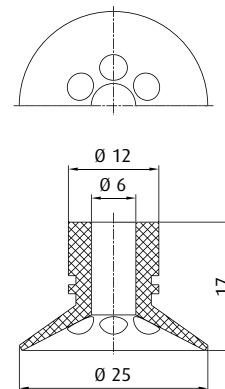


Item no.
104.025.030._*

Material
NR (bg)

1 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |



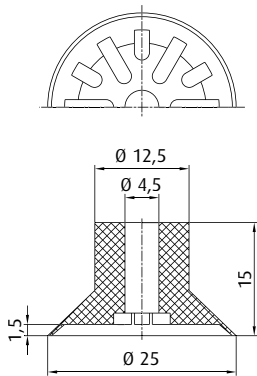
Item no.
104.025.040._*

Material
Vinyl (bl)

2.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



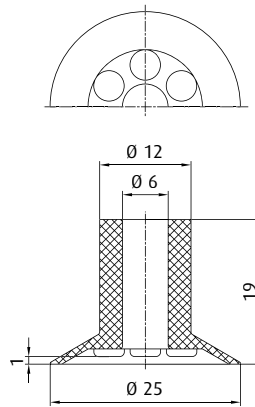
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
104.025.043._*

Material
Vinyl (bl)

1.5 mm

Additional sizes available are found on p. 20.



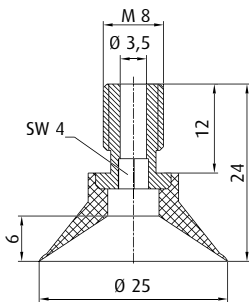
| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
104.025.094._*

Material
NR (br)

1 mm

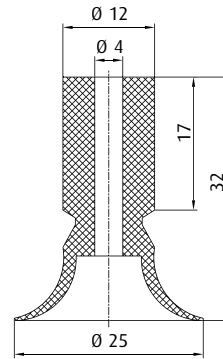
Additional sizes available are found on p. 20.



Item no.
120.025.086._*

Material
SI (w), NR (sw)

3.5 mm

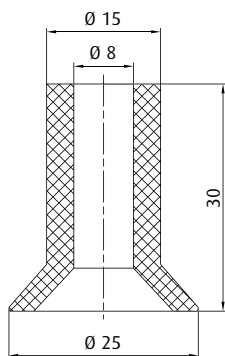


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
126.025.009._*

Material
NR (bg)

--

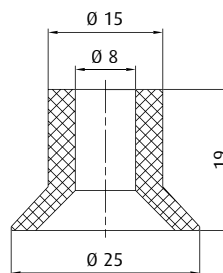


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
107.025.019._*

Material
NR (br)

2 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
107.025.020._*

Material
NR (br)

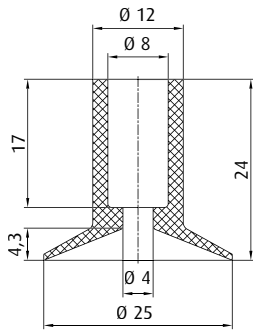
1 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 25 mm

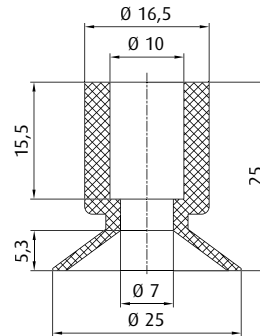


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no. 102.025.417.*

Material SI (r)

3 mm

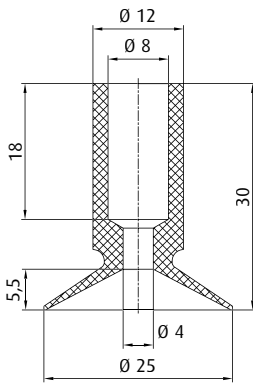


| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no. 102.025.126.*

Material NR (bg)

4 mm



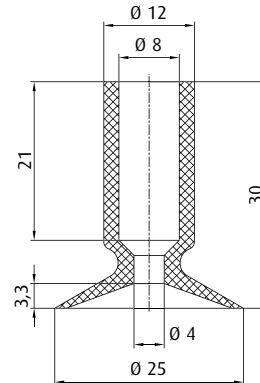
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no. 122.025.025.*

Material NBR (sw), SI (tr), NR (sw)

5 mm

Additional sizes available are found on p. 56.



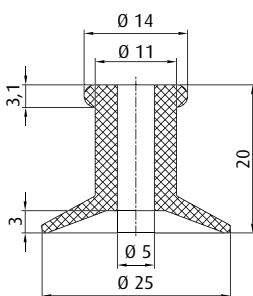
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

WEAR-RESISTANT

Item no. 122.025.077.*

Material Vulkollan® (br)

4 mm



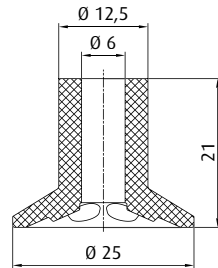
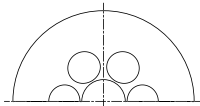
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no. 102.027.124.*

Material NR (bg)

4 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

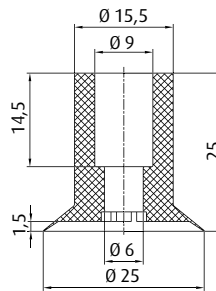
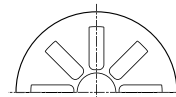


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
104.026.033.*

Material
NR (bg)

2 mm

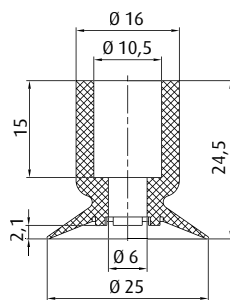
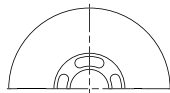


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
102.025.373.*

Material
Vinyl (bl)

1.5 mm

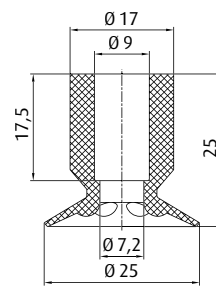
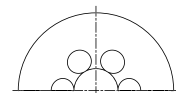


| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.025.037.*

Material
NR (bg)

2 mm

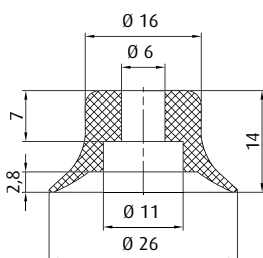


| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.025.056.*

Material
Vinyl (bl)

2.5 mm



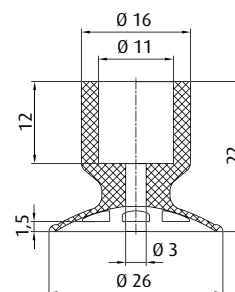
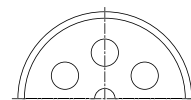
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.025.501.*

Material
Thermalon® (bl)

3 mm

Additional sizes available are found on p. 36.



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

WEAR-RESISTANT

Item no.
102.025.192.*

Material
Vulkollan® (br)

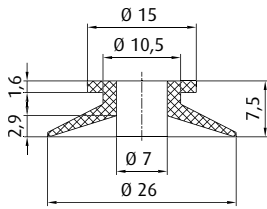
3 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

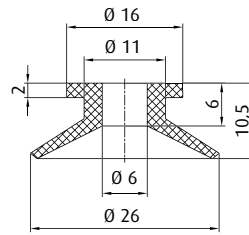
Ø 26 - 27 mm



Item no.
102.026.121._*

Material
NR (bg)

3 mm

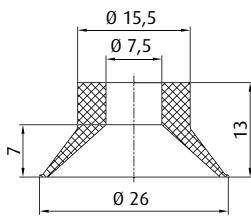


Item no.
102.026.180._*

Material
Vinyl (bl)

4 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

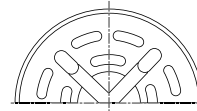


Item no.
102.027.167._*

Material
Vinyl (bl)

5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.043 | G1/4-male | 425 |
| 270.038 | G1/4-female | 432 |



Item no.
102.027.298._*

Material
SI (tr)

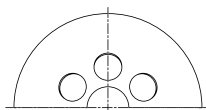
0.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Additional sizes available are found on p. 20.

Notes: Especially well-suited for foils

This vacuum cup is also available in the following dimensions: 36 mm

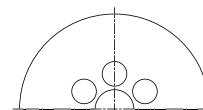


Item no.
104.027.032._*

Material
NR (bg)

2 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |



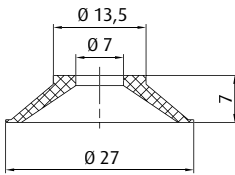
Item no.
104.027.055._*

Material
Vinyl (bl)

2.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

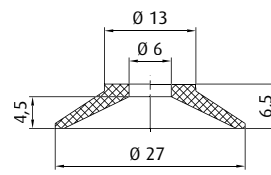


| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
107.027.022._*

Material
NBR (sw), SI (tr)

4 mm

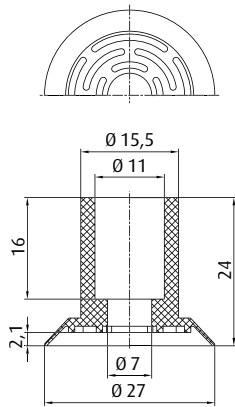


| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
107.027.052._*

Material
NR (gr)

3 mm

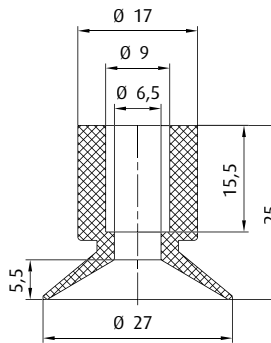


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.027.062._*

Material
NR (sw)

2 mm

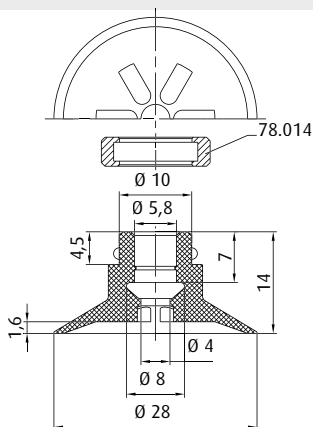


| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
102.028.164._*

Material
Vinyl (bl)

5 mm

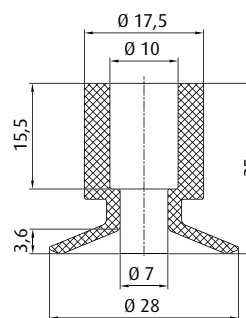


Item no.
102.028.461._*

Material
SI (tr)

2 mm

Ordering notes: The retaining ring Item. No. 78.014 (stainless steel) must be ordered separately



| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
102.028.163._*

Material
Vinyl (bl)

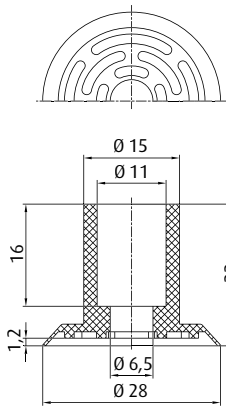
4 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 28 mm



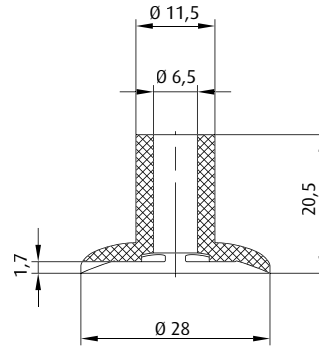
| Connection | see page |
|---------------------|----------|
| 270.451 G1/4-male | 426 |
| 270.452 G1/4-female | 431 |

Item no.
104.029.093.*

Material
NR (sw)

1 mm

Additional sizes available are found on p. 21.
This vacuum cup is also available in the following dimensions: 15 mm, 24 mm, 30 mm, 40 mm

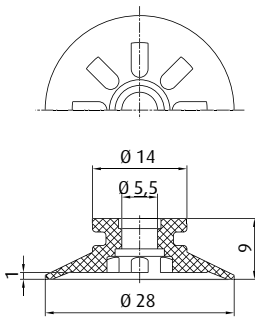


| Connection | see page |
|---------------------|----------|
| 270.112 G1/8-male | 419 |
| 270.114 G1/8-female | 422 |
| 270.113 G1/4-male | 425 |
| 270.178 G1/4-female | 431 |

Item no.
102.027.246.*

Material
NR (br)

2 mm



| Connection | see page |
|---------------------|----------|
| 270.500-S M5-female | 413 |
| 270.250 G1/8-male | 418 |
| 270.503-S G1/8-male | 418 |

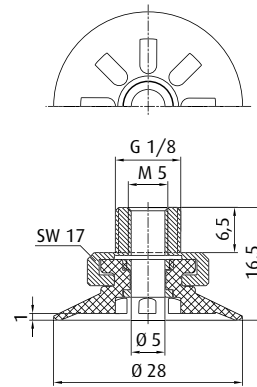
Item no.
125.025.007.*

Material
Tepuflex® (or), SI (tr), CR (sw)

1 mm

Additional sizes available are found on p. 42.

Spare cup

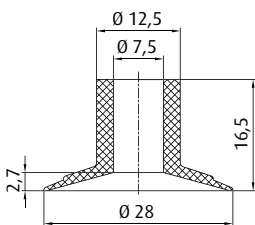


Item no.
123.025.010.*

Material
Tepuflex® (or), SI (tr), CR (sw)

1 mm

Additional sizes available are found on p. 47.

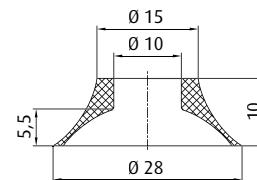


| Connection | see page |
|---------------------|----------|
| 270.112 G1/8-male | 419 |
| 270.114 G1/8-female | 422 |
| 270.113 G1/4-male | 425 |
| 270.178 G1/4-female | 431 |

Item no.
102.028.175.*

Material
Vinyl (bl)

2 mm

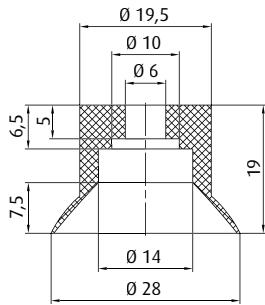


Item no.
102.028.375.*

Material
SI (tr)

2 mm

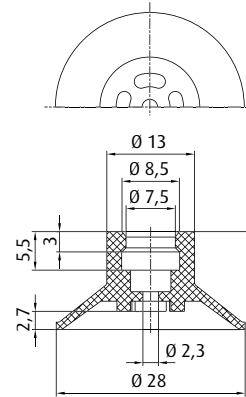
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

Item no.
102.028.159_*

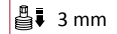
Material
Vinyl (bl)



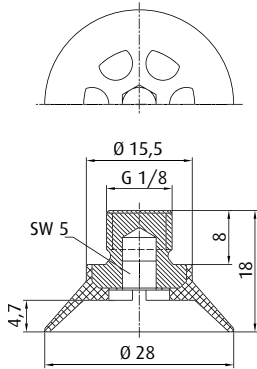
| | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

Item no.
102.028.194_*

Material
NBR (sw)

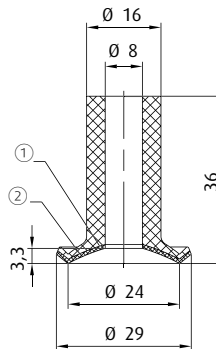
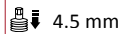


This vacuum cup is also available in the following dimensions: 20 mm



Item no.
103.030.024_*

Material
NBR (gr), NR (br)



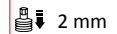
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

NON-MARKING!
TEMP. MAX. 500 °C

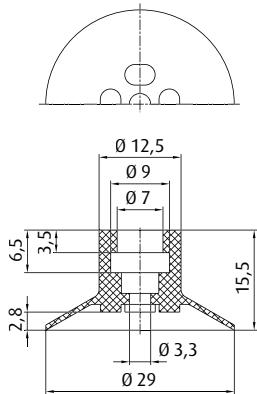
① = Felt pads ② = For silicone vacuum cups with silicone membranes: evaporated aluminium layer

Item no.
26.025.009_*

Material
SI (tr/ge)



Additional sizes available are found on p. 164.



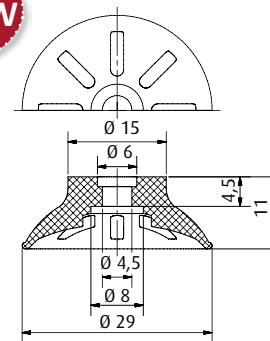
| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |

Item no.
102.029.053_*

Material
Vinyl (bl)



NEW



| | Connection | see page |
|---------|------------|----------|
| 270.063 | G1/8-male | 419 |

Item no.
102.029.509_*

Material
NR (br)



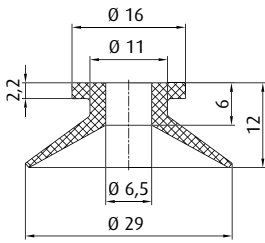
Additional sizes available are found on p. 20.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 29 - 30 mm

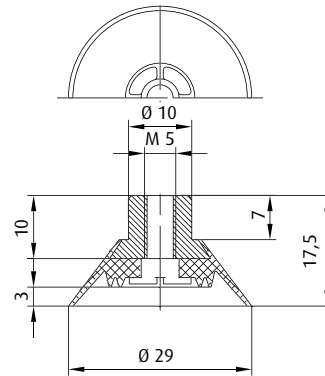


| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
102.029.160._*

Material
Vinyl (bl)

4.5 mm

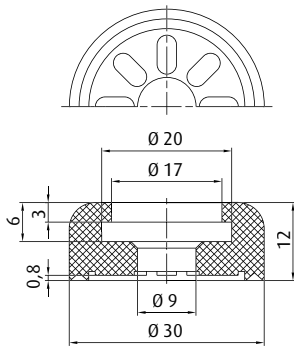


Item no.
150.030.031._*

Material
SI (r), CR (sw)

3 mm

Additional sizes available are found on p. 68.



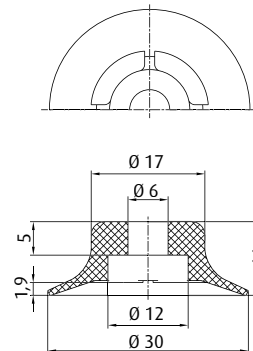
| | Connection | see page |
|---------|-------------|----------|
| 270.234 | G1/8-female | 438 |

Item no.
102.030.459._*

Material
HNBR (ge), NR (br)

0.8 mm

Additional sizes available are found on p. 70.



| | Connection | see page |
|---------|-------------|----------|
| 270.460 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

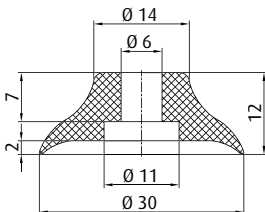
| | | see page |
|--------|-------|----------|
| 50.085 | 6 mm | 454 |
| 50.128 | 10 mm | 454 |
| 50.129 | 15 mm | 454 |
| 50.130 | 20 mm | 454 |
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
102.030.288._*

Material
NBR (sw), SI (tr), PU (bl), FKM (gr)

2 mm

Additional sizes available are found on p. 38.



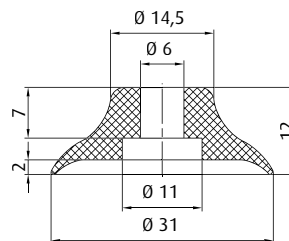
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.030.053._*

Material
NBR (sw), SI (tr), PU (bl)

2 mm

Additional sizes available are found on p. 32.



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

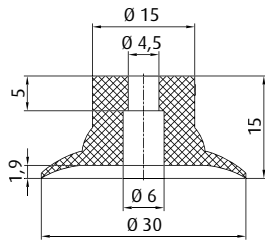
Item no.
102.030.502._*

Material
Thermalon® (bl)

2 mm

Additional sizes available are found on p. 36.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Connection | see page |
|---------------------|----------|
| 270.317 M5-male | 410 |
| 270.103 M6-male | 413 |
| 270.205 G1/8-male | 416 |
| 270.109 G1/8-female | 421 |
| 270.194 G1/4-male | 425 |

| see page | Connection |
|----------|------------|
| 50.020 | 8.5 mm |

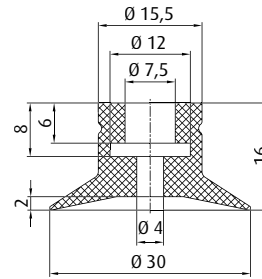
BESTSELLER

Item no.
102.030.222.*

Material
NBR (sw), SI (tr)

1.5 mm

Additional sizes available are found on p. 50.



| Connection | see page |
|---------------------|----------|
| 270.012 G1/8-male | 421 |
| 270.020 G1/8-female | 423 |
| 270.034 G1/4-male | 428 |
| 270.038 G1/4-female | 432 |

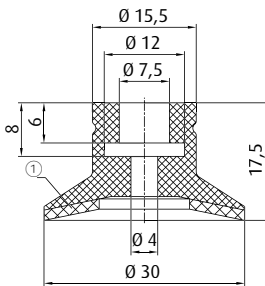
| see page | Connection |
|----------|------------|
| 50.005 | 5 mm |
| 50.145 | 10 mm |
| 50.146 | 30 mm |

Item no.
126.030.013.*

Material
SI (bl), SI (r)

1.5 mm

Additional sizes available are found on p. 50.



| Connection | see page |
|---------------------|----------|
| 270.012 G1/8-male | 421 |
| 270.020 G1/8-female | 423 |
| 270.034 G1/4-male | 428 |
| 270.038 G1/4-female | 432 |

| see page | Connection |
|----------|------------|
| 50.005 | 5 mm |
| 50.145 | 10 mm |
| 50.146 | 30 mm |

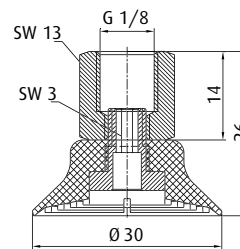
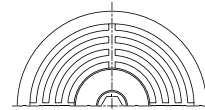
① = Silicone sponge

Item no.
104.030.087.*

Material
SI (bl/r)

1.5 mm

Additional sizes available are found on p. 166.



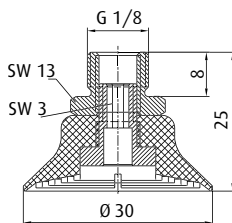
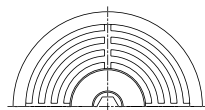
NON-SLIP

Item no.
100.030.102.*

Material
NBR (sw)

1.8 mm

Additional sizes available are found on p. 62.



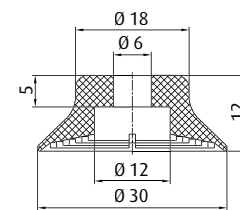
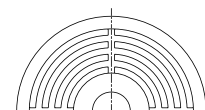
NON-SLIP

Item no.
100.030.112.*

Material
NBR (sw)

1.8 mm

Additional sizes available are found on p. 62.



Spare cup

| Connection | see page |
|---------------------|----------|
| 270.460 M6-male | 414 |
| 270.482 G1/8-male | 420 |
| 270.481 G1/8-female | 423 |
| 270.483 G1/4-male | 429 |
| 270.484 G1/4-female | 433 |

| see page | Connection |
|----------|------------|
| 50.085 | 6 mm |
| 50.128 | 10 mm |
| 50.129 | 15 mm |
| 50.095 | 20 mm |
| 50.096 | 30 mm |
| 50.097 | 40 mm |
| 50.098 | 50 mm |

Item no.
104.030.067.*

Material
NBR (sw)

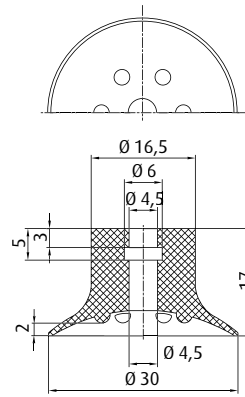
1.8 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 30 mm

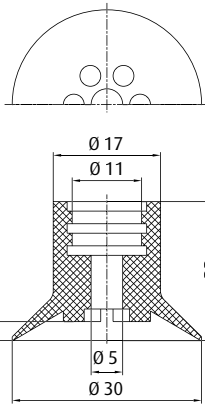


| | Connection | see page |
|----------------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
102.030.322._*

Material
Vulkollan® (br)

2 mm



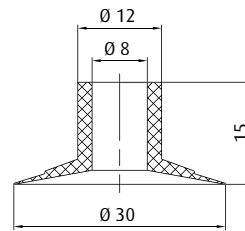
| | Connection | see page |
|----------------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
104.030.008._*

Material
NBR (sw), SI (bl)

3 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 24 mm, 40 mm, 50 mm

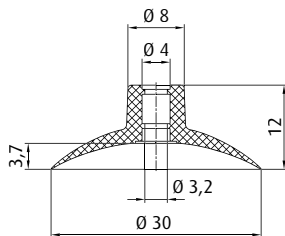


| | Connection | see page |
|----------------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.113 | G1/4-male | 425 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
107.030.023._*

Material
NBR (sw), NR (bg)

1 mm



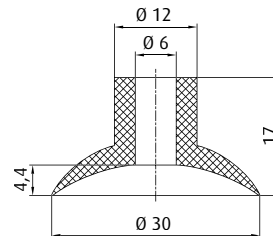
| | Connection | see page |
|----------------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
102.030.086._*

Material
PU (g)

4.5 mm

This vacuum cup is also available in the following dimensions: 22 mm, 25 mm



| | Connection | see page |
|----------------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

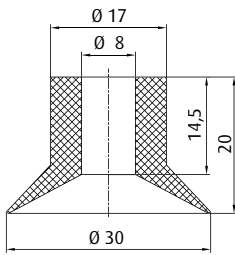
Item no.
112.030.052._*

Material
NBR (sw), SI (w)

4.5 mm

Additional sizes available are found on p. 52.

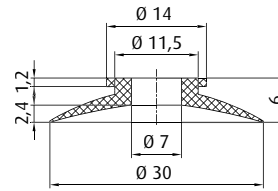
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|----------------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

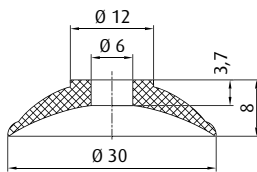
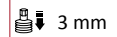
Item no.
115.030.005_*

Material
NBR (sw), SI (tr), NR (sw),
NR (bg)



Item no.
102.030.178_*

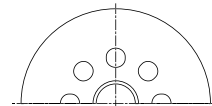
Material
Vinyl (bl)



| | Connection | see page |
|----------------|------------|----------|
| 270.255 | M8-male | 415 |

Item no.
112.030.051_*

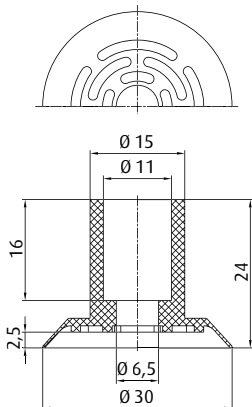
Material
NBR (sw), SI (w)



| | Connection | see page |
|----------------|-------------|----------|
| 270.039 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
104.030.059_*

Material
Vinyl (bl)



| | Connection | see page |
|----------------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

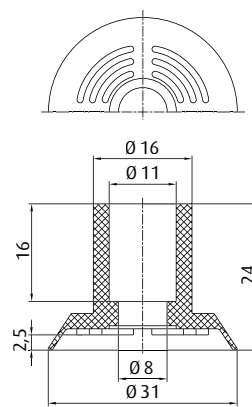
BESTSELLER

Item no.
104.030.009_*

Material
NBR (sw), SI (w), SI (tr), NR (sw)



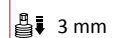
Additional sizes available are found on p. 21.
This vacuum cup is also available in the following dimensions: 15 mm, 24 mm, 28 mm, 40 mm



| | Connection | see page |
|----------------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.030.007_*

Material
SI (tr), NR (sw)

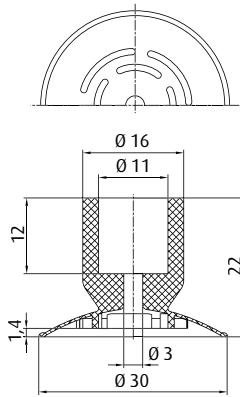


* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 30 - 31 mm

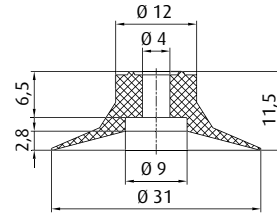


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
102.030.215._*

Material
Vulkollan® (br)

2 mm

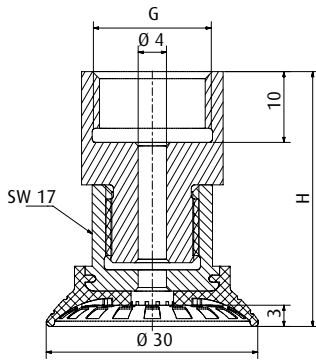


| | Connection | see page |
|---------|-------------|----------|
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

Item no.
102.031.313._*

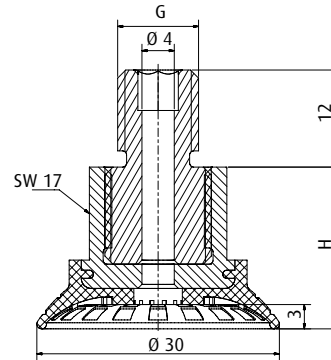
Material
SI (tr)

3 mm



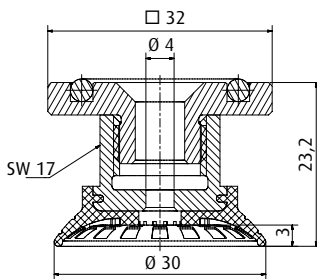
| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.030.031._* | NBR (bl) | 3 | G1/4-female | 20 |
| 103.030.032._* | NBR (bl) | 3 | G3/8-female | 36 |

Additional sizes available are found on p. 64.



| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.030.030._* | NBR (bl) | 3 | G1/4-male | 20 |
| 103.030.033._* | NBR (bl) | 3 | M10-male | 20 |
| 103.030.034._* | NBR (bl) | 3 | M14x1.5-male | 20 |

Additional sizes available are found on p. 64.



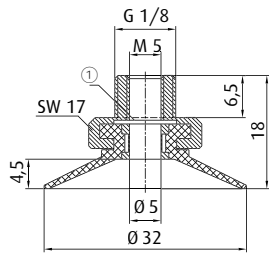
Item no.
103.030.035._*

Material
NBR (bl)

3 mm

Additional sizes available are found on p. 64.

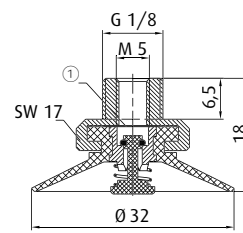
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Filter screen

Item no. 120.030.013_* **Material** SI (tr), CR (sw) 3.5 mm

Additional sizes available are found on p. 47.



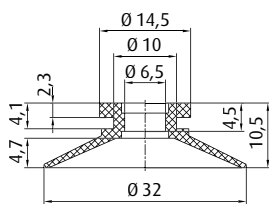
① = Filter screen

Item no. 121.030.006_* **Material** SI (tr), CR (sw) 2.5 mm

Additional sizes available are found on p. 47.

Spare cup

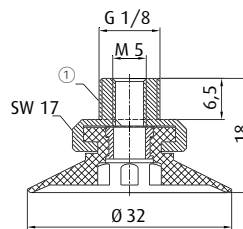
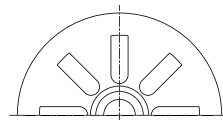
Spare cup



| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Item no. 102.030.096_* **Material** SI (tr), CR (sw) 3.5 mm

Additional sizes available are found on p. 42.



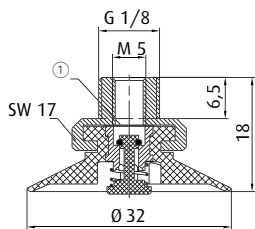
① = Filter screen

Item no. 123.030.019_* **Material** Tepuflex® (or), SI (tr), CR (sw) 2 mm

Additional sizes available are found on p. 47.

Spare cup

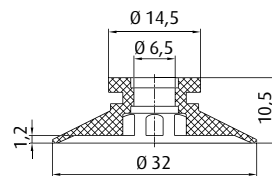
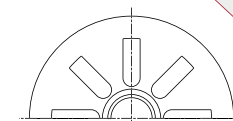
Spare cup



① = Filter screen

Item no. 124.030.002_* **Material** SI (tr), CR (sw) 2 mm

Additional sizes available are found on p. 47.



| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

BESTSELLER

Item no. 125.030.010_* **Material** Tepuflex® (or), SI (tr), CR (sw) 2 mm

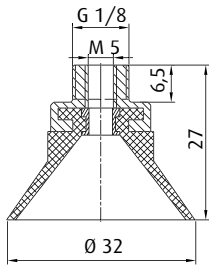
Additional sizes available are found on p. 42.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 32 - 33 mm

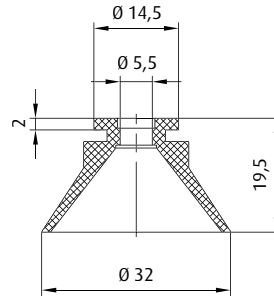


Item no.
120.032.025.*

Material
SI (tr), CR (sw)

5 mm

Spare cup



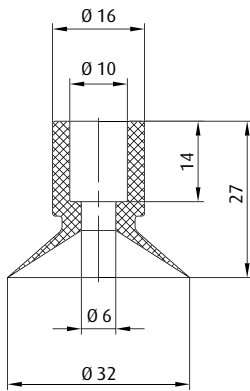
Item no.
122.032.036.*

Material
SI (tr), CR (sw)

5 mm

| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Additional sizes available are found on p. 42.

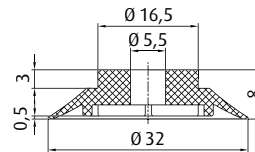
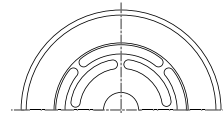


Item no.
122.030.034.*

Material
SI (tr), NR (sw)

6.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



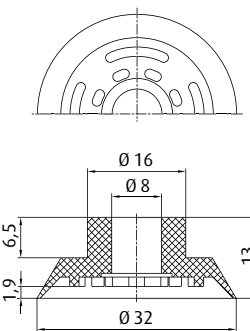
Item no.
102.032.104.*

Material
NR (bg)

1.8 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Additional sizes available are found on p. 21.

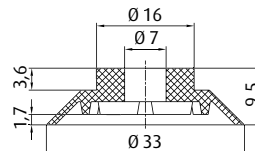
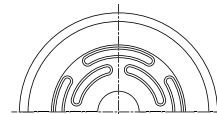


Item no.
108.032.002.*

Material
SI (tr), NR (bg)

2 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



Item no.
102.033.398.*

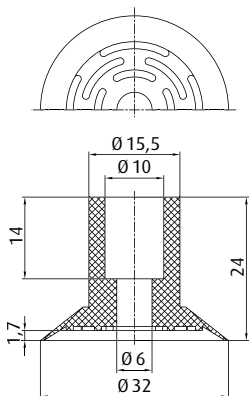
Material
Vinyl (bl)

2 mm

| | Connection | see page |
|---------|------------|----------|
| 270.039 | M6-male | 414 |

Additional sizes available are found on p. 21.

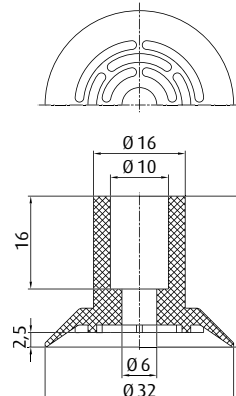
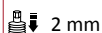
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.032.044.*

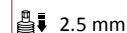
Material
Vinyl (bl)



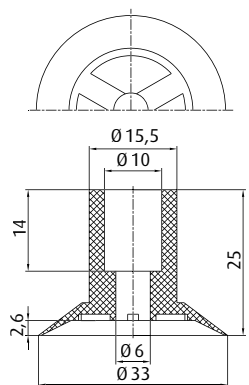
| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
104.033.034.*

Material
NR (bg), CR (r)



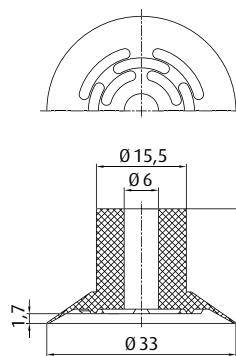
Notes: Especially well-suited for flexible products (foils, leather, veneer)



| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
102.033.226.*

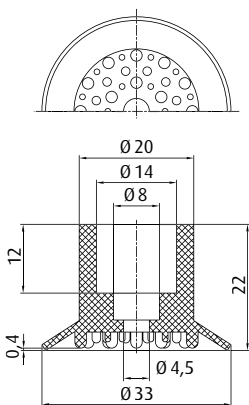
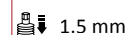
Material
Vinyl (bl)



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

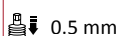
Item no.
104.033.057.*

Material
Vinyl (bl)

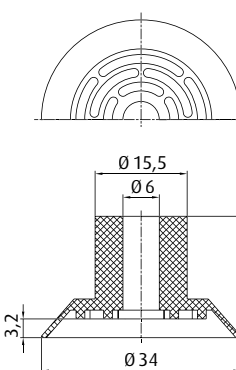


Item no.
102.033.112.*

Material
NBR (sw), SI (tr)



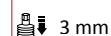
Notes: Especially well-suited for foils



| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
104.034.036.*

Material
NR (bg)



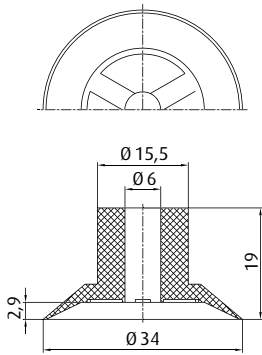
Additional sizes available are found on p. 21.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 34 - 35 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

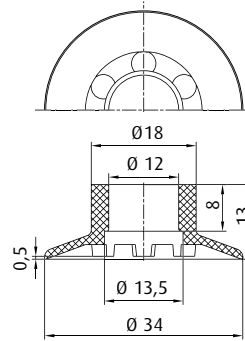
BESTSELLER

Item no.
104.034.054._*

Material
Vinyl (bl)

3 mm

Additional sizes available are found on p. 21.

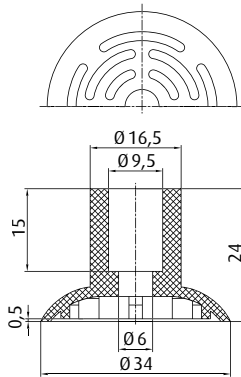


| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
108.034.003._*

Material
NR (bg)

1 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

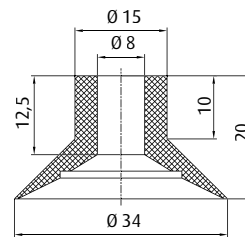
Item no.
116.034.001._*

Material
NR (sw), NR (bg)

0.5 mm

Additional sizes available are found on p. 21.

Notes: Especially well-suited for flexible products (foils, leather, veneer)

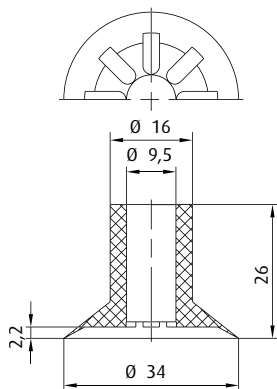


| | Connection | see page |
|---------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
122.034.038._*

Material
NR (sw), NR (br)

3 mm

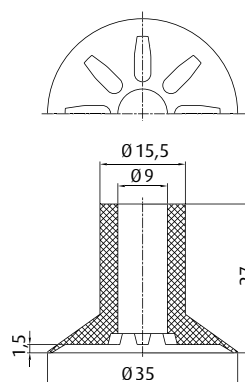


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.452 | G1/4-female | 431 |

Item no.
104.035.048._*

Material
Vinyl (bl)

2 mm



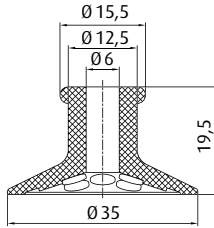
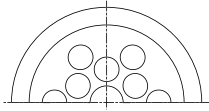
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.452 | G1/4-female | 431 |

Item no.
104.035.050._*

Material
Vinyl (bl)

2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

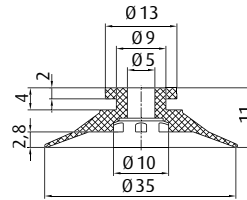
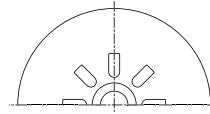


| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
104.035.038.*

Material
NR (bg)

1 mm

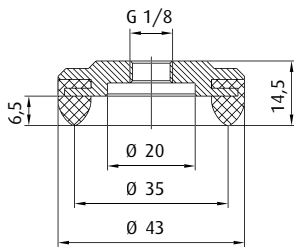


| | Connection | see page |
|---------|------------|----------|
| 270.310 | M5-male | 411 |
| 270.250 | G1/8-male | 418 |

Item no.
102.035.320.*

Material
NR (sw)

2.8 mm

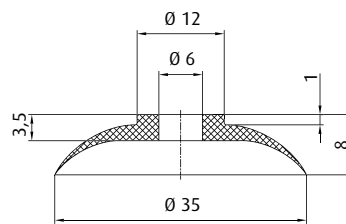


Item no.
160.042.001.*

Material
EPDM (sw)

1 mm

Additional sizes available are found on p. 72.
Notes: Foam sealing lip equalises product unevenness

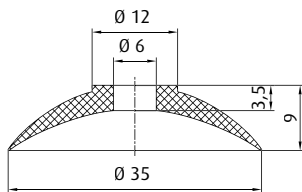


| | Connection | see page |
|---------|------------|----------|
| 270.250 | G1/8-male | 418 |

Item no.
112.035.059.*

Material
SI (tr), NR (sw)

3 mm



| | Connection | see page |
|---------|------------|----------|
| 270.039 | M6-male | 414 |

Item no.
112.035.065.*

Material
SI (tr)

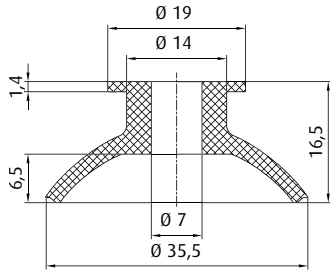
5.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 35 - 36 mm

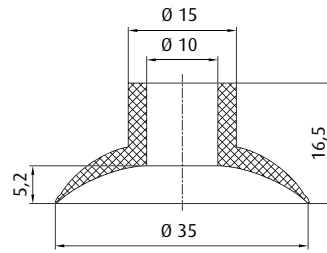


| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |

Item no. 102.035.176.*

Material Vinyl (bl)

6 mm



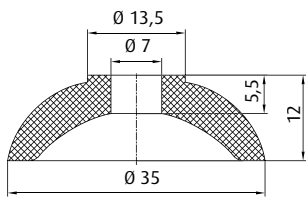
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no. 112.035.060.*

Material NBR (sw), SI (w), NR (sw)

5 mm

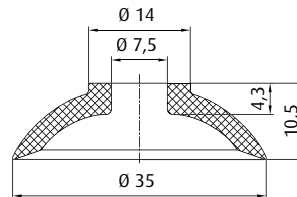
Additional sizes available are found on p. 52.



Item no. 112.035.064.*

Material NR (sw), NR (bg)

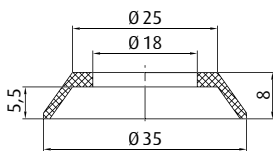
5 mm



Item no. 115.035.007.*

Material NBR (sw), SI (tr), NR (sw)

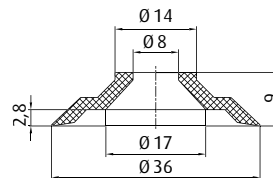
5 mm



Item no. 107.035.055.*

Material NR (bg)

4 mm



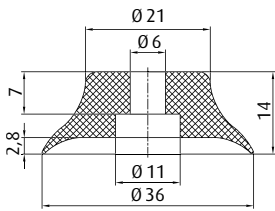
| | Connection | see page |
|---------|------------|----------|
| 270.255 | M8-male | 415 |

Item no. 102.036.106.*

Material SI (gr)

3 mm

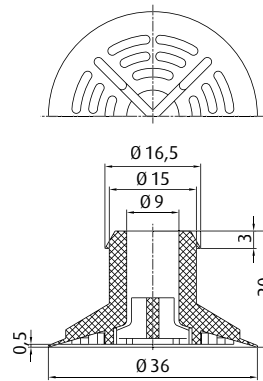
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.035.056.* **Material**
NBR (sw), SI (tr) 3 mm

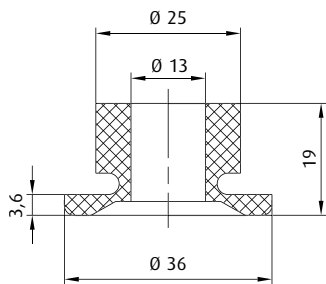
Additional sizes available are found on p. 32.



| | Connection | see page |
|---------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

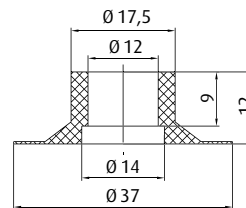
Item no.
102.036.342.* **Material**
SI (tr) 0.5 mm

Additional sizes available are found on p. 21.
Notes: Especially well-suited for foils
This vacuum cup is also available in the following dimensions: 27 mm



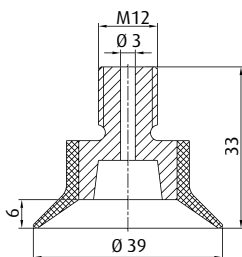
| | Connection | see page |
|---------|------------|----------|
| 270.207 | G1/4-male | 426 |

Item no.
107.036.037.* **Material**
NR (br) 1.5 mm

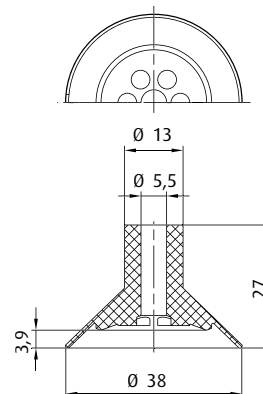


| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
107.037.027.* **Material**
NR (br) 0 mm



Item no.
120.038.021.* **Material**
NR (sw) 3 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

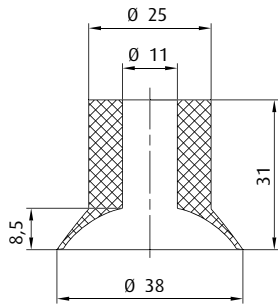
Item no.
104.038.039.* **Material**
PU (br), Vinyl (bl) 3.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 38 - 40 mm

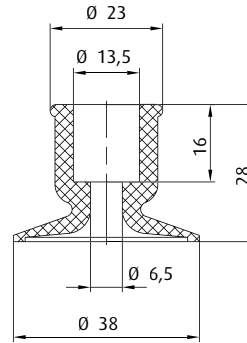


| Icon | Connection | see page |
|------|------------|----------|
| | G1/4-male | 426 |

Item no.
102.038.157.*

Material
Vinyl (bl)

6 mm

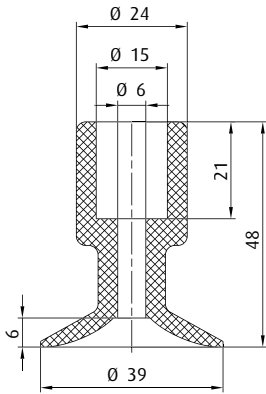


| Icon | Connection | see page |
|------|------------|----------|
| | G1/4-male | 426 |

Item no.
102.038.136.*

Material
NR (bg)

2.5 mm

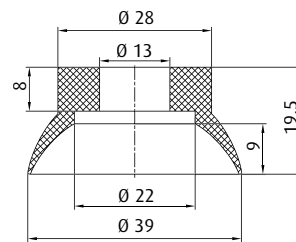


| Icon | Connection | see page |
|------|-------------|----------|
| | G1/4-female | 432 |

Item no.
102.039.154.*

Material
NR (bg)

2 mm

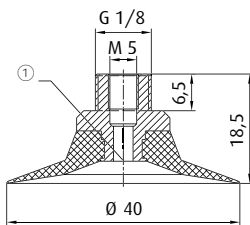


| Icon | Connection | see page |
|------|------------|----------|
| | G1/4-male | 430 |

Item no.
112.039.069.*

Material
NR (bg)

5 mm



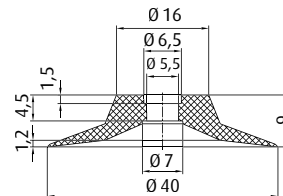
① = Filter screen

Item no.
120.040.084.*

Material
CR (sw)

2.5 mm

Spare cup



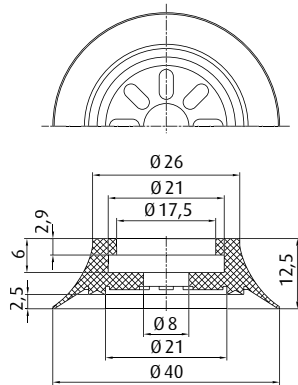
| Icon | Connection | see page |
|------|------------|----------|
| | M5-female | 413 |
| | G1/8-male | 418 |
| | G1/8-male | 418 |

Item no.
102.040.310.*

Material
CR (sw)

2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.234 | G1/8-female | 438 |

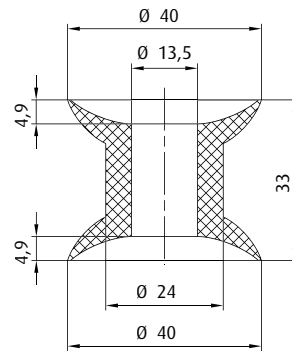
FLEXIBLE LIP

Item no.
102.040.357.*

Material
SI (tr), NR (br)

3 mm

Additional sizes available are found on p. 66.

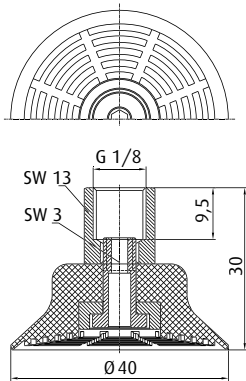


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.116 | G1/4-female | 432 |

Item no.
102.039.235.*

Material
NR (br)

5 mm



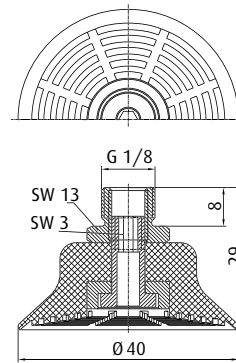
NON-SLIP

Item no.
100.040.103.*

Material
NBR (sw)

2.5 mm

Additional sizes available are found on p. 62.



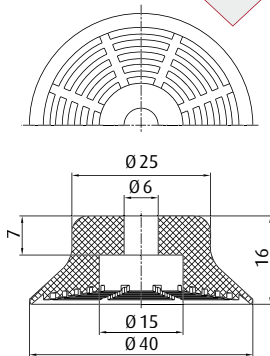
NON-SLIP

Item no.
100.040.113.*

Material
NBR (sw)

2.5 mm

Additional sizes available are found on p. 62.



Spare cup

| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.498 | M6-male | 414 |
| 270.486 | G1/8-male | 420 |
| 270.485 | G1/8-female | 423 |
| 270.487 | G1/4-male | 429 |
| 270.488 | G1/4-female | 434 |

| Item no. | Connection | see page |
|----------|------------|----------|
| 50.170 | 20 mm | 456 |
| 50.171 | 30 mm | 456 |
| 50.172 | 40 mm | 456 |
| 50.173 | 50 mm | 456 |

Item no.
104.040.068.*

Material
NBR (sw)

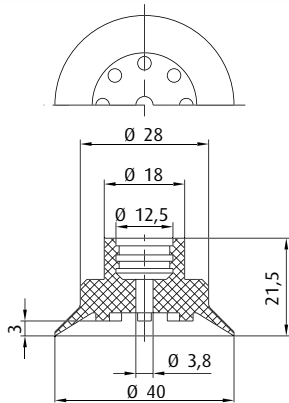
2.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 40 mm



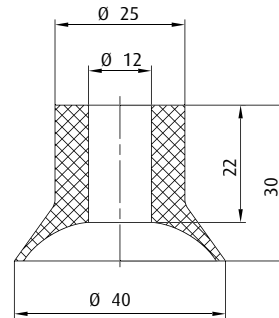
| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
104.040.014.*

Material
NBR (sw)

2.5 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 24 mm, 30 mm, 50 mm

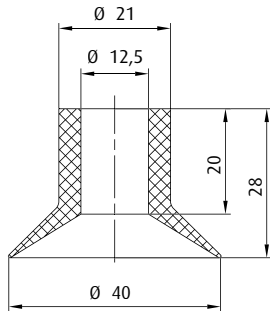


| Item no. | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

Item no.
122.040.001.*

Material
NBR (sw), SI (tr), NR (bg)

5 mm

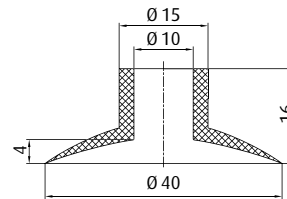


| Item no. | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

Item no.
122.040.044.*

Material
SI (tr), NR (bg)

4.5 mm



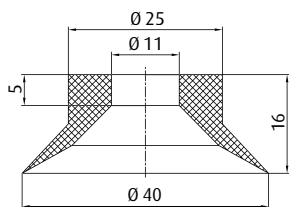
| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
112.040.071.*

Material
NBR (sw), SI (tr)

4 mm

Additional sizes available are found on p. 52.

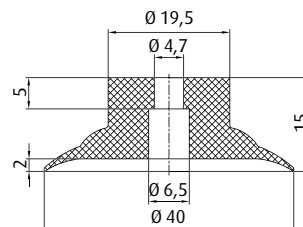


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.256 | M8-male | 415 |
| 270.252 | G1/8-female | 424 |

Item no.
126.040.016.*

Material
SI (tr), NR (bg), PU (bl)

5 mm



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.317 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.205 | G1/8-male | 416 |
| 270.109 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| Item no. | Connection | see page |
|----------|------------|----------|
| 50.020 | 8.5 mm | 454 |

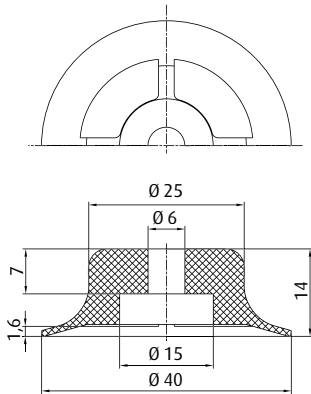
Item no.
102.040.223.*

Material
NBR (sw), SI (tr)

2 mm

Additional sizes available are found on p. 50.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Connection | see page |
|---------------------|----------|
| 270.498 M6-male | 414 |
| 270.486 G1/8-male | 420 |
| 270.485 G1/8-female | 423 |
| 270.487 G1/4-male | 429 |
| 270.488 G1/4-female | 434 |

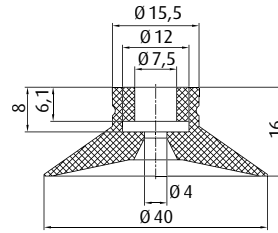
| Height | see page |
|--------------|----------|
| 50.170 20 mm | 456 |
| 50.171 30 mm | 456 |
| 50.172 40 mm | 456 |
| 50.173 50 mm | 456 |

Item no.
102.040.289.*

Material
NBR (sw), SI (tr), PU (bl),
FKM (gr)

2 mm

Additional sizes available are found on p. 38.



| Connection | see page |
|---------------------|----------|
| 270.012 G1/8-male | 421 |
| 270.020 G1/8-female | 423 |
| 270.034 G1/4-male | 428 |
| 270.038 G1/4-female | 432 |

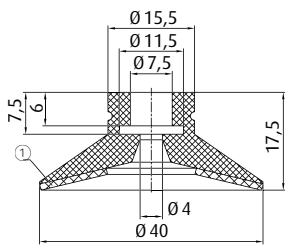
| Height | see page |
|--------------|----------|
| 50.005 5 mm | 456 |
| 50.145 10 mm | 456 |
| 50.146 30 mm | 456 |

Item no.
102.040.364.*

Material
SI (bl)

3 mm

Additional sizes available are found on p. 38.



| Connection | see page |
|---------------------|----------|
| 270.012 G1/8-male | 421 |
| 270.020 G1/8-female | 423 |
| 270.034 G1/4-male | 428 |
| 270.038 G1/4-female | 432 |

| Height | see page |
|--------------|----------|
| 50.005 5 mm | 456 |
| 50.145 10 mm | 456 |
| 50.146 30 mm | 456 |

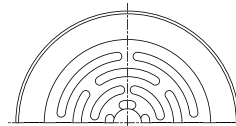
① = Silicone sponge

Item no.
104.040.088.*

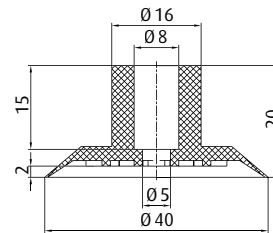
Material
SI (bl/r)

2.5 mm

Additional sizes available are found on p. 166.



| Connection | see page |
|---------------------|----------|
| 270.112 G1/8-male | 419 |
| 270.114 G1/8-female | 422 |
| 270.113 G1/4-male | 425 |
| 270.178 G1/4-female | 431 |



BESTSELLER

Item no.
104.040.018.*

Material
SI (tr), NR (sw), NR (br)

2 mm

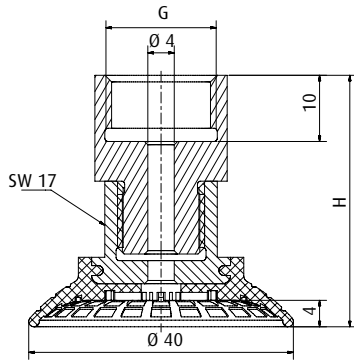
Additional sizes available are found on p. 21.
This vacuum cup is also available in the following dimensions: 15 mm, 24 mm, 28 mm, 30 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



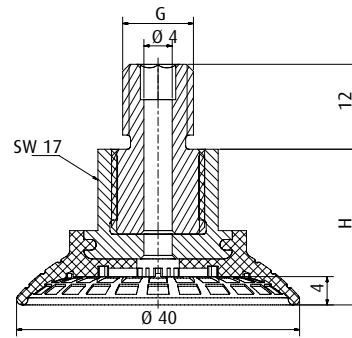
Vacuum cups by size | Flat vacuum cups by Ø

Ø 42 mm



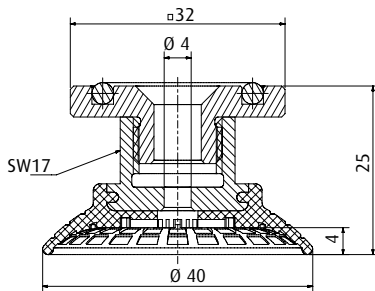
| Item no. | Material | ☰ [mm] | Connection thread | H [mm] |
|---------------|----------|--------|-------------------|--------|
| 103.040.037.* | NBR (bl) | 4 | G1/4-female | 22 |
| 103.040.038.* | NBR (bl) | 4 | G3/8-female | 38 |

Additional sizes available are found on p. 64.



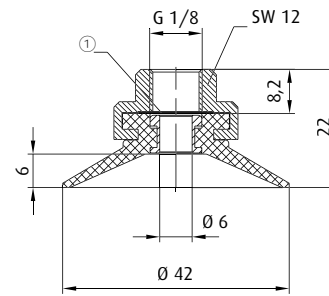
| Item no. | Material | ☰ [mm] | Connection thread | H [mm] |
|---------------|----------|--------|-------------------|--------|
| 103.040.036.* | NBR (bl) | 4 | G1/4-male | 22 |
| 103.040.039.* | NBR (bl) | 4 | M10-male | 22 |
| 103.040.040.* | NBR (bl) | 4 | M14x1.5-male | 22 |

Additional sizes available are found on p. 64.



| Item no. | Material | ☰ [mm] |
|---------------|----------|--------|
| 103.040.041.* | NBR (bl) | 4 mm |

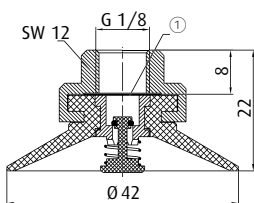
Additional sizes available are found on p. 64.



① = Filter screen

| Item no. | Material | ☰ [mm] |
|---------------|------------------|--------|
| 120.040.076.* | SI (tr), CR (sw) | 4 mm |

Additional sizes available are found on p. 47.

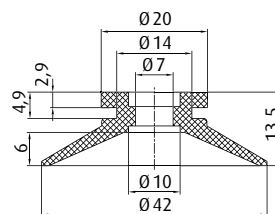


① = Filter screen

| Item no. | Material | ☰ [mm] |
|---------------|------------------|--------|
| 121.040.007.* | SI (tr), CR (sw) | 4 mm |

Additional sizes available are found on p. 47.

Spare cup →

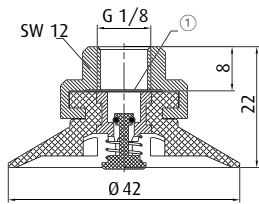


| Item no. | Material | ☰ [mm] |
|---------------|------------------|--------|
| 102.040.094.* | SI (tr), CR (sw) | 4 mm |

Additional sizes available are found on p. 42.

| ☰ | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

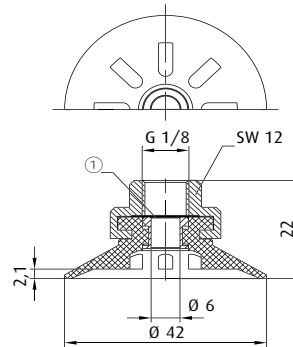
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Filter screen

Item no.
124.040.006._* **Material**
SI (tr), CR (sw) 2 mm

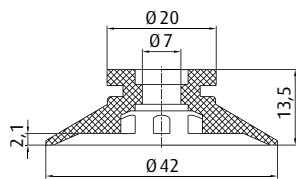
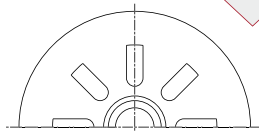
Additional sizes available are found on p. 47.



① = Filter screen

Item no.
123.040.028._* **Material**
Tepuflex® (or), SI (tr), CR (sw) 2 mm

Additional sizes available are found on p. 47.

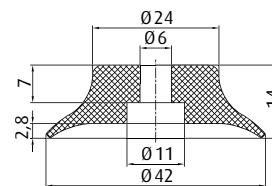


| | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

BESTSELLER

Item no.
125.040.013._* **Material**
Tepuflex® (or), SI (tr), CR (sw) 2 mm

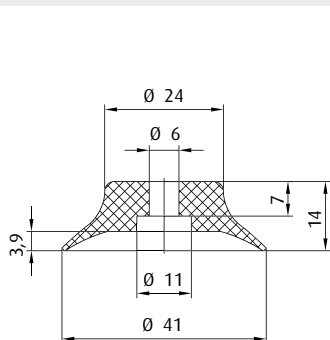
Additional sizes available are found on p. 42.



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.040.061._* **Material**
NBR (sw), SI (tr), PU (bl) 3.5 mm

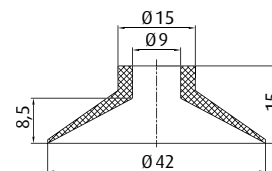
Additional sizes available are found on p. 32.



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
102.040.503._* **Material**
Thermalon® (bl) 3.9 mm

Additional sizes available are found on p. 36.



| | Connection | see page |
|---------|-------------|----------|
| 270.034 | G1/4-male | 428 |
| 270.038 | G1/4-female | 432 |

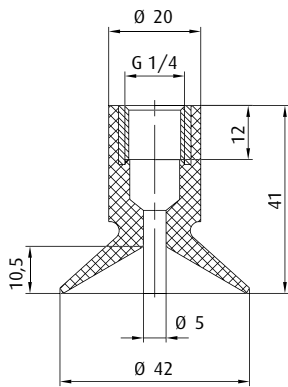
Item no.
102.042.232._* **Material**
NR (sw) 7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 42 - 43 mm

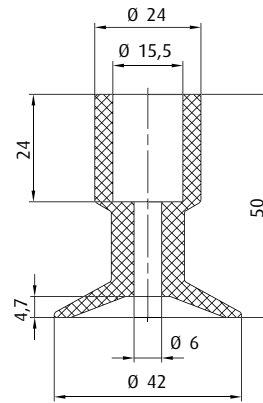


Item no.
120.040.032.*

Material
SI (tr), NR (sw)

6 mm

This vacuum cup is also available in the following dimensions: 53 mm, 62 mm, 83 mm

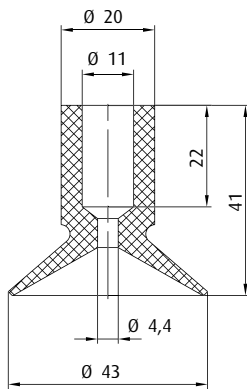


Item no.
102.042.184.*

Material
Vinyl (bl)

4 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.116 | G1/4-female | 432 |



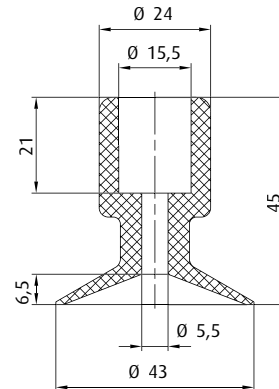
Item no.
122.040.043.*

Material
SI (tr), NR (sw)

4 mm

Additional sizes available are found on p. 56.

| | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

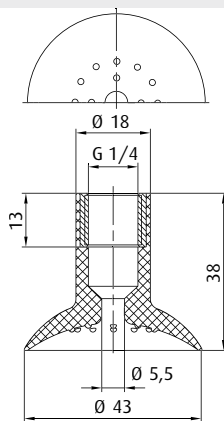


Item no.
102.043.252.*

Material
NR (br)

7 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.116 | G1/4-female | 432 |

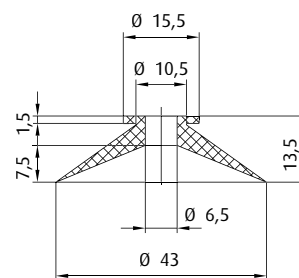


Item no.
110.042.068.*

Material
SI (tr), NR (sw)

5 mm

This vacuum cup is also available in the following dimensions: 50 mm, 62 mm, 81 mm, 100 mm



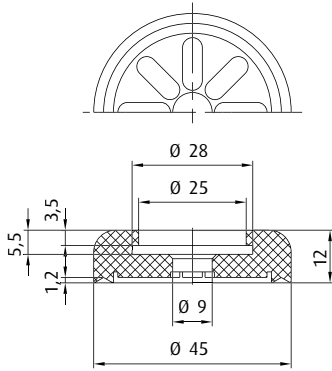
Item no.
102.043.170.*

Material
Vinyl (bl)

5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

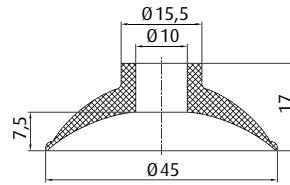
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.235 | G1/8-female | 438 |

| Item no. | Material | Thickness |
|---------------|--------------------|-----------|
| 102.045.460.* | HNBR (ge), NR (br) | 1.2 mm |

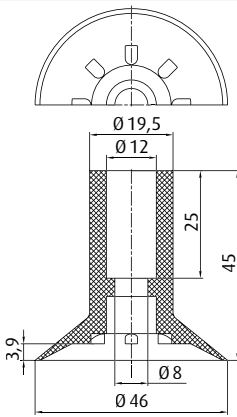
Additional sizes available are found on p. 70.



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

| Item no. | Material | Thickness |
|---------------|---------------------------|-----------|
| 112.045.077.* | NBR (sw), SI (w), NR (sw) | 7 mm |

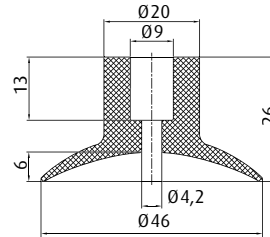
Additional sizes available are found on p. 52.



| Item no. | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

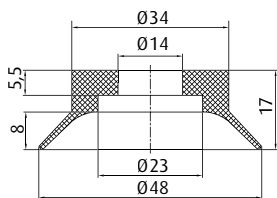
| Item no. | Material | Thickness |
|---------------|----------|-----------|
| 127.045.002.* | NR (sw) | 5 mm |

This vacuum cup is also available in the following dimensions: 65 mm



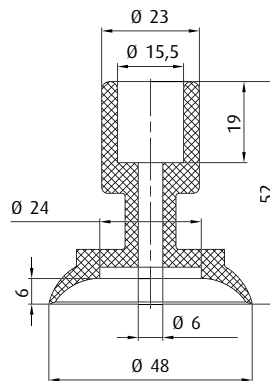
| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |

| Item no. | Material | Thickness |
|---------------|----------|-----------|
| 102.046.046.* | NBR (sw) | 6 mm |



| Item no. | Connection | see page |
|----------|------------|----------|
| 270.210 | G1/4-male | 430 |

| Item no. | Material | Thickness |
|---------------|------------------|-----------|
| 107.048.031.* | SI (tr), NR (gr) | 5 mm |



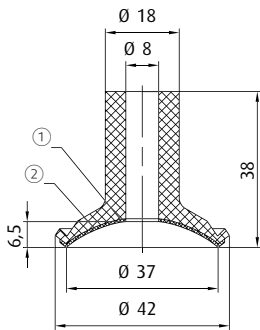
| Item no. | Material | Thickness |
|---------------|----------|-----------|
| 115.048.008.* | NR (sw) | 8 mm |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 37 - 50 mm



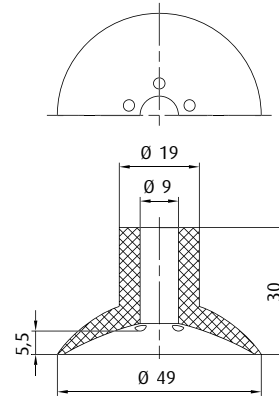
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

NON-MARKING!
TEMP. MAX. 500 °C

① = Felt pads ② = For silicone vacuum cups with silicone membranes: evaporated aluminium layer

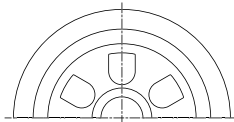
| | | |
|---|-------------------------------|------|
| Item no. 26.037.010._* | Material SI (tr/ge) | 3 mm |
|---|-------------------------------|------|

Additional sizes available are found on p. 164.



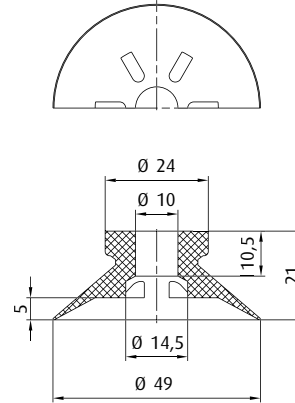
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

| | | |
|--|----------------------------|------|
| Item no. 102.048.274._* | Material NR (sw) | 6 mm |
|--|----------------------------|------|



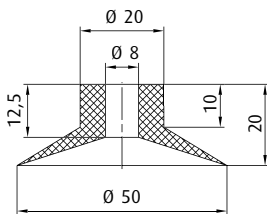
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.177 | M10-male | 416 |
| 270.540 | G1/4-male | 429 |
| 270.539 | G1/4-female | 434 |

| | | |
|--|--------------------------------------|--------|
| Item no. 104.050.022._* | Material NBR (gr), NR (bg) | 4.5 mm |
|--|--------------------------------------|--------|



| | Connection | see page |
|---------|-------------|----------|
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

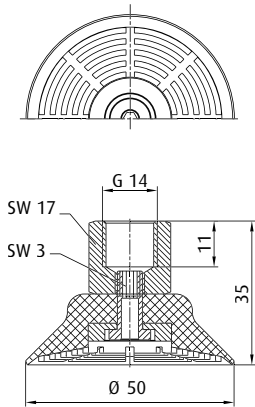
| | | |
|--|--|------|
| Item no. 127.050.004._* | Material SI (tr), NR (sw), NR (bg) | 4 mm |
|--|--|------|



| | Connection | see page |
|---------|-------------|----------|
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

| | | |
|--|-------------------------------------|------|
| Item no. 126.050.017._* | Material SI (tr), NR (bg) | 4 mm |
|--|-------------------------------------|------|

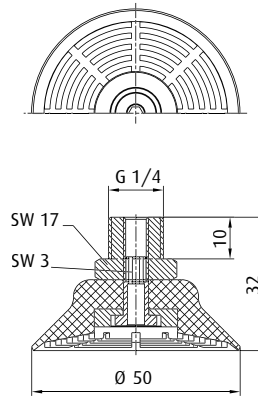
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



NON-SLIP

Item no. 100.050.104.* Material NBR (sw) 3.1 mm

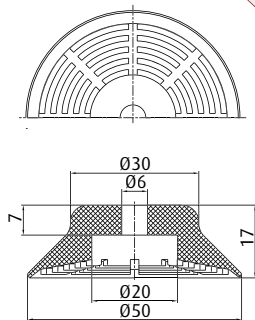
Additional sizes available are found on p. 62.



NON-SLIP

Item no. 100.050.114.* Material NBR (sw) 3.1 mm

Additional sizes available are found on p. 62.

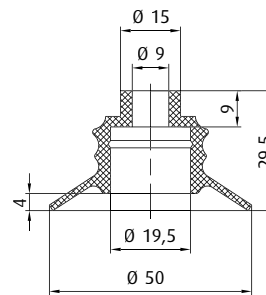


Spare cup

| | Connection | see page |
|---------|-------------|----------|
| 270.499 | M6-male | 414 |
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

| | | see page |
|--------|-------|----------|
| 50.174 | 20 mm | 456 |
| 50.175 | 30 mm | 456 |
| 50.176 | 40 mm | 456 |
| 50.177 | 50 mm | 456 |

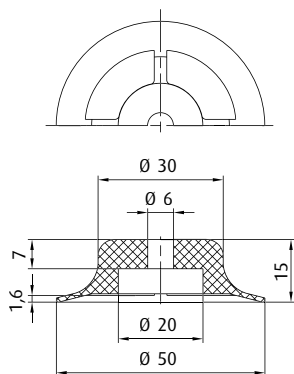
Item no. 104.050.069.* Material NBR (sw) 3.1 mm



Spare cup

| | Connection | see page |
|---------|-------------|----------|
| 270.012 | G1/8-male | 421 |
| 270.020 | G1/8-female | 423 |

Item no. 107.050.042.* Material NR (sw), NR (br) 6 mm

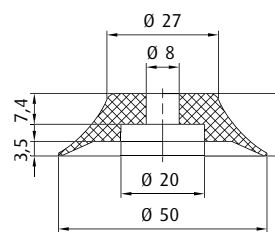


| | Connection | see page |
|---------|-------------|----------|
| 270.499 | M6-male | 414 |
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

| | | see page |
|--------|-------|----------|
| 50.174 | 20 mm | 456 |
| 50.175 | 30 mm | 456 |
| 50.176 | 40 mm | 456 |
| 50.177 | 50 mm | 456 |

Item no. 102.050.290.* Material NBR (sw), SI (tr), PU (bl), FKM (gr) 2 mm

Additional sizes available are found on p. 38.



| | Connection | see page |
|---------|-------------|----------|
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

Item no. 102.050.065.* Material NBR (sw), SI (tr), PU (bl) 4 mm

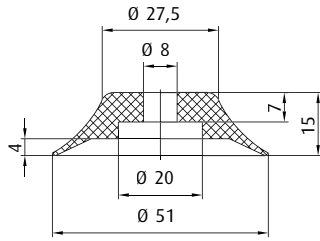
Additional sizes available are found on p. 32.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 50 mm



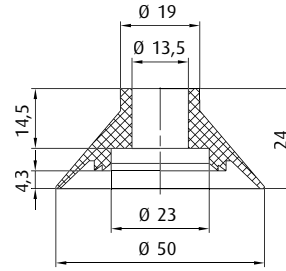
| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.012 G1/8-male | 421 |
| | 270.020 G1/8-female | 423 |
| | 270.491 G1/4-male | 429 |
| | 270.492 G1/4-female | 434 |

Item no.
102.050.504.*

Material
Thermalon® (bl)

4 mm

Additional sizes available are found on p. 36.



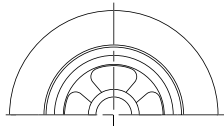
| Icon | Connection | see page |
|------|-------------------|----------|
| | 270.184 G1/4-male | 431 |

Item no.
127.050.003.*

Material
SI (r), CR (sw)

5 mm

BESTSELLER



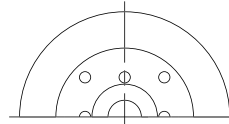
① = Aluminium

Item no.
150.050.032.*

Material
SI (r), FKM (sw), CR (sw)

5.5 mm

Additional sizes available are found on p. 68.



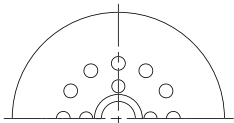
| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.097 G1/4-male | 426 |
| | 270.098 G1/4-female | 432 |

Item no.
104.050.064.*

Material
NBR (sw), SI (tr)

5 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 24 mm, 30 mm, 40 mm

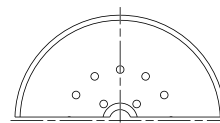


| Icon | Connection | see page |
|------|---------------------|----------|
| | 270.112 G1/8-male | 419 |
| | 270.114 G1/8-female | 422 |
| | 270.043 G1/4-male | 425 |
| | 270.178 G1/4-female | 431 |

Item no.
102.050.433.*

Material
Vulkollan® (br)

3 mm

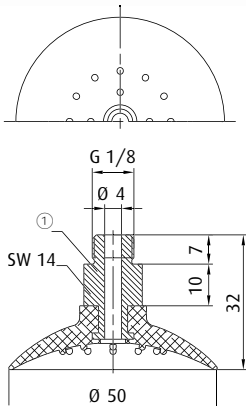


Item no.
110.050.080.*

Material
NR (sw)

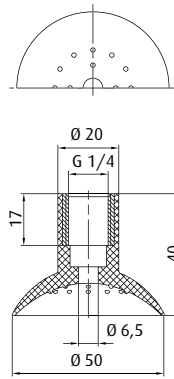
4 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



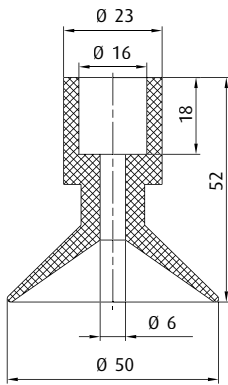
① = Aluminium

| | | |
|-----------------------------------|-----------------------------|------|
| Item no. 113.050.014._* | Material NBR (sw) | 5 mm |
|-----------------------------------|-----------------------------|------|

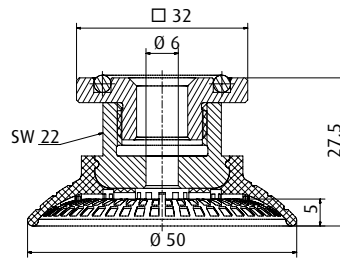


| | | |
|-----------------------------------|-------------------------------------|------|
| Item no. 110.050.078._* | Material SI (tr), NR (sw) | 9 mm |
|-----------------------------------|-------------------------------------|------|

This vacuum cup is also available in the following dimensions: 43 mm, 62 mm, 81 mm, 100 mm

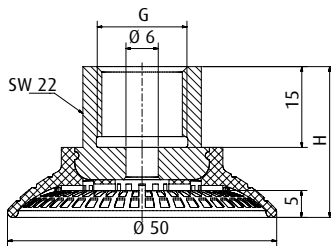


| | | |
|-----------------------------------|----------------------------|-------|
| Item no. 126.050.018._* | Material NR (bg) | 10 mm |
|-----------------------------------|----------------------------|-------|



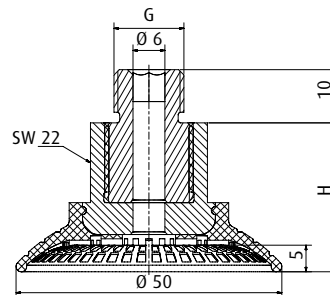
| | | |
|-----------------------------------|-----------------------------|------|
| Item no. 103.050.047._* | Material NBR (bl) | 5 mm |
|-----------------------------------|-----------------------------|------|

Additional sizes available are found on p. 64.



| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.050.043._* | NBR (bl) | 5 | G1/4-female | 33 |
| 103.050.044._* | NBR (bl) | 5 | G3/8-female | 28 |

Additional sizes available are found on p. 64.



| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.050.042._* | NBR (bl) | 5 | G1/4-male | 28 |
| 103.050.045._* | NBR (bl) | 5 | M10-male | 28 |
| 103.050.046._* | NBR (bl) | 5 | M14x1.5-male | 28 |

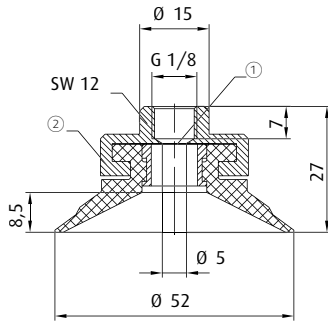
Additional sizes available are found on p. 64.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

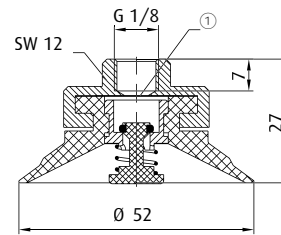
Ø 52 - 53 mm



① = Filter screen ② = Aluminium

Item no. 120.050.078.* **Material** SI (tr), CR (sw) 6.5 mm

Additional sizes available are found on p. 47.

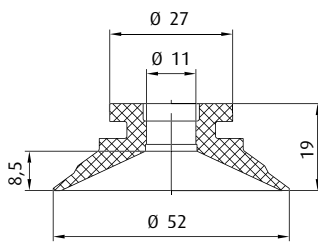


① = Filter screen

Item no. 121.050.008.* **Material** SI (tr), CR (sw) 2.5 mm

Additional sizes available are found on p. 47.

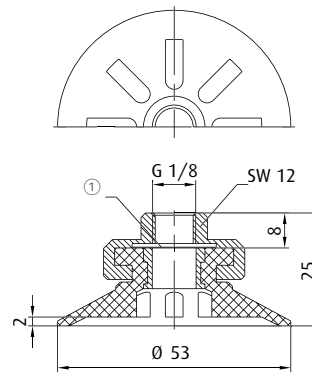
Spare cup



| | Connection | see page |
|-----------|-------------|----------|
| 270.252 | G1/8-female | 424 |
| 270.502-S | G1/8-female | 424 |
| 270.504-S | G1/4-male | 429 |
| 270.507-S | G3/8-male | 435 |

Item no. 102.050.097.* **Material** SI (tr), CR (sw) 6.5 mm

Additional sizes available are found on p. 42.

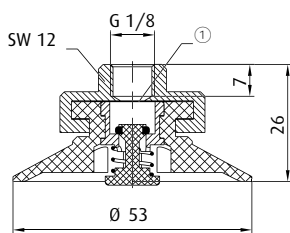


① = Filter screen

Item no. 123.050.034.* **Material** Tepuflex® (or), SI (tr), CR (sw) 2.5 mm

Additional sizes available are found on p. 47.

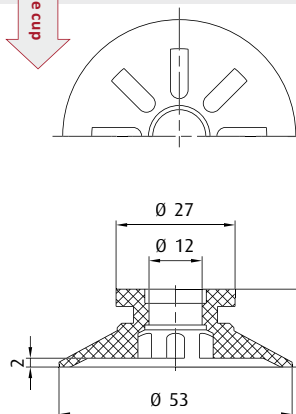
Spare cup



① = Filter screen

Item no. 124.050.009.* **Material** SI (tr), CR (sw) 2.5 mm

Additional sizes available are found on p. 47.



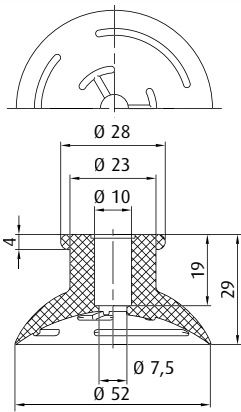
| | Connection | see page |
|-----------|-------------|----------|
| 270.252 | G1/8-female | 424 |
| 270.502-S | G1/8-female | 424 |
| 270.504-S | G1/4-male | 429 |
| 270.507-S | G3/8-male | 435 |

Item no. 125.050.017.* **Material** Tepuflex® (or), SI (tr), CR (sw) 2.5 mm

Additional sizes available are found on p. 42.

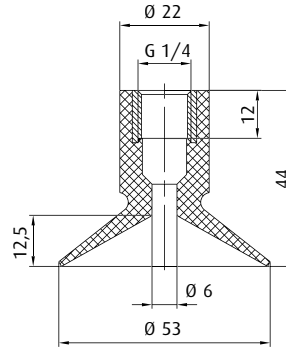
Spare cup

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



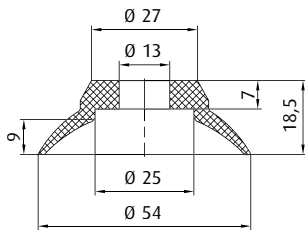
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
114.052.008.* **Material**
NR (bg) 6 mm



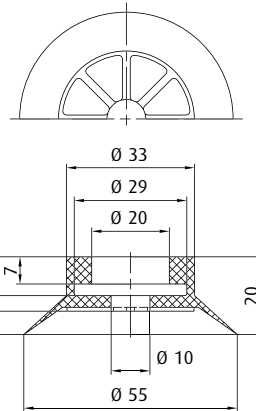
Item no.
120.050.040.* **Material**
SI (tr), NR (sw) 11 mm

This vacuum cup is also available in the following dimensions: 42 mm, 62 mm, 83 mm



| | Connection | see page |
|---------|------------|----------|
| 270.184 | G1/4-male | 431 |

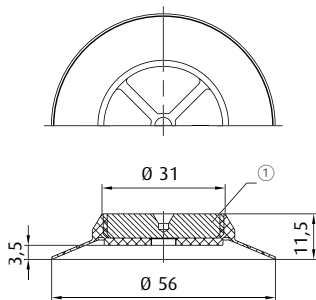
Item no.
112.055.086.* **Material**
PU (bl) 6 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.289 | G1/8-female | 438 |

FLEXIBLE LIP

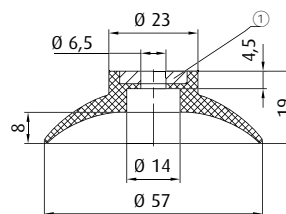
Item no.
154.055.060.* **Material**
NBR (gr) 6 mm



① = Steel

Item no.
152.055.092.* **Material**
NBR (gr) 4 mm

Ordering notes: Customised drilling patterns on request



① = Aluminium

Item no.
112.057.087.* **Material**
NR (sw) 6 mm

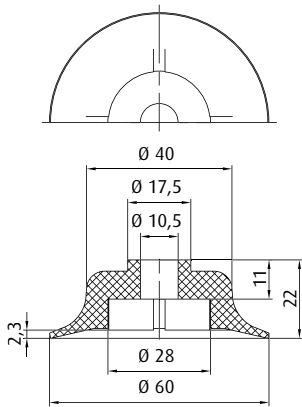
| | Connection | see page |
|------------|------------|----------|
| 270.312/19 | M6-male | 414 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

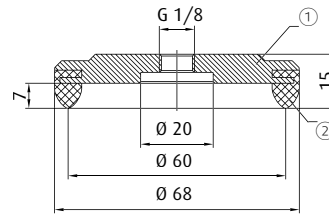
Ø 60 - 62 mm



| Connection | see page |
|------------------|----------|
| 270.512 M10-male | 416 |

| | | |
|-----------------------------------|--|--------|
| Item no. 102.060.291._* | Material NBR (sw), SI (tr), PU (bl), FKM (gr) | 2.5 mm |
|-----------------------------------|--|--------|

Additional sizes available are found on p. 38.

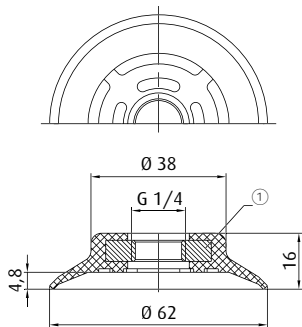


① = Aluminium ② = EPDM foamed

| | | |
|-----------------------------------|------------------------------|------|
| Item no. 160.067.003._* | Material EPDM (sw) | 1 mm |
|-----------------------------------|------------------------------|------|

Additional sizes available are found on p. 72.

Notes: Foam sealing lip equalises product unevenness



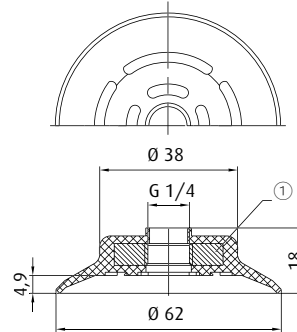
| Connection | see page |
|-------------------------|----------|
| 270.090 M10x1.25-female | 752 |
| 270.120 G1/4-male | 750 |

BESTSELLER

① = Aluminium

| | | |
|-----------------------------------|---|------|
| Item no. 102.060.303._* | Material NBR (sw), SI (tr), PU (bl) | 5 mm |
|-----------------------------------|---|------|

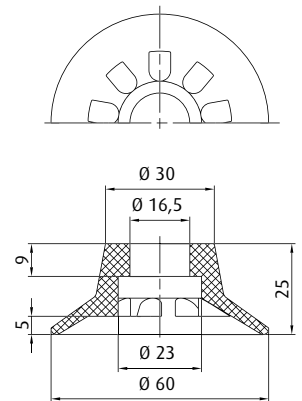
Additional sizes available are found on p. 32.



① = Aluminium

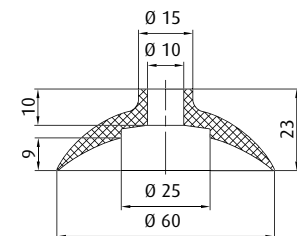
| | | |
|-----------------------------------|------------------------------------|--------|
| Item no. 102.060.505._* | Material Thermalon® (bl) | 4.9 mm |
|-----------------------------------|------------------------------------|--------|

Additional sizes available are found on p. 36.



| Connection | see page |
|-------------------|----------|
| 270.237 G1/4-male | 430 |

| | | |
|-----------------------------------|--|------|
| Item no. 104.060.024._* | Material NBR (gr), SBR (br), NR (bg) | 4 mm |
|-----------------------------------|--|------|



| Connection | see page |
|-------------------|----------|
| 270.042 G1/4-male | 431 |

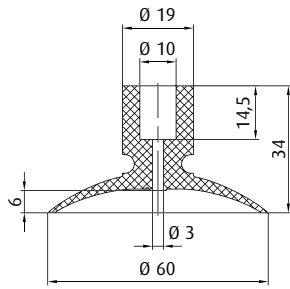
| | | |
|-----------------------------------|--------------------------------------|------|
| Item no. 112.060.091._* | Material NBR (sw), SI (tr) | 9 mm |
|-----------------------------------|--------------------------------------|------|

Additional sizes available are found on p. 52.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

Vacuum cups by size | Flat vacuum cups by Ø

Ø 60 - 62 mm

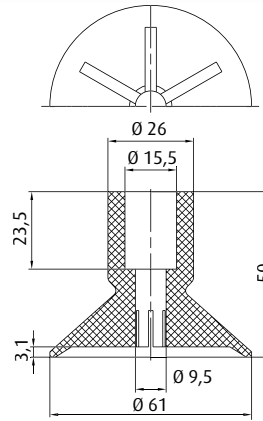


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
115.060.009.*

Material
NR (sw)

5 mm

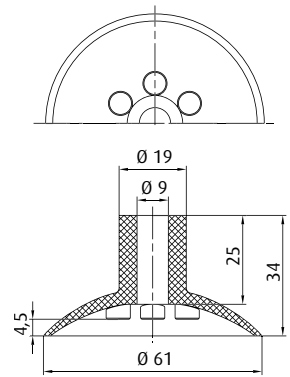


| | Connection | see page |
|---------|-------------|----------|
| 270.116 | G1/4-female | 432 |

Item no.
104.061.060.*

Material
Vinyl (bl)

2.5 mm

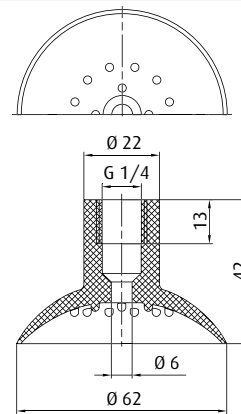


| | Connection | see page |
|---------|------------|----------|
| 270.208 | G1/4-male | 425 |

Item no.
114.061.010.*

Material
SI (tr), NR (sw)

5 mm

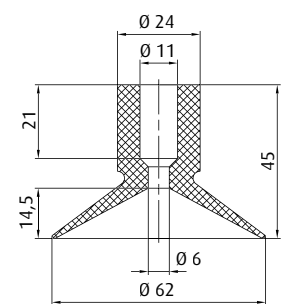


Item no.
110.060.085.*

Material
SI (tr), NR (sw)

9.5 mm

This vacuum cup is also available in the following dimensions: 43 mm, 50 mm, 81 mm, 100 mm



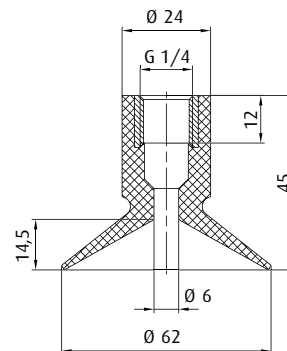
| | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

Item no.
122.060.059.*

Material
NBR (sw), SI (tr), NR (sw)

10 mm

Additional sizes available are found on p. 56.



Item no.
120.060.045.*

Material
SI (tr), NR (sw)

10 mm

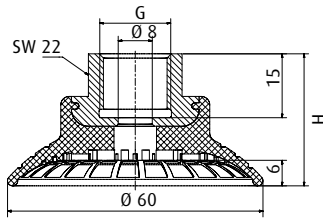
This vacuum cup is also available in the following dimensions: 42 mm, 53 mm, 83 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



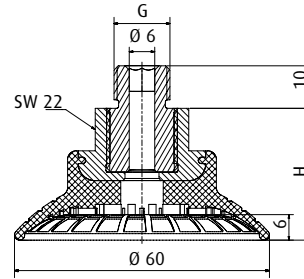
Vacuum cups by size | Flat vacuum cups by Ø

Ø 63 - 64 mm



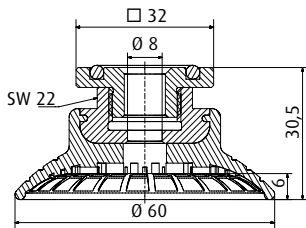
| Item no. | Material | SW [mm] | Connection thread | H [mm] |
|----------------|----------|---------|-------------------|--------|
| 103.060.049._* | NBR (bl) | 6 | G1/4-female | 36 |
| 103.060.050._* | NBR (bl) | 6 | G3/8-female | 31 |

Additional sizes available are found on p. 64.



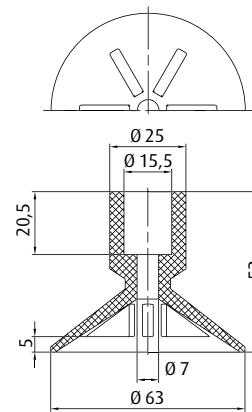
| Item no. | Material | SW [mm] | Connection thread | H [mm] |
|----------------|----------|---------|-------------------|--------|
| 103.060.048._* | NBR (bl) | 6 | G1/4-male | 31 |
| 103.060.051._* | NBR (bl) | 6 | M10-male | 31 |
| 103.060.052._* | NBR (bl) | 6 | M14x1.5-male | 31 |

Additional sizes available are found on p. 64.



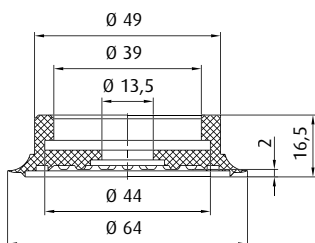
| Item no. | Material | SW [mm] |
|----------------|----------|---------|
| 103.060.053._* | NBR (bl) | 6 mm |

Additional sizes available are found on p. 64.



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.116 | G1/4-female | 432 |

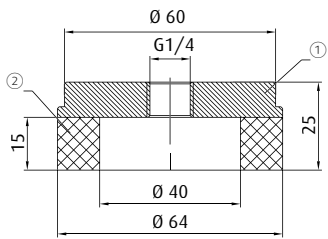
| Item no. | Material | SW [mm] |
|----------------|-----------------|---------|
| 104.063.041._* | NR (bg), CR (r) | 6.5 mm |



| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.262 | G1/8-female | 438 |
| 270.284 | G1/4-female | 438 |

| Item no. | Material | SW [mm] |
|----------------|---------------------------------------|---------|
| 154.065.002._* | SI (tr), NR (sw), NR (br), Vinyl (bl) | 1.5 mm |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

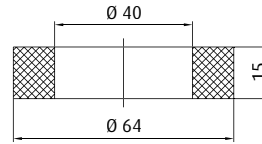


① = Aluminium ② = Sponge rubber NR

| | | |
|----------------------------------|---------------------------------------|-------|
| Item no. 206.064.006.* | Material Sponge rubber (or) | 10 mm |
|----------------------------------|---------------------------------------|-------|

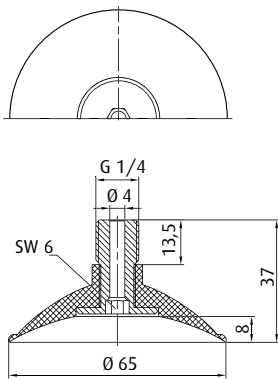
This vacuum cup is also available in the following dimensions: 91 mm

Spare cup

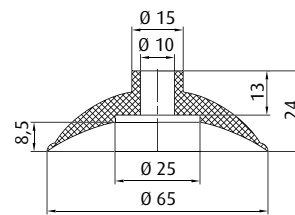


| | | |
|----------------------------------|---------------------------------------|-------|
| Item no. 208.064.001.* | Material Sponge rubber (or) | 10 mm |
|----------------------------------|---------------------------------------|-------|

This vacuum cup is also available in the following dimensions: 91 mm

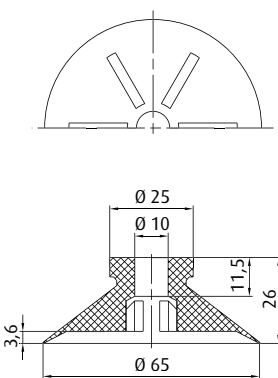


| | | |
|----------------------------------|---|------|
| Item no. 110.065.091.* | Material NBR (sw), SI (tr), NR (sw), NR (bg), Vinyl (bl) | 7 mm |
|----------------------------------|---|------|



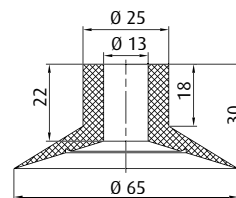
| | | |
|----------------------------------|---|------|
| Item no. 112.065.093.* | Material NBR (sw), SI (tr), NR (sw), NR (bg), Vinyl (bl) | 7 mm |
|----------------------------------|---|------|

| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.176 | G1/4-male | 430 |



| | | |
|----------------------------------|--|------|
| Item no. 125.065.026.* | Material SI (tr), NR (sw), NR (bg) | 5 mm |
|----------------------------------|--|------|

| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



| | | |
|----------------------------------|-------------------------------------|------|
| Item no. 126.065.019.* | Material SI (tr), NR (sw) | 5 mm |
|----------------------------------|-------------------------------------|------|


| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.207 | G1/4-male | 426 |

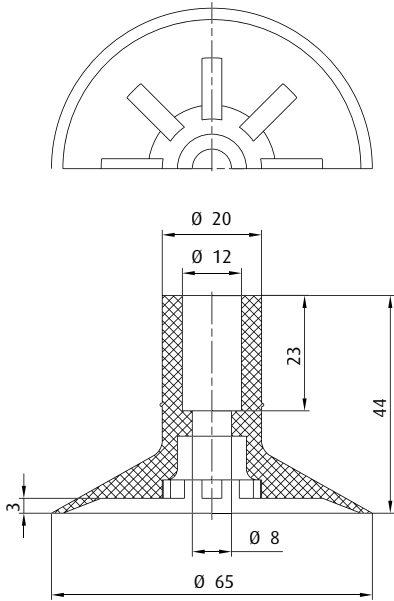
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




Vacuum cups by size | Flat vacuum cups by Ø


Ø 65 - 70 mm

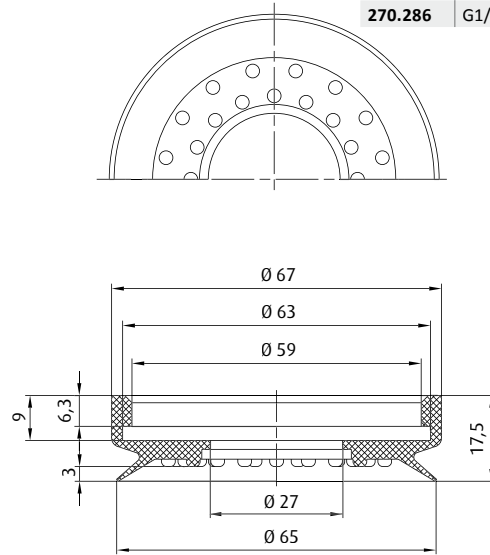
|  | Connection | see page |
|---|------------|----------|
| 270.049-1 | G1/4-male | 426 |




Item no. 127.065.006._* **Material** SI (tr), NR (sw)  3 mm


This vacuum cup is also available in the following dimensions: 46 mm

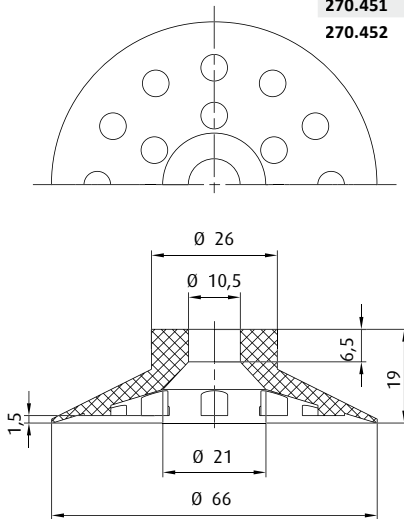
|  | Connection | see page |
|---|-------------|----------|
| 270.158 | G1/8-female | 438 |
| 270.264 | G1/4-female | 438 |
| 270.161 | G3/8-female | 438 |
| 270.286 | G1/2-female | 438 |





Item no. 154.065.003._* **Material** NBR (sw), SI (w), NR (sw)  3 mm

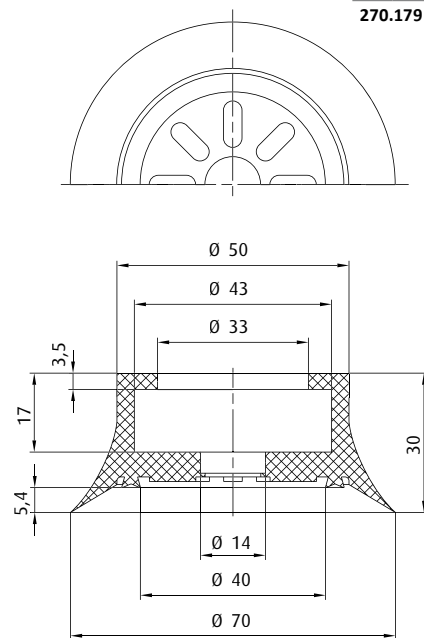
Additional sizes available are found on p. 70.


|  | Connection | see page |
|---|-------------|----------|
| 270.256 | M8-male | 415 |
| 270.012 | G1/8-male | 421 |
| 270.020 | G1/8-female | 423 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



Item no. 125.066.027._* **Material** NBR (sw), SI (tr), NR (sw)  0.5 mm

|  | Connection | see page |
|---|-------------|----------|
| 270.179 | G1/4-female | 438 |



Item no. 102.070.234._* **Material** NBR (gr), SBR (br), SI (tr), NR (bg), NR (br)  6 mm

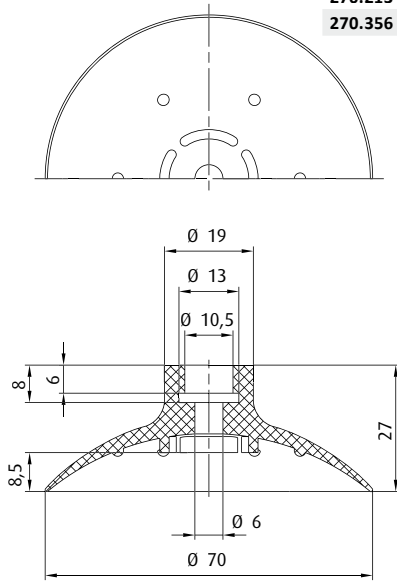
Additional sizes available are found on p. 66.

BESTSELLER

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



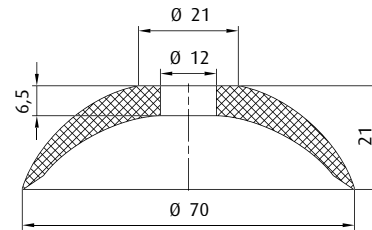
| | Connection | see page |
|---------|-------------|----------|
| 270.213 | G1/4-male | 428 |
| 270.356 | G1/4-female | 433 |



Item no.
102.070.325._*

Material
Vulkollan® (br)

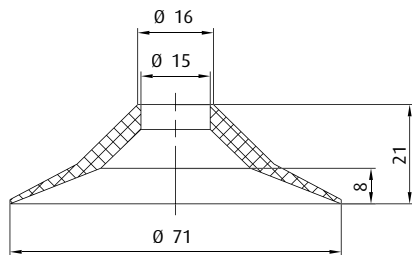
8.5 mm



Item no.
112.070.096._*

Material
NR (bg)

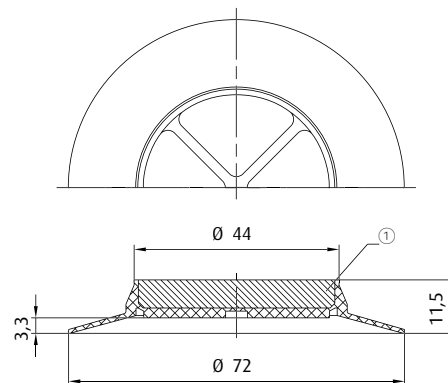
12 mm



Item no.
107.070.029._*

Material
NR (br)

6 mm



① = Steel

Item no.
152.070.093._*

Material
NBR (gr)

4 mm

Ordering notes: Customised drilling patterns on request

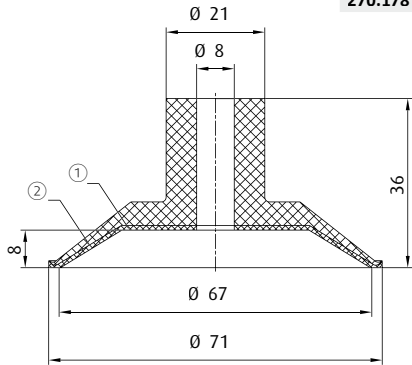
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 70 - 75 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |



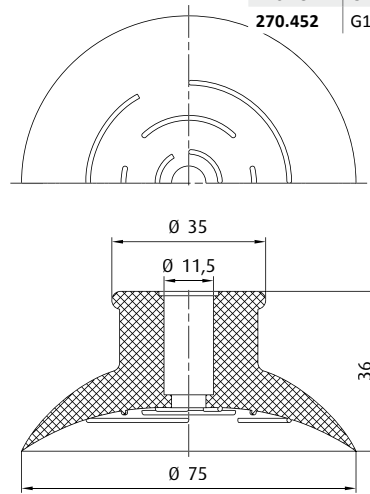
NON-MARKING!
TEMP. MAX. 500 °C

① = Felt pads ② = For silicone vacuum cups with silicone membranes: evaporated aluminium layer

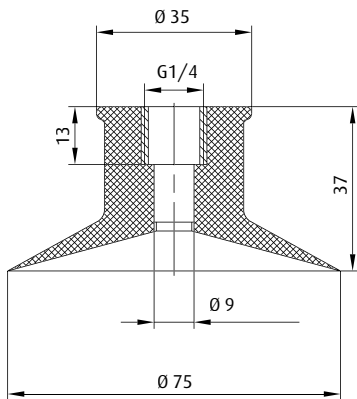
| | | |
|----------------------------------|-------------------------------|------|
| Item no. 26.070.011._* | Material SI (tr/ge) | 7 mm |
|----------------------------------|-------------------------------|------|

Additional sizes available are found on p. 164.

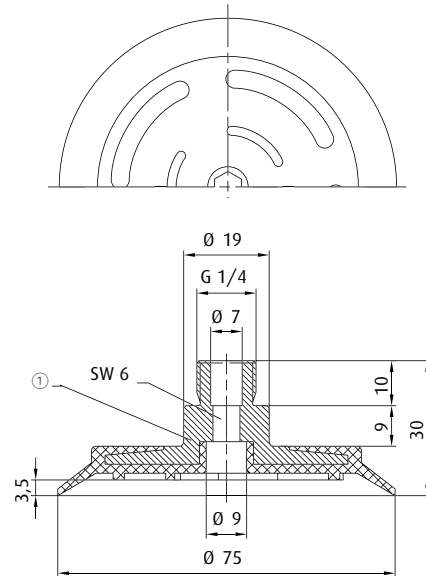
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



| | | |
|-----------------------------------|----------------------------|--------|
| Item no. 114.075.012._* | Material NR (br) | 3.5 mm |
|-----------------------------------|----------------------------|--------|



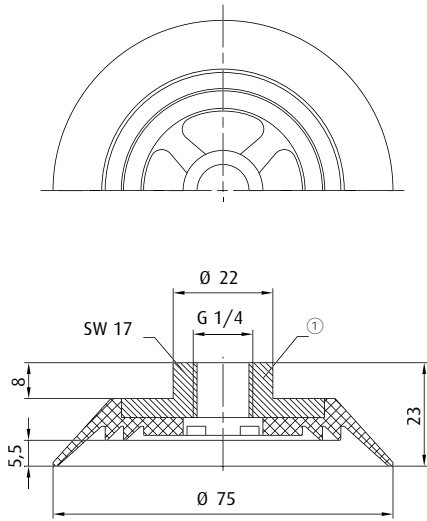
| | | |
|-----------------------------------|----------------------------|------|
| Item no. 120.075.075._* | Material NR (bg) | 3 mm |
|-----------------------------------|----------------------------|------|



① = Aluminium

| | | |
|-----------------------------------|------------------------------------|--------|
| Item no. 103.075.025._* | Material Vulkollan® (br) | 3.5 mm |
|-----------------------------------|------------------------------------|--------|

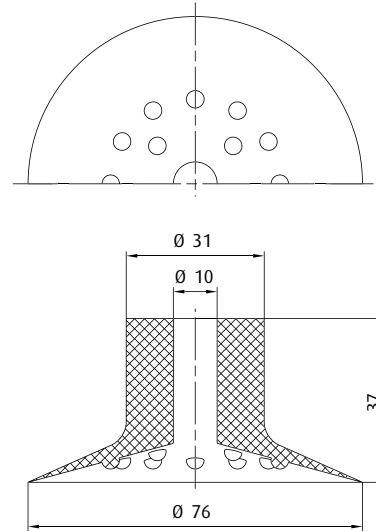
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Aluminium

| | | |
|-----------------------------------|--|------|
| Item no. 150.075.033._* | Material SI (r), FKM (sw), CR (sw) | 6 mm |
|-----------------------------------|--|------|

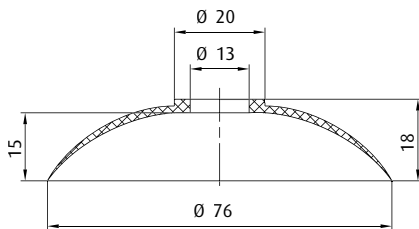
Additional sizes available are found on p. 68.



| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.044 | G1/4-male | 426 |

| | | |
|-----------------------------------|----------------------------|------|
| Item no. 102.075.275._* | Material NR (br) | 3 mm |
|-----------------------------------|----------------------------|------|

| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.183 | G1/4-male | 431 |



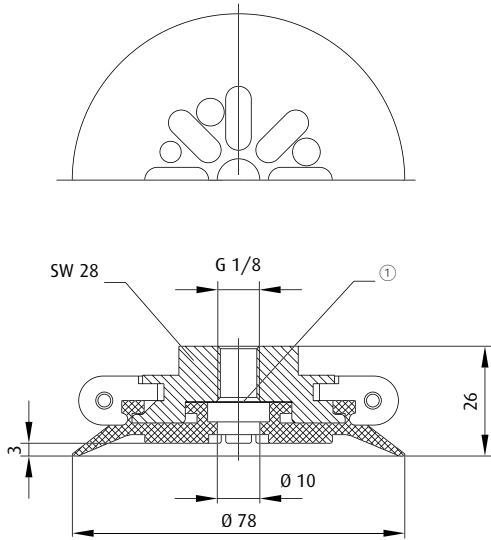
| | | |
|-----------------------------------|-------------------------------|------|
| Item no. 102.076.263._* | Material Vinyl (bl) | 9 mm |
|-----------------------------------|-------------------------------|------|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

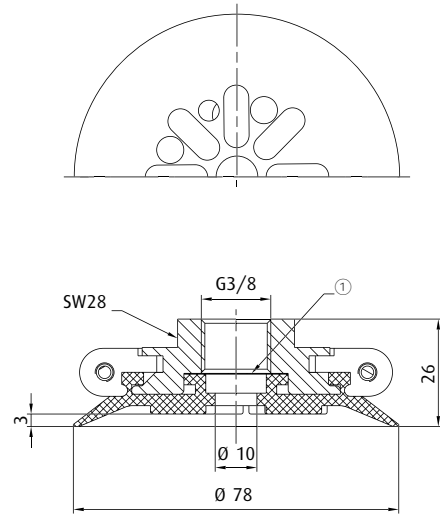
Ø 78 mm



① = Filter screen

Item no.
152.078.133.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 3 mm

Additional sizes available are found on p. 47.



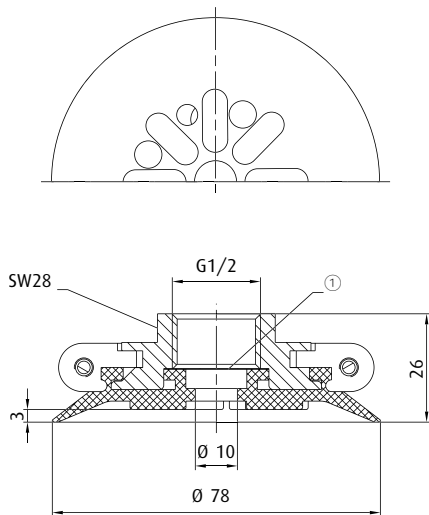
① = Filter screen

Item no.
152.078.136.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 3 mm

Additional sizes available are found on p. 47.

Spare cup

Spare cup

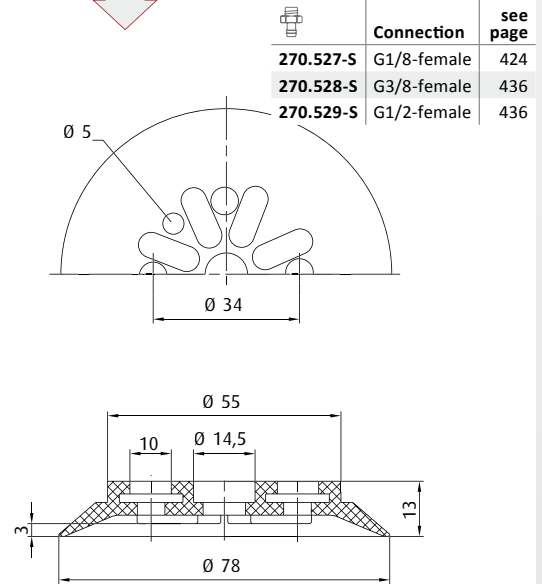


① = Filter screen

Item no.
152.078.139.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 3 mm

Additional sizes available are found on p. 47.

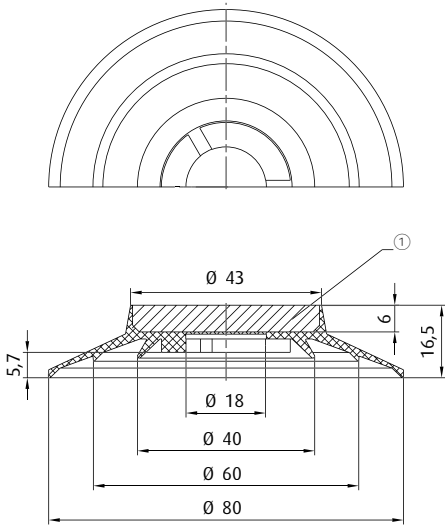
Spare cup



Item no.
154.078.027.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 3 mm

Additional sizes available are found on p. 42.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



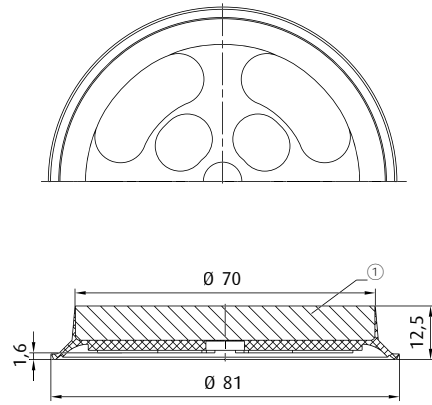
① = Steel

Item no.
104.080.078._*

Material
SBR (br)

4.5 mm

Notes: Use: Picking up products of varying sizes

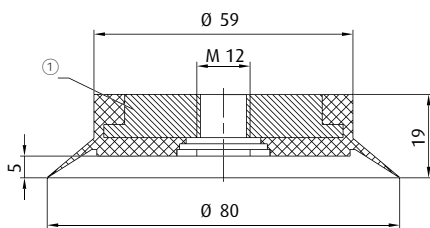
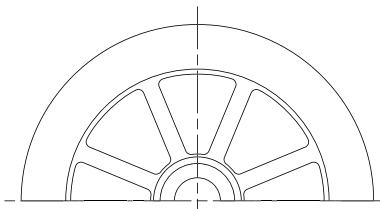


① = Steel

Item no.
152.080.069._*

Material
SBR (sw)

1 mm



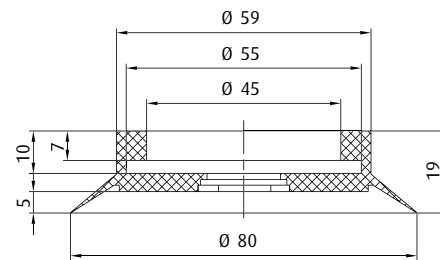
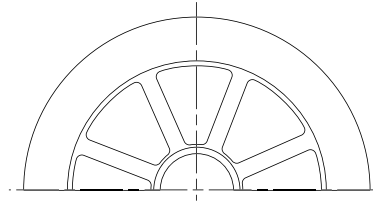
① = Aluminium

Item no.
152.080.083._*

Material
NBR (sw), SI (tr), NR (sw)

6 mm

Spare cup



Item no.
154.080.055._*

Material
NBR (sw), SI (tr), NR (sw)

6 mm


| | Connection | see page |
|---------|-----------------|----------|
| 270.338 | M12x1.75-female | 438 |

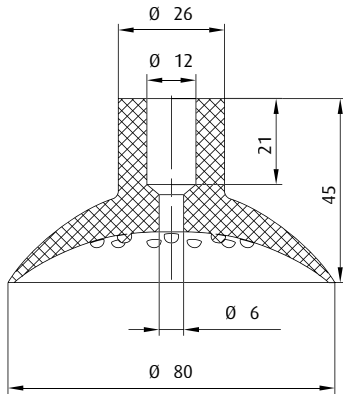
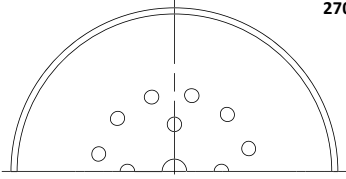
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 80 - 83 mm

| | Connection | see page |
|---|------------|----------|
|  | G1/4-male | 426 |

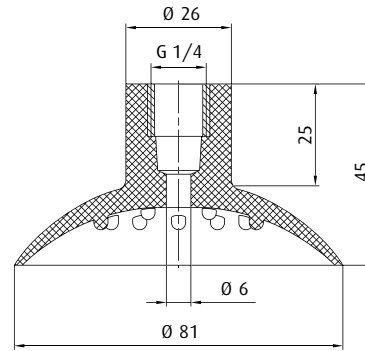
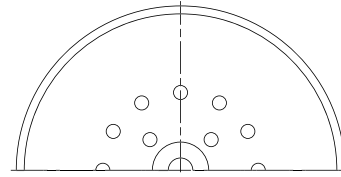


Item no.
114.080.020.*

Material
NR (sw)


 9 mm

This vacuum cup is also available in the following dimensions: 100 mm




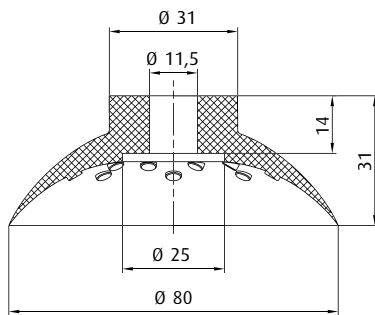
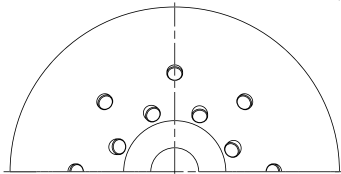
Item no.
110.080.095.*

Material
SI (tr), NR (sw)

 10 mm

This vacuum cup is also available in the following dimensions: 43 mm, 50 mm, 62 mm, 100 mm

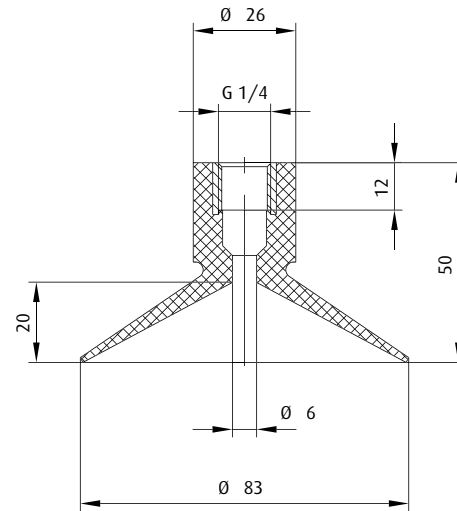
| | Connection | see page |
|---|------------|----------|
|  | G1/4-male | 431 |



Item no.
114.080.021.*


Material
NR (br)

 9 mm



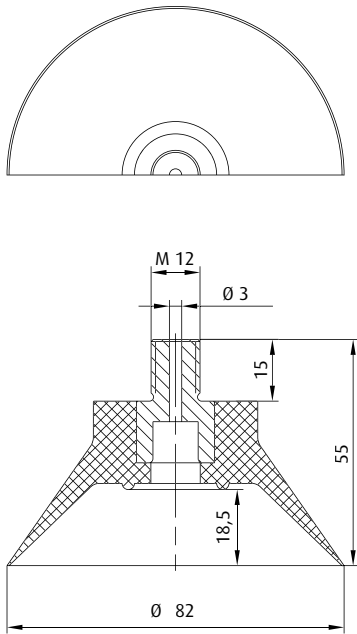
Item no.
120.080.052.*

Material
SI (tr), NR (sw)

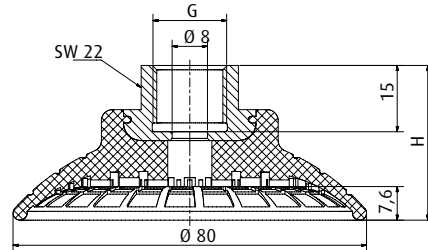
 12 mm

This vacuum cup is also available in the following dimensions: 42 mm, 53 mm, 62 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

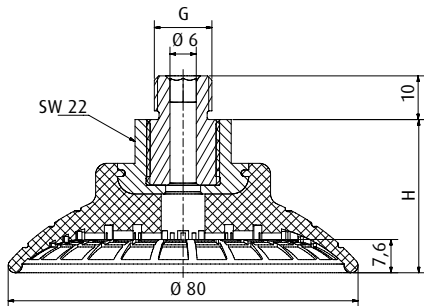


| | | |
|-----------------------------------|----------------------------|---------|
| Item no. 120.082.063._* | Material NR (sw) | 18.5 mm |
|-----------------------------------|----------------------------|---------|



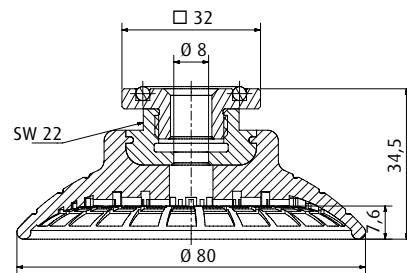
| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.080.055._* | NBR (bl) | 7.6 | G1/4-female | 40 |
| 103.080.056._* | NBR (bl) | 7.6 | G3/8-female | 35 |

Additional sizes available are found on p. 64.



| Item no. | Material | [mm] | Connection thread | H [mm] |
|----------------|----------|------|-------------------|--------|
| 103.080.054._* | NBR (bl) | 7.6 | G1/4-male | 35 |
| 103.080.057._* | NBR (bl) | 7.6 | M10-male | 35 |
| 103.080.058._* | NBR (bl) | 7.6 | M14x1.5-male | 35 |

Additional sizes available are found on p. 64.



| | | |
|-----------------------------------|-----------------------------|--------|
| Item no. 103.080.059._* | Material NBR (bl) | 7.6 mm |
|-----------------------------------|-----------------------------|--------|


Additional sizes available are found on p. 64.

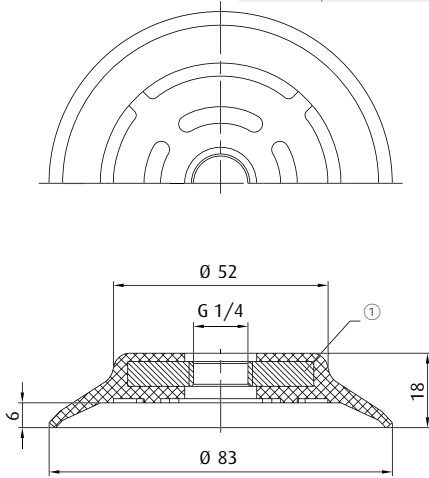
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




Vacuum cups by size | Flat vacuum cups by Ø

Ø 83 - 87 mm

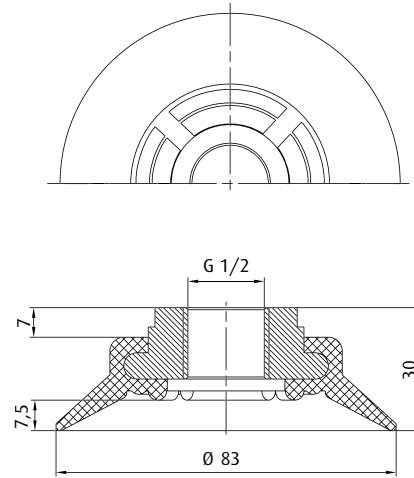
|  | Connection | see page |
|---|-----------------|----------|
| 270.090 | M10x1.25-female | 752 |
| 270.120 | G1/4-male | 750 |





① = Aluminium

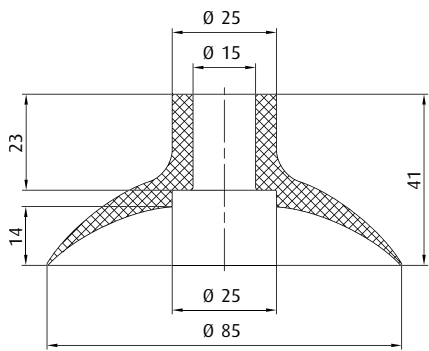
| | | |
|-----------------------------------|---|--|
| Item no. 102.080.304._* | Material NBR (sw), SI (tr), PU (bl) |  6 mm |
|-----------------------------------|---|--|


Additional sizes available are found on p. 32.




| | | |
|-----------------------------------|-------------------------------|--|
| Item no. 100.083.060._* | Material Vinyl (bl) |  7.5 mm |
|-----------------------------------|-------------------------------|--|

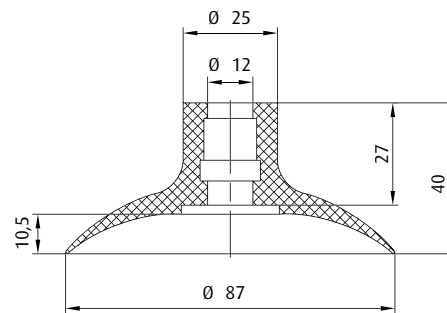
|  | Connection | see page |
|---|------------|----------|
| 270.216 | G1/4-male | 431 |




| | | |
|-----------------------------------|---|---|
| Item no. 112.085.102._* | Material NBR (sw), SI (tr), NR (sw) |  12 mm |
|-----------------------------------|---|---|

Additional sizes available are found on p. 52.


|  | Connection | see page |
|---|-----------------|----------|
| 270.338 | M12x1.75-female | 438 |
| 270.207 | G1/4-male | 426 |

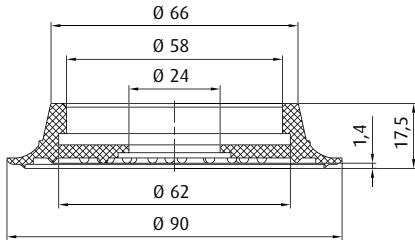


| | | |
|-----------------------------------|----------------------------|--|
| Item no. 112.087.089._* | Material NR (sw) |  9 mm |
|-----------------------------------|----------------------------|--|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




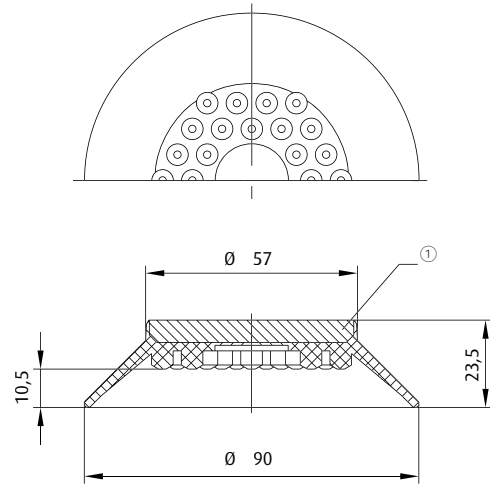
|  | Connection | see page |
|---|-------------|----------|
| 270.158 | G1/8-female | 438 |
| 270.264 | G1/4-female | 438 |
| 270.161 | G3/8-female | 438 |
| 270.286 | G1/2-female | 438 |



Item no.
154.090.010.*

Material
SI (tr), NR (sw)


 1.5 mm

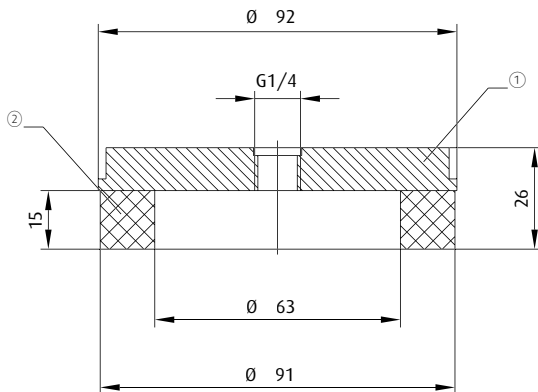


① = Steel

Item no.
152.090.089.*

Material
SBR (br)


 11 mm



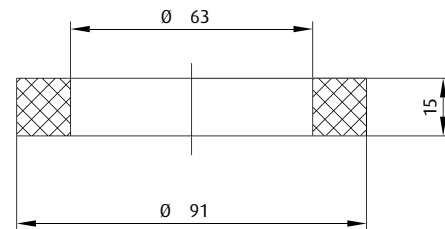
① = Aluminium ② = Sponge rubber NR

Item no.
206.092.007.*

Material
Sponge rubber (or)


 10 mm

Spare cup



Item no.
208.092.002.*

Material
Sponge rubber (or)

 10 mm

This vacuum cup is also available in the following dimensions: 64 mm

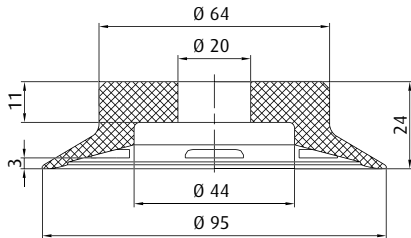
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

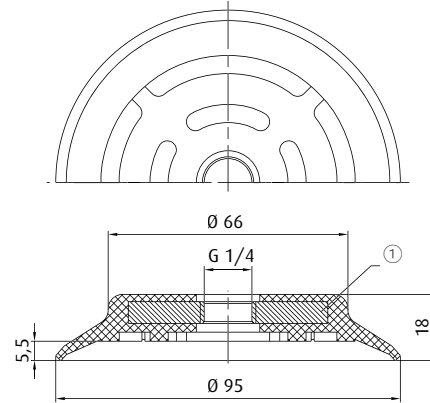
Ø 95 - 100 mm

| | Connection | see page |
|---------|------------|----------|
| 270.100 | G1/4-male | 431 |



| | | |
|-----------------------------------|----------------------------|--------|
| Item no. 102.095.182._* | Material NR (bg) | 2.5 mm |
|-----------------------------------|----------------------------|--------|

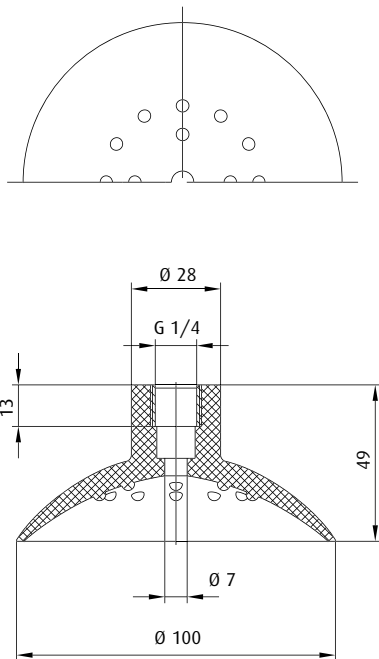
| | Connection | see page |
|---------|-----------------|----------|
| 270.090 | M10x1.25-female | 752 |
| 270.120 | G1/4-male | 750 |



① = Aluminium

| | | |
|-----------------------------------|---|------|
| Item no. 102.095.305._* | Material NBR (sw), SI (tr), PU (bl) | 6 mm |
|-----------------------------------|---|------|

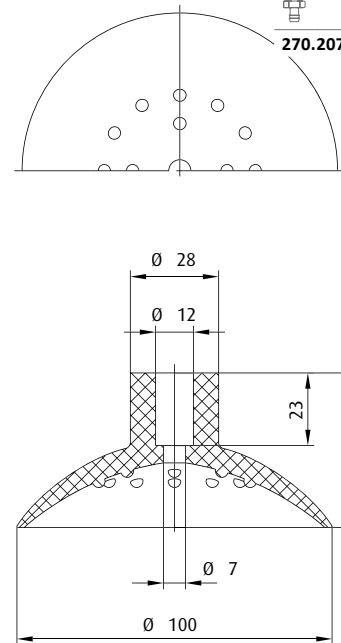
Additional sizes available are found on p. 32.



| | | |
|-----------------------------------|-----------------------------|-------|
| Item no. 110.100.103._* | Material NBR (sw) | 13 mm |
|-----------------------------------|-----------------------------|-------|

This vacuum cup is also available in the following dimensions: 43 mm, 50 mm, 62 mm, 81 mm

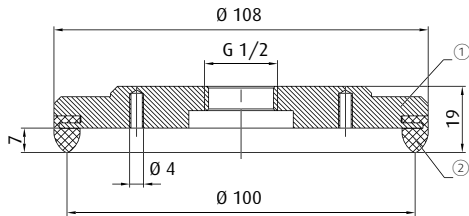
| | Connection | see page |
|---------|------------|----------|
| 270.207 | G1/4-male | 426 |



| | | |
|-----------------------------------|----------------------------|-------|
| Item no. 114.100.022._* | Material NR (sw) | 13 mm |
|-----------------------------------|----------------------------|-------|

This vacuum cup is also available in the following dimensions: 80 mm

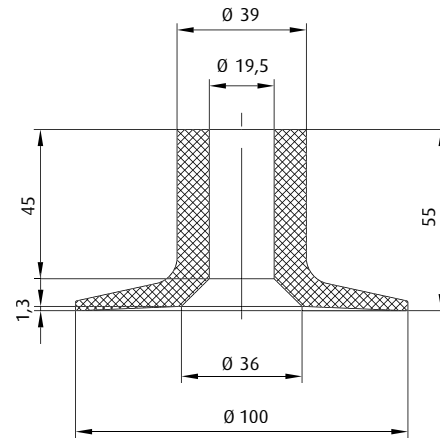
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Aluminium ② = EPDM foamed

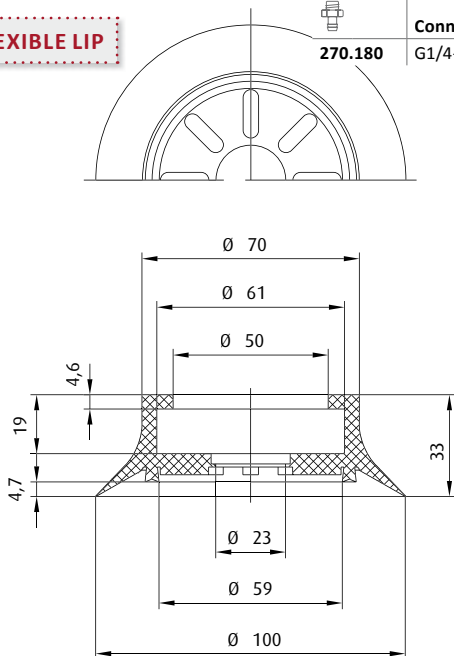
| | | |
|----------------------------------|------------------------------|------|
| Item no. 160.107.006.* | Material EPDM (sw) | 1 mm |
|----------------------------------|------------------------------|------|

Additional sizes available are found on p. 72.
Notes: Foam sealing lip equalises product unevenness



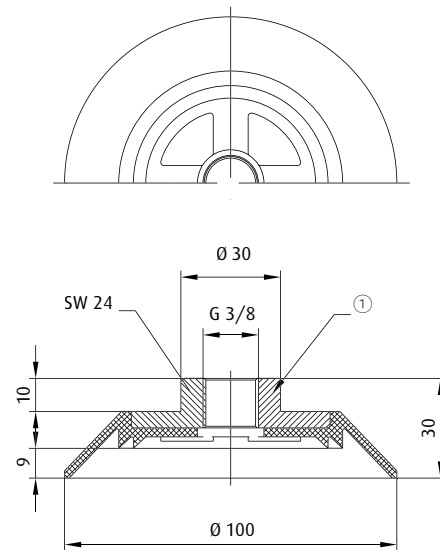
| | | |
|----------------------------------|----------------------------|--------|
| Item no. 102.100.100.* | Material NR (bg) | 0.5 mm |
|----------------------------------|----------------------------|--------|

| | | | |
|---------------------|---------|----------------------------------|------------------------|
| FLEXIBLE LIP | 270.180 | Connection G1/4-female | see page 438 |
|---------------------|---------|----------------------------------|------------------------|



| | | |
|----------------------------------|--|------|
| Item no. 102.100.269.* | Material SBR (br), NBR (gr), NR (br) | 5 mm |
|----------------------------------|--|------|

Additional sizes available are found on p. 66.



① = Aluminium

| | | |
|----------------------------------|--|------|
| Item no. 150.100.034.* | Material NBR (sw), SI (tr), NR (w) | 9 mm |
|----------------------------------|--|------|

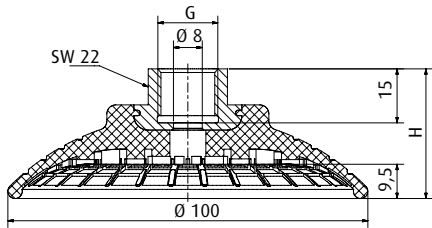
Additional sizes available are found on p. 68.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



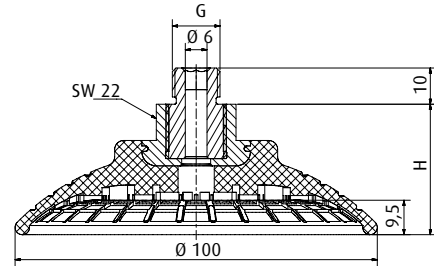
Vacuum cups by size | Flat vacuum cups by Ø

Ø 100 mm



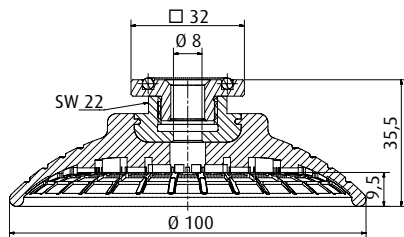
| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 103.100.061.* | NBR (bl) | 9.5 | G1/4-female | 41 |
| 103.100.062.* | NBR (bl) | 9.5 | G3/8-female | 36 |

Additional sizes available are found on p. 64.



| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 103.100.060.* | NBR (bl) | 9.5 | G1/4-male | 36 |
| 103.100.063.* | NBR (bl) | 9.5 | M10-male | 36 |
| 103.100.064.* | NBR (bl) | 9.5 | M14x1.5-male | 36 |

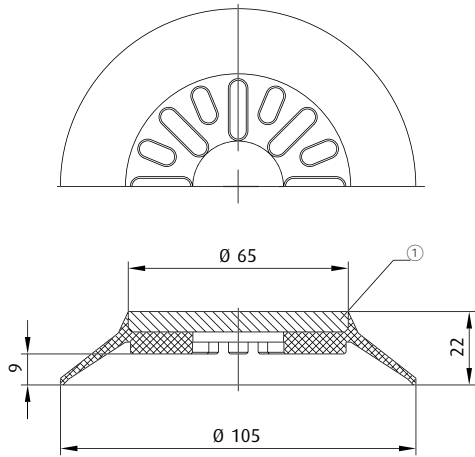
Additional sizes available are found on p. 64.



| Item no. | Material | [mm] |
|---------------|----------|--------|
| 103.100.065.* | NBR (bl) | 9.5 mm |

Additional sizes available are found on p. 64.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



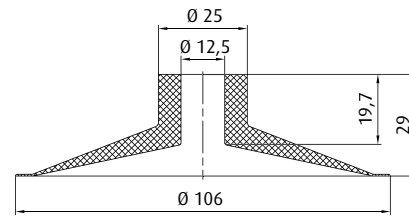
① = Steel

Item no.
152.105.094.*

Material
NBR (gr)

9 mm

Ordering notes: Customised drilling patterns on request

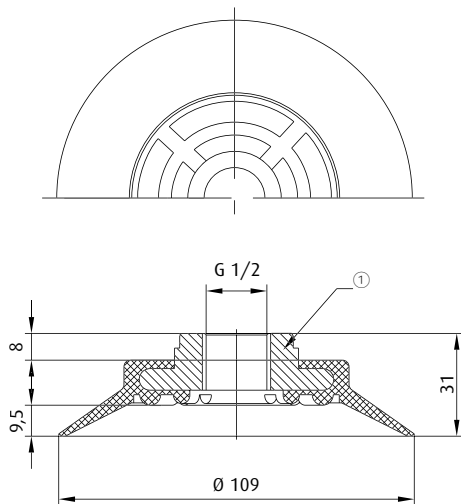


| | Connection | see page |
|---------|------------|----------|
| 270.141 | G1/4-male | 430 |

Item no.
107.105.035.*

Material
NR (br)

8.5 mm



① = Aluminium

Item no.
100.109.059.*

Material
Vinyl (bl)

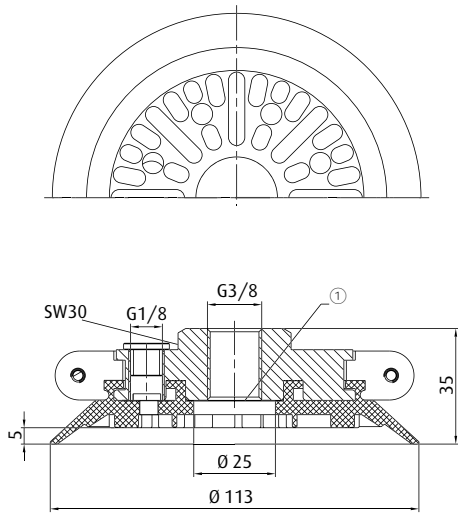
9.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 113 - 114 mm

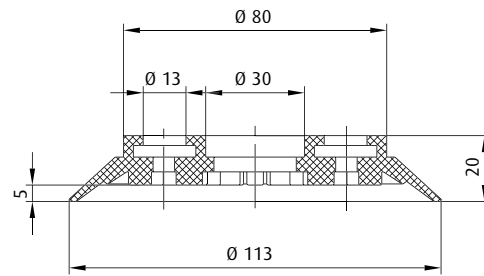
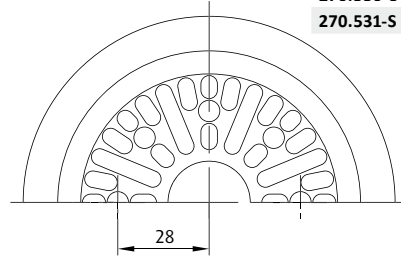


① = Filter screen

Item no.
152.113.134._* **Material**
Tepuflex® (or), SI (tr), CR (sw) 5 mm

Additional sizes available are found on p. 47.

Spare cup

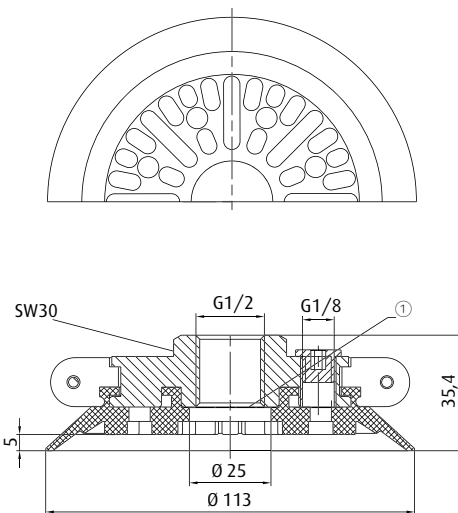


Item no.
154.113.028._* **Material**
Tepuflex® (or), SI (tr), CR (sw) 5 mm

Additional sizes available are found on p. 42.

| | Connection | see page |
|-----------|-------------|----------|
| 270.530-S | G3/8-female | 437 |
| 270.531-S | G1/2-female | 437 |

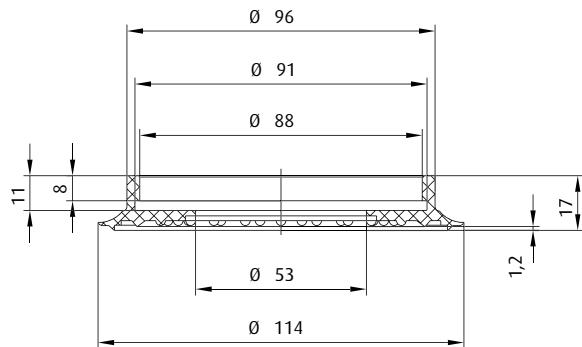
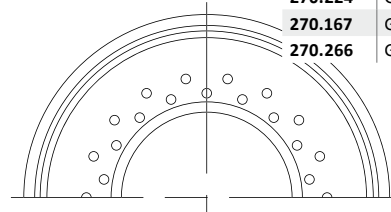
Spare cup



① = Filter screen

Item no.
152.113.137._* **Material**
Tepuflex® (or), SI (tr), CR (sw) 5 mm

Additional sizes available are found on p. 47.



Item no.
154.110.014._* **Material**
NBR (sw), SI (w) 1.5 mm


Additional sizes available are found on p. 70.

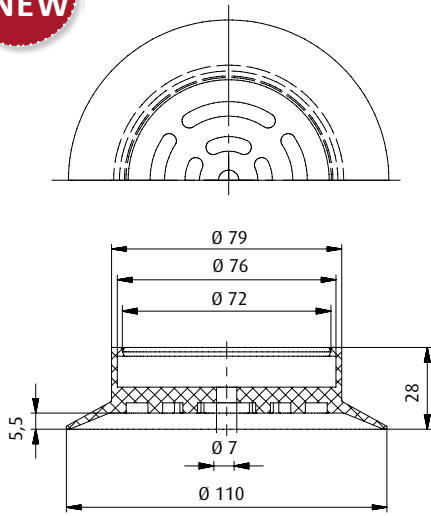
| | Connection | see page |
|---------|-------------|----------|
| 270.224 | G1/4-female | 438 |
| 270.167 | G3/8-female | 438 |
| 270.266 | G1/2-female | 438 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

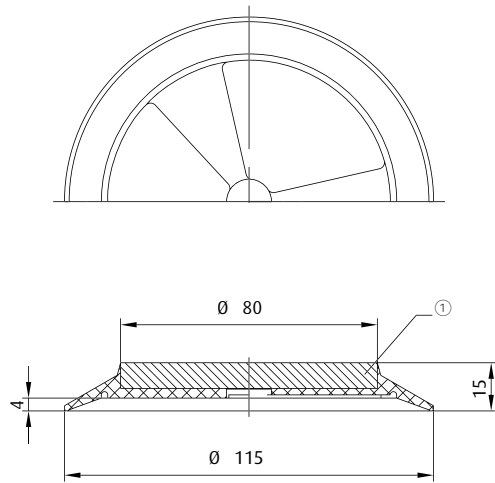


NEW


| | Connection | see page |
|---|-------------|----------|
|  | G1/4-female | 434 |



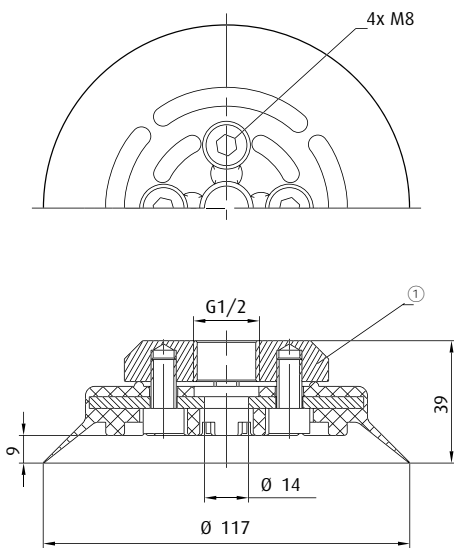
| | | |
|----------------------------------|-----------------------------|--|
| Item no. 102.110.483.* | Material NBR (sw) |  5.5 mm |
|----------------------------------|-----------------------------|--|




① = Steel

| | | |
|----------------------------------|-----------------------------|--|
| Item no. 152.115.095.* | Material NBR (gr) |  4 mm |
|----------------------------------|-----------------------------|--|

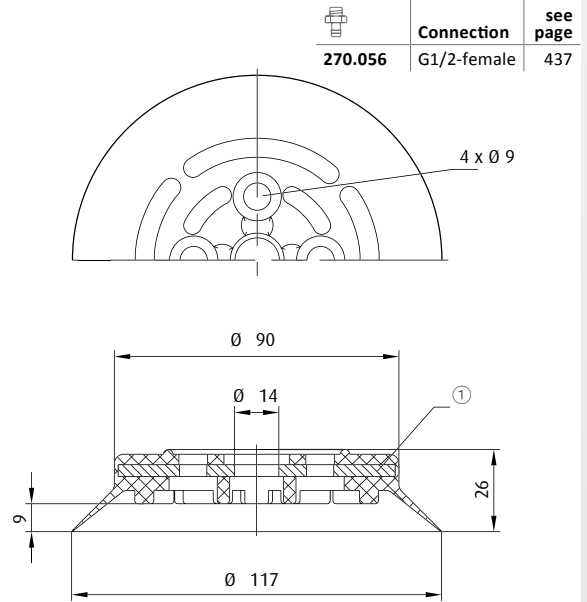
Ordering notes: Customised drilling patterns on request




① = Aluminium

| | | |
|----------------------------------|--------------------------------------|--|
| Item no. 152.120.017.* | Material NBR (sw), SI (tr) |  7 mm |
|----------------------------------|--------------------------------------|--|

Spare cup



① = Steel

| | | |
|----------------------------------|--------------------------------------|--|
| Item no. 154.120.018.* | Material NBR (sw), SI (tr) |  7 mm |
|----------------------------------|--------------------------------------|--|

Additional sizes available are found on p. 32.

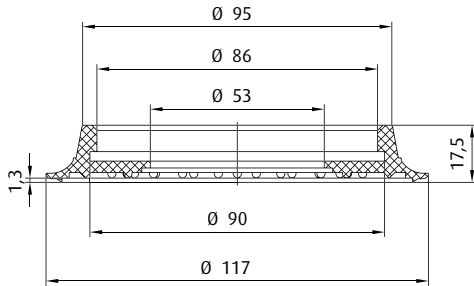
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 117 - 120 mm

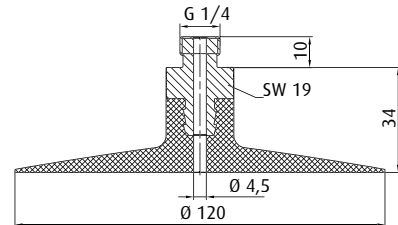
| | Connection | see page |
|---------|-------------|----------|
| 270.164 | G1/8-female | 438 |
| 270.224 | G1/4-female | 438 |
| 270.167 | G3/8-female | 438 |
| 270.266 | G1/2-female | 438 |



Item no.
154.120.017._*

Material
SI (tr), NR (sw), Vinyl (bl)

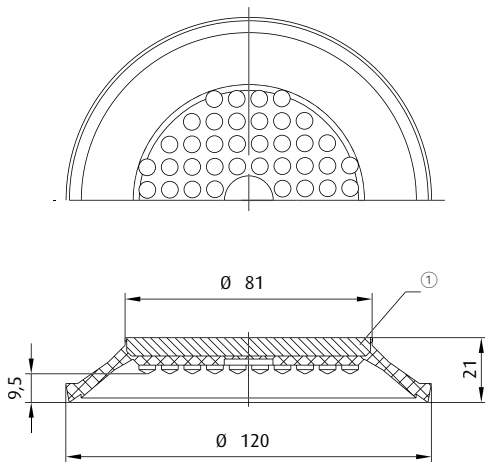
1.5 mm



Item no.
100.120.036._*

Material
NBR (sw)

0.5 mm



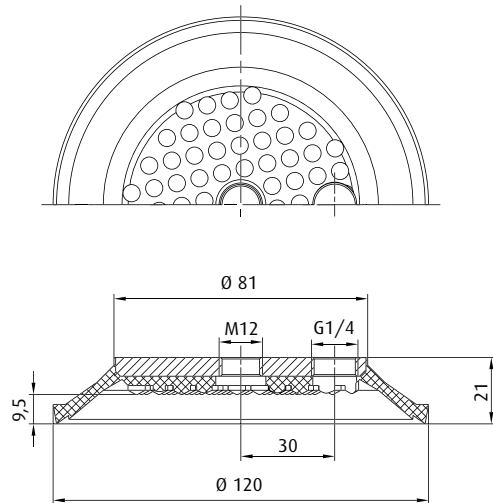
① = Steel

Item no.
152.120.064._*

Material
NBR (gr), NR (br)

11 mm

Ordering notes: Customised drilling patterns on request

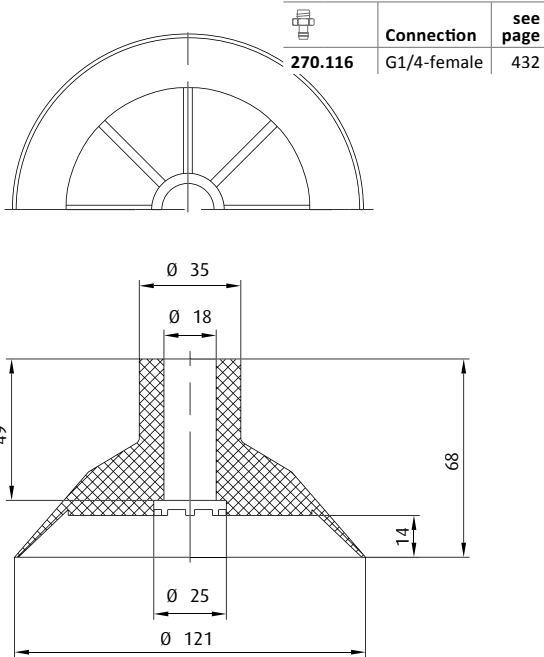


Item no.
152.120.115._*

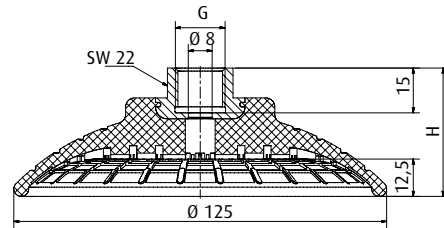
Material
NBR (gr)

9.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

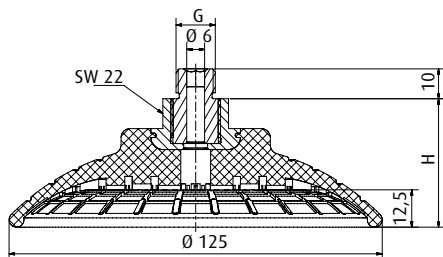


| | | |
|-----------------------------------|----------------------------|-------|
| Item no. 108.120.006._* | Material NR (sw) | 14 mm |
|-----------------------------------|----------------------------|-------|



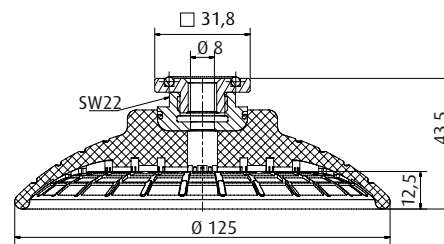
| | | | | |
|-----------------|-----------------|------|--------------------------|---------------|
| Item no. | Material | [mm] | Connection thread | H [mm] |
| 103.125.067._* | NBR (bl) | 12.5 | G1/4-female | 48 |
| 103.125.068._* | NBR (bl) | 12.5 | G3/8-female | 43 |

Additional sizes available are found on p. 64.



| | | | | |
|-----------------|-----------------|------|--------------------------|---------------|
| Item no. | Material | [mm] | Connection thread | H [mm] |
| 103.125.066._* | NBR (bl) | 12.5 | G1/4-male | 43 |
| 103.125.069._* | NBR (bl) | 12.5 | M10-male | 43 |
| 103.125.070._* | NBR (bl) | 12.5 | M14x1.5-male | 43 |

Additional sizes available are found on p. 64.



| | | |
|-----------------------------------|-----------------------------|---------|
| Item no. 103.125.071._* | Material NBR (bl) | 12.5 mm |
|-----------------------------------|-----------------------------|---------|

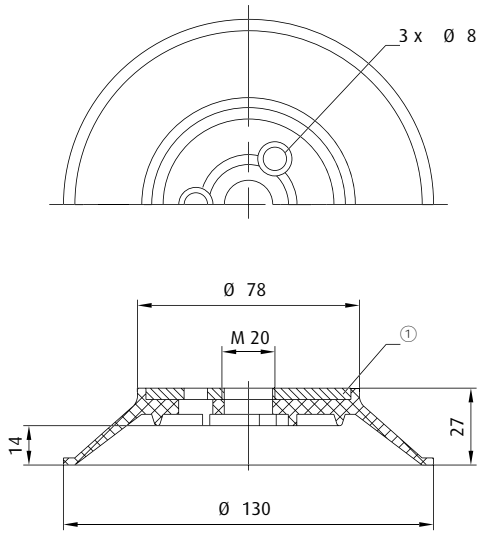
Additional sizes available are found on p. 64.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 130 - 137 mm



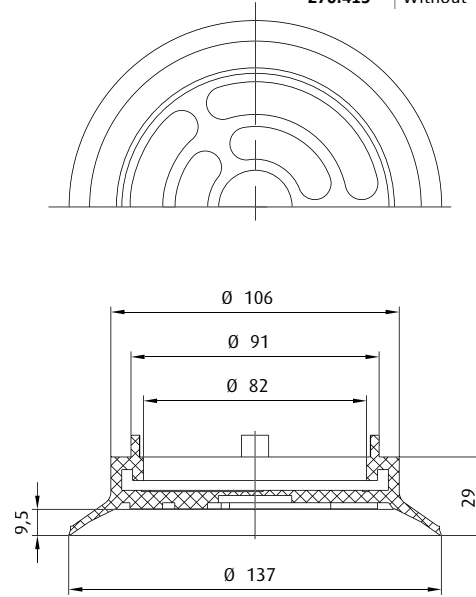
① = Steel

Item no.
100.130.058._*

Material
NR (sw)

14 mm

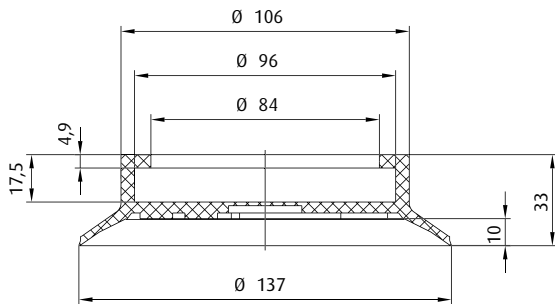
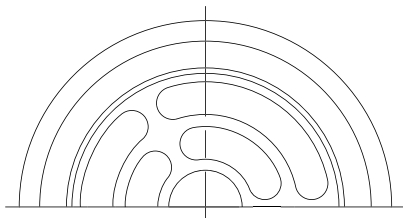
| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.415 | Without | 440 |



Item no.
102.130.258._*

Material
SBR (sw)

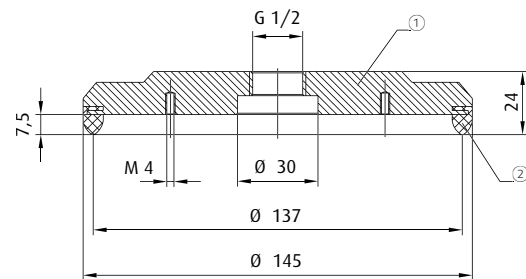
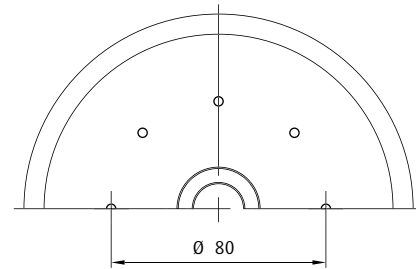
10 mm



Item no.
102.135.256._*

Material
NBR (gr), SBR (sw)

11 mm



① = Aluminium ② = EPDM foamed

Item no.
160.145.014._*

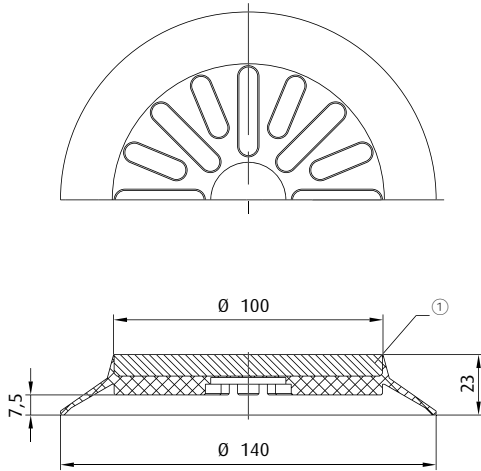
Material
EPDM (sw)

1 mm

Additional sizes available are found on p. 72.

Notes: Foam sealing lip equalises product unevenness

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



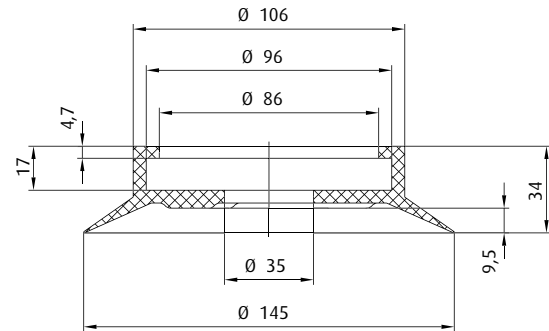
① = Steel

Item no.
152.140.096.*

Material
NBR (gr)

8 mm

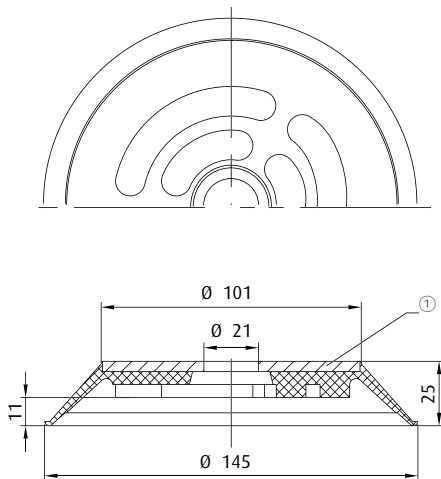
Ordering notes: Customised drilling patterns on request



Item no.
102.145.257.*

Material
NBR (gr), SBR (sw)

9 mm

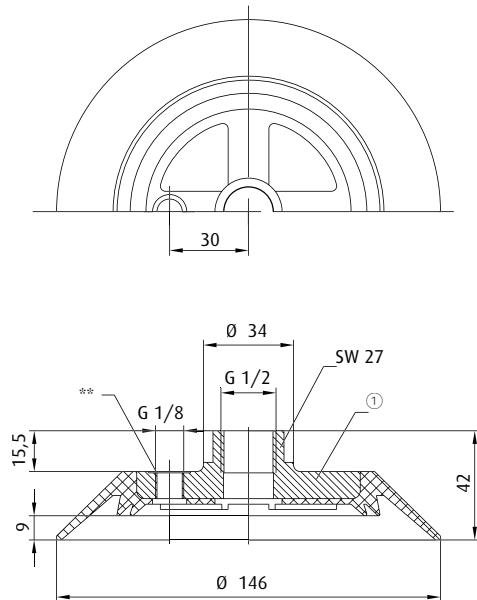


① = Aluminium

Item no.
152.145.045.*

Material
NBR (sw), SI (tr)

11 mm



① = Aluminium ** = Vacuum connection at the side possible

Item no.
150.150.010.*

Material
SI (gr), CR (gr)

9 mm

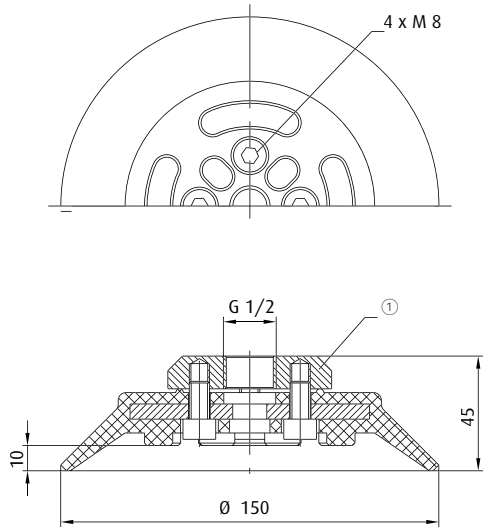
Additional sizes available are found on p. 68.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

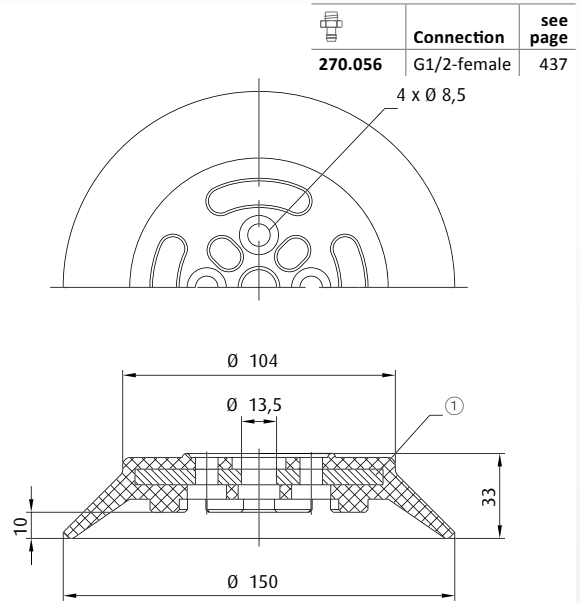
Ø 150 - 153 mm



① = Aluminium

Item no.
152.150.019._*

Material
NBR (sw), SI (tr)

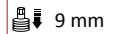


Spare cup

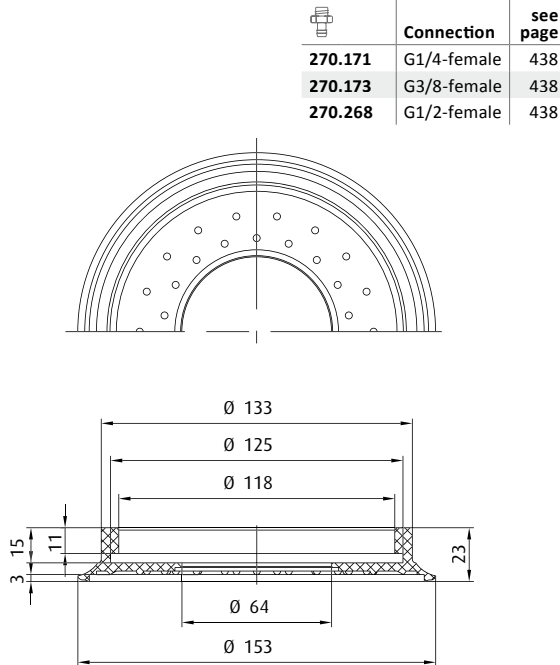
① = Steel

Item no.
154.150.020._*

Material
NBR (sw), SI (tr)



Additional sizes available are found on p. 32.



Item no.
154.150.021._*


Material
NBR (sw), SI (w)

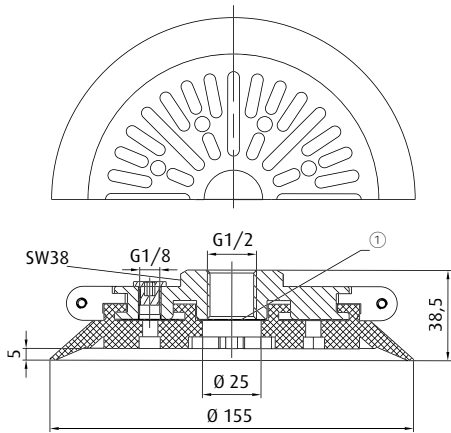


Additional sizes available are found on p. 70.

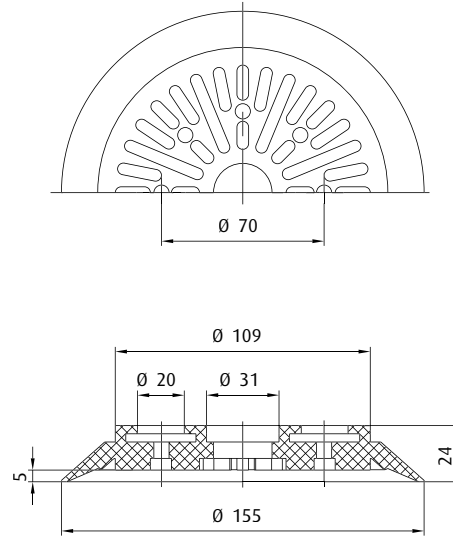
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



|  | Connection | see page |
|---|-------------|----------|
| 270.532-S | G1/2-female | 437 |
| 270.533-S | G3/4-female | 437 |




Spare cup



① = Filter screen

Item no.
152.155.135._*


Material
Tepuflex® (or), SI (tr), CR (sw)

 5 mm

Additional sizes available are found on p. 47.

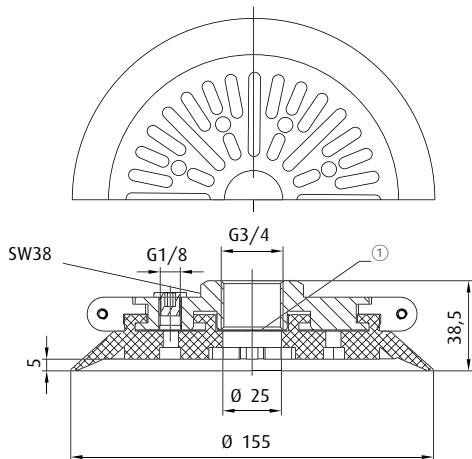
Item no.
154.155.026._*

Material
Tepuflex® (or), SI (tr), CR (sw)

 5 mm

Additional sizes available are found on p. 42.


Spare cup



① = Filter screen

Item no.
152.155.138._*

Material
Tepuflex® (or), SI (tr), CR (sw)

 5 mm

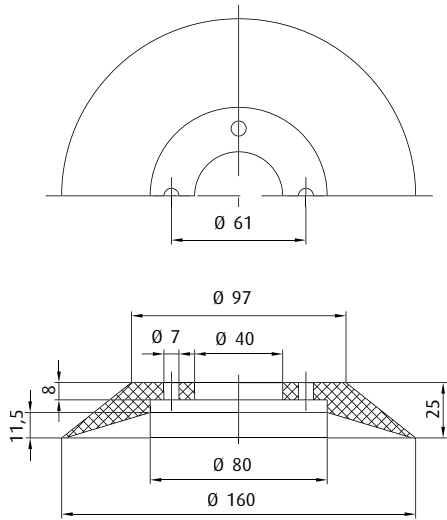
Additional sizes available are found on p. 47.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

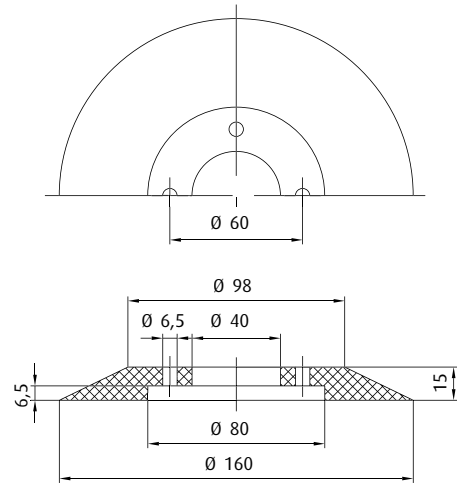
Ø 160 mm



Item no.
102.160.031._*

Material
SI (r), NR (gr)

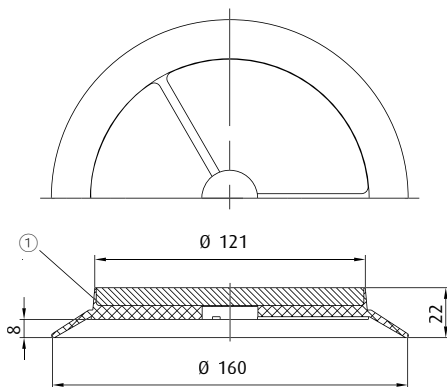
10 mm



Item no.
102.160.195._*

Material
SI (gr)

0 mm



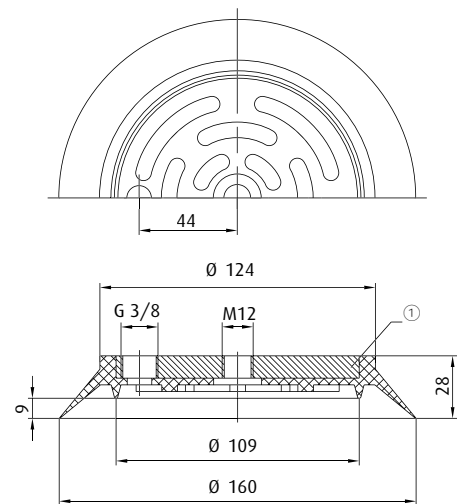
① = Steel

Item no.
152.160.097._*

Material
NBR (gr)

8 mm

Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
152.160.127._*

Material
CR (sw)

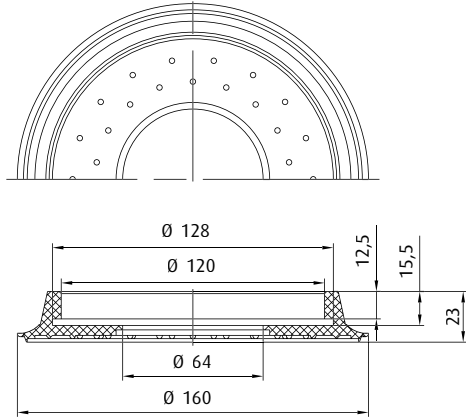
9 mm

Additional sizes available are found on p. 73.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



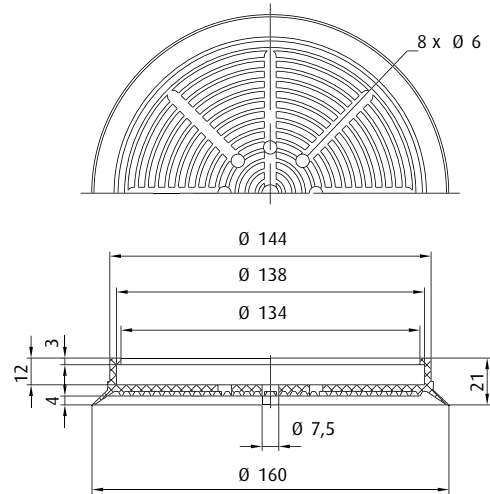
| | Connection | see page |
|---------|-------------|----------|
| 270.171 | G1/4-female | 438 |
| 270.173 | G3/8-female | 438 |
| 270.268 | G1/2-female | 438 |



Item no.
154.160.024.*

Material
SI (tr), NR (sw)

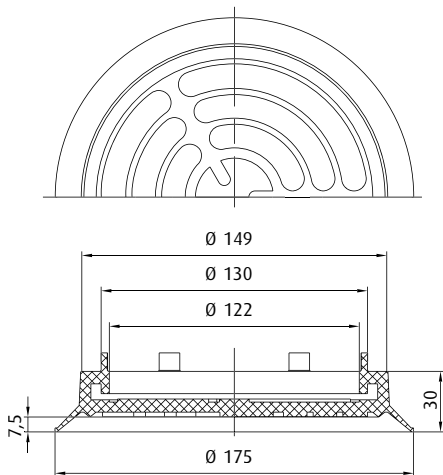
3 mm



Item no.
154.160.049.*

Material
NBR (gr), SI (tr)

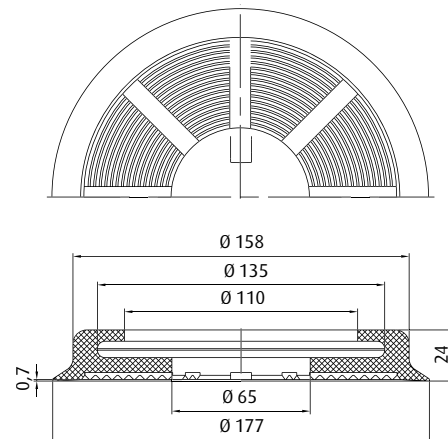
4.7 mm



Item no.
102.170.259.*

Material
SBR (sw), NR (bg)

7 mm



Item no.
154.177.053.*

Material
SI (tr)

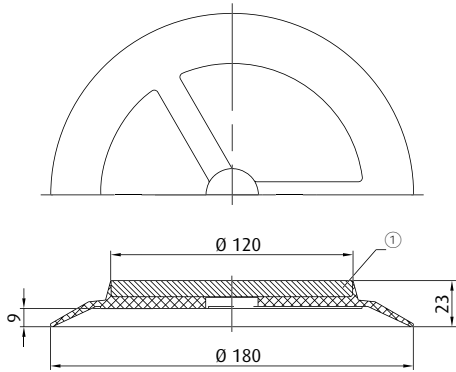
0.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 180 - 193 mm



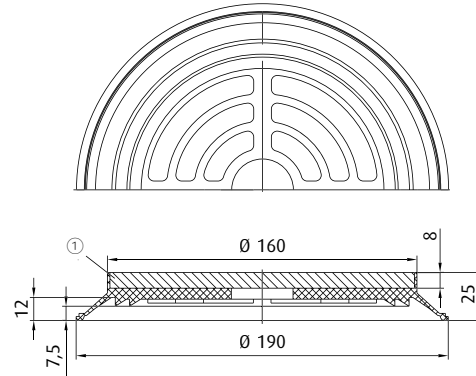
① = Steel

Item no.
152.180.067._*

Material
NBR (gr)

9 mm

Ordering notes: Customised drilling patterns on request



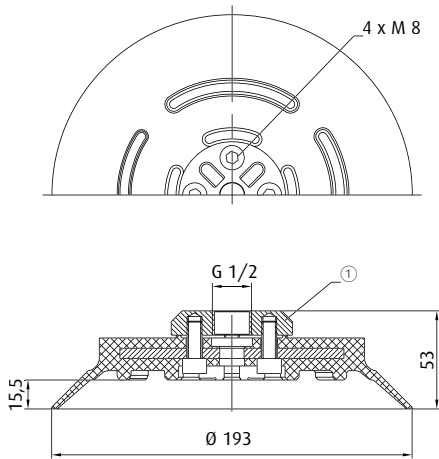
① = Steel

Item no.
152.190.080._*

Material
SBR (br), NBR (gr)

10 mm

Ordering notes: Customised drilling patterns on request



① = Aluminium

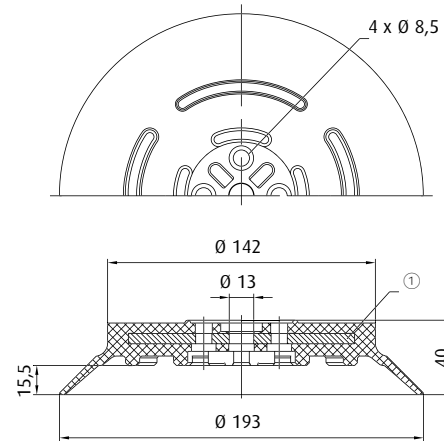
Item no.
152.191.025._*

Material
NBR (sw), SI (tr), PU (bl)

13 mm

Spare cup

| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.056 | G1/2-female | 437 |



① = Steel

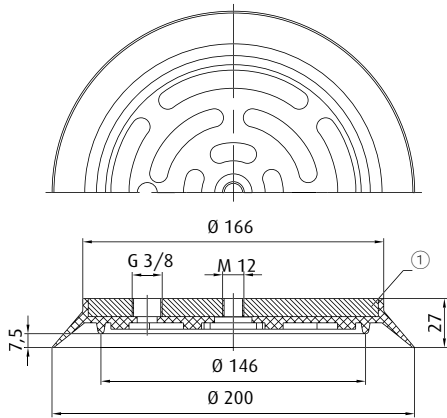
Item no.
154.191.025._*

Material
NBR (sw), SI (tr), PU (bl)

13 mm

Additional sizes available are found on p. 32.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



① = Steel

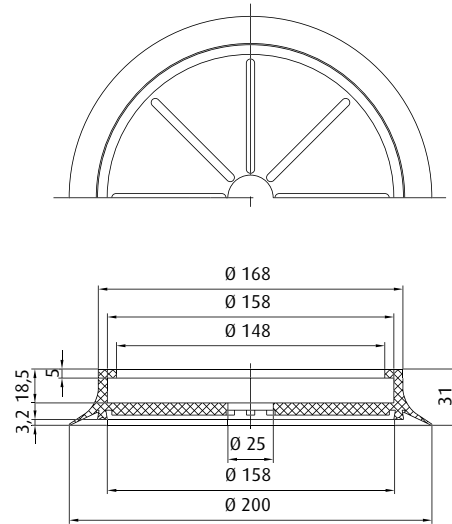
Item no.
152.200.128._*

Material
CR (sw)

9 mm

Additional sizes available are found on p. 73.

| | Connection | see page |
|---------|-------------|----------|
| 270.335 | G1/2-female | 438 |

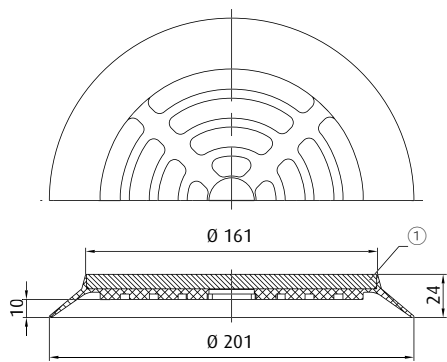


Item no.
102.200.350._*

Material
NR (w)

5 mm

Additional sizes available are found on p. 66.



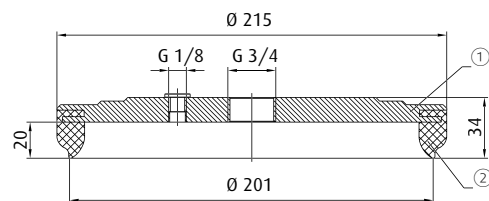
① = Steel

Item no.
150.190.015._*

Material
NBR (gr)

11 mm

Ordering notes: Customised drilling patterns on request



① = Aluminium ② = EPDM foamed

Item no.
160.215.009._*

Material
EPDM (sw)

2.5 mm

Additional sizes available are found on p. 72.


Notes: Foam sealing lip equalises product unevenness

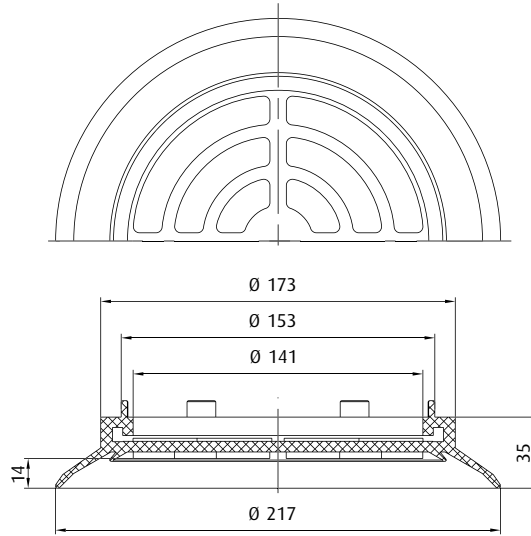
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø


Ø 217 - 223 mm

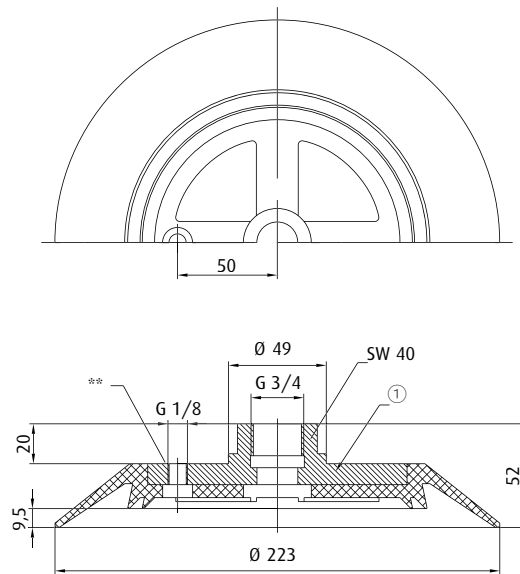
|  | Connection | see page |
|---|------------|----------|
| 270.155 | Without | 440 |



Item no.
102.210.260._*

Material
SBR (sw)


 14 mm



① = Aluminium ** = Vacuum connection at the side possible

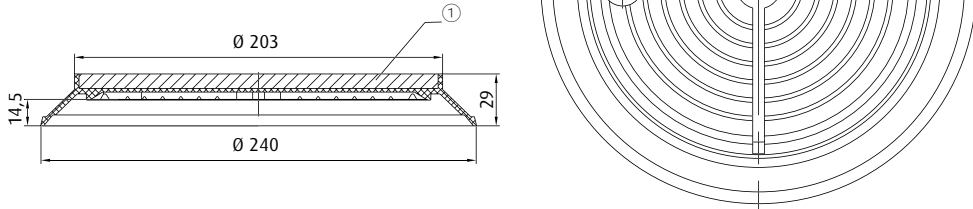
Item no.
150.225.018._*

Material
SI (gr), CR (gr)

 9.5 mm


Additional sizes available are found on p. 68.

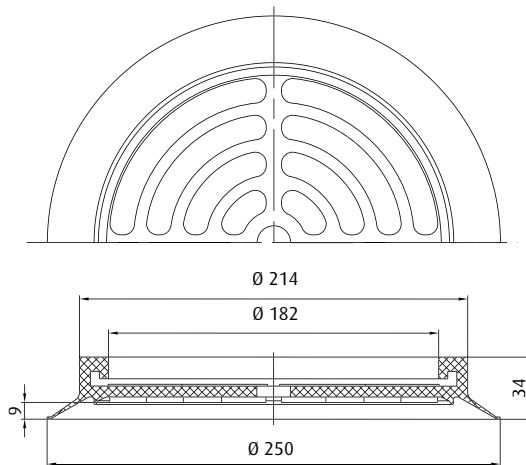
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Steel

| | | | |
|-----------------------------------|---------------------------------------|---|--|
| Item no. 152.240.046._* | Material NBR (gr), SBR (sw) |  14 mm | Ordering notes: Customised drilling patterns on request |
|-----------------------------------|---------------------------------------|---|--|

| | | |
|---|----------------------------------|------------------------|
|  | Connection G1/2-female | see page 440 |
|---|----------------------------------|------------------------|



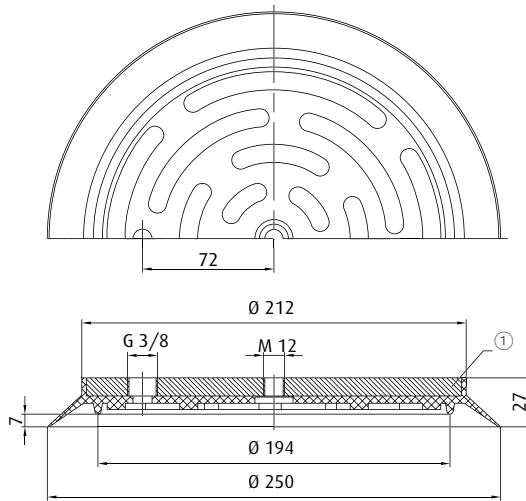
| | | | |
|-----------------------------------|-----------------------------|--|--|
| Item no. 102.250.261._* | Material SBR (sw) |  8.5 mm | |
|-----------------------------------|-----------------------------|--|--|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 250 mm



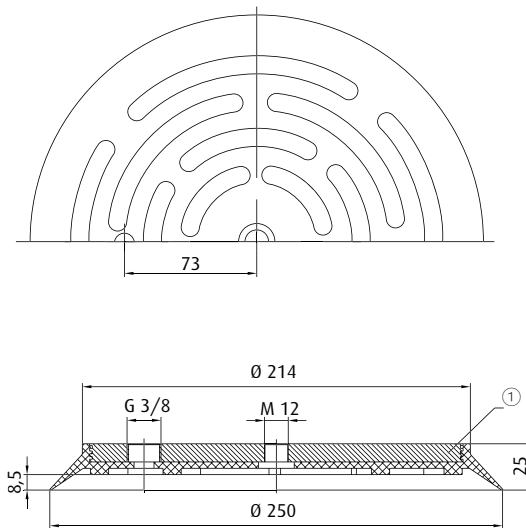
① = Steel

Item no.
152.250.129._*

Material
CR (sw)

9 mm

Additional sizes available are found on p. 73.



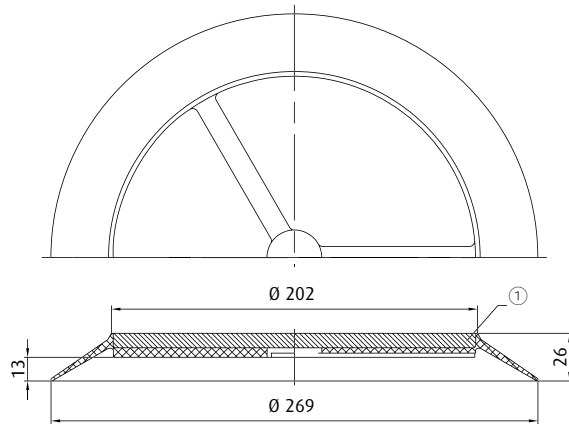
① = Steel

Item no.
152.250.031._*

Material
NBR (sw)

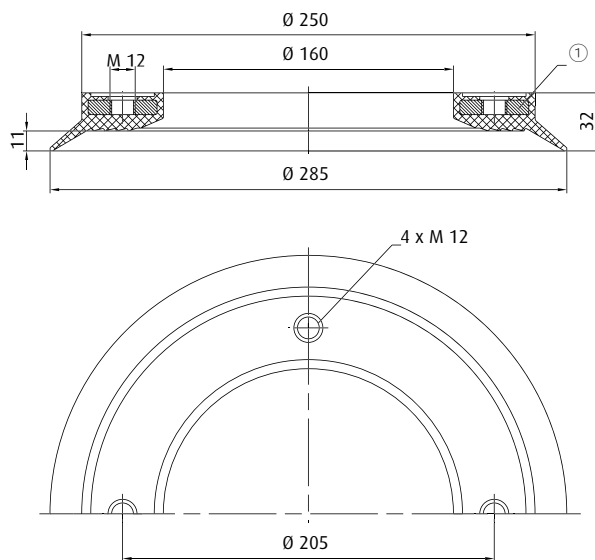
11 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Steel

| | | | |
|--|-----------------------------|-------|--|
| Item no. 152.260.068._* | Material NBR (gr) | 13 mm | Ordering notes: Customised drilling patterns on request |
|--|-----------------------------|-------|--|



① = Ring made of vulcanised ST37


| | | | |
|--|-----------------------------|-------|--|
| Item no. 152.285.099._* | Material NBR (sw) | 11 mm | Additional sizes available are found on p. 74. |
|--|-----------------------------|-------|--|

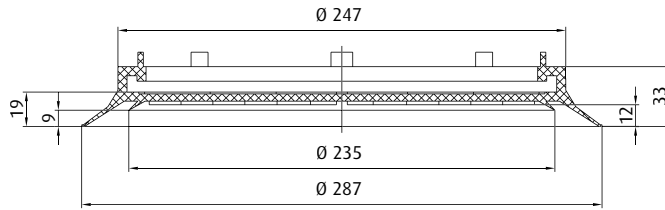
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø


Ø 287 - 300 mm

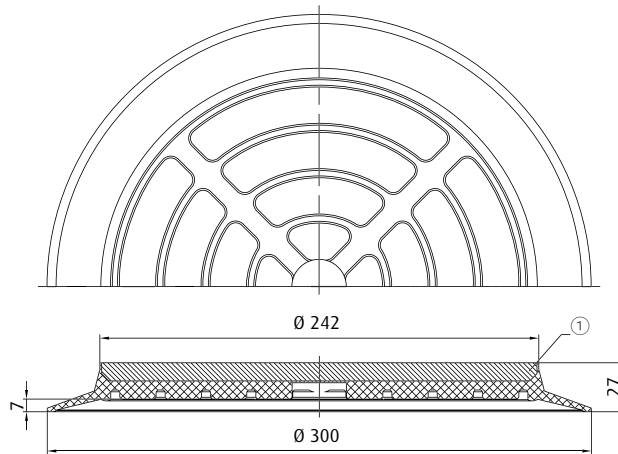
|  | Connection | see page |
|---|------------|----------|
| 270.535 | Without | 440 |



Item no.
102.290.262._*

Material
SBR (sw)

 15 mm



① = Steel

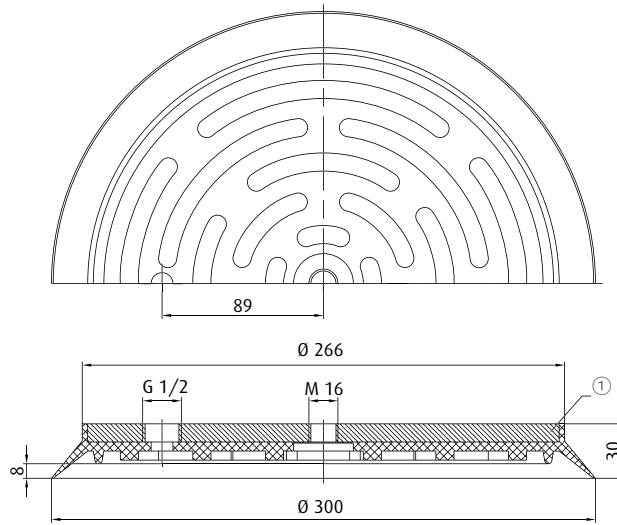
Item no.
152.300.098._*

Material
NBR (gr)

 7 mm

Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



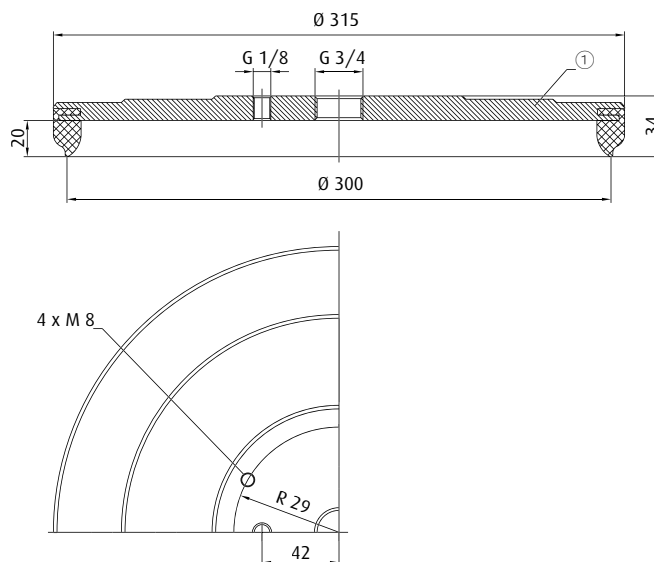
① = Steel

Item no.
152.300.130.*

Material
NBR (sw)

12 mm

Additional sizes available are found on p. 73.



① = Aluminium

Item no.
160.315.012.*

Material
EPDM (sw)

2.5 mm

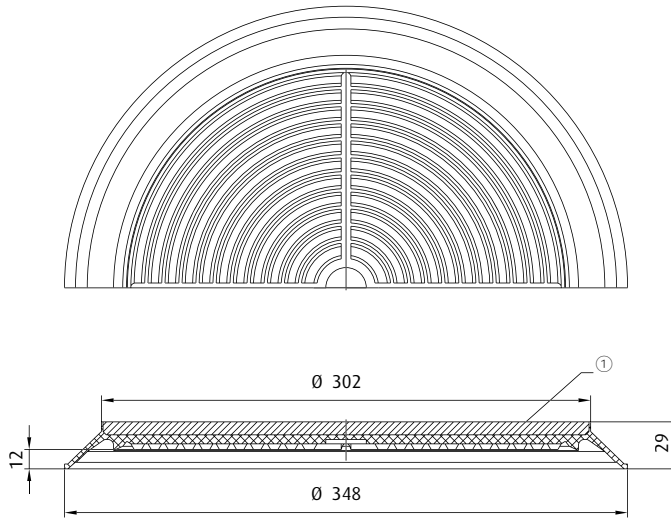
Additional sizes available are found on p. 72.
Notes: Foam sealing lip equalises product unevenness

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 348 - 350 mm



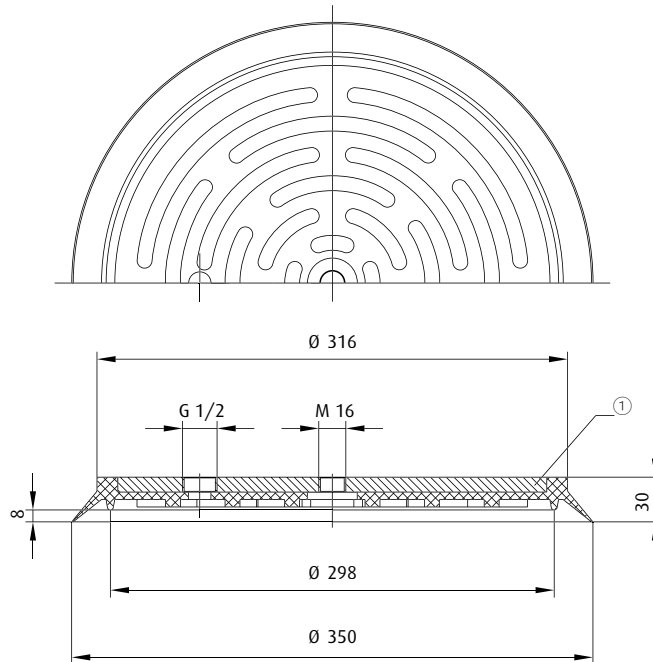
① = Steel

Item no.
150.340.030._*

Material
NBR (gr)

15 mm

Ordering notes: Customised drilling patterns on request



① = Steel

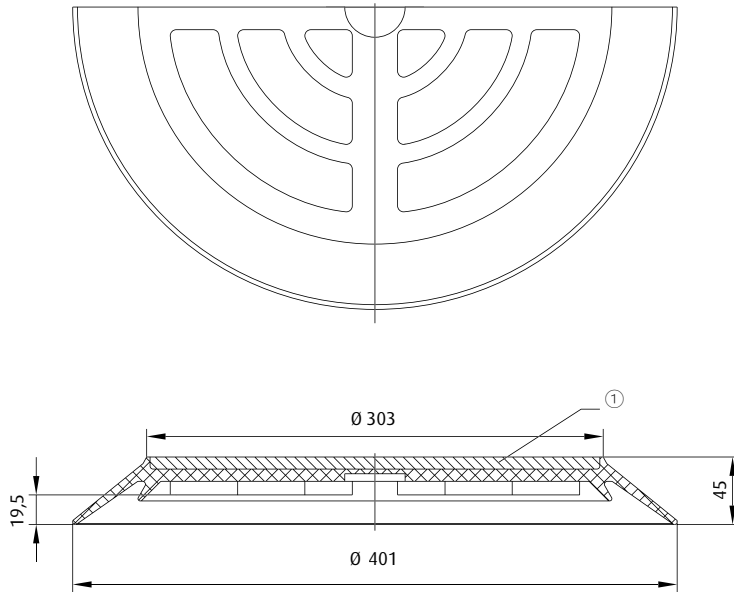
Item no.
152.350.131._*

Material
NBR (sw)

13 mm

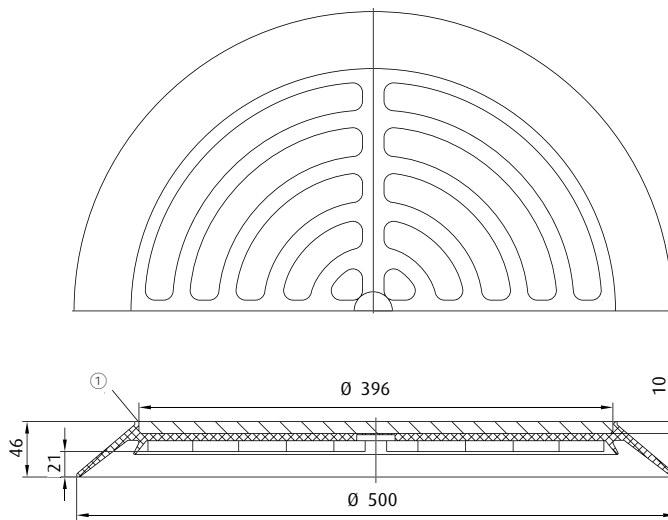
Additional sizes available are found on p. 73.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Steel

| | | | |
|--|--|-------|--|
| Item no. 152.400.085._* | Material NBR (gr), SBR (br), NR (sw) | 25 mm | Ordering notes: Customised drilling patterns on request |
|--|--|-------|--|



① = Steel

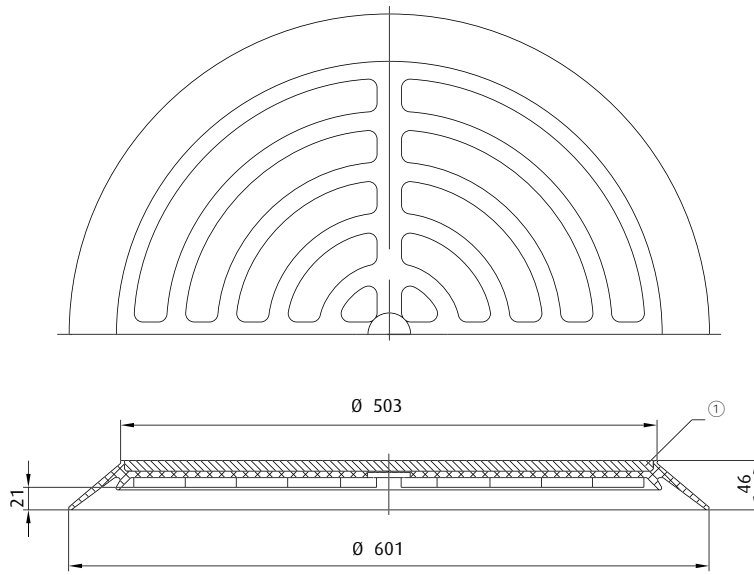
| | | | |
|--|--|-------|--|
| Item no. 152.500.086._* | Material NBR (gr), SBR (br), NR (sw) | 25 mm | Ordering notes: Customised drilling patterns on request |
|--|--|-------|--|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Flat vacuum cups by Ø

Ø 601 mm




① = Steel

Item no.

152.600.087.*

Material

NBR (gr), SBR (br), NR (sw)

 25 mm

Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

Application / Uses

- > Bellows vacuum cups are especially suited to the gentle handling of sensitive products.
- > They allow for easy height and angle compensation for variable surfaces and lift the product up as soon as the vacuum is turned on.
- > The more folds the vacuum cup has, the greater the lifting movement and thus the height compensation. However, lateral stability is reduced by the number of folds. Bellows vacuum cups are therefore only recommended for vertical handling tasks.



Designs



FIPA bellows vacuum cups are available in various different versions (generally 1.5 - 4.5 folds) They are available with supporting ribs towards the product, with supporting ribs between the folds and without supporting ribs.

Supporting ribs towards the product (supporting ribs make contact with the object being handled):

- > Increased stability and suction power
- > Prevent flexible product parts from being sucked in
- > Avoid slipping of the product while suction is being applied

Supporting ribs between the folds:

- > Improve lateral stability
- > Accelerate the depositing process, as the folds are prevented from sticking together

Methods of connection



Vacuum cups for attaching to the fittings (plug-in)

- > Secure hold
- > Quick replacement
- > Cost-efficient and environmentally-friendly, as only the rubber part needs to be replaced



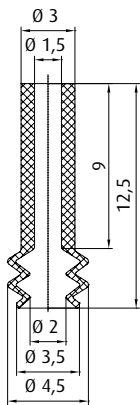
Bolted fittings

- > Vacuum cups are bolted from below into a threaded counterpart using a hollow bolt
- > Extremely secure hold
- > Eliminates twisting of the vacuum cups
- > Cost-efficient and environmentally-friendly, as only the rubber part needs to be replaced



Vulcanised fittings / retainer plates

- > Very secure hold
- > Secured against rotation
- > High degree of dimensional stability



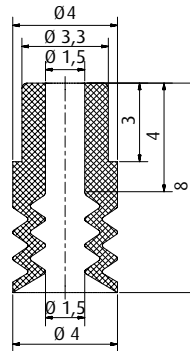
| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
21.004.142._*

Material
Vinyl (bl)

1.3 mm

Additional sizes available are found on p. 116.

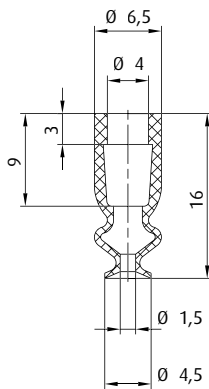


| Icon | Connection | see page |
|------|------------|----------|
| | M3-male | 408 |

Item no.
21.018.068._*

Material
NBR (bl)

1 mm

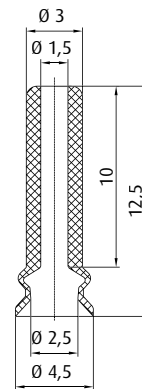


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 409 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
23.004.189._*

Material
NBR (sw), SI (tr)

4 mm



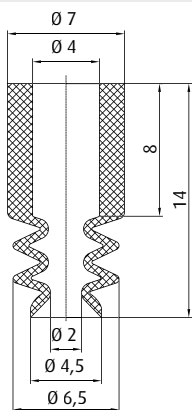
| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
23.005.095._*

Material
Vinyl (bl)

2 mm

Additional sizes available are found on p. 113.



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

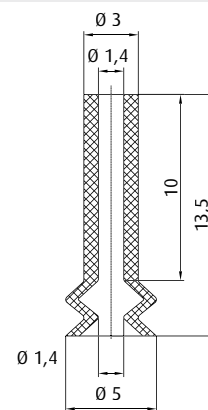
BESTSELLER

Item no.
21.004.083._*

Material
SI (tr)

3 mm

Additional sizes available are found on p. 89.



| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
23.005.181._*

Material
NBR (sw), SI (tr)

2 mm

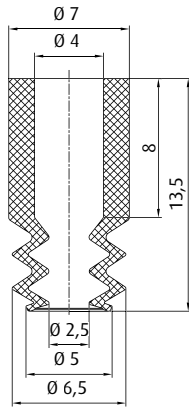
Additional sizes available are found on p. 81.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 5 - 6 mm

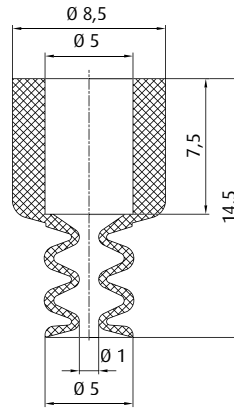


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.005.058._*

Material
NBR (sw), SI (tr)

3 mm

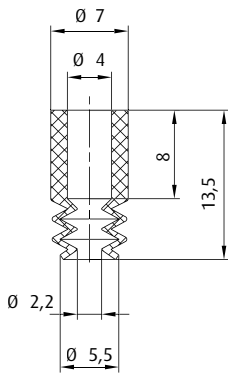


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.005.086._*

Material
SI (tr)

3.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

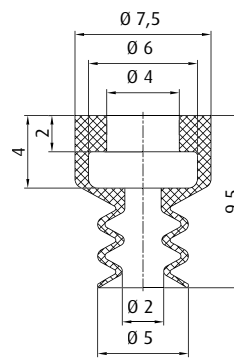
UP TO 160 °C &
MINIMUM MARKING

Item no.
21.005.146._*

Material
Thermalon® (bl)

3 mm

Additional sizes available are found on p. 92.



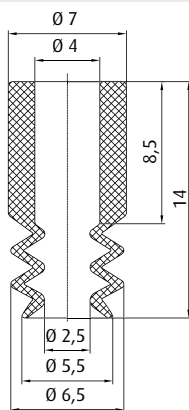
| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

Item no.
21.005.088._*

Material
NBR (sw), SI (tr)

3 mm

This vacuum cup is also available in the following dimensions: 7 mm



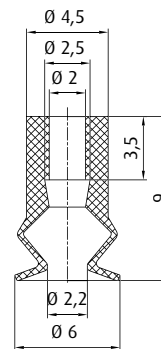
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.005.057._*

Material
NBR (g), HNBR (ge), EPDM (gr),
SI (g), SI-AS (sw)

3 mm

Additional sizes available are found on p. 89.



| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

BESTSELLER

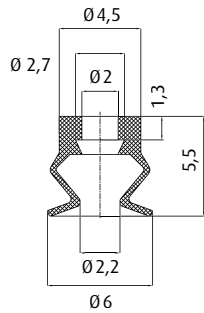
Item no.
23.005.178._*

Material
SI (r), SI-AS (sw), CR (sw),
HNBR (ge)

2 mm

Additional sizes available are found on p. 100.

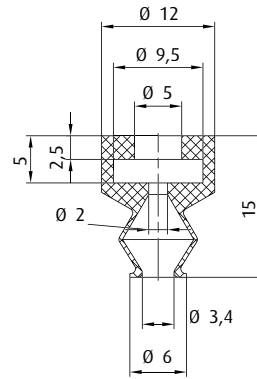
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Item no.
23.005.231._*

Material
SI (r)

2 mm



Item no.
23.006.145._*

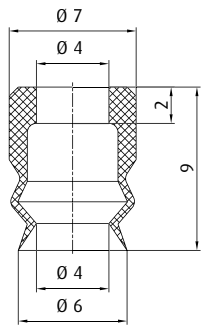
Material
NBR (sw), SI (tr)

5 mm

| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

| | | see page |
|--|--------|----------|
| | 8.5 mm | 454 |
| | 8.5 mm | 454 |

Additional sizes available are found on p. 122.



Item no.
23.006.161._*

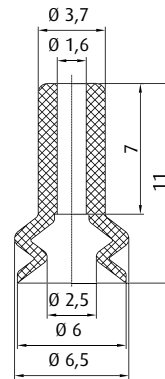
Material
SI (tr)

2 mm

| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

| | | see page |
|--|-------|----------|
| | 10 mm | 454 |

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 20 mm, 30 mm



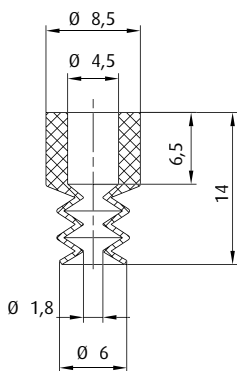
Item no.
23.007.112._*

Material
Vinyl (bl)

2 mm

| | Connection | see page |
|--|------------|----------|
| | M5-male | 409 |

Additional sizes available are found on p. 113.



Item no.
21.007.147._*

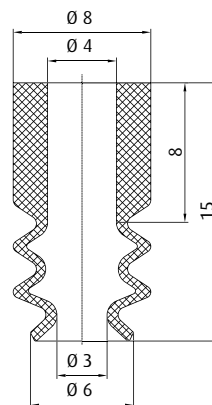
Material
Thermalon® (bl)

3 mm

| | Connection | see page |
|--|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

UP TO 160 °C & MINIMUM MARKING

Additional sizes available are found on p. 92.



Item no.
21.006.093._*

Material
NBR (sw), SI (tr)

3 mm

| | Connection | see page |
|--|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

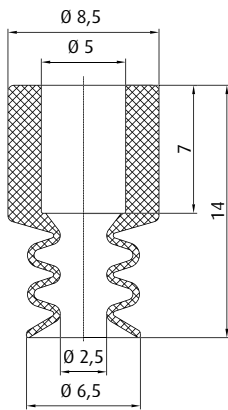
Additional sizes available are found on p. 89.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

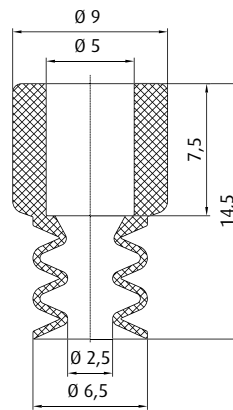
Ø 6 - 8 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

| | | |
|----------------------------------|---|--------|
| Item no. 21.006.001._* | Material NBR (sw), EPDM (gr), NBR-AS (sw), SI (tr), Vinyl (bl) | 3.5 mm |
|----------------------------------|---|--------|

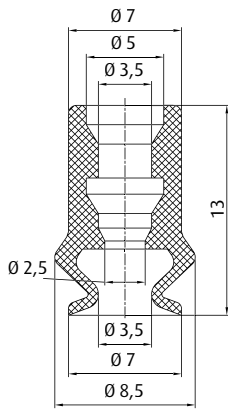
Additional sizes available are found on p. 116.



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

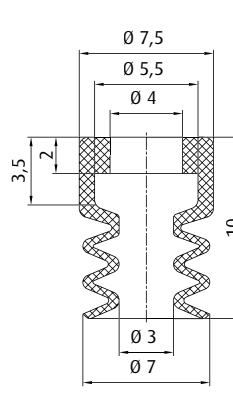
| | | |
|----------------------------------|--------------------------------------|--------|
| Item no. 21.006.087._* | Material NBR (sw), SI (tr) | 3.5 mm |
|----------------------------------|--------------------------------------|--------|

Additional sizes available are found on p. 89.



| | Connection | see page |
|---------|------------|----------|
| 270.399 | M5-male | 410 |

| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 21.007.096._* | Material NBR (sw), SI (tr) | 2 mm |
|----------------------------------|--------------------------------------|------|

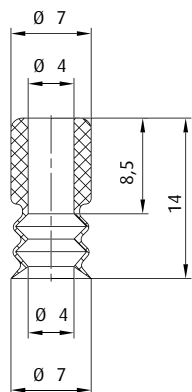


| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

| | | |
|----------------------------------|---|------|
| Item no. 21.007.089._* | Material NBR (sw), HNBR (ge), SI (tr), SI-AS (sw), PU (bl) | 3 mm |
|----------------------------------|---|------|

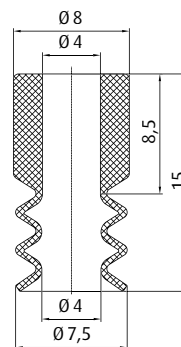
Additional sizes available are found on p. 94.

This vacuum cup is also available in the following dimensions: 5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | |
|----------------------------------|----------------------------|------|
| Item no. 21.007.120._* | Material SI (tr) | 4 mm |
|----------------------------------|----------------------------|------|



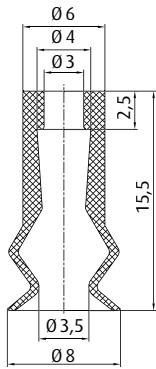
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

BESTSELLER

| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 21.008.094._* | Material NBR (sw), SI (tr) | 4 mm |
|----------------------------------|--------------------------------------|------|

Additional sizes available are found on p. 89.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

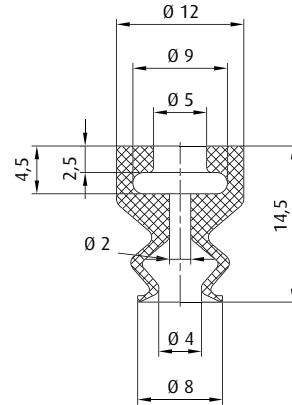


| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |

Item no.
23.008.057._*

Material
SI (tr), SI-AS (sw)

3.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

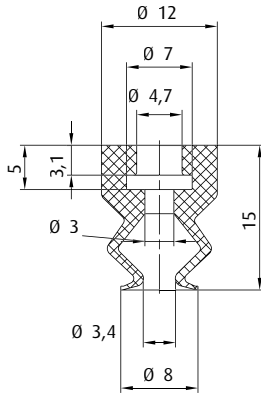
| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

Item no.
23.008.146._*

Material
NBR (sw), SI (tr)

5 mm

Additional sizes available are found on p. 122.



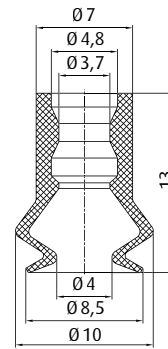
| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.141 | 10 mm | 456 |
| 50.018 | 8.5 mm | 454 |

Item no.
21.008.126._*

Material
SI (r)

8 mm

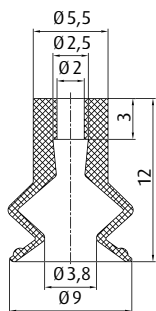


| | Connection | see page |
|---------|------------|----------|
| 270.399 | M5-male | 410 |

Item no.
23.008.225._*

Material
SI (tr)

3 mm



| | Connection | see page |
|---------|------------|----------|
| 270.153 | M5-male | 409 |

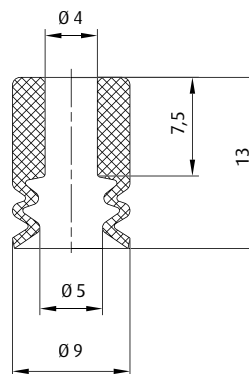
BESTSELLER

Item no.
23.008.166._*

Material
SI (r), SI-AS (sw), CR (sw),
HNBR (ge)

3.5 mm

Additional sizes available are found on p. 100.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.009.029._*

Material
PU (bl)

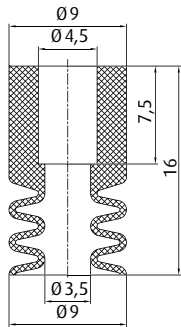
1.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 9 - 10 mm

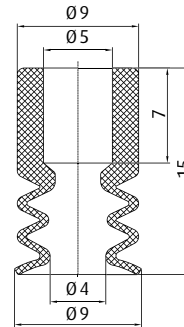


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.009.100.*

Material
NBR (sw)

3.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

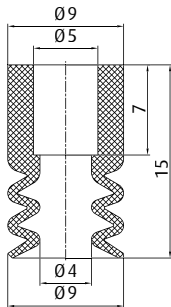
BESTSELLER

Item no.
21.009.002.*

Material
NBR (sw), HNBR (ge), SI (tr),
SI-AS (sw), NR (gr), PU (bl)

2 mm

Additional sizes available are found on p. 89.



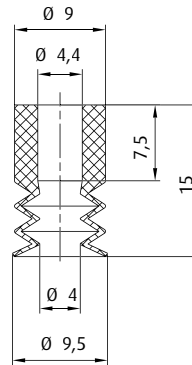
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.009.106.*

Material
Vulkollan® (br)

2 mm

Additional sizes available are found on p. 97.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

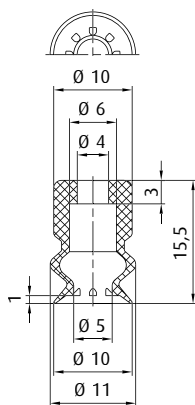
**UP TO 160 °C &
MINIMUM MARKING**

Item no.
21.009.148.*

Material
Thermalon® (bl)

3 mm

Additional sizes available are found on p. 92.



| | Connection | see page |
|---------|------------|----------|
| 270.458 | M4-male | 408 |
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

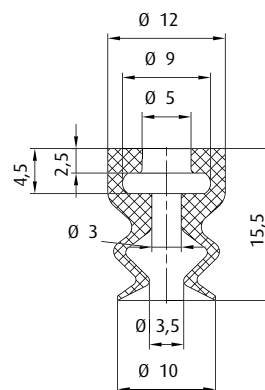
| | | see page |
|--------|-------|----------|
| 50.103 | 6 mm | 454 |
| 50.104 | 6 mm | 454 |
| 50.125 | 10 mm | 454 |
| 50.126 | 15 mm | 454 |
| 50.127 | 20 mm | 454 |

Item no.
23.010.139.*

Material
NBR (sw), SI (tr)

4 mm

Additional sizes available are found on p. 119.



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|--------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

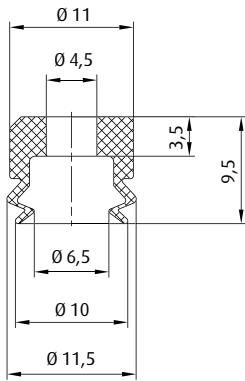
Item no.
23.010.147.*

Material
NBR (sw), SI (tr)

5 mm

Additional sizes available are found on p. 122.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



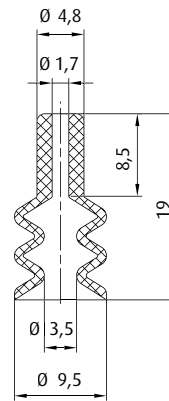
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 420 |
| | G1/8-female | 423 |
| | 10 mm | 454 |

Item no.
23.010.163._*

Material
SI (tr)

2.5 mm

This vacuum cup is also available in the following dimensions: 6 mm, 15 mm, 20 mm, 30 mm

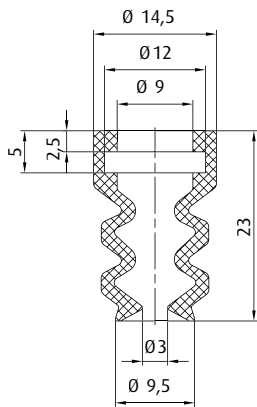


| Icon | Connection | see page |
|------|------------|----------|
| | M5-male | 409 |

Item no.
21.010.061._*

Material
Vinyl (bl)

8 mm

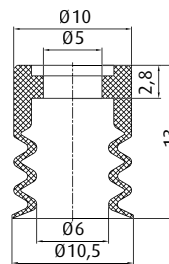


| Icon | Connection | see page |
|------|------------|----------|
| | G1/8-male | 421 |

Item no.
21.010.071._*

Material
Vinyl (bl)

8 mm



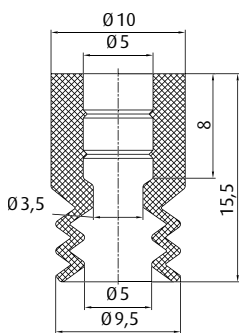
| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
21.010.005._*

Material
NBR (sw), SI (bl)

4 mm

This vacuum cup is also available in the following dimensions: 15 mm, 18 mm, 24 mm, 30 mm, 40 mm

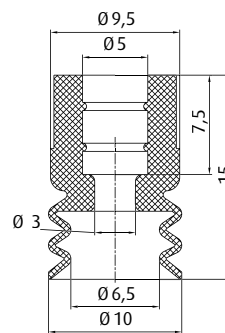


| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 410 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
21.010.004._*

Material
NBR (sw), SI (r), PU (bg)

3 mm



| Icon | Connection | see page |
|------|-------------|----------|
| | M5-male | 410 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
21.010.056._*

Material
SI (bl), SI (r)

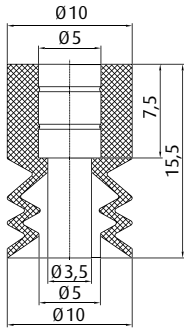
4 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 10 - 11 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

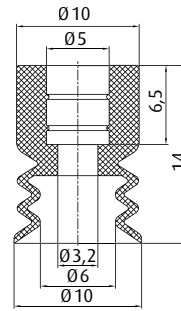
BESTSELLER

Item no.
21.010.070.*

Material
Vinyl (bl)

5 mm

Additional sizes available are found on p. 116.

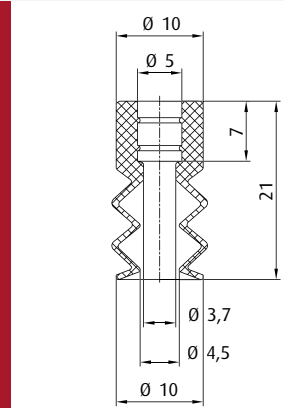


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.010.078.*

Material
SI (r), SI (tr), PU (bg)

4 mm



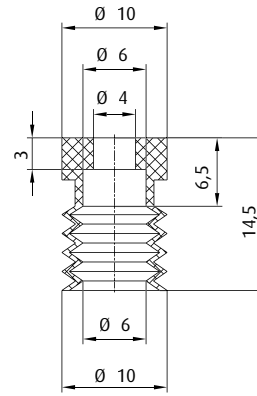
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.010.119.*

Material
NBR (sw), SI (tr)

8 mm

Additional sizes available are found on p. 89.



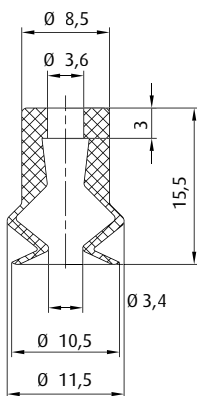
| | Connection | see page |
|---------|-------------|----------|
| 270.458 | M4-male | 408 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

Item no.
25.010.044.*

Material
NBR (sw), SI (tr)

4 mm

Additional sizes available are found on p. 124.

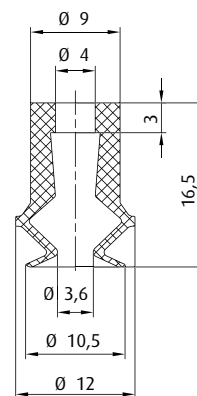


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
23.011.138.*

Material
SI (r)

4 mm



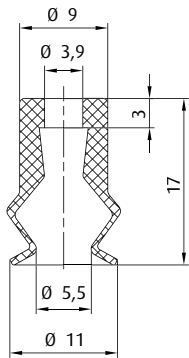
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
23.011.173.*

Material
SI (tr)

3.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



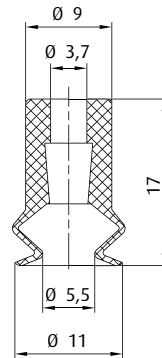
| | Connection | see page |
|--|------------|----------|
| | M5-male | 409 |
| | M6-male | 413 |

Item no.
23.011.007.*

Material
SI (tr), SI-AS (sw), PU (bl),
CR (sw)

5 mm

Additional sizes available are found on p. 100.

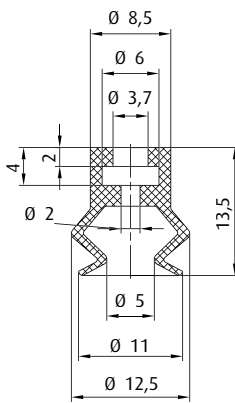


| | Connection | see page |
|--|-------------|----------|
| | M5-male | 409 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
23.011.131.*

Material
NBR (sw), SI (r)

4 mm



| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | M5-female | 412 |
| | G1/8-male | 417 |
| | G1/8-female | 422 |

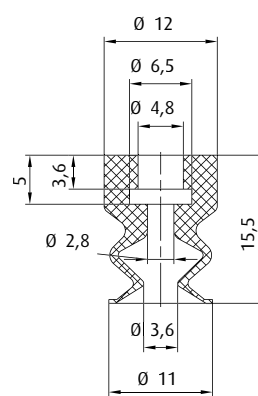
| | Connection | see page |
|--|------------|----------|
| | 10 mm | 454 |

Item no.
23.010.123.*

Material
NBR (sw), NBR-AS (sw), SI (tr),
SI-AS (sw), PU (bl)

4 mm

This vacuum cup is also available in the following dimensions: 15 mm, 21 mm, 32 mm, 42 mm, 54 mm

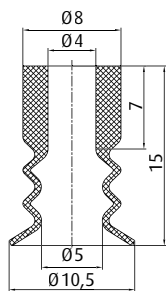


| | Connection | see page |
|--|-------------|----------|
| | M5-male | 411 |
| | G1/8-male | 418 |
| | G1/8-female | 422 |

Item no.
21.010.127.*

Material
SI (r)

6 mm

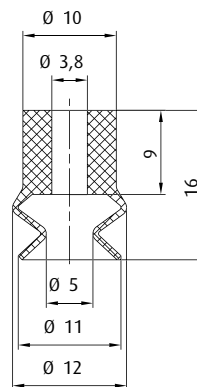


| | Connection | see page |
|--|-------------|----------|
| | M5-male | 410 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

Item no.
21.011.095.*

Material
NBR (sw), SI (tr)

5 mm



| | Connection | see page |
|--|-------------|----------|
| | M5-male | 409 |
| | M5-female | 412 |
| | M6-male | 413 |
| | G1/8-male | 416 |
| | G1/8-female | 421 |

**UP TO 160 °C &
MINIMUM MARKING**

Item no.
23.011.234.*

Material
Thermalon® (bl)

5.5 mm

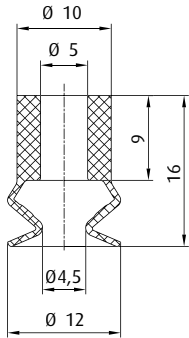
Additional sizes available are found on p. 84.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

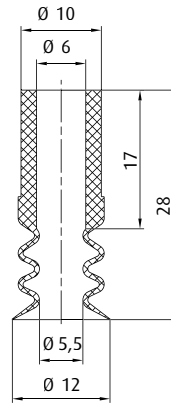
Ø 12 - 13 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| | see page | |
| 50.037 | 25 mm | 456 |

Item no. 23.011.008_* **Material** NBR (sw), HNBR (ge), SI (tr) 4.5 mm

Additional sizes available are found on p. 81.

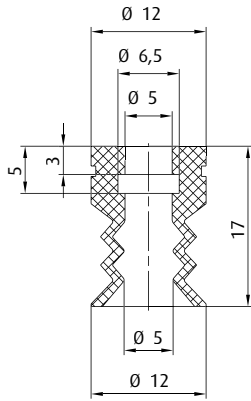


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

FOR HIGHLY STRUCTURED SURFACES (3D)

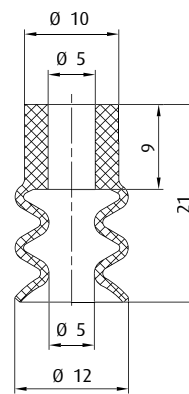
Item no. 21.012.079_* **Material** NBR (sw), SI (w), SI (tr) 7 mm

Additional sizes available are found on p. 125.



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |
| | see page | |
| 50.141 | 10 mm | 456 |
| 50.018 | 8.5 mm | 454 |

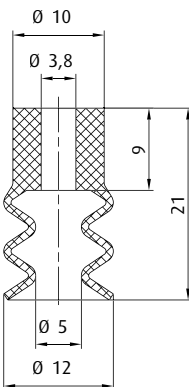
Item no. 21.012.108_* **Material** SI (r) 5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no. 21.012.135_* **Material** NBR (sw), HNBR (ge), SI (tr), NR (gr), PU (bl) 7 mm

Additional sizes available are found on p. 89.

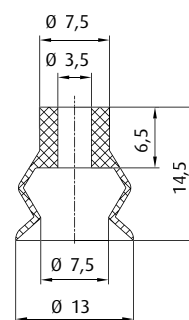


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

UP TO 160 °C & MINIMUM MARKING

Item no. 21.012.149_* **Material** Thermalon® (bl) 7 mm

Additional sizes available are found on p. 92.



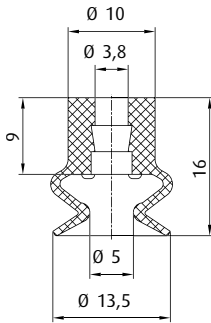
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

BESTSELLER

Item no. 23.013.097_* **Material** Vinyl (bl) 5 mm

Additional sizes available are found on p. 113.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



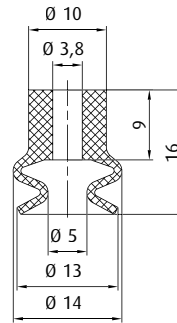
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| | | see page |
| 50.037 | 25 mm | 456 |

Item no.
23.013.120._*

Material
NBR (sw), SI (tr), NR (gr)

4 mm

Additional sizes available are found on p. 81.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

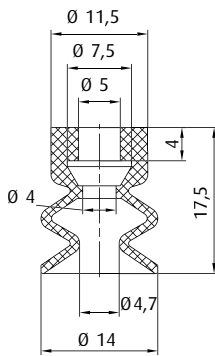
**UP TO 160 °C &
MINIMUM MARKING**

Item no.
23.014.235._*

Material
Thermalon® (bl)

5 mm

Additional sizes available are found on p. 84.



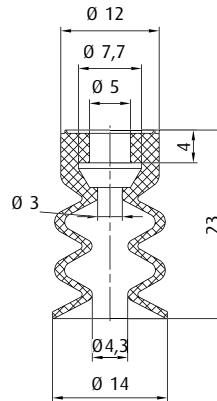
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
23.014.010._*

Material
NBR (sw), SI (r), NR (bg), PU (bl)

8 mm

This vacuum cup is also available in the following dimensions: 24 mm, 40 mm, 60 mm

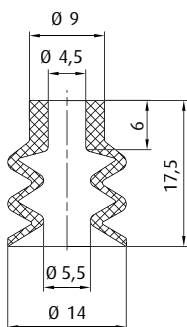


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.014.006._*

Material
NBR (sw), SI (r), NR (bg), PU (bl)

10 mm

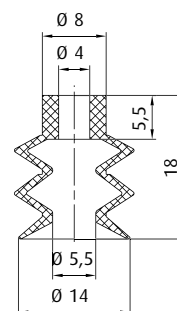


| | Connection | see page |
|---------|-------------|----------|
| 270.024 | M5-male | 410 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.014.046._*

Material
PU (r)

7 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

BESTSELLER

Item no.
21.014.053._*

Material
HNBR (ge), SI (tr), CR (sw)

9 mm

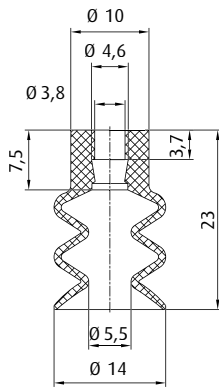
Additional sizes available are found on p. 94.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

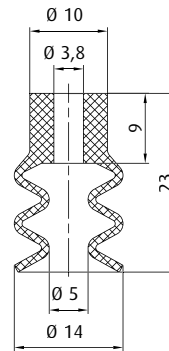
Ø 14 - 15 mm



| | Connection | see page |
|----------------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | |
|---|---|-------|
| Item no. 21.014.133._* | Material NBR (sw), SI (tr), NR (gr) | 11 mm |
|---|---|-------|

Additional sizes available are found on p. 89.

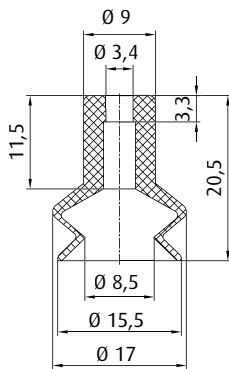


| | Connection | see page |
|----------------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | |
|---|------------------------------------|-------|
| Item no. 21.014.150._* | Material Thermalon® (bl) | 10 mm |
|---|------------------------------------|-------|

Additional sizes available are found on p. 92.

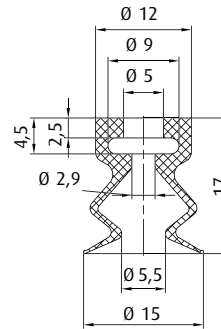
UP TO 160 °C & MINIMUM MARKING



| | Connection | see page |
|----------------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | |
|---|-------------------------------|------|
| Item no. 23.015.098._* | Material Vinyl (bl) | 5 mm |
|---|-------------------------------|------|

Additional sizes available are found on p. 113.

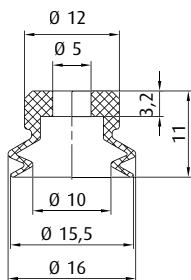


| | Connection | see page |
|----------------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

| | | see page |
|---------------|--------|----------|
| 50.018 | 8.5 mm | 454 |
| 50.019 | 8.5 mm | 454 |

| | | |
|---|--------------------------------------|------|
| Item no. 23.015.148._* | Material NBR (sw), SI (tr) | 7 mm |
|---|--------------------------------------|------|

Additional sizes available are found on p. 122.

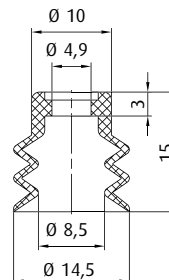


| | Connection | see page |
|----------------|-------------|----------|
| 270.310 | M5-male | 411 |
| 270.493 | G1/8-male | 420 |
| 270.494 | G1/8-female | 423 |

| | | see page |
|---------------|-------|----------|
| 50.330 | 10 mm | 454 |

| | | |
|---|--------------------------------------|--------|
| Item no. 23.015.164._* | Material NBR (sw), SI (tr) | 3.5 mm |
|---|--------------------------------------|--------|

This vacuum cup is also available in the following dimensions: 6 mm, 10 mm, 20 mm, 30 mm

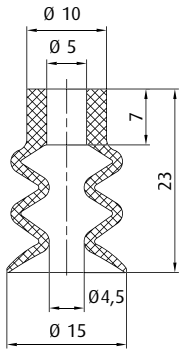


| | Connection | see page |
|----------------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

| | | |
|---|--------------------------------------|------|
| Item no. 21.015.009._* | Material NBR (sw), SI (tr) | 5 mm |
|---|--------------------------------------|------|

This vacuum cup is also available in the following dimensions: 10 mm, 18 mm, 24 mm, 30 mm, 40 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



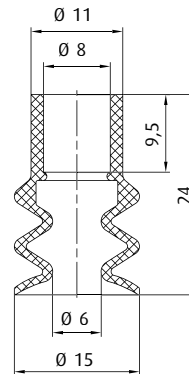
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.014.007.*

Material
NBR (sw), SI (tr), PU (bl)

12 mm

Additional sizes available are found on p. 89.



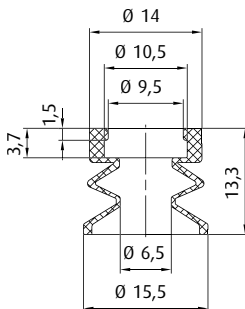
| | Connection | see page |
|---------|------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.113 | G1/4-male | 425 |

Item no.
21.015.008.*

Material
NBR (sw), SI (r)

7 mm

This vacuum cup is also available in the following dimensions: 20 mm, 30 mm



| | Connection | see page |
|------------|------------|----------|
| 270.311 | M5-male | 411 |
| 270.312/19 | M6-male | 414 |

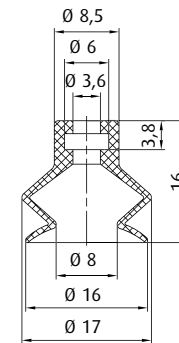
| | | see page |
|--------|-------|----------|
| 50.005 | 5 mm | 456 |
| 50.145 | 10 mm | 456 |
| 50.146 | 30 mm | 456 |

Item no.
23.016.232.*

Material
SI (tr)

6 mm

Additional sizes available are found on p. 130.



| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |

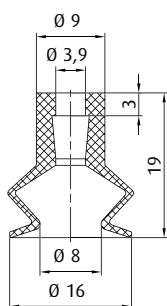
| | | see page |
|--------|-------|----------|
| 50.330 | 10 mm | 454 |

Item no.
23.015.122.*

Material
NBR (sw), SI (tr), PU (bl), HNBR (ge)

5 mm

Additional sizes available are found on p. 86.
This vacuum cup is also available in the following dimensions: 11 mm, 21 mm, 32 mm, 42 mm, 54 mm



| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

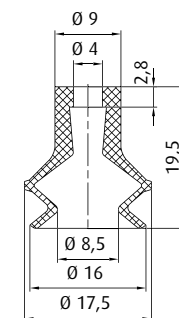
BESTSELLER

Item no.
23.016.015.*

Material
SI (tr), SI-AS (sw), CR (sw)

7 mm

Additional sizes available are found on p. 100.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
23.016.174.*

Material
SI (tr)

5 mm

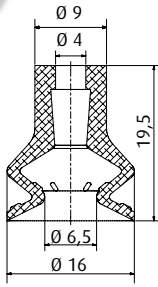
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 16 mm

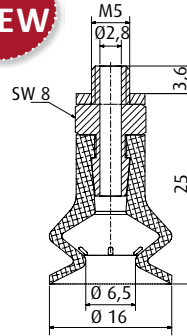
NEW



| | Connection | see page |
|---------|------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |

Spare cup

NEW



Item no.
23.016.263.*

Material
Varioflex® 60/30° (sw/r)

4.5 mm

Additional sizes available are found on p. 107.

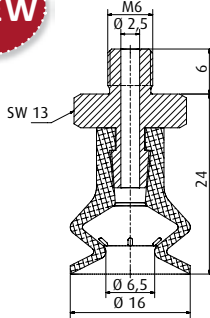
Item no.
22.016.253.*

Material
Varioflex® 60/30° (sw/r)

4.5 mm

Additional sizes available are found on p. 107.

NEW



Item no.
22.016.254.*

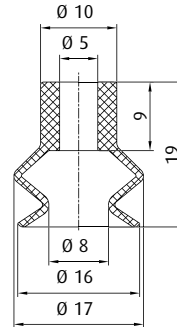
Material
Varioflex® 60/30° (sw/r)

4.5 mm

Additional sizes available are found on p. 107.

| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

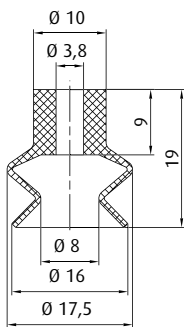


Item no.
23.016.016.*

Material
NBR (sw), HNBR (ge), SI (tr)

6 mm

Additional sizes available are found on p. 81.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

UP TO 160 °C & MINIMUM MARKING

Item no.
23.016.236.*

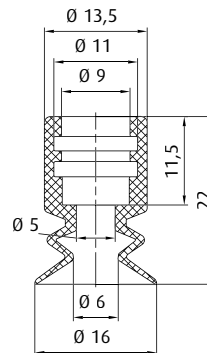
Material
Thermalon® (bl)

8.5 mm

Additional sizes available are found on p. 84.

| | Connection | see page |
|---------|------------|----------|
| 270.244 | M5-male | 410 |

| | | see page |
|--------|-------|----------|
| 50.005 | 5 mm | 456 |
| 50.145 | 10 mm | 456 |
| 50.146 | 30 mm | 456 |

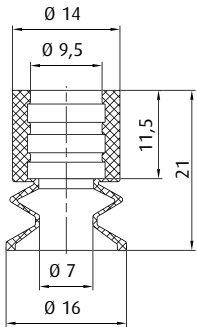


Item no.
23.016.104.*

Material
Vinyl (bl)

7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

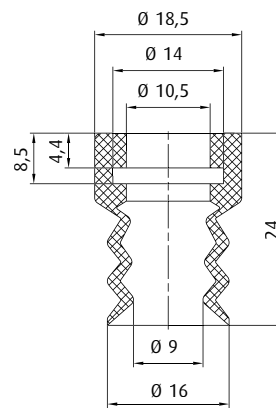


| Connection | see page |
|---------------------|----------|
| 270.244 M5-male | 410 |
| 270.177 M10-male | 416 |
| 270.451 G1/4-male | 426 |
| 270.452 G1/4-female | 431 |

| Material | see page |
|--------------|----------|
| 50.005 5 mm | 456 |
| 50.145 10 mm | 456 |
| 50.146 30 mm | 456 |

Item no. 27.016.001.* Material SI (tr), NR (sw) 6 mm

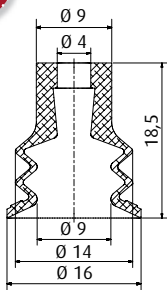
Additional sizes available are found on p. 125.



| Connection | see page |
|---------------------|----------|
| 270.177 M10-male | 416 |
| 270.451 G1/4-male | 426 |
| 270.452 G1/4-female | 431 |

Item no. 21.016.072.* Material Vinyl (bl) 9 mm

NEW

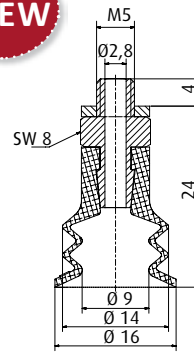


| Connection | see page |
|-----------------|----------|
| 270.134 M5-male | 409 |
| 270.104 M6-male | 413 |

Item no. 21.016.175.* Material Varioflex® 60/30° (sw/r) 5.5 mm

Additional sizes available are found on p. 110.

NEW

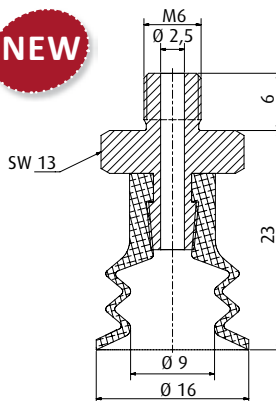


Item no. 20.016.145.* Material Varioflex® 60/30° (sw/r) 5.5 mm

Additional sizes available are found on p. 110.

Spare cup

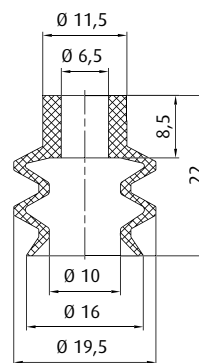
NEW



Item no. 20.016.146.* Material Varioflex® 60/30° (sw/r) 5.5 mm

Additional sizes available are found on p. 110.

Spare cup



| Connection | see page |
|---------------------|----------|
| 270.274 G1/4-male | 427 |
| 270.275 G1/4-female | 432 |

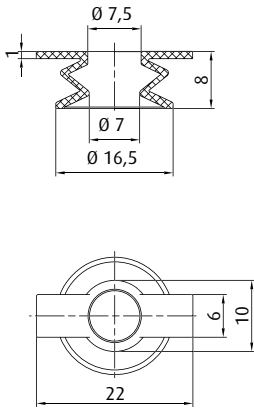
Item no. 21.015.050.* Material SI (tr), NR (bg) 10 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 17 - 18 mm

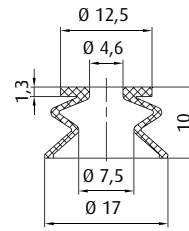


Item no.
23.017.102.*

Material
NR (sw)

5.5 mm

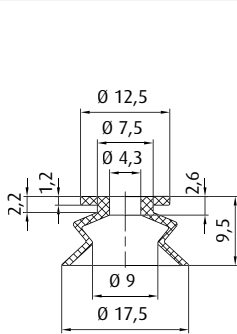
Additional sizes available are found on p. 23.



Item no.
23.017.100.*

Material
NR (br)

6 mm

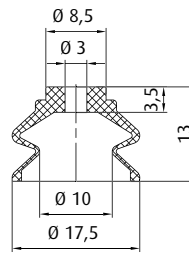


Item no.
23.016.086.*

Material
SI (tr), PU (bg)

6 mm

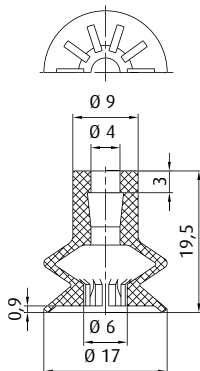
| | Connection | see page |
|---------|-------------|----------|
| 270.010 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.009 | G1/8-male | 417 |
| 270.007 | G1/8-female | 422 |



Item no.
23.017.105.*

Material
NR (sw)

7 mm



Item no.
23.018.175.*

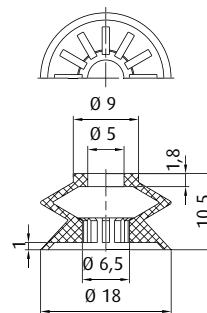
Material
SI (tr), NR (bl)

5.5 mm

Additional sizes available are found on p. 23.

| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

BESTSELLER



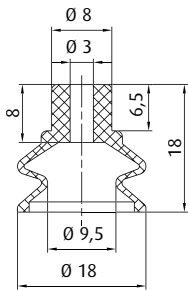
Item no.
23.018.183.*

Material
NR (or)

5.5 mm

Additional sizes available are found on p. 25.

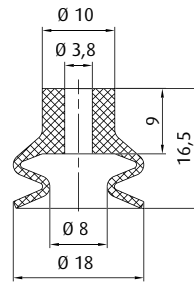
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|------------|----------|
| 270.022 | M5-male | 409 |
| 270.347 | M5-female | 412 |

Item no.
23.018.101.*

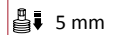
Material
NR (sw)



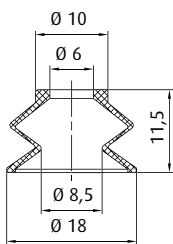
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
23.018.237.*

Material
Thermalon® (bl)



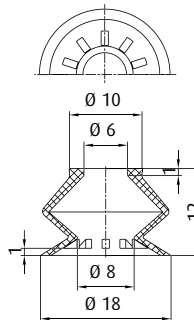
Additional sizes available are found on p. 84.



| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
23.018.019.*

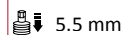
Material
SI (tr), NR (sw), NR (bl)



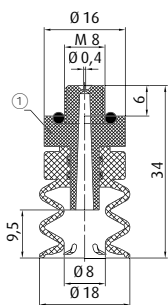
| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

Item no.
23.018.082.*

Material
SI (tr), NR (bl), CR (sw)



Additional sizes available are found on p. 23.



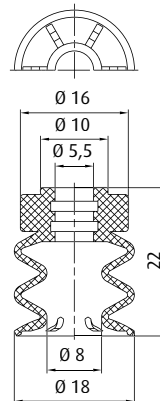
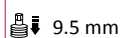
Spare cup

REDUCED LEAKAGE

① = Special fitting with installed orifice Ø 0.4 mm.
Material: PA6/ O-ring NBR

Item no.
20.018.125.*

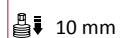
Material
NBR (gr)



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.378 | M8-male | 415 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
21.018.118.*

Material
NBR (gr)

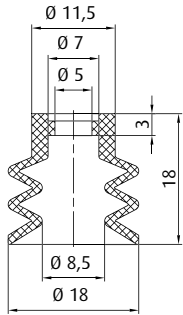


* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 18 mm



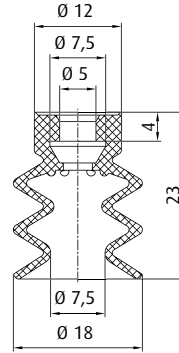
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.018.012.*

Material
NBR (sw), SI (bl)

7 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 24 mm, 30 mm, 40 mm

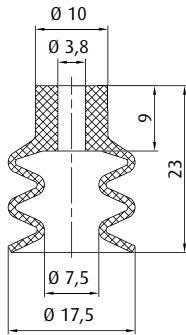


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.018.011.*

Material
NBR (sw), SI (r), NR (bg), PU (bl)

8 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

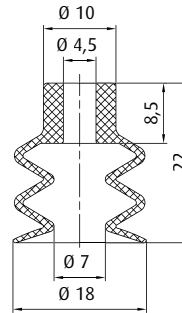
**UP TO 160 °C &
MINIMUM MARKING**

Item no.
21.018.151.*

Material
Thermalon® (bl)

10 mm

Additional sizes available are found on p. 92.



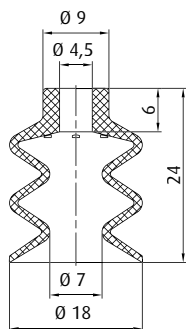
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
21.018.010.*

Material
NBR (sw), HNBR (ge), SI (tr),
PU (bl)

8 mm

Additional sizes available are found on p. 89.

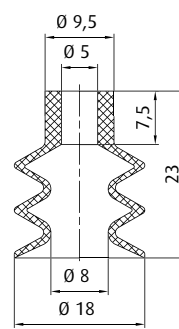


| | Connection | see page |
|---------|-------------|----------|
| 270.024 | M5-male | 410 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.018.047.*

Material
PU (g)

12 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

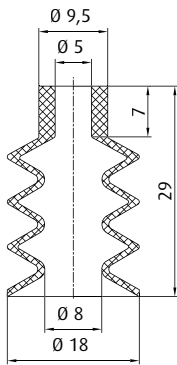
BESTSELLER

Item no.
21.018.013.*

Material
NBR (sw), SI (tr), NR (sw)

9 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

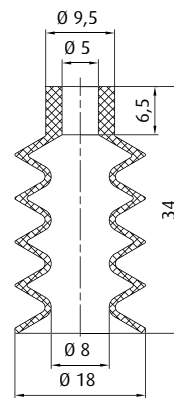
BESTSELLER

Item no.
25.018.031.*

Material
NBR (sw), SI (tr)

12 mm

Additional sizes available are found on p. 96.

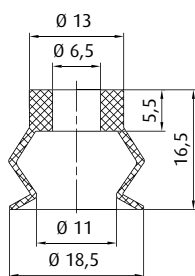


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
25.018.032.*

Material
SI (tr)

14 mm

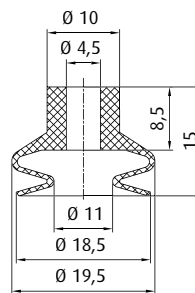


| | Connection | see page |
|---------|-------------|----------|
| 270.039 | M6-male | 414 |
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no.
23.019.021.*

Material
NBR (sw), SI (tr)

8 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

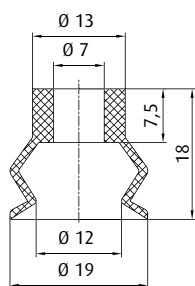
BESTSELLER

Item no.
23.019.119.*

Material
NBR (sw), SI (tr)

4 mm

Additional sizes available are found on p. 81.



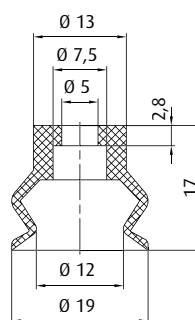
| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
23.019.109.*

Material
Vinyl (bl)

8 mm

Additional sizes available are found on p. 113.



| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

Item no.
23.019.179.*

Material
Vinyl (bl)

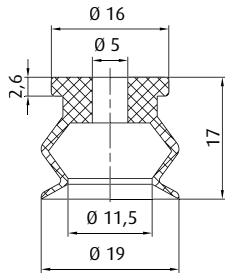
7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 19 - 20 mm

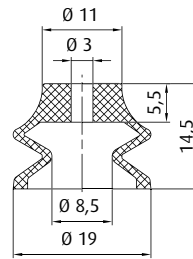


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
23.019.110.*

Material
Vinyl (bl)

8 mm

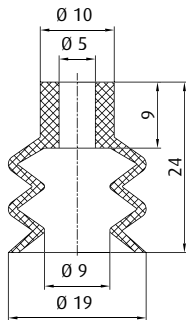


Item no.
23.019.168.*

Material
NR (bl), NR (br)

5.5 mm

Additional sizes available are found on p. 23.



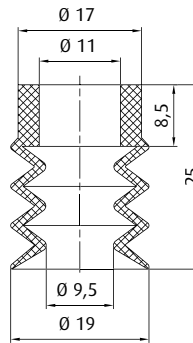
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
21.018.068.*

Material
Vinyl (bl)

11 mm

Additional sizes available are found on p. 116.



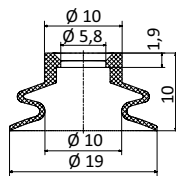
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
25.019.037.*

Material
Vinyl (bl)

10 mm

NEW



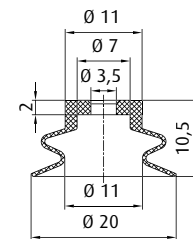
| | Connection | see page |
|---------|-------------|----------|
| 270.200 | M5-male | 411 |
| 270.064 | G1/8-male | 418 |
| 270.065 | G1/8-female | 422 |

Item no.
23.019.254.*

Material
SI (tr)

3.5 mm

Additional sizes available are found on p. 23.



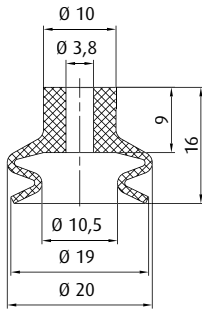
| | Connection | see page |
|---------|-------------|----------|
| 270.310 | M5-male | 411 |
| 270.493 | G1/8-male | 420 |
| 270.494 | G1/8-female | 423 |

Item no.
23.020.103.*

Material
NR (bg)

2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

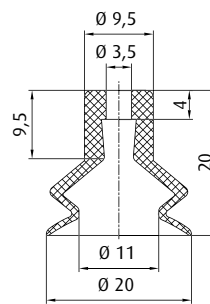
UP TO 160 °C & MINIMUM MARKING

Item no. 23.020.238.*

Material
Thermalon® (bl)

5 mm

Additional sizes available are found on p. 84.



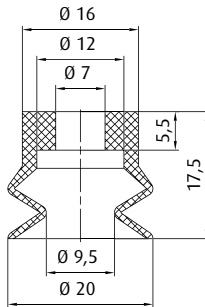
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no. 23.020.114.*

Material
Vinyl (bl)

6 mm

Additional sizes available are found on p. 113.



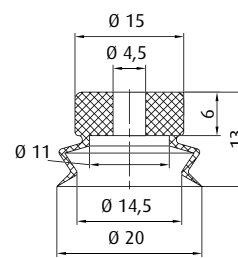
| | Connection | see page |
|------------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.312/19 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

WEAR-RESISTANT

Item no. 23.020.121.*

Material
Tepuflex® (or), Vulkollan® (br)

5 mm



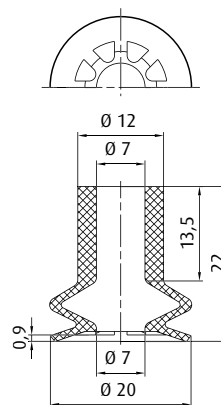
| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no. 23.020.154.*

Material
SI (tr)

4 mm

This vacuum cup is also available in the following dimensions: 6 mm, 10 mm, 15 mm, 30 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.113 | G1/4-male | 425 |
| 270.275 | G1/4-female | 432 |

Item no. 23.020.133.*

Material
NBR (sw), SI (tr)

4 mm

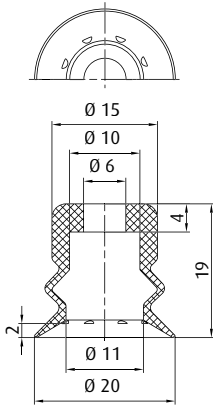
Additional sizes available are found on p. 23.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

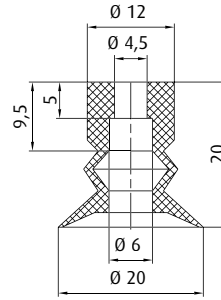
Ø 20 mm



| | Connection | see page |
|--|---------------------|----------|
| | 270.311 M5-male | 411 |
| | 270.459 M6-male | 414 |
| | 270.480 G1/8-male | 420 |
| | 270.479 G1/8-female | 423 |
| | | see page |
| | 50.085 6 mm | 454 |
| | 50.128 10 mm | 454 |
| | 50.129 15 mm | 454 |
| | 50.095 20 mm | 456 |
| | 50.096 30 mm | 456 |
| | 50.097 40 mm | 456 |
| | 50.098 50 mm | 456 |

Item no. 23.020.140.* **Material** NBR (sw), SI (tr)

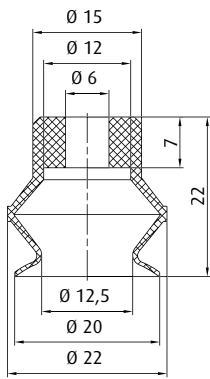
Additional sizes available are found on p. 119.



| | Connection | see page |
|--|---------------------|----------|
| | 270.317 M5-male | 410 |
| | 270.103 M6-male | 413 |
| | 270.205 G1/8-male | 416 |
| | 270.109 G1/8-female | 421 |
| | 270.194 G1/4-male | 425 |
| | | see page |
| | 50.020 8.5 mm | 454 |

Item no. 23.020.149.* **Material** NBR (sw), SI (tr)

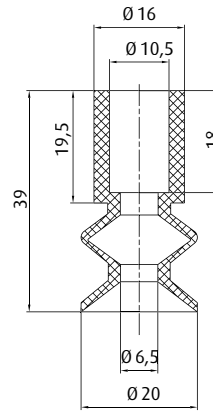
Additional sizes available are found on p. 122.



| | Connection | see page |
|--|---------------------|----------|
| | 270.312/19 M6-male | 414 |
| | 270.482 G1/8-male | 420 |
| | 270.481 G1/8-female | 423 |
| | 270.483 G1/4-male | 429 |
| | 270.484 G1/4-female | 433 |
| | | see page |
| | 50.095 20 mm | 456 |
| | 50.096 30 mm | 456 |
| | 50.097 40 mm | 456 |
| | 50.098 50 mm | 456 |

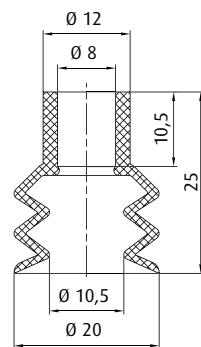
Item no. 23.020.169.* **Material** Vulkollan® (br)

Additional sizes available are found on p. 97.



| | Connection | see page |
|--|---------------------|----------|
| | 270.177 M10-male | 416 |
| | 270.451 G1/4-male | 426 |
| | 270.452 G1/4-female | 431 |

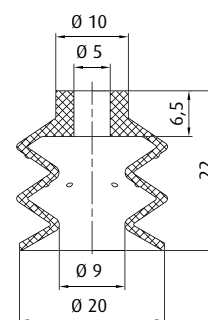
Item no. 23.020.027.* **Material** SI (tr), NR (sw), NR (br)



| | Connection | see page |
|--|---------------------|----------|
| | 270.112 G1/8-male | 419 |
| | 270.113 G1/4-male | 425 |
| | 270.178 G1/4-female | 431 |

Item no. 21.020.014.* **Material** NBR (sw), SI (tr)

This vacuum cup is also available in the following dimensions: 15 mm, 30 mm

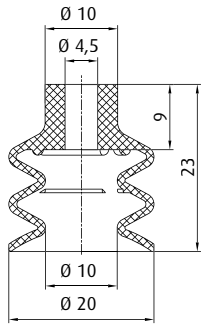


| | Connection | see page |
|--|---------------------|----------|
| | 270.443 M5-male | 410 |
| | 270.238 G1/8-male | 417 |
| | 270.110 G1/8-female | 422 |
| | 270.534 G1/4-male | 425 |

Item no. 21.020.015.* **Material** NBR (sw), SI (tr), NR (sw)

BESTSELLER

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



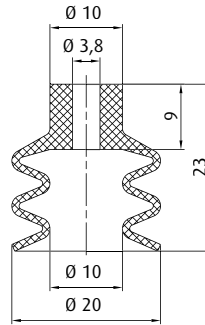
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
21.020.016.*

Material
NBR (sw), HNBR (ge), SI (tr)



Additional sizes available are found on p. 89.

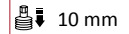


| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

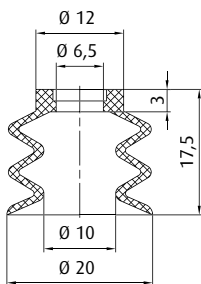
**UP TO 160 °C &
MINIMUM MARKING**

Item no.
21.020.152.*

Material
Thermalon® (bl)



Additional sizes available are found on p. 92.



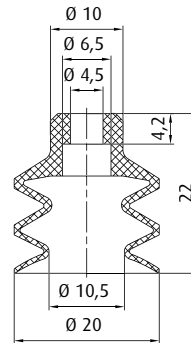
| | Connection | see page |
|---------|------------|----------|
| 270.039 | M6-male | 414 |
| 270.247 | M8-male | 415 |
| 270.543 | G1/8-male | 419 |

Item no.
21.020.073.*

Material
SI (tr)



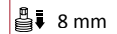
Additional sizes available are found on p. 89.



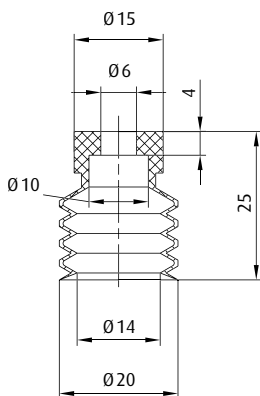
| | Connection | see page |
|---------|-------------|----------|
| 270.024 | M5-male | 410 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
21.020.090.*

Material
Vulkollan® (br)



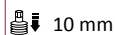
Additional sizes available are found on p. 97.



| | Connection | see page |
|---------|-------------|----------|
| 270.459 | M6-male | 414 |
| 270.480 | G1/8-male | 420 |
| 270.479 | G1/8-female | 423 |

Item no.
25.020.045.*

Material
NBR (sw), SI (tr)



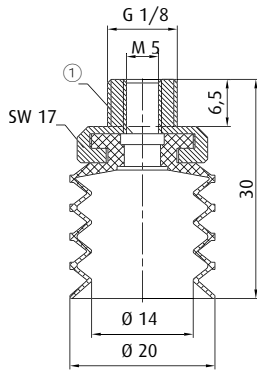
Additional sizes available are found on p. 124.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 20 - 21 mm

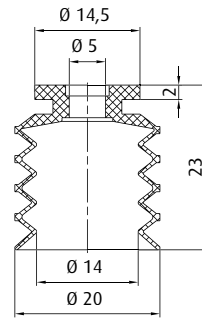


① = Filter screen

| | | |
|---------------------------------|-------------------------------------|-------|
| Item no. 24.020.033.* | Material SI (tr), CR (sw) | 16 mm |
|---------------------------------|-------------------------------------|-------|

Additional sizes available are found on p. 104.

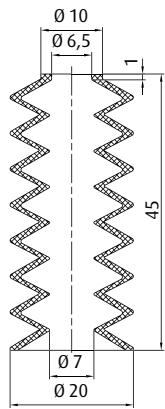
Spare cup



| | | |
|---------------------------------|-------------------------------------|-------|
| Item no. 25.020.025.* | Material SI (tr), CR (sw) | 16 mm |
|---------------------------------|-------------------------------------|-------|

Additional sizes available are found on p. 100.

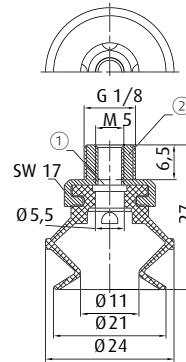
| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |



| | Connection | see page |
|---------|------------|----------|
| 270.105 | M6-male | 414 |
| 270.040 | M8-male | 415 |
| 270.077 | G1/8-male | 419 |

| | | |
|---------------------------------|---------------------------|-------|
| Item no. 25.020.002.* | Material SI (w) | 26 mm |
|---------------------------------|---------------------------|-------|

Additional sizes available are found on p. 104.

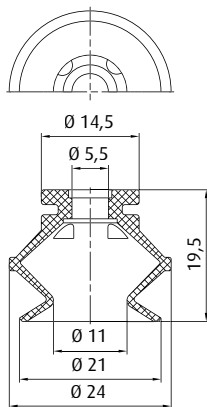


① = Filter screen ② = Aluminium

| | | |
|---------------------------------|---|------|
| Item no. 22.020.020.* | Material Tepuflex® (or), SI (tr), CR (sw) | 9 mm |
|---------------------------------|---|------|

Additional sizes available are found on p. 104.

Spare cup



| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

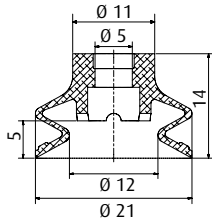
| | | |
|---------------------------------|---|------|
| Item no. 23.020.026.* | Material Tepuflex® (or), SI (tr), CR (sw) | 9 mm |
|---------------------------------|---|------|

Additional sizes available are found on p. 100.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



NEW



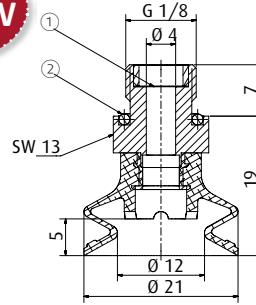
| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.503-S | G1/8-male | 418 |

Spare cup

Item no. 23.021.264.* **Material** Varioflex® 60/30° (sw/r) 5 mm

Additional sizes available are found on p. 107.

NEW

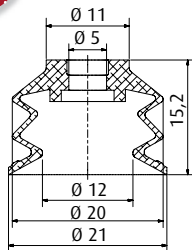


① = Filter screen ② = O-ring

Item no. 22.021.255.* **Material** Varioflex® 60/30° (sw/r) 5 mm

Additional sizes available are found on p. 107.

NEW



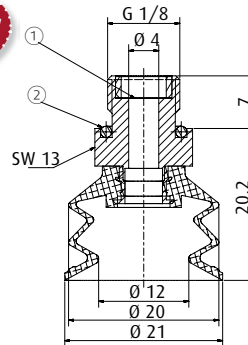
| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.503-S | G1/8-male | 418 |

Spare cup

Item no. 21.021.176.* **Material** Varioflex® 60/30° (sw/r) 6.5 mm

Additional sizes available are found on p. 110.

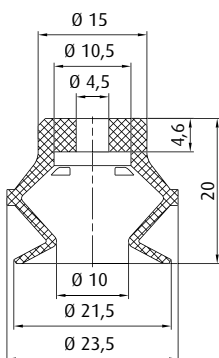
NEW



① = Filter screen ② = O-ring

Item no. 20.021.147.* **Material** Varioflex® 60/30° (sw/r) 6.5 mm

Additional sizes available are found on p. 110.



| | Connection | see page |
|---------|-------------|----------|
| 270.311 | M5-male | 411 |
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no. 23.020.124.* **Material** NBR (sw), HNBR (ge), SI (tr), PU (bl) 8 mm

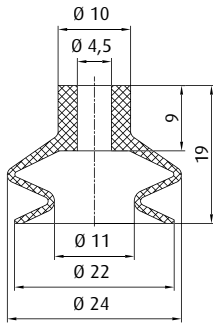
Additional sizes available are found on p. 86.
This vacuum cup is also available in the following dimensions: 11 mm, 15 mm, 32 mm, 42 mm, 54 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 22 - 24 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

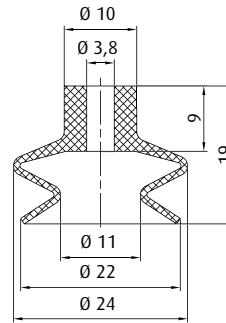
BESTSELLER

Item no.
23.022.028.*

Material
NBR (sw), SI (tr), Vinyl (bl)

8 mm

Additional sizes available are found on p. 113.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

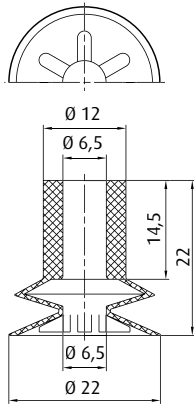
UP TO 160 °C & MINIMUM MARKING

Item no.
23.022.239.*

Material
Thermalon® (bl)

8 mm

Additional sizes available are found on p. 84.



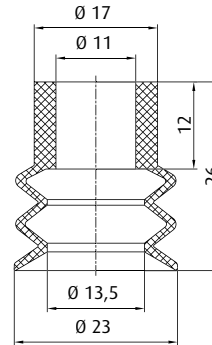
| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
23.023.099.*

Material
NR (br)

5 mm

Additional sizes available are found on p. 23.



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

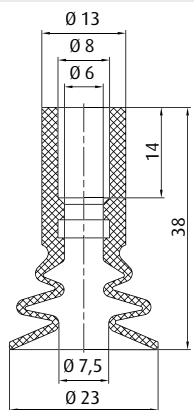
BESTSELLER

Item no.
21.023.066.*

Material
Vinyl (bl)

9 mm

Additional sizes available are found on p. 116.

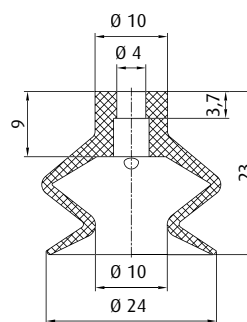


| | Connection | see page |
|---------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
21.023.102.*

Material
SI (g)

12 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

| | | see page |
|--------|-------|----------|
| 50.037 | 25 mm | 456 |

BESTSELLER

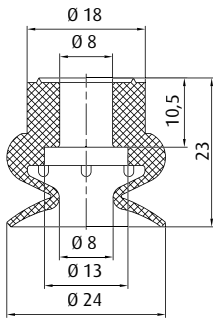
Item no.
23.025.137.*

Material
NBR (sw), SI (tr), NR (gr)

9 mm

Additional sizes available are found on p. 81.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



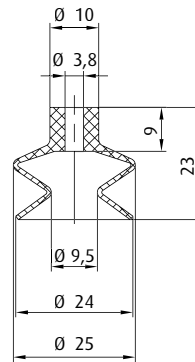
| | Connection | see page |
|---------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

Item no.
23.025.030.*

Material
NBR (sw), SI (r), NR (bg)

5 mm

This vacuum cup is also available in the following dimensions: 14 mm, 40 mm, 60 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

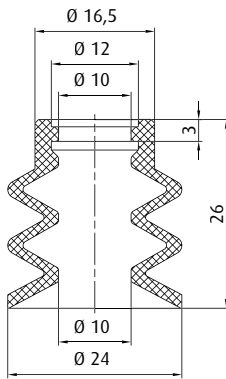
UP TO 160 °C & MINIMUM MARKING

Item no.
23.025.240.*

Material
Thermalon® (bl)

12 mm

Additional sizes available are found on p. 84.



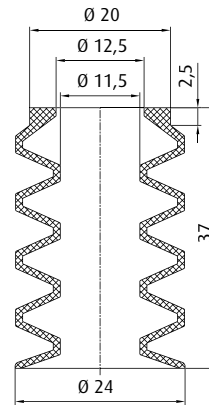
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
21.024.017.*

Material
NBR (sw), SI (tr)

10 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 30 mm, 40 mm

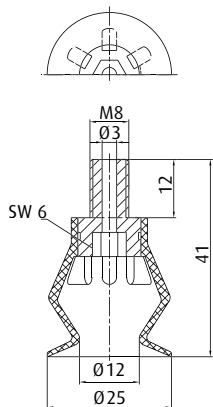


| | Connection | see page |
|---------|-------------|----------|
| 270.233 | G1/8-female | 438 |

Item no.
25.024.057.*

Material
SI (tr)

20 mm

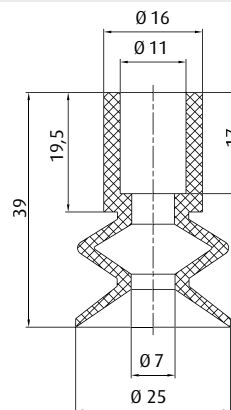


Item no.
22.025.029.*

Material
NBR (sw), SI (tr), NR (sw)

11 mm

This vacuum cup is also available in the following dimensions: 31 mm, 44 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.025.032.*

Material
SI (tr), NR (sw), NR (br)

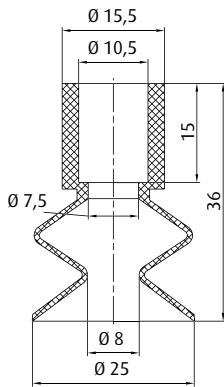
12 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 25 mm

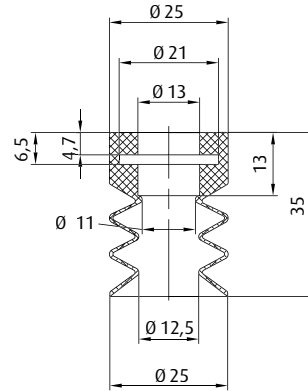


| | Connection | see page |
|---------|-------------|----------|
| 270.244 | M5-male | 410 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.025.200.*

Material
Vulkollan® (br)

13 mm

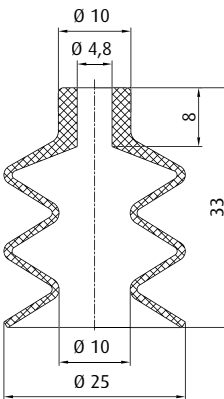


| | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

Item no.
21.025.059.*

Material
SI (tr)

16 mm



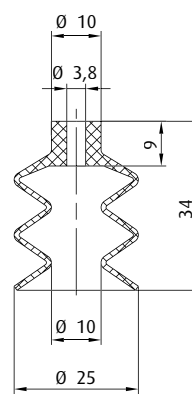
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
21.025.060.*

Material
NBR (sw), SI (tr)

19 mm

Additional sizes available are found on p. 89.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

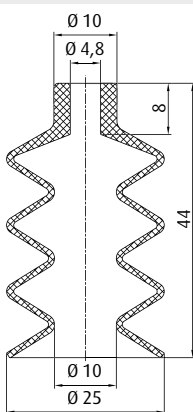
UP TO 160 °C & MINIMUM MARKING

Item no.
21.025.153.*

Material
Thermalon® (bl)

20 mm

Additional sizes available are found on p. 92.



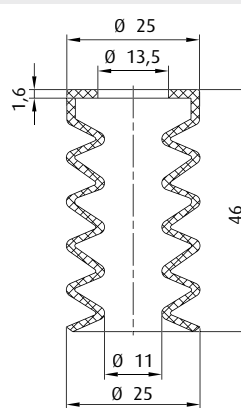
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
25.025.005.*

Material
NBR (sw), SI (tr)

24 mm

Additional sizes available are found on p. 96.



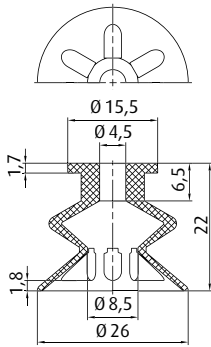
| | Connection | see page |
|-----------|-------------|----------|
| 270.182.U | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.025.004.*

Material
SI (tr)

29 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

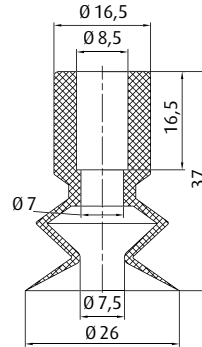


| Connection | see page |
|---------------------|----------|
| 270.013 M5-male | 410 |
| 270.005 M5-female | 412 |
| 270.103 M6-male | 413 |
| 270.003 G1/8-male | 416 |
| 270.015 G1/8-female | 421 |
| 270.194 G1/4-male | 425 |

Item no.
23.026.115.*

Material
Vinyl (bl)

8 mm



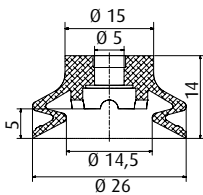
| Connection | see page |
|---------------------|----------|
| 270.244 M5-male | 410 |
| 270.177 M10-male | 416 |
| 270.451 G1/4-male | 426 |
| 270.452 G1/4-female | 431 |

Item no.
23.026.118.*

Material
Vinyl (bl)

12.5 mm

NEW



| Connection | see page |
|---------------------|----------|
| 270.500-S M5-female | 413 |
| 270.503-S G1/8-male | 418 |

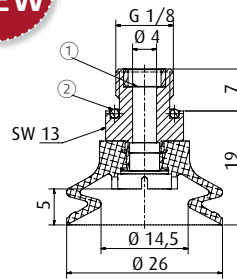
Item no.
23.026.265.*

Material
Varioflex® 60/30° (sw/r)

5 mm

Additional sizes available are found on p. 107.

NEW



① = Filter screen ② = O-ring

Item no.
22.026.256.*

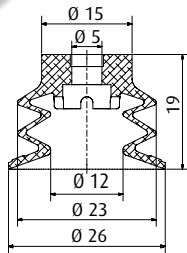
Material
Varioflex® 60/30° (sw/r)

5 mm

Additional sizes available are found on p. 107.

Spare cup

NEW



| Connection | see page |
|---------------------|----------|
| 270.500-S M5-female | 413 |
| 270.503-S G1/8-male | 418 |

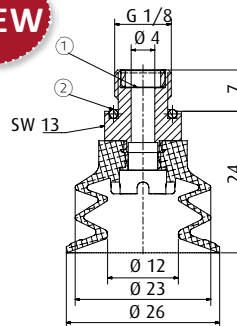
Item no.
21.026.177.*

Material
Varioflex® 60/30° (sw/r)

8 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

NEW



① = Filter screen ② = O-ring

Item no.
20.026.148.*

Material
Varioflex® 60/30° (sw/r)

8 mm

Additional sizes available are found on p. 110.

Spare cup

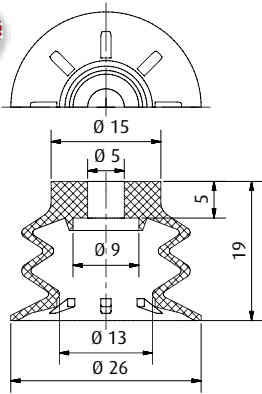
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 26 - 29 mm

NEW



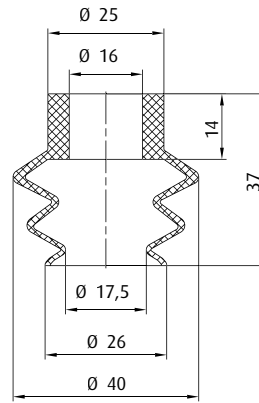
| | Connection | see page |
|---------|-------------|----------|
| 270.063 | G1/8-male | 419 |
| 270.061 | G1/8-female | 422 |

Item no.
21.026.162._*

Material
NR (br)

9 mm

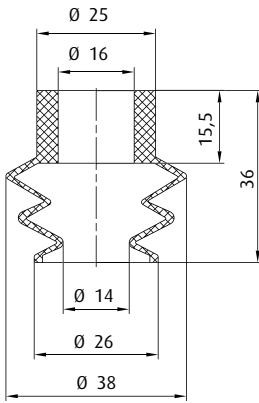
Additional sizes available are found on p. 23.



Item no.
27.026.005._*

Material
SI (tr)

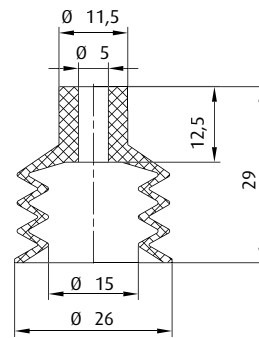
16 mm



Item no.
27.026.015._*

Material
SI (tr)

16 mm

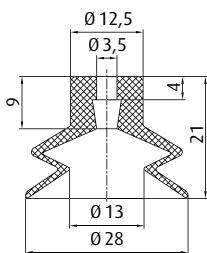


Item no.
25.025.003._*

Material
SI (tr), NR (sw)

9 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |



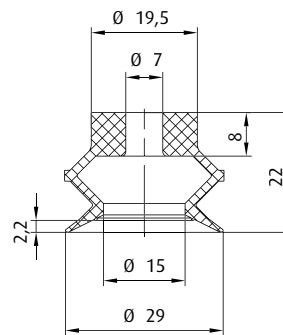
| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

Item no.
23.028.113._*

Material
Vinyl (bl)

9 mm

Additional sizes available are found on p. 113.



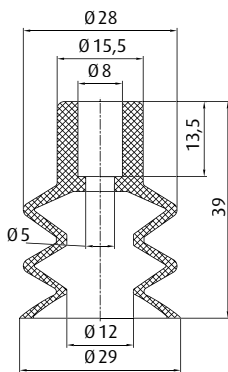
Item no.
23.030.088._*

Material
NBR (gr), SI (tr), PU (bg)

10 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



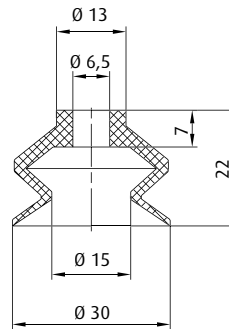
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
21.029.069._*

Material
Vinyl (bl)

10 mm

Additional sizes available are found on p. 116.



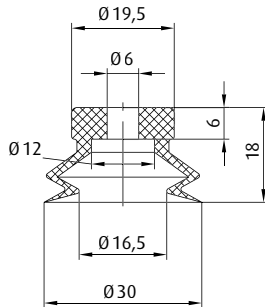
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
23.030.107._*

Material
Vinyl (bl)

10.5 mm

Additional sizes available are found on p. 113.



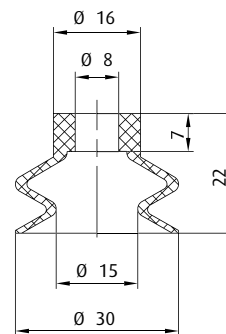
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

Item no.
23.030.155._*

Material
SI (tr)

4.5 mm

This vacuum cup is also available in the following dimensions: 6 mm, 10 mm, 15 mm, 20 mm

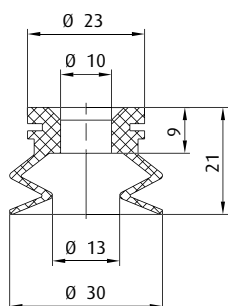


| | Connection | see page |
|---------|-------------|----------|
| 270.255 | M8-male | 415 |
| 270.486 | G1/8-male | 420 |
| 270.485 | G1/8-female | 423 |
| 270.487 | G1/4-male | 429 |
| 270.488 | G1/4-female | 434 |

Item no.
23.030.193._*

Material
Vulkollan® (br)

8 mm



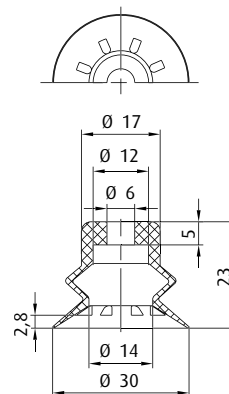
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.030.230._*

Material
NR (gr)

7 mm

Additional sizes available are found on p. 130.



| | Connection | see page |
|---------|-------------|----------|
| 270.460 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

| | see page |
|--------|-----------|
| 50.085 | 6 mm 454 |
| 50.128 | 10 mm 454 |
| 50.129 | 15 mm 454 |
| 50.095 | 20 mm 456 |
| 50.096 | 30 mm 456 |
| 50.097 | 40 mm 456 |
| 50.098 | 50 mm 456 |

Item no.
23.030.141._*

Material
NBR (sw), SI (tr)

8 mm

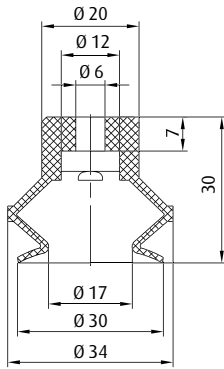
Additional sizes available are found on p. 119.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 30 mm



| Item no. | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

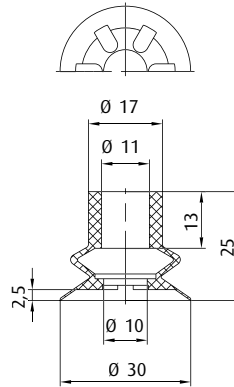
| Item no. | Connection | see page |
|----------|------------|----------|
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
23.030.170.*

Material
Vulkollan® (br)

8 mm

Additional sizes available are found on p. 97.

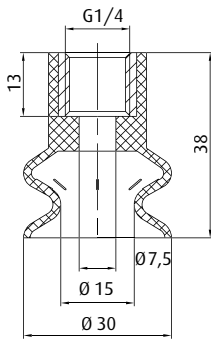


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.033.134.*

Material
Vinyl (bl)

10 mm

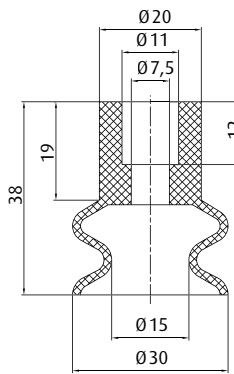


Item no.
22.030.035.*

Material
SI (tr), NR (sw)

16 mm

This vacuum cup is also available in the following dimensions: 40 mm, 44 mm, 50 mm

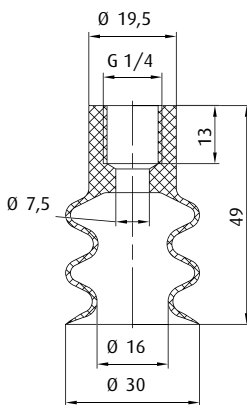


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.030.038.*

Material
NBR (sw), SI (tr)

16 mm

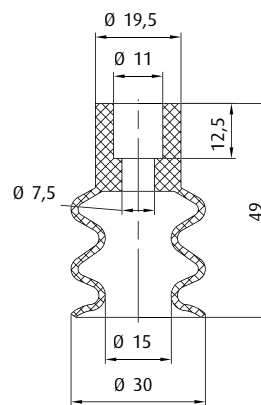


Item no.
20.030.044.*

Material
SI (tr), NR (sw)

19 mm

This vacuum cup is also available in the following dimensions: 40 mm, 50 mm



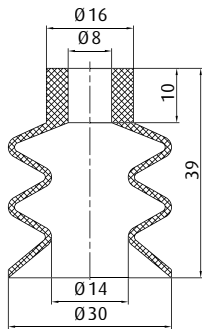
| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
21.030.021.*

Material
SI (tr), NR (sw), NR (bg)

18 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



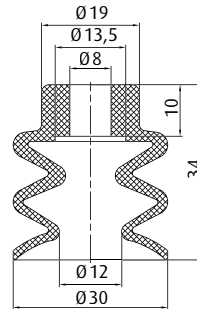
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.540 | G1/4-male | 429 |
| 270.539 | G1/4-female | 434 |

Item no.
21.030.018.*

Material
NBR (sw), SI (r)

18 mm

This vacuum cup is also available in the following dimensions: 15 mm, 20 mm

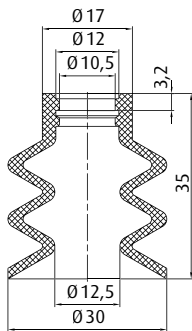


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
21.030.019.*

Material
NBR (sw), SI (r), NR (bg), PU (bl)

13 mm



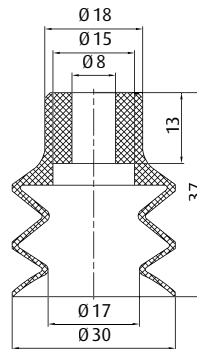
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
21.030.022.*

Material
NBR (sw), SI (bl)

14 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 24 mm, 40 mm



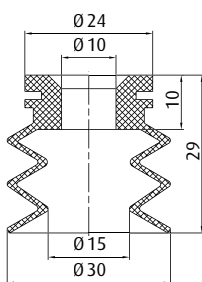
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.540 | G1/4-male | 429 |
| 270.192 | G1/4-female | 432 |
| 270.539 | G1/4-female | 434 |

Item no.
21.032.091.*

Material
Vulkollan® (br)

16 mm

Additional sizes available are found on p. 97.



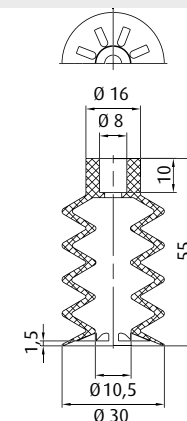
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
21.030.030.*

Material
SI (tr), NR (bl)

13 mm

Additional sizes available are found on p. 130.



| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
25.030.030.*

Material
NBR (sw), SI (tr)

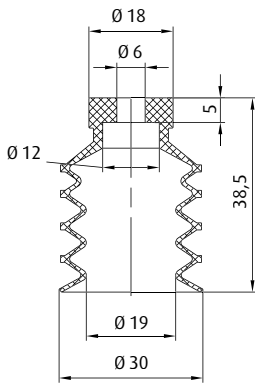
27 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 30 - 31 mm



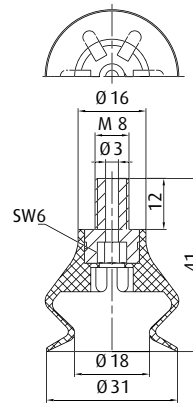
| | Connection | see page |
|---------|-------------|----------|
| 270.460 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

Item no.
25.030.046.*

Material
NBR (sw), SI (tr)

14 mm

Additional sizes available are found on p. 124.

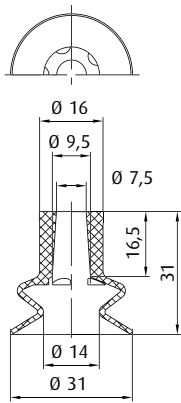


Item no.
22.030.036.*

Material
NBR (sw), SI (tr), NR (sw)

9 mm

This vacuum cup is also available in the following dimensions: 25 mm, 44 mm



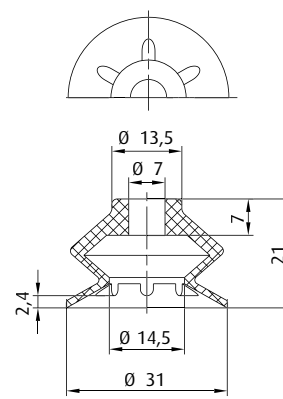
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
23.030.035.*

Material
NBR (sw), SI (r)

11 mm

This vacuum cup is also available in the following dimensions: 53 mm, 75 mm



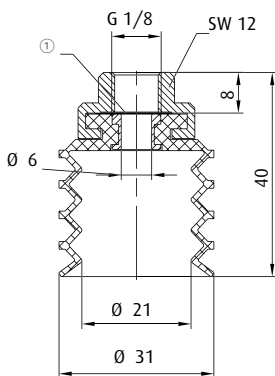
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |

Item no.
23.031.192.*

Material
Vinyl (bl)

6 mm

Additional sizes available are found on p. 113.



① = Filter screen

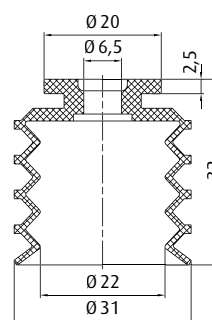
Item no.
24.030.039.*

Material
SI (tr), CR (sw)

21 mm

Additional sizes available are found on p. 104.

Spare cup



| | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

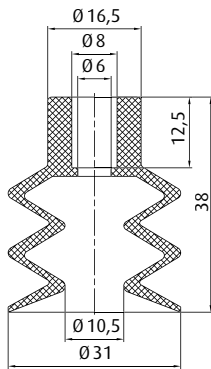
Item no.
25.030.026.*

Material
SI (tr), CR (sw)

21 mm

Additional sizes available are found on p. 100.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

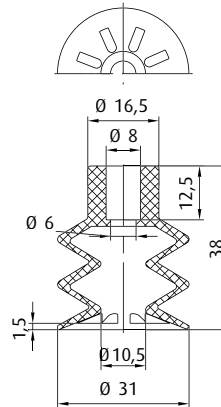


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
21.030.023._*

Material
NBR (sw), SI (tr), NR (sw)

15 mm

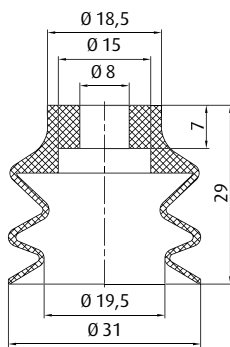


| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.043 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
27.030.006._*

Material
NBR (sw), SI (tr), NR (sw)

15 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.255 | M8-male | 415 |
| 270.486 | G1/8-male | 420 |
| 270.485 | G1/8-female | 423 |
| 270.487 | G1/4-male | 429 |
| 270.488 | G1/4-female | 434 |

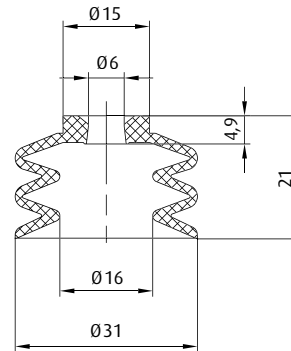
WEAR-RESISTANT

Item no.
21.030.076._*

Material
Vulkollan® (br)

14 mm

Additional sizes available are found on p. 97.



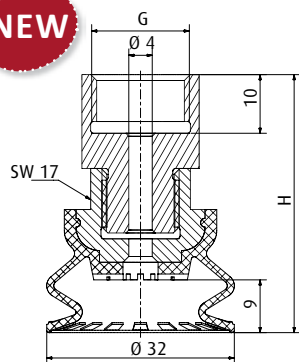
| | Connection | see page |
|---------|-------------|----------|
| 270.460 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

Item no.
21.031.048._*

Material
SI (tr), NR (sw)

6 mm

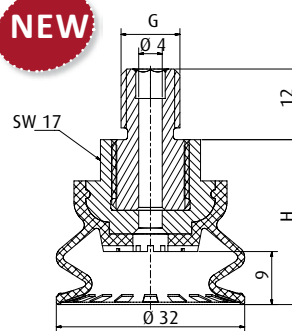
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 22.030.172._* | NBR (bl) | 9 | G1/4-female | 28 |
| 22.030.173._* | NBR (bl) | 9 | G3/8-female | 44 |

Additional sizes available are found on p. 133.

NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 22.030.171._* | NBR (bl) | 9 | G1/4-male | 28 |
| 22.030.174._* | NBR (bl) | 9 | M10-male | 28 |
| 22.030.175._* | NBR (bl) | 9 | M14x1.5-male | 29 |

Additional sizes available are found on p. 133.

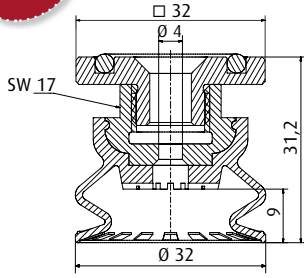
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 32 mm

NEW

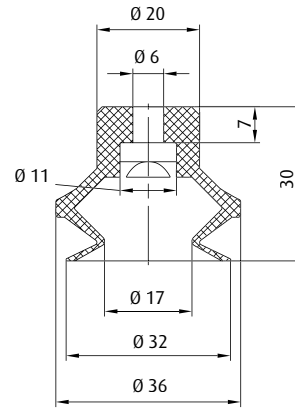


Item no.
22.030.176._*

Material
NBR (bl)

9 mm

Additional sizes available are found on p. 133.



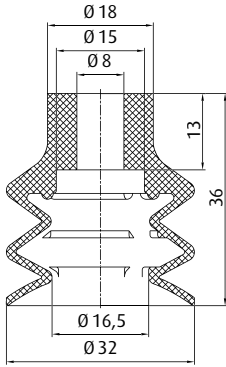
Item no.
23.030.125._*

Material
NBR (sw), HNBR (ge), SI (tr), PU (bl)

9 mm

Additional sizes available are found on p. 86.
This vacuum cup is also available in the following dimensions: 11 mm, 15 mm, 21 mm, 42 mm, 54 mm

| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

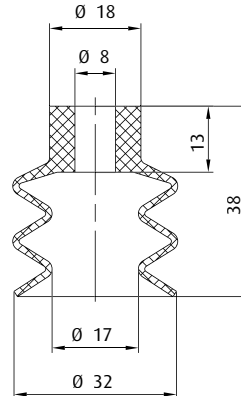
BESTSELLER

Item no.
21.032.075._*

Material
NBR (sw), HNBR (ge), SI (tr), NR (gr), PU (bl)

13 mm

Additional sizes available are found on p. 89.



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

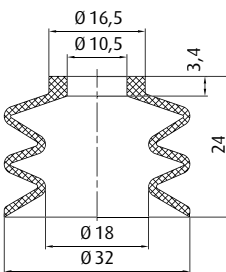
UP TO 160 °C & MINIMUM MARKING

Item no.
21.032.154._*

Material
Thermalon® (bl)

14.5 mm

Additional sizes available are found on p. 92.

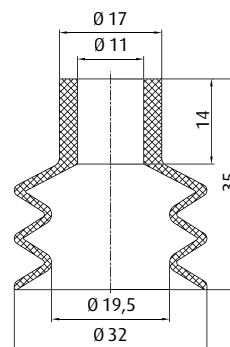


| | Connection | see page |
|---------|------------|----------|
| 270.521 | M5-male | 412 |
| 270.254 | M6-male | 415 |
| 270.256 | M8-male | 415 |

Item no.
21.032.067._*

Material
Vinyl (bl)

10 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

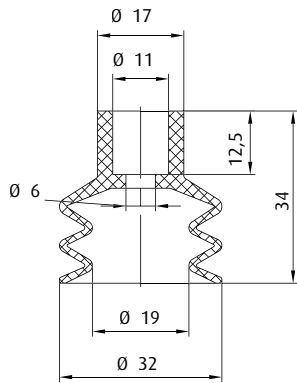
Item no.
21.032.082._*

Material
Vinyl (bl)

14 mm

Additional sizes available are found on p. 116.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

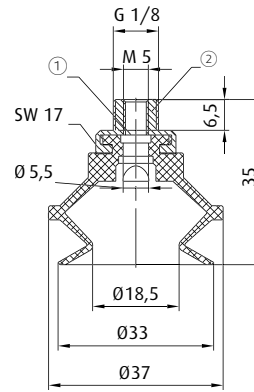


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
21.032.081._*

Material
NR (sw)

13 mm



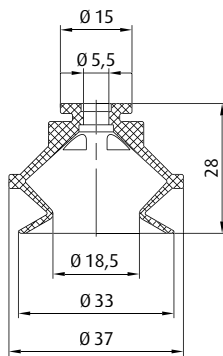
① = Filter screen ② = Aluminium

Item no.
22.030.033._*

Material
Tepuflex® (or), SI (tr), CR (sw)

9 mm

Additional sizes available are found on p. 104.



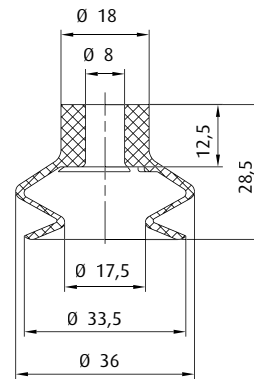
| | Connection | see page |
|-----------|------------|----------|
| 270.500-S | M5-female | 413 |
| 270.250 | G1/8-male | 418 |
| 270.503-S | G1/8-male | 418 |

Item no.
23.030.037._*

Material
Tepuflex® (or), SI (tr), CR (sw)

9 mm

Additional sizes available are found on p. 100.



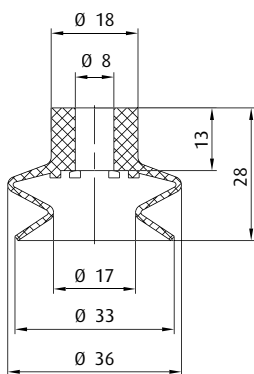
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

Item no.
23.033.039._*

Material
NBR (sw), SI (tr), NR (gr)

12 mm

Additional sizes available are found on p. 81.



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

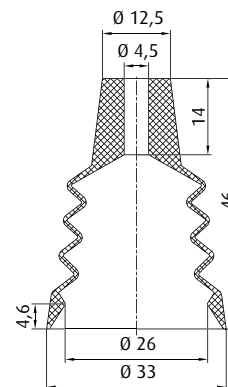
UP TO 160 °C &
MINIMUM MARKING

Item no.
23.033.241._*

Material
Thermalon® (bl)

11 mm

Additional sizes available are found on p. 84.



| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
27.033.017._*

Material
SI (tr)

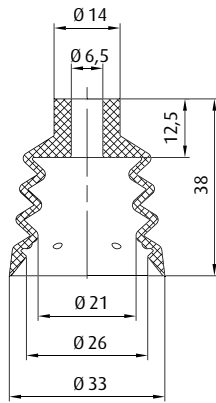
25 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

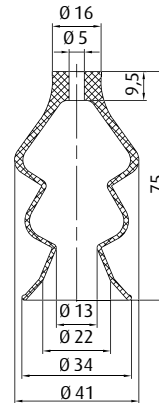
Ø 33 - 35 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no. 27.033.008.* **Material** SI (tr) 16 mm

Additional sizes available are found on p. 129.

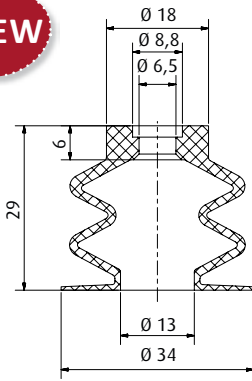


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no. 27.034.023.* **Material** SI (r) 39 mm

Additional sizes available are found on p. 129.

NEW

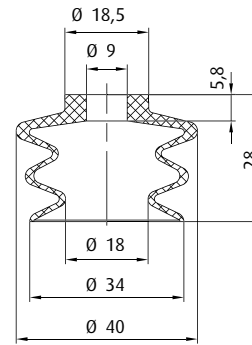


| | Connection | see page |
|---------|------------|----------|
| 270.039 | M6-male | 414 |

IDEAL FOR WAFERS

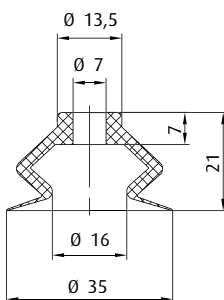
Item no. 21.034.179.* **Material** SI (tr) 12 mm

Additional sizes available are found on p. 126.



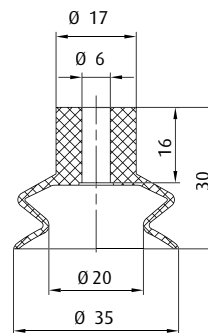
| | Connection | see page |
|---------|-------------|----------|
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

Item no. 27.034.003.* **Material** Vulkollan® (br) 18 mm



| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.482 | G1/8-male | 420 |
| 270.481 | G1/8-female | 423 |
| 270.483 | G1/4-male | 429 |
| 270.484 | G1/4-female | 433 |

Item no. 23.035.106.* **Material** Vinyl (bl) 14 mm



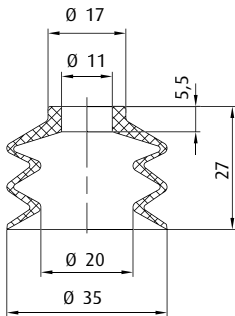
| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

BESTSELLER

Item no. 23.035.111.* **Material** Vinyl (bl) 12 mm

Additional sizes available are found on p. 113.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

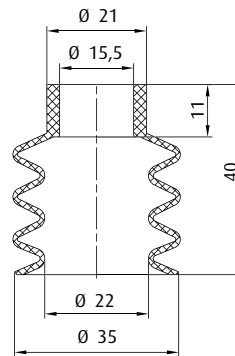


| | Connection | see page |
|---------|-------------|----------|
| 270.313 | M8-male | 415 |
| 270.177 | M10-male | 416 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
21.035.080._*

Material
Vinyl (bl)

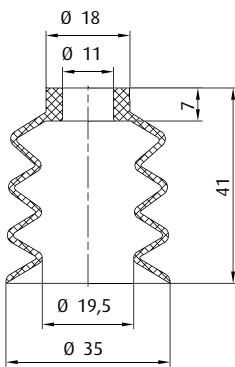
13 mm



Item no.
25.035.011._*

Material
NR (sw), SI (tr)

20 mm

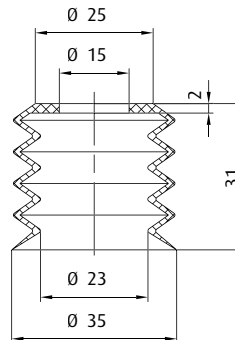


| | Connection | see page |
|---------|-------------|----------|
| 270.313 | M8-male | 415 |
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
25.036.040._*

Material
Vinyl (bl)

20 mm



| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |

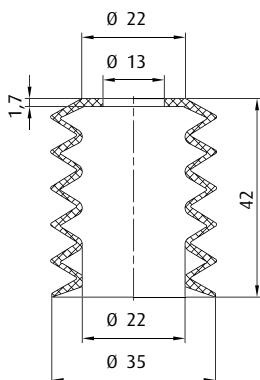
DETECTABLE

Item no.
25.035.069._*

Material
SI (r)

25 mm

Additional sizes available are found on p. 128.

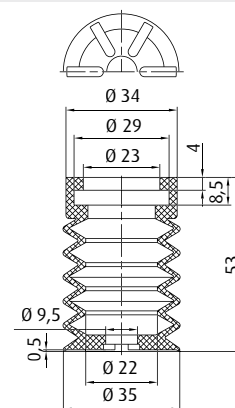


| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.035.010._*

Material
SI (tr), NR (sw)

26.5 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.235 | G1/8-female | 438 |

Item no.
25.036.041._*

Material
Vinyl (bl)

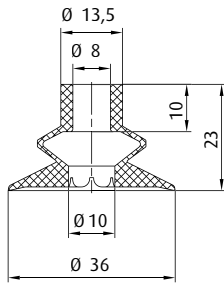
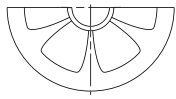
22 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 36 - 37 mm

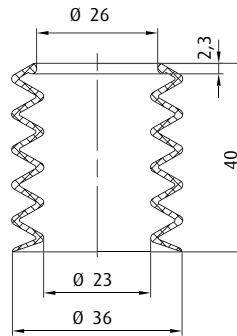


| | Connection | see page |
|---------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

Item no.
27.036.011._*

Material
SI (tr), NR (sw)

7 mm

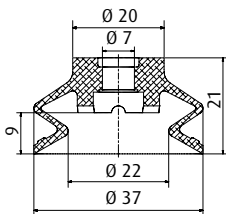


Item no.
25.036.072._*

Material
SI (tr)

24 mm

NEW



| | Connection | see page |
|-----------|-------------|----------|
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

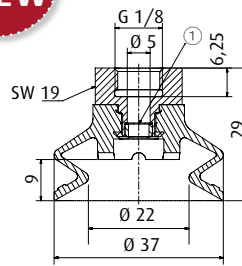
Item no.
23.037.266._*

Material
Varioflex® 60/30° (sw/r)

9 mm

Additional sizes available are found on p. 107.

NEW



① = Filter screen

Item no.
22.037.257._*

Material
Varioflex® 60/30° (sw/r)

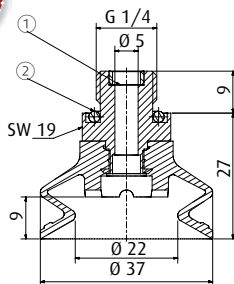
9 mm

Additional sizes available are found on p. 107.

Spare cup

Spare cup

NEW



① = Filter screen ② = O-ring

Item no.
22.037.258._*

Material
Varioflex® 60/30° (sw/r)

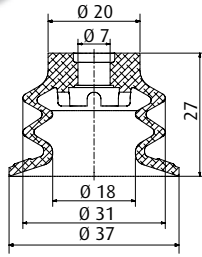
9 mm


Additional sizes available are found on p. 107.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




NEW



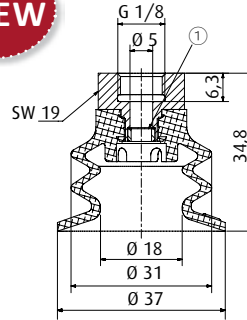
|  | Connection | see page |
|---|-----------------------|----------|
| | 270.501-S G1/8-female | 424 |
| | 270.506-S G1/4-male | 428 |
| | 270.505-S G3/8-male | 434 |

Spare cup

Item no. 21.037.177.* **Material** Varioflex® 60/30° (sw/r)  14 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

NEW

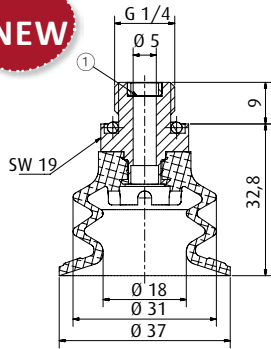


① = Filter screen


Item no. 20.037.149.* **Material** Varioflex® 60/30° (sw/r)  14 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

NEW

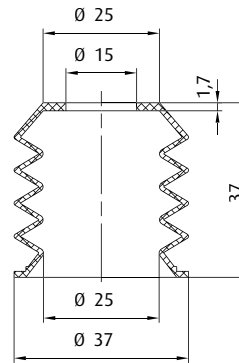



① = Filter screen

Item no. 20.037.150.* **Material** Varioflex® 60/30° (sw/r)  14 mm

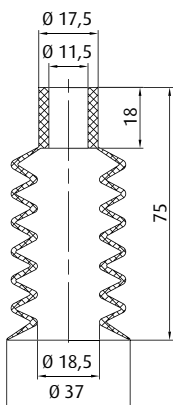
Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code


Spare cup




|  | Connection | see page |
|---|------------------------|----------|
| | 270.419 Without Thread | 441 |
| | 270.183 G1/4-male | 431 |
| | 270.182 G1/4-female | 434 |

Item no. 25.037.012.* **Material** SI (bl)  19 mm



|  | Connection | see page |
|---|---------------------|----------|
| | 270.177 M10-male | 416 |
| | 270.451 G1/4-male | 426 |
| | 270.452 G1/4-female | 431 |

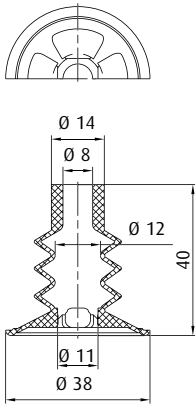
Item no. 25.038.039.* **Material** Vinyl (bl)  35 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 38 - 39 mm

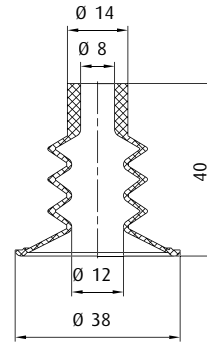


| | Connection | see page |
|---------|-------------|----------|
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
27.038.012.*

Material
SI (tr), NR (br)

16 mm

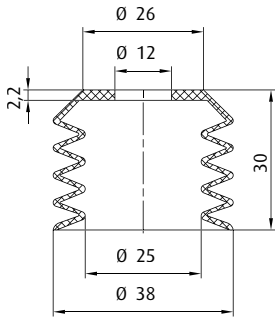


| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.112 | G1/8-male | 419 |
| 270.114 | G1/8-female | 422 |
| 270.113 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

Item no.
27.038.020.*

Material
SI (tr)

16 mm

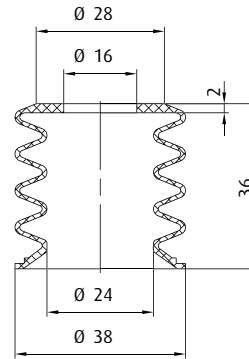


| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.038.014.*

Material
SI (tr)

18 mm



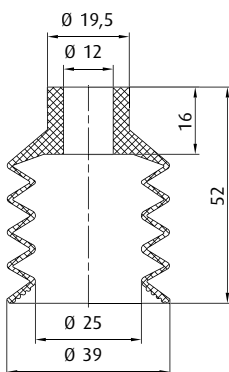
| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.038.016.*

Material
SI (tr)

24 mm

Additional sizes available are found on p. 126.

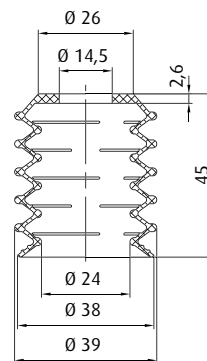


| | Connection | see page |
|-----------|------------|----------|
| 270.049-1 | G1/4-male | 426 |

Item no.
25.038.015.*

Material
NBR (sw), SI (tr)

23 mm



| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

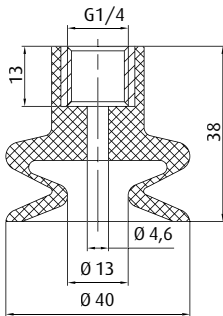
Item no.
27.039.017.*

Material
SI (tr)

20 mm

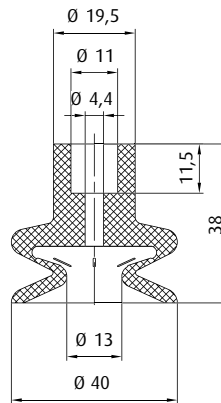
Additional sizes available are found on p. 126.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



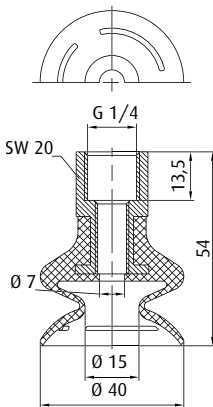
Item no.
22.040.046._* **Material**
SI (tr), NR (sw) 7 mm

This vacuum cup is also available in the following dimensions: 30 mm, 44 mm, 50 mm

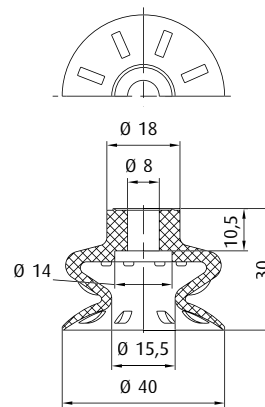


Item no.
23.040.044._* **Material**
SI (tr), NR (sw) 7 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



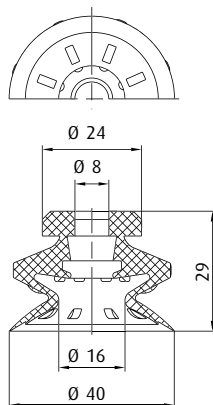
Item no.
22.040.048._* **Material**
NBR (sw), SI (tr) 12 mm



Item no.
23.040.042._* **Material**
NBR (sw), SI (r), NR (bg) 13 mm

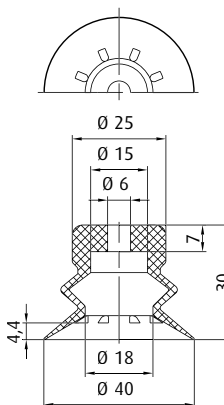
| | Connection | see page |
|---------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

This vacuum cup is also available in the following dimensions: 14 mm, 24 mm, 60 mm



Item no.
23.040.223._* **Material**
NR (br) 7 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.515 | G1/4-male | 425 |
| 270.434 | G1/4-female | 431 |



Item no.
23.040.142._* **Material**
NBR (sw), SI (tr) 9.5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.498 | M6-male | 414 |
| 270.486 | G1/8-male | 420 |
| 270.485 | G1/8-female | 423 |
| 270.487 | G1/4-male | 429 |
| 270.488 | G1/4-female | 434 |

| | | see page |
|--------|-------|----------|
| 50.170 | 20 mm | 456 |
| 50.171 | 30 mm | 456 |
| 50.172 | 40 mm | 456 |
| 50.173 | 50 mm | 456 |

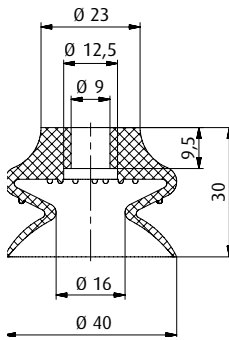
Additional sizes available are found on p. 119.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by \emptyset

\emptyset 40 mm

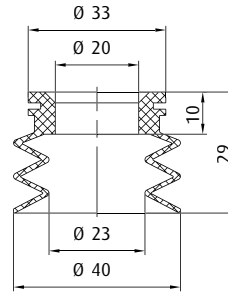


| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.540 | G1/4-male | 429 |
| 270.539 | G1/4-female | 434 |

Item no.
23.040.176.*

Material
Vulkollan® (br)

12 mm

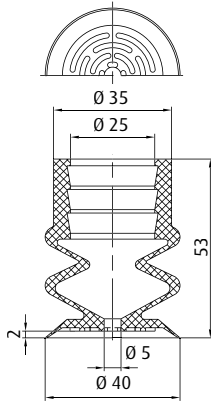


Item no.
21.040.132.*

Material
SI (tr), SI (bl)

11 mm

Additional sizes available are found on p. 130.



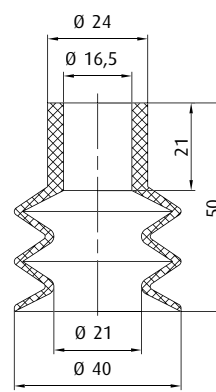
| | Connection | see page |
|---------|------------|----------|
| 270.438 | G1/4-male | 427 |
| 270.442 | G3/8-male | 435 |

Item no.
21.040.141.*

Material
NR (bg)

18 mm

Additional sizes available are found on p. 23.



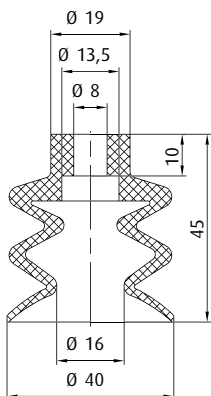
| | Connection | see page |
|---------|-------------|----------|
| 270.116 | G1/4-female | 432 |

Item no.
21.040.024.*

Material
NBR (sw), SI (tr)

18 mm

This vacuum cup is also available in the following dimensions: 60 mm

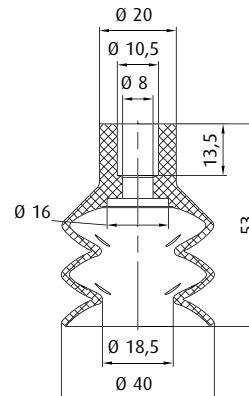


| | Connection | see page |
|---------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

Item no.
21.040.025.*

Material
NBR (sw), SI (r), NR (bg), PU (bl)

20 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

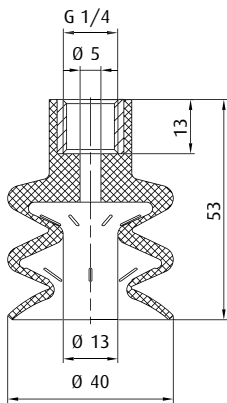
Item no.
21.040.027.*

Material
NBR (sw), SI (tr), NR (br), Vinyl (bl)

16 mm

Additional sizes available are found on p. 116.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

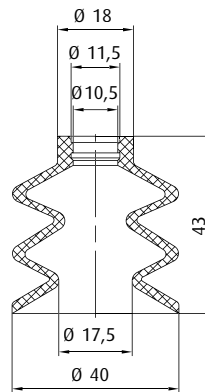


Item no.
20.040.054.*

Material
NBR (sw), SI (tr), NR (sw), NR (bg)

16 mm

This vacuum cup is also available in the following dimensions: 30 mm, 50 mm



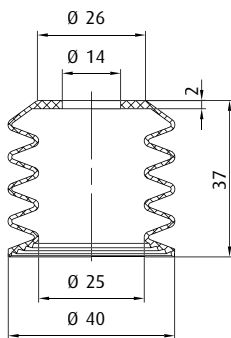
Item no.
21.040.028.*

Material
NBR (sw), SI (bl)

20 mm

This vacuum cup is also available in the following dimensions: 10 mm, 15 mm, 18 mm, 24 mm, 30 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |



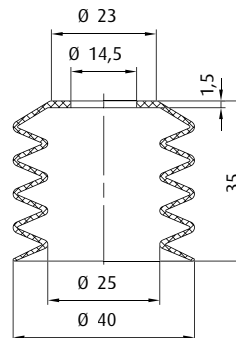
| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.040.043.*

Material
SI (tr)

24 mm

Additional sizes available are found on p. 126.



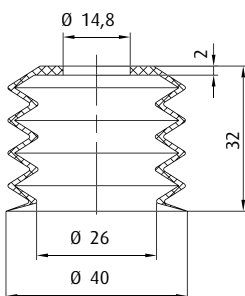
| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
25.040.058.*

Material
SI (bl)

25 mm

Additional sizes available are found on p. 126.



| | Connection | see page |
|---------|----------------|----------|
| 270.419 | Without Thread | 441 |

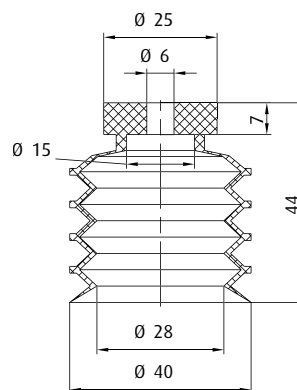
DETECTABLE

Item no.
25.040.066.*

Material
SI (br), SI (bl)

28 mm

Additional sizes available are found on p. 128.



| | Connection | see page |
|---------|-------------|----------|
| 270.486 | G1/8-male | 420 |
| 270.485 | G1/8-female | 423 |
| 270.487 | G1/4-male | 429 |
| 270.488 | G1/4-female | 434 |

Item no.
25.040.047.*

Material
NBR (sw), SI (tr)

19 mm

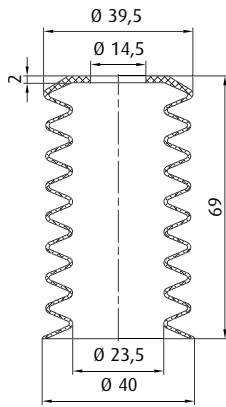
Additional sizes available are found on p. 124.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 40 - 42 mm

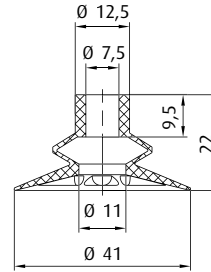
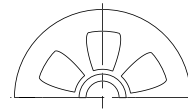


| Item no. | Connection | see page |
|----------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.183 | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no. 25.040.019.*

Material SI (tr)

Ø 40 mm

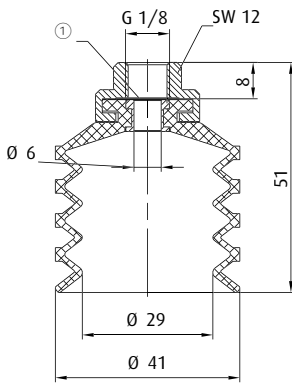


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

Item no. 23.040.084.*

Material NBR (sw), SI (tr)

Ø 9 mm



① = Filter screen

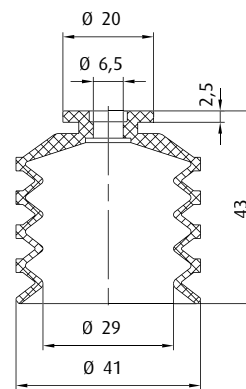
Item no. 24.040.074.*

Material SI (tr), CR (sw)

Ø 20 mm

Additional sizes available are found on p. 104.

Spare cup



| Item no. | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |

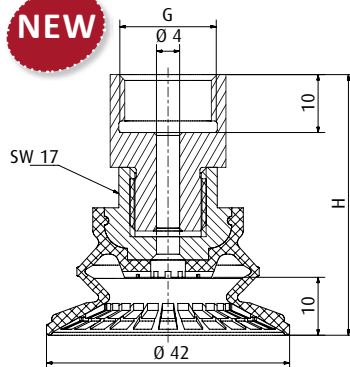
Item no. 25.040.027.*

Material SI (tr), CR (sw)

Ø 20 mm

Additional sizes available are found on p. 100.

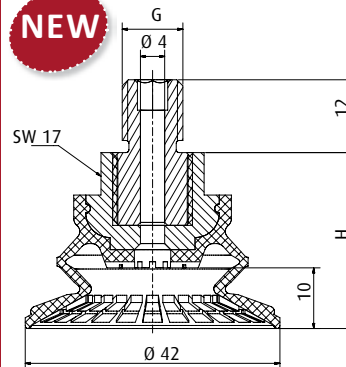
NEW



| Item no. | Material | Ø [mm] | Connection thread | H [mm] |
|--------------|----------|--------|-------------------|--------|
| 22.040.178.* | NBR (bl) | 10 | G1/4-female | 29 |
| 22.040.179.* | NBR (bl) | 10 | G3/8-female | 29 |

Additional sizes available are found on p. 133.

NEW



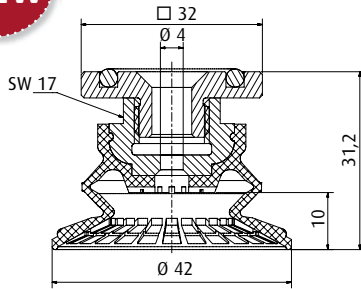
| Item no. | Material | Ø [mm] | Connection thread | H [mm] |
|--------------|----------|--------|-------------------|--------|
| 22.040.177.* | NBR (bl) | 10 | G1/4-male | 29 |
| 22.040.180.* | NBR (bl) | 10 | M10-male | 29 |
| 22.040.181.* | NBR (bl) | 10 | M14x1.5-male | 29 |

Additional sizes available are found on p. 133.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

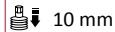


NEW

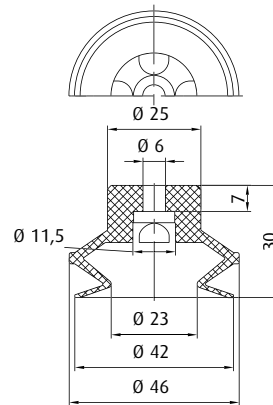


Item no.
22.040.182._*

Material
NBR (bl)

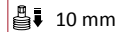


Additional sizes available are found on p. 133.



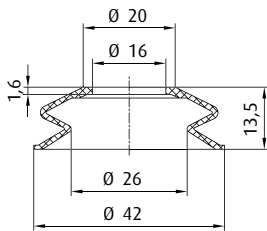
Item no.
23.040.126._*

Material
NBR (sw), SI (tr), PU (bl)



This vacuum cup is also available in the following dimensions: 11 mm, 15 mm, 21 mm, 32 mm, 54 mm

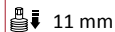
| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |
| 270.274 | G1/4-male | 427 |
| 270.275 | G1/4-female | 432 |



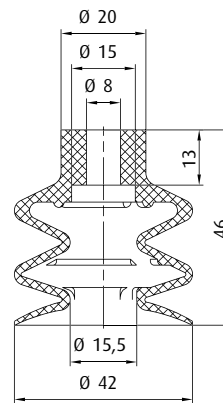
| | Connection | see page |
|-----------|----------------|----------|
| 270.419 | Without Thread | 441 |
| 270.182.U | G1/4-male | 431 |
| 270.182 | G1/4-female | 434 |

Item no.
23.042.048._*

Material
SI (tr), NR (sw), NR (br)



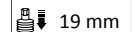
This vacuum cup is also available in the following dimensions: 47 mm



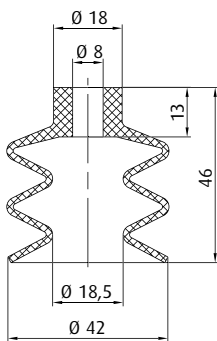
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

Item no.
21.043.049._*

Material
NBR (sw), HNBR (ge), SI (tr), NR (gr)



Additional sizes available are found on p. 89.

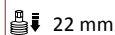


| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

UP TO 160 °C & MINIMUM MARKING

Item no.
21.042.155._*

Material
Thermalon® (bl)



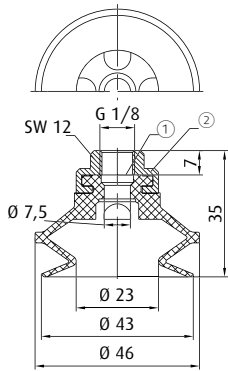
Additional sizes available are found on p. 92.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 43 - 44 mm

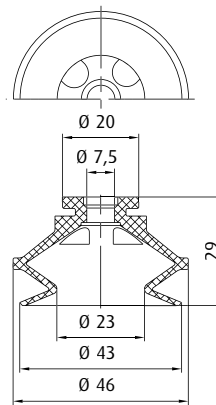


① = Filter screen ② = Aluminium

Item no.
22.040.045.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 9 mm

Additional sizes available are found on p. 104.

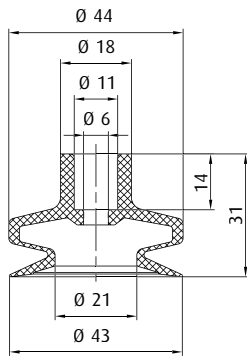
Spare cup



Item no.
23.040.045.* **Material**
Tepuflex® (or), SI (tr), CR (sw) 9 mm

Additional sizes available are found on p. 100.

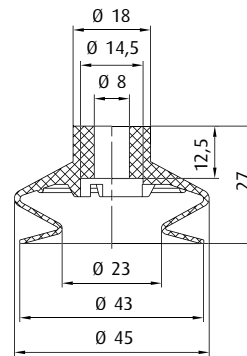
| | Connection | see page |
|-----------|-------------|----------|
| 270.251 | G1/8-female | 423 |
| 270.501-S | G1/8-female | 424 |
| 270.506-S | G1/4-male | 428 |
| 270.505-S | G3/8-male | 434 |



| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.042.049.* **Material**
SI (tr), NR (sw) 14 mm

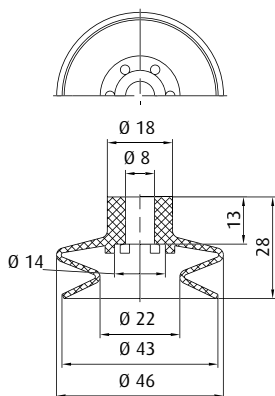
Additional sizes available are found on p. 81.



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

Item no.
23.043.096.* **Material**
NBR (sw), HNBR (ge), SI (tr), NR (gr) 12 mm

Additional sizes available are found on p. 81.

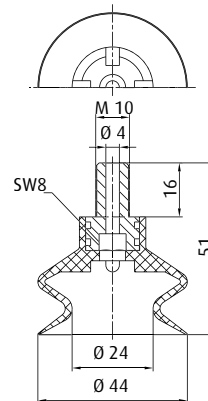


| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

UP TO 160 °C & MINIMUM MARKING

Item no.
23.043.242.* **Material**
Thermalon® (bl) 12.5 mm

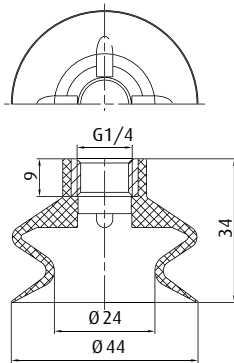
Additional sizes available are found on p. 84.



Item no.
22.044.054.* **Material**
SI (tr), NR (sw) 14 mm

This vacuum cup is also available in the following dimensions: 25 mm, 31 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

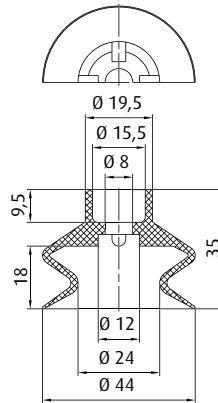


Item no.
22.044.034.*

Material
SI (tr), NR (sw)

15 mm

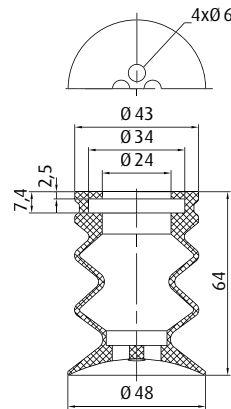
This vacuum cup is also available in the following dimensions: 30 mm, 40 mm, 50 mm



Item no.
23.044.091.*

Material
SI (tr)

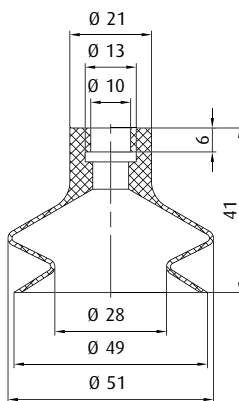
15 mm



Item no.
25.048.056.*

Material
SI (tr)

25 mm

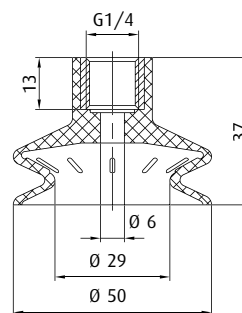


| | Connection | see page |
|---------|-------------|----------|
| 270.213 | G1/4-male | 428 |
| 270.356 | G1/4-female | 433 |

Item no.
23.049.199.*

Material
Vulkollan® (br)

20 mm



Item no.
22.050.058.*

Material
SI (tr), NR (br), NBR (sw)

12 mm

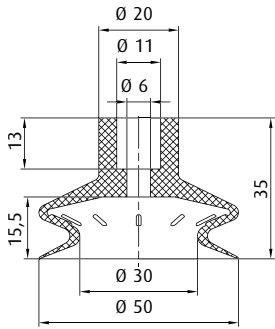
This vacuum cup is also available in the following dimensions: 30 mm, 40 mm, 44 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 50 mm

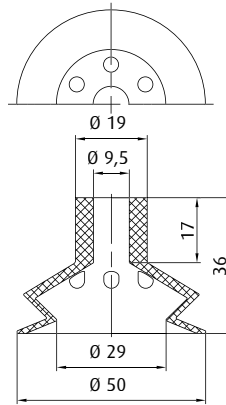


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.050.061.*

Material
SI (tr), NR (sw)

10 mm

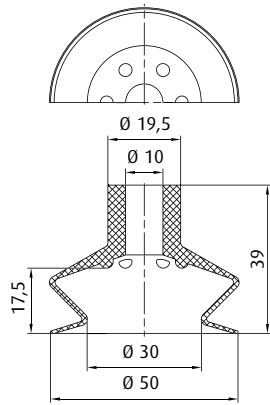


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.050.135.*

Material
NBR (sw)

10 mm

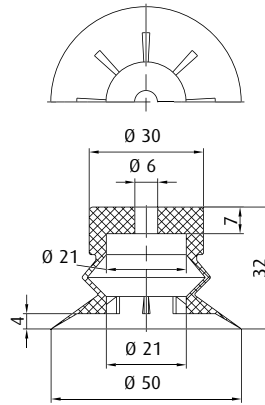


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.044 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.050.188.*

Material
NR (sw)

20 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.499 | M6-male | 414 |
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

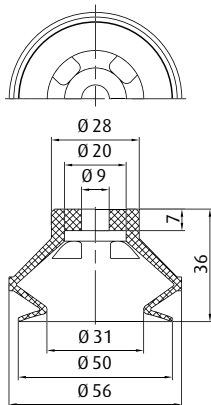
| | | see page |
|--------|-------|----------|
| 50.174 | 20 mm | 456 |
| 50.175 | 30 mm | 456 |
| 50.176 | 40 mm | 456 |
| 50.177 | 50 mm | 456 |

Item no.
23.050.143.*

Material
NBR (sw), SI (tr)

11 mm

Additional sizes available are found on p. 119.



| | Connection | see page |
|---------|-------------|----------|
| 270.314 | M6-male | 415 |
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

| | | see page |
|--------|-------|----------|
| 50.174 | 20 mm | 456 |
| 50.175 | 30 mm | 456 |
| 50.176 | 40 mm | 456 |
| 50.177 | 50 mm | 456 |

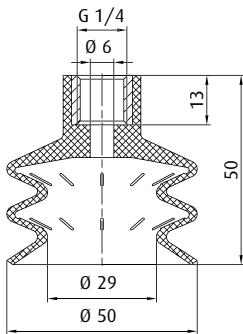
Item no.
23.050.171.*

Material
Vulkollan® (br)

10 mm

Additional sizes available are found on p. 97.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

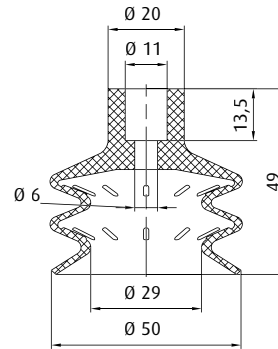


Item no.
20.050.064.*

Material
SI (tr), NR (sw), NR (bg)

18 mm

This vacuum cup is also available in the following dimensions: 30 mm, 40 mm

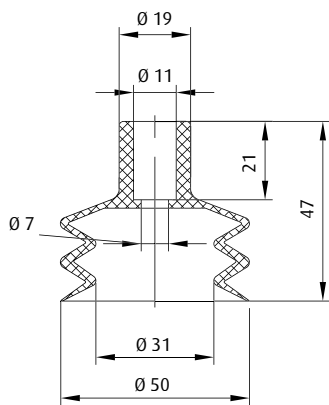


Item no.
21.050.031.*

Material
NBR (sw), SI (tr), NR (sw), NR (br), PU (tr)

18 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

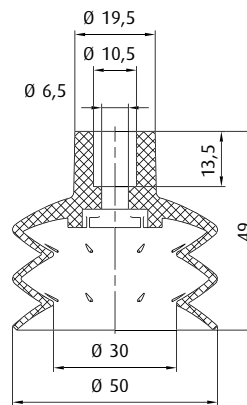


Item no.
21.050.065.*

Material
Vinyl (bl)

25 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



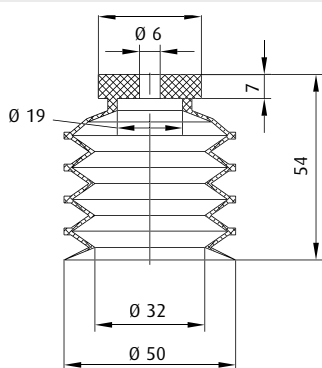
Item no.
21.050.084.*

Material
Vinyl (bl)

20 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Additional sizes available are found on p. 116.



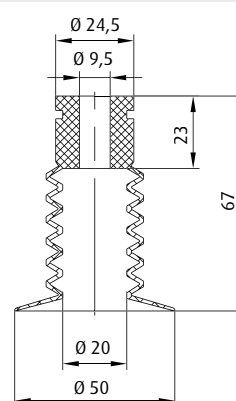
Item no.
25.050.048.*

Material
NBR (sw), SI (tr)

26 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.490 | G1/8-male | 420 |
| 270.489 | G1/8-female | 423 |
| 270.491 | G1/4-male | 429 |
| 270.492 | G1/4-female | 434 |

Additional sizes available are found on p. 124.



Item no.
25.050.054.*

Material
NBR (sw), SI (tr)

29 mm

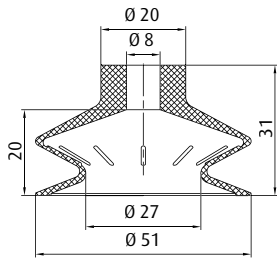
| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.132 | G1/8-male | 417 |
| 270.044 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 51 mm

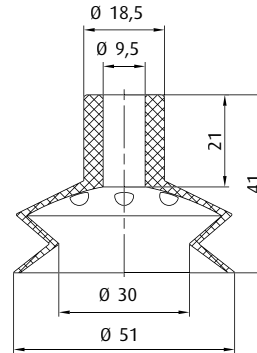


| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

Item no.
23.050.029.*

Material
SI (tr), NR (sw)

10 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.208 | G1/4-male | 425 |
| 270.452 | G1/4-female | 431 |

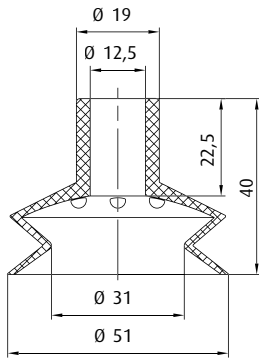
BESTSELLER

Item no.
23.052.116.*

Material
Vinyl (bl)

6 mm

Additional sizes available are found on p. 113.

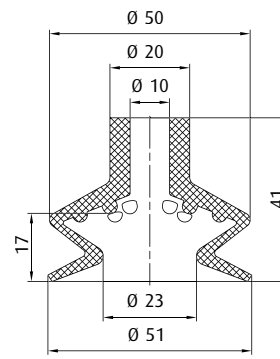


| | Connection | see page |
|---------|------------|----------|
| 270.207 | G1/4-male | 426 |

Item no.
23.052.117.*

Material
SI (tr), Vinyl (bl)

6 mm

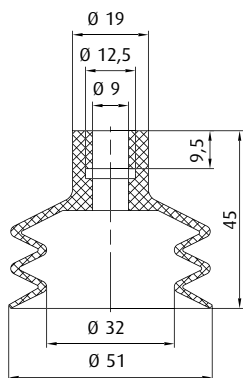


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
23.050.056.*

Material
NBR (sw), SI (tr), NR (sw)

11 mm



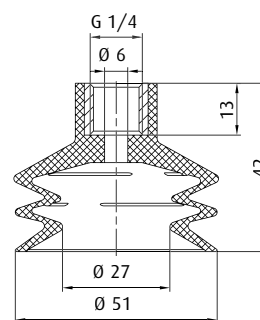
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.204 | G1/4-male | 427 |
| 270.324 | G1/4-female | 432 |

Item no.
21.051.097.*

Material
Vulkollan® (br)

18 mm

Additional sizes available are found on p. 97.

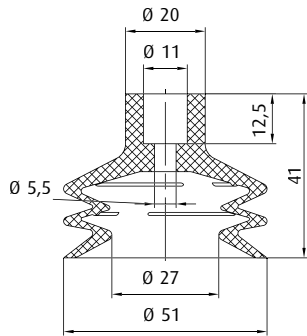


Item no.
20.050.065.*

Material
SI (tr), NR (sw)

8 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

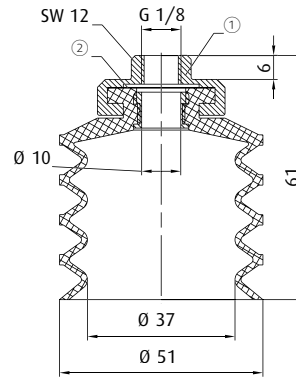


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

Item no.
21.050.032.*

Material
NBR (sw), SI (tr), NR (sw),
NR (br)

8 mm



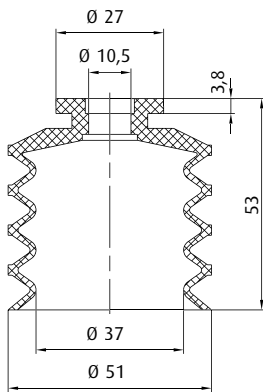
① = Filter screen ② = Aluminium

Item no.
24.050.087.*

Material
SI (tr), CR (sw)

30 mm

Additional sizes available are found on p. 104.



| | Connection | see page |
|-----------|-------------|----------|
| 270.252 | G1/8-female | 424 |
| 270.502-S | G1/8-female | 424 |
| 270.504-S | G1/4-male | 429 |
| 270.507-S | G3/8-male | 435 |

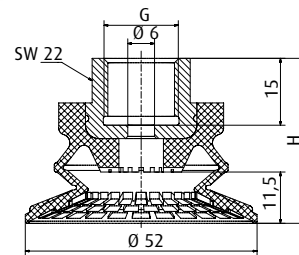
Item no.
25.050.028.*

Material
SI (tr), CR (sw)

25 mm

Additional sizes available are found on p. 100.

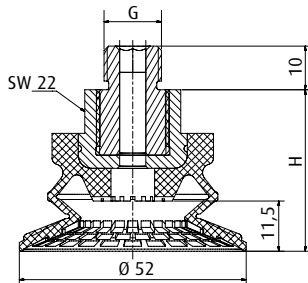
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.050.184.* | NBR (bl) | 11.5 | G1/4-female | 42 |
| 22.050.185.* | NBR (bl) | 11.5 | G3/8-female | 37 |

Additional sizes available are found on p. 133.

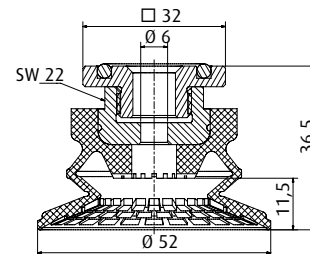
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.050.183.* | NBR (bl) | 11.5 | G1/4-male | 37 |
| 22.050.186.* | NBR (bl) | 11.5 | M10-male | 37 |
| 22.050.187.* | NBR (bl) | 11.5 | M14x1.5-male | 37 |

Additional sizes available are found on p. 133.

NEW



Item no.
22.050.188.*

Material
NBR (bl)

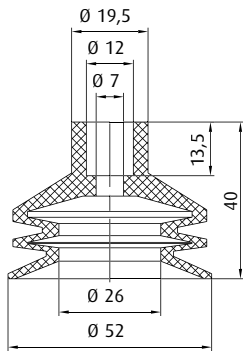
11.5 mm

Additional sizes available are found on p. 133.



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 52 - 53 mm

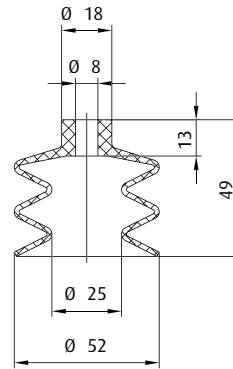


| | Connection | see page |
|---------|------------|----------|
| 270.101 | G1/4-male | 426 |

Item no.
21.052.033_*

Material
NBR (sw)

12 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

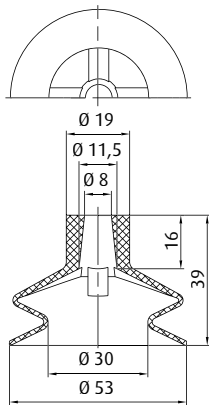
UP TO 160 °C & MINIMUM MARKING

Item no.
21.052.156_*

Material
Thermalon® (b)

27 mm

Additional sizes available are found on p. 92.



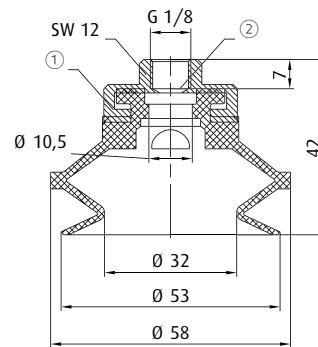
| | Connection | see page |
|---------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.192 | G1/4-female | 432 |

Item no.
23.055.058_*

Material
NBR (sw), SI (r)

11 mm

This vacuum cup is also available in the following dimensions: 31 mm, 75 mm



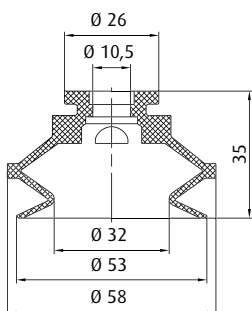
① = Filter screen ② = Aluminium

Item no.
22.050.056_*

Material
Tepuflex® (or), SI (tr), CR (sw)

12 mm

Additional sizes available are found on p. 104.



| | Connection | see page |
|-----------|-------------|----------|
| 270.252 | G1/8-female | 424 |
| 270.502-S | G1/8-female | 424 |
| 270.504-S | G1/4-male | 429 |
| 270.507-S | G3/8-male | 435 |

Item no.
23.050.054_*

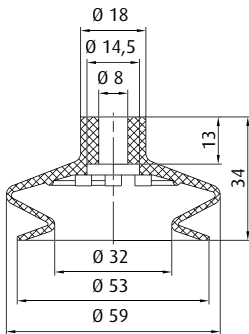
Material
Tepuflex® (or), SI (tr), CR (sw)

12 mm

Additional sizes available are found on p. 100.

Spare cup

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



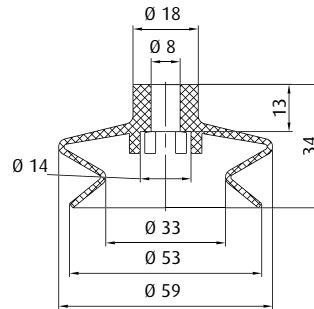
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

Item no.
23.053.033.*

Material
NBR (sw), SI (tr), NR (gr)

11 mm

Additional sizes available are found on p. 81.



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

**UP TO 160 °C &
MINIMUM MARKING**

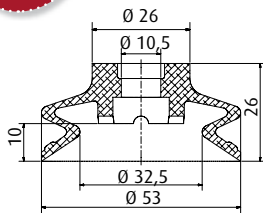
Item no.
23.053.243.*

Material
Thermalon® (bl)

15 mm

Additional sizes available are found on p. 84.

NEW



| | Connection | see page |
|-----------|-------------|----------|
| 270.502-S | G1/8-female | 424 |
| 270.504-S | G1/4-male | 429 |
| 270.507-S | G3/8-male | 435 |

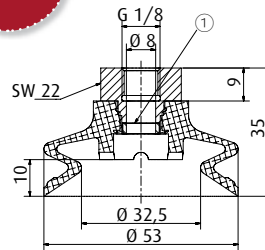
Item no.
23.053.267.*

Material
Varioflex® 60/30° (sw/r)

10 mm

Additional sizes available are found on p. 107.

NEW



① = Filter screen

Item no.
22.053.259.*

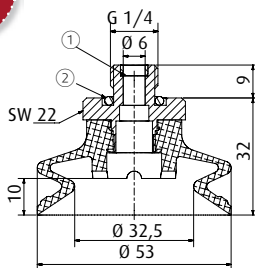
Material
Varioflex® 60/30° (sw/r)

10 mm

Additional sizes available are found on p. 107.

Spare cup

NEW



① = Filter screen ② = O-ring

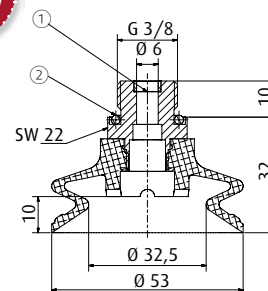
Item no.
22.053.260.*

Material
Varioflex® 60/30° (sw/r)

10 mm

Additional sizes available are found on p. 107.

NEW



① = Filter screen ② = O-ring

Item no.
22.053.261.*

Material
Varioflex® 60/30° (sw/r)

10 mm

Additional sizes available are found on p. 107.

Spare cup

Spare cup

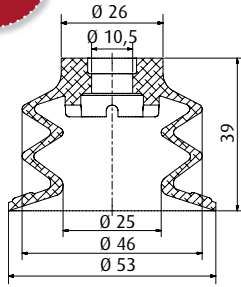
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 53 - 56 mm

NEW

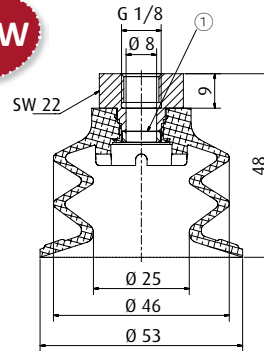


| Connection | see page |
|-----------------------|----------|
| 270.502-S G1/8-female | 424 |
| 270.504-S G1/4-male | 429 |
| 270.507-S G3/8-male | 435 |

Item no. 21.053.178_* **Material** Varioflex® 60/30° (sw/r) 19 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

NEW



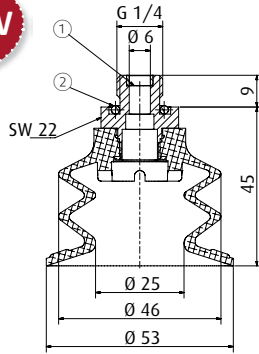
① = Filter screen

Item no. 20.053.151_* **Material** Varioflex® 60/30° (sw/r) 19 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

Spare cup

NEW

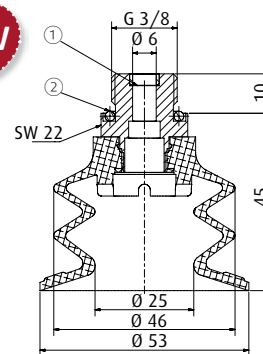


① = Filter screen ② = O-ring

Item no. 20.053.152_* **Material** Varioflex® 60/30° (sw/r) 19 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

NEW



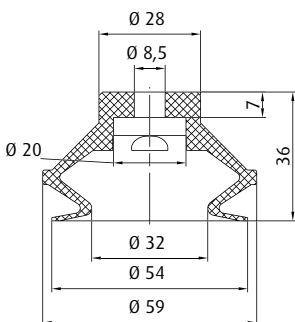
① = Filter screen ② = O-ring

Item no. 20.053.153_* **Material** Varioflex® 60/30° (sw/r) 19 mm

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

Spare cup

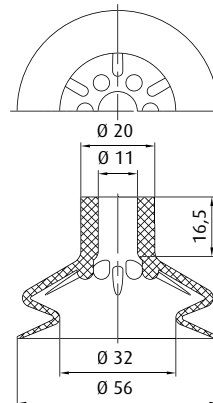
Spare cup



Item no. 23.050.127_* **Material** NBR (sw), SI (tr), PU (bl) 10 mm

This vacuum cup is also available in the following dimensions: 11 mm, 15 mm, 21 mm, 32 mm, 42 mm

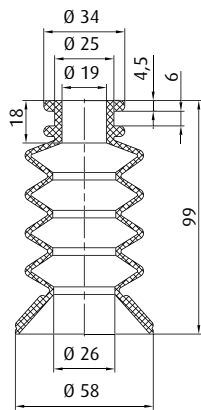
| Connection | see page |
|---------------------|----------|
| 270.314 M6-male | 415 |
| 270.499 M6-male | 414 |
| 270.490 G1/8-male | 420 |
| 270.489 G1/8-female | 423 |
| 270.492 G1/4-female | 434 |



Item no. 23.056.150_* **Material** SI (tr) 16 mm

| Connection | see page |
|---------------------|----------|
| 270.177 M10-male | 416 |
| 270.451 G1/4-male | 426 |
| 270.452 G1/4-female | 431 |

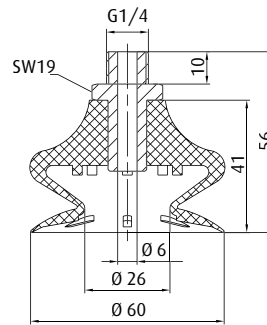
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



Item no.
25.058.049._*

Material
Vinyl (bl)

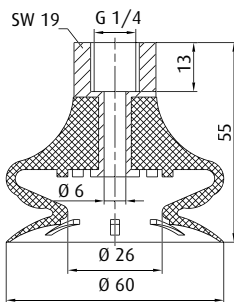
55 mm



Item no.
22.060.142._*

Material
Vulkollan® (br)

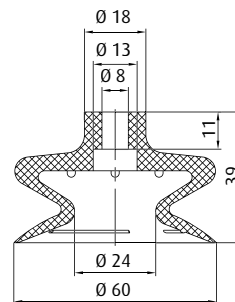
12 mm



Item no.
22.060.143._*

Material
Vulkollan® (br)

12 mm



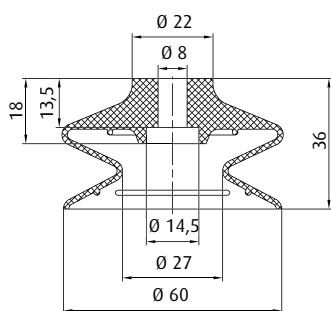
Item no.
23.060.059._*

Material
NBR (sw), SI (r)

15 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.093 | G1/8-male | 421 |
| 270.092 | G1/8-female | 424 |
| 270.249 | G1/4-male | 427 |
| 270.248 | G1/4-female | 433 |

This vacuum cup is also available in the following dimensions: 14 mm, 24 mm, 40 mm

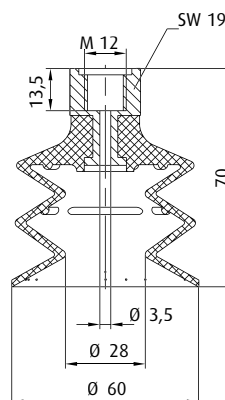


| | Connection | see page |
|---------|-------------|----------|
| 270.281 | G1/4-male | 428 |
| 270.282 | G1/4-female | 433 |

Item no.
23.060.172._*

Material
SI (tr), NR (sw)

12 mm



Item no.
20.060.101._*

Material
NR (sw)

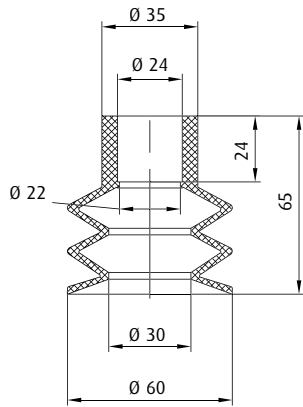
25 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 60 - 61 mm

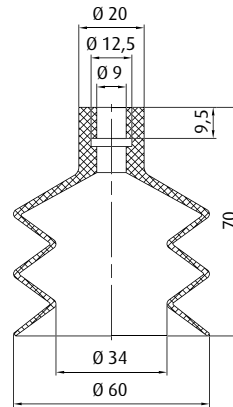


Item no.
21.060.035.*

Material
EPDM (sw), SI (r)

27 mm

This vacuum cup is also available in the following dimensions: 40 mm

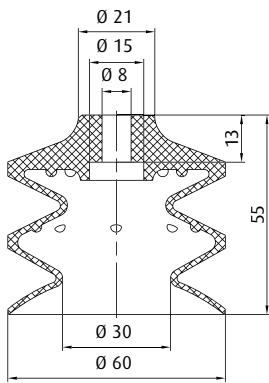


Item no.
21.060.099.*

Material
Vulkollan® (br)

16 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.352 | G1/8-male | 420 |
| 270.204 | G1/4-male | 427 |
| 270.324 | G1/4-female | 432 |



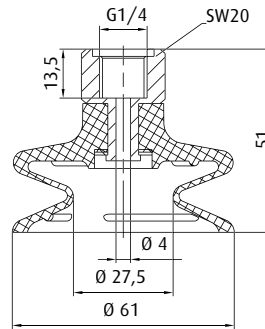
Item no.
21.062.092.*

Material
Vulkollan® (br)

25 mm

Additional sizes available are found on p. 97.

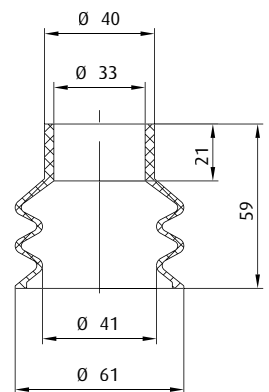
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.540 | G1/4-male | 429 |
| 270.539 | G1/4-female | 434 |



Item no.
22.060.107.*

Material
SI (tr), NR (sw)

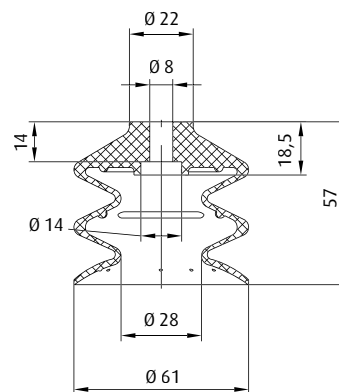
11 mm



Item no.
21.060.038.*

Material
NBR (sw), SI (tr)

25 mm



Item no.
21.060.051.*

Material
HNBR (ge), SI (tr), NR (sw)



25 mm

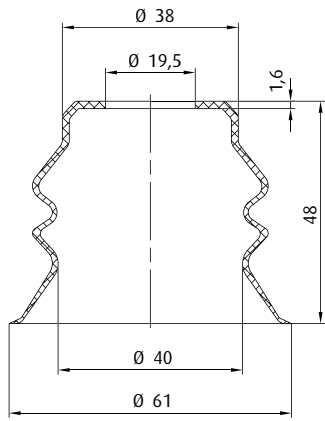
| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.540 | G1/4-male | 429 |
| 270.539 | G1/4-female | 434 |

Additional sizes available are found on p. 94.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760






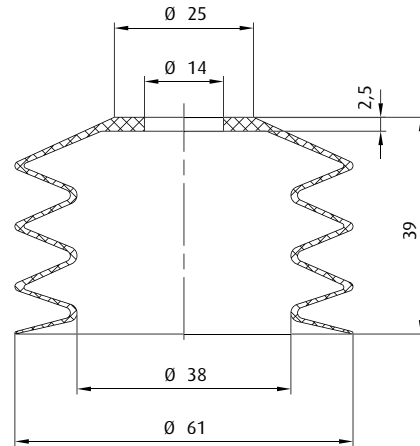
|  | Connection | see page |
|---|------------|----------|
|  | G1/2-male | 437 |








| | | |
|---|----------------------------|---|
| Item no. 21.060.074._* | Material SI (tr) |  12 mm |
|---|----------------------------|---|

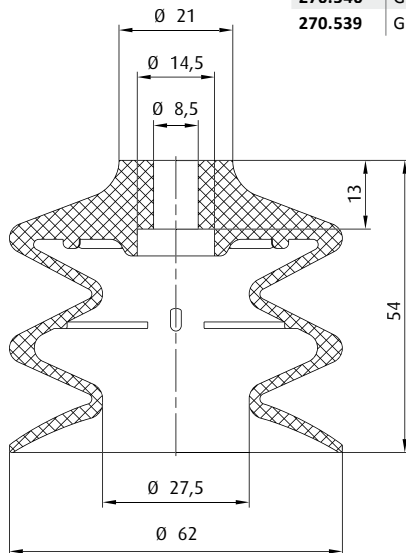
Additional sizes available are found on p. 126.


|  | Connection | see page |
|---|-------------|----------|
|  | G1/4-male | 431 |
|  | G1/4-female | 434 |









| | | |
|---|--------------------------------------|---|
| Item no. 25.060.033._* | Material NBR (sw), SI (br) |  16 mm |
|---|--------------------------------------|---|

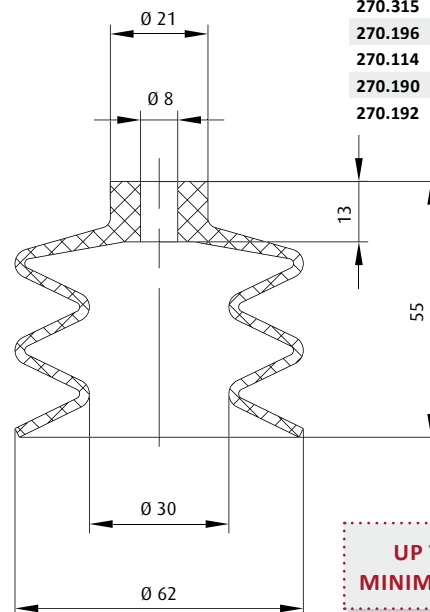
|  | Connection | see page |
|---|-------------|----------|
|  | M6-male | 414 |
|  | G1/4-male | 429 |
|  | G1/4-female | 434 |



| | | |
|---|--------------------------------------|---|
| Item no. 21.062.055._* | Material NBR (sw), SI (tr) |  25 mm |
|---|--------------------------------------|---|

Additional sizes available are found on p. 89.

|  | Connection | see page |
|---|-------------|----------|
|  | M6-male | 414 |
|  | G1/8-male | 420 |
|  | G1/8-female | 422 |
|  | G1/4-male | 428 |
|  | G1/4-female | 432 |



UP TO 160 °C & MINIMUM MARKING

| | | |
|---|------------------------------------|---|
| Item no. 21.062.157._* | Material Thermalon® (bl) |  31 mm |
|---|------------------------------------|---|

Additional sizes available are found on p. 92.

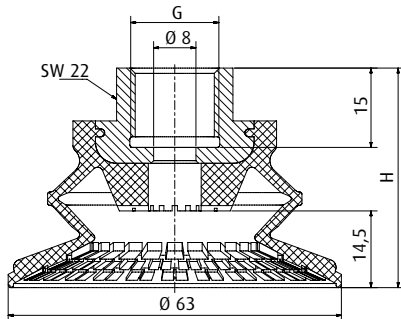
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by \emptyset

\emptyset 62 - 63 mm

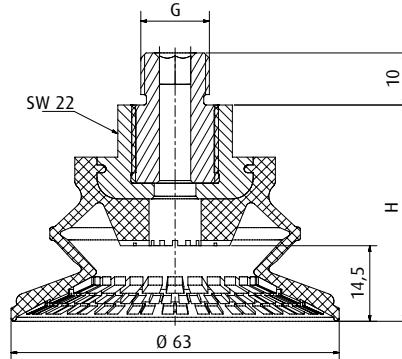
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.060.190.* | NBR (bl) | 14.5 | G1/4-female | 46.5 |
| 22.060.191.* | NBR (bl) | 14.5 | G3/8-female | 41.5 |

Additional sizes available are found on p. 133.

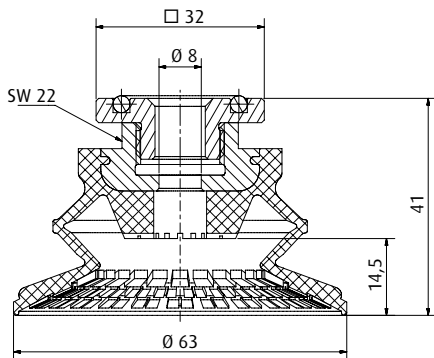
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.060.189.* | NBR (bl) | 14.5 | G1/4-male | 41.5 |
| 22.060.192.* | NBR (bl) | 14.5 | M10-male | 41.5 |
| 22.060.193.* | NBR (bl) | 14.5 | M14x1.5-male | 41.5 |

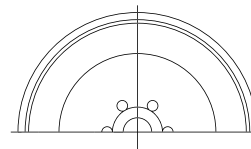
Additional sizes available are found on p. 133.

NEW

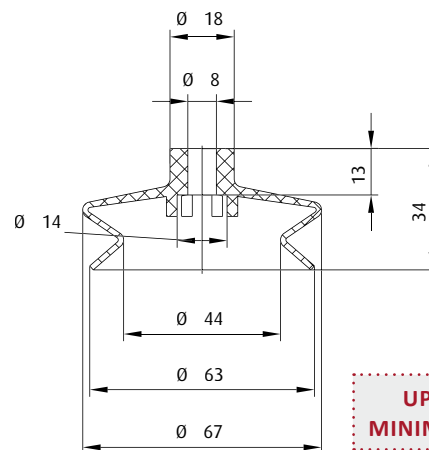


| Item no. | Material | [mm] |
|--------------|----------|---------|
| 22.060.194.* | NBR (bl) | 14.5 mm |

Additional sizes available are found on p. 133.



| | Connection | see page |
|---------|-------------|----------|
| 270.315 | M6-male | 414 |
| 270.196 | G1/8-male | 420 |
| 270.114 | G1/8-female | 422 |
| 270.190 | G1/4-male | 428 |
| 270.192 | G1/4-female | 432 |

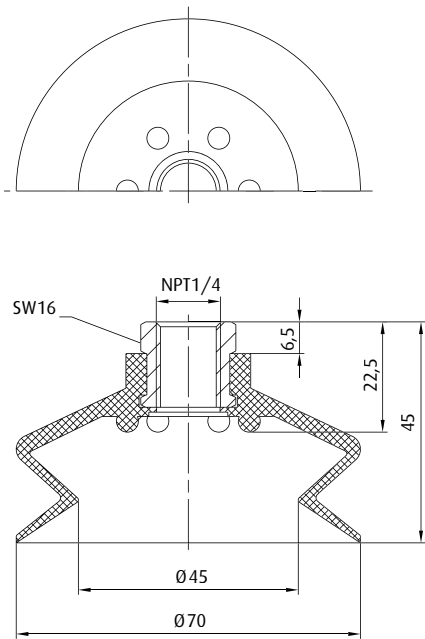


UP TO 160 °C & MINIMUM MARKING

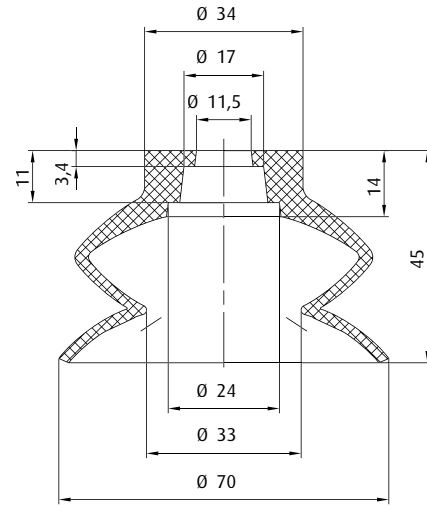
| Item no. | Material | [mm] |
|--------------|-----------------|-------|
| 23.063.244.* | Thermalon® (bl) | 15 mm |

Additional sizes available are found on p. 84.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



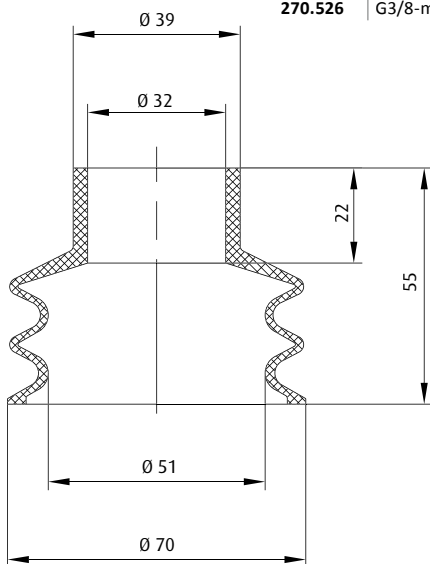
Item no. 22.070.127._* **Material** Vinyl (bl) 13 mm



| | Connection | see page |
|---------|------------|----------|
| 270.184 | G1/4-male | 431 |

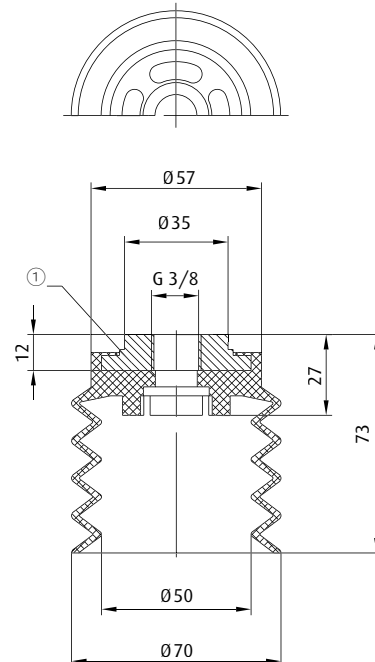
Item no. 23.070.060._* **Material** NBR (sw), SI (tr), NR (sw), Vinyl (bl) 20 mm

Additional sizes available are found on p. 113.



| | Connection | see page |
|---------|------------|----------|
| 270.526 | G3/8-male | 435 |

Item no. 21.070.041._* **Material** NR (sw), SI (tr) 17 mm



① = Aluminium

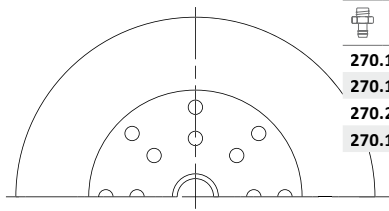
Item no. 25.069.050._* **Material** Vinyl (bl) 32 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

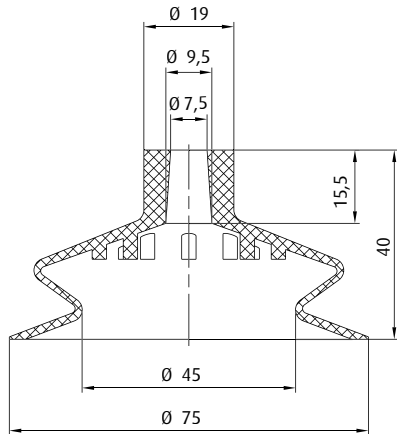


Vacuum cups by size | Bellows vacuum cups by Ø

Ø 75 mm

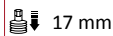


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.132 | G1/8-male | 417 |
| 270.114 | G1/8-female | 422 |
| 270.208 | G1/4-male | 425 |
| 270.178 | G1/4-female | 431 |

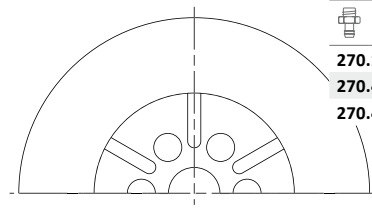


Item no.
23.075.063._*

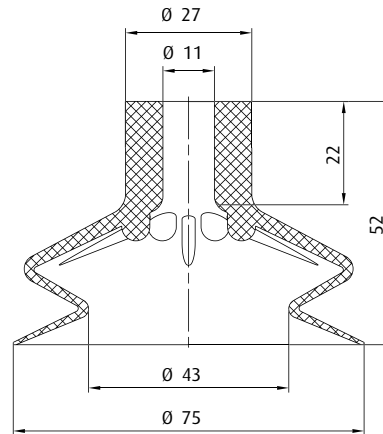
Material
NBR (sw), SI (r)



This vacuum cup is also available in the following dimensions: 31 mm, 53 mm

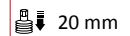


| Item no. | Connection | see page |
|----------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |



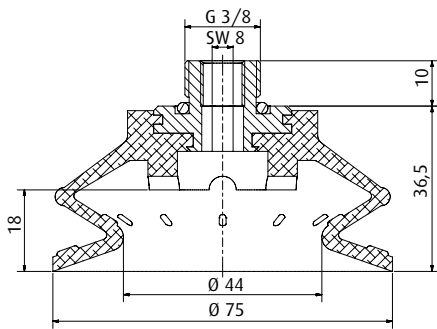
Item no.
23.075.151._*

Material
NBR (sw), SI (tr)



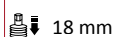
Additional sizes available are found on p. 81.

NEW



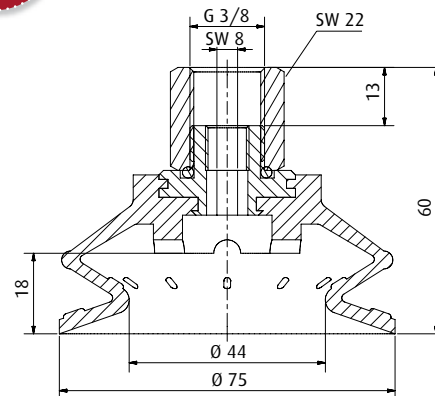
Item no.
22.075.262._*

Material
Varioflex® 60/30° (sw/r)



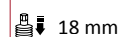
Additional sizes available are found on p. 107.

NEW



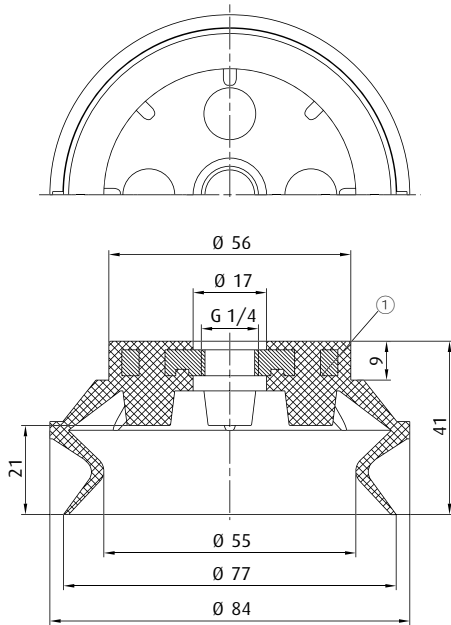
Item no.
22.075.263._*

Material
Varioflex® 60/30° (sw/r)



Additional sizes available are found on p. 107.

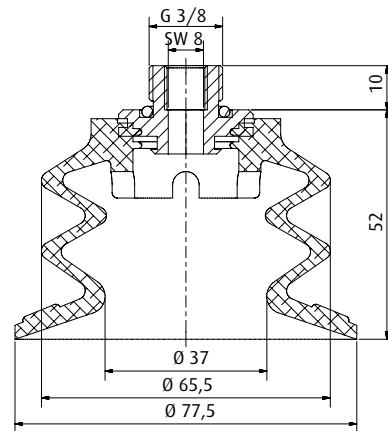
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Aluminium

| | | |
|---------------------------------|---|-------|
| Item no. 23.075.130.* | Material NBR (sw), SI (tr), PU (bl) | 21 mm |
|---------------------------------|---|-------|

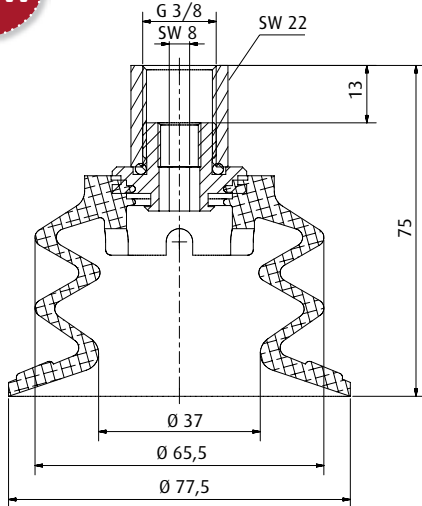
NEW



| | | |
|---------------------------------|---|-------|
| Item no. 20.077.154.* | Material Varioflex® 60/30° (sw/r) | 25 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

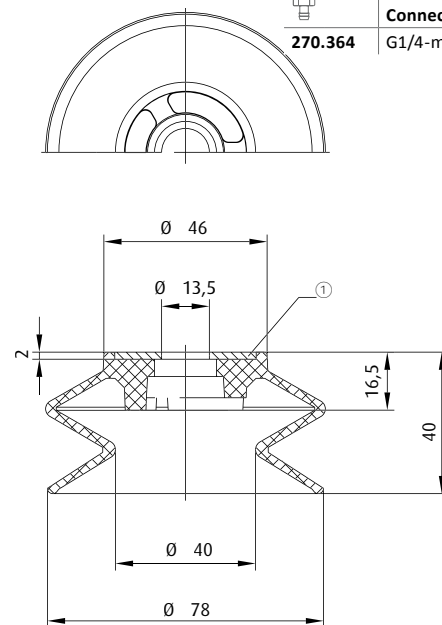
NEW



| | | |
|---------------------------------|---|-------|
| Item no. 20.077.155.* | Material Varioflex® 60/30° (sw/r) | 25 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 110.
Ordering notes: For version with in bellows inserted filter disc please add "-FI" to material code

| | | |
|---------|-------------------|-----------------|
| | Connection | see page |
| 270.364 | G1/4-male | 430 |



① = Aluminium

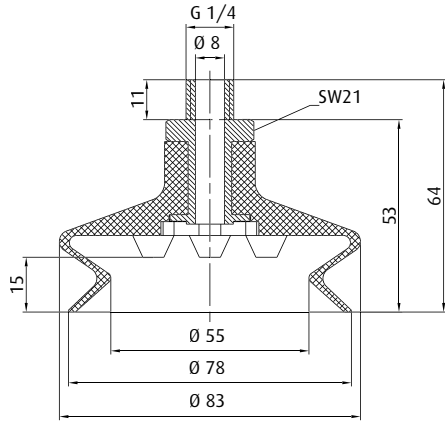
| | | |
|---------------------------------|-----------------------------|-------|
| Item no. 22.080.144.* | Material SBR (br) | 23 mm |
|---------------------------------|-----------------------------|-------|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 78 - 80 mm

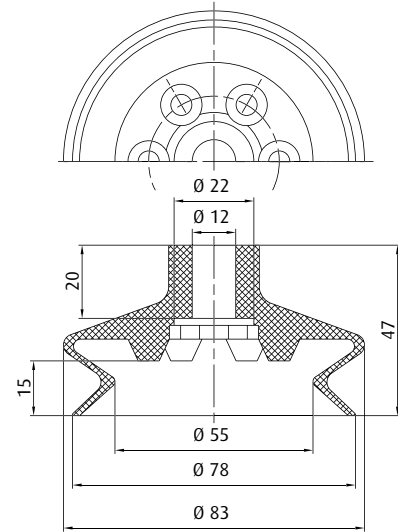


Item no.
22.078.071.*

Material
NBR (sw), SI (tr), NR (gr)

15 mm

Spare cup

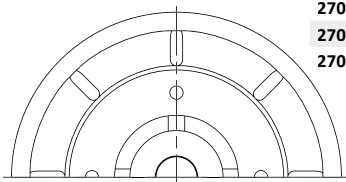


Item no.
23.078.067.*

Material
NBR (sw), SI (tr), NR (gr)

15 mm

| | Connection | see page |
|---------|------------|----------|
| 270.184 | G1/4-male | 431 |



| | Connection | see page |
|---------|-------------|----------|
| 270.462 | M10-male | 416 |
| 270.514 | G1/4-male | 429 |
| 270.513 | G1/4-female | 434 |

① = Aluminium

FLEXIBLE & STABLE

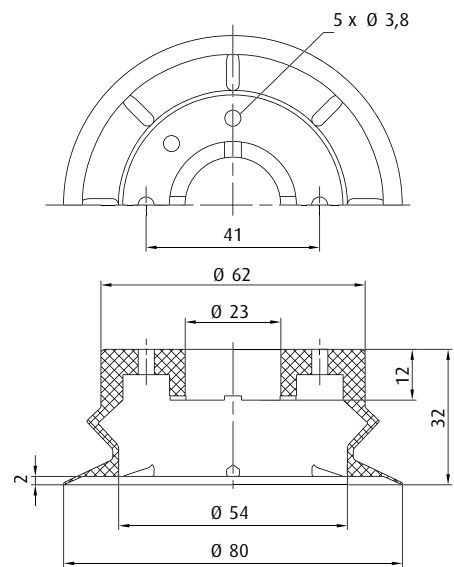
Item no.
22.080.161.*

Material
NBR (sw), SI (tr)

10 mm

Additional sizes available are found on p. 119.

Spare cup



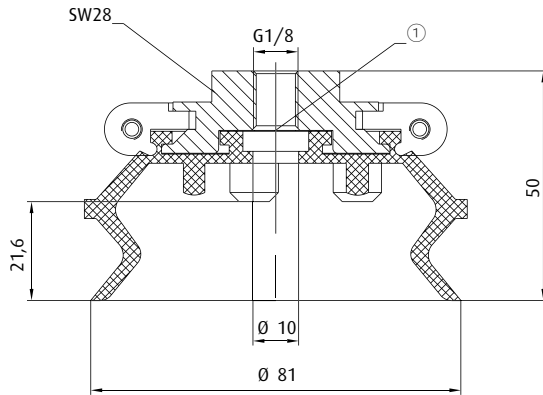
Item no.
23.080.144.*

Material
NBR (sw), SI (tr)

10 mm

Additional sizes available are found on p. 119.

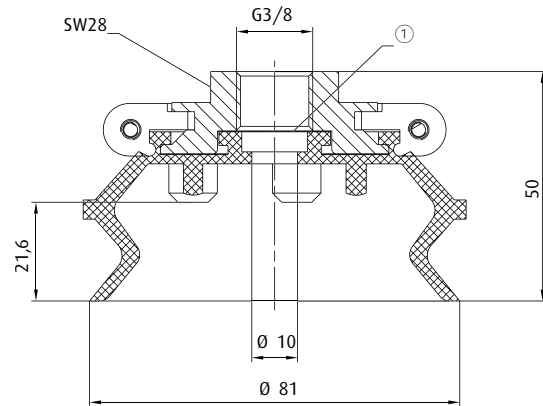
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Filter screen

| | | |
|---------------------------------|---|-------|
| Item no. 22.078.163.* | Material Tepuflex® (or), SI (tr), CR (sw) | 22 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 104.



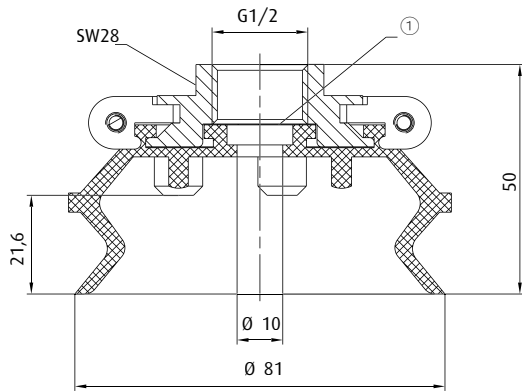
① = Filter screen

| | | |
|---------------------------------|---|-------|
| Item no. 22.078.166.* | Material Tepuflex® (or), SI (tr), CR (sw) | 22 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 104.

Spare cup

Spare cup

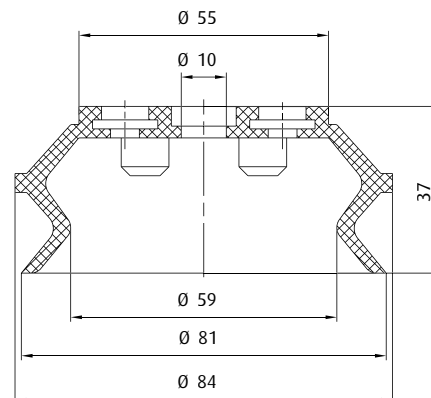


① = Filter screen

| | | |
|---------------------------------|---|-------|
| Item no. 22.078.169.* | Material Tepuflex® (or), SI (tr), CR (sw) | 22 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 104.

Spare cup



| | Connection | see page |
|-----------|-------------|----------|
| 270.527-S | G1/8-female | 424 |
| 270.528-S | G3/8-female | 436 |
| 270.529-S | G1/2-female | 436 |

| | | |
|---------------------------------|---|-------|
| Item no. 23.078.065.* | Material Tepuflex® (or), SI (tr), CR (sw) | 22 mm |
|---------------------------------|---|-------|

Additional sizes available are found on p. 100.

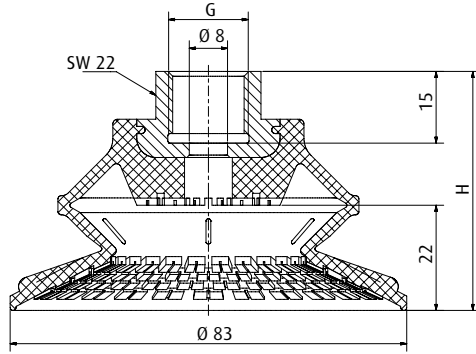
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by \varnothing

\varnothing 82 - 84 mm

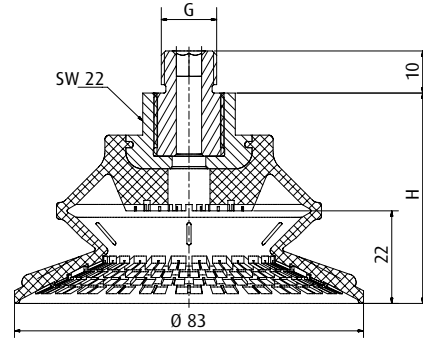
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.080.196.* | NBR (bl) | 22 | G1/4-female | 55 |
| 22.080.197.* | NBR (bl) | 22 | G3/8-female | 50 |

Additional sizes available are found on p. 133.

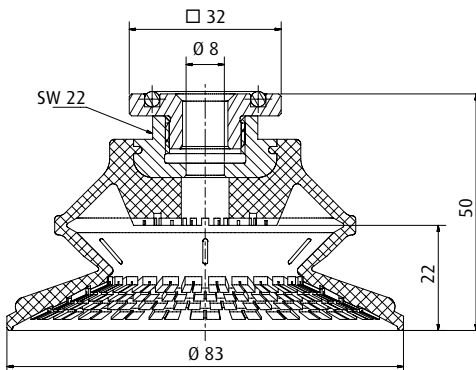
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.080.195.* | NBR (bl) | 22 | G1/4-male | 50 |
| 22.080.198.* | NBR (bl) | 22 | M10-male | 50 |
| 22.080.199.* | NBR (bl) | 22 | M14x1.5-male | 50 |

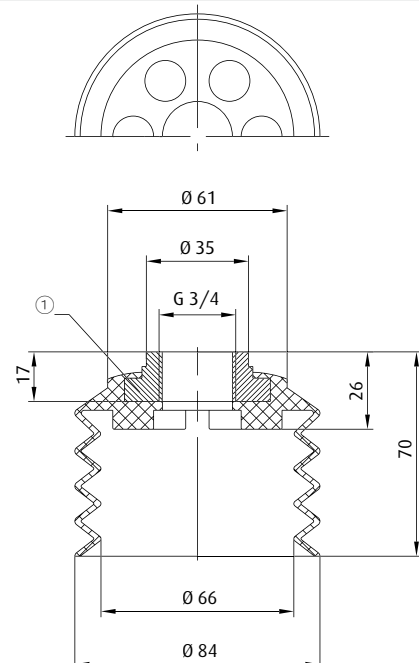
Additional sizes available are found on p. 133.

NEW



| Item no. | Material | 22 mm |
|--------------|----------|-------|
| 22.080.200.* | NBR (bl) | |

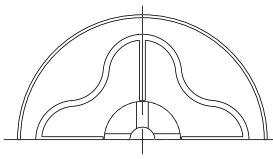
Additional sizes available are found on p. 133.



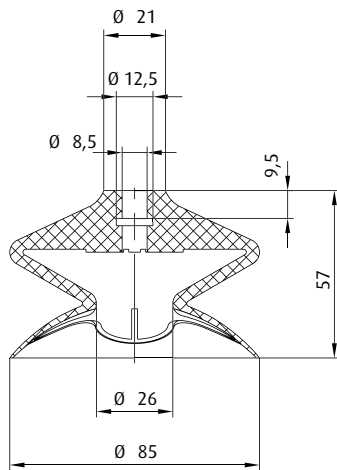
① = Aluminium

| Item no. | Material | 31 mm |
|--------------|------------|-------|
| 25.084.051.* | Vinyl (bl) | |

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



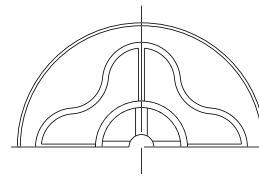
| | Connection | see page |
|---------|-------------|----------|
| 270.359 | G1/4-male | 427 |
| 270.361 | G1/4-female | 433 |



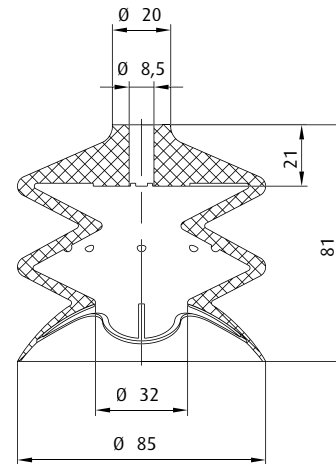
Item no.
23.085.201.*

Material
Vulkollan® (br)

25 mm



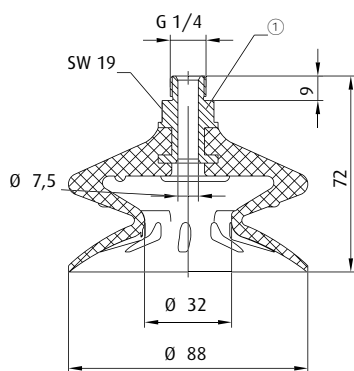
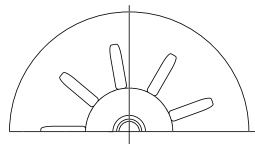
| | Connection | see page |
|---------|------------|----------|
| 270.359 | G1/4-male | 427 |



Item no.
21.085.107.*

Material
Vulkollan® (br)

38 mm



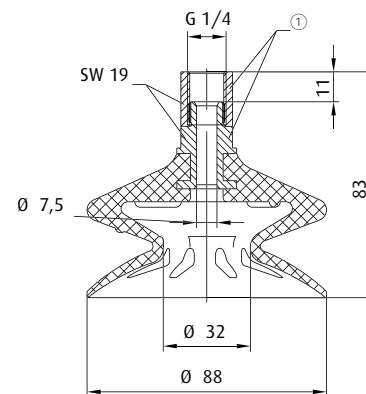
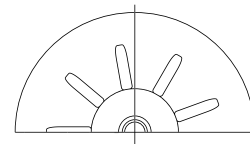
① = Aluminium fitting, vulcanised

Item no.
22.088.158.*

Material
NBR (sw), SI (tr)

23 mm

Additional sizes available are found on p. 81.



① = Aluminium fitting, vulcanised

Item no.
22.088.159.*

Material
NBR (sw), SI (tr)

23 mm

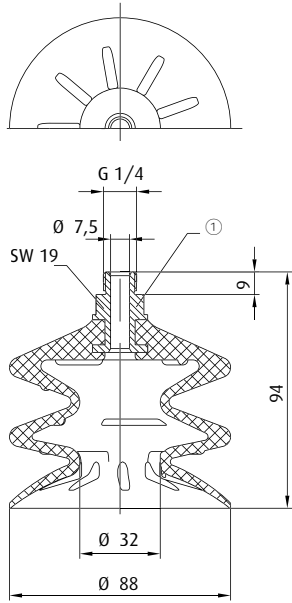
Additional sizes available are found on p. 81.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 88 - 92 mm



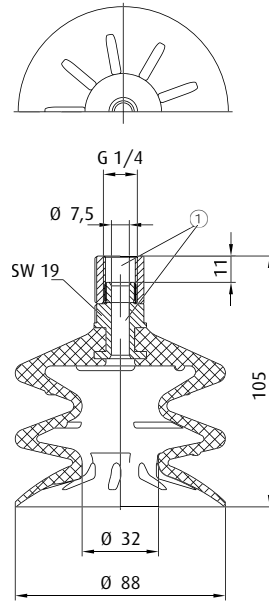
① = Aluminium fitting, vulcanised

Item no.
20.088.123._*

Material
NBR (sw), SI (tr)

36 mm

Additional sizes available are found on p. 89.



① = Aluminium fitting, vulcanised

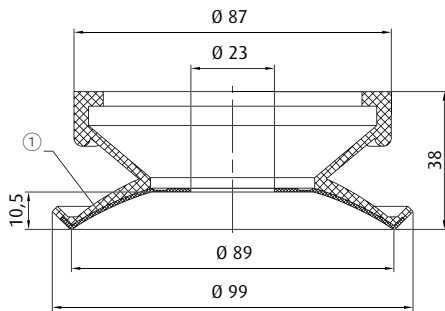
Item no.
20.088.124._*

Material
NBR (sw), SI (tr)

36 mm

Additional sizes available are found on p. 89.

| | Connection | see page |
|---------|-------------|----------|
| 270.400 | G3/8-female | 436 |



HEAT RESISTANT & LOW MARKING

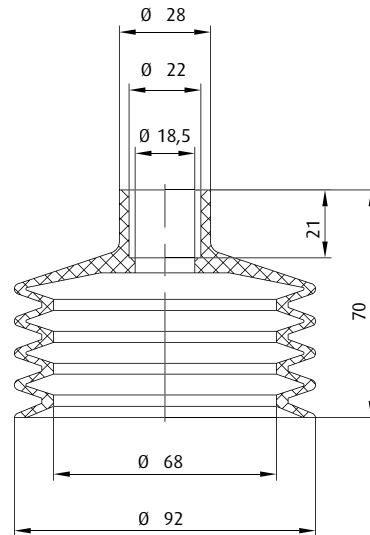
① = Felt pads

Item no.
26.090.001._*

Material
SI (tr/ge), FKM (sw/ge)

17 mm

Additional sizes available are found on p. 164.

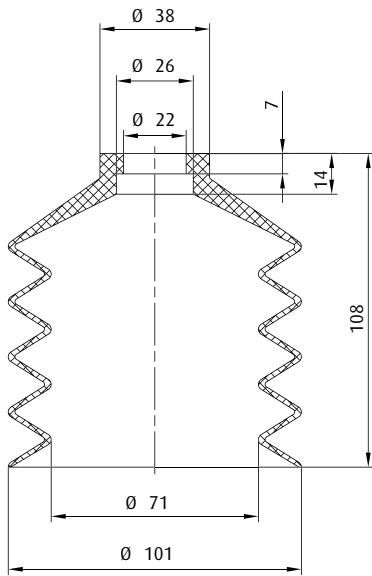


Item no.
25.091.052._*

Material
Vinyl (bl)

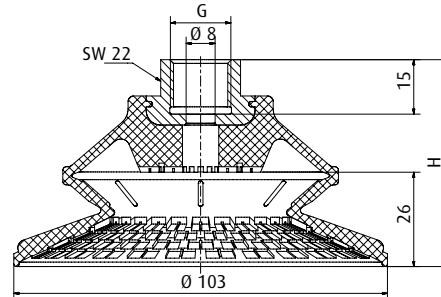
32 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | | |
|----------------------------------|-------------------------------|-------|
| Item no. 25.102.053._* | Material Vinyl (bl) | 55 mm |
|----------------------------------|-------------------------------|-------|

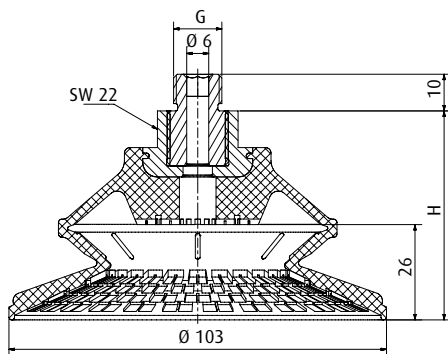
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 22.100.202._* | NBR (bl) | 26 | G1/4-female | 62 |
| 22.100.203._* | NBR (bl) | 26 | G3/8-female | 57 |

Additional sizes available are found on p. 133.

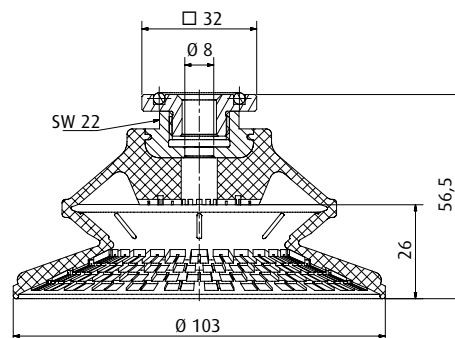
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|---------------|----------|------|-------------------|--------|
| 22.100.201._* | NBR (bl) | 26 | G1/4-male | 57 |
| 22.100.204._* | NBR (bl) | 26 | M10-male | 57 |
| 22.100.205._* | NBR (bl) | 26 | M14x1.5-male | 57 |

Additional sizes available are found on p. 133.

NEW



| | | |
|----------------------------------|-----------------------------|-------|
| Item no. 22.100.206._* | Material NBR (bl) | 26 mm |
|----------------------------------|-----------------------------|-------|

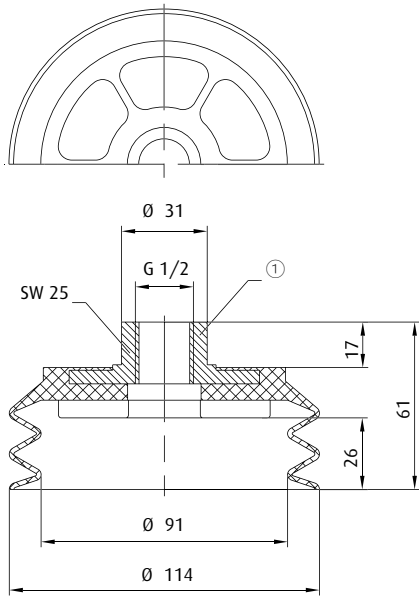
Additional sizes available are found on p. 133.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



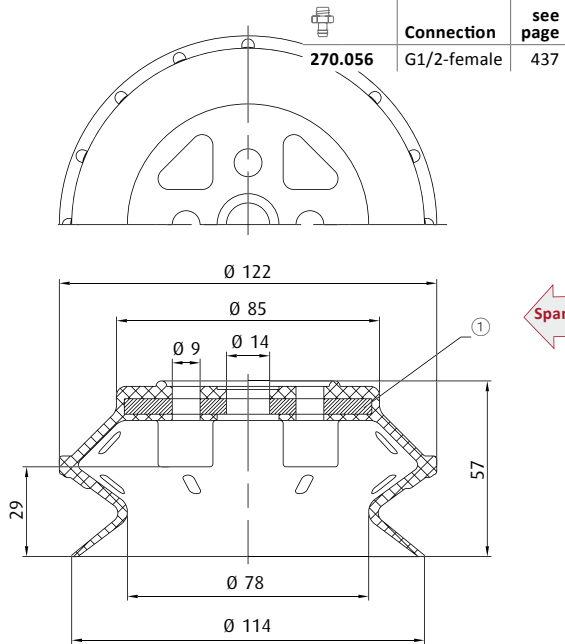
Vacuum cups by size | Bellows vacuum cups by Ø

Ø 114 mm



① = Aluminium

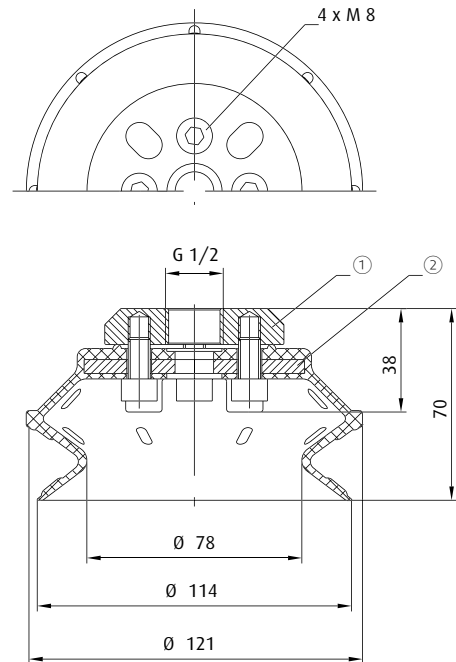
| | | |
|----------------------------------|-------------------------------|-------|
| Item no. 20.115.114._* | Material Vinyl (bl) | 27 mm |
|----------------------------------|-------------------------------|-------|



① = Steel

| | | |
|----------------------------------|-----------------------------|-------|
| Item no. 23.110.070._* | Material NBR (sw) | 29 mm |
|----------------------------------|-----------------------------|-------|

Notes: Hardness 70° Shore A




① = Aluminium ② = Steel

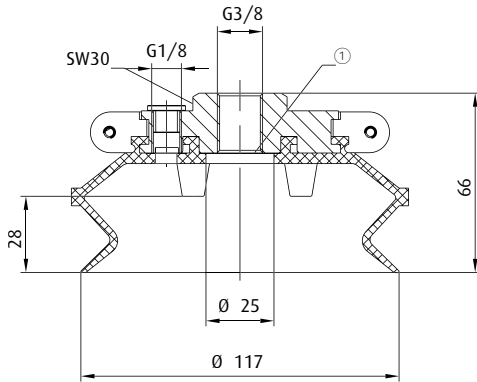
| | | |
|----------------------------------|-----------------------------|-------|
| Item no. 22.110.080._* | Material NBR (sw) | 29 mm |
|----------------------------------|-----------------------------|-------|

Notes: Hardness 70° Shore A

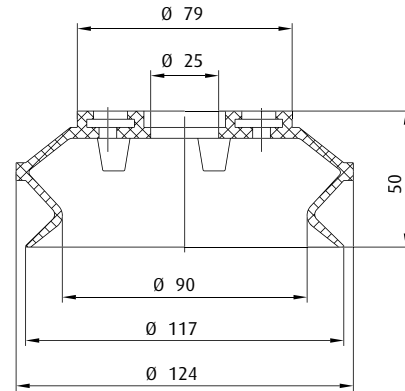
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




|  | Connection | see page |
|---|-------------|----------|
| 270.530-S | G3/8-female | 437 |
| 270.531-S | G1/2-female | 437 |




Spare cup



① = Filter screen


| | | |
|---------------------------------|---|---|
| Item no. 22.117.164.* | Material Tepuflex® (or), SI (tr), CR (sw) |  29 mm |
|---------------------------------|---|---|

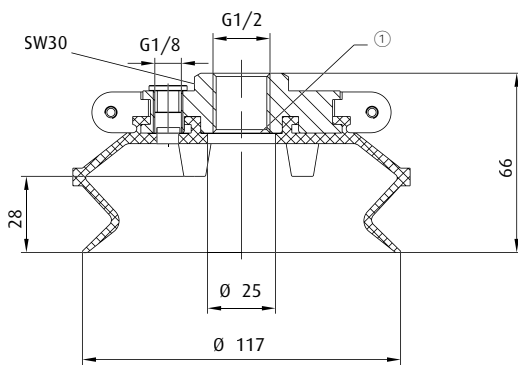
Additional sizes available are found on p. 104.

| | | |
|---------------------------------|---|---|
| Item no. 23.117.069.* | Material Tepuflex® (or), SI (tr), CR (sw) |  29 mm |
|---------------------------------|---|---|


Additional sizes available are found on p. 100.

Spare cup

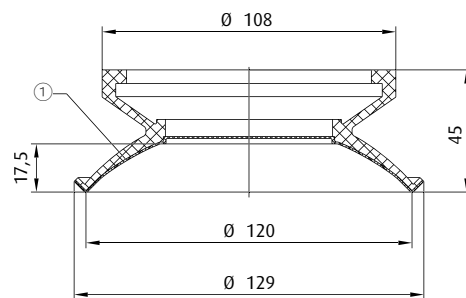
|  | Connection | see page |
|---|-------------|----------|
| 270.402 | G3/8-female | 436 |



① = Filter screen


| | | |
|---------------------------------|---|---|
| Item no. 22.117.167.* | Material Tepuflex® (or), SI (tr), CR (sw) |  29 mm |
|---------------------------------|---|---|

Additional sizes available are found on p. 104.



HEAT RESISTANT & LOW MARKING

① = Felt pads

| | | |
|---------------------------------|--------------------------------|---|
| Item no. 26.120.002.* | Material FKM (sw/ge) |  18 mm |
|---------------------------------|--------------------------------|---|

Additional sizes available are found on p. 164.

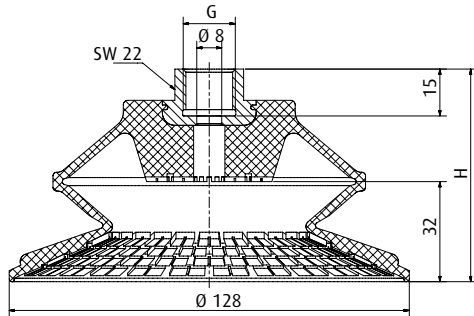
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by \emptyset

\emptyset 128 mm

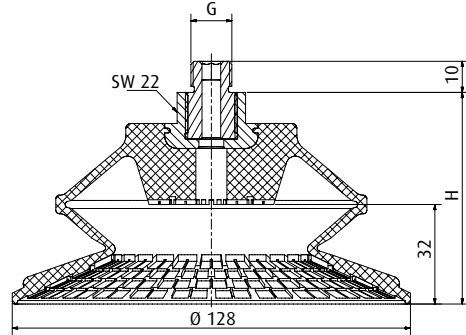
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.125.208.* | NBR (bl) | 32 | G1/4-female | 73 |
| 22.125.209.* | NBR (bl) | 32 | G3/8-female | 68 |

Additional sizes available are found on p. 133.

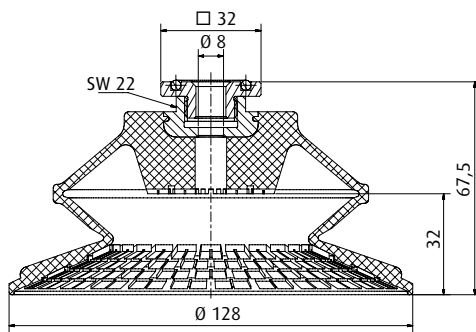
NEW



| Item no. | Material | [mm] | Connection thread | H [mm] |
|--------------|----------|------|-------------------|--------|
| 22.125.207.* | NBR (bl) | 32 | G1/4-male | 68 |
| 22.125.210.* | NBR (bl) | 32 | M10-male | 68 |
| 22.125.211.* | NBR (bl) | 32 | M14x1.5-male | 68 |

Additional sizes available are found on p. 133.

NEW



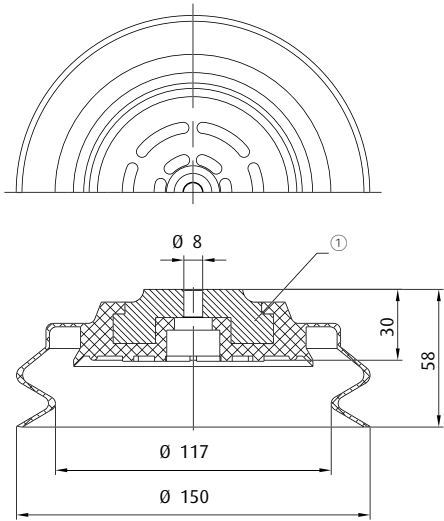
| Item no. | Material | 32 mm |
|--------------|----------|-------|
| 22.125.212.* | NBR (bl) | |

Additional sizes available are found on p. 133.

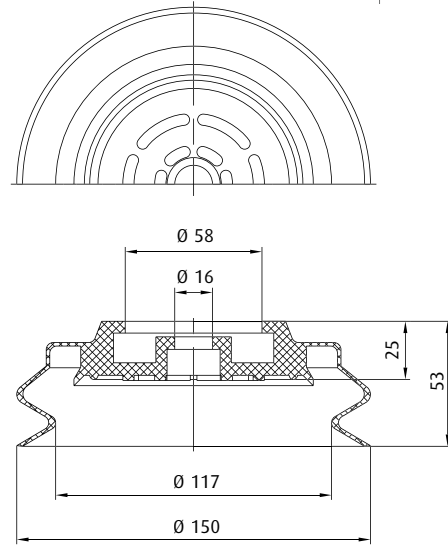
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|------------|----------|
| 270.270 | Without | 440 |



Spare cup

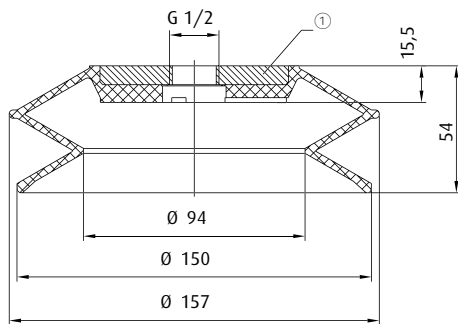


① = Aluminium

| | | |
|----------------------------------|-----------------------------|-------|
| Item no. 22.150.109._* | Material NBR (sw) | 28 mm |
|----------------------------------|-----------------------------|-------|

Additional sizes available are found on p. 136.

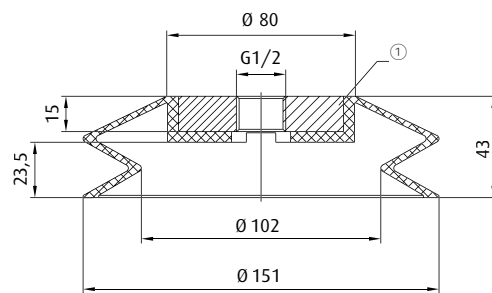
| | | |
|----------------------------------|-----------------------------|-------|
| Item no. 23.150.090._* | Material NBR (sw) | 28 mm |
|----------------------------------|-----------------------------|-------|



① = Steel

| | | |
|----------------------------------|--------------------------------------|-------|
| Item no. 22.150.084._* | Material NBR (gr), NR (br) | 32 mm |
|----------------------------------|--------------------------------------|-------|

Additional sizes available are found on p. 137.



① = Aluminium

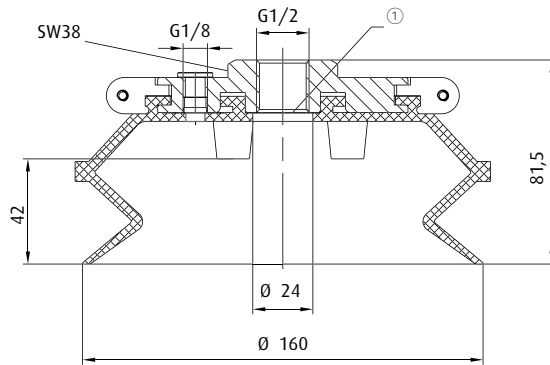
| | | |
|----------------------------------|--------------------------------------|-------|
| Item no. 23.150.020._* | Material NBR (sw), SI (tr) | 20 mm |
|----------------------------------|--------------------------------------|-------|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 160 mm



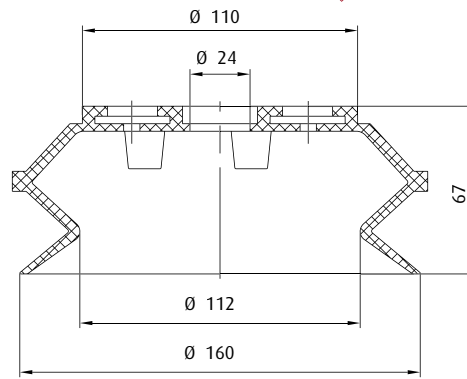
① = Filter screen

Item no.
22.160.165.*

Material
Tepuflex® (or), SI (tr), CR (sw)

41 mm

Additional sizes available are found on p. 104.
This vacuum cup is also available in the following dimensions: 160 mm



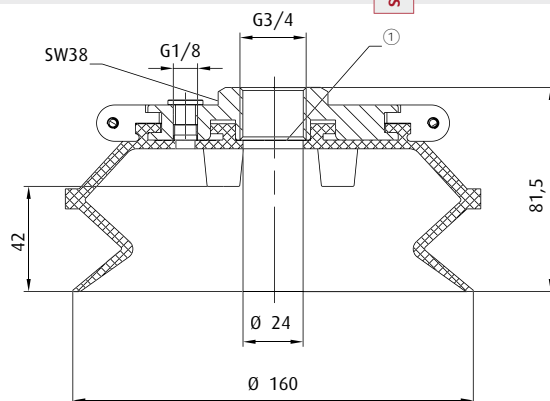
| | Connection | see page |
|-----------|-------------|----------|
| 270.532-S | G1/2-female | 437 |
| 270.533-S | G3/4-female | 437 |

Item no.
23.160.072.*

Material
Tepuflex® (or), SI (tr), CR (sw)

41 mm

Additional sizes available are found on p. 100.



① = Filter screen

Item no.
22.160.168.*


Material
Tepuflex® (or), SI (tr), CR (sw)

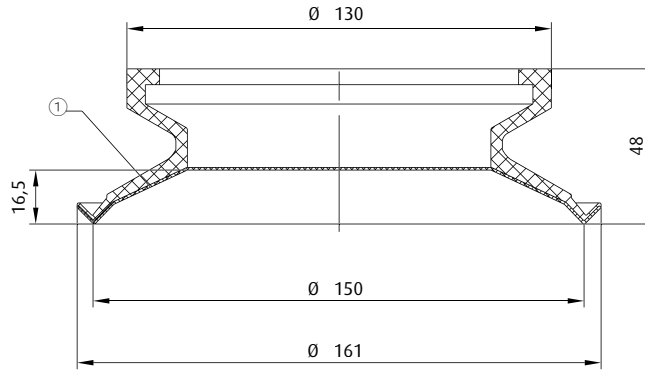
41 mm

Additional sizes available are found on p. 104.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760




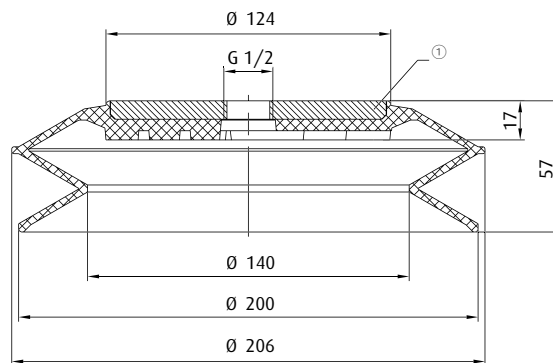
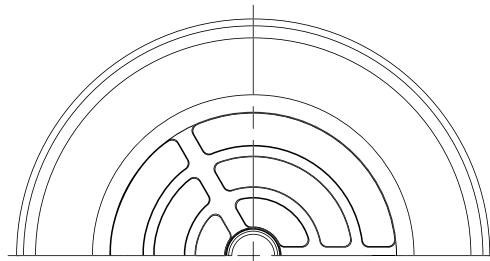
|  | Connection | see page |
|---|-------------|----------|
| 270.404 | G3/8-female | 436 |



HEAT RESISTANT & LOW MARKING

① = Felt pads

| | | | |
|----------------------------------|--------------------------------|---|---|
| Item no. 26.160.003._* | Material FKM (sw/ge) |  18 mm | Additional sizes available are found on p. 164. |
|----------------------------------|--------------------------------|---|---|



① = Steel

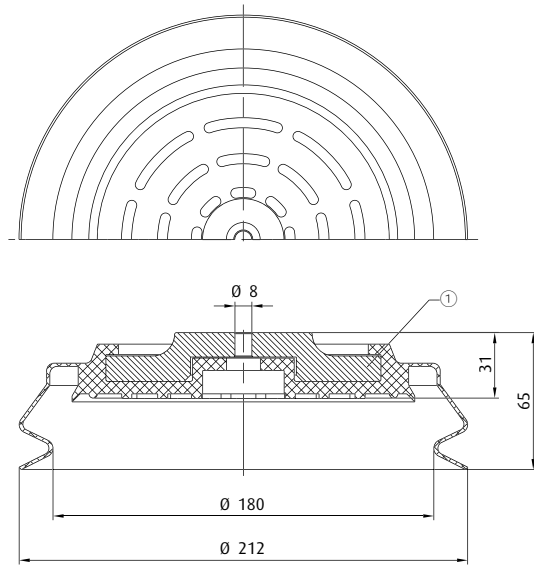
| | | | |
|----------------------------------|--------------------------------------|---|---|
| Item no. 22.200.087._* | Material NBR (gr), NR (br) |  30 mm | Additional sizes available are found on p. 137. |
|----------------------------------|--------------------------------------|---|---|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by Ø

Ø 212 mm



① = Aluminium

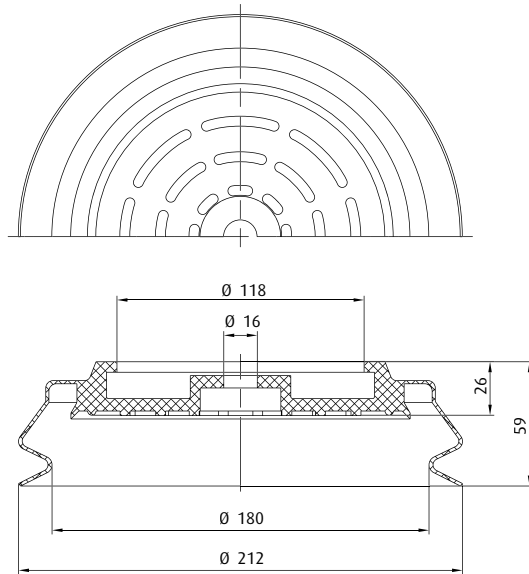
Item no.
22.210.115._*

Material
NBR (sw)

32 mm

Additional sizes available are found on p. 136.

Spare cup



270.269

Connection
Without

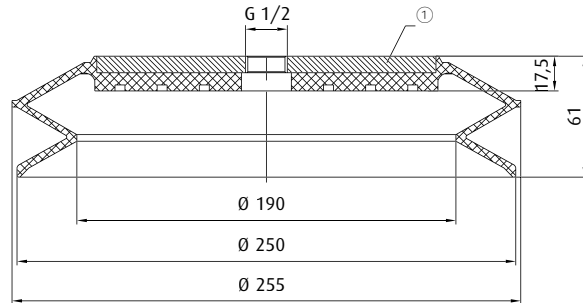
see page
440

Item no.
23.210.009._*

Material
NBR (sw)

32 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



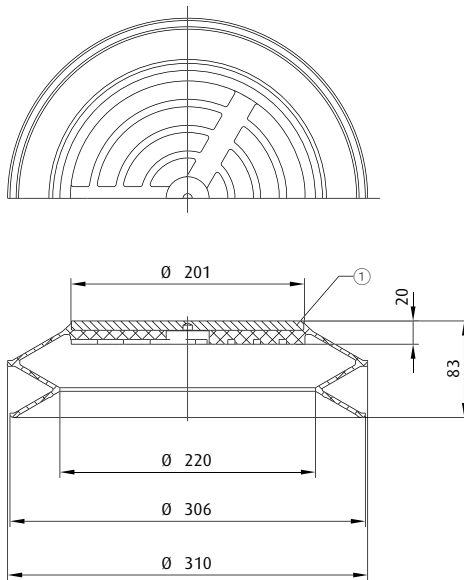
① = Steel

Item no.
22.250.088._*

Material
NBR (gr), SI (tr)

38 mm

Additional sizes available are found on p. 137.



① = Steel

Item no.
22.300.091._*

Material
NBR (gr)

60 mm

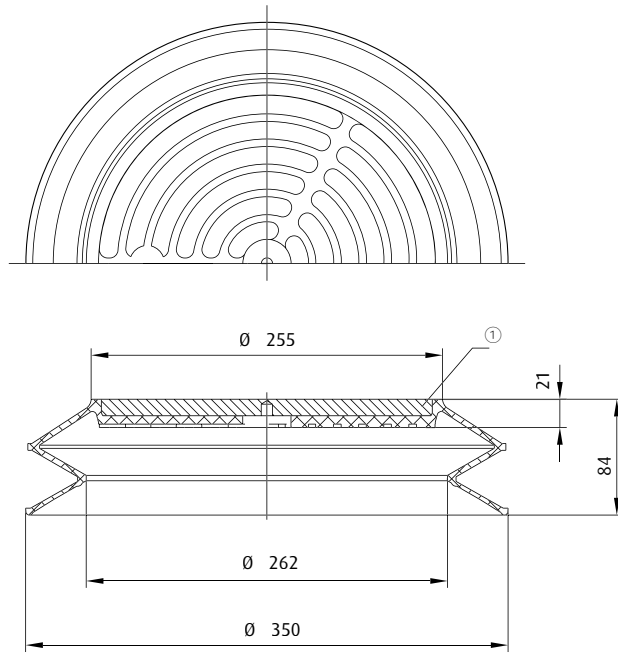
Additional sizes available are found on p. 137.
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Bellows vacuum cups by \emptyset


\emptyset 350 mm



① = Steel

Item no.
22.350.102._*

Material
NBR (gr)

 55 mm

Additional sizes available are found on p. 137.
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

Application / Uses

- > Oval vacuum cups are suited for elongated workpieces where only minimal space is available (e.g. rails, profiles, products with ridges)
- > Also suitable for curved workpieces
- > Significantly greater suction power than round vacuum cups of equal width



Designs



- > FIPA oval vacuum cups are available as flat or bellows vacuum suction cups, with or without supporting ribs
- > Supporting ribs:
 - Improve stability and suction power
 - Prevent flexible product parts from being sucked in
 - Prevent slipping of the product while suction is being applied

Methods of connection



Vacuum cups for attaching to the fittings (plug-in)

- > Secure hold
- > Quick replacement
- > Cost-efficient and environmentally-friendly, as only the rubber part needs to be replaced



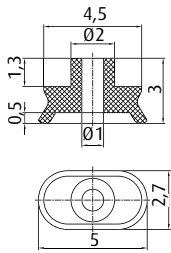
Vulcanised fittings / retainer plates

- > Very secure hold
- > Secured against rotation during handling
- > High degree of dimensional stability



Vacuum cups by size | Oval vacuum cups by size

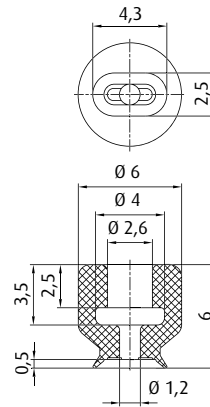
4x2 mm - 7x4 mm



| Connection | see page |
|-----------------|----------|
| 270.011 M3-male | 408 |

| | | |
|----------------------------------|---|--------|
| Item no. 132.4x2.001.* | Material NBR (sw), SI (tr), PU (bl) | 0.5 mm |
|----------------------------------|---|--------|

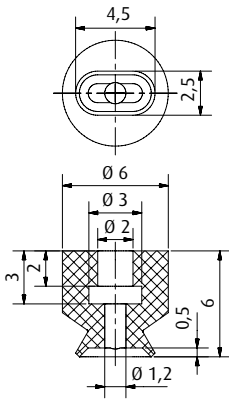
Additional sizes available are found on p. 141.



| Connection | see page |
|-----------------|----------|
| 270.014 M3-male | 408 |
| 270.111 M4-male | 408 |
| 270.300 M5-male | 411 |

| | | |
|----------------------------------|--|--------|
| Item no. 132.4x2.031.* | Material NBR (sw), HNBR (ge), SI (tr), PU (bl) | 0.5 mm |
|----------------------------------|--|--------|

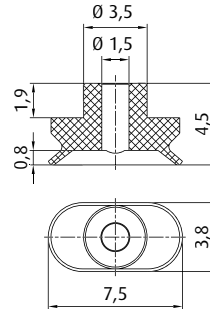
Additional sizes available are found on p. 141.



| Connection | see page |
|-----------------|----------|
| 270.014 M3-male | 408 |
| 270.111 M4-male | 408 |
| 270.300 M5-male | 411 |

| | | |
|----------------------------------|------------------------------------|--------|
| Item no. 132.4x2.079.* | Material Thermalon® (bl) | 0.4 mm |
|----------------------------------|------------------------------------|--------|

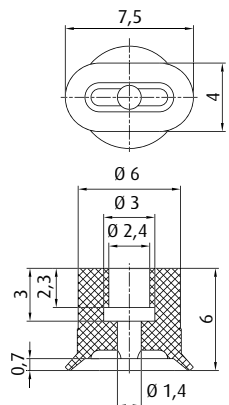
Additional sizes available are found on p. 144.



| Connection | see page |
|-----------------|----------|
| 270.025 M3-male | 408 |

| | | |
|----------------------------------|--|--------|
| Item no. 132.7x4.002.* | Material NBR (sw), SI (tr), SI-AS (sw) | 0.8 mm |
|----------------------------------|--|--------|

Additional sizes available are found on p. 141.

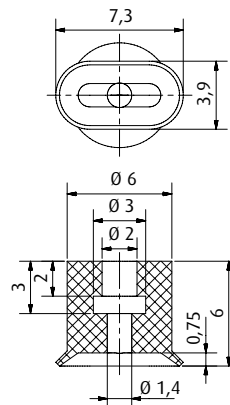


| Connection | see page |
|-----------------|----------|
| 270.014 M3-male | 408 |
| 270.111 M4-male | 408 |
| 270.300 M5-male | 411 |

| | | |
|----------------------------------|---|--------|
| Item no. 132.7x4.034.* | Material NBR (sw), HNBR (ge), SI (tr) | 0.8 mm |
|----------------------------------|---|--------|

Additional sizes available are found on p. 141.

BESTSELLER

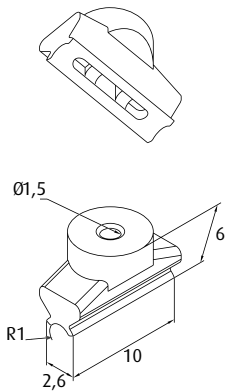


| Connection | see page |
|-----------------|----------|
| 270.014 M3-male | 408 |
| 270.111 M4-male | 408 |
| 270.300 M5-male | 411 |

| | | |
|----------------------------------|------------------------------------|--------|
| Item no. 132.7x4.080.* | Material Thermalon® (bl) | 0.5 mm |
|----------------------------------|------------------------------------|--------|

Additional sizes available are found on p. 144.

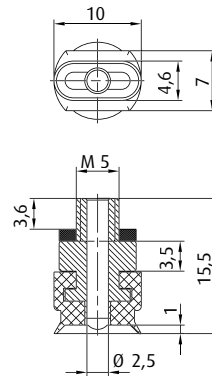
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|------------|----------|
| 270.300 | M5-male | 411 |

| | | |
|-----------------------------------|--------------------------------------|------|
| Item no. 201.10x3.005.* | Material NBR (sw), SI (tr) | 0 mm |
|-----------------------------------|--------------------------------------|------|

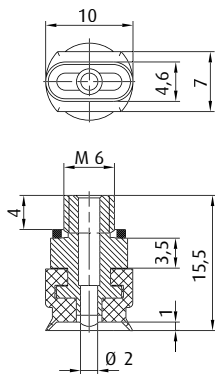
Additional sizes available are found on p. 154.
Notes: Suitable for cylindrical products diam. 2-4 mm



| | | see page |
|--------|-------|----------|
| 50.152 | 10 mm | 444 |
| 50.153 | 20 mm | 444 |

| | | |
|-----------------------------------|--|--------|
| Item no. 130.10x4.115.* | Material NBR (sw), SI (tr), BR-AS (sw) | 0.9 mm |
|-----------------------------------|--|--------|

Additional sizes available are found on p. 152.

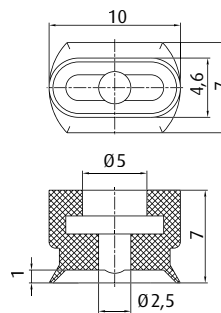


| | | see page |
|--------|-------|----------|
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

| | | |
|-----------------------------------|--|--------|
| Item no. 130.10x4.068.* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|-----------------------------------|--|--------|

Additional sizes available are found on p. 152.

Spare cup



Spare cup

| | Connection | see page |
|---------|------------|----------|
| 270.463 | M5-male | 412 |
| 270.339 | M6-male | 413 |

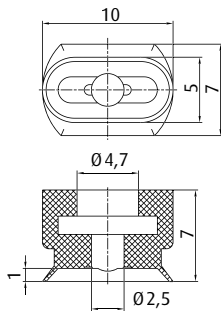
| | | |
|-----------------------------------|--|--------|
| Item no. 132.10x4.003.* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|-----------------------------------|--|--------|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



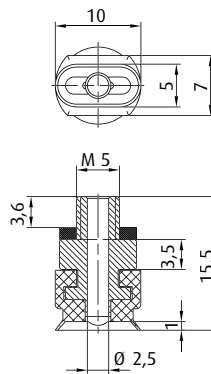
Vacuum cups by size | Oval vacuum cups by size

10x5 mm - 10x6 mm



| Connection | see page |
|-----------------|----------|
| 270.463 M5-male | 412 |
| 270.339 M6-male | 413 |

Spare cup

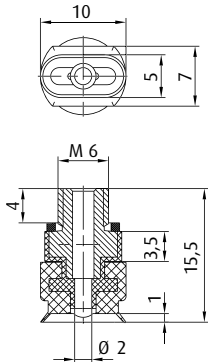


| Connection | see page |
|--------------|----------|
| 50.152 10 mm | 444 |
| 50.153 20 mm | 444 |

Item no. 132.10x5.007.* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

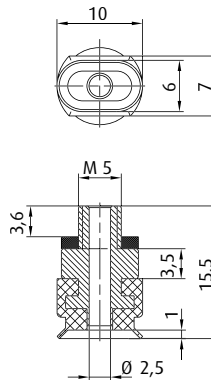
Item no. 130.10x5.116.* **Material** NBR (sw), SI (tr), BR-AS (sw) 0.9 mm

Additional sizes available are found on p. 152.



| Connection | see page |
|--------------|----------|
| 50.095 20 mm | 456 |
| 50.096 30 mm | 456 |
| 50.097 40 mm | 456 |
| 50.098 50 mm | 456 |

Spare cup



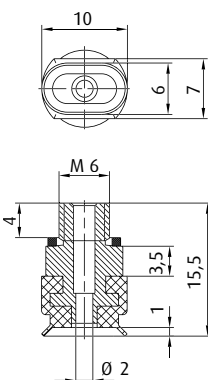
| Connection | see page |
|--------------|----------|
| 50.152 10 mm | 444 |
| 50.153 20 mm | 444 |

Item no. 130.10x5.071.* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Item no. 130.10x6.117.* **Material** NBR (sw), SI (tr), BR-AS (sw) 0.9 mm

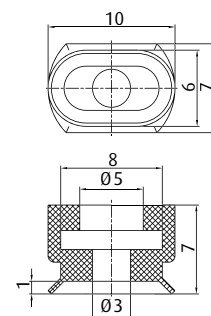
Additional sizes available are found on p. 152.

Additional sizes available are found on p. 152.



| Connection | see page |
|--------------|----------|
| 50.095 20 mm | 456 |
| 50.096 30 mm | 456 |
| 50.097 40 mm | 456 |
| 50.098 50 mm | 456 |

Spare cup



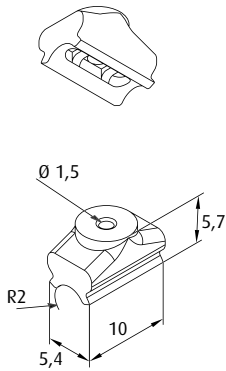
| Connection | see page |
|-----------------|----------|
| 270.463 M5-male | 412 |
| 270.339 M6-male | 413 |

Item no. 130.10x6.073.* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Item no. 132.10x6.011.* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Additional sizes available are found on p. 152.

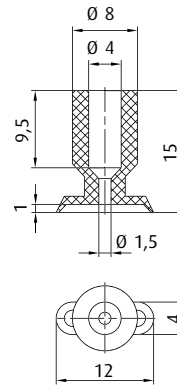
* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|------------|----------|
| 270.300 | M5-male | 411 |

| | | |
|------------------------------------|--------------------------------------|------|
| Item no. 201.10x6.006._* | Material NBR (sw), SI (tr) | 0 mm |
|------------------------------------|--------------------------------------|------|

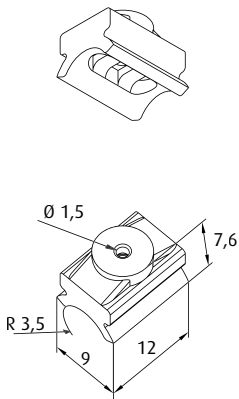
Additional sizes available are found on p. 154.



| | Connection | see page |
|---------|-------------|----------|
| 270.134 | M5-male | 409 |
| 270.347 | M5-female | 412 |
| 270.104 | M6-male | 413 |
| 270.033 | G1/8-male | 416 |
| 270.478 | G1/8-female | 421 |

| | | |
|------------------------------------|--------------------------------------|--------|
| Item no. 132.12x4.004._* | Material NBR (gr), SI (tr) | 0.5 mm |
|------------------------------------|--------------------------------------|--------|

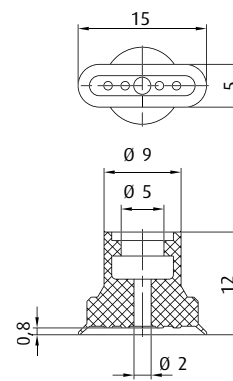
Additional sizes available are found on p. 141.



| | Connection | see page |
|---------|------------|----------|
| 270.300 | M5-male | 411 |

| | | |
|------------------------------------|--------------------------------------|------|
| Item no. 201.12x9.007._* | Material NBR (sw), SI (tr) | 0 mm |
|------------------------------------|--------------------------------------|------|

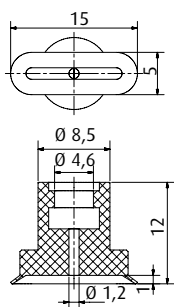
Additional sizes available are found on p. 154.
Notes: Suitable for cylindrical products diam. 6-13 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

| | | |
|------------------------------------|---|------|
| Item no. 132.15x5.008._* | Material NBR (gr), SI (tr), PU (bl) | 1 mm |
|------------------------------------|---|------|

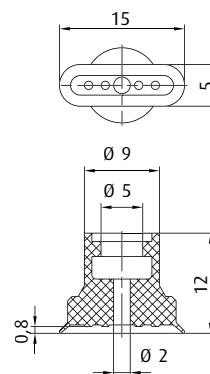
Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

| | | |
|------------------------------------|------------------------------------|--------|
| Item no. 132.15x5.081._* | Material Thermalon® (bl) | 0.6 mm |
|------------------------------------|------------------------------------|--------|

Additional sizes available are found on p. 144.



| | Connection | see page |
|---------|------------|----------|
| 270.431 | G1/8-male | 418 |

| | | |
|------------------------------------|------------------------------|------|
| Item no. 132.15x5.067._* | Material HNBR (ge) | 1 mm |
|------------------------------------|------------------------------|------|

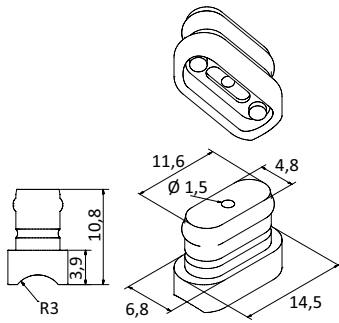
Additional sizes available are found on p. 146.
Ordering notes: Use of a gripper clamp (available separately) recommended.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

15x8 mm - 19x5 mm



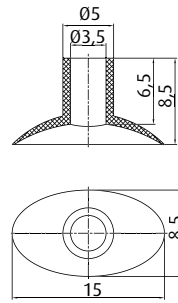
Item no.
132.15x7.073._*

Material
SI (r)

0 mm

Additional sizes available are found on p. 154.

Notes: Suitable for cylindrical products diam. 4-10 mm

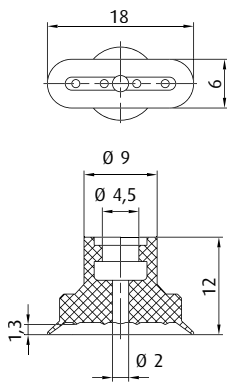


Item no.
132.15x8.5.33._*

Material
NR (sw)

2 mm

| | Connection | see page |
|---------|------------|----------|
| 270.536 | M5-male | 409 |



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

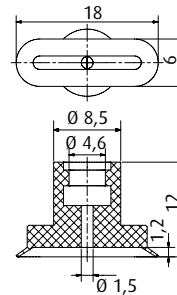
Item no.
132.18x6.012._*

Material
NBR (gr), SI (tr), PU (bl)

1 mm

Additional sizes available are found on p. 141.

Ordering notes: Use of a gripper clamp (available separately) recommended.



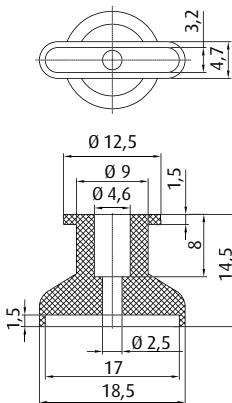
| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
132.18x6.082._*

Material
Thermalon® (bl)

1 mm

Additional sizes available are found on p. 144.



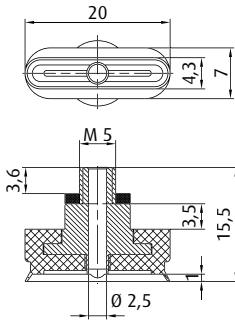
| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |

Item no.
132.19x5.044._*

Material
Vinyl (bl)

0 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



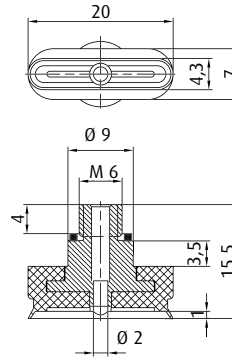
| | | see page |
|--------|-------|----------|
| 50.152 | 10 mm | 444 |
| 50.153 | 20 mm | 444 |

Item no.
130.20x4.118._*

Material
NBR (sw), SI (tr), BR-AS (sw)

0.9 mm

Additional sizes available are found on p. 152.



| | | see page |
|--------|-------|----------|
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
130.20x4.069._*

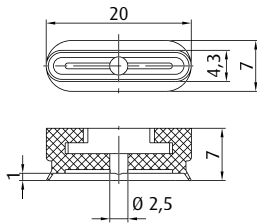
Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm

Additional sizes available are found on p. 152.

Spare cup

Spare cup

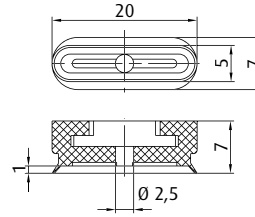


| | Connection | see page |
|---------|------------|----------|
| 270.464 | M5-male | 412 |
| 270.340 | M6-male | 413 |

Item no.
132.20x4.005._*

Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm



| | Connection | see page |
|---------|------------|----------|
| 270.464 | M5-male | 412 |
| 270.340 | M6-male | 413 |

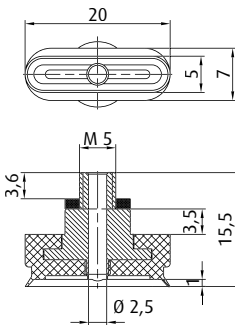
Item no.
132.20x5.009._*

Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm

Spare cup

Spare cup



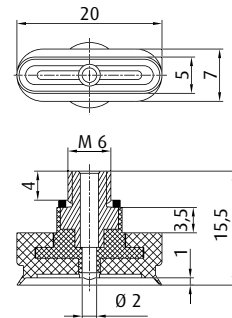
| | | see page |
|--------|-------|----------|
| 50.152 | 10 mm | 444 |
| 50.153 | 20 mm | 444 |

Item no.
130.20x5.119._*

Material
NBR (sw), SI (tr), BR-AS (sw)

0.9 mm

Additional sizes available are found on p. 152.



| | | see page |
|--------|-------|----------|
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
130.20x5.081._*

Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm

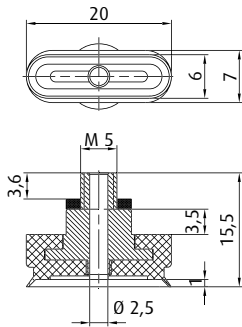
Additional sizes available are found on p. 152.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

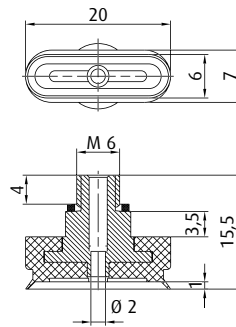
20x6 mm - 20x8 mm



| | | see page |
|--|-------|----------|
| | 10 mm | 444 |
| | 20 mm | 444 |

Item no. 130.20x6.120._* **Material** NBR (sw), SI (tr), BR-AS (sw) 0.9 mm

Additional sizes available are found on p. 152.



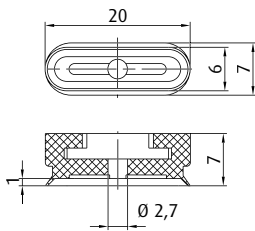
| | | see page |
|--|-------|----------|
| | 20 mm | 456 |
| | 30 mm | 456 |
| | 40 mm | 456 |
| | 50 mm | 456 |

Item no. 130.20x6.074._* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Additional sizes available are found on p. 152.

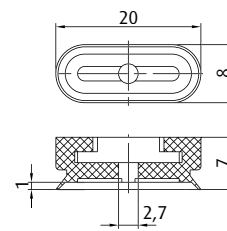
Spare cup

Spare cup



| | Connection | see page |
|--|------------|----------|
| | M5-male | 412 |
| | M6-male | 413 |

Item no. 132.20x6.013._* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

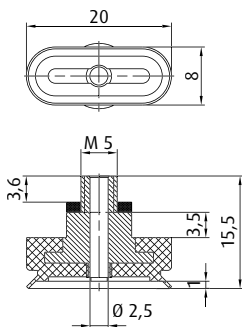


| | Connection | see page |
|--|------------|----------|
| | M5-male | 412 |
| | M6-male | 413 |

Item no. 132.20x8.015._* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Spare cup

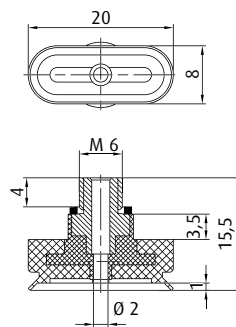
Spare cup



| | | see page |
|--|-------|----------|
| | 10 mm | 444 |
| | 20 mm | 444 |

Item no. 130.20x8.121._* **Material** NBR (sw), SI (tr), BR-AS (sw) 0.9 mm

Additional sizes available are found on p. 152.

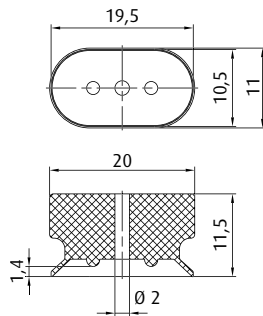


| | | see page |
|--|-------|----------|
| | 20 mm | 456 |
| | 30 mm | 456 |
| | 40 mm | 456 |
| | 50 mm | 456 |

Item no. 130.20x8.076._* **Material** NBR (sw), BR-AS (sw), SI (tr) 0.9 mm

Additional sizes available are found on p. 152.

* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for Vacuum cups you will find on page 760

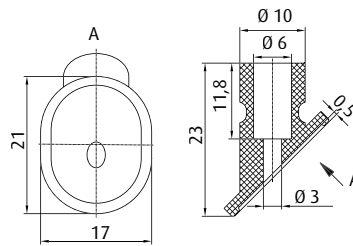


| | Connection | see page |
|---------|------------|----------|
| 270.022 | M5-male | 409 |

Item no.
132.20X11.077._*

Material
SI (tr)

1.5 mm

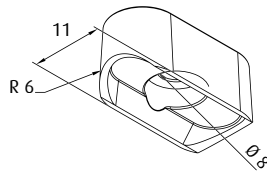


| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

Item no.
132.21x17.047._*

Material
NR (sw)

0 mm



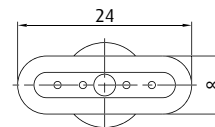
| | Connection | see page |
|---------|-------------|----------|
| 270.310 | M5-male | 411 |
| 270.493 | G1/8-male | 420 |
| 270.494 | G1/8-female | 423 |

Item no.
9.23x11.036._*

Material
SI (tr)

0 mm

Additional sizes available are found on p. 154.
Notes: Suitable for cylindrical products diam. 10-18 mm



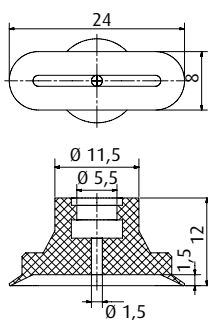
| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
132.24x8.016._*

Material
NBR (gr), SI (tr), NR (bg), PU (bl)

1 mm

Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.



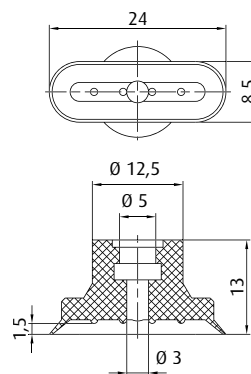
| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no.
132.24x8.083._*

Material
Thermalon® (bl)

1 mm

Additional sizes available are found on p. 144.
Ordering notes: Use of a gripper clamp (available separately) recommended.



| | Connection | see page |
|---------|------------|----------|
| 270.431 | G1/8-male | 418 |

Item no.
132.24x8.066._*

Material
HNBR (ge)

1 mm

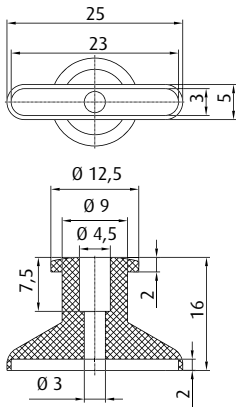
Additional sizes available are found on p. 146.
Ordering notes: Use of a gripper clamp (available separately) recommended.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

25x5 mm - 30x5 mm

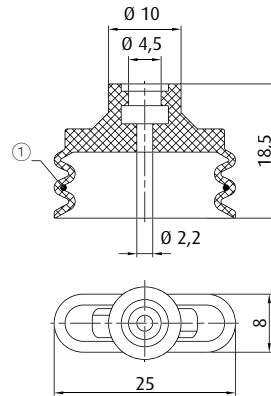


| | Connection | see page |
|---------|-------------|----------|
| 270.013 | M5-male | 410 |
| 270.005 | M5-female | 412 |
| 270.103 | M6-male | 413 |
| 270.003 | G1/8-male | 416 |
| 270.015 | G1/8-female | 421 |
| 270.194 | G1/4-male | 425 |

Item no.
132.25x5.045._*

Material
Vinyl (bl)

0 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

BESTSELLER

① = Wire strap stiffening

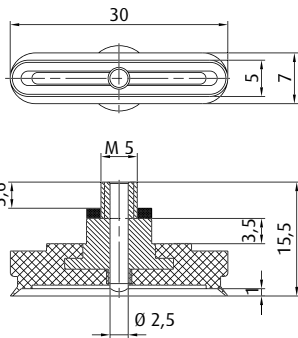
Item no.
138.25x8.002._*

Material
NBR (gr), SI (tr)

6 mm

Additional sizes available are found on p. 148.

Ordering notes: Use of a gripper clamp (available separately) recommended.



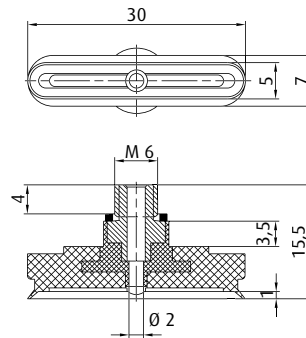
| | | see page |
|--------|-------|----------|
| 50.152 | 10 mm | 444 |
| 50.153 | 20 mm | 444 |

Item no.
130.30x5.123._*

Material
NBR (sw), SI (tr), BR-AS (sw)

0.9 mm

Additional sizes available are found on p. 152.



| | | see page |
|--------|-------|----------|
| 50.095 | 20 mm | 456 |
| 50.096 | 30 mm | 456 |
| 50.097 | 40 mm | 456 |
| 50.098 | 50 mm | 456 |

Item no.
130.30x5.072._*

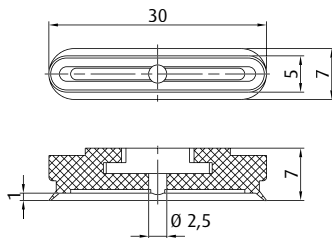
Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm

Additional sizes available are found on p. 152.

Spare cup

Spare cup



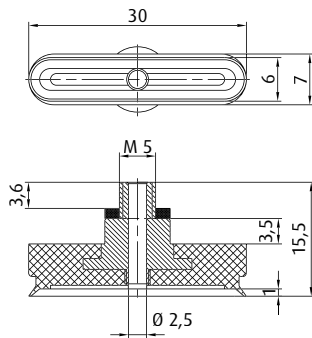
| | Connection | see page |
|---------|------------|----------|
| 270.464 | M5-male | 412 |
| 270.340 | M6-male | 413 |

Item no.
132.30x5.010._*

Material
NBR (sw), BR-AS (sw), SI (tr)

0.9 mm

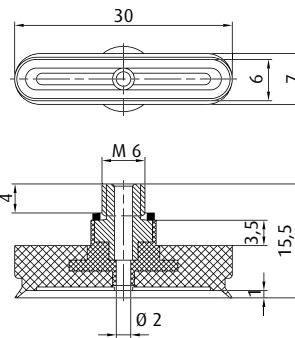
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | | | see page |
|--------|-------|-------|----------|
| 50.152 | 10 mm | | 444 |
| 50.153 | | 20 mm | 444 |

| | | |
|------------------------------------|--|--------|
| Item no. 130.30x6.124._* | Material NBR (sw), SI (tr), BR-AS (sw) | 0.9 mm |
|------------------------------------|--|--------|

Additional sizes available are found on p. 152.



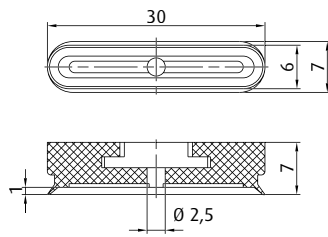
| | | | | | see page |
|--------|-------|-------|-------|-------|----------|
| 50.095 | 20 mm | | | | 456 |
| 50.096 | | 30 mm | | | 456 |
| 50.097 | | | 40 mm | | 456 |
| 50.098 | | | | 50 mm | 456 |

| | | |
|------------------------------------|--|--------|
| Item no. 130.30x6.075._* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|------------------------------------|--|--------|

Additional sizes available are found on p. 152.

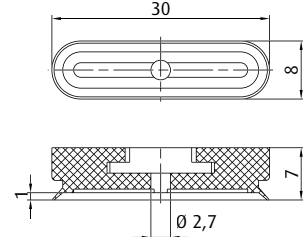
Spare cup

Spare cup



| | Connection | see page |
|---------|------------|----------|
| 270.464 | M5-male | 412 |
| 270.340 | M6-male | 413 |

| | | |
|------------------------------------|--|--------|
| Item no. 132.30x6.014._* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|------------------------------------|--|--------|

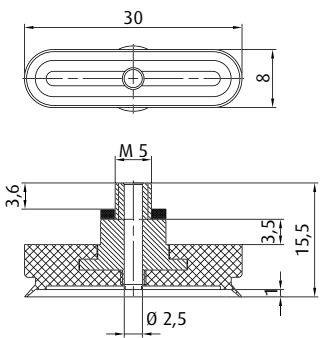


| | Connection | see page |
|---------|------------|----------|
| 270.464 | M5-male | 412 |
| 270.340 | M6-male | 413 |

| | | |
|------------------------------------|--|--------|
| Item no. 132.30x8.017._* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|------------------------------------|--|--------|

Spare cup

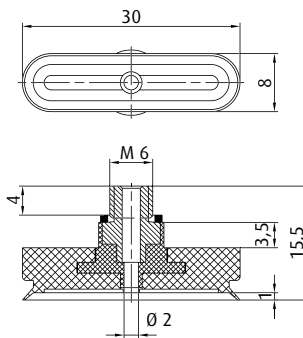
Spare cup



| | | | see page |
|--------|-------|-------|----------|
| 50.152 | 10 mm | | 444 |
| 50.153 | | 20 mm | 444 |

| | | |
|------------------------------------|--|--------|
| Item no. 130.30x8.125._* | Material NBR (sw), SI (tr), BR-AS (sw) | 0.9 mm |
|------------------------------------|--|--------|

Additional sizes available are found on p. 152.



| | | | | | see page |
|--------|-------|-------|-------|-------|----------|
| 50.095 | 20 mm | | | | 456 |
| 50.096 | | 30 mm | | | 456 |
| 50.097 | | | 40 mm | | 456 |
| 50.098 | | | | 50 mm | 456 |

| | | |
|------------------------------------|--|--------|
| Item no. 130.30x8.077._* | Material NBR (sw), BR-AS (sw), SI (tr) | 0.9 mm |
|------------------------------------|--|--------|

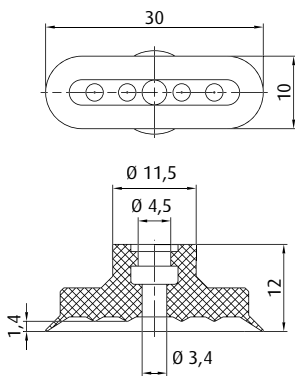
Additional sizes available are found on p. 152.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

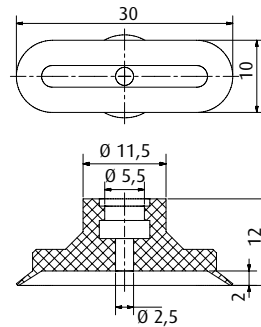
30x10 mm - 36x12 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no. 132.30x10.018_*
Material NBR (gr), SI (tr), PU (bl)
 2 mm

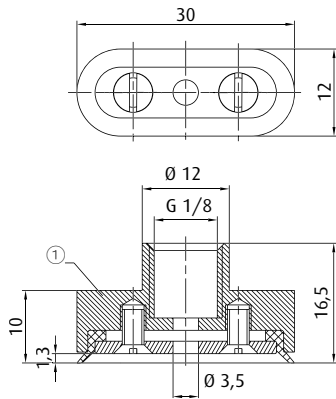
Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.



| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no. 132.30x10.084_*
Material Thermalon® (bl)
 1 mm

Additional sizes available are found on p. 144.
Ordering notes: Use of a gripper clamp (available separately) recommended.

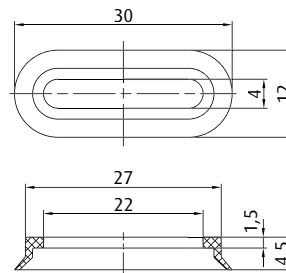


① = Aluminium

Item no. 130.30x12.057_*
Material SI (tr), NR (sw)
 1 mm

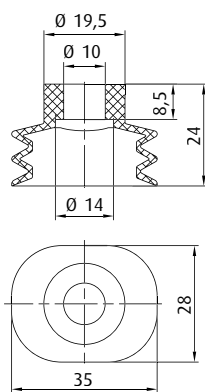
Additional sizes available are found on p. 157.

Spare cup



| | Connection | see page |
|---------|-------------|----------|
| 270.439 | G1/8-female | 424 |

Item no. 132.30x12.025_*
Material SI (tr), NR (sw)
 1 mm

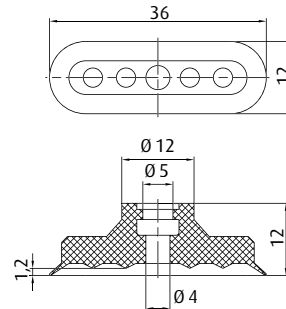


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

BESTSELLER

Item no. 138.35x28.001_*
Material Vinyl (bl)
 9 mm

Additional sizes available are found on p. 149.

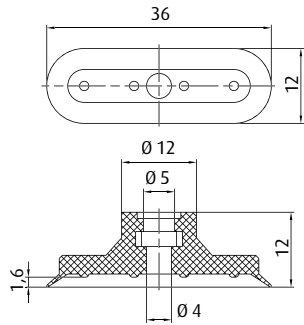


| | Connection | see page |
|---------|-------------|----------|
| 270.094 | M5-male | 411 |
| 270.005 | M5-female | 412 |
| 270.095 | G1/8-male | 418 |
| 270.096 | G1/8-female | 422 |

Item no. 132.36x12.019_*
Material NBR (gr), SI (tr), PU (bl)
 2 mm

Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



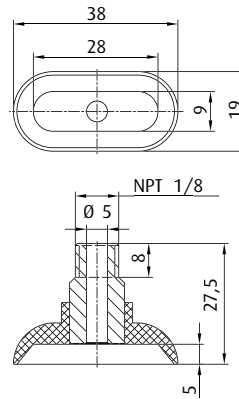
| Connection | see page |
|------------|----------|
| G1/8-male | 418 |

Item no.
132.36x12.068_*

Material
HNBR (ge)

2 mm

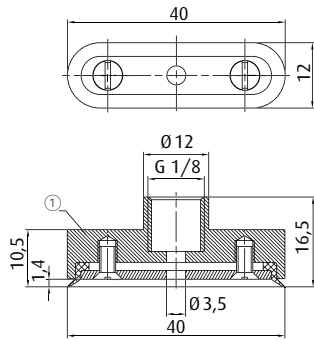
Additional sizes available are found on p. 146.
Ordering notes: Use of a gripper clamp (available separately) recommended.



Item no.
130.38x19.085_*

Material
Vinyl (bl)

0 mm



① = Aluminium

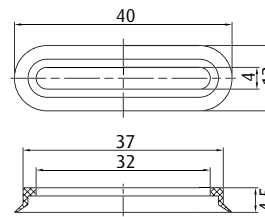
Item no.
130.40x12.058_*

Material
SI (tr), NR (sw)

1 mm

Additional sizes available are found on p. 157.

Spare cup

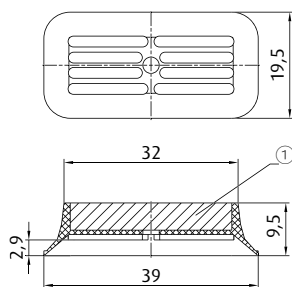


| Connection | see page |
|-------------|----------|
| G1/8-female | 424 |

Item no.
132.40x12.027_*

Material
SI (tr), NR (sw)

1 mm



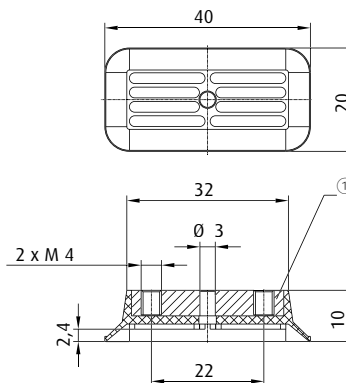
① = Steel

Item no.
9.40x20.041_*

Material
NBR (gr), SI (tr), PU (bg)

2 mm

Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
9.40x20.057_*

Material
SI (tr)

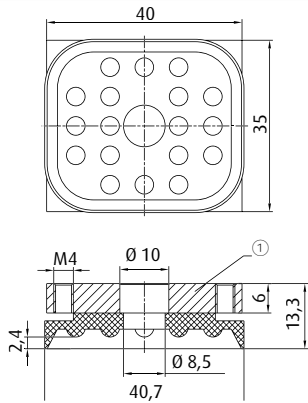
2 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

40x35 mm - 45x15 mm

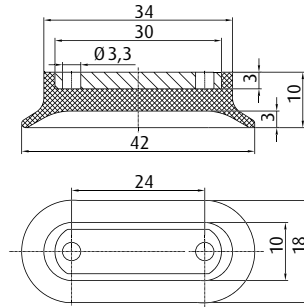


① = Steel

Item no.
155.40x35.004._*

Material
NBR (gr)

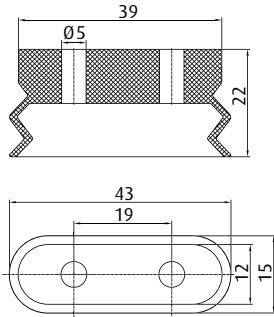
2.5 mm



Item no.
130.42x18.037._*

Material
SI (tr)

2.5 mm

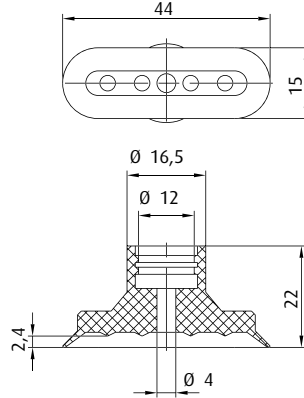


| | Connection | see page |
|---------|------------|----------|
| 270.013 | M5-male | 410 |

Item no.
138.43x15.001._*

Material
Vinyl (bl)

8 mm



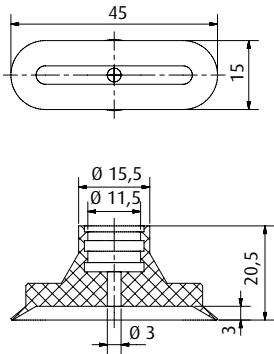
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
132.45x15.020._*

Material
NBR (gr), SI (tr), PU (bl)

3 mm

Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.



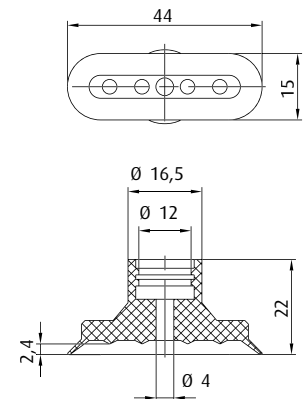
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
132.45x15.085._*

Material
Thermalon® (bl)

2 mm

Additional sizes available are found on p. 144.
Ordering notes: Use of a gripper clamp (available separately) recommended.



| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

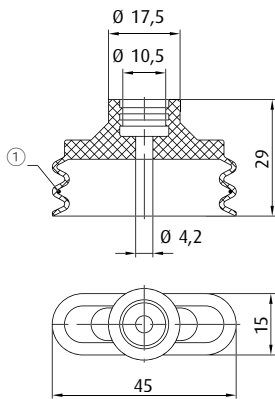
Item no.
132.45x15.064._*

Material
HNBR (ge)

3 mm

Additional sizes available are found on p. 146.
Ordering notes: Use of a gripper clamp (available separately) recommended.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

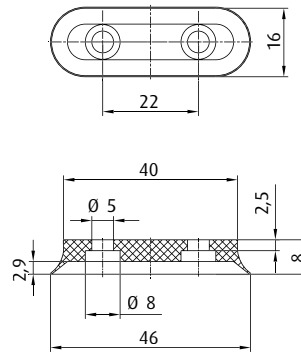


| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

① = Wire strap stiffening

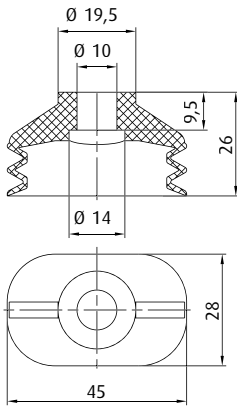
| | | |
|------------------------------------|--------------------------------------|------|
| Item no. 138.45x15.003.* | Material NBR (gr), SI (tr) | 8 mm |
|------------------------------------|--------------------------------------|------|

Additional sizes available are found on p. 148.
Ordering notes: Use of a gripper clamp (available separately) recommended.



| | Connection | see page |
|---------|-------------|----------|
| 270.310 | M5-male | 411 |
| 270.493 | G1/8-male | 420 |
| 270.494 | G1/8-female | 423 |

| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 9.45x15.038.* | Material NBR (sw), SI (tr) | 3 mm |
|----------------------------------|--------------------------------------|------|

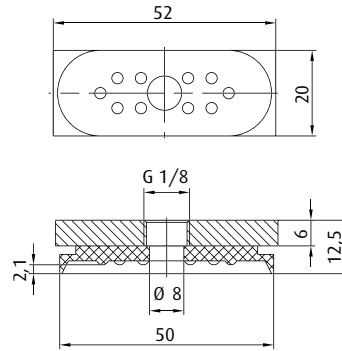


| | Connection | see page |
|---------|-------------|----------|
| 270.177 | M10-male | 416 |
| 270.451 | G1/4-male | 426 |
| 270.452 | G1/4-female | 431 |

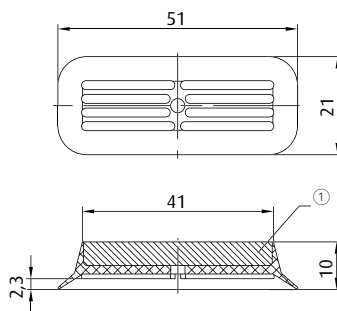
BESTSELLER

| | | |
|------------------------------------|-------------------------------|------|
| Item no. 138.45x28.013.* | Material Vinyl (bl) | 9 mm |
|------------------------------------|-------------------------------|------|

Additional sizes available are found on p. 149.



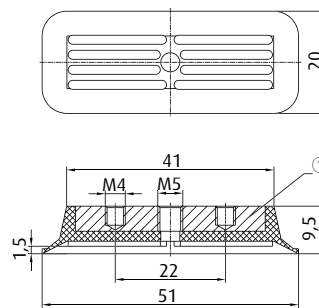
| | | |
|------------------------------------|-----------------------------|------|
| Item no. 130.50x20.102.* | Material NBR (gr) | 3 mm |
|------------------------------------|-----------------------------|------|



① = Steel

| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 9.50x20.001.* | Material NBR (gr), SI (tr) | 2 mm |
|----------------------------------|--------------------------------------|------|

Ordering notes: Customised drilling patterns on request



① = Aluminium

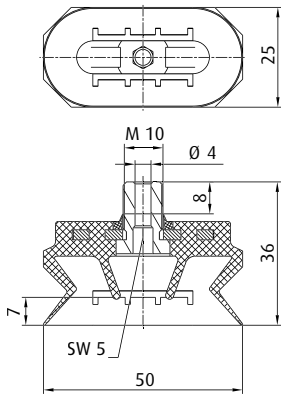
| | | |
|----------------------------------|--------------------------------------|------|
| Item no. 9.50x20.034.* | Material NBR (gr), SI (tr) | 2 mm |
|----------------------------------|--------------------------------------|------|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
 Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

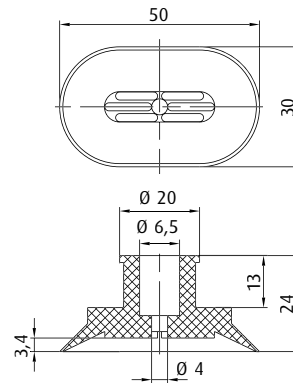
50x25 mm - 60x20 mm



Item no.
130.50x25.094.*

Material
NBR (sw), SI (tr)

8 mm



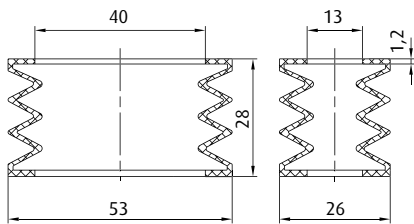
Item no.
132.50x30.030.*

Material
NBR (gr), SBR (br)

5 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

| | Connection | see page |
|---------|-------------|----------|
| 270.508 | G1/8-female | 439 |

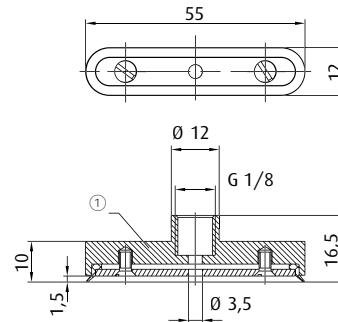


Item no.
209.52x25.006.*

Material
SI (tr)

13 mm

Additional sizes available are found on p. 150.
Ordering notes: On request, available with wire reinforcement



① = Aluminium

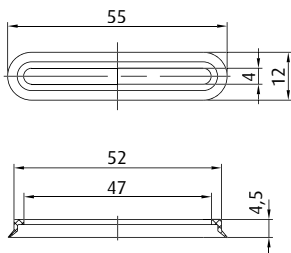
Item no.
130.55x12.082.*

Material
NBR (sw), SI (tr), NR (sw)

1 mm

Additional sizes available are found on p. 157.

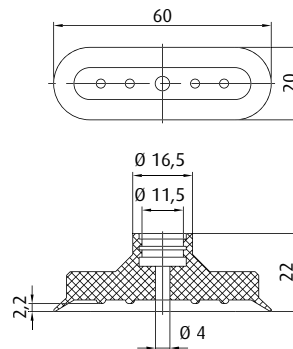
| | Connection | see page |
|---------|-------------|----------|
| 270.441 | G1/8-female | 424 |



Item no.
132.55x12.029.*

Material
NBR (sw), SI (tr), NR (sw)

1 mm



| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

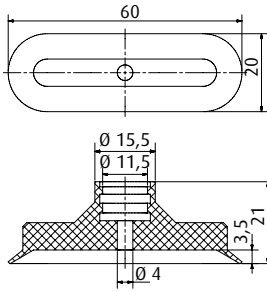
Item no.
132.60x20.022.*

Material
NBR (gr), SI (tr), PU (bg)

3 mm

Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

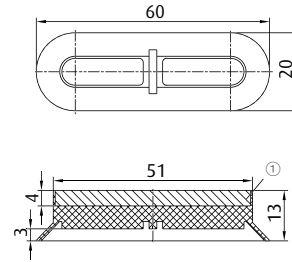
Item no.
132.60x20.086._*

Material
Thermalon® (bl)

2.5 mm

Additional sizes available are found on p. 144.

Ordering notes: Use of a gripper clamp (available separately) recommended.



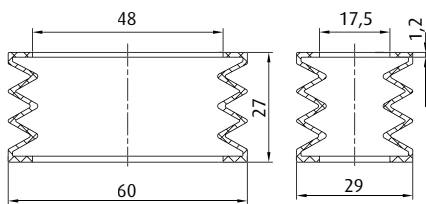
① = Steel

Item no.
9.60x20.003._*

Material
SBR (sw), NR (bg)

4 mm

Ordering notes: Customised drilling patterns on request



| | Connection | see page |
|---------|-------------|----------|
| 270.509 | G1/4-female | 439 |

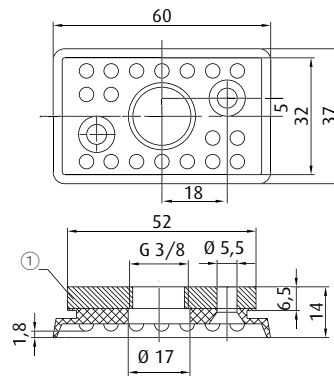
Item no.
209.60x29.001._*

Material
NBR (sw), SI (tr)

13 mm

Additional sizes available are found on p. 150.

Ordering notes: On request, available with wire reinforcement

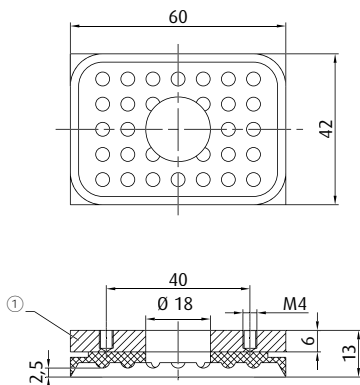


① = Aluminium

Item no.
130.60x38.091._*

Material
NBR (gr)

2 mm

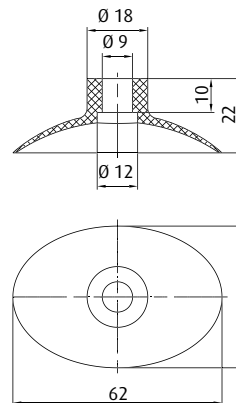


① = Steel

Item no.
155.60x42.005._*

Material
NBR (gr)

2.5 mm



PERFECT FOR SOAPS

Item no.
130.62x42.111._*

Material
Vulkollan® (br)

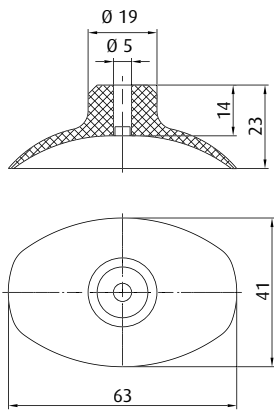
7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

63x41 mm - 75x25 mm



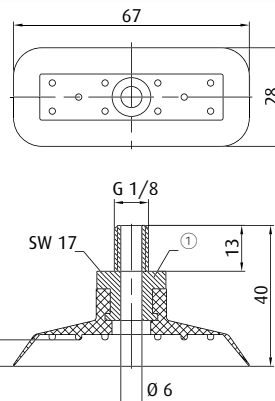
| | Connection | see page |
|---------|-------------|----------|
| 270.443 | M5-male | 410 |
| 270.238 | G1/8-male | 417 |
| 270.110 | G1/8-female | 422 |
| 270.534 | G1/4-male | 425 |

PERFECT FOR SOAPS

Item no.
132.60x42.052._*

Material
SI (g)

8 mm

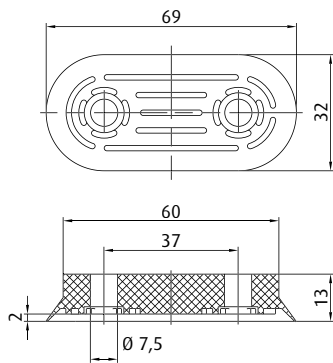


① = Aluminium

Item no.
130.67x28.104._*

Material
Vulkollan® (br)

7 mm

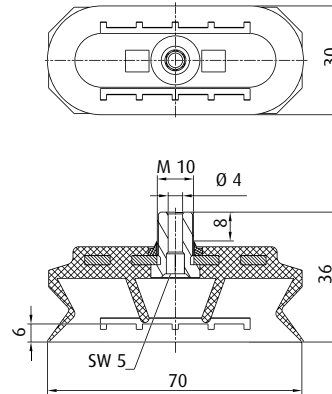


| | Connection | see page |
|------------|-------------|----------|
| 270.312/19 | M6-male | 414 |
| 270.030 | G1/8-male | 419 |
| 270.019 | G1/8-female | 423 |

Item no.
132.69x32.060._*

Material
NR (bg)

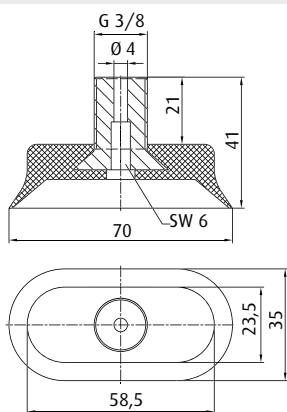
2 mm



Item no.
130.70x30.095._*

Material
NBR (sw)

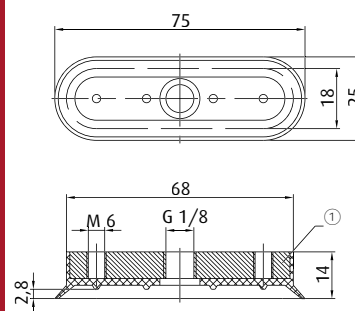
8 mm



Item no.
130.70x35.089._*

Material
NR (sw)

6 mm



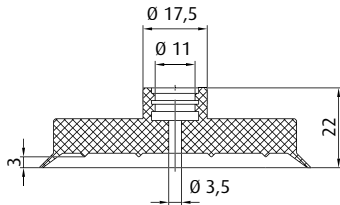
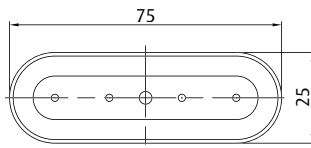
① = Aluminium

Item no.
130.75x25.080._*

Material
NBR (sw), SI (r)

3 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



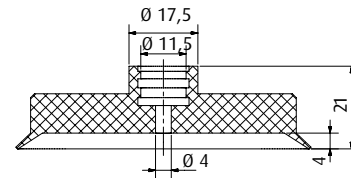
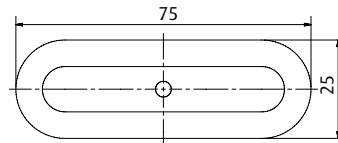
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
132.75x25.023.*

Material
NBR (gr), SI (tr)

3 mm

Additional sizes available are found on p. 141.
Ordering notes: Use of a gripper clamp (available separately) recommended.



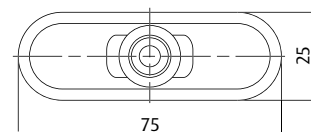
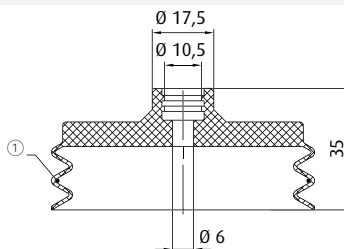
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
132.75x25.087.*

Material
Thermalon® (bl)

2.5 mm

Additional sizes available are found on p. 144.
Ordering notes: Use of a gripper clamp (available separately) recommended.



① = Wire strap stiffening

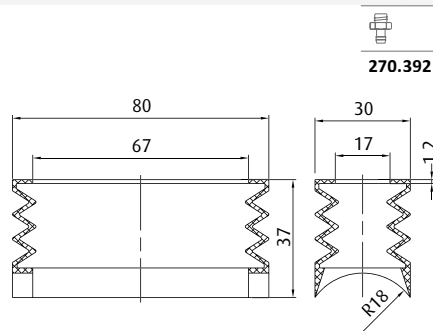
| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

Item no.
138.75x25.004.*

Material
NBR (gr), SI (tr)

11 mm

Additional sizes available are found on p. 148.
Ordering notes: Use of a gripper clamp (available separately) recommended.



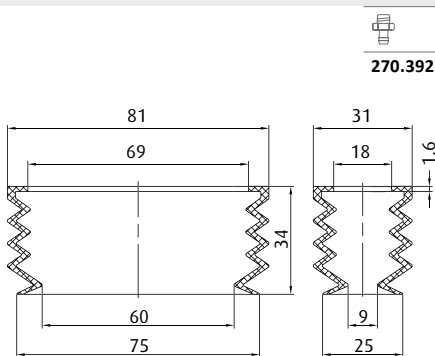
| | Connection | see page |
|---------|-------------|----------|
| 270.392 | G1/4-female | 439 |

Item no.
201.79x29.002.*

Material
SI (tr)

16 mm

Additional sizes available are found on p. 150.
Ordering notes: On request, available with wire reinforcement



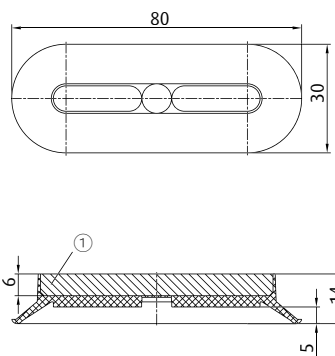
| | Connection | see page |
|---------|-------------|----------|
| 270.392 | G1/4-female | 439 |

Item no.
209.80x30.003.*

Material
SI (tr)

20 mm

Additional sizes available are found on p. 150.
Ordering notes: On request, available with wire reinforcement



① = Aluminium

Item no.
9.80x30.004.*

Material
NR (br)

5 mm

Ordering notes: Customised drilling patterns on request

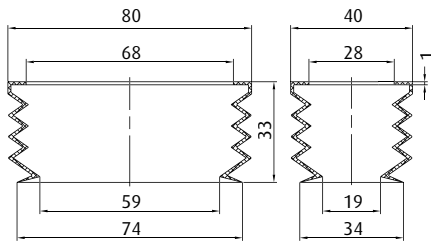
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

85x55 mm - 96x27 mm

| | Connection | see page |
|---------|-------------|----------|
| 270.510 | G1/4-female | 439 |



Item no.
209.80x40.004.*

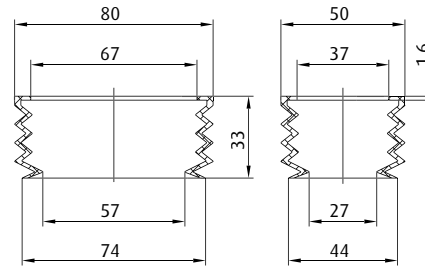
Material
SI (tr)

20 mm

Additional sizes available are found on p. 150.

Ordering notes: On request, available with wire reinforcement

| | Connection | see page |
|---------|-------------|----------|
| 270.511 | G1/4-female | 439 |



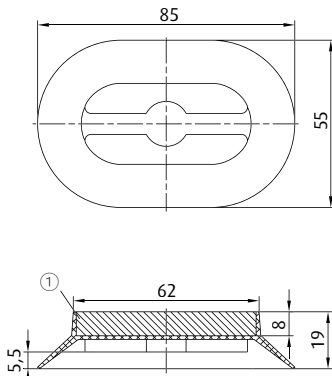
Item no.
209.80x50.005.*

Material
SI (tr)

20 mm

Additional sizes available are found on p. 150.

Ordering notes: On request, available with wire reinforcement



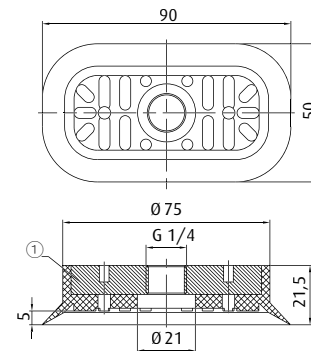
① = Aluminium

Item no.
9.85x55.006.*

Material
NBR (gr), NR (bg)

7 mm

Ordering notes: Customised drilling patterns on request



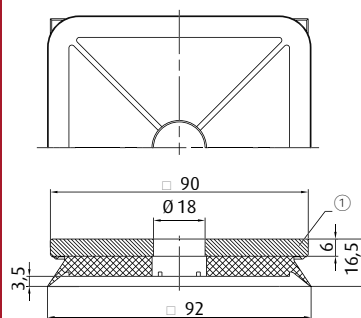
① = Aluminium

Item no.
130.90x50.113.*

Material
NR (bg)

5 mm

Additional sizes available are found on p. 158.

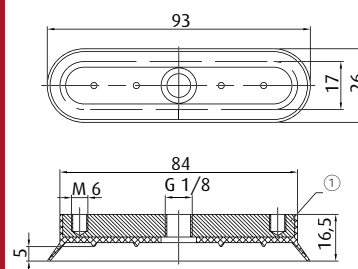


① = Steel

Item no.
130.92x92.006.*

Material
NBR (gr)

3 mm



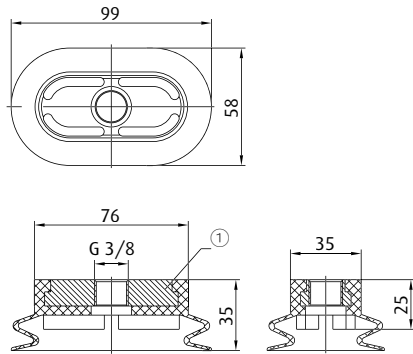
① = Aluminium

Item no.
130.96x27.036.*

Material
SI (r)

6 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



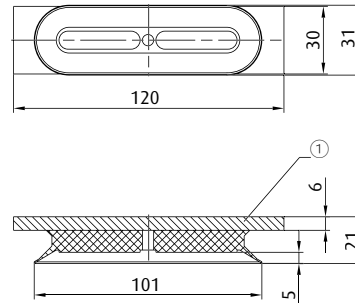
① = Aluminium

Item no.
130.97x55.126._*

Material
Vinyl (bl)

11 mm

Additional sizes available are found on p. 149.



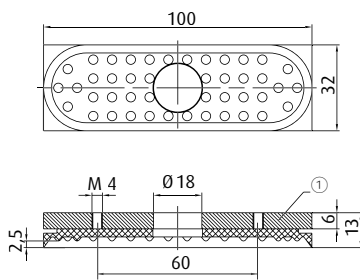
① = Steel

Item no.
9.100x30.007._*

Material
NBR (gr), SBR (br)

5 mm

Ordering notes: Customised drilling patterns on request

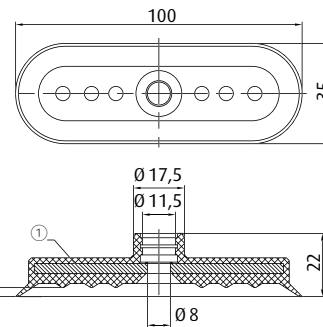


① = Aluminium

Item no.
130.100x32.067._*

Material
NBR (gr)

2.5 mm



① = Aluminium

Item no.
132.100x35.26._*

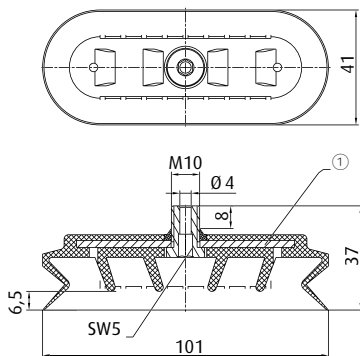
Material
NBR (sw)

3 mm

Additional sizes available are found on p. 141.

Ordering notes: Use of a gripper clamp (available separately) recommended.

| | Connection | see page |
|---------|-------------|----------|
| 270.097 | G1/4-male | 426 |
| 270.098 | G1/4-female | 432 |

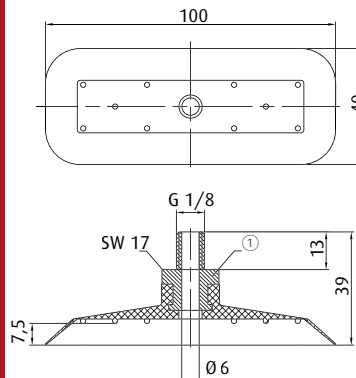


① = Steel

Item no.
130.100x40.096._*

Material
NBR (sw), SI (tr)

8 mm



① = Aluminium

Item no.
130.100x40.105._*

Material
Vulkollan® (br)

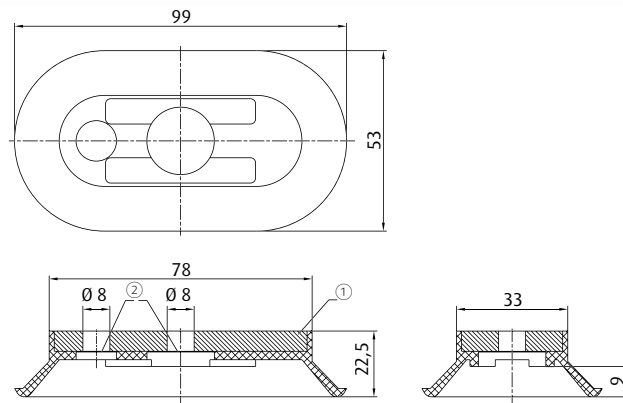
7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

100x55 mm - 120x30 mm



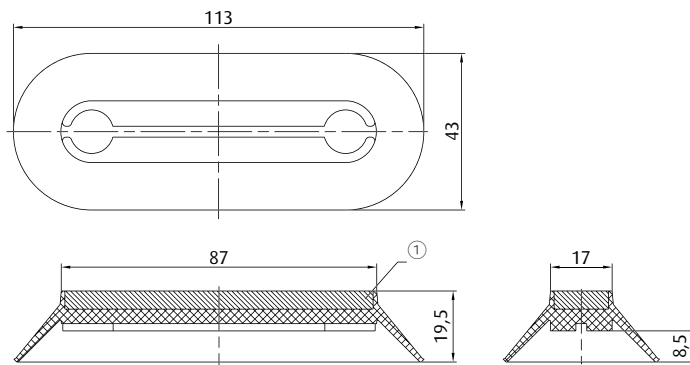
① = Aluminium ② = Sealed with rubber

Item no.
9.100x55.020._*

Material
NR (or)

8 mm

Additional sizes available are found on p. 160.



① = Steel

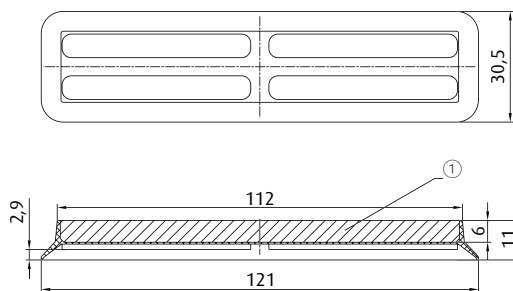
Item no.
9.110x40.009._*

Material
NBR (gr), NR (br)

9 mm

Additional sizes available are found on p. 160.

Ordering notes: Version with aluminium carrier: 9.110x40.011._



① = Steel

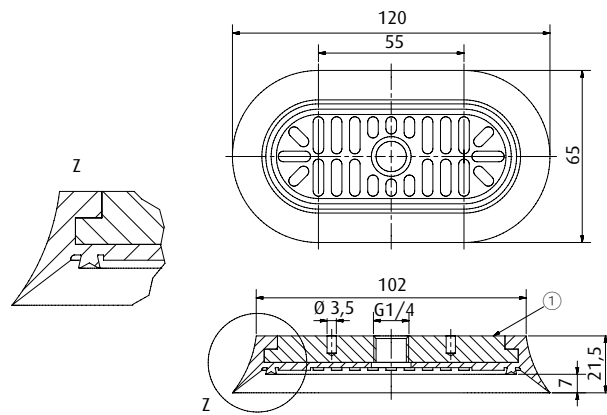
Item no.
9.120x30.062._*

Material
NBR (gr)

3 mm

Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



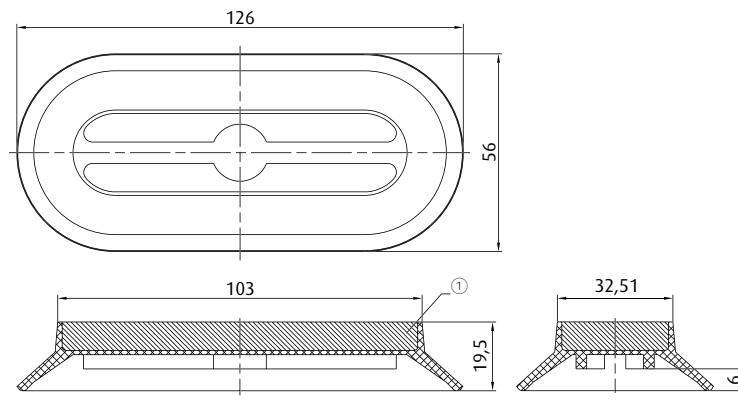
① = Aluminium

Item no.
9.120x65.088._*

Material
NR (bg)

7 mm

Additional sizes available are found on p. 158.



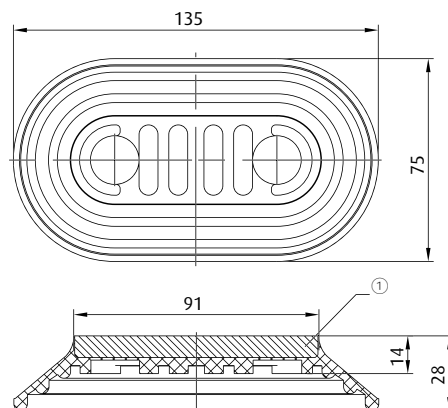
① = Steel

Item no.
9.125x55.012._*

Material
NBR (gr), SBR (br), NR (br)

9 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
9.135x75.066._*

Material
SBR (sw)

12 mm

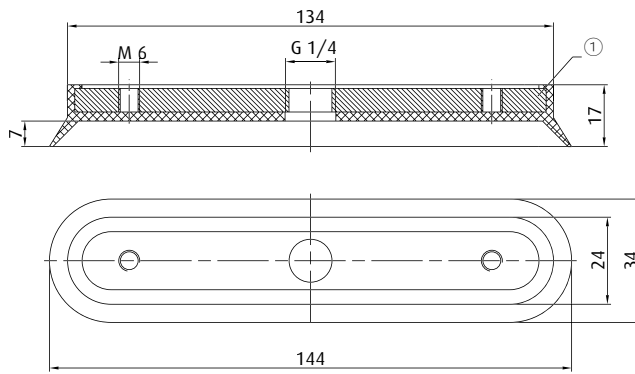
Ordering notes: Customised drilling patterns on request
Notes: Especially well-suited for rough surfaces

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

145x34 mm - 150x55 mm

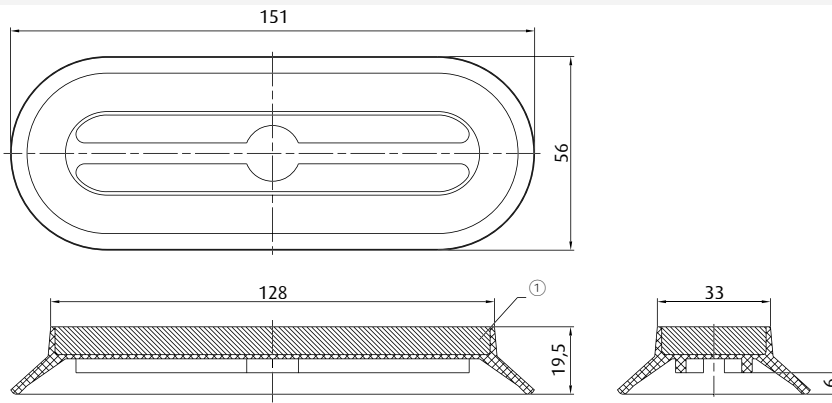


① = Aluminium

Item no.
130.145x34.55._*

Material
NBR (sw), SI (r)

7 mm



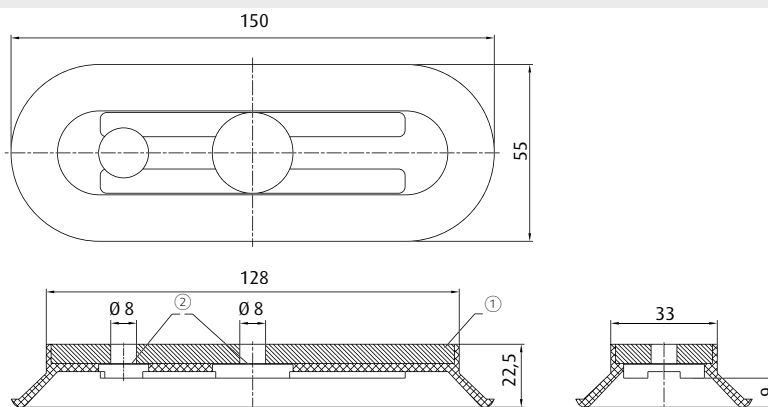
① = Steel

Item no.
9.150x55.013._*

Material
NBR (gr)

7 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Aluminium ② = Sealed with rubber

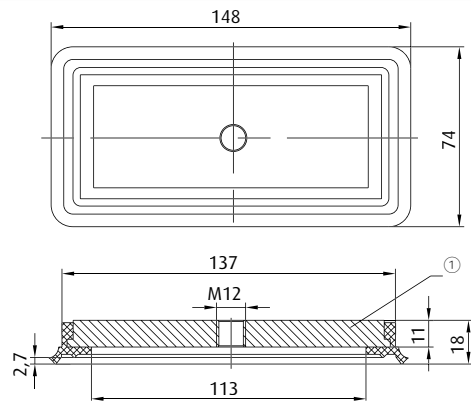
Item no.
9.150x55.083._*

Material
NR (or)

8 mm

Additional sizes available are found on p. 160.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

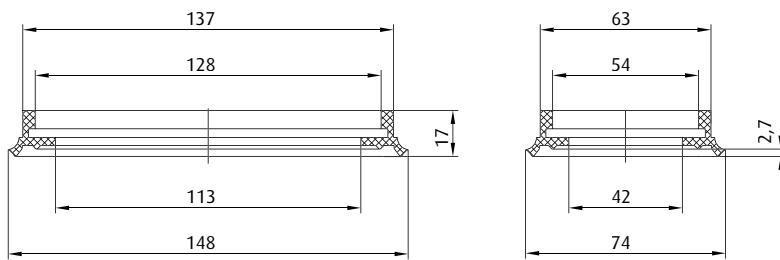


① = Aluminium

Item no.
155.150x75.3.*

Material
NBR (sw)

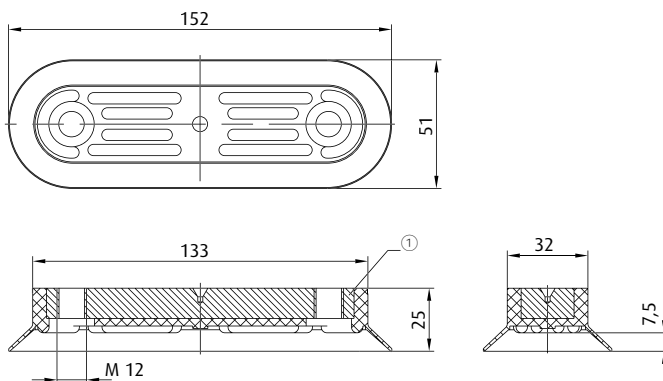
1.5 mm



Item no.
216.150x75.3.*

Material
NBR (sw)

1.5 mm



① = Aluminium

Item no.
130.152x51.092.*

Material
Vinyl (bl)

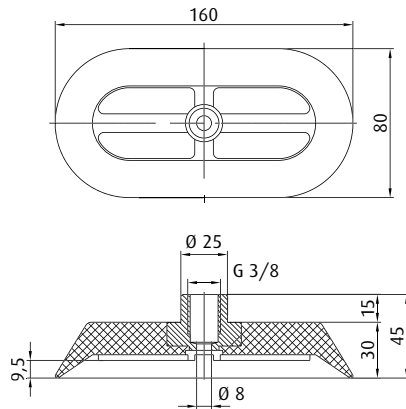
7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

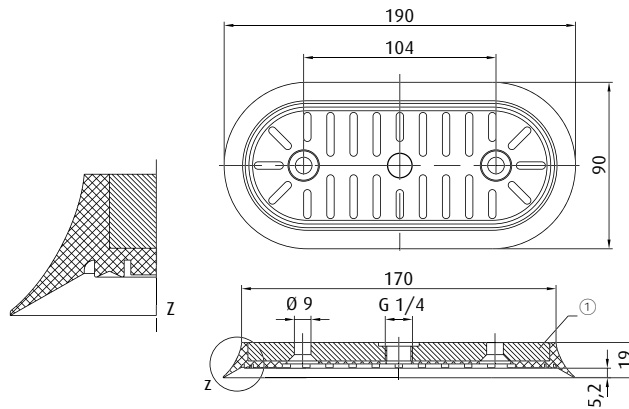
160x80 mm - 190x90 mm



Item no.
9.160x80.075._*

Material
SBR (sw)

9 mm



BESTSELLER

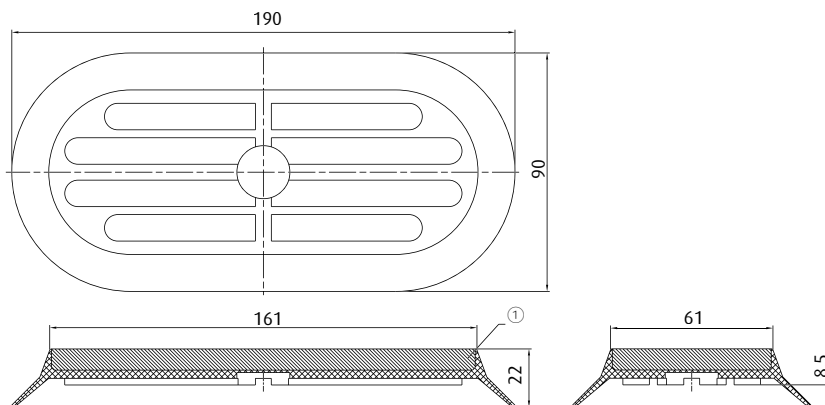
① = Aluminium

Item no.
9.190x90.061._*

Material
NR (bg)

5.5 mm

Additional sizes available are found on p. 158.



① = Steel

Item no.
9.200x100.015._*

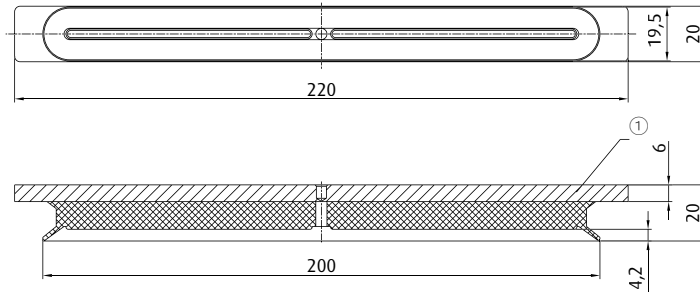
Material
NBR (gr), SBR (sw), NR (br)

8 mm

Additional sizes available are found on p. 160.

Ordering notes: Version with aluminium carrier: 9.200x100.054._

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



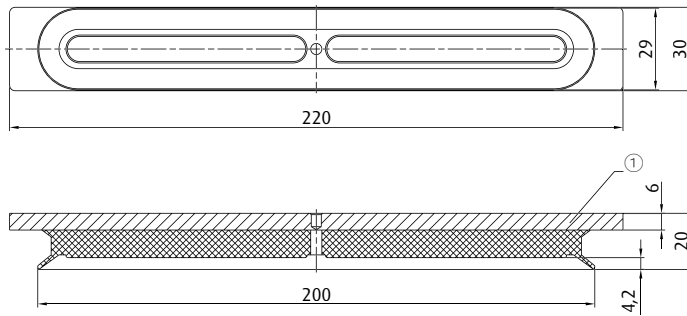
① = Steel

Item no.
9.200x20.063._*

Material
NBR (gr)

5 mm

Ordering notes: Customised drilling patterns on request



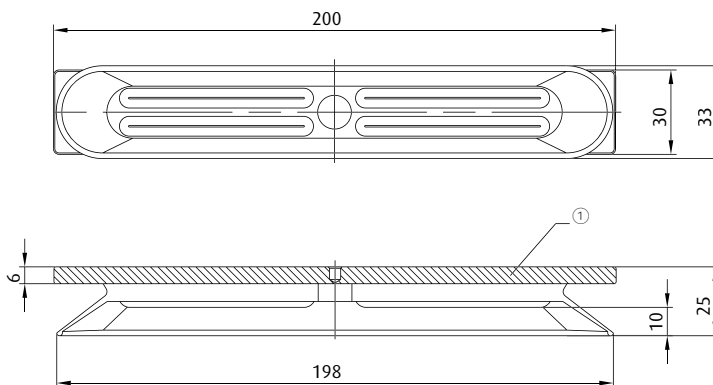
① = Steel

Item no.
9.200x30.031._*

Material
SBR (br), NBR (gr)

4 mm

Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
9.200x35.065._*

Material
NBR (gr), PU (bg)

10 mm

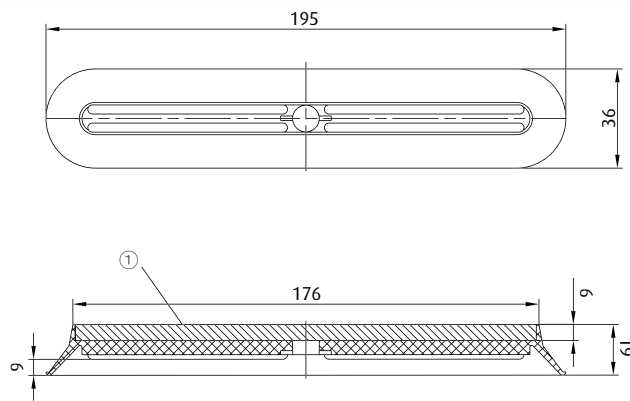
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

200x40 mm - 200x55 mm



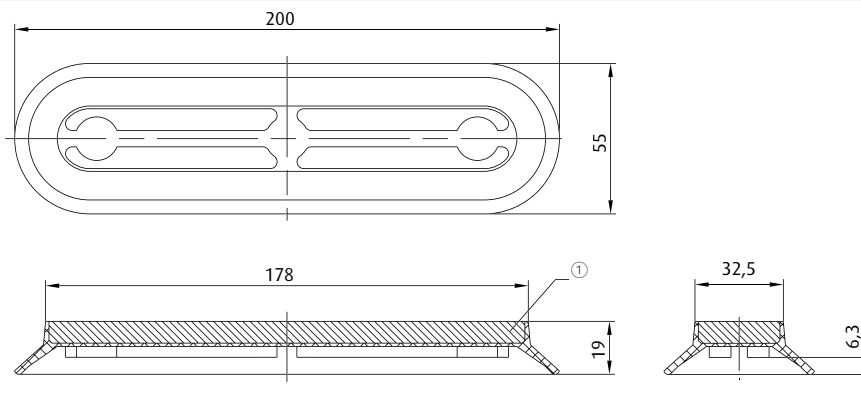
① = Steel

Item no.
9.200x40.010._*

Material
SBR (br), NBR (gr)

9 mm

Additional sizes available are found on p. 160.
Ordering notes: Version with aluminium carrier: 9.200x40.030._* on request customised drilling patterns available



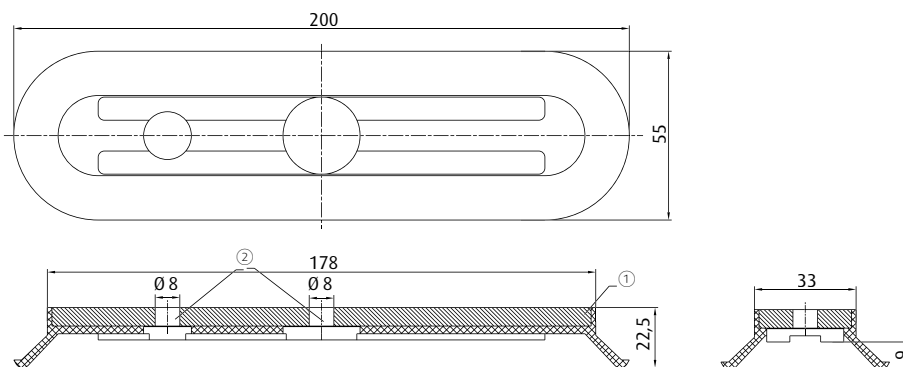
① = Steel

Item no.
9.200x55.014._*

Material
NBR (gr)

7 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Aluminium ② = Sealed with rubber

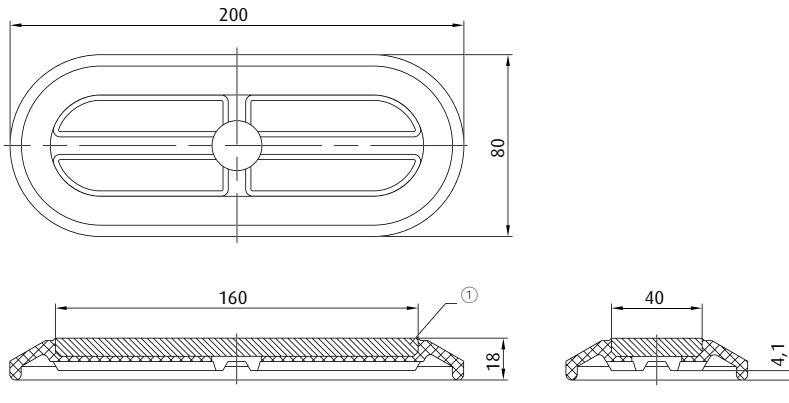
Item no.
9.200x55.020._*

Material
NR (or)

8 mm

Additional sizes available are found on p. 160.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



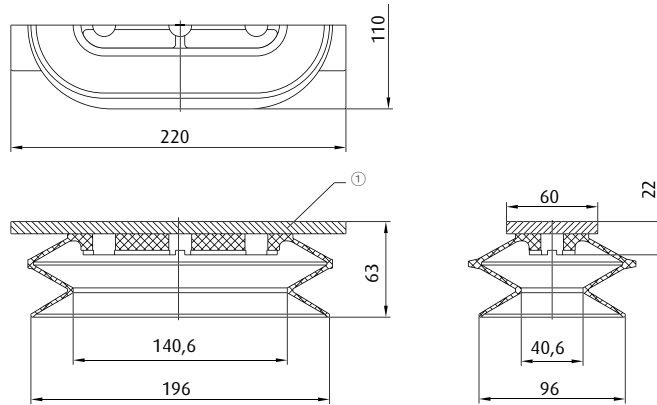
① = Steel

Item no.
9.200x80.067._*

Material
SBR (sw)

4 mm

Ordering notes: Customised drilling patterns on request



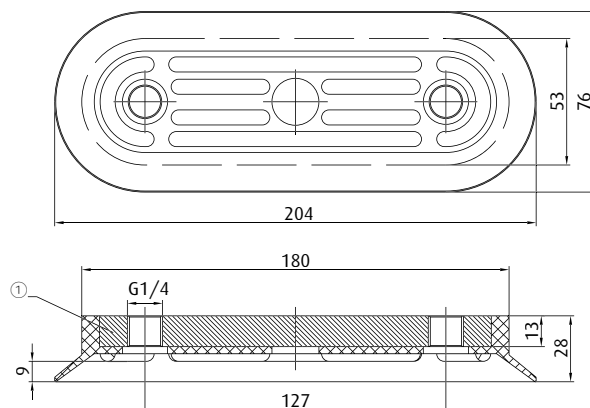
① = Aluminium

Item no.
138.200x100.005._*

Material
SBR (br), NBR (gr)

41 mm

Ordering notes: With steel wire reinforcement in the fold:
138.200x100.006._* Customised drilling patterns on request



① = Aluminium

Item no.
130.204x76.86._*

Material
Vinyl (bl)

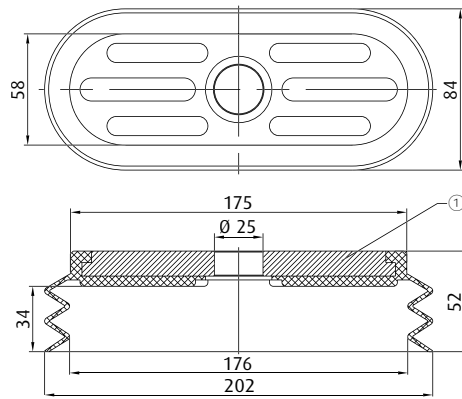
8 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

205x82 mm - 250x80 mm

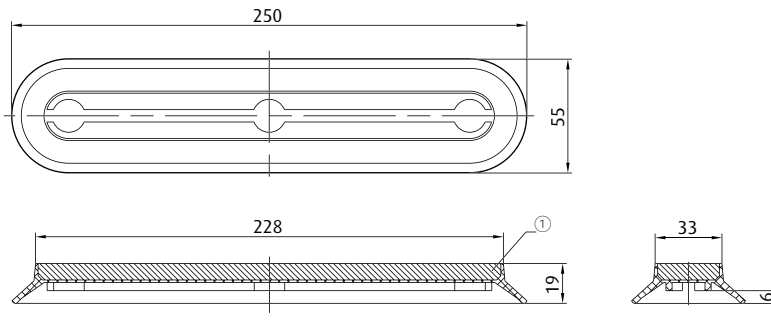


① = Aluminium

Item no.
137.205x82.1._*

Material
Vinyl (bl)

25 mm



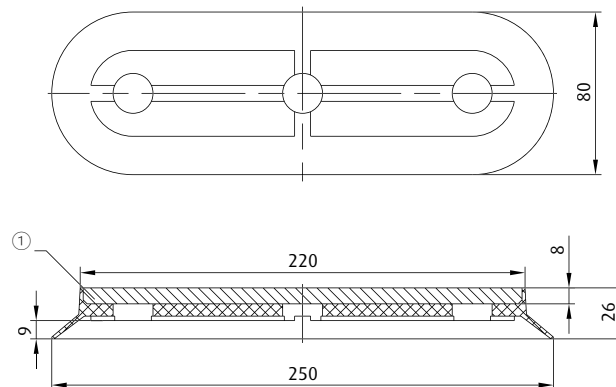
① = Steel

Item no.
9.250x55.016._*

Material
NBR (gr), NR (br)

8 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Steel

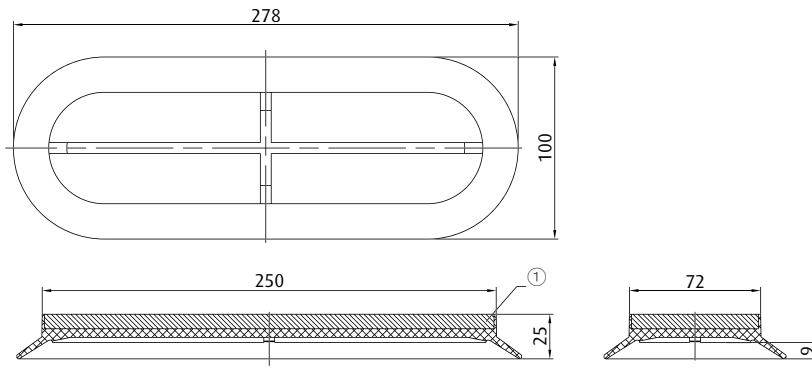
Item no.
9.250x80.033._*

Material
NBR (gr), SBR (br), NR (br)

10 mm

Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



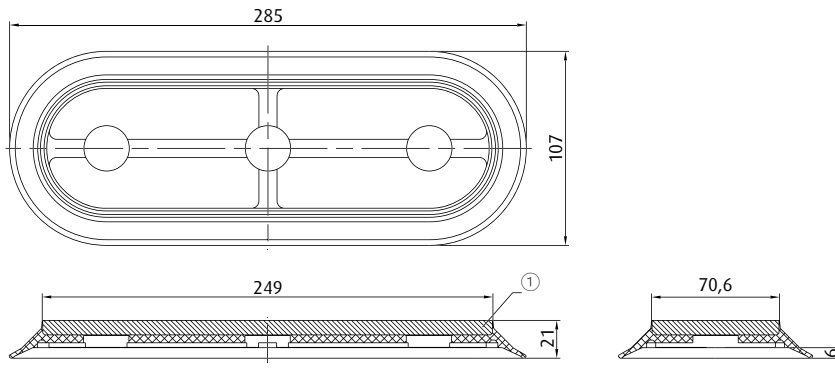
① = Steel

Item no.
9.280x100.017._*

Material
NBR (gr), SBR (br)

10 mm

Additional sizes available are found on p. 160.
Ordering notes: Version with aluminium carrier: 9.280x100.018._*



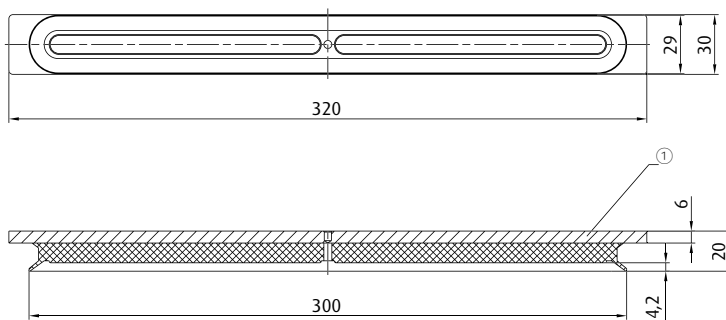
① = Steel

Item no.
9.280x107.070._*

Material
SBR (br)

6 mm

Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
9.300x30.069._*

Material
NBR (gr)

5 mm

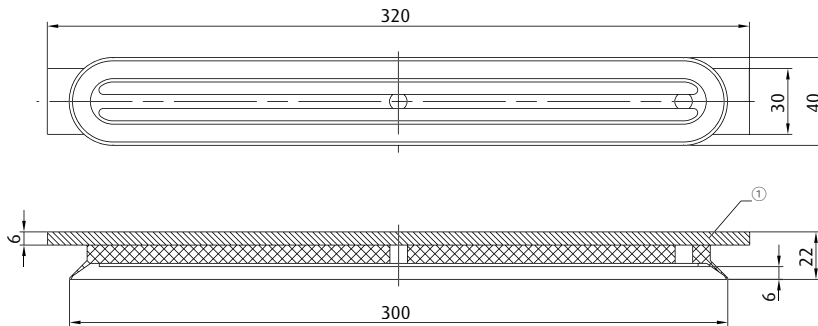
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

300x40 mm - 300x55 mm



① = Steel

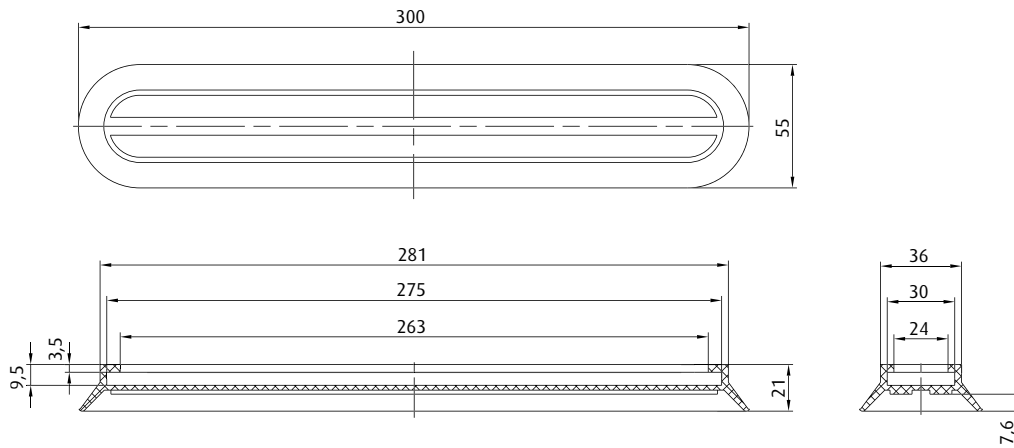
Item no.
9.300x40.064._*

Material
NBR (gr)

7 mm

Ordering notes: Customised drilling patterns on request

| | Connection | see page |
|---------|------------|----------|
| 270.332 | Without | 438 |

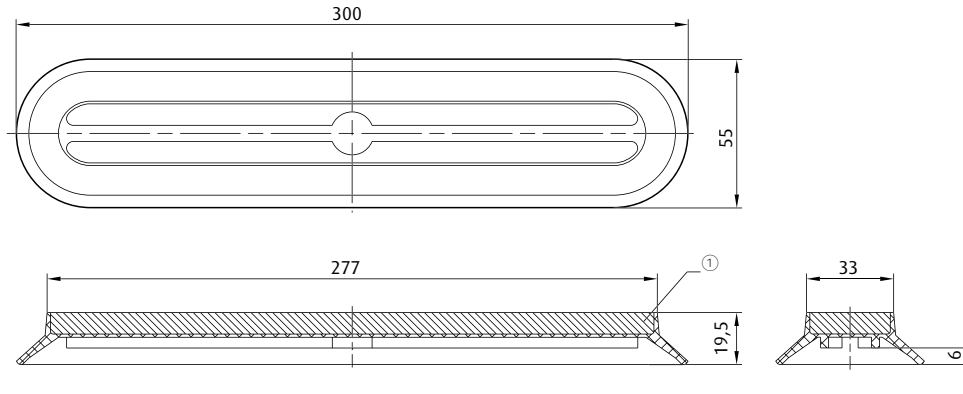


Item no.
9.290x55.071._*

Material
NBR (gr)

7 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



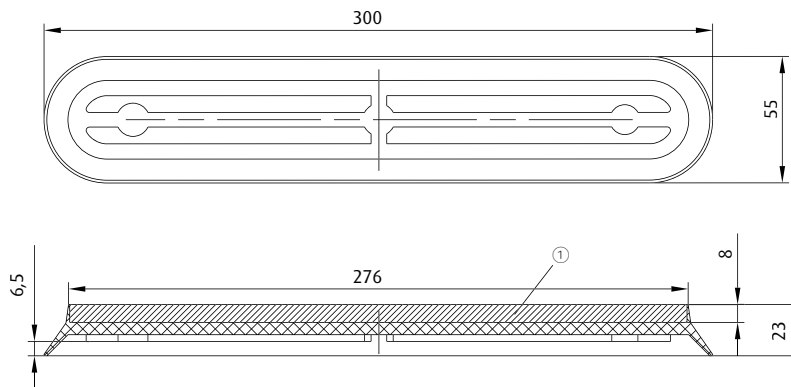
① = Steel

Item no.
9.300x55.019._*

Material
NBR (gr)

8 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Aluminium

Item no.
9.300x55.020._*

Material
NBR (gr)

8 mm

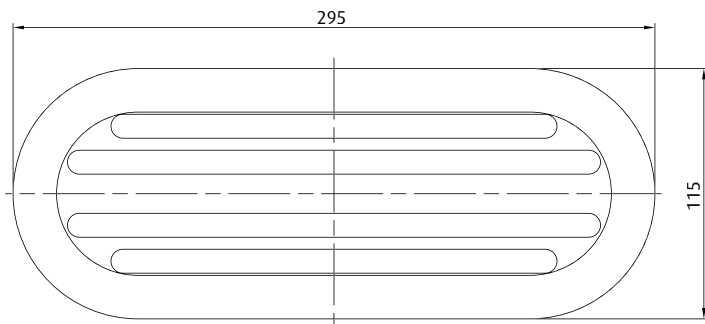
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

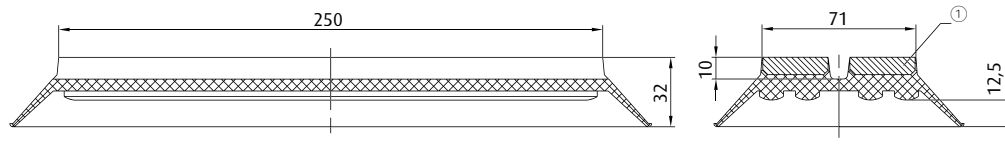


Vacuum cups by size | Oval vacuum cups by size

300x55 mm - 300x115 mm



DIVIDED CARRIER - SUITABLE FOR PIPES



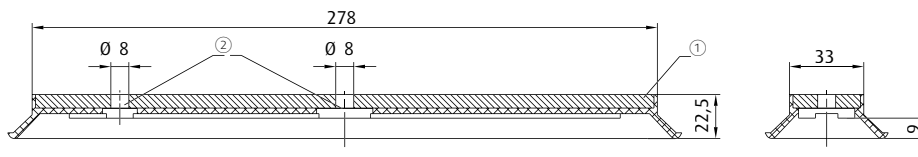
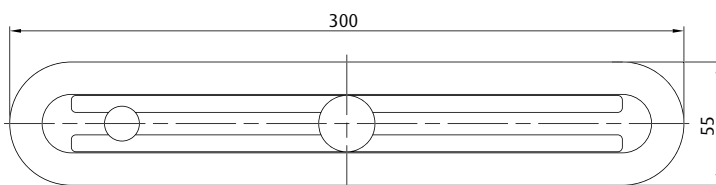
① = Steel beam divided (flexible)

Item no.
9.300x115.068._*

Material
NBR (gr)

14 mm

Ordering notes: Customised drilling patterns on request



① = Aluminium ② = Sealed with rubber

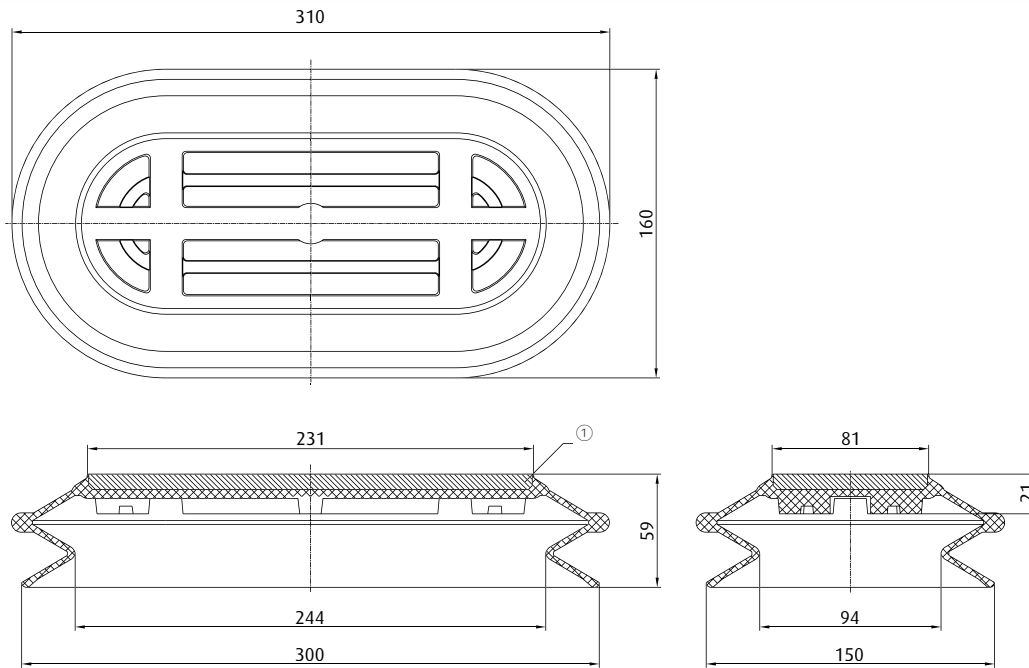
Item no.
9.300x55.046._*

Material
NR (or)

8 mm

Additional sizes available are found on p. 160.

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



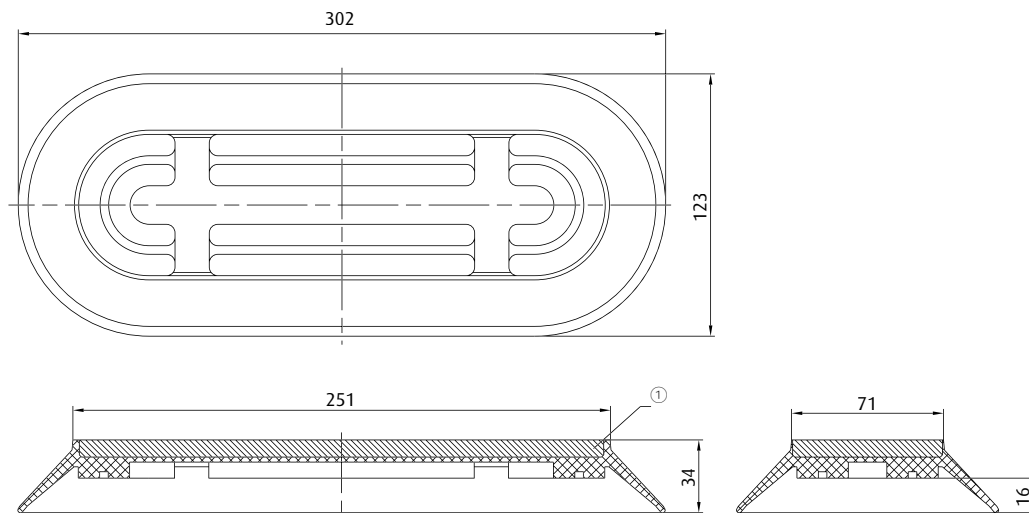
① = Steel

Item no.
138.300x150.007._*

Material
SBR (br), NBR (gr)

39 mm

Ordering notes: With vulcanised metal reinforcement in the fold:
138.300x150.008._*



① = Steel

Item no.
9.300x120.021._*

Material
NBR (gr), SBR (br)

17 mm

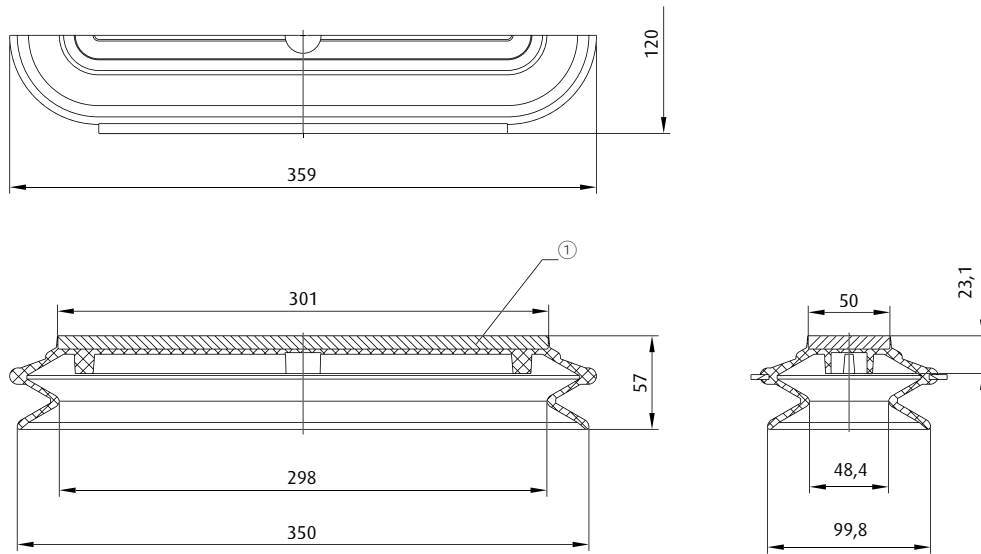
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

350x100 mm - 370x70 mm



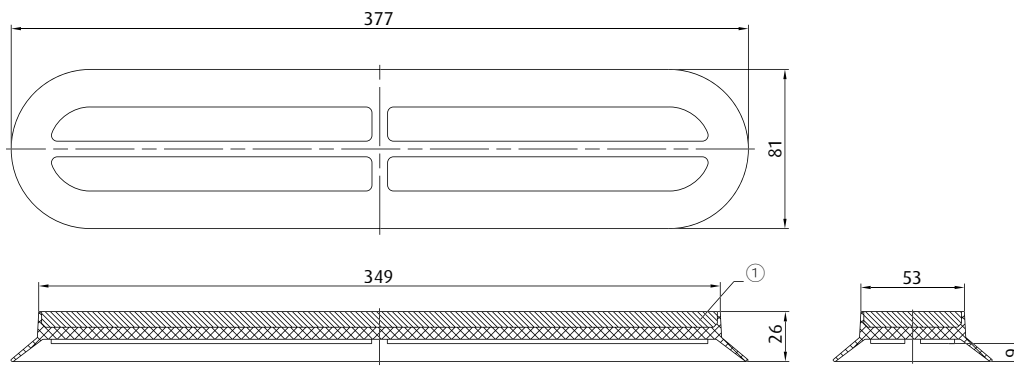
① = Steel

Item no.
138.350x100.009.*

Material
SBR (br), NBR (gr)

39 mm

Ordering notes: With vulcanised metal reinforcement in the fold:
138.350x100.010.*



① = Steel

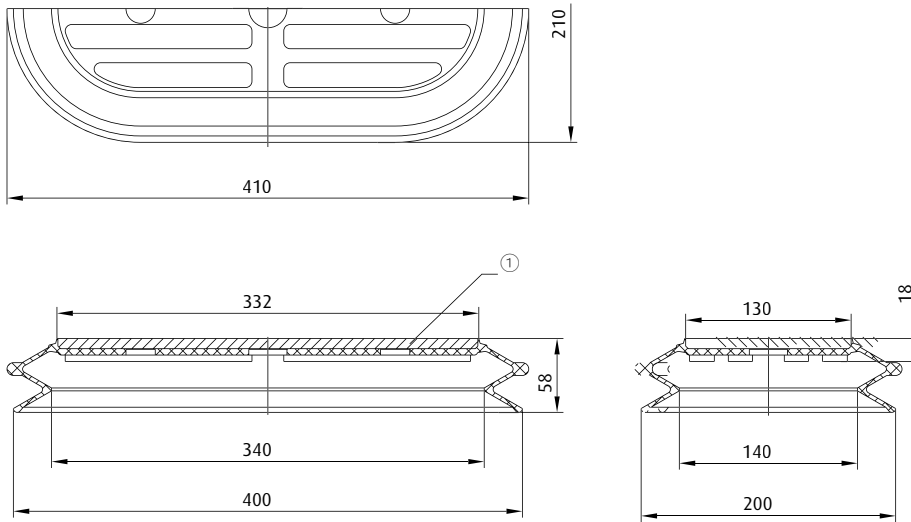
Item no.
9.370x70.022.*

Material
NBR (gr), SBR (br)

10 mm

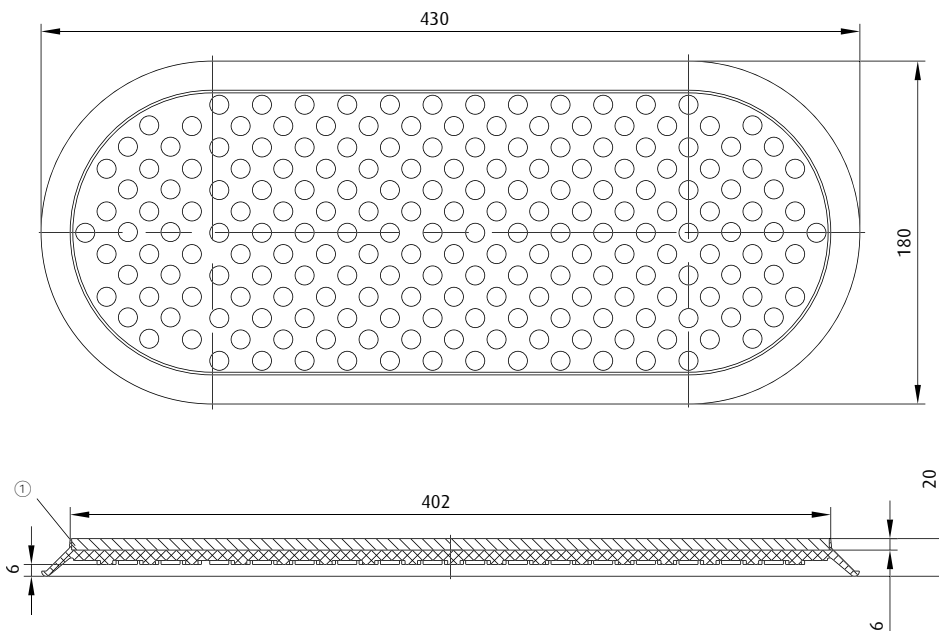
Additional sizes available are found on p. 160.
Ordering notes: Version with aluminium carrier: 9.370x70.023.*

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



① = Steel

| | | | |
|---------------------------------------|---------------------------------------|-------|---|
| Item no. 138.400x200.011._* | Material SBR (br), NBR (gr) | 39 mm | Ordering notes: With vulcanised metal reinforcement in the fold: 138.400x200.012._* |
|---------------------------------------|---------------------------------------|-------|---|



① = Steel

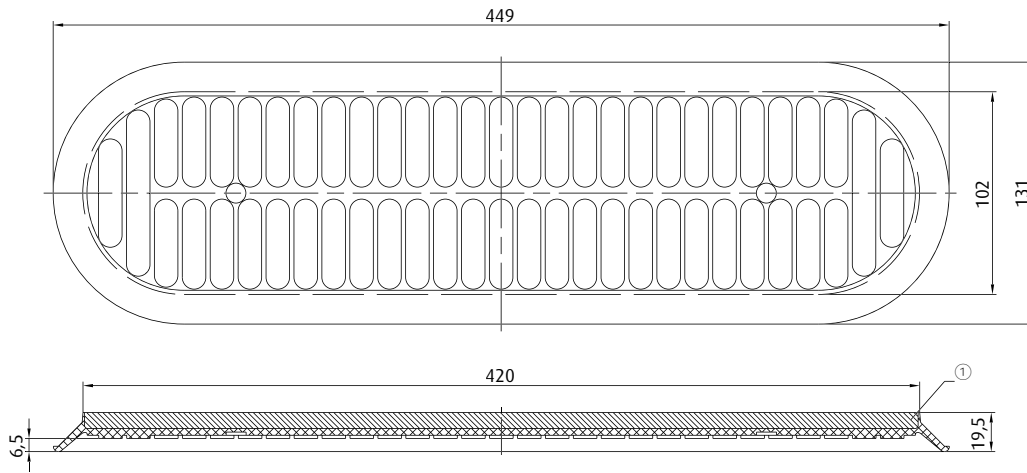
| | | | |
|-------------------------------------|--|------|---|
| Item no. 9.430x180.024._* | Material SBR (sw), NBR (gr), PU (bg) | 6 mm | Additional sizes available are found on p. 160. Ordering notes: Customised drilling patterns on request |
|-------------------------------------|--|------|---|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

450x130 mm - 450x150 mm



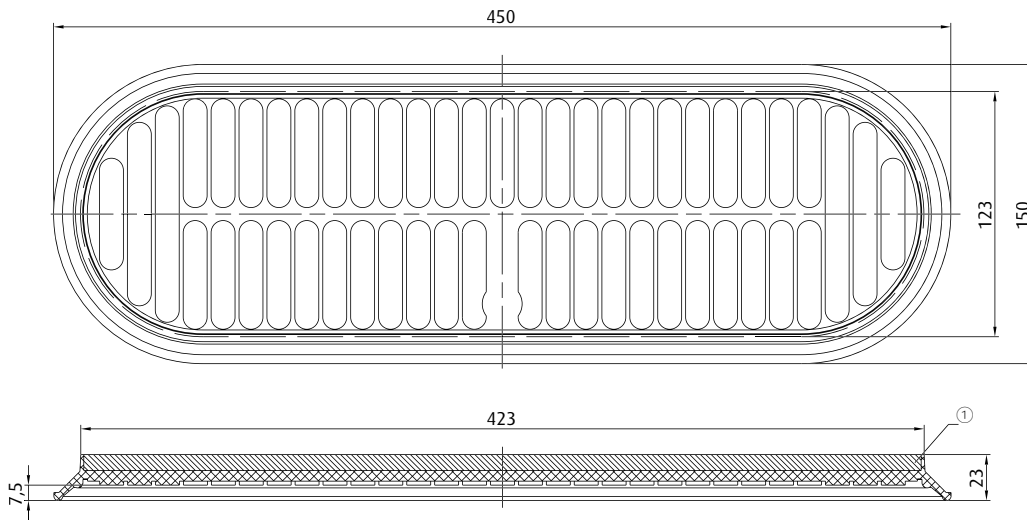
① = Steel

Item no.
9.450x130.025._*

Material
NBR (gr), SBR (br)

6 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request



① = Steel

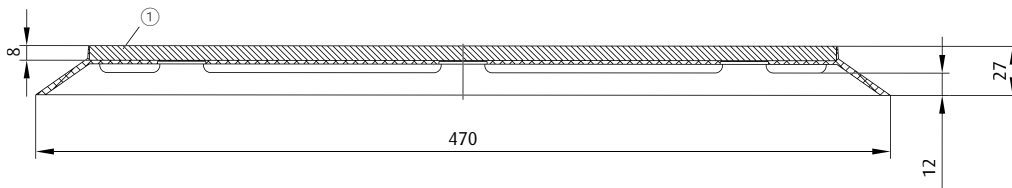
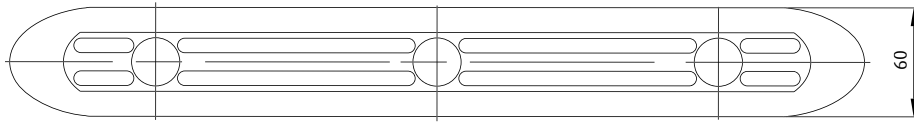
Item no.
9.450x150.026._*

Material
NBR (gr), SBR (sw)

9 mm

Ordering notes: Customised drilling patterns on request

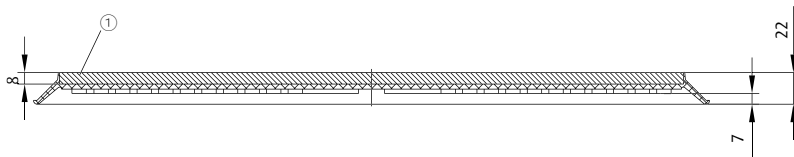
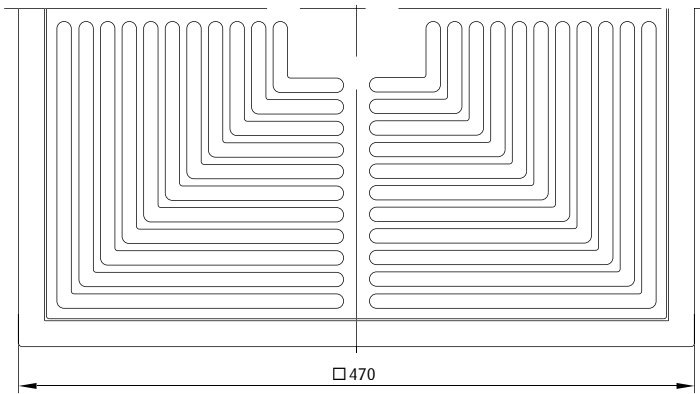
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



SUITABLE FOR ROUND SECTIONS AND PIPES

① = Steel

| | | | |
|-----------------------------------|---------------------------------------|-------|--|
| Item no. 9.470x60.072.* | Material NBR (gr), SBR (sw) | 12 mm | Ordering notes: Customised drilling patterns on request |
|-----------------------------------|---------------------------------------|-------|--|



① = Steel

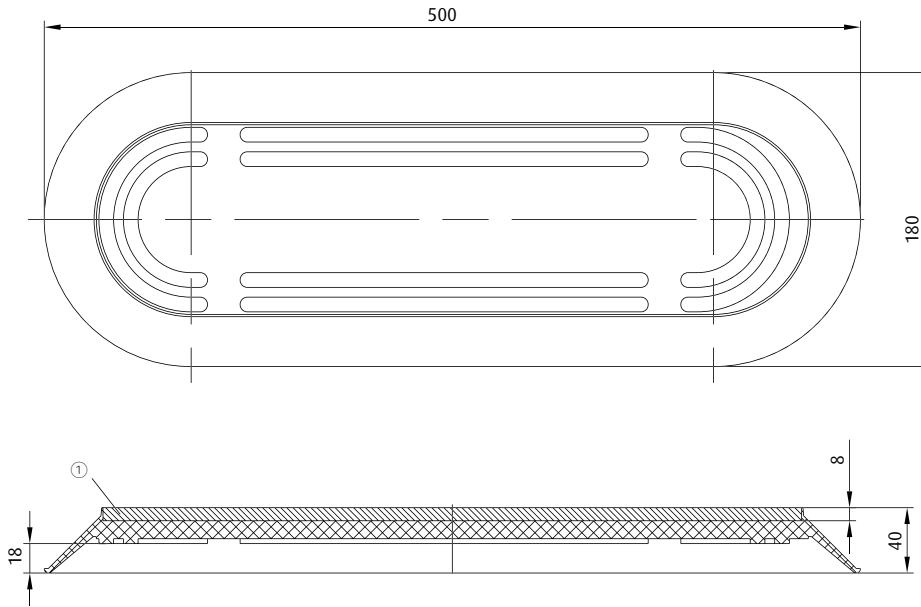
| | | | |
|------------------------------------|-----------------------------|------|--|
| Item no. 9.470x470.027.* | Material SBR (sw) | 6 mm | Ordering notes: Customised drilling patterns on request |
|------------------------------------|-----------------------------|------|--|

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



Vacuum cups by size | Oval vacuum cups by size

500x180 mm - 580x180 mm



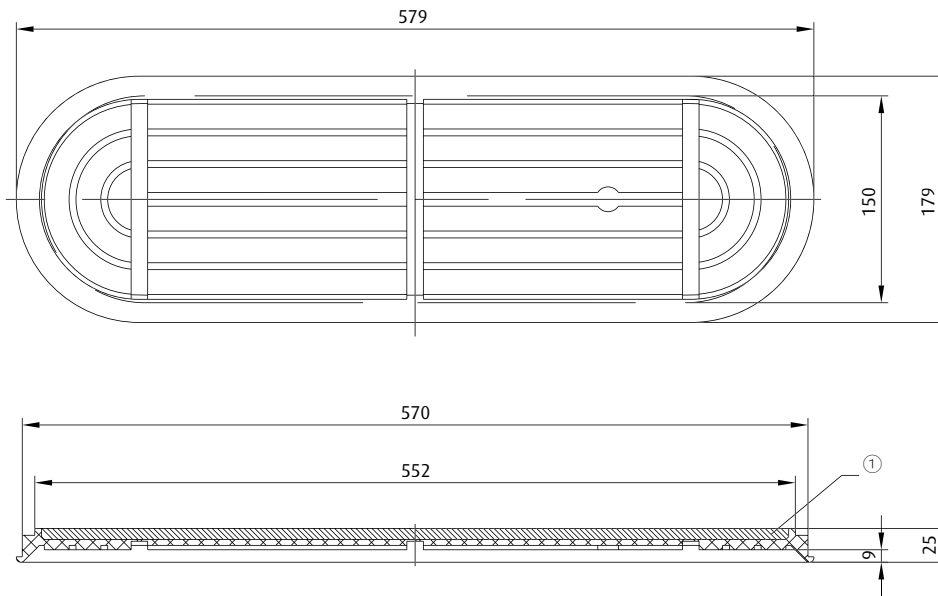
① = Steel

Item no.
9.500x180.028._*

Material
NBR (gr), SBR (sw)

21 mm

Ordering notes: Customised drilling patterns on request



① = Steel

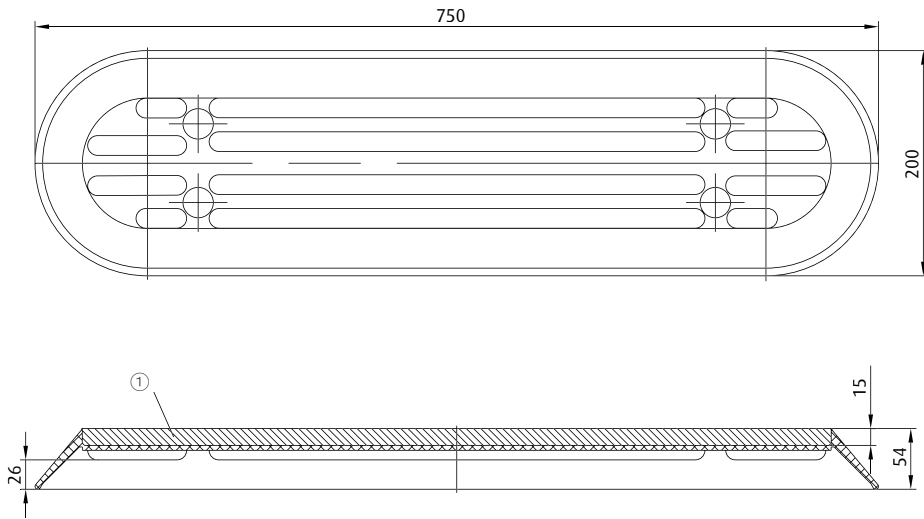
Item no.
9.580x180.029._*

Material
NBR (gr), SBR (br)

10 mm

Additional sizes available are found on p. 160.
Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760



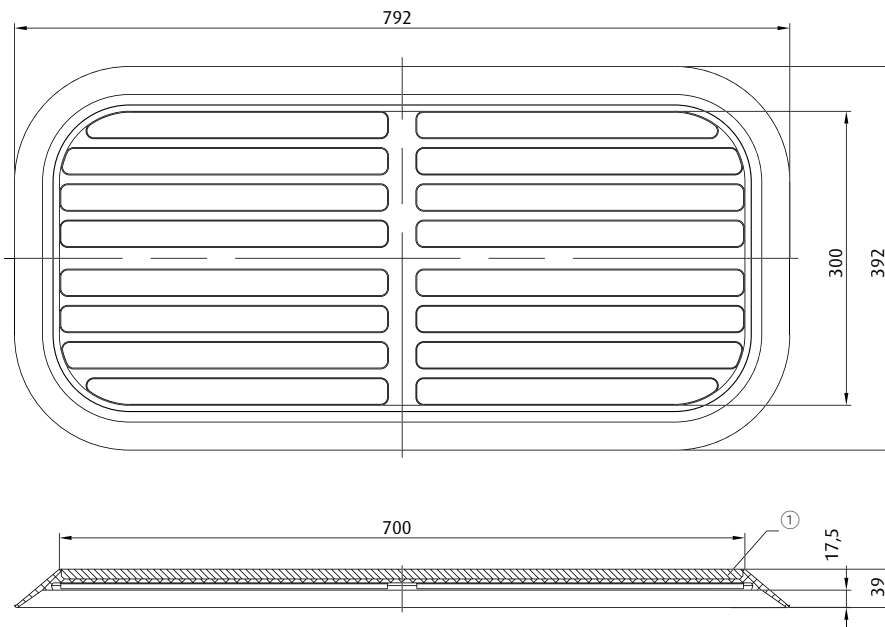
① = Steel

Item no.
9.750x200.049._*

Material
SBR (br)

29 mm

Ordering notes: Customised drilling patterns on request



① = Steel

Item no.
9.800x400.048._*

Material
SBR (br), NBR (gr)

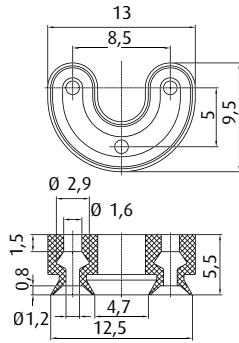
20 mm

Ordering notes: Customised drilling patterns on request

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for Vacuum cups you will find on page 760

Vacuum cups by size | Ring and segment vacuum cups

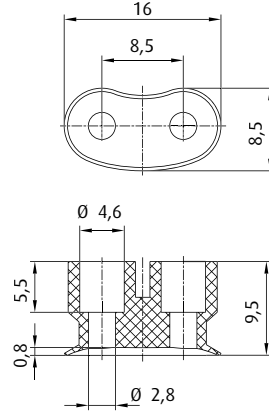
Ø 13 - 24 mm



Item no.
107.013.095._*

Material
SI (tr)

0.7 mm



Item no.
107.017.093._*

Material
SI (tr)

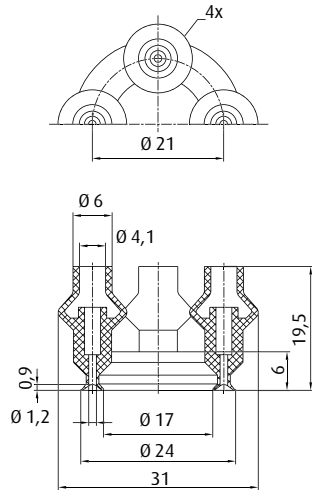
0.2 mm



270.010

Connection
M5-male

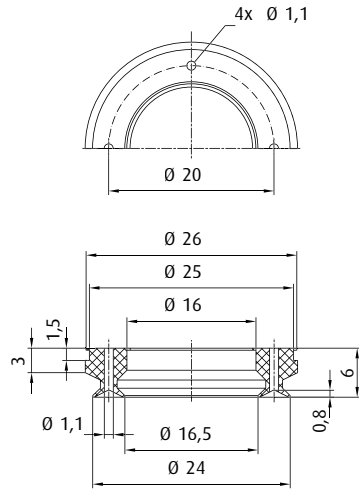
see
page
411



Item no.
107.024.060._*

Material
SI (tr)

0.8 + 1.4 mm



Item no.
107.024.061._*

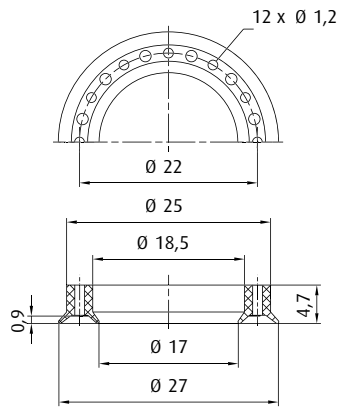
Material
SI (tr)

0.8 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760

Vacuum cups by size | Ring and segment vacuum cups

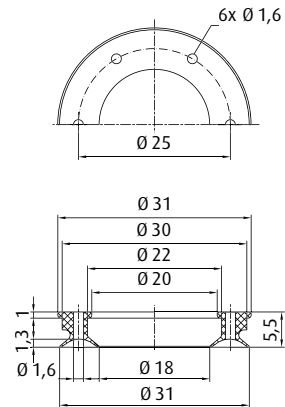
Ø 27 - 33 mm



Item no.
107.027.121._*

Material
SI (tr)

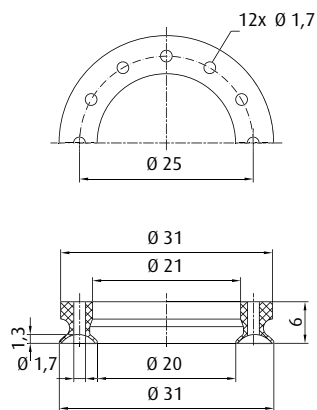
0.5 mm



Item no.
107.031.079._*

Material
SI (bl)

1.3 mm

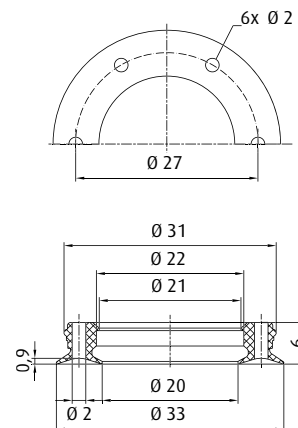


Item no.
107.031.091._*

Material
SI (tr)

1.3 mm

BESTSELLER



Item no.
107.033.046._*





Material
SI-AS (sw)

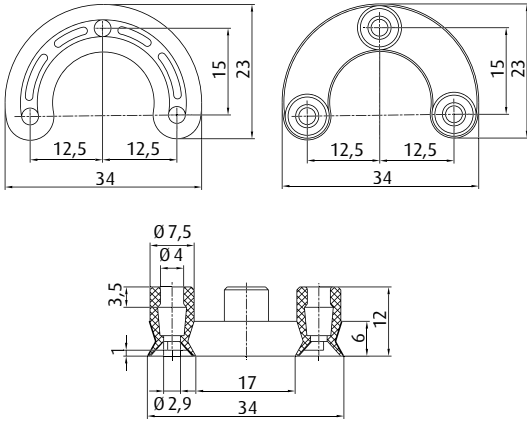
0.5 mm

* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760

Vacuum cups by size | Ring and segment vacuum cups


Ø 33 - 114 mm


| | Connection | see page |
|---|-------------|----------|
|  | M5-male | 409 |
|  | M6-male | 413 |
|  | G1/8-male | 416 |
|  | G1/8-female | 421 |

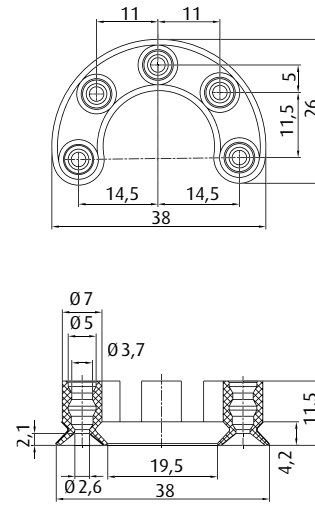


Item no.
107.033.047.*

Material
SI (tr)


 1.2 mm

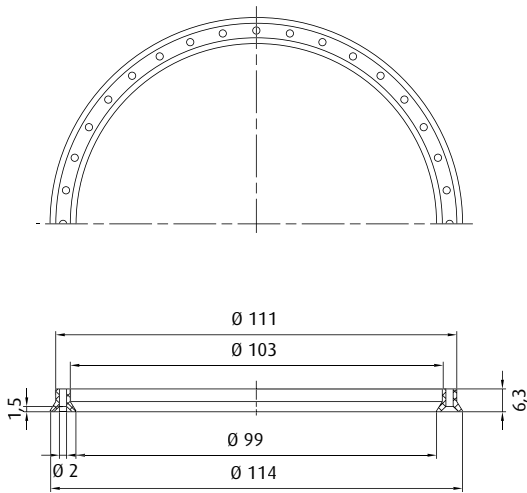
| | Connection | see page |
|---|------------|----------|
|  | M5-male | 410 |



Item no.
107.038.119.*

Material
SI (tr)


 2 mm



PTFE COATED

Item no.
107.114.118.*

Material
SI (tr)

 0.5 mm

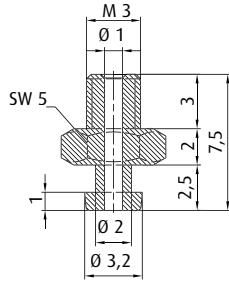
* When ordering please add the appropriate material code to item no. You will find it in the foldout.
Average holding forces for vacuum cups you will find on page 760

| | |
|---|-----|
| Standard fittings for vacuum cups | 408 |
| Carrier plates for vacuum cups | 438 |
| Fittings for suction discs | 441 |
| Spring levelers | 442 |
| Lifting cylinders | 460 |
| Joints | 470 |



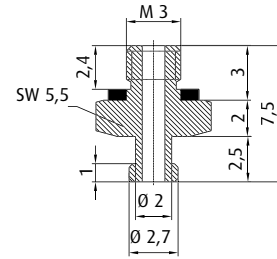
Fastening elements vacuum cups | Fittings

M3-male | M4-male



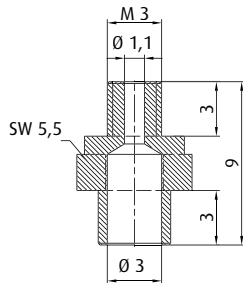
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.014 | M3-male |



Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.524 | M3-male |

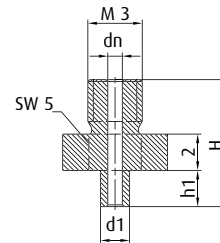


Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.427 | M3-male |

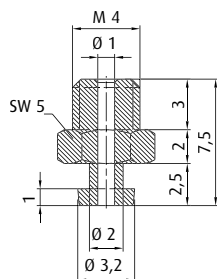
Notes:

Vacuum cup is plugged into the borehole of the fitting



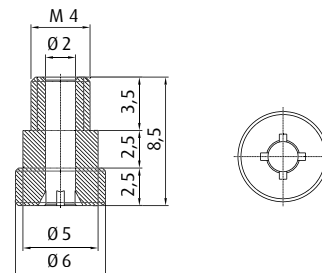
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | Ø d1 [mm] | Ø dn [mm] |
|----------|-----------|--------|---------|-----------|-----------|
| 270.026 | M3-male | 6 | 1 | 1.1 | 0.6 |
| 270.011 | M3-male | 7 | 2 | 1.6 | 0.8 |
| 270.025 | M3-male | 7.5 | 2 | 2 | 1 |



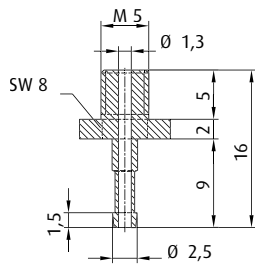
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.111 | M4-male |



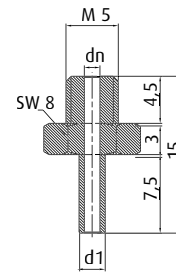
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.458 | M4-male |



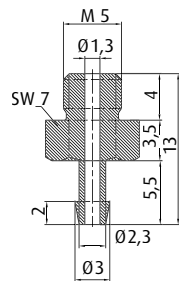
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.195 | M5-male |



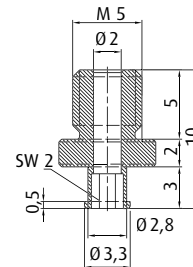
Technical data

| Item no. | Thread G1 | \varnothing d1 [mm] | \varnothing dn [mm] |
|----------|-----------|-----------------------|-----------------------|
| 270.001 | M5-male | 2.5 | 1.5 |
| 270.022 | M5-male | 3.4 | 2 |



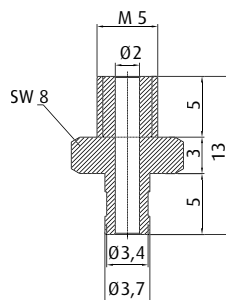
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.153 | M5-male |



Technical data

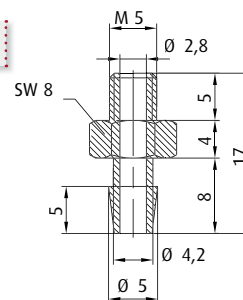
| Item no. | Thread G1 |
|----------|-----------|
| 270.283 | M5-male |



Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.536 | M5-male |

BESTSELLER



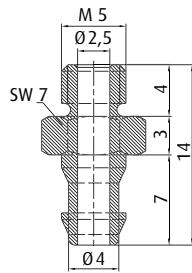
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.134 | M5-male |



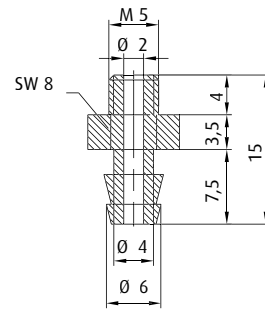
Fastening elements vacuum cups | Fittings

M5-male



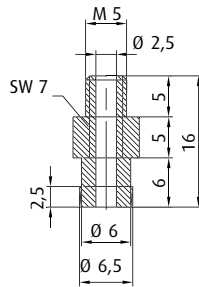
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.399 | M5-male |



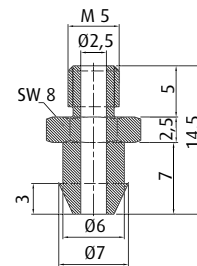
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.024 | M5-male |



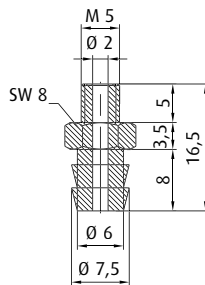
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.013 | M5-male |



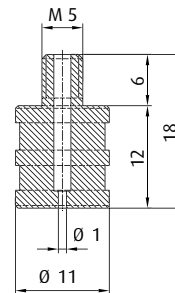
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.317 | M5-male |



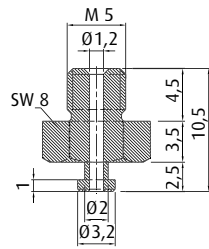
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.443 | M5-male |



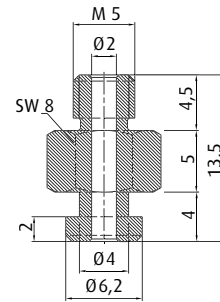
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.244 | M5-male |



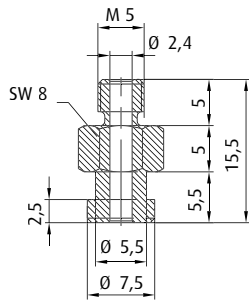
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.300 | M5-male |



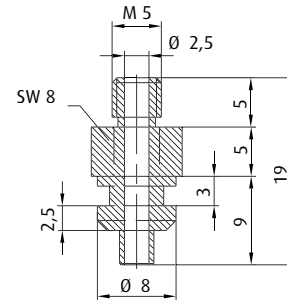
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.010 | M5-male |



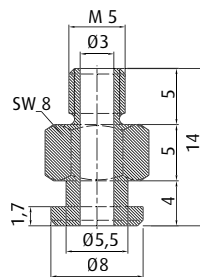
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.094 | M5-male |



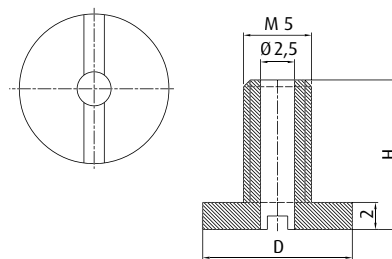
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.037 | M5-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.200 | M5-male |



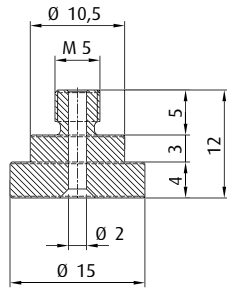
Technical data

| Item no. | Thread G1 | H [mm] | Ø D [mm] |
|----------|-----------|--------|----------|
| 270.310 | M5-male | 9 | 8 |
| 270.311 | M5-male | 11 | 11 |



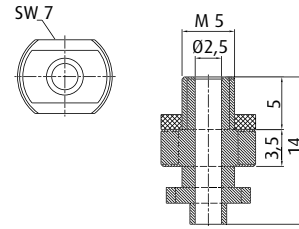
Fastening elements vacuum cups | Fittings

M5-male | M5-female



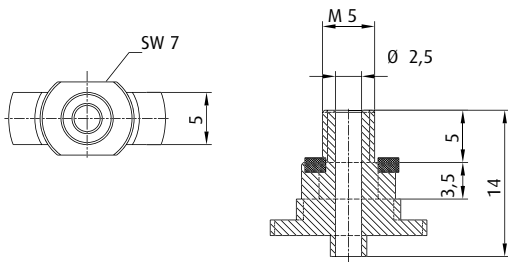
Technical data

| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.521 | M5-male |



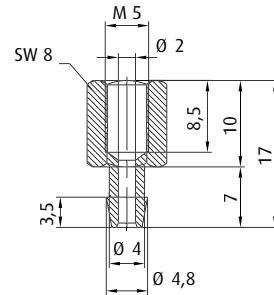
Technical data

| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.463 | M5-male |



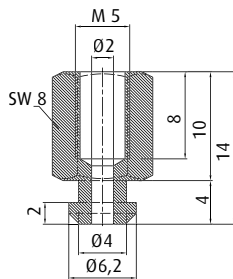
Technical data

| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.464 | M5-male |



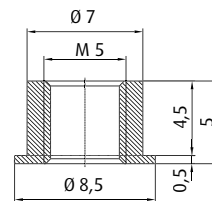
Technical data

| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.347 | M5-female |



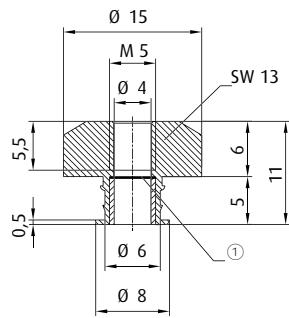
Technical data

| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.005 | M5-female |



Technical data

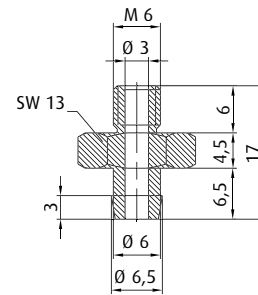
| | |
|----------------|-----------|
| Item no. | Thread G1 |
| 270.382 | M5-female |



① = Filter screen

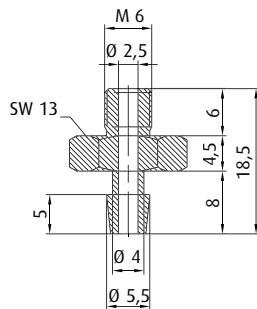
Technical data

| | |
|------------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.500-S | M5-female |



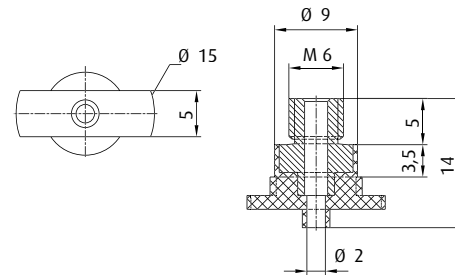
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.103 | M6-male |



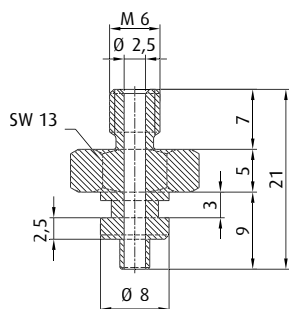
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.104 | M6-male |



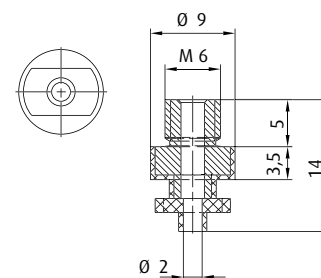
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.340 | M6-male |



Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.373 | M6-male |



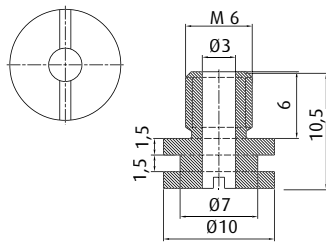
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.339 | M6-male |



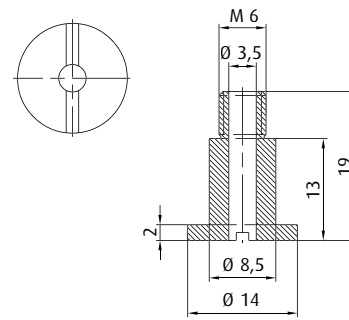
Fastening elements vacuum cups | Fittings

M6-male



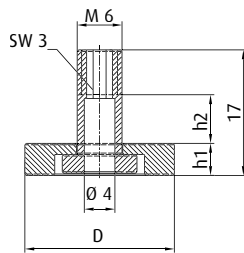
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.105 | M6-male |



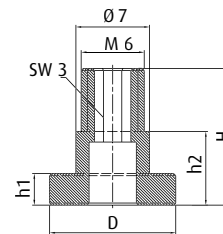
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.315 | M6-male |



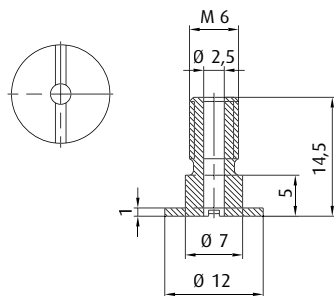
Technical data

| Item no. | Thread G1 | h1 [mm] | h2 [mm] | Ø D [mm] |
|----------|-----------|---------|---------|----------|
| 270.498 | M6-male | 5 | 6 | 15 |
| 270.499 | M6-male | 4.5 | 6.5 | 20 |



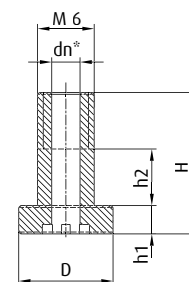
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
|----------|-----------|--------|---------|---------|----------|
| 270.459 | M6-male | 11 | 2.5 | 6 | 10 |
| 270.460 | M6-male | 13 | 3 | 7 | 10 |



Technical data

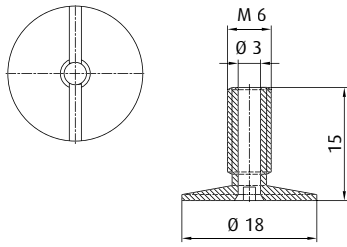
| Item no. | Thread G1 |
|----------|-----------|
| 270.039 | M6-male |



* = 270.461: Wrench size SW 3

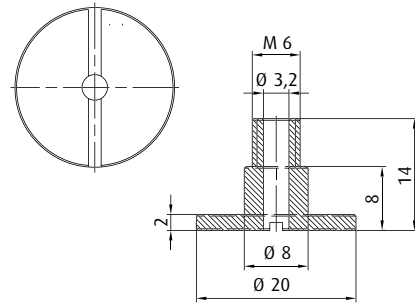
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] | Ø dn [mm] |
|------------|-----------|--------|---------|---------|----------|-----------|
| 270.312/19 | M6-male | 14 | 2 | 5 | 11 | 3.5 |
| 270.457 | M6-male | 15 | 3 | 6 | 10 | 3 |
| 270.461 | M6-male | 16.5 | 2.5 | 8 | 10 | -- |



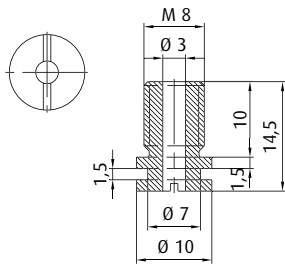
Technical data

| | |
|----------|-----------|
| | Thread G1 |
| Item no. | |
| 270.254 | M6-male |



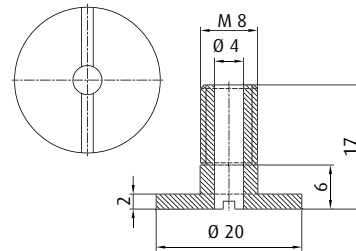
Technical data

| | |
|----------|-----------|
| | Thread G1 |
| Item no. | |
| 270.314 | M6-male |



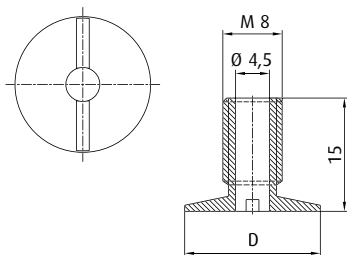
Technical data

| | |
|----------|-----------|
| | Thread G1 |
| Item no. | |
| 270.040 | M8-male |



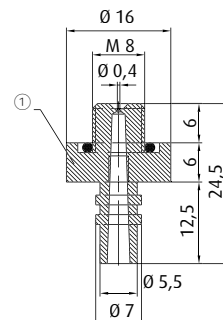
Technical data

| | |
|----------|-----------|
| | Thread G1 |
| Item no. | |
| 270.313 | M8-male |



Technical data

| | | |
|----------|-----------|----------|
| | Thread G1 | Ø D [mm] |
| Item no. | | |
| 270.247 | M8-male | 12 |
| 270.255 | M8-male | 15 |
| 270.256 | M8-male | 18 |



① = Material: PA6

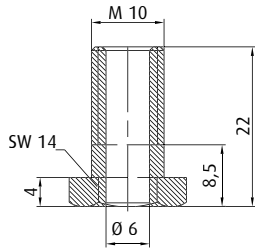
Technical data

| | |
|----------|-----------|
| | Thread G1 |
| Item no. | |
| 270.378 | M8-male |



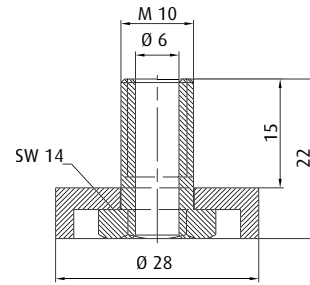
Fastening elements vacuum cups | Fittings

M10-male | G1/8-male



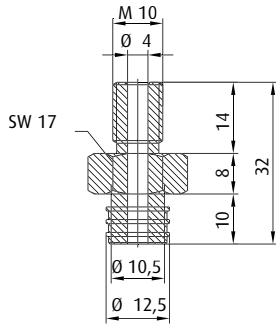
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.462 | M10-male |



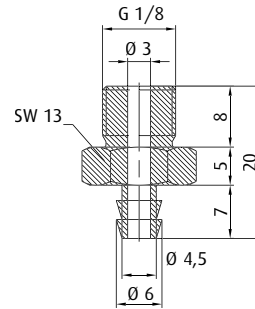
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.512 | M10-male |



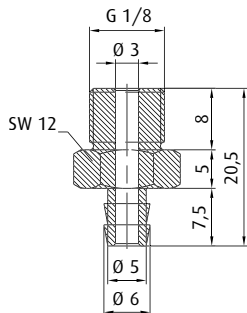
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.177 | M10-male |



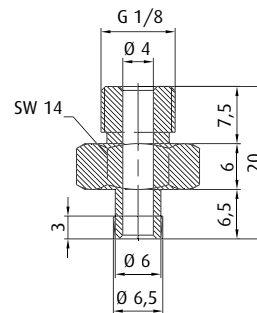
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.033 | G1/8-male |



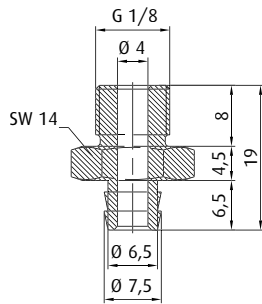
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.205 | G1/8-male |



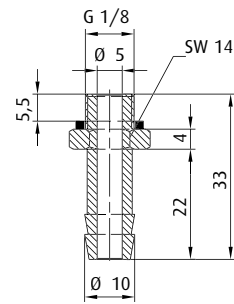
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.003 | G1/8-male |



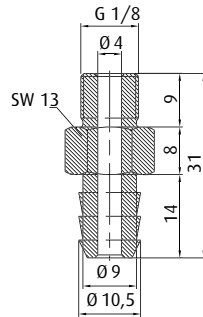
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.238 | G1/8-male |



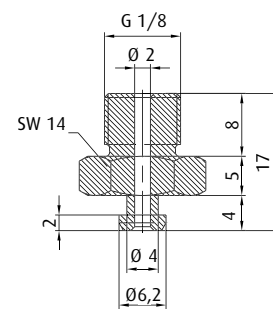
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.060 | G1/8-male |



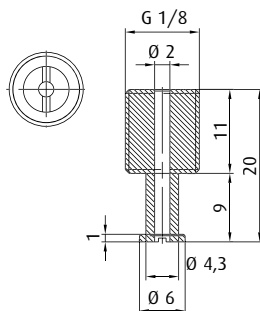
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.132 | G1/8-male |



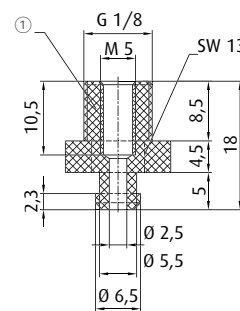
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.009 | G1/8-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.242 | G1/8-male |



① = Material: POM

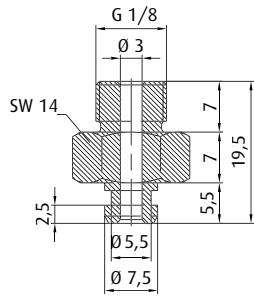
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.188 | G1/8-male |



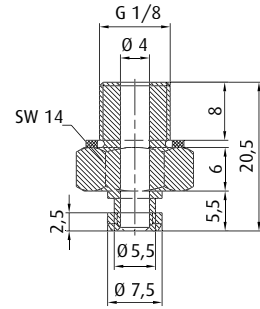
Fastening elements vacuum cups | Fittings

G1/8-male



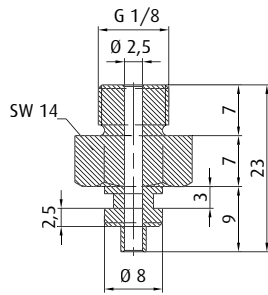
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.095 | G1/8-male |



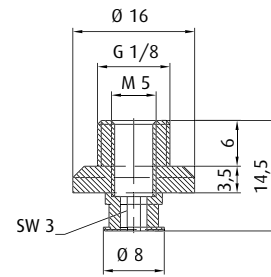
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.431 | G1/8-male |



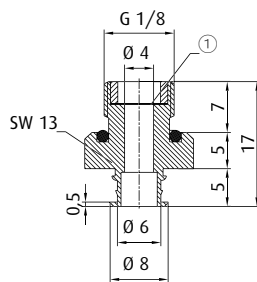
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.085 | G1/8-male |



Technical data

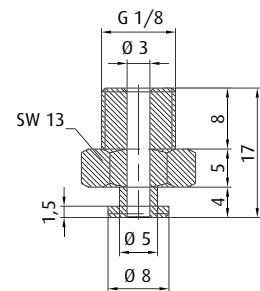
| Item no. | Thread G1 |
|----------|-----------|
| 270.250 | G1/8-male |



① = Filter screen

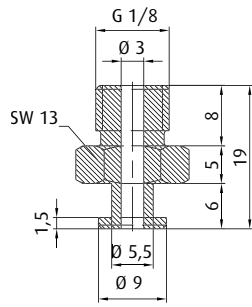
Technical data

| Item no. | Thread G1 |
|-----------|-----------|
| 270.503-S | G1/8-male |



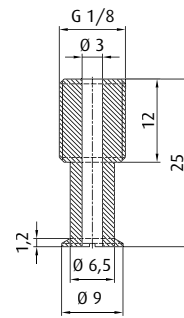
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.064 | G1/8-male |



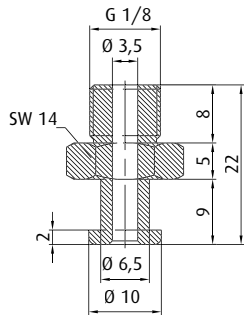
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.063 | G1/8-male |



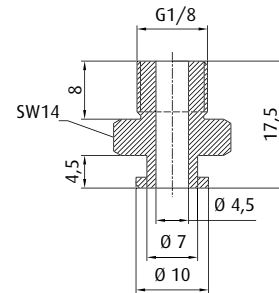
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.147 | G1/8-male |



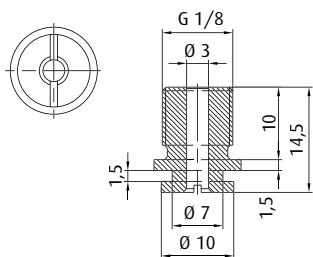
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.030 | G1/8-male |



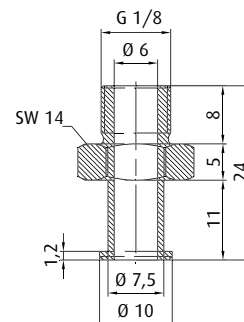
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.543 | G1/8-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.077 | G1/8-male |



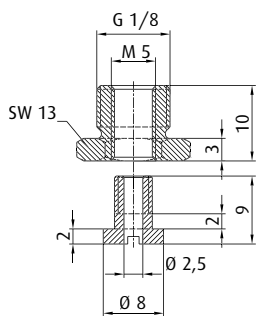
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.112 | G1/8-male |



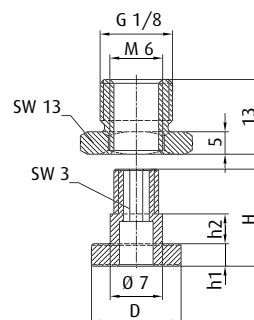
Fastening elements vacuum cups | Fittings

G1/8-male



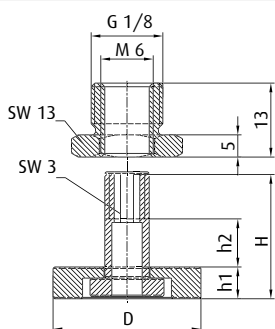
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.493 | G1/8-male |



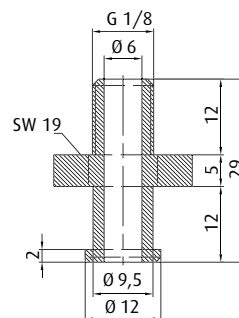
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
|----------|-----------|--------|---------|---------|----------|
| 270.480 | G1/8-male | 11 | 2.5 | 3.5 | 10 |
| 270.482 | G1/8-male | 13 | 3 | 4 | 12 |



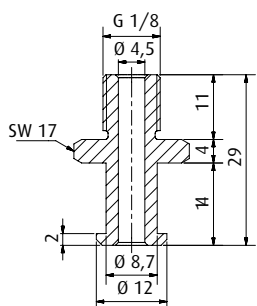
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
|----------|-----------|--------|---------|---------|----------|
| 270.486 | G1/8-male | 17 | 5 | 6 | 15 |
| 270.490 | G1/8-male | 17 | 4.5 | 6.5 | 20 |



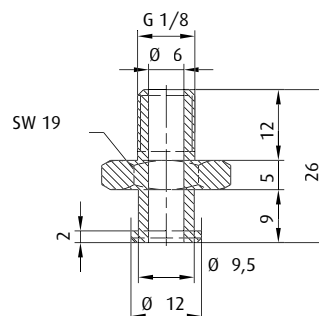
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.352 | G1/8-male |



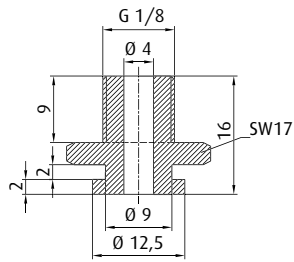
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.196 | G1/8-male |



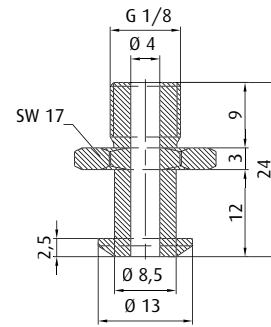
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.354 | G1/8-male |



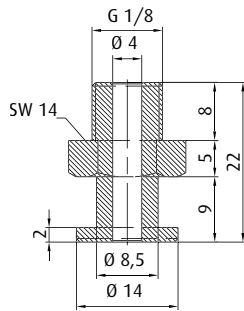
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.541 | G1/8-male |



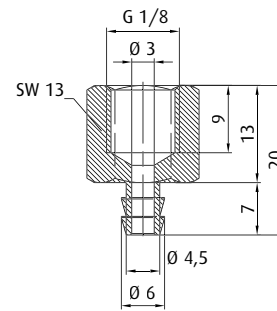
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.093 | G1/8-male |



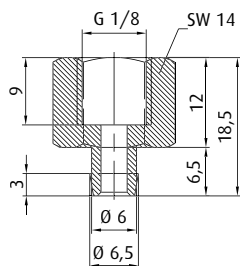
Technical data

| | |
|-----------------|-----------|
| | Thread G1 |
| Item no. | |
| 270.012 | G1/8-male |



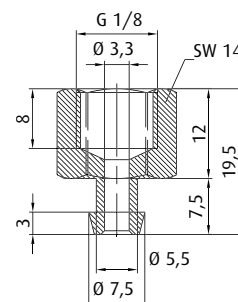
Technical data

| | |
|-----------------|-------------|
| | Thread G1 |
| Item no. | |
| 270.478 | G1/8-female |



Technical data

| | |
|-----------------|-------------|
| | Thread G1 |
| Item no. | |
| 270.015 | G1/8-female |



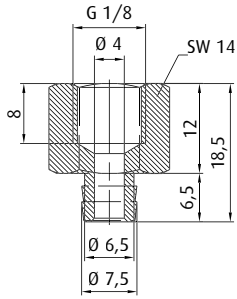
Technical data

| | |
|-----------------|-------------|
| | Thread G1 |
| Item no. | |
| 270.109 | G1/8-female |



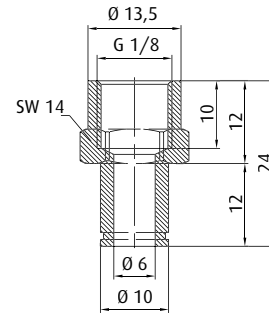
Fastening elements vacuum cups | Fittings

G1/8-female



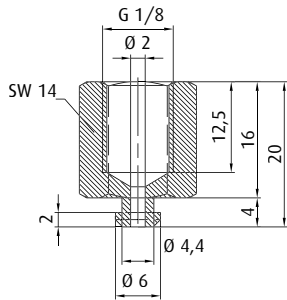
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.110 | G1/8-female |



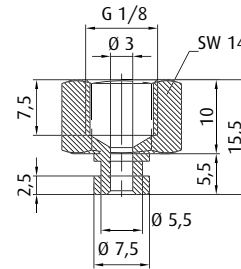
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.114 | G1/8-female |



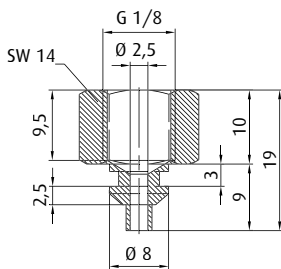
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.007 | G1/8-female |



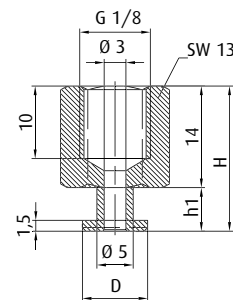
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.096 | G1/8-female |



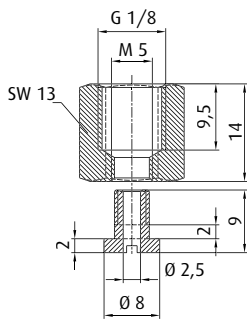
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.086 | G1/8-female |



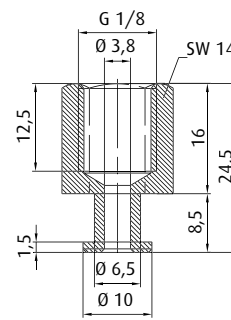
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | Ø D [mm] |
|----------|-------------|--------|---------|----------|
| 270.065 | G1/8-female | 18 | 4 | 8.5 |
| 270.061 | G1/8-female | 20 | 6 | 9 |



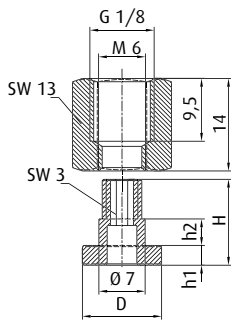
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.494 | G1/8-female |



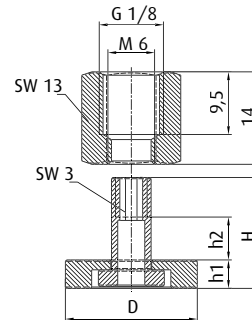
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.019 | G1/8-female |



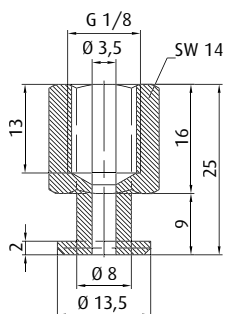
Technical data

| | | | | | |
|----------|-------------|--------|---------|---------|----------|
| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
| 270.479 | G1/8-female | 11 | 2.5 | 3.5 | 10 |
| 270.481 | G1/8-female | 13 | 3 | 4 | 12 |



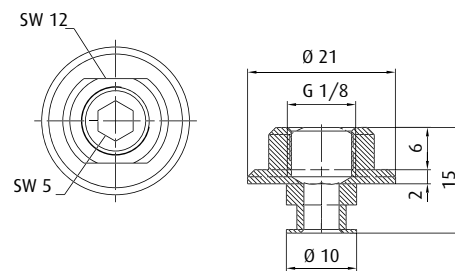
Technical data

| | | | | | |
|----------|-------------|--------|---------|---------|----------|
| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
| 270.485 | G1/8-female | 17 | 5 | 6 | 15 |
| 270.489 | G1/8-female | 17 | 4.5 | 6.5 | 20 |



Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.020 | G1/8-female |



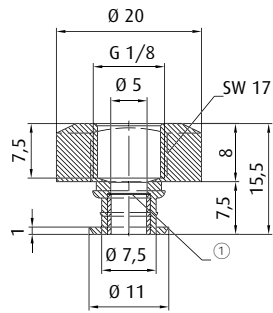
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.251 | G1/8-female |



Fastening elements vacuum cups | Fittings

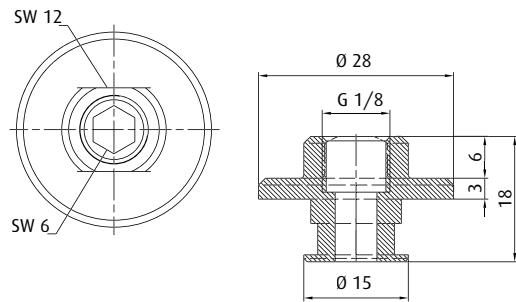
G1/8-female



① = Filter screen

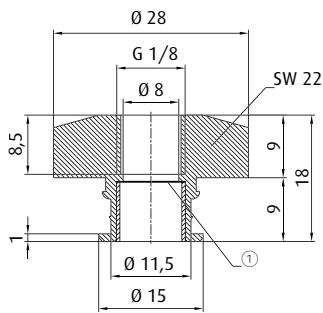
Technical data

| Item no. | Thread G1 |
|------------------|-------------|
| 270.501-S | G1/8-female |



Technical data

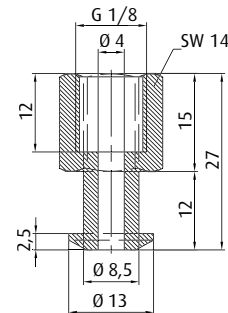
| Item no. | Thread G1 |
|----------------|-------------|
| 270.252 | G1/8-female |



① = Filter screen

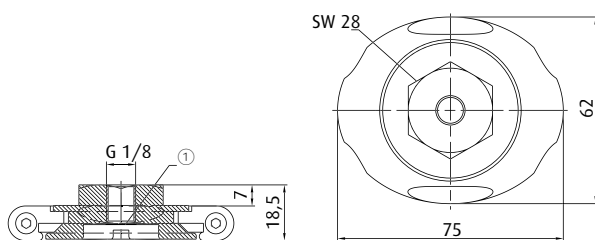
Technical data

| Item no. | Thread G1 |
|------------------|-------------|
| 270.502-S | G1/8-female |



Technical data

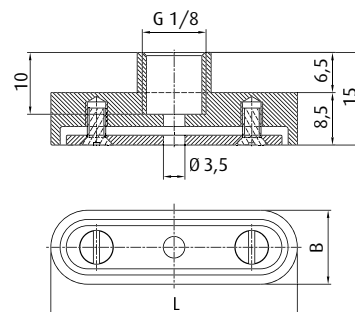
| Item no. | Thread G1 |
|----------------|-------------|
| 270.092 | G1/8-female |



① = Filter screen

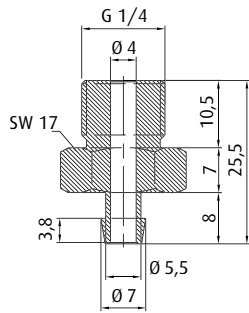
Technical data

| Item no. | Thread G1 |
|------------------|-------------|
| 270.527-S | G1/8-female |



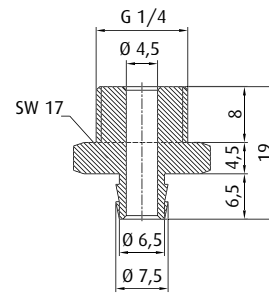
Technical data

| Item no. | Thread G1 | Ø L [mm] | Ø B [mm] |
|----------------|-------------|----------|----------|
| 270.439 | G1/8-female | 30 | 12 |
| 270.440 | G1/8-female | 40 | 12 |
| 270.441 | G1/8-female | 55 | 12 |



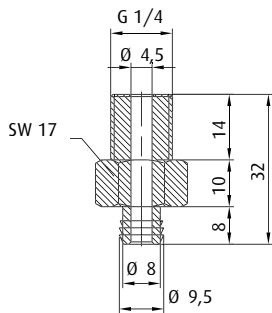
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.194 | G1/4-male |



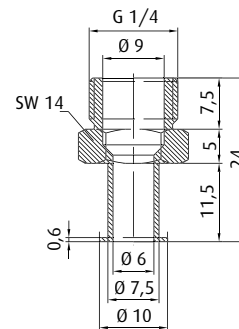
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.534 | G1/4-male |



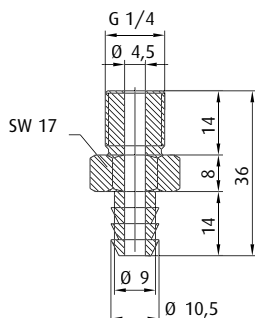
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.043 | G1/4-male |



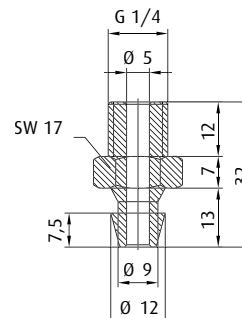
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.113 | G1/4-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.208 | G1/4-male |



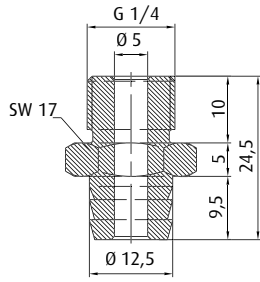
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.515 | G1/4-male |



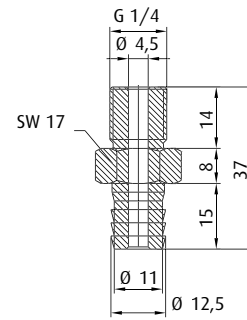
Fastening elements vacuum cups | Fittings

G1/4-male



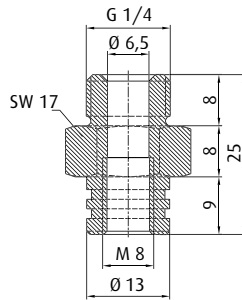
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.451 | G1/4-male |



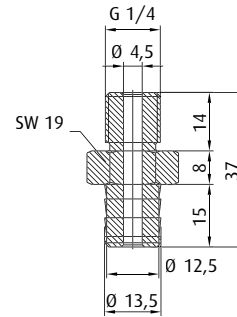
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.044 | G1/4-male |



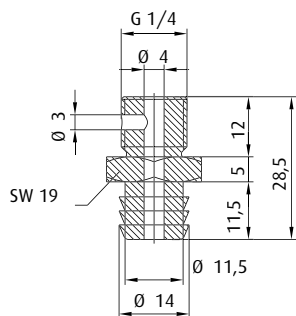
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.097 | G1/4-male |



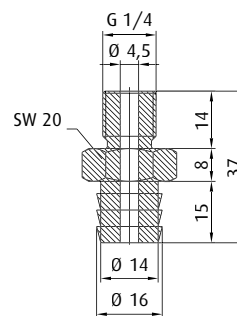
Technical data

| Item no. | Thread G1 |
|-----------|-----------|
| 270.049-1 | G1/4-male |



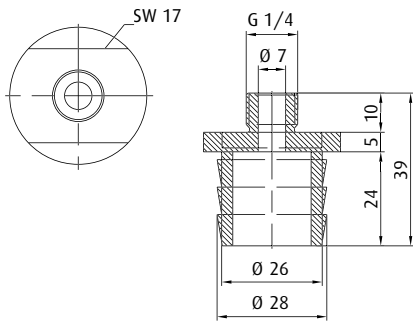
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.101 | G1/4-male |



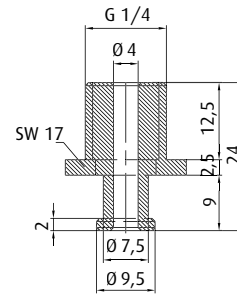
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.207 | G1/4-male |



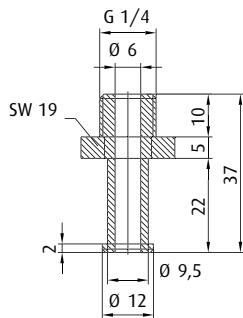
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.438 | G1/4-male |



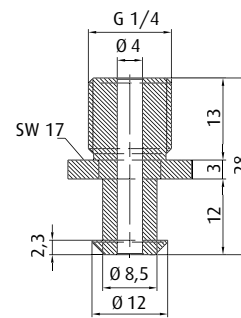
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.274 | G1/4-male |



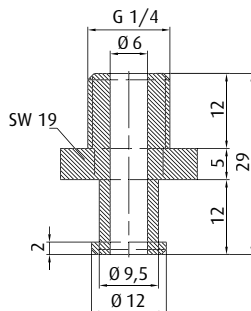
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.359 | G1/4-male |



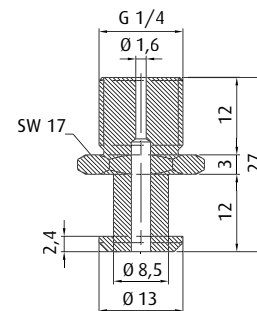
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.249 | G1/4-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.204 | G1/4-male |



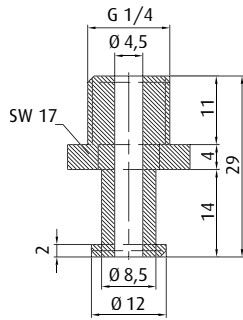
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.099 | G1/4-male |



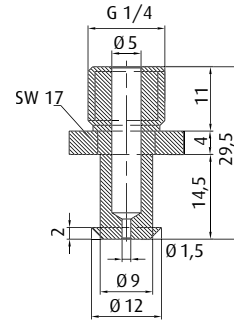
Fastening elements vacuum cups | Fittings

G1/4-male



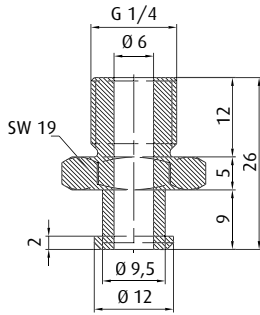
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.190 | G1/4-male |



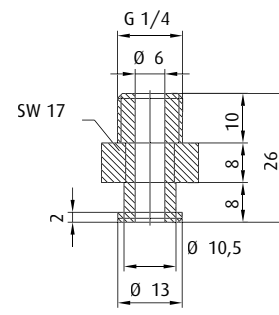
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.002 | G1/4-male |



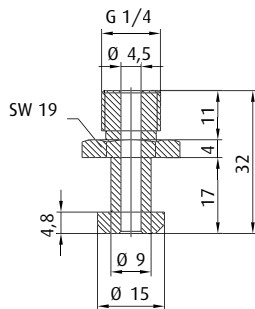
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.034 | G1/4-male |



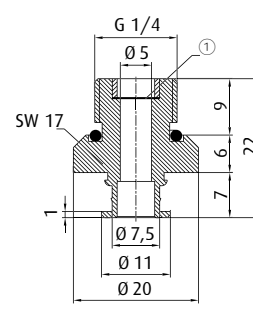
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.213 | G1/4-male |



Technical data

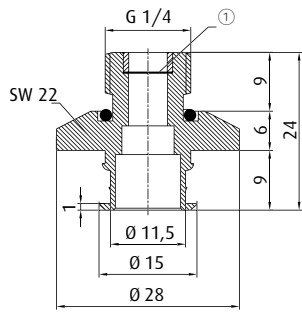
| Item no. | Thread G1 |
|----------|-----------|
| 270.281 | G1/4-male |



① = Filter screen

Technical data

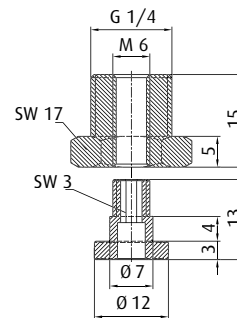
| Item no. | Thread G1 |
|-----------|-----------|
| 270.506-S | G1/4-male |



① = Filter screen

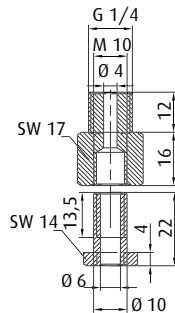
Technical data

| | |
|-----------|-----------|
| Item no. | Thread G1 |
| 270.504-S | G1/4-male |



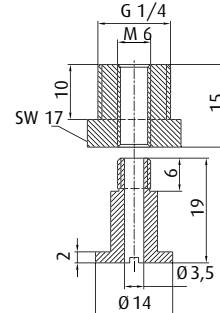
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.483 | G1/4-male |



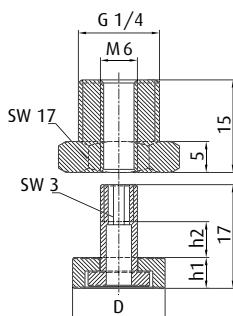
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.514 | G1/4-male |



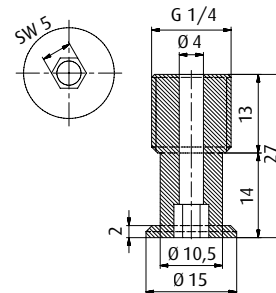
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.540 | G1/4-male |



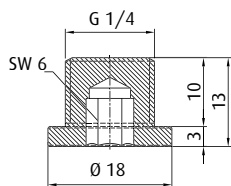
Technical data

| | | | | |
|----------|-----------|---------|---------|----------|
| Item no. | Thread G1 | h1 [mm] | h2 [mm] | Ø D [mm] |
| 270.487 | G1/4-male | 5 | 6 | 15 |
| 270.491 | G1/4-male | 4.5 | 6.5 | 20 |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.175 | G1/4-male |

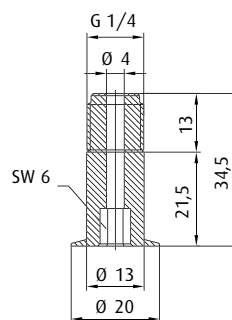


Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.364 | G1/4-male |

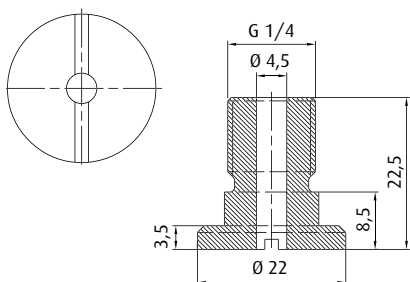
Ordering notes:

Without drilling



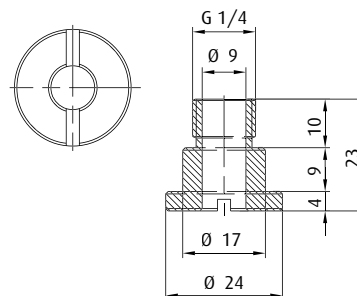
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.141 | G1/4-male |



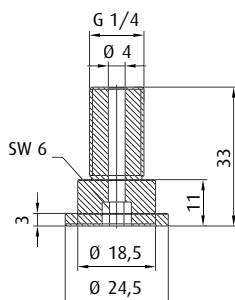
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.210 | G1/4-male |



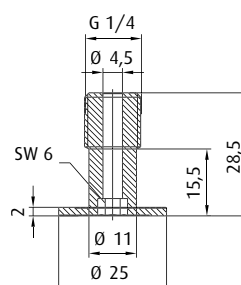
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.237 | G1/4-male |



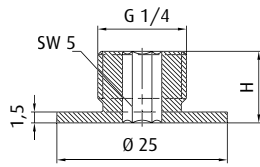
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.145 | G1/4-male |



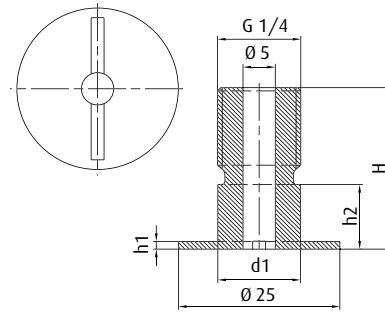
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.176 | G1/4-male |



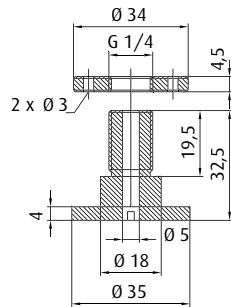
Technical data

| Item no. | Thread G1 | H [mm] |
|-----------|-----------|--------|
| 270.182.U | G1/4-male | 10.5 |
| 270.183 | G1/4-male | 15 |



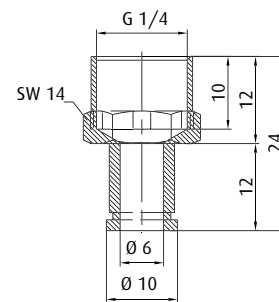
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø d1 [mm] |
|----------|-----------|--------|---------|---------|-----------|
| 270.042 | G1/4-male | 25 | 1.2 | 10 | 13 |
| 270.184 | G1/4-male | 30 | 0.8 | 11 | 13 |
| 270.216 | G1/4-male | 37.5 | 1.3 | 23.5 | 15.5 |



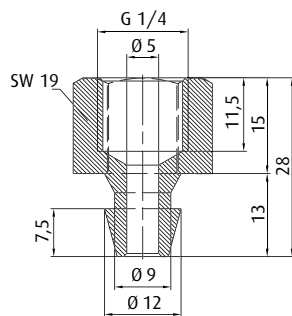
Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.100 | G1/4-male |



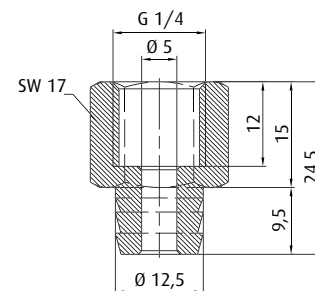
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.178 | G1/4-female |



Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.434 | G1/4-female |



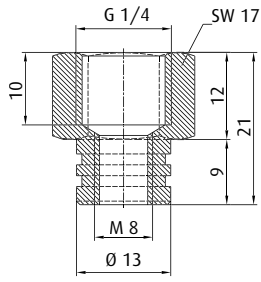
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.452 | G1/4-female |



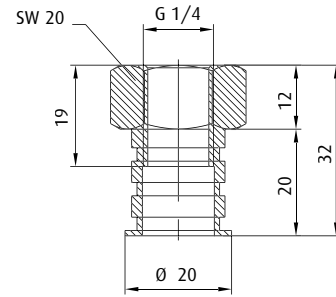
Fastening elements vacuum cups | Fittings

G1/4-female



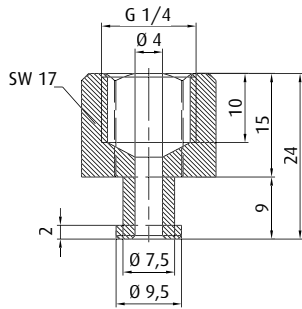
Technical data

| Item no. | 270.098 |
|-----------|-------------|
| Thread G1 | G1/4-female |



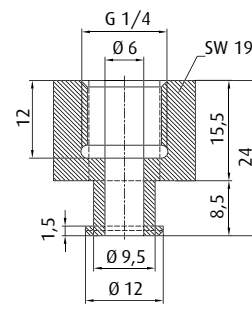
Technical data

| Item no. | 270.116 |
|-----------|-------------|
| Thread G1 | G1/4-female |



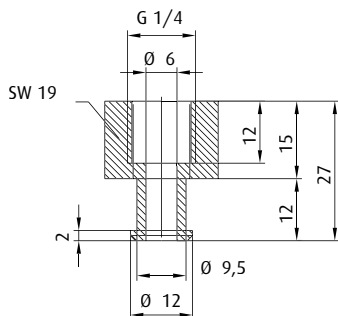
Technical data

| Item no. | 270.275 |
|-----------|-------------|
| Thread G1 | G1/4-female |



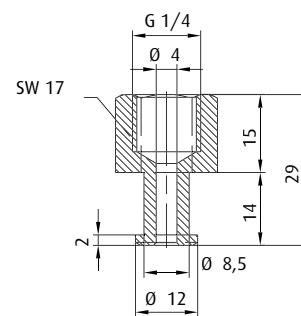
Technical data

| Item no. | 270.038 |
|-----------|-------------|
| Thread G1 | G1/4-female |



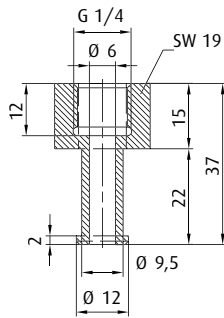
Technical data

| Item no. | 270.324 |
|-----------|-------------|
| Thread G1 | G1/4-female |



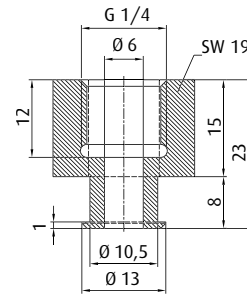
Technical data

| Item no. | 270.192 |
|-----------|-------------|
| Thread G1 | G1/4-female |



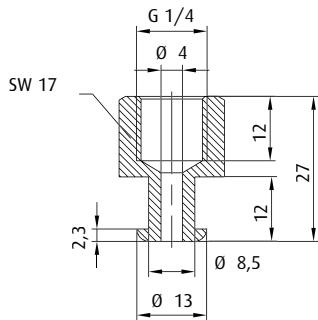
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.361 | G1/4-female |



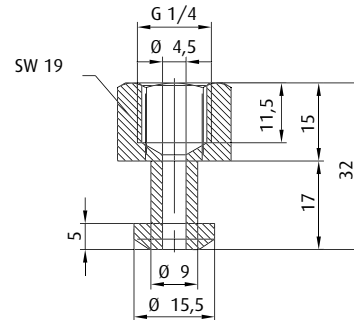
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.356 | G1/4-female |



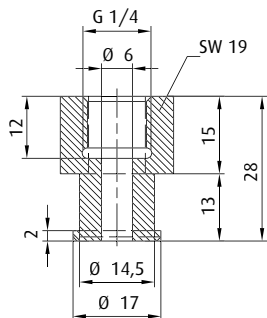
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.248 | G1/4-female |



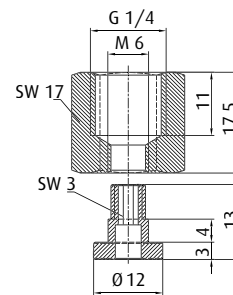
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.282 | G1/4-female |



Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.358 | G1/4-female |



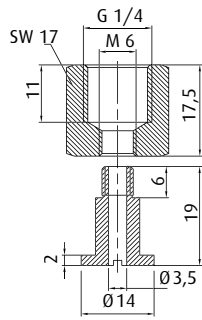
Technical data

| | |
|----------|-------------|
| Item no. | Thread G1 |
| 270.484 | G1/4-female |



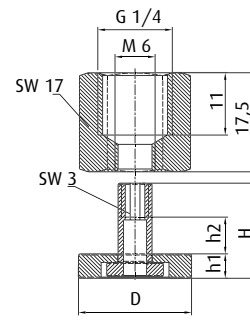
Fastening elements vacuum cups | Fittings

G1/4-female | G3/8-male



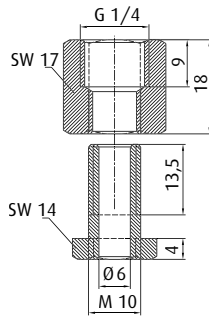
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.539 | G1/4-female |



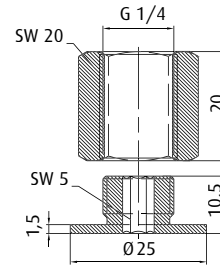
Technical data

| Item no. | Thread G1 | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] |
|----------|-------------|--------|---------|---------|----------|
| 270.488 | G1/4-female | 17 | 5 | 6 | 15 |
| 270.492 | G1/4-female | 17 | 4.5 | 6.5 | 20 |



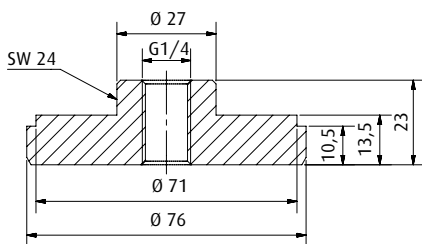
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.513 | G1/4-female |



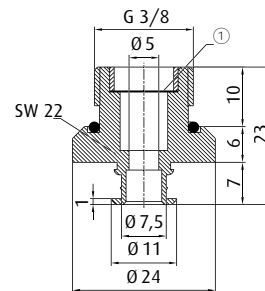
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.182 | G1/4-female |



Technical data

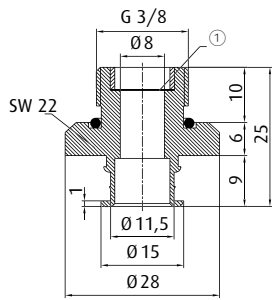
| Item no. | Thread G1 |
|----------|-------------|
| 270.554 | G1/4-female |



① = Filter screen

Technical data

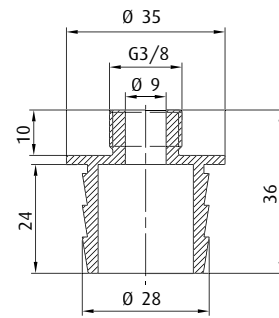
| Item no. | Thread G1 |
|-----------|-----------|
| 270.505-S | G3/8-male |



① = Filter screen

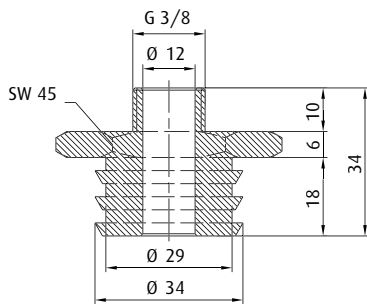
Technical data

| | |
|-----------|-----------|
| Item no. | Thread G1 |
| 270.507-S | G3/8-male |



Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.442 | G3/8-male |



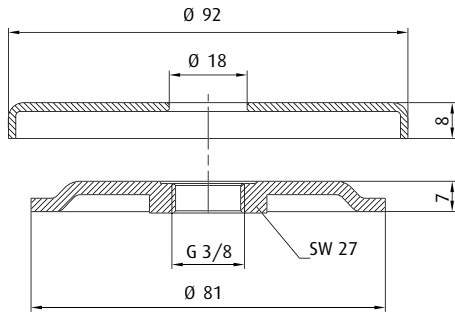
Technical data

| | |
|----------|-----------|
| Item no. | Thread G1 |
| 270.526 | G3/8-male |



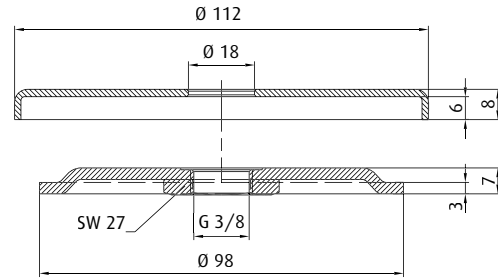
Fastening elements vacuum cups | Fittings

G3/8-female | G1/2-female



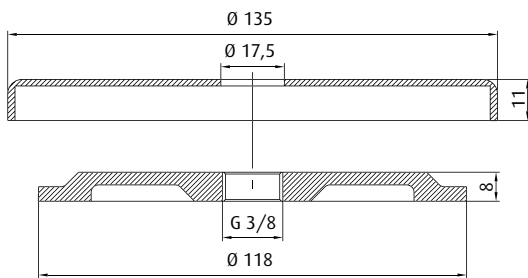
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.400 | G3/8-female |



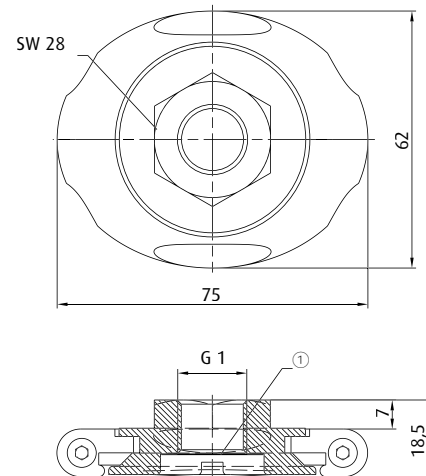
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.402 | G3/8-female |



Technical data

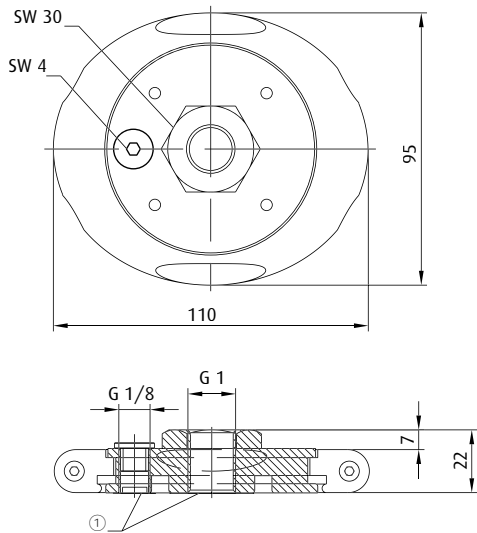
| Item no. | Thread G1 |
|----------|-------------|
| 270.404 | G3/8-female |



① = Filter screen

Technical data

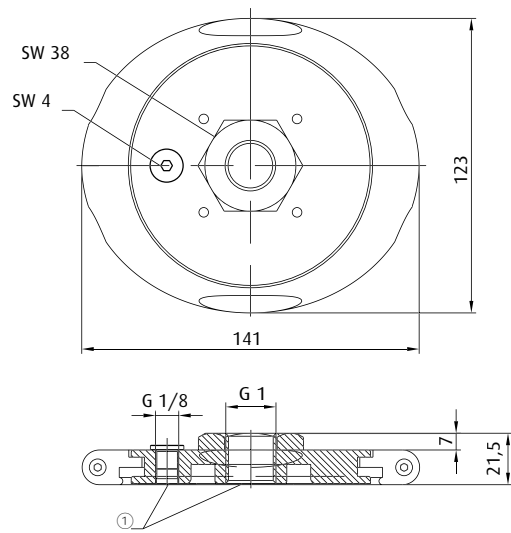
| Item no. | Thread G1 |
|-----------|-------------|
| 270.528-S | G3/8-female |
| 270.529-S | G1/2-female |



① = Filter screen

Technical data

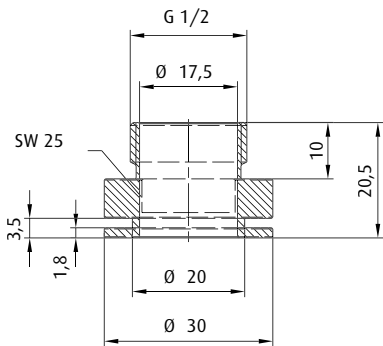
| Item no. | Thread G1 |
|-----------|-------------|
| 270.530-S | G3/8-female |
| 270.531-S | G1/2-female |



① = Filter screen

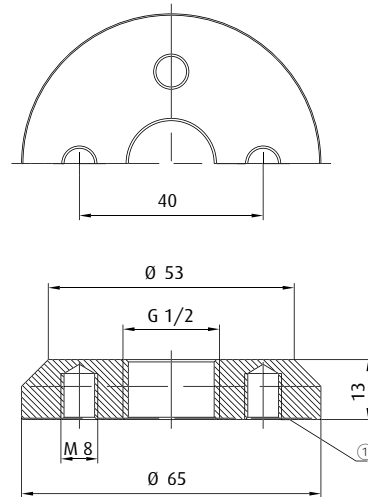
Technical data

| Item no. | Thread G1 |
|-----------|-------------|
| 270.532-S | G1/2-female |
| 270.533-S | G3/4-female |



Technical data

| Item no. | Thread G1 |
|----------|-----------|
| 270.372 | G1/2-male |



① = Aluminium

Technical data

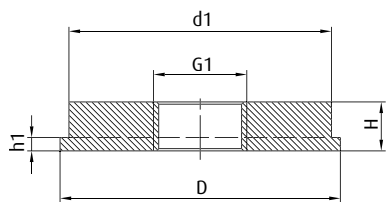
| Item no. | Thread G1 |
|----------|-------------|
| 270.056 | G1/2-female |

Ordering notes:

4x screw M8x16 included in delivery



Carrier plates SZ-NIP-T



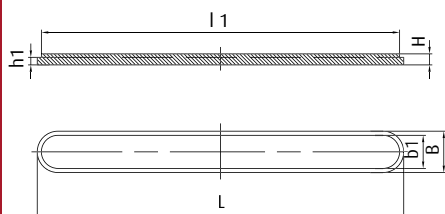
Technical data

| Item no. | Thread G1 |
|----------|-----------------|
| 270.233 | G1/8-female |
| 270.234 | G1/8-female |
| 270.235 | G1/8-female |
| 270.289 | G1/8-female |
| 270.179 | G1/4-female |
| 270.262 | G1/8-female |
| 270.284 | G1/4-female |
| 270.338 | M12x1.75-female |
| 270.180 | G1/4-female |
| 270.158 | G1/8-female |
| 270.264 | G1/4-female |
| 270.161 | G3/8-female |
| 270.286 | G1/2-female |
| 270.224 | G1/4-female |
| 270.167 | G3/8-female |
| 270.266 | G1/2-female |
| 270.164 | G1/8-female |
| 270.171 | G1/4-female |
| 270.173 | G3/8-female |
| 270.268 | G1/2-female |
| 270.335 | G1/2-female |

Dimensions

| G1 | H [mm] | h1 [mm] | Ø D [mm] | Ø d1 [mm] |
|----------|--------|---------|----------|-----------|
| G1/8 | 6 | 3.1 | 17.5 | 14.9 |
| G1/8 | 6 | 3 | 21 | 17.5 |
| G1/8 | 5.5 | 2.1 | 28.5 | 25 |
| G1/8 | 10 | 3 | 29 | 20 |
| G1/4 | 20 | 14.5 | 43 | 32 |
| G1/8 | 10 | 3 | 44 | 40 |
| G1/4 | 10 | 3 | 44 | 40 |
| M12x1.75 | 10 | 3 | 55 | 45 |
| G1/4 | 20 | 14 | 60 | 50 |
| G1/8 | 11 | 3 | 63 | 59 |
| G1/4 | 11 | 3 | 63 | 59 |
| G3/8 | 11 | 3 | 63 | 59 |
| G1/2 | 11 | 3 | 63 | 59 |
| G1/4 | 11 | 3 | 92 | 88 |
| G3/8 | 11 | 3 | 92 | 88 |
| G1/2 | 11 | 3 | 92 | 88 |
| G1/8 | 11 | 3 | 95 | 88 |
| G1/4 | 15 | 4 | 127 | 120 |
| G3/8 | 15 | 4 | 127 | 120 |
| G1/2 | 15 | 4 | 127 | 120 |
| G1/2 | 20 | 14 | 160 | 150 |

Carrier plates SZ-NIP-T



Technical data

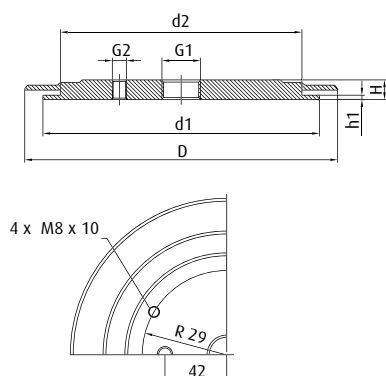
| Item no. | Thread G1 |
|----------|-----------|
| 270.332 | Without |

Dimensions

| L [mm] | l1 [mm] | B [mm] | b1 [mm] | H [mm] | h1 [mm] |
|--------|---------|--------|---------|--------|---------|
| 266 | 260 | 30 | 24 | 8 | 5.5 |



Carrier plates SZ-NIP-T



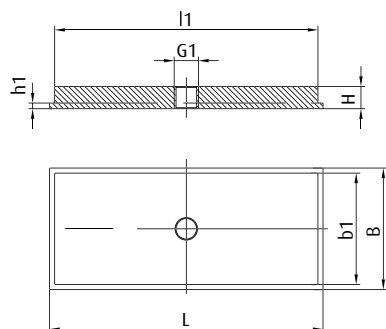
Technical data

| Item no. | Thread G1 |
|----------|-------------|
| 270.070 | G3/4-female |
| 270.076 | G3/4-female |

Dimensions

| G1 | G2 | H [mm] | h1 [mm] | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] |
|------|------|--------|---------|----------|-----------|-----------|
| G3/4 | G1/8 | 13.5 | 3 | 215 | 190 | 166 |
| G3/4 | G1/8 | 13.5 | 3 | 315 | 309 | 285 |

Carrier plates SZ-NIP-T



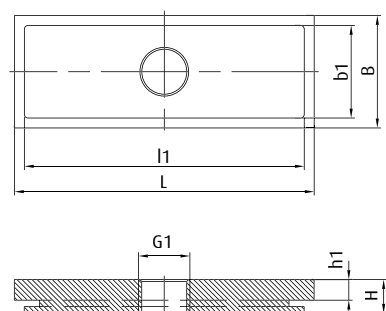
Technical data

| Item no. | Thread G1 |
|----------|------------|
| 270.465 | M12-female |

Dimensions

| L [mm] | l1 [mm] | B [mm] | b1 [mm] | H [mm] | h1 [mm] |
|--------|---------|--------|---------|--------|---------|
| 135 | 130 | 60 | 55 | 11 | 2.8 |

Carrier plates SZ-NIP-T



Technical data

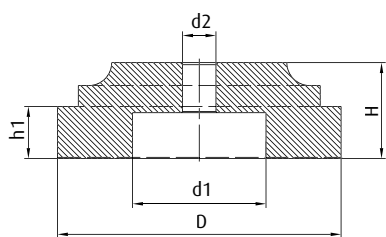
| Item no. | Thread G1 |
|----------|-------------|
| 270.508 | G1/8-female |
| 270.509 | G1/4-female |
| 270.392 | G1/4-female |
| 270.510 | G1/4-female |
| 270.511 | G1/4-female |

Dimensions

| G1 | L [mm] | l1 [mm] | B [mm] | b1 [mm] | H [mm] | h1 [mm] |
|------|--------|---------|--------|---------|--------|---------|
| G1/8 | 52 | 48 | 25 | 22 | 9 | 5.5 |
| G1/4 | 60 | 56 | 29 | 25 | 9 | 5.5 |
| G1/4 | 80 | 75 | 30 | 25 | 9 | 5.5 |
| G1/4 | 80 | 75 | 40 | 35 | 9 | 5.5 |
| G1/4 | 80 | 75 | 50 | 44 | 9 | 5.5 |



Carrier plates SZ-NIP-T



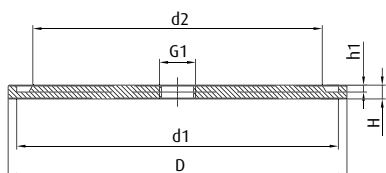
Technical data

| Item no. | Thread G1 |
|----------------|-----------|
| 270.270 | Without |
| 270.269 | Without |

Dimensions

| H [mm] | h1 [mm] | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] |
|--------|---------|----------|-----------|-----------|
| 23 | 12.5 | 68 | 32 | 8 |
| 23 | 12 | 130 | 50 | 8 |

Carrier plates SZ-NIP-T

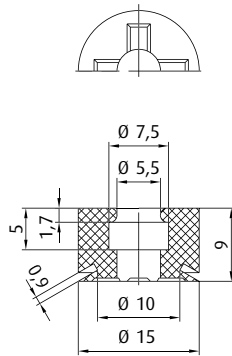


Technical data

| Item no. | Thread G1 |
|----------------|-------------|
| 270.415 | Without |
| 270.155 | Without |
| 270.236 | G1/2-female |
| 270.535 | Without |

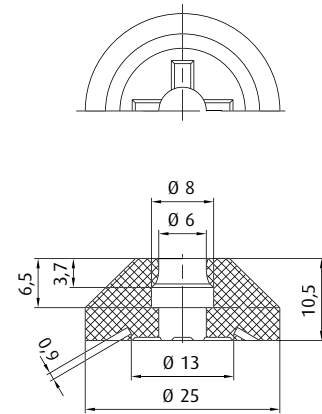
Dimensions

| H [mm] | h1 [mm] | Ø D [mm] | Ø d1 [mm] | Ø d2 [mm] |
|--------|---------|----------|-----------|-----------|
| 8 | 4.8 | 95 | 86 | 62 |
| 8 | 4 | 158 | 148 | 123 |
| 8 | 4 | 196 | 186 | 167 |
| 10 | 5 | 237 | 227 | 198 |



Technical data

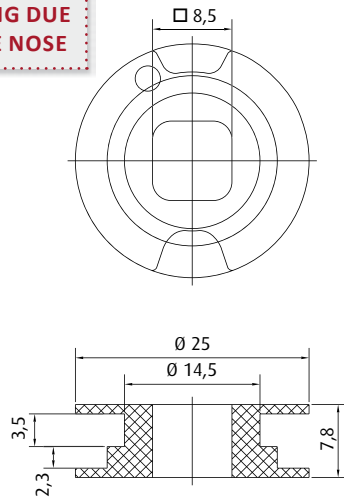
| Item no. | Thread G1 | Material / Colour |
|----------|-----------|------------------------|
| 270.067 | Without | NBR (sw) - 80° Shore A |



Technical data

| Item no. | Thread G1 | Material / Colour |
|----------|-----------|------------------------|
| 270.068 | Without | NBR (sw) - 80° Shore A |

EASY MOUNTING DUE TO ABRADABLE NOSE



Technical data

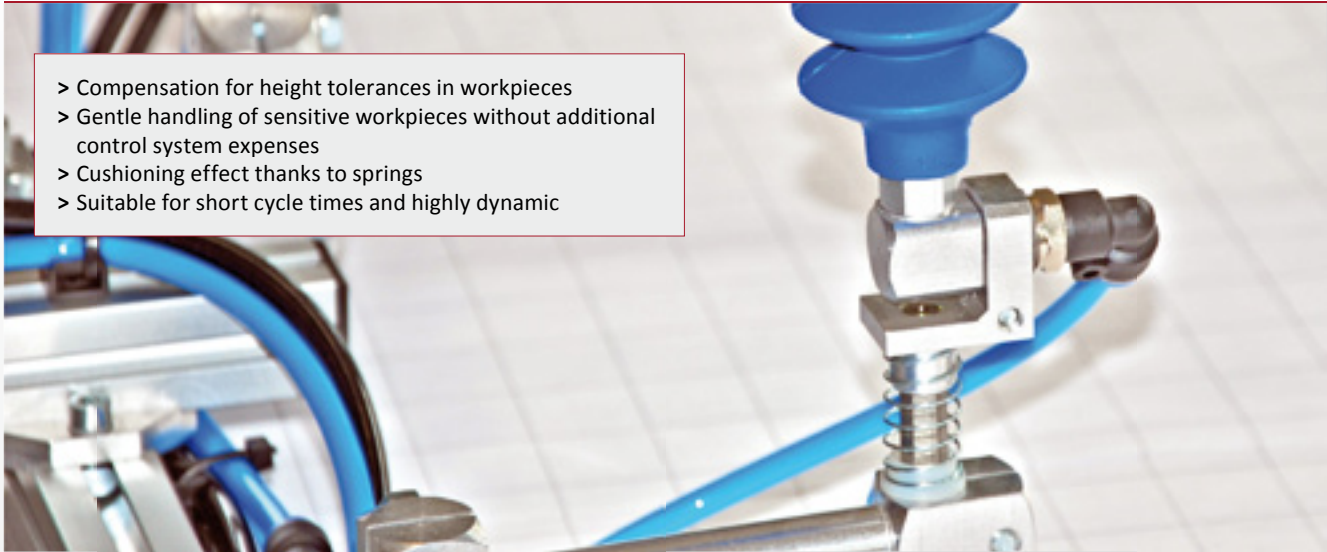
| Item no. | Thread G1 |
|----------|-----------|
| 270.419 | Without |

Ordering notes:

Suitable mounting aid: Item No. 90.007



FIPA Spring levelers



- > Compensation for height tolerances in workpieces
- > Gentle handling of sensitive workpieces without additional control system expenses
- > Cushioning effect thanks to springs
- > Suitable for short cycle times and highly dynamic



Standard spring levelers - SZ-NIV-S

- > Suitable for universal use
- > Optional: M5-female also available in anti-twist design
- > Stroke: 5 - 75 mm
- > Vacuum connection: M5-female, G1/8-male, G1/4-male

> See page 444



Spring levelers with internal spring - SZ-NIV-I

- > Spring protected against contamination and damage
- > Spring travel limitation for a longer service life
- > Stroke: 7 - 20 mm
- > Vacuum connection: M5-female, G1/8-male

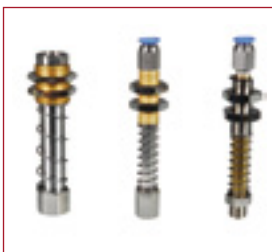
> See page 446



Heavy-duty spring levelers - SZ-NIV-HD

- > High quality plain bearings for harsh operating conditions
- > Also available with rotation protection
- > Stroke: 15 - 75 mm
- > Vacuum connection:
G1/8-male, G1/4-male, G3/8-male, G1/2-male and M12-male, M16-male

> See page 447



Further spring levelers with thread connection

- > Suitable for universal use
- > Vacuum connection: M5-male, M8-male, G1/8-male, G1/8-female, G1/4-female

> See page 450



FIPA Spring levelers



Spring levelers for direct vacuum cup mounting

- > Direct mounting on the vacuum cup – no additional fitting required
- > Designs available both with and without anti-rotation device

Internal spring - SZ-NIV-DI

- > Stroke: 6 - 20 mm

> See page 454

Open spring - SZ-NIV-DA

- > Stroke: 5 - 50 mm

> See page 456



Mounting brackets for spring levelers

- > Integration of spring levelers into gripper systems
- > Compatible with FIPA spring levelers SZ-NIV-S and SZ-NIV-HD

> See page 458



Fastening elements vacuum cups | Spring levelers

Standard spring levelers with threaded connection - SZ-NIV-S

Standard spring levelers with threaded connection - SZ-NIV-S



Product Description

- > Compensate for height differences
- > Soft attachment for sensitive products
- > Leveling as standard version
- > Vacuum connection on top, vacuum channel via spring leveler
- > Also available non-rotating (M5-female)

Notes

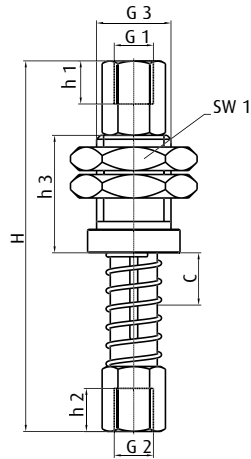
- > Recommendation: For the best possible service life do not exceed max. lift indicated

Technical data

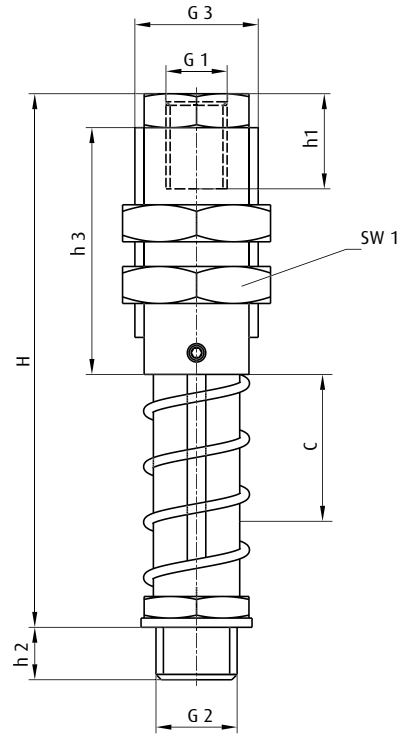
| Item no. | Model | Thread suction side G2 | Thread fixing bushes G3 | Lift C [mm] | Non-rotating | Weight [g] | Suitable mounting bracket for gripper systems |
|----------|----------------------|------------------------|-------------------------|-------------|--------------|------------|---|
| 50.158 | SZ-NIV-S-M5-IG-5 | M5-female | G1/8-male | 5 | -- | 17 | GR02.230 (p.458) |
| 50.149 | SZ-NIV-S-M5-IG-10 | M5-female | G1/8-male | 10 | -- | 18 | GR02.230 (p.458) |
| 50.152 | SZ-NIV-S-M5-IG-10-VS | M5-female | G1/8-male | 10 | Yes | 19 | GR02.230 (p.458) |
| 50.150 | SZ-NIV-S-M5-IG-20 | M5-female | G1/8-male | 20 | -- | 20 | GR02.230 (p.458) |
| 50.153 | SZ-NIV-S-M5-IG-20-VS | M5-female | G1/8-male | 20 | Yes | 21 | GR02.230 (p.458) |
| 50.230 | SZ-NIV-S-G1/8-AG-15 | G1/8-male | M16x1-male | 15 | -- | 94 | GR02.231 (p.458) |
| 50.160 | SZ-NIV-S-G1/8-AG-25 | G1/8-male | M16x1-male | 25 | -- | 94 | GR02.231 (p.458) |
| 50.162 | SZ-NIV-S-G1/8-AG-50 | G1/8-male | M16x1-male | 50 | -- | 110 | GR02.231 (p.458) |
| 50.164 | SZ-NIV-S-G1/4-AG-25 | G1/4-male | M20x1.5-male | 25 | -- | 136 | GR02.232 (p.458) |
| 50.166 | SZ-NIV-S-G1/4-AG-75 | G1/4-male | M20x1.5-male | 75 | -- | 195 | GR02.232 (p.458) |



Dimensions



50.158 | 50.149 | 50.152 | 50.150 | 50.153



50.230 | 50.160 | 50.162 | 50.164 | 50.166

| Item no. | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | SW1 | G1 (female) | G2 (male) | G2 (female) | G3 (male) | C [mm] |
|----------|--------|---------|---------|---------|-----|-------------|-----------|-------------|-----------|--------|
| 50.158 | 43 | 5.5 | 6.2 | 15 | 14 | M5 | -- | M5 | G1/8 | 5 |
| 50.149 | 47 | 5.5 | 6.2 | 15 | 14 | M5 | -- | M5 | G1/8 | 10 |
| 50.152 | 47 | 5.5 | 6.2 | 15 | 14 | M5 | -- | M5 | G1/8 | 10 |
| 50.150 | 59 | 5.5 | 6.2 | 15 | 14 | M5 | -- | M5 | G1/8 | 20 |
| 50.153 | 59 | 5.5 | 6.2 | 15 | 14 | M5 | -- | M5 | G1/8 | 20 |
| 50.230 | 72 | 8 | 6.5 | 30 | 22 | G1/8 | G1/8 | -- | M16x1 | 15 |
| 50.160 | 85 | 8.5 | 6.5 | 30 | 22 | G1/8 | G1/8 | -- | M16x1 | 25 |
| 50.162 | 116 | 8.5 | 6.5 | 30 | 22 | G1/8 | G1/8 | -- | M16x1 | 50 |
| 50.164 | 86 | 13 | 9 | 40 | 24 | G1/8 | G1/4 | -- | M20x1.5 | 25 |
| 50.166 | 145 | 13 | 9 | 40 | 24 | G1/8 | G1/4 | -- | M20x1.5 | 75 |



Fastening elements vacuum cups | Spring levelers

Spring levelers with internal spring and threaded connection - SZ-NIV-I

Spring levelers with internal spring and threaded connection - SZ-NIV-I

BESTSELLER



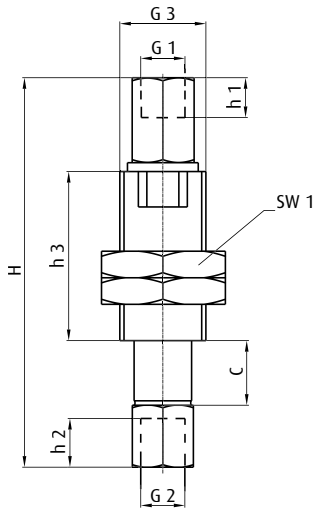
Product Description

- > Compensate for height differences
- > Soft attachment for sensitive products
- > With internal spring protected from dirt and with spring deflection limiter
- > Vacuum connection on top, vacuum channel via spring leveler

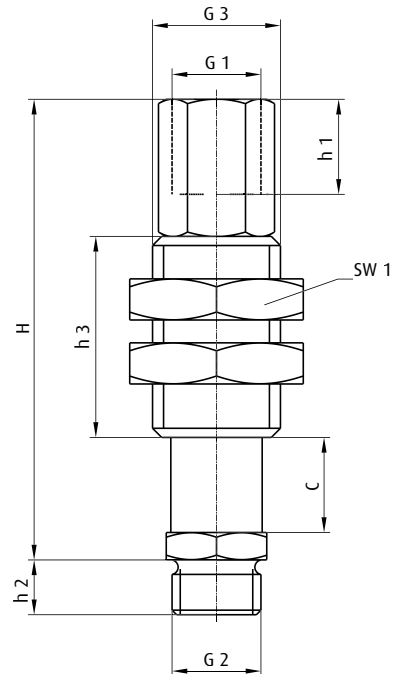
Technical data

| Item no. | Model | Thread suction side G2 | Thread fixing bushes G3 | Lift C [mm] | Weight [g] | Suitable mounting bracket for gripper systems |
|----------|---------------------|------------------------|-------------------------|-------------|------------|---|
| 50.120 | SZ-NIV-I-M5-IG-7 | M5-female | G1/8-male | 7 | 17 | GR02.230 (p.458) |
| 50.123 | SZ-NIV-I-G1/8-AG-8 | G1/8-male | M14x1.5-male | 8 | 41 | -- |
| 50.124 | SZ-NIV-I-G1/8-AG-20 | G1/8-male | M16x1-male | 20 | 73 | GR02.231 (p.458) |

Dimensions



50.120



50.123 | 50.124

| Item no. | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | SW1 | G1 (female) | G2 (female) | G2 (male) | G3 (male) | C [mm] |
|----------|--------|---------|---------|---------|-----|-------------|-------------|-----------|-----------|--------|
| 50.120 | 44 | 4.3 | 5 | 19 | 14 | M5 | M5 | -- | G1/8 | 7 |
| 50.123 | 50 | 10 | 6 | 22 | 19 | G1/8 | -- | G1/8 | M14x1.5 | 8 |
| 50.124 | 73 | 12 | 5.6 | 35 | 21 | G1/8 | -- | G1/8 | M16x1 | 20 |



Heavy-duty spring levelers - SZ-NIV-HD

HEAVY-DUTY DESIGN



Product Description

- > Compensate for height differences
- > Soft attachment for sensitive products
- > Long life even under the toughest conditions
- > Leveling with stainless steel shaft and high-quality bearings
- > Vacuum connection on top, vacuum channel via spring leveler
- > Optionally also available non-rotating

Notes

- > Recommendation: For the best possible service life do not exceed max. lift indicated

Technical data

| Item no. | Model | Thread suction side G2 | Lift C [mm] | Non-rotating | Spring rate [N/mm] | Weight [g] | Suitable mounting bracket for gripper systems |
|----------|-------------------------|------------------------|-------------|--------------|--------------------|------------|---|
| 50.315 | SZ-NIV-HD-G1/8-AG-15 | G1/8-male | 15 | -- | 0.221 | 83 | GR02.231 (p.458) |
| 50.310 | SZ-NIV-HD-G1/8-AG-15-VS | G1/8-male | 15 | Yes | 0.221 | 83 | GR02.231 (p.458) |
| 50.316 | SZ-NIV-HD-G1/8-AG-25 | G1/8-male | 25 | -- | 0.143 | 89 | GR02.231 (p.458) |
| 50.311 | SZ-NIV-HD-G1/8-AG-25-VS | G1/8-male | 25 | Yes | 0.143 | 89 | GR02.231 (p.458) |
| 50.317 | SZ-NIV-HD-G1/8-AG-50 | G1/8-male | 50 | -- | 0.097 | 104 | GR02.231 (p.458) |
| 50.312 | SZ-NIV-HD-G1/8-AG-50-VS | G1/8-male | 50 | Yes | 0.097 | 104 | GR02.231 (p.458) |
| 50.345 | SZ-NIV-HD-G1/4-AG-25 | G1/4-male | 25 | -- | 0.711 | 134 | GR02.232 (p.458) |
| 50.340 | SZ-NIV-HD-G1/4-AG-25-VS | G1/4-male | 25 | Yes | 0.711 | 134 | GR02.232 (p.458) |
| 50.346 | SZ-NIV-HD-G1/4-AG-50 | G1/4-male | 50 | -- | 0.452 | 160 | GR02.232 (p.458) |
| 50.341 | SZ-NIV-HD-G1/4-AG-50-VS | G1/4-male | 50 | Yes | 0.452 | 160 | GR02.232 (p.458) |
| 50.347 | SZ-NIV-HD-G1/4-AG-75 | G1/4-male | 75 | -- | 0.262 | 186 | GR02.232 (p.458) |
| 50.342 | SZ-NIV-HD-G1/4-AG-75-VS | G1/4-male | 75 | Yes | 0.262 | 186 | GR02.232 (p.458) |
| 50.350 | SZ-NIV-HD-G3/8-AG-25 | G3/8-male | 25 | -- | 3.828 | 410 | -- |
| 50.353 | SZ-NIV-HD-G3/8-AG-25-VS | G3/8-male | 25 | Yes | 3.828 | 406 | -- |
| 50.351 | SZ-NIV-HD-G3/8-AG-75 | G3/8-male | 75 | -- | 1.072 | 531 | -- |
| 50.354 | SZ-NIV-HD-G3/8-AG-75-VS | G3/8-male | 75 | Yes | 1.072 | 525 | -- |
| 50.360 | SZ-NIV-HD-G1/2-AG-25 | G1/2-male | 25 | -- | 3.828 | 419 | -- |
| 50.363 | SZ-NIV-HD-G1/2-AG-25-VS | G1/2-male | 25 | Yes | 3.828 | 416 | -- |
| 50.361 | SZ-NIV-HD-G1/2-AG-75 | G1/2-male | 75 | -- | 1.072 | 548 | -- |
| 50.364 | SZ-NIV-HD-G1/2-AG-75-VS | G1/2-male | 75 | Yes | 1.072 | 540 | -- |
| 50.366 | SZ-NIV-HD-M12-AG-25 | M12-male | 25 | -- | 0.711 | 150 | GR02.232 (p.458) |
| 50.367 | SZ-NIV-HD-M12-AG-25-VS | M12-male | 25 | Yes | 0.711 | 150 | GR02.232 (p.458) |

Continued on the next page



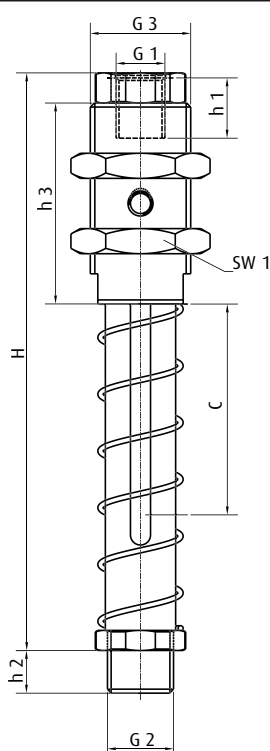
Fastening elements vacuum cups | Spring levelers

Heavy-duty spring levelers - SZ-NIV-HD

Technical data

| Item no. | Model | Thread suction side G2 | Lift C [mm] | Non-rotating | Spring rate [N/mm] | Weight [g] | Suitable mounting bracket for gripper systems |
|----------|------------------------|------------------------|-------------|--------------|--------------------|------------|---|
| 50.368 | SZ-NIV-HD-M12-AG-50 | M12-male | 50 | -- | 0.452 | 176 | GR02.232 (p.458) |
| 50.369 | SZ-NIV-HD-M12-AG-50-VS | M12-male | 50 | Yes | 0.452 | 176 | GR02.232 (p.458) |
| 50.370 | SZ-NIV-HD-M12-AG-75 | M12-male | 75 | -- | 0.262 | 202 | GR02.232 (p.458) |
| 50.371 | SZ-NIV-HD-M12-AG-75-VS | M12-male | 75 | Yes | 0.262 | 202 | GR02.232 (p.458) |
| 50.372 | SZ-NIV-HD-M16-AG-25 | M16-male | 25 | -- | 3.828 | 451 | -- |
| 50.373 | SZ-NIV-HD-M16-AG-25-VS | M16-male | 25 | Yes | 3.828 | 447 | -- |
| 50.374 | SZ-NIV-HD-M16-AG-75 | M16-male | 75 | -- | 1.072 | 572 | -- |
| 50.375 | SZ-NIV-HD-M16-AG-75-VS | M16-male | 75 | Yes | 1.072 | 566 | -- |

Dimensions



| Item no. | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | SW1 | G1 (female) | G2 (male) | G3 (male) | C [mm] |
|----------|--------|---------|---------|---------|-----|-------------|-----------|-----------|--------|
| 50.315 | 72 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 15 |
| 50.310 | 72 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 15 |
| 50.316 | 85 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 25 |
| 50.311 | 85 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 25 |
| 50.317 | 116 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 50 |
| 50.312 | 116 | 8 | 8 | 30 | 22 | G1/8 | G1/8 | M16x1 | 50 |
| 50.345 | 85.5 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 25 |
| 50.340 | 85.5 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 25 |
| 50.346 | 115 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 50 |
| 50.341 | 115 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 50 |
| 50.347 | 144.5 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 75 |
| 50.342 | 144.5 | 12 | 8.5 | 40 | 24 | G1/8 | G1/4 | M20x1.5 | 75 |
| 50.350 | 104 | 14 | 12 | 53 | 36 | G3/8 | G3/8 | M30x1.5 | 25 |

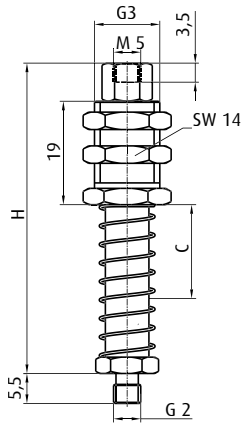


| Item no. | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | SW1 | G1 (female) | G2 (male) | G3 (male) | C [mm] |
|----------|--------|---------|---------|---------|-----|-------------|-----------|-----------|--------|
| 50.353 | 104 | 14 | 12 | 53 | 36 | G3/8 | G3/8 | M30x1.5 | 25 |
| 50.351 | 175 | 14 | 12 | 53 | 36 | G3/8 | G3/8 | M30x1.5 | 75 |
| 50.354 | 175 | 14 | 12 | 53 | 36 | G3/8 | G3/8 | M30x1.5 | 75 |
| 50.360 | 104 | 14 | 12 | 53 | 36 | G3/8 | G1/2 | M30x1.5 | 25 |
| 50.363 | 104 | 14 | 12 | 53 | 36 | G3/8 | G1/2 | M30x1.5 | 25 |
| 50.361 | 175 | 14 | 12 | 53 | 36 | G3/8 | G1/2 | M30x1.5 | 75 |
| 50.364 | 175 | 14 | 12 | 53 | 36 | G3/8 | G1/2 | M30x1.5 | 75 |
| 50.366 | 97.5 | 12 | 10 | 40 | 24 | G1/8 | M12 | M20x1.5 | 25 |
| 50.367 | 97.5 | 12 | 10 | 40 | 24 | G1/8 | M12 | M20x1.5 | 25 |
| 50.368 | 127 | 12 | 10 | 40 | 24 | G1/8 | M10 | M20x1.5 | 50 |
| 50.369 | 127 | 12 | 10 | 40 | 24 | G1/8 | M12 | M20x1.5 | 50 |
| 50.370 | 156.5 | 12 | 10 | 40 | 24 | G1/8 | M12 | M20x1.5 | 75 |
| 50.371 | 156.5 | 12 | 10 | 40 | 24 | G1/8 | M12 | M20x1.5 | 75 |
| 50.372 | 119 | 14 | 10 | 53 | 36 | G3/8 | M16 | M30x1.5 | 25 |
| 50.373 | 119 | 14 | 10 | 53 | 36 | G3/8 | M16 | M30x1.5 | 25 |
| 50.374 | 190 | 14 | 10 | 53 | 36 | G3/8 | M16 | M30x1.5 | 75 |
| 50.375 | 190 | 14 | 10 | 53 | 36 | G3/8 | M16 | M30x1.5 | 75 |



Fastening elements vacuum cups | Spring levelers

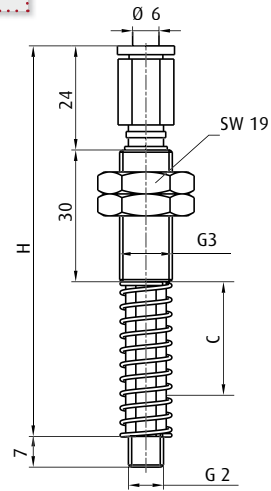
Spring levelers with thread connection



Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|------------|-------------------------|--------|
| 50.121 | M5-male | 10 | 28 | M12x1-male | 47 |
| 50.122 | M5-male | 20 | 31 | M12x1-male | 57 |

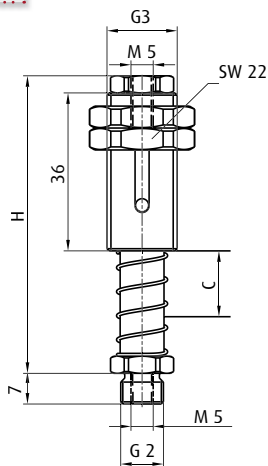
NON-ROTATING



Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Non-rotating | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|--------------|------------|-------------------------|--------|
| 50.054 | M8-male | 25 | Yes | 83 | M12x1.25-male | 89 |

NON-ROTATING



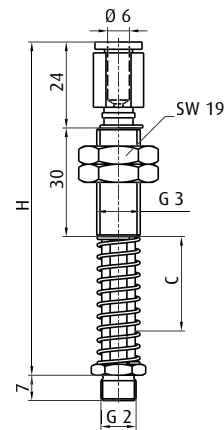
Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Non-rotating | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|--------------|------------|-------------------------|--------|
| 50.066 | G1/8-male | 15 | Yes | 70 | M16x1.5-male | 68 |

Notes:

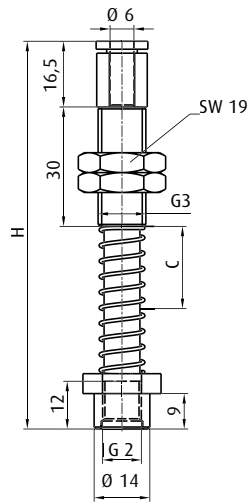
with plastic slide bearings

NON-ROTATING



Technical data

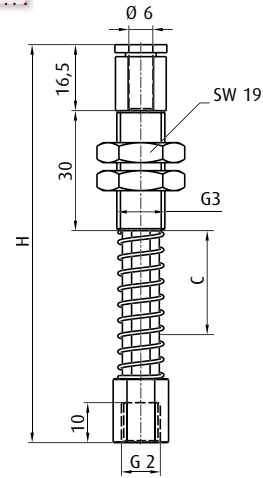
| Item no. | Thread suction side G2 | Lift C [mm] | Non-rotating | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|--------------|------------|-------------------------|--------|
| 50.055 | G1/8-male | 25 | Yes | 64 | M12x1.25-male | 92 |



Technical data

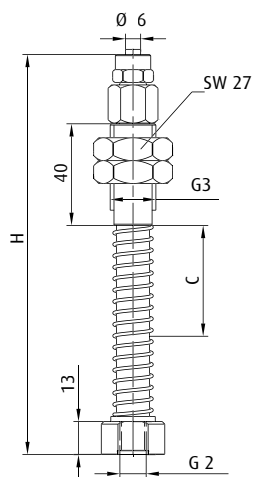
| Item no. | Thread suction side G2 | Lift C [mm] | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|------------|-------------------------|--------|
| 50.021 | G1/8-female | 25 | 75 | M12x1.5-male | 98 |

NON-ROTATING



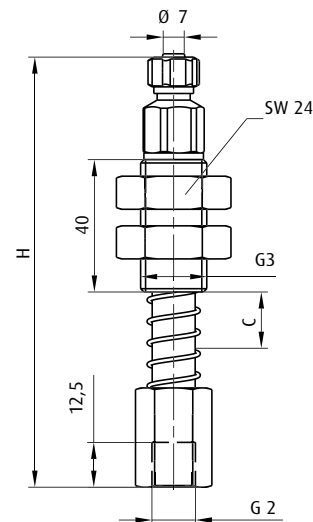
Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Non-rotating | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|--------------|------------|-------------------------|--------|
| 50.056 | G1/8-female | 25 | Yes | 63 | M12x1.5-male | 100 |



Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|------------|-------------------------|--------|
| 50.028 | G1/8-female | 25 | 240 | M18x1.5-male | 119 |
| 50.029 | G1/8-female | 50 | 280 | M18x1.5-male | 157 |
| 50.030 | G1/8-female | 75 | 310 | M18x1.5-male | 194 |



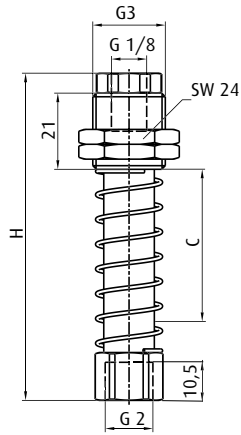
Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|------------|-------------------------|--------|
| 50.106 | G1/4-female | 45 | 250 | M20x1.5-male | 167 |



Fastening elements vacuum cups | Spring levelers

Spring levelers with thread connection



Technical data

| Item no. | Thread suction side G2 | Lift C [mm] | Weight [g] | Thread fixing bushes G3 | H [mm] |
|----------|------------------------|-------------|------------|-------------------------|--------|
| 50.050 | G1/4-female | 42 | 122 | M20x1.5-male | 90 |



Notes:



A large area of horizontal lines for writing notes, starting below the vertical red line and extending across most of the page width.





Fastening elements vacuum cups | Spring levelers

Spring levelers for direct vacuum cup mounting - internal spring - SZ-NIV-DI

Spring levelers for direct vacuum cup mounting - internal spring - SZ-NIV-DI



Product Description

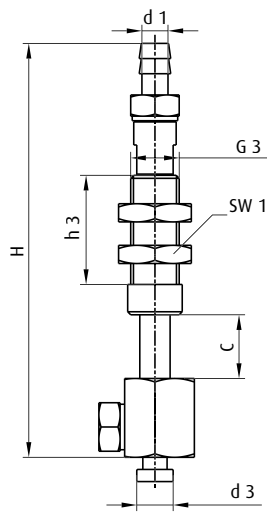
- > Soft attachment for sensitive products
- > With internal spring protected from dirt and with spring deflection limiter
- > Compensate for height differences
- > Direct mounting of the spring leveler on the vacuum cup, no additional fitting required
- > Vacuum connection on top, vacuum channel via spring leveler

Technical data

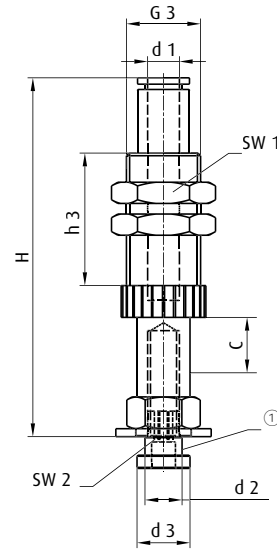
| Item no. | Lift C [mm] | Non-rotating | Hose inner ϕ [mm] | Hose outer ϕ [mm] | Thread suction side G2 | Thread fixing bushes G3 | Weight [g] | Design | Suitable fittings for extrusion system |
|----------|-------------|--------------|------------------------|------------------------|------------------------|-------------------------|------------|----------------|--|
| 50.330 | 10 | -- | 4 | -- | Without (Snap-in) | M8x0.75 | 19 | -- | -- |
| 50.103 | 6 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 34 | -- | -- |
| 50.104 | 6 | Yes | -- | 4 | Without (Snap-in) | M14x1-male | 33 | -- | -- |
| 50.125 | 10 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 36 | -- | -- |
| 50.126 | 15 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 41 | -- | -- |
| 50.127 | 20 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 48 | -- | -- |
| 50.085 | 6 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 36 | -- | -- |
| 50.086 | 6 | Yes | -- | 4 | Without (Snap-in) | M14x1-male | 36 | -- | -- |
| 50.128 | 10 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 36 | -- | -- |
| 50.129 | 15 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 41 | -- | -- |
| 50.130 | 20 | Yes | -- | 6 | Without (Snap-in) | M14x1-male | 48 | -- | -- |
| 50.018 | 8.5 | -- | -- | 4 | Without (Snap-in) | M16x1-male | 21 | Plastic corpus | GR02.231 (p.458) |
| 50.019 | 8.5 | -- | -- | 6 | Without (Snap-in) | M16x1-male | 22 | Plastic corpus | GR02.231 (p.458) |
| 50.020 | 8.5 | -- | -- | 6 | Without (Snap-in) | M16x1-male | 23 | Plastic corpus | GR02.231 (p.458) |



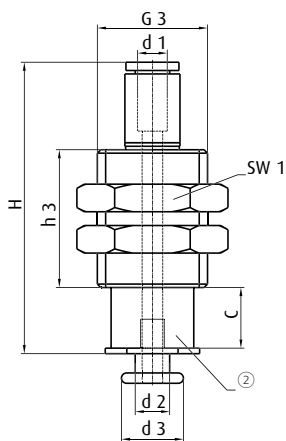
Dimensions



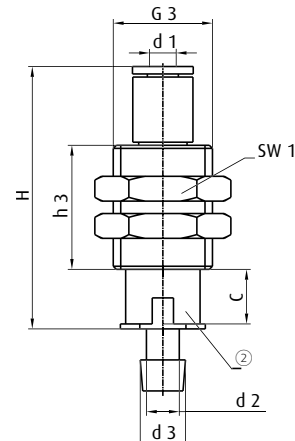
50.330



50.103 | 50.104 | 50.125 | 50.126 | 50.127 | 50.085 | 50.086 | 50.128 | 50.129 | 50.130



50.018 | 50.019



50.020

① = Mounting screw ② = Plastic body

| Item no. | Ø d1 [mm] | Ø d2 [mm] | d2 | Ø d3 [mm] | G3 | H [mm] | h3 [mm] | SW1 | SW2 | C [mm] |
|----------|-----------|-----------|----|-----------|---------|--------|---------|-----|-----|--------|
| 50.330 | 4.3 | -- | -- | 6 | M8x0.75 | 68 | 18 | 12 | -- | 10 |
| 50.103 | 6 | -- | M4 | 6.3 | M14x1 | 52 | 20 | 17 | + | 6 |
| 50.104 | 4 | -- | M4 | 6.3 | M14x1 | 52 | 20 | 17 | + | 6 |
| 50.125 | 6 | 5 | -- | 6 | M14x1 | 56 | 20 | 17 | 3 | 10 |
| 50.126 | 6 | 5 | -- | 6 | M14x1 | 67 | 25 | 17 | 3 | 15 |
| 50.127 | 6 | 5 | -- | 6 | M14x1 | 83 | 34 | 17 | 3 | 20 |
| 50.085 | 6 | 7 | -- | 10 | M14x1 | 52 | 20 | 17 | 3 | 6 |
| 50.086 | 4 | 7 | -- | 10 | M14x1 | 52 | 20 | 17 | 3 | 6 |
| 50.128 | 6 | 7 | -- | 10 | M14x1 | 58 | 20 | 17 | 3 | 10 |
| 50.129 | 6 | 7 | -- | 10 | M14x1 | 68 | 25 | 17 | 3 | 15 |
| 50.130 | 6 | 7 | -- | 10 | M14x1 | 83 | 34 | 17 | 3 | 20 |
| 50.018 | 4 | 5 | -- | 9 | M16x1 | 45 | 20 | 19 | -- | 8.5 |
| 50.019 | 6 | 5 | -- | 9 | M16x1 | 46.5 | 20 | 19 | -- | 8.5 |
| 50.020 | 6 | 5 | -- | 7.3 | M16x1 | 42.5 | 20 | 19 | -- | 8.5 |



Fastening elements vacuum cups | Spring levelers

Spring levelers for direct vacuum cup mounting - spring open - SZ-NIV-DA

Spring levelers for direct vacuum cup mounting - spring open - SZ-NIV-DA



Series 1

Series 2

Product Description

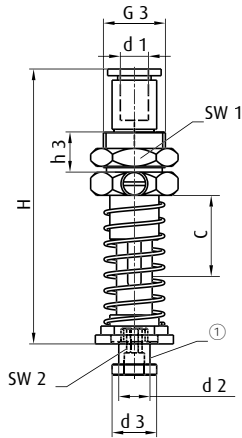
- > Direct mounting of the spring leveler on the vacuum cup, no additional fitting required
- > Compensate for height differences
- > Soft attachment for sensitive products
- > Leveling with an open spring

Technical data

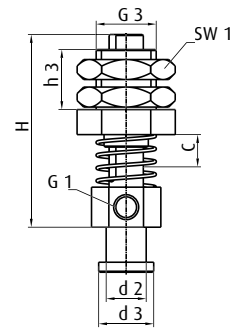
| Item no. | Series | Lift C [mm] | Non-rotating | Hose outside ϕ [mm] | Hose inner ϕ [mm] | Thread suction side G2 | Thread fixing bushes G3 | Weight [g] |
|----------|--------|-------------|--------------|--------------------------|------------------------|------------------------|-------------------------|------------|
| 50.095 | 1 | 20 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 51 |
| 50.096 | 1 | 30 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 57 |
| 50.097 | 1 | 40 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 62 |
| 50.098 | 1 | 50 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 67 |
| 50.170 | 1 | 20 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 51 |
| 50.171 | 1 | 30 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 57 |
| 50.172 | 1 | 40 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 62 |
| 50.173 | 1 | 50 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 67 |
| 50.174 | 1 | 20 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 51 |
| 50.175 | 1 | 30 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 57 |
| 50.176 | 1 | 40 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 62 |
| 50.177 | 1 | 50 | Yes | 6 | -- | Without (Snap-in) | M14x1-male | 67 |
| 50.141 | 2 | 10 | -- | -- | -- | Without (Snap-in) | M10x1-male | 12 |
| 50.005 | 2 | 5 | -- | -- | -- | Without (Snap-in) | M12-male | 23 |
| 50.145 | 2 | 10 | -- | -- | -- | Without (Snap-in) | M12-male | 39 |
| 50.146 | 2 | 30 | -- | -- | -- | Without (Snap-in) | M12-male | 46 |
| 50.037 | 2 | 25 | -- | -- | 4 | Without (Snap-in) | M12x1.5-male | 69 |



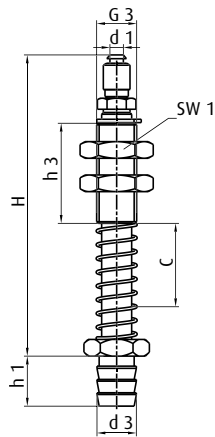
Dimensions



50.095 | 50.096 | 50.097 | 50.098 | 50.170 | 50.171 | 50.172 | 50.173 | 50.174 | 50.175 | 50.176 | 50.177



50.141 | 50.005 | 50.145 | 50.146



50.037

① = Mounting screw M6

| Item no. | Ø d1 [mm] | Ø d2 [mm] | Ø d3 [mm] | G1 | G3 | H [mm] | h1 [mm] | h3 [mm] | SW1 | SW2 | C [mm] |
|----------|-----------|-----------|-----------|----|---------|--------|---------|---------|-----|-----|--------|
| 50.095 | 6 | 7 | 10 | -- | M14x1 | 61 | -- | 9 | 17 | 3 | 20 |
| 50.096 | 6 | 7 | 10 | -- | M14x1 | 75 | -- | 9 | 17 | 3 | 30 |
| 50.097 | 6 | 7 | 10 | -- | M14x1 | 87 | -- | 9 | 17 | 3 | 40 |
| 50.098 | 6 | 7 | 10 | -- | M14x1 | 100 | -- | 9 | 17 | 3 | 50 |
| 50.170 | 6 | 6 | 15 | -- | M14x1 | 61 | -- | 9 | 17 | 3 | 20 |
| 50.171 | 6 | 6 | 15 | -- | M14x1 | 75 | -- | 9 | 17 | 3 | 30 |
| 50.172 | 6 | 6 | 15 | -- | M14x1 | 87 | -- | 9 | 17 | 3 | 40 |
| 50.173 | 6 | 6 | 15 | -- | M14x1 | 100 | -- | 9 | 17 | 3 | 50 |
| 50.174 | 6 | 6 | 20 | -- | M14x1 | 61 | -- | 9 | 17 | 3 | 20 |
| 50.175 | 6 | 6 | 20 | -- | M14x1 | 75 | -- | 9 | 17 | 3 | 30 |
| 50.176 | 6 | 6 | 20 | -- | M14x1 | 87 | -- | 9 | 17 | 3 | 40 |
| 50.177 | 6 | 6 | 20 | -- | M14x1 | 100 | -- | 9 | 17 | 3 | 50 |
| 50.141 | -- | 5 | 7 | M5 | M10x1 | 40 | -- | 12 | 14 | -- | 8 |
| 50.005 | -- | 8 | 11 | M5 | M12 | 43 | -- | 16 | 19 | -- | 5 |
| 50.145 | -- | 8 | 11 | M5 | M12 | 44 | -- | 15 | 17 | -- | 10 |
| 50.146 | -- | 8 | 11 | M5 | M12 | 65 | -- | 15 | 17 | -- | 30 |
| 50.037 | 4 | -- | 5.5 | -- | M12x1.5 | 89 | 7 | 30 | 19 | -- | 25 |



Fastening elements vacuum cups | Spring levelers

SLine / MLine mounting brackets - for spring levelers

SLine / MLine mounting brackets - for spring levelers

Connection of vacuum cups in gripper systems via spring levelers



Mounting example

Product Description

- > Compatible with commercially available spring levelers
- > Particularly compatible with FIPA spring levelers SZ-NIV-S and SZ-NIV-HD

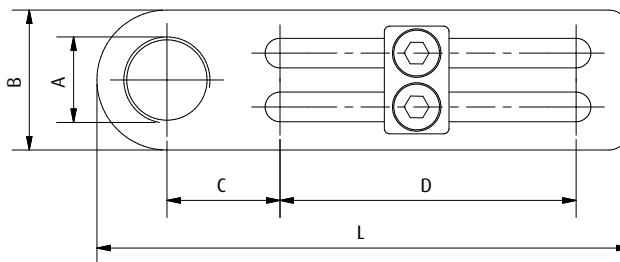
Ordering notes

- > Channel nuts included in delivery

Technical data

| Item no. | Weight [g] |
|----------|------------|
| GR02.230 | 29 |
| GR02.231 | 55 |
| GR02.232 | 63 |

Dimensions

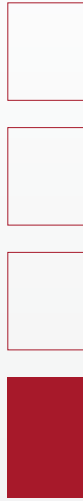


| Item no. | A | B [mm] | C [mm] | D [mm] | L [mm] |
|----------|---------|--------|--------|--------|--------|
| GR02.230 | G1/8 | 20 | 17 | 45 | 82 |
| GR02.231 | M16x1 | 26 | 21 | 55 | 99 |
| GR02.232 | M20x1.5 | 28 | 21 | 65 | 110 |



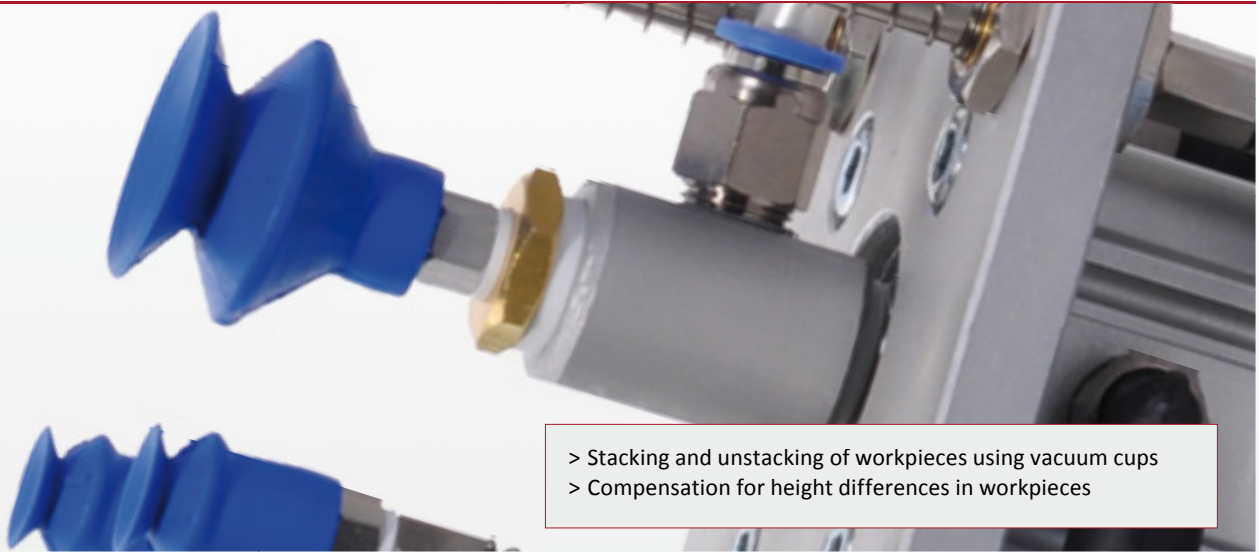
Notes:

A large area for taking notes, featuring a vertical red line on the left side and horizontal grey lines for writing.





FIPA Lifting cylinders



- > Stacking and unstacking of workpieces using vacuum cups
- > Compensation for height differences in workpieces



Compressed-air operated lifting cylinders for direct vacuum cup mounting (55.100 - 55.120)

- > Stacking and unstacking applications
- > Integrated vacuum generation
- > Specially suited for vacuum cups of SFU-F and SBF-B series

> See page 462



Compressed-air operated lifting cylinders - with anti-twist (55.005)

- > Picking-up and stacking flat and sensitive objects such as signs, card, labels, veneer correct position using an anti-twist piston rod
- > Integrated vacuum generation
- > Very short cycle times thanks to integrated compressed air pulse during placement
- > Very compact design in robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces
- > Optional part control by monitoring piston position

> See page 466



Vacuum operated lifting cylinder - with anti-twist (55.000, 55.001, 55.004)

- > Suction and lifting of flat and sensitive objects such as signs, cards, labels, veneer
- > Part extraction from injection molds
- > Fixation of workpieces in cutting stations
- > Compensation of height differences between vacuum cup and workpiece
- > Short cycle times thanks to low moving masses
- > Robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces
- > Particularly low-noise design

> See page 468



FIPA Lifting cylinders



Vacuum operated lifting cylinders - with anti-twist (55.002)

- > Stacking and lifting of metal sheets and heavy parts
- > Compensation of height differences between vacuum cup and workpiece
- > Robust aluminium housing
- > Long service life of around 25 million cycles thanks to Hardcoat® treated running surfaces

> See page 468

Operation principles

55.100 to 55.120

In the initial position the piston rod is extended. As soon as compressed air supply is activated, vacuum is created by the integrated ejector. When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted. The handled object is held in position until compressed air supply is turned off.

55.005

In the initial position the piston rod is retracted. As soon as compressed air supply is activated, vacuum is created by the integrated ejector and the piston rod is extended.

When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted.

When compressed air is switched off, a pulse of compressed air from an integrated air chamber drives the piston rod back out and the object is released.

55.000 to 55.004

In the initial position the piston rod is retracted. Upon application of vacuum, the piston rod with the vacuum cup is extended.

When the vacuum cup makes contact with the object to be handled, the piston rod is rapidly retracted.

The gripped object remains on the vacuum cup until vacuum supply is switched off.



Fastening elements vacuum cups | Lifting cylinders

Vacuum lifting cylinder - operated by compressed air

Vacuum lifting cylinder - operated by compressed air

For flat suction picking, e.g. for suction cup series SFU-F Ø 4 - 15 mm



Product Description

- > Stacking and destacking of workpieces
- > Vacuum generation by compressed air using an integrated ejector
- > Lifting cylinder extended during idle state
- > Cycle time independent of lift and weight

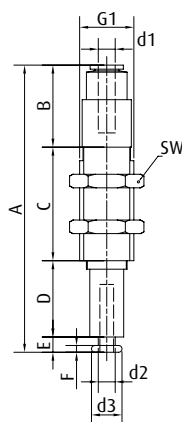
Ordering notes

- > Suitable vacuum cups can be found in chapter vacuum cups series, flat vacuum cups SFU-F Ø 4 - 15 mm and bellows vacuum cups SBF-B Ø 6 - 15 mm

Technical data

| Item no. | Lift [mm] | Lifting force [N] | Operating pressure [bar] | Vacuum level [mbar] | Cycles [1/min] | Weight [g] | Suitable fittings for extrusion system |
|----------|-----------|-------------------|--------------------------|---------------------|----------------|------------|--|
| 55.100 | 5 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 33 | GR02.231 (p.458) |
| 55.102 | 10 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 36 | GR02.231 (p.458) |
| 55.104 | 20 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 41 | GR02.231 (p.458) |
| 55.106 | 30 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 45 | GR02.231 (p.458) |
| 55.108 | 5 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 32 | GR02.231 (p.458) |
| 55.110 | 10 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 45 | GR02.231 (p.458) |
| 55.112 | 20 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 52 | GR02.231 (p.458) |
| 55.114 | 30 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 45 | GR02.231 (p.458) |

Dimensions





| Item no. | G1 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | d2 [mm] | d3 [mm] | E [mm] | F [mm] | SW |
|----------|-------|--------|--------|--------|--------|---------|---------|---------|--------|--------|----|
| 55.100 | M16x1 | 55 | 23.5 | 22 | 5 | 4 | 5 | 9 | 4.5 | 2 | 19 |
| 55.102 | M16x1 | 65 | 23.5 | 27 | 10 | 4 | 5 | 9 | 4.5 | 2 | 19 |
| 55.104 | M16x1 | 85 | 23.5 | 37 | 20 | 4 | 5 | 9 | 4.5 | 2 | 19 |
| 55.106 | M16x1 | 105 | 23.5 | 47 | 30 | 4 | 5 | 9 | 4.5 | 2 | 19 |
| 55.108 | M16x1 | 56.5 | 25 | 22 | 5 | 6 | 5 | 9 | 4.5 | 2 | 19 |
| 55.110 | M16x1 | 66.5 | 25 | 27 | 10 | 6 | 5 | 9 | 4.5 | 2 | 19 |
| 55.112 | M16x1 | 86.5 | 25 | 37 | 20 | 6 | 5 | 9 | 4.5 | 2 | 19 |
| 55.114 | M16x1 | 106.5 | 25 | 47 | 30 | 6 | 5 | 9 | 4.5 | 2 | 19 |



Fastening elements vacuum cups | Lifting cylinders

Vacuum lifting cylinder - operated by compressed air

Vacuum lifting cylinder - operated by compressed air

For high suction picking, e.g. for series SFU-F Ø 20 - 40 mm



Product Description

- > Stacking and destacking of workpieces
- > Vacuum generation by compressed air using an integrated ejector
- > Lifting cylinder extended during idle state
- > Cycle time independent of lift and weight

Ordering notes

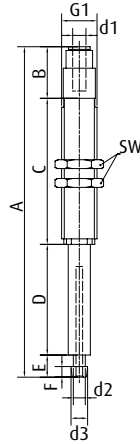
- > Suitable vacuum cups can be found in chapter vacuum cups series, flat vacuum cups SFU-F Ø 20 - 40 mm and bellows vacuum cups SBF-B Ø 20 mm

Technical data

| Item no. | Lift [mm] | Lifting force [N] | Operating pressure [bar] | Vacuum level [mbar] | Cycles [1/min] | Weight [g] | Suitable fittings for extrusion system |
|----------|-----------|-------------------|--------------------------|---------------------|----------------|------------|--|
| 55.101 | 5 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 33 | GR02.231 (p.458) |
| 55.103 | 10 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 36 | GR02.231 (p.458) |
| 55.105 | 20 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 41 | GR02.231 (p.458) |
| 55.107 | 30 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 46 | GR02.231 (p.458) |
| 55.109 | 5 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 33 | GR02.231 (p.458) |
| 55.111 | 10 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 36 | GR02.231 (p.458) |
| 55.113 | 20 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 41 | GR02.231 (p.458) |
| 55.115 | 30 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 46 | GR02.231 (p.458) |
| 55.120 | 50 | 3.5 - 5 | 3.5 - 4.5 | -700 | 50 | 56 | GR02.231 (p.458) |



Dimensions



| Item no. | G1 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | d2 [mm] | d3 [mm] | E [mm] | F [mm] | SW |
|----------|-------|--------|--------|--------|--------|---------|---------|---------|--------|--------|----|
| 55.101 | M16x1 | 60.5 | 23.5 | 22 | 5 | 4 | 5 | 7.5 | 10 | 5 | 19 |
| 55.103 | M16x1 | 70.5 | 23.5 | 27 | 10 | 4 | 5 | 7.5 | 10 | 5 | 19 |
| 55.105 | M16x1 | 90.5 | 23.5 | 37 | 20 | 4 | 5 | 7.5 | 10 | 5 | 19 |
| 55.107 | M16x1 | 110.5 | 23.5 | 47 | 30 | 4 | 5 | 7.5 | 10 | 5 | 19 |
| 55.109 | M16x1 | 62 | 25 | 22 | 5 | 6 | 5 | 7.5 | 10 | 5 | 19 |
| 55.111 | M16x1 | 72 | 25 | 27 | 10 | 6 | 5 | 7.5 | 10 | 5 | 19 |
| 55.113 | M16x1 | 92 | 25 | 37 | 20 | 6 | 5 | 7.5 | 10 | 5 | 19 |
| 55.115 | M16x1 | 112 | 25 | 47 | 30 | 6 | 5 | 7.5 | 10 | 5 | 19 |
| 55.120 | M16x1 | 151 | 25 | 67 | 50 | 6 | 5 | 7.5 | 10 | 5 | 19 |



Fastening elements vacuum cups | Lifting cylinders

Lifting cylinder - operated by compressed air

Lifting cylinder - operated by compressed air

With blow-off feature, torsionally rigid



Product Description

- > Stacking and destacking of thin and sensitive products, such as e.g. signboards, cards, paper, thin wood (veneers)
- > Very short cycle times thanks to compressed air pulse during placement
- > Suitable for fast transport movements
- > Torsionally rigid piston rods for correctly positioned placement
- > Robust aluminium housing with Hartcoat® coating in compact design with integrated ejector, valve technology and air chamber for blow-off air
- > Optional PNP magnetic field sensor to monitor lifting of workpiece

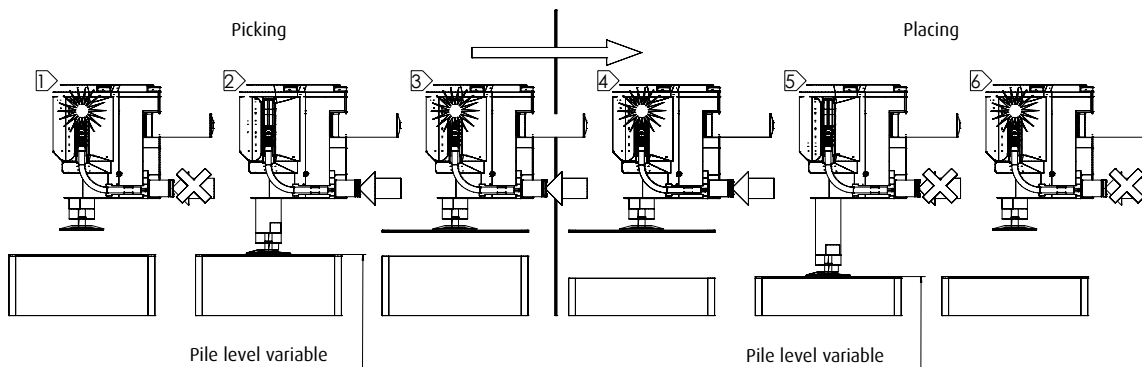
Notes

- > For release of workpiece (in defined position) compressed air line needs to be shut and ventilated by means of a 3/2 way valve. Otherwise the piston will not extend again for product release and the workpiece will just fall down.

Technical data

| Item no. | Lift [mm] | Lifting force at 6 bar [N] | Operating pressure [bar] | Volume flow at 6 bar [Nl/min] | Operating temperature [°C] | Weight [g] | Suitable accessories |
|----------|-----------|----------------------------|--------------------------|-------------------------------|----------------------------|------------|--|
| 55.005 | 25 | 8 | 5 - 8 | 48 | 5 - 80 | 220 | Silencers 72.028 (p.577) Magnetic field sensor 55.099 |

Wiring diagram

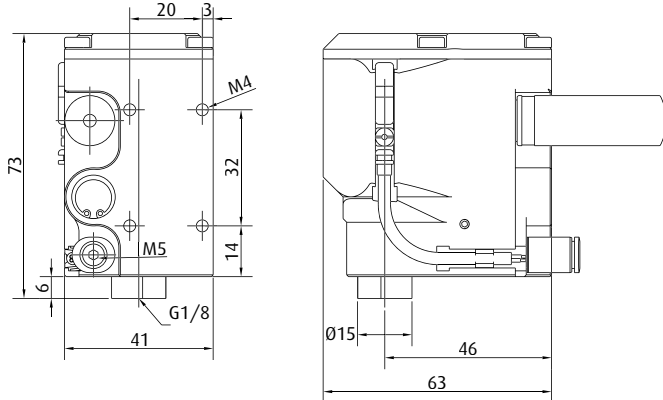


Process:

1. Initial position: Compressed air off, piston drawn in, magnetic sensor in operation
2. Compressed air switched on, piston moves out, workpiece is pulled in, piston retracts with the workpiece to the initial position
3. Workpiece sucked in and lifted, compressed air on, magnetic field sensor in operation
4. Transport movement
5. Switch off compressed air, piston moves out with the workpiece, places the workpiece and retracts to the initial position
6. Initial position: Compressed air off, piston drawn in, magnetic sensor in operation

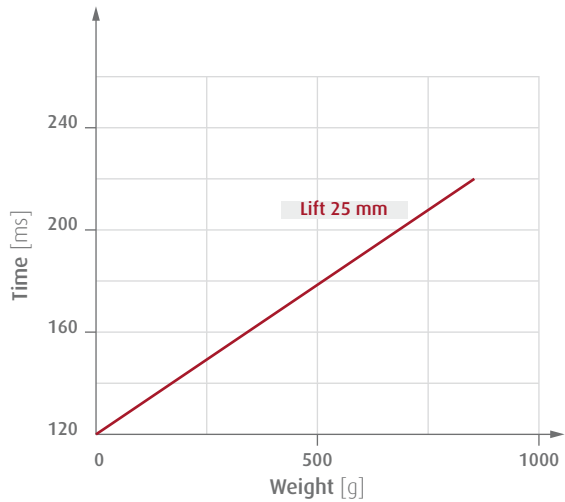


Dimensions

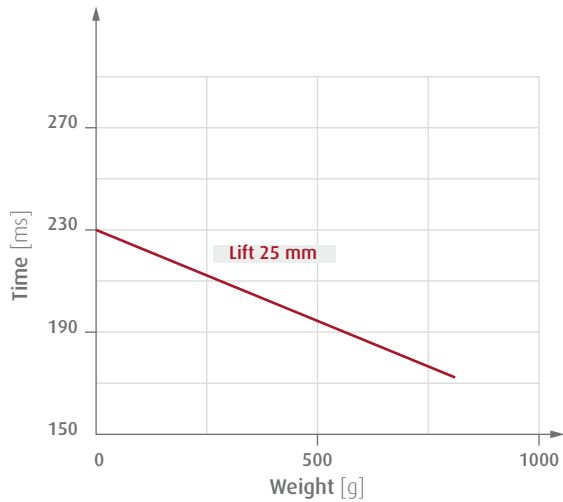


Diagrams

> Double lift lifting time against weight, pressure 6 bar



> Double lift lifting time against weight, pressure 6 bar





Fastening elements vacuum cups | Lifting cylinders

Lifting cylinder - vacuum-operated

Lifting cylinder - vacuum-operated

Torsionally rigid



55.000 | 55.001 | 55.004



55.002

Product Description

- > Picking-up and stacking flat and sensitive objects such as e.g. signs, card, paper, veneers
- > Suitable for short cycle times
- > Application e.g. for workpiece fixation in cutting stations
- > Robust aluminium housing, Hartcoat® treated
- > Anti-twist piston rod
- > Particularly low-noise version

Notes

- > 55.002: Stacking and lifting of metal sheet and heavy parts, not suitable for workpieces permeable to air

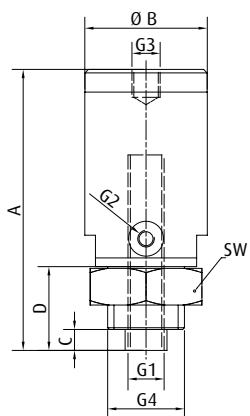
Ordering notes

- > Customised sizes on request

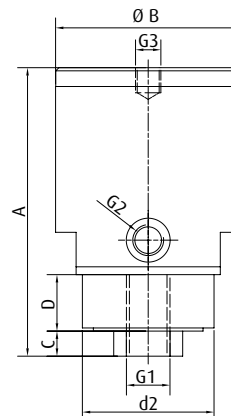
Technical data

| Item no. | Lift [mm] | Volume flow at 80 % vacuum [Nl/min] | Lifting force at 80 % vacuum [N] | Cycle time (extend-suction-lift) [s] | Operating temperature [°C] | Weight [g] |
|----------|-----------|-------------------------------------|----------------------------------|--------------------------------------|----------------------------|------------|
| 55.000 | 17 | 15 | 3 | 0.3 | 5 - 80 | 55 |
| 55.001 | 25 | 30 | 10 | 0.4 | 5 - 80 | 145 |
| 55.002 | 30 | 35 | 50 | 0.7 | 5 - 80 | 310 |
| 55.004 | 40 | 30 | 10 | 0.7 | 5 - 80 | 185 |

Dimensions



55.000 | 55.001 | 55.004



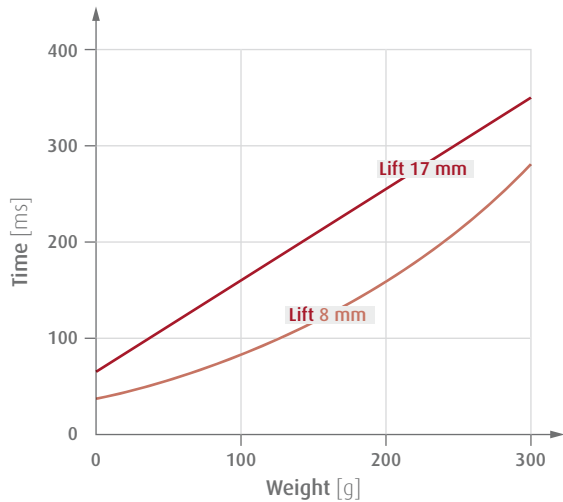
55.002



| Item no. | G1 | G2 | G3 | G4 | A [mm] | Ø B [mm] | C [mm] | D [mm] | d2 [mm] | SW |
|----------|------|------|-----|---------|--------|----------|--------|--------|---------|----|
| 55.000 | M5 | M5 | M6 | M16x1.5 | 55.5 | 24 | 4 | 16 | -- | 24 |
| 55.001 | G1/8 | M5 | M8 | M22x1.5 | 78 | 35 | 6 | 22 | -- | 32 |
| 55.002 | G1/4 | G1/8 | M10 | -- | 92 | 59 | 9 | 18 | 44 | -- |
| 55.004 | G1/8 | G1/8 | M8 | M22x1.5 | 98 | 35 | 9 | 24 | -- | 32 |

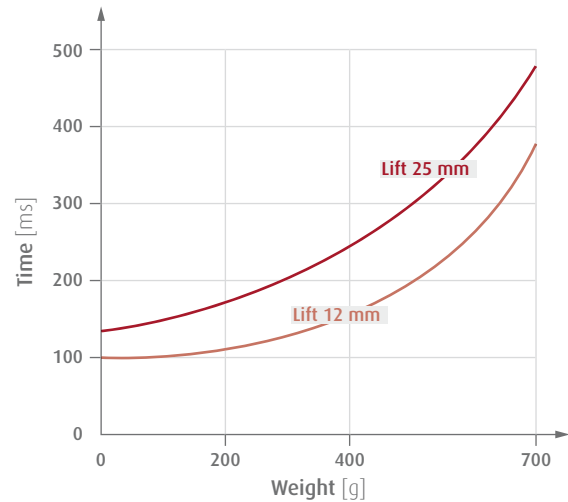
Diagrams

> Double lift lifting time against weight



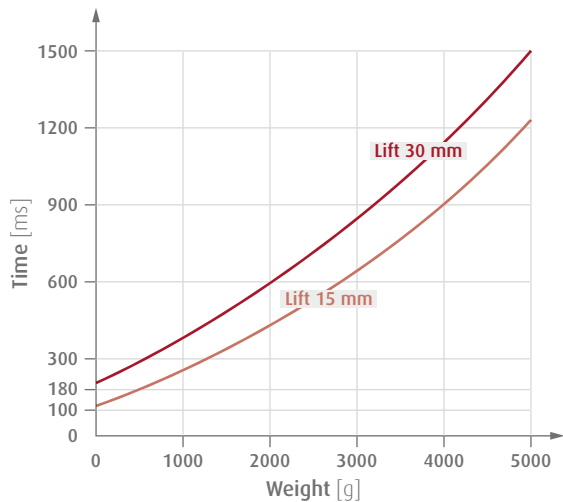
55.000

> Double lift lifting time against weight



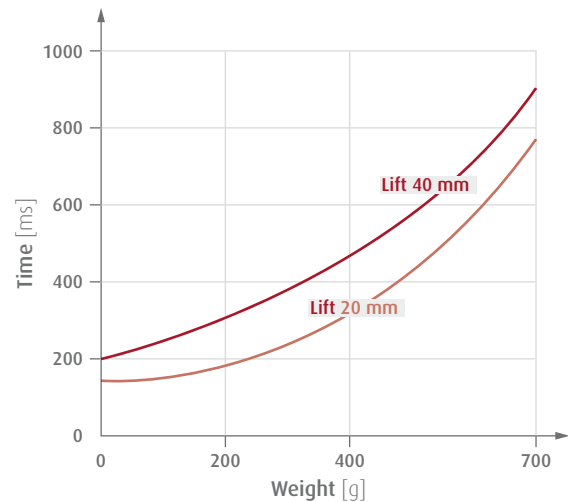
55.001

> Double lift lifting time against weight



55.002

> Double lift lifting time against weight



55.004



Fastening elements vacuum cups | Joints

G threaded ball joints - SZ-GKG

G threaded ball joints - SZ-GKG



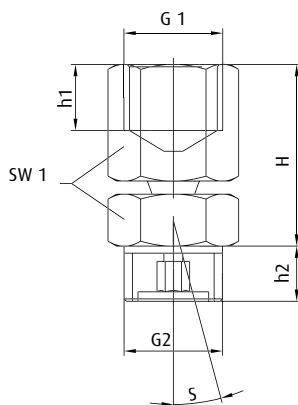
Product Description

- > Universal articulating mount for vacuum cups allows compensation for sloping product surfaces
- > Angle compensation for sagging products, such as sheet goods
- > Version: Ball and socket with O-ring seal

Technical data

| Item no. | Thread suction side G2 | Thread at the machine G1 | Pivoting range S [°] | Lifting force [N] | Weight [g] |
|-----------|------------------------|--------------------------|----------------------|-------------------|------------|
| 270.072 | G1/8-male | G1/8-female | 2x15 | 300 | 26 |
| 270.073/1 | G1/4-male | G1/4-female | 2x15 | 1,500 | 49 |
| 270.075 | G1/2-male | G1/2-female | 2x15 | 2,500 | 116 |

Dimensions



| Item no. | Ø dn [mm] | G1 | G2 | H [mm] | h1 [mm] | h2 [mm] | SW1 | S [°] |
|-----------|-----------|------|------|--------|---------|---------|-----|--------|
| 270.072 | 2 | G1/8 | G1/8 | 25 | 8.5 | 7 | 14 | 2 - 15 |
| 270.073/1 | 3.5 | G1/4 | G1/4 | 37 | 11 | 10 | 19 | 2 - 15 |
| 270.075 | 4 | G1/2 | G1/2 | 38.5 | 14 | 11.5 | 24 | 2 - 15 |



Metric threaded ball joints - SZ-GKM



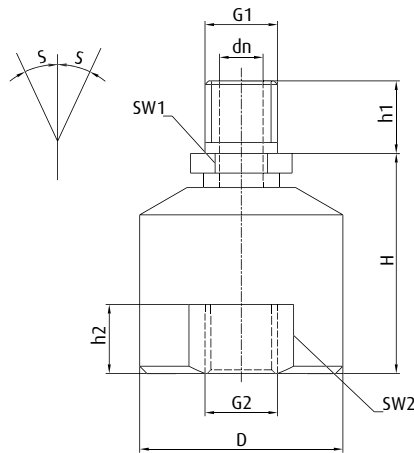
Product Description

- > Universal articulating mount for vacuum cups allows compensation for sloping product surfaces
- > Angle compensation for sagging products, such as sheet goods
- > Version: Ball and socket with O-ring seal

Technical data

| Item no. | Thread suction side G2 | Thread at the machine G1 | Pivoting range S [°] | Weight [g] |
|----------|------------------------|--------------------------|----------------------|------------|
| 270.185 | M4-female | M4-male | 2x15 | 9 |
| 270.186 | M6-female | M6-male | 2x15 | 20 |
| 270.187 | M10-female | M10-male | 2x15 | 58 |

Dimensions



| Item no. | Ø D [mm] | Ø dn [mm] | G1 | G2 | H [mm] | h1 [mm] | h2 [mm] | SW1 | SW2 | S [°] |
|----------|----------|-----------|-----|-----|--------|---------|---------|-----|-----|--------|
| 270.185 | 15 | 2 | M4 | M4 | 19 | 4 | 7 | 4 | -- | 2 - 15 |
| 270.186 | 20 | 3 | M6 | M6 | 23 | 6 | 6.5 | 7 | -- | 2 - 15 |
| 270.187 | 28 | 6 | M10 | M10 | 30 | 10 | 9.5 | 12 | 24 | 2 - 15 |



Rubber joints - SZ-GG



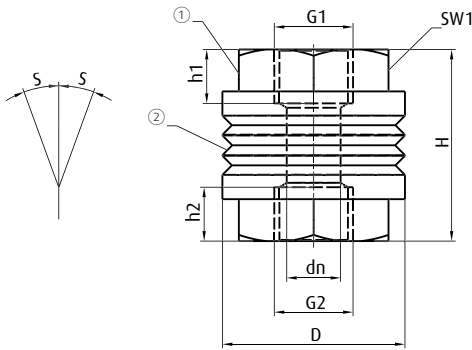
Product Description

- > Universal articulating mount for vacuum cups allows compensation for sloping product surfaces
- > Angle compensation for sagging products, such as sheet goods
- > Automatic reset of the vacuum cup to normal position
- > Version: Rubber-metal connection with vacuum channel

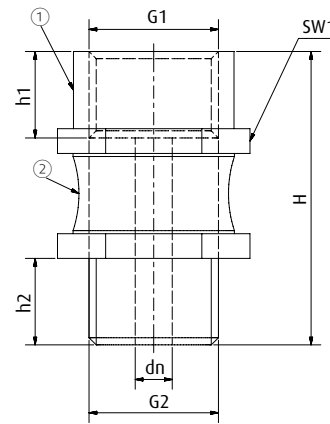
Technical data

| Item no. | Thread suction side G2 | Thread at the machine G1 | Pivoting range S [°] | Lifting force [N] | Weight [g] |
|----------|------------------------|--------------------------|----------------------|-------------------|------------|
| 270.199 | G1/4-female | G1/4-female | 2x25 | 450 | 49 |
| 270.201 | G1/4-female | G1/4-female | 2x10 | 850 | 75 |
| 270.202 | G3/8-female | G3/8-female | 2x10 | 850 | 63 |
| 270.203 | G1/2-male | G1/2-female | 2x12 | 3,000 | 100 |

Dimensions



270.199 | 270.201 | 270.202



270.203

① = Brass/steel ② = Rubber

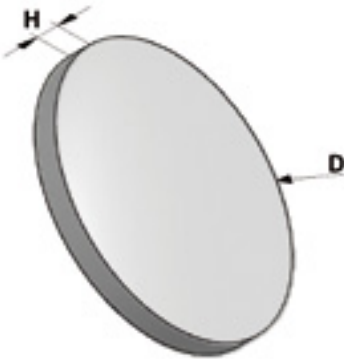
| Item no. | Ø D [mm] | Ø dn [mm] | G1 | G2 | H [mm] | h1 [mm] | h2 [mm] | SW1 | S [°] |
|----------|----------|-----------|------|------|--------|---------|---------|-----|--------|
| 270.199 | 30 | 5 | G1/4 | G1/4 | 46 | 8 | 8 | 17 | 2 - 25 |
| 270.201 | 30.5 | 9 | G1/4 | G1/4 | 32 | 9 | 9 | 25 | 2 - 10 |
| 270.202 | 30.5 | 11 | G3/8 | G3/8 | 32 | 9 | 9 | 25 | 2 - 10 |
| 270.203 | -- | 6 | G1/2 | G1/2 | 33.5 | 14 | 14 | 27 | 2 - 12 |

| | |
|------------------------|-----|
| Filter discs | 474 |
| Rings and clamps | 475 |



Filter discs - SZ-FI

For insertion into vacuum cup fold



| Technical data | | | Dimensions | |
|----------------|------------|------------------------|------------|----------|
| Item no. | Material | Usage temperature [°C] | H [mm] | Ø D [mm] |
| 78.200 | HDPE white | -40 - 80 | 1.5 | 17.5 |
| 78.201 | HDPE white | -40 - 80 | 1.5 | 28 |
| 78.202 | HDPE white | -40 - 80 | 1.5 | 38.5 |
| 78.203 | HDPE white | -40 - 80 | 1.5 | 48 |
| 78.204 | HDPE white | -40 - 80 | 1.5 | 70.5 |
| 78.205 | HDPE white | -40 - 80 | 1.5 | 113 |
| 78.206 | HDPE white | -40 - 80 | 1.5 | 147 |

Filter discs - SZ-FIN

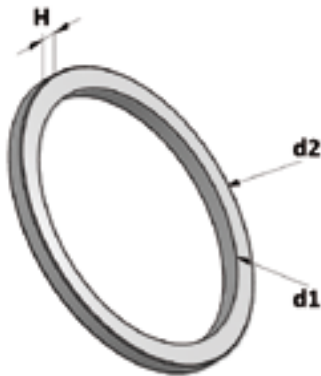
For insertion into vacuum cup fold



| Technical data | | | Dimensions | |
|----------------|--------------------|------------------------|------------|----------|
| Item no. | Material | Usage temperature [°C] | H [mm] | Ø D [mm] |
| 78.214 | Nylon canvas / TPE | -40 - 50 | 1 | 20 |
| 78.215 | Nylon canvas / TPE | -40 - 50 | 1.6 | 26 |
| 78.216 | Nylon canvas / TPE | -40 - 50 | 3 | 40 |
| 78.217 | Nylon canvas / TPE | -40 - 50 | 3 | 58 |

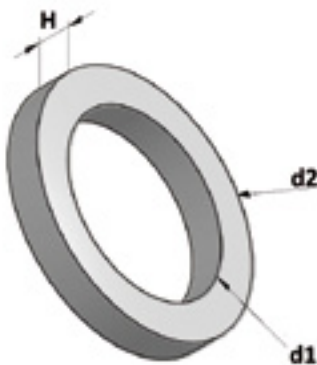


Reinforcement rings - SZ-STAB
For stabilising bellows vacuum cups



| Technical data | | Dimensions | | |
|----------------|----------|------------|-----------|-----------|
| Item no. | Material | H [mm] | ∅ d1 [mm] | ∅ d2 [mm] |
| 78.000 | PA6 | 1 | 13.5 | 17.5 |
| 78.001 | PA6 | 1.1 | 22 | 26.5 |
| 78.002 | PA6 | 1.2 | 30 | 35.5 |
| 78.003 | PA6 | 1.5 | 36 | 45.5 |

Retaining rings - SZ-HR



| Technical data | | Dimensions | | |
|----------------|----------|------------|-----------|-----------|
| Item no. | Material | H [mm] | ∅ d1 [mm] | ∅ d2 [mm] |
| 78.011 | TPU | 1.9 | 9.7 | 14 |
| 78.012 | TPU | 2.5 | 13 | 20 |
| 78.013 | TPU | 3.2 | 19 | 26 |

Adapter plates - SZ-ASC



| Technical data | | Dimensions | | | | |
|----------------|-----------|------------|---------|----------|-----------|-----------|
| Item no. | Material | H [mm] | h1 [mm] | ∅ D [mm] | ∅ d1 [mm] | ∅ d2 [mm] |
| 78.080 | Aluminium | 5 | 2.8 | 15 | 11 | 6.2 |
| 78.081 | Aluminium | 4.3 | 2.8 | 20 | 12 | 6.2 |
| 78.082 | Aluminium | 7 | 4 | 28 | 23 | 10.2 |

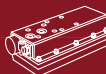


Gripper clamps - SZ-KS

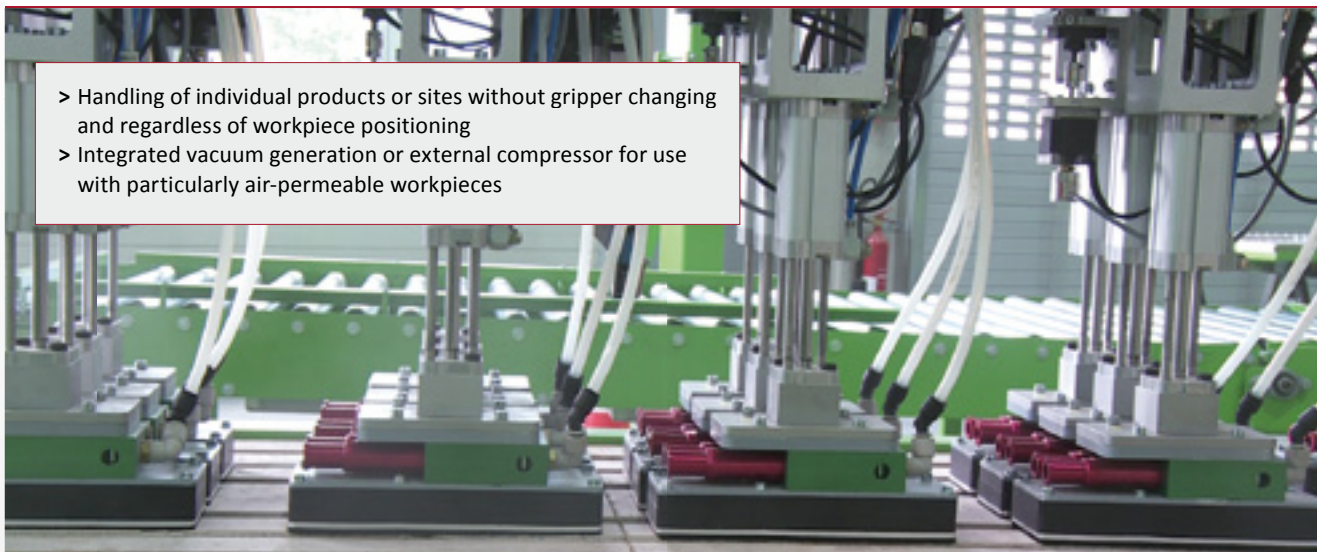


| Technical data | | | Dimensions | |
|----------------|--------------|------------------|------------|-----------|
| Item no. | Ø range [mm] | Material | H [mm] | Ø d1 [mm] |
| 78.030 | 7 - 9 | Steel galvanised | 4 | 9.3 |
| 78.031 | 9 - 11 | Steel galvanised | 3 | 11.3 |
| 78.032 | 11 - 13 | Steel galvanised | 4 | 13.2 |
| 78.033 | 15 - 18 | Steel galvanised | 4 | 18.2 |
| 78.034 | 17 - 20 | Steel galvanised | 4 | 20.2 |

| | |
|---|-----|
| Vacuum and bag grippers at a glance | 478 |
| Vacuum grippers | 480 |
| Suction plates | 487 |
| Bag grippers | 488 |
| Accessories | 490 |



FIPA Vacuum and bag grippers



- > Handling of individual products or sites without gripper changing and regardless of workpiece positioning
- > Integrated vacuum generation or external compressor for use with particularly air-permeable workpieces



Vacuum grippers with closing valves - TC

- > Very large flow cross-sections for long service life and high process reliability, even if exposed to dust
- > Integrated valves, seal uncovered suction openings without loss of gripping force
- > No minimum coverage
- > Swivel and tilt movements up to < 90°

> See page 480



Vacuum grippers with leakage reduction - TL

- > Economical gripper solution for low-dust handling processes
- > Recommended minimum coverage: 80 %
- > Swivel and tilt movements up to 360°

> See page 484



Suction plates with leakage reduction - SPLT

- > Reliable suction with variable product shapes
- > Maintain an acceptable vacuum level by reducing leakage by means of integrated flow resistors in vacuum cups without product contact

> See page 487



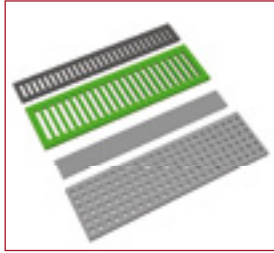
Bag grippers - TG

- > Handling of dimensionally unstable bags and shrink wrapping
- > Also suitable for other products, if vacuum cell is fully covered
- > Swivel and tilt movements possible up to 360°
- > External design similar to that of the TL variant

> See page 488



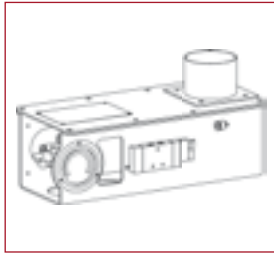
FIPA Vacuum and bag grippers: Accessories



Accessories

Sealing foam for vacuum grippers

- > Very good vacuum sealing and surface protection at the interface with the workpiece
 - > Easy mounting and quick replacement without residue
 - > Wide standard range
 - > Quick implementation of customised dimensions and hole patterns suitable for vacuum grippers of other brands
- > See page 490



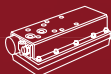
Pick-up and release system

- > For TC vacuum grippers from 400 x 600 mm and external vacuum supply
 - > Minimises energy consumption and maximises service life
 - > Combination of gripper box and blower box
 - > Configuration depends on number of vacuum grippers used
- > See page 492



Gripper / robot connection elements

- > Example for vertical or 3-axis movements or the connection of multiple or longer gripper systems
 - > Layout depends on gripper system and robots
- > See page 494



Vacuum grippers with closing valves

Strong holding force, independent of gripper coverage



MAXIMUM LIFE, MINIMUM MAINTENANCE

Product Description

- > Automated handling of individual products or product layers without gripper change
- > Suitable for rigid products with an even or uneven surface
- > Integrated valves seal unused suction openings without loss of gripping force
- > Large valve openings reduce sensitivity to dirt and ensure maximum suction power
- > Fast and uniform vacuum distribution ensures short cycle times and high acceleration rates
- > Separate compressed air connection for blow-off function for fast product release
- > Sealing foam for gentle product contact and optimum vacuum sealing - can be quickly replaced without tools and without leaving any residue

Notes

- > Suitable for use with < 90° swivel and tilt movements
- > No minimum coverage required
- > TC200x400:
 - Gripping area is divided into zones for flexible product pick-up and/or release
 - Available for all vacuum grippers on request
- > For vacuum grippers from TC 400x600 and up with external vacuum supply, the pick-up and place system (36.900/36.901) minimises power consumption and extends system service life (see the chapter on accessories)

Ordering notes

- > Ordering example vacuum generation
 - TC120x230-P20: integrated via ejectors
 - TC120x230-P20-OV: designed for external vacuum generation e.g. via side channel blower or pump
- > EPDM sealing foam, 24 mm thick and vacuum gauge included in scope of delivery
- > See the chapter on Accessories for further information on:
 - Sealing foam program for various applications
 - Gripper/robot connection elements

Technical data

| Item no. | Air consumption at 6 bar [Nl/min] | Suction power against atmosphere [Nl/min] | Number of closing valves | Final vacuum [%] | Width [mm] | Recommended suction power at 35 % vacuum level [m ³ /h] | Weight [kg] | Suitable sealing foam |
|-------------------|-----------------------------------|---|--------------------------|------------------|------------|--|-------------|------------------------|
| TC120x230-P20 | 105 | 360 | 50 | 85 | -- | -- | 2.3 | PPF120.230-P20 (p.490) |
| TC120x230-P40 | 105 | 198 | 15 | 85 | -- | -- | 2.3 | PPF120.230-P40 (p.490) |
| TC120x400-P20 | 210 | 396 | 95 | 85 | -- | -- | 3.55 | PPF120.400-P20 (p.490) |
| TC120x400-P40 | 105 | 198 | 30 | 85 | -- | -- | 3.55 | PPF120.400-P40 (p.490) |
| TC200x400-P20 | 420 | 1,440 | 171 | 85 | -- | -- | 6.15 | PPF200.400-P20 (p.490) |
| TC200x400-P40 | 210 | 720 | 50 | 85 | -- | -- | 6.15 | PPF200.400-P40 (p.490) |
| TC600x400-P20-OV* | -- | -- | 551 | -- | 35 | 90 - 140 | 12 | PPF-600x400-20 (p.490) |
| TC600x400-P28-OV* | -- | -- | 260 | -- | 40 | 90 - 140 | 12 | PPF-600x400-28 (p.490) |
| TC600x400-P40-OV* | -- | -- | 126 | -- | 55 | 50 - 90 | 12 | PPF-600x400-40 (p.490) |



Technical data

| Item no. | Air consumption at 6 bar [Nl/min] | Suction power against atmosphere [Nl/min] | Number of closing valves | Final vacuum [%] | Width [mm] | Recommended suction power at 35 % vacuum level [m ³ /h] | Weight [kg] | Suitable sealing foam |
|--------------------|-----------------------------------|---|--------------------------|------------------|------------|--|-------------|-------------------------|
| TC1300x260-P20-OV* | -- | -- | 768 | -- | 35 | 140 - 300 | 17 | PPF-1300x260-20 (p.490) |
| TC1300x260-P28-OV* | -- | -- | 360 | -- | 40 | 90 - 140 | 17 | PPF-1300x260-28 (p.490) |
| TC1300x260-P40-OV* | -- | -- | 192 | -- | 55 | 50 - 90 | 17 | PPF-1300x260-40 (p.490) |
| TC1300x500-P20-OV* | -- | -- | 1,536 | -- | 35 | 140 - 300 | 32 | PPF-1300x500-20 (p.490) |
| TC1300x500-P28-OV* | -- | -- | 765 | -- | 40 | 140 - 300 | 32 | PPF-1300x500-28 (p.490) |
| TC1300x500-P40-OV* | -- | -- | 384 | -- | 55 | 140 - 300 | 32 | PPF-1300x500-40 (p.490) |

* = Depending on external vacuum supply

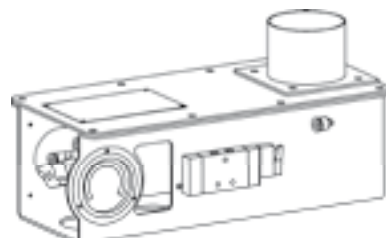
Large valve openings reduce sensitivity to dirt and ensure maximum suction power



Quick and non-destructive replacement of the sealing foam



Optional gripper box 36.900 for short gripping times



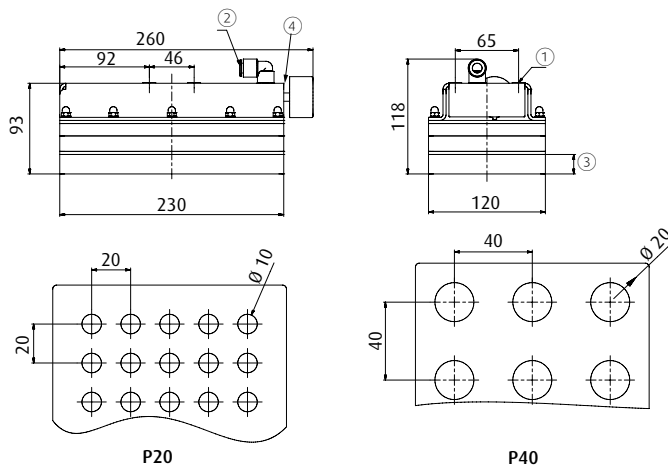
- > The vacuum inside the vacuum tubing starts to build up while the workpiece is approached, this reduces the gripping time
- > Special valves with excellent suction power for fast evacuation or venting
- > Extremely high dirt tolerance for maximum service life and high process reliability



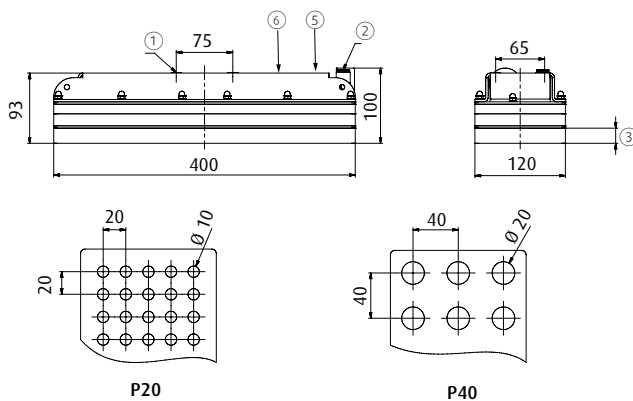
Vacuum gripping systems | Vacuum grippers

Vacuum grippers with closing valves

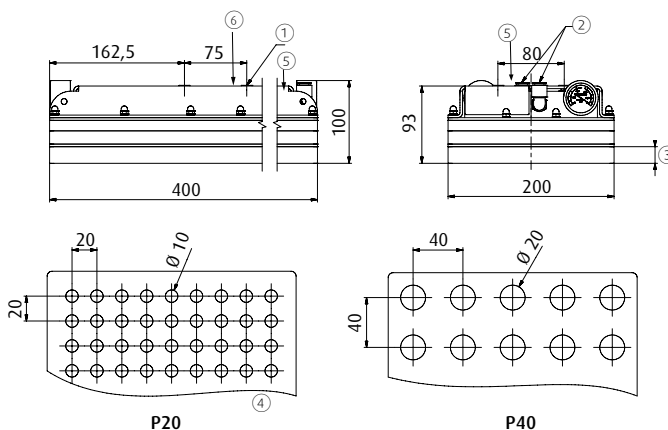
Dimensions



TC120x230-P20 | TC120x230-P40

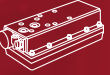


TC120x400-P20 | TC120x400-P40



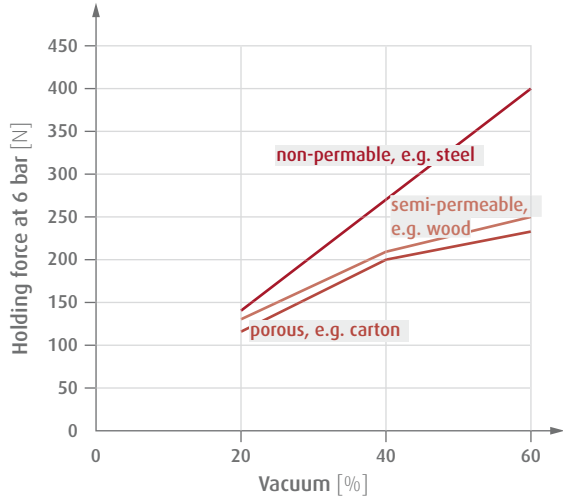
TC200x400-P20 | TC200x400-P40

- ① = Fixing with M6 screws
- ② = Compressed air connection G1/8-female with 10 mm quick-fitting
- ③ = 24 mm sealing foam
- ④ = Alternative compressed air connection G1/8-female (besides vacuum gauge)
- ⑤ = Alternative compressed air connection G1/8-female (at the top)
- ⑥ = Compressed air connection G1/8-female blow-off (at the top)



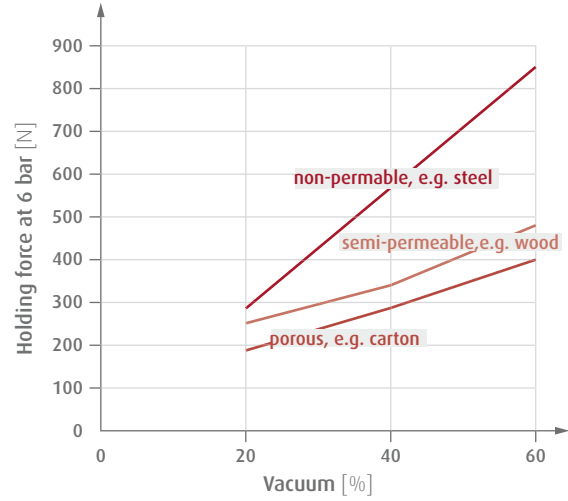
Diagrams

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



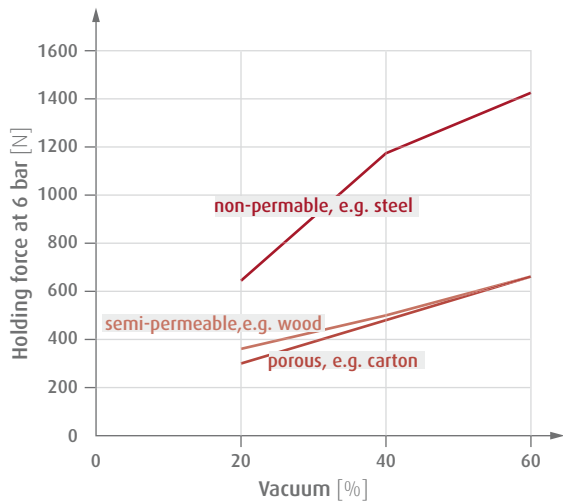
TC120x230-P20 | TC120x230-P40

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



TC120x400-P20 | TC120x400-P40

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



TC200x400-P20 | TC200x400-P40



Vacuum gripping systems | Vacuum grippers

Vacuum grippers with reduced leakage

Vacuum grippers with reduced leakage

Holding force increases with product coverage

NEW



ECONOMIC GRIPPER SOLUTIONS FOR DUST-FREE HANDLING PROCESSES

Product Description

- > Automated handling of individual products or product layers without gripper change
- > Suitable for rigid products with an even or uneven surface
- > Fast and uniform vacuum distribution ensures short cycle times and high acceleration rates
- > Separate compressed air connection for blow-off function for fast product release
- > Sealing foam for gentle product contact and optimum vacuum sealing - can be quickly replaced without tools and without leaving any residue

Notes

- > Minimum coverage of 80 % recommended
- > Suitable for use with > 90° swivel and tilt movements

Ordering notes

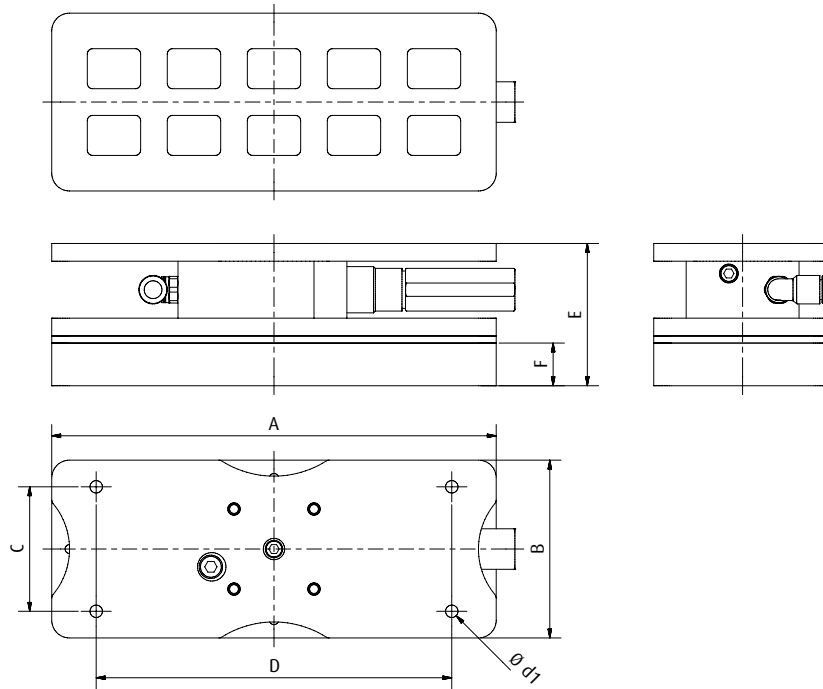
- > Wide range of standard grippers and quick manufacture of customised solutions
- > Ordering example vacuum generation
 - TL150x300: integrated via ejectors
 - TL150x300-OV: designed for external vacuum generation e.g. via side channel blower or pump
- > Universal EPDM sealing foam, 24 mm thick (Index x24) included in scope of delivery
- > Optional: EPDM sealing foam, 12 mm thick (Index x12)
- > The gripping area is divided into zones for flexible product pick-up and/or release
- > See chapter accessories for more information on:
 - Wide range of sealing foam for different applications
 - Gripper/robot connection elements

Technical data

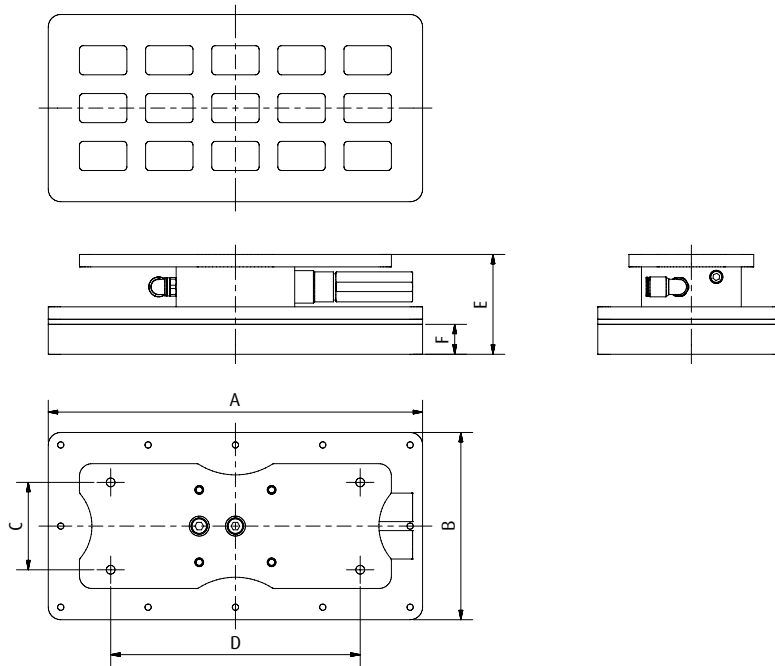
| Item no. | Air consumption at 6 bar [Nl/min] | Suction power against atmosphere [Nl/min] | Final vacuum [%] | Weight [kg] | Suitable sealing foam |
|------------------|-----------------------------------|---|------------------|-------------|--|
| TL100x250 | 105 | 198 | 85 | 1.55 | PPF-TL-100x250x12 (p.490) PPF-TL-100x250x24 (p.490) |
| TL150x300 | 210 | 396 | 85 | 3.2 | PPF-TL-150x300x12 (p.490) PPF-TL-150x300x24 (p.490) |
| TL200x350 | 210 | 396 | 85 | 4.2 | PPF-TL-200x350x12 (p.490) PPF-TL-200x350x24 (p.490) |
| TL250x400 | 210 | 396 | 85 | 4.65 | PPF-TL-250x400x12 (p.490) PPF-TL-250x400x24 (p.490) |



Dimensions



TL100x250



TL150x300 | TL200x350 | TL250x400

| Item no. | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] |
|------------------|--------|--------|--------|--------|---------|--------|--------|
| TL100x250 | 250 | 100 | 70 | 200 | 7 | 78 | 24 |
| TL150x300 | 300 | 150 | 70 | 200 | 7 | 80 | 24 |
| TL200x350 | 350 | 200 | 70 | 200 | 7 | 80 | 24 |
| TL250x400 | 400 | 250 | 70 | 200 | 7 | 69 | 24 |

Continued on the next page →

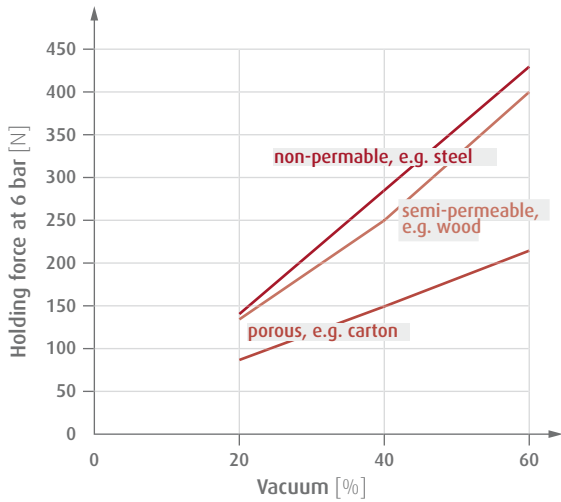


Vacuum gripping systems | Vacuum grippers

Vacuum grippers with reduced leakage

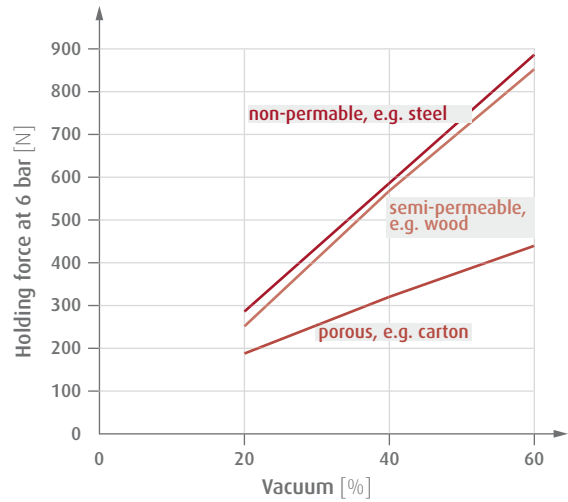
Diagrams

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



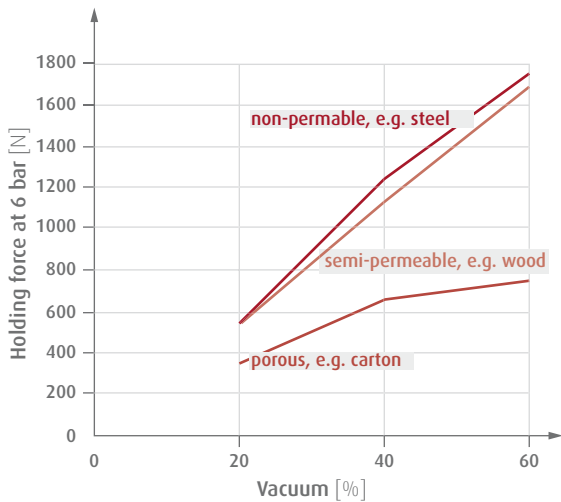
TL100x250

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



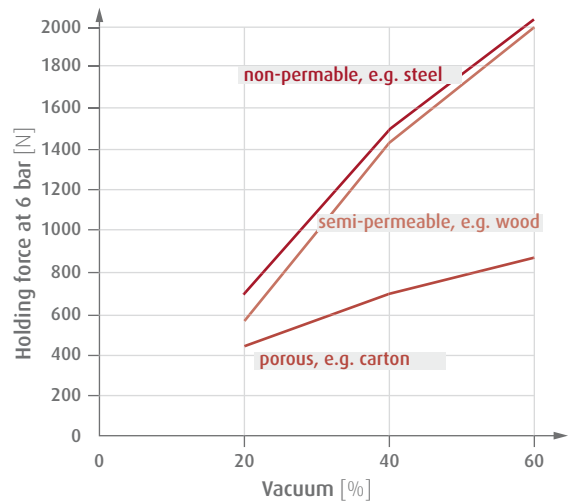
TL150x300

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



TL200x350

> Holding force against vacuum for different materials at 100 % coverage and safety factor 1.5



TL250x400



NEW



Suction plate 67.010



Low-leak suction plates - SPLT

Product Description

- > Combination of 4x4 or 6x6 bellows vacuum cups with 2.5 bellows in oil resistant NBR
- > Suction plate suspended using a spring leveler with internal vacuum channel (25 mm stroke)
- > Off-center vacuum connection possible
- > Reliable suction with variable product geometries

Notes

- > Due to the flow cross-section of 0.4 mm per vacuum cup, these suction plates are not suitable for equipment with very short cycle times

Technical data

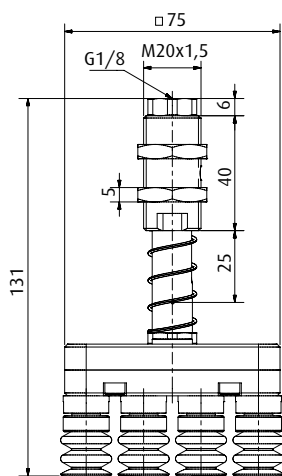
| Item no. | Model | Number of Vacuum cups [] | Lift Spring leveler [mm] | Cup lift [mm] | Gripping force * [N] | Max. leakage ** [Nl/min] | Connection to the machine [] | Vacuum connection | Suitable accessories |
|----------|-------------|--------------------------|--------------------------|---------------|----------------------|--------------------------|------------------------------|-------------------|---|
| 67.010 | SPLT-4x4-25 | 16 | 25 | 9.5 | 190 | 24 | M20x1,5-male | G1/8-female | Spare cup 20.018.125.1 (p.301) Wrench socket for cup assembly 90.008 |
| 67.011 | SPLT-6x6-25 | 36 | 25 | 9.5 | 426 | 54 | M30x1,5-male | G3/8-female | Spare cup 20.018.125.1 (p.301) Wrench socket for cup assembly 90.008 |

* = theoretical value at 60 % vacuum and a dry, smooth product surface. Figure excludes safety factor ** = at 60 % vacuum

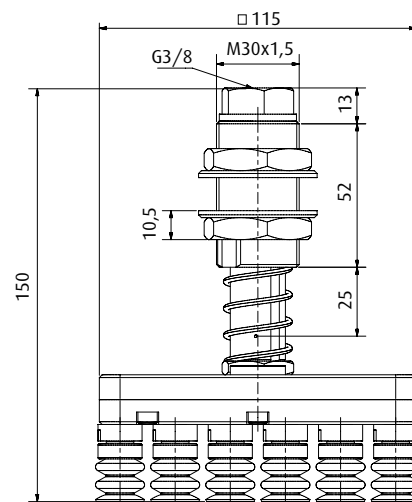
Application:

- > Handling of variable product geometries or products with recesses that prevent all vacuum cups from making contact with the product surface (e.g. metal sheet in laser cutting systems)
- > Integrated flow resistors reduce leakage and maintain an adequate vacuum level for the remaining vacuum cups covered by product, thus preventing products from being dropped

Dimensions



67.010



67.011



Bag grippers

Bag grippers

Handling of non-rigid goods



MAXIMUM DURABILITY, MINIMUM MAINTENANCE

View of the suction chamber

Product Description

- > Handling of limp, non-rigid objects such as bags, shrink-wraps or any product that fully covers the suction chamber
- > On board vacuum generation via high performance ejectors for optimum suction power
- > Dust-resistant design
- > Sealing foam with optimum adjustment to product surface - easy to replace
- > Optional side channel blower for handling very porous goods

Notes

On request:

- > Splitting of suction chamber for multi-zone picking and release or product adjustment
- > Depth of the suction chamber can be adjusted for optimum handling of specific products (standard 40 mm)

Ordering notes

Ordering example vacuum generation

- > TG150x300: integrated via ejectors
- > TG150x300-OV: designed for external vacuum generation e.g. via side channel blower or pump

Technical data

| Item no. | Air consumption at 6 bar [NI/min] | Suction power against atmosphere [NI/min] | Max. gripping force at 60 % vacuum (-600 mbar) safety factor 1.5 | | | Weight [kg] | Suitable sealing foam |
|-----------|-----------------------------------|---|--|--------------------------------------|---|-------------|-----------------------|
| | | | Dense products (e.g. steel) [N] | Semi-porous products (e.g. wood) [N] | Porous products (e.g. carton boxes) [N] | | |
| TG100x250 | 105 | 198 | 280 | 170 | 70 | 1.5 | PPF100x250 |
| TG150x300 | 210 | 396 | 500 | 300 | 125 | 2.5 | PPF150x300 |
| TG200x350 | 210 | 396 | 770 | 470 | 190 | 3.5 | PPF200x350 |
| TG250x400 | 210 | 396 | 1,100 | 670 | 270 | 4.7 | PPF250x400 |
| TG300x500 | 210 | 396 | 1,670 | 1,000 | 400 | 6.7 | PPF300x500 |
| TG400x600 | 210 | 396 | 2,670 | 1,600 | 625 | 14.7 | PPF400x600 |

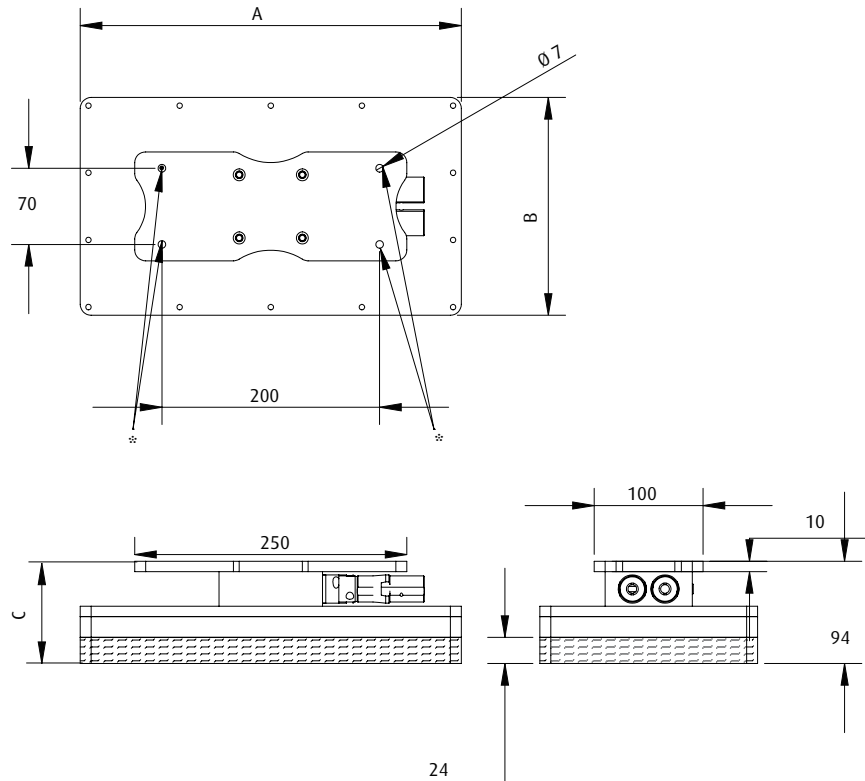
Sealing foam



Easy replacement of sealing foam



Dimensions



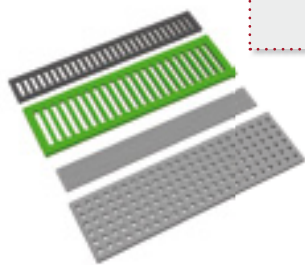
* = Fixing holes for connection to gripper system

| Item no. | A [mm] | B [mm] | C [mm] |
|-----------|--------|--------|--------|
| TG100x250 | 100 | 250 | 62 |
| TG150x300 | 150 | 300 | 62 |
| TG200x350 | 200 | 350 | 62 |
| TG250x400 | 250 | 400 | 93 |
| TG300x500 | 300 | 500 | 93 |
| TG400x600 | 400 | 600 | 93 |



Sealing foam for vacuum grippers

Suitable for all vacuum grippers



**EASY INSTALLATION - FAST,
RESIDUE-FREE REPLACEMENT!**



Easy replacement of the sealing foam without tools

Product Description

- > Firm grip on the gripper bottom
- > Quick, residue-free replacement without pre-handling or tools
- > Different foams for a broad range of applications

Notes

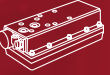
- > For information on the relevant hole patterns, see the chapter on vacuum grippers

Ordering notes

- > Custom sizes and hole patterns available, quick and easy to implement
- > The indicated item no. pertain to the universal sealing foam type

Technical data

| Item no. | Suction area [mm] | Thickness [mm] | Material |
|-------------------|-------------------|----------------|----------|
| PPF120.230-P20 | 120x230 | 24 | EPDM |
| PPF120.230-P40 | 120x230 | 24 | EPDM |
| PPF120.400-P20 | 120x400 | 24 | EPDM |
| PPF120.400-P40 | 120x400 | 24 | EPDM |
| PPF200.400-P20 | 200x400 | 24 | EPDM |
| PPF200.400-P40 | 200x400 | 24 | EPDM |
| PPF160.600-P20 | 160x600 | 24 | EPDM |
| PPF160.600-P40 | 160x600 | 24 | EPDM |
| PPF-TL-100x250x12 | 100x250 | 12 | EPDM |
| PPF-TL-150x300x12 | 150x300 | 12 | EPDM |
| PPF-TL-200x350x12 | 200x350 | 12 | EPDM |
| PPF-TL-250x400x12 | 250x400 | 12 | EPDM |
| PPF-TL-100x250x24 | 100x250 | 24 | EPDM |
| PPF-TL-150x300x24 | 150x300 | 24 | EPDM |
| PPF-TL-200x350x24 | 200x350 | 24 | EPDM |
| PPF-TL-250x400x24 | 250x400 | 24 | EPDM |
| PPF-600x400-20 | 600x400 | 24 | EPDM |
| PPF-600x400-28 | 600x400 | 24 | EPDM |
| PPF-600x400-40 | 600x400 | 24 | EPDM |
| PPF-1300x260-20 | 1,300x260 | 24 | EPDM |
| PPF-1300x260-28 | 1,300x260 | 24 | EPDM |
| PPF-1300x260-40 | 1,300x260 | 24 | EPDM |
| PPF-1300x500-20 | 1,300x500 | 24 | EPDM |
| PPF-1300x500-28 | 1,300x500 | 24 | EPDM |
| PPF-1300x500-40 | 1,300x500 | 24 | EPDM |



Available sealing foam and their properties

| Suction mat type | Material | Properties | Example applications |
|-------------------|----------------|--|--|
| Universal | EPDM | <ul style="list-style-type: none"> > Very soft structure > Very short reset time | <ul style="list-style-type: none"> > Porous workpieces such as cardboard boxes or untreated wooden palletes > Dense workpieces such as coated wooden boards > Suitable for short cycle times |
| Valve foam | EPDM | <ul style="list-style-type: none"> > Very soft structure > Very short reset time | <ul style="list-style-type: none"> > Handling of open glass jars (in combination with foam gripper TL) > Suitable for short cycle times |
| NR green | Natural rubber | <ul style="list-style-type: none"> > More rigid structure > Cut-resistant > Short reset time | <ul style="list-style-type: none"> > Building material, ceramics > Untreated wooden palletes > Wet palletes > Sharp-edged or abrasive products |

On request, the preparation of composite sealing foams is possible to combine, for example, short reset times and cut-resistance.



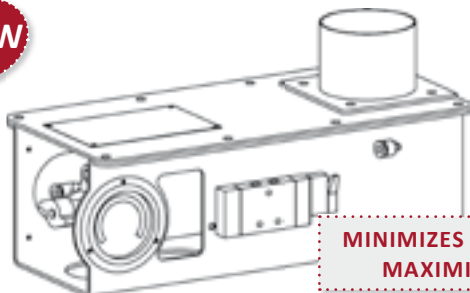
Vacuum gripping systems | Accessories

Pick-up and release system

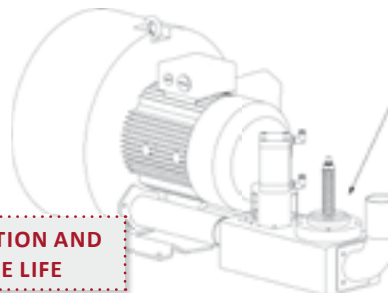
Pick-up and release system

For vacuum grippers from size 400x600 and external vacuum supply with side channel blower

NEW



Pick-up Box 36.900



Blower box 36.901 (shown with side channel blower)

**MINIMIZES ENERGY CONSUMPTION AND
MAXIMIZES SYSTEM SERVICE LIFE**

Product Description

- > Combination of gripper box mounted on vacuum gripper and blower box
- > One pneumatically powered cylinder each ensures a high value for the rated flow and proactive vacuum control
- > This enables short gripping times and minimises blower power consumption
- > In addition to reducing power consumption, automatic venting after release also ensures long service life as blower is not continuously exposed to vacuum

Notes

- > The number of pick-up boxes depends on the gripping system used

Ordering notes

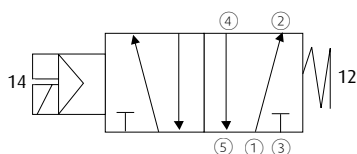
Included in scope of delivery:

- > 1 x aluminium housing, 5/2-way solenoid valve, pneumatically powered cylinder
- > Control cable with plug, 24 VDC, 1.28 W, IP65, 2-pin, 5m length, open end

Technical data

| Item no. | Feed pressure [bar] | Tubing diameter vacuum connection [mm] | Operating temperature [°C] |
|----------|---------------------|--|----------------------------|
| 36.900 | 3 - 8 | 60 | -5 - 50 |
| 36.901 | 3 - 8 | 60 | -5 - 50 |

Schematic of 5/2-way solenoid valve for pneumatic cylinder control



Assignment

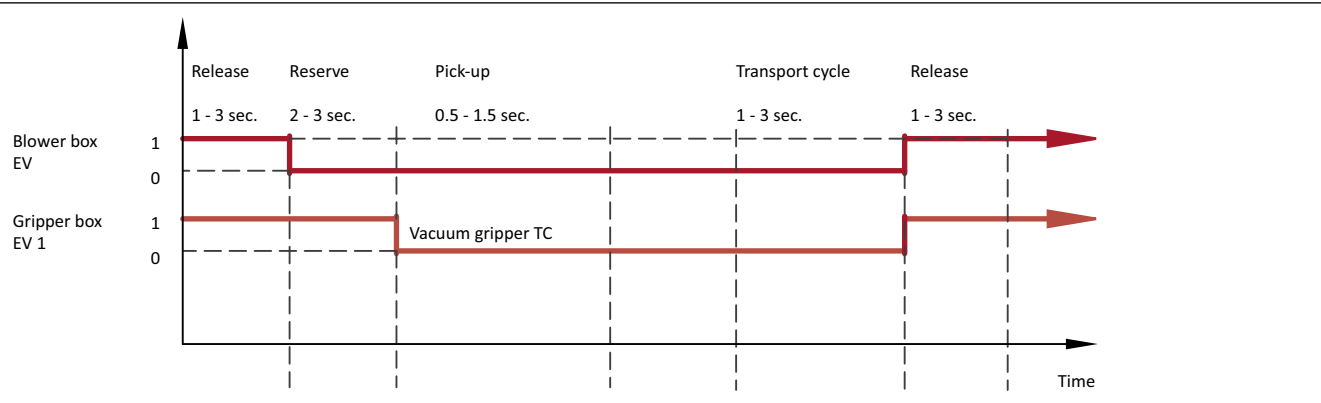
- ① Compressed air inlet
- ② Working connection (Cylinder open)
- ④ Working connection (Cylinder closed)
- ③, ⑤ Ventilation



Diagram of pick-up and release system



Example diagram of pick-up and release system for vacuum gripper with two TC gripper heads



Process description

Vacuum build-up:

> The gripper/vacuum tubing connection is interrupted. The required vacuum is built up in the tubing during approach of gripper to workpiece.

Pick-up:

> The gripper/vacuum tubing connection is made
 > The vacuum becomes operational on the gripper. This significantly reduces gripping time.

Transport cycle:

> The workpiece is securely moved by the gripper to its destination

Release:

> The gripper is connected to atmospheric pressure, thus the workpiece is quickly released
 > The blower is vented with atmospheric air, which reduces power consumption and significantly increases service life as the blower is not continuously exposed to vacuum



Connection elements gripper - robot

Application specific interface to the robot

NEW



Product Description

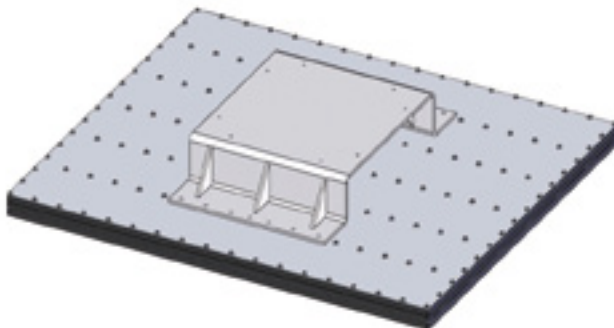
- > Example A: Installation of grippers on robots without removal of the plate
- > Example B: For vertical movements between robot and gripper
- > Example C: For 3-axis movements between robot and gripper
- > Example D: For connection of multiple or longer gripper systems, 3-axis movement

Ordering notes

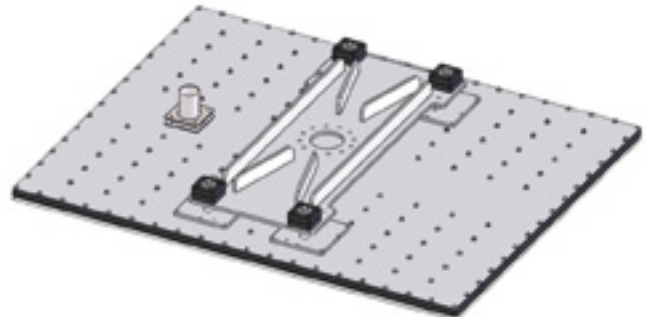
- > Layout dependent on gripper system and robots used
- > We will be happy to customize the interfaces for your application

Examples of application

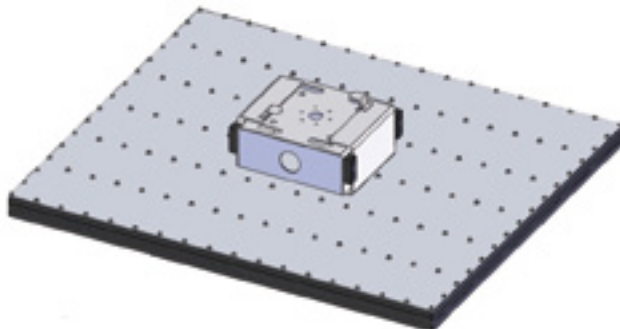
> Example A: Robot/gripper interface, raised



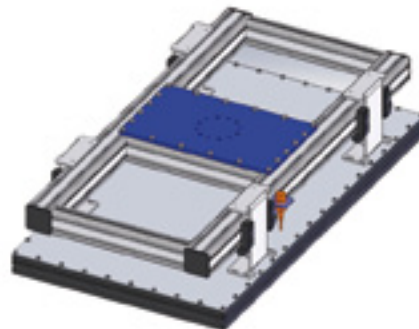
> Example B: Robot/gripper interface, type 1



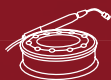
> Example C: Robot/gripper interface, type 2



> Example D: Robot/gripper interface, type 3



| | |
|-----------------------------|-----|
| Special grippers | 496 |
| Bernoulli vacuum cups | 498 |
| Vacuum tweezers | 502 |
| Magnetic grippers | 503 |
| Customised grippers | 506 |
| Gripper components | 509 |



FIPA Special grippers - Standard



Bernoulli vacuum cups - SX-B and SX-B-PK

- > Non-contact, deformation-resistant transport of thin and sensitive products
- > No ejector, requires compressed air only
- > Suitable for porous products thanks to high volume flow
- > Series for direct contact with food (approval in accordance with FDA/EC1935/2004)

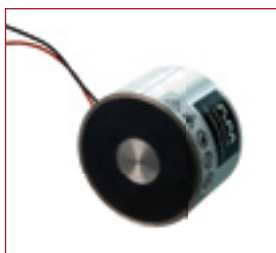
> See page 498



Vacuum tweezers

- > Compressed air or vacuum operated pick-up tool for the assembly of small parts
- > Delivery includes set of miniature vacuum cups

> See page 502



Magnetic grippers

- > Secure handling of sheet metal and ferromagnetic workpieces with and without recesses
- MG series**
- > Combination of electronic and permanent magnet
 - > High cycle times for thin and/or alloyed metal sheets thanks to negligible residual magnetism after switching off the magnetic force
 - > Holding force up to 700 N
 - > No piping required
 - > Very energy-efficient, as a short electrical pulse is only required for product release

> See page 503



PMG series

- > Pneumatic dual-action with permanent magnet
- > Holding force up to 400 N
- > Extremely wear-resistant, quick-change friction rings made from low-marking NBR (hardness 70° Shore) prevent scratching as a result of contact between the workpiece and grippers
- > Part control by monitoring piston position

> See page 504



FIPA Special grippers - Customised



Insert grippers

- > Gripper tools for insert components such as threaded bushes
- > Gripper shape can be matched exactly to the component to be gripped
- > Flexible control systems available, e.g. with pneumatic dual-action or vacuum-operated
- > Simple integration into the overall system using gripper components such as spring levelers or clamping elements

> See page 506



Modular gripper

- > Development of individual gripper tools according to customer demands
- > Constructed using a polyamide-based, high-performance plastic
- > Short cycle times thanks to a lightweight design and a gripper that can be adapted precisely to fit the component shape
- > Minimal set-up times thanks to integrated robot-gripper interface
- > Minimal cycle times thanks to integrated vacuum generation
- > Fewer tubing due to integrated media channels (pressure/vacuum)
- > Combi-grippers available, e.g. pneumatic finger gripper with vacuum cups or vacuum grippers
- > FDA-approved materials for direct contact with foodstuffs
- > Cost-effective production, starting with a batch size of one unit

> See page 508

Modular grippers are individually customised according to customer demands:
Our technical sales department will be happy to advise you via e-mail (info@fipa.com) or phone on +49 (0) 89/96 24 89-0

FIPA Components for gripper assembly



FIPA gripper component range

- > Selection includes extrusion systems, clamping elements, vacuum and finger grippers, parallel, angular and needle grippers
- > FIPA supplies individual components as well as complete gripper systems
- > Typical applications include extraction of plastic parts from injection molding machines or handling of textiles

> See page 509





Special grippers | Standard

Bernoulli vacuum cups SX-B

Bernoulli vacuum cups SX-B

Low-contact and gentle product transport



Housing made of anodised aluminium



Product Description

- > Integrated vacuum generation on the Bernoulli principle
- > Non-contact, deformation-resistant transport of thin and sensitive products
- > High holding force: Bernoulli vacuum cups can grip up to 600 g of mass
- > Suitable for porous products thanks to high volume flow at low vacuum level
- > Easy to install, system flexibly expandable through lateral compressed air inlets
- > Long life cycle due to maintenance-free operation

Notes

- > Only run with unoled, dry compressed air

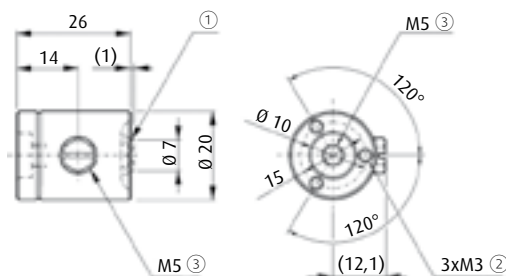
Ordering notes

- > With 65.530 and 65.540, the pads can be removed for contact-free applications
- > Silicone pads (pads SI) are included in scope of delivery

Technical data

| Item no. | Model | Operating pressure [bar] | Holding force at 5 bar [N] | Air consumption at 5 bar [l/min] | Ambient air temperature [°C] | Weight [g] | Suitable accessories |
|----------|---------|--------------------------|----------------------------|----------------------------------|------------------------------|------------|-----------------------------------|
| 65.510 | SX-B-20 | 1 - 7 | 0.9 | 100 | 5 - 60 | 50 | Pads NBR 78.509 Pads SI 78.510 |
| 65.520 | SX-B-30 | 1 - 7 | 1.3 | 100 | 5 - 60 | 70 | Pads NBR 78.509 Pads SI 78.510 |
| 65.530 | SX-B-40 | 1 - 7 | 2 | 110 | 5 - 60 | 120 | Pads NBR 78.511 Pads SI 78.512 |
| 65.540 | SX-B-60 | 1 - 7 | 6 | 210 | 5 - 60 | 260 | Pads NBR 78.511 Pads SI 78.512 |

Dimensions

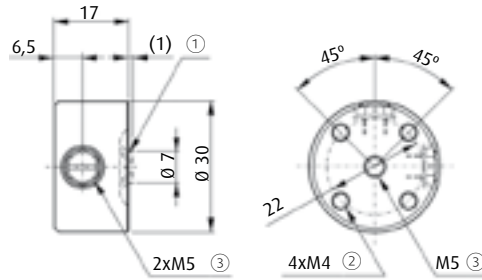


65.510

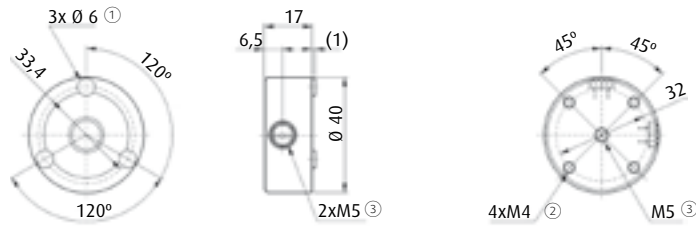
① = Pads ② = Depth 5 mm ③ = Compressed air connection



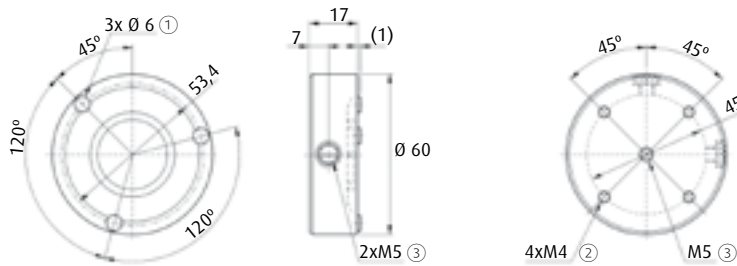
Dimensions



65.520



65.530

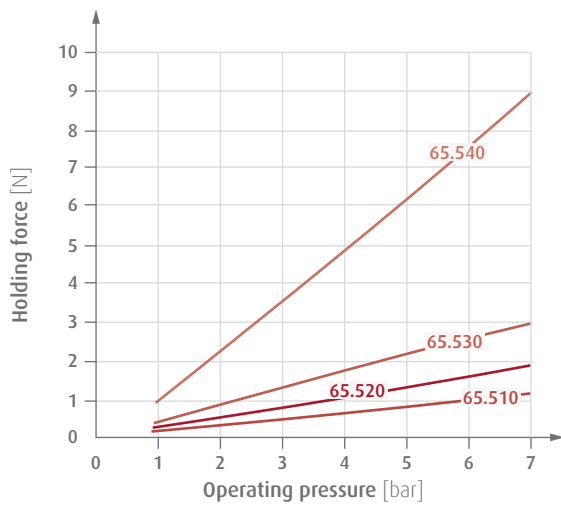


65.540

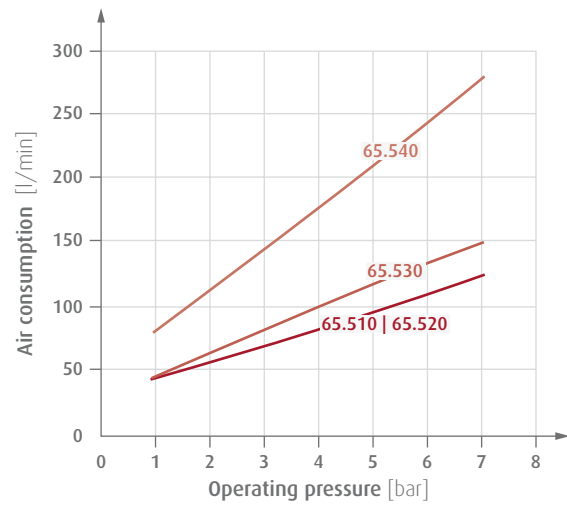
① = Pads ② = Depth 5 mm ③ = Compressed air connection

Diagrams

> Holding force as a function of operating pressure



> Air consumption as a function of operating pressure





Special grippers | Standard

Bernoulli vacuum cups SX-B-PK

Bernoulli vacuum cups SX-B-PK

Non-contact vacuum suction grippers for direct food contact



SUITABLE FOR FOODSTUFFS

Housing made of FDA-approved plastic

Product Description

- > Integrated vacuum generation on the Bernoulli principle
- > No ejector, requires compressed air only
- > Non-contact, deformation-resistant transport of thin and sensitive products
- > Suitable for direct contact with food products (Approval by FDA/EC1935/2004)
- > High holding force: Bernoulli vacuum cups can grip up to 1,200 g of mass
- > Suitable for porous products thanks to high volume flow at low vacuum level
- > Easy to install, system flexibly expandable through lateral compressed air inlets
- > Long life cycle due to maintenance-free operation

Notes

- > Only be operated with oil-free, dry compressed air

Technical data

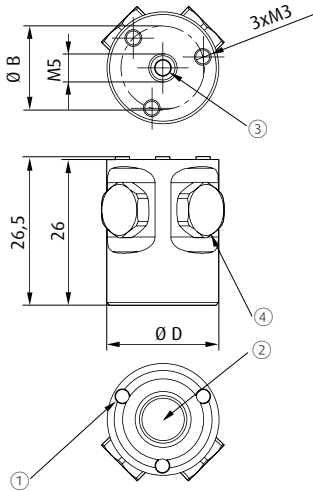
| Item no. | Model | Operating pressure [bar] | Holding force at 5 bar [N] | Air consumption at 5 bar [Nl/min] | Max. Particle size [µm] | Medium | Ambient air temperature [°C] | Weight [g] | Suitable silicone pads |
|-----------|------------|--------------------------|----------------------------|-----------------------------------|-------------------------|----------------|------------------------------|------------|------------------------|
| 65.510-PK | SX-B-PK-20 | 1 - 7 | 2.5 | 150 | 40 | Compressed air | 5 - 60 | 10 | 78.510 |
| 65.520-PK | SX-B-PK-30 | 1 - 7 | 3 | 150 | 40 | Compressed air | 5 - 60 | 20 | 78.510 |
| 65.530-PK | SX-B-PK-40 | 1 - 7 | 5.5 | 150 | 40 | Compressed air | 5 - 60 | 30 | 78.512 |
| 65.540-PK | SX-B-PK-60 | 1 - 7 | 12 | 220 | 40 | Compressed air | 5 - 60 | 70 | 78.512 |

Technical specifications

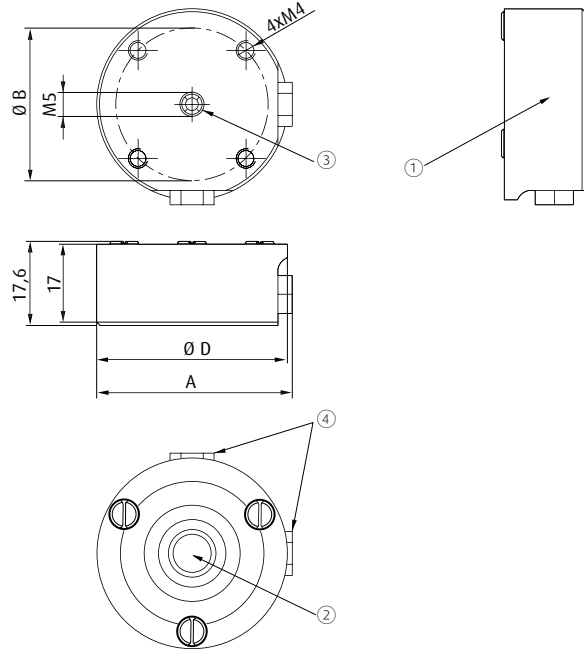
- > Highly resistant against diverse chemicals used in the food industry
- > Suitable for all conventional CIP (Cleaning-In-Place) and SIP (Sterilisation-In-Place) processes
- > Hygienic product design enables quick and easy cleaning
- > Materials:
 - Housing: Polyetheretherketone
 - Pad: Silicone caoutchouc
 - Nozzle: Stainless steel
 - Seals: Fluorocaoutchouc
 - Blanking screw: Polyetheretherketone



Dimensions



65.510-PK



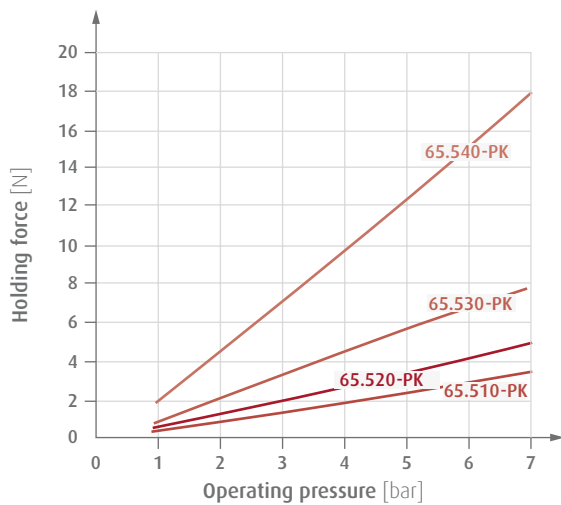
65.520-PK | 65.530-PK | 65.540-PK

① = Silicone rubber pads ② = Nozzle ③ = Compressed air connection ④ = Alternative pneumatic connection

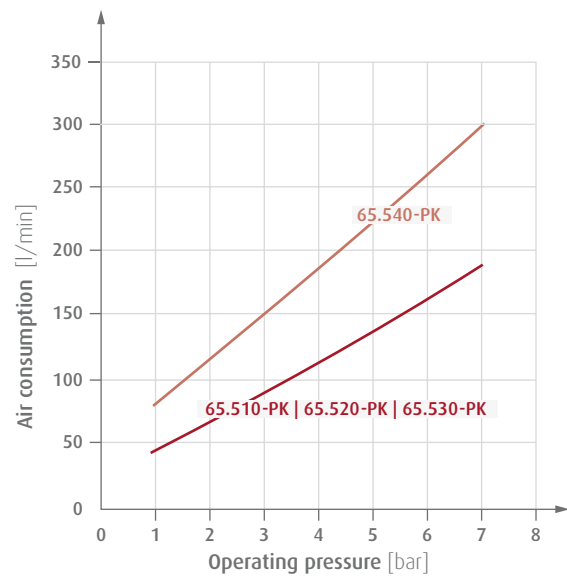
| Item no. | A [mm] | Ø B [mm] | Ø D [mm] |
|-----------|--------|----------|----------|
| 65.510-PK | -- | 15 | 20 |
| 65.520-PK | 31 | 22 | 30 |
| 65.530-PK | 41 | 32 | 40 |
| 65.540-PK | 61 | 45 | 60 |

Diagrams

> Holding force as a function of operating pressure



> Air consumption as a function of operating pressure





Special grippers | Standard

Vacuum tweezers

Vacuum tweezers

Assembly of small parts



Product Description

- > **VTA-Set:**
Vacuum tweezers with built-in ejector, without valve and with air vent. To pick up the object, close the air vent with the fingertip and release to place the object.
- > **VTB-Set:**
Vacuum tweezers with built-in ejector, compressed air valve and built-in silencer - hence, very low-noise. The built-in compressed air valve is used to switch on the vacuum only when needed.
- > **VTA-Set-1:**
Vacuum tweezers without ejector and with air vent. To pick up the object, close the air vent with the fingertip and release to place the object.

Ordering notes

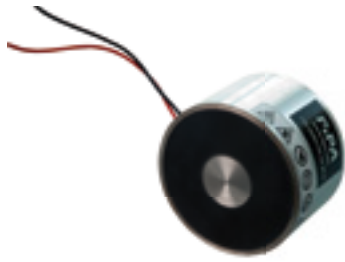
- The set contains:
- > Vacuum squeezers, spiral tubing, one each per vacuum cup (Silicone) Ø 2, 4, 6 and 8 mm
 - > Adapter curved for vacuum cup Ø 2 and 4 mm
 - > Adapter curved for vacuum cup Ø 6 and 8 mm

Technical data

| Item no. | Operating principle | Operating pressure [bar] | Nominal supply pressure [bar] | Final vacuum [%] | Operating temperature [°C] | Weight [g] | Suitable accessories |
|------------------|------------------------------|--------------------------|-------------------------------|------------------|----------------------------|------------|--|
| VTA-Set | Operated with compressed air | 1.5 - 7 | 5 | 90 | 0 - 60 | 22 | Adapter straight for vacuum cups Ø 2, 4 mm VPZ-2-S Adapter straight for vacuum cups Ø 6, 8 mm VPZ-6-S Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Holder EIL.05-HO (p.524) |
| VTB-Set | Operated with compressed air | 1.5 - 7 | 5 | 90 | 0 - 60 | 16 | Adapter for vacuum cups - bended Ø 2, 4 mm VPZ-2 Adapter for vacuum cups - bended Ø 6, 8 mm VPZ-6 Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Holder EIL.05-HO (p.524) |
| VTA-Set-1 | Vacuum-operated | 0 - 1 | 5 | 90 | 0 - 60 | 22 | Adapter for vacuum cups - bended Ø 2, 4 mm VPZ-2 Adapter for vacuum cups - bended Ø 6, 8 mm VPZ-6 Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Holder EIL.05-HO (p.524) |



Magnetic grippers - electrical controlled
Secure handling by permanent magnets



Product Description

- > Safe handling of sheet metal or ferromagnetic workpieces with or without recesses
- > Very high holding force thanks to high-performance electromagnet / permanent magnet
- > Short cycle times for thin and/or alloyed metal sheets thanks to negligible residual magnetism after switching off the magnetic force
- > No piping required
- > Very energy-efficient as a short electrical pulse is only required for product release
- > Robust design

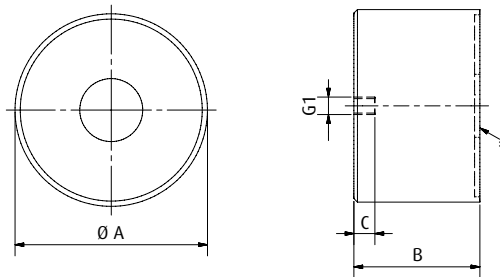
Notes

- > Indicated holding forces are valid direct placement, without air gap, on the flat holding surface

Technical data

| Item no. | Principle of operation | Rated power [W] | Gripping force [N] | Residual gripping force [N] | Operating voltage of the switch-off coil [V] | Power-on time [ED] | Protection class | Max. operating temperature [°C] | Weight [g] | Suitable holder |
|----------|------------------------|-----------------|--------------------|-----------------------------|--|---------------------|------------------|---------------------------------|------------|-----------------|
| MG35 | Electrical | 4.6 | 160 | < 1 | 24 | 25 % ED at < 2 min. | IP65 | 0 - 70 | 200 | 270.448 |
| MG55 | Electrical | 9 | 420 | < 1 | 24 | 25 % ED at < 2 min. | IP65 | 0 - 70 | 500 | 270.449 |
| MG70 | Electrical | 13.3 | 720 | < 1 | 24 | 25 % ED at < 2 min. | IP65 | 0 - 70 | 900 | 270.450 |

Dimensions



* = Holding surface

| Item no. | G1 | Ø A [mm] | B [mm] | C [mm] |
|----------|----|----------|--------|--------|
| MG35 | M4 | 35 | 30 | 5 |
| MG55 | M5 | 55 | 36 | 6 |
| MG70 | M8 | 70 | 45 | 8 |



Special grippers | Standard

Magnetic grippers - pneumatically controlled

Magnetic grippers - pneumatically controlled

Safe handling by permanent magnets



Fast replacement NBR sealing rings (70° Shore A hardness)

Product Description

- > Safe handling of sheet metal or ferromagnetic workpieces with or without recesses
- > Very high holding force thanks to powerful permanent magnets
- > Robust and compact aluminium body, anodised, red
- > Very wear-resistant and fast replacement NBR sealing rings (70° Shore A hardness) to avoid scratches due to contact between gripper and workpiece
- > Optional magnetic PNP and NPN sensors from model PMG40 for part control by monitoring the piston position

Notes

- > The recommended working load includes safety factor of 3

Ordering notes

- > Sealing ring included in scope of delivery

Technical data

| Item no. | Principle of operation | Pressure range [bar] | Gripping force [N] | Recommended workload [N] | Air consumption [l/stroke] | Min. recommended sheet thickness [mm] | Protection class | Operating temperature [°C] | Weight [g] | Suitable accessories |
|----------|------------------------|----------------------|--------------------|--------------------------|----------------------------|---------------------------------------|------------------|----------------------------|------------|--|
| PMG24 | Double | 4 - 6 | 40 | 13 | 0.013 | 0.5 | IP67 | 0 - 70 | 100 | Sealing ring PMG24-NBR |
| PMG40 | Double | 4 - 6 | 170 | 57 | 0.04 | 0.5 | IP67 | 0 - 70 | 200 | Sensor GR04.199 Sensor GR04.199/NPN Sealing ring PMG40-NBR |
| PMG70 | Double | 4 - 6 | 400 | 135 | 0.142 | 0.5 | IP67 | 0 - 70 | 800 | Sensor GR04.199 Sensor GR04.199/NPN Sealing ring PMG70-NBR |

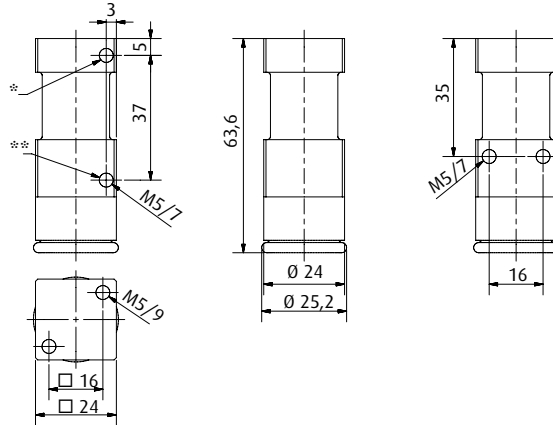
Optional: with magnetic sensor



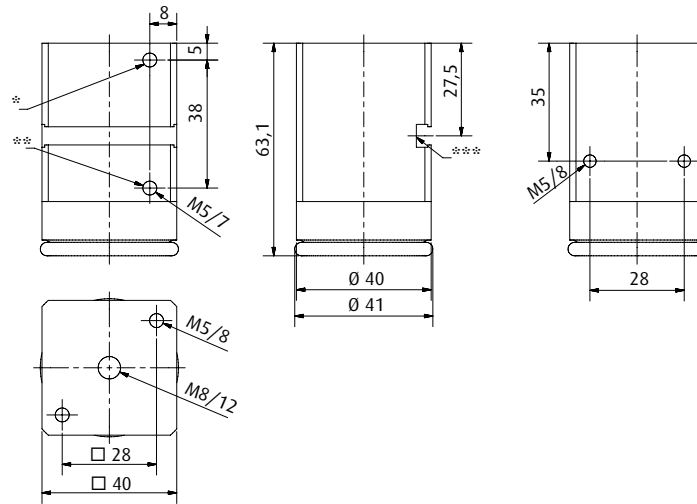
Magnetic gripper PMG70 with PNP sensor GR04.199



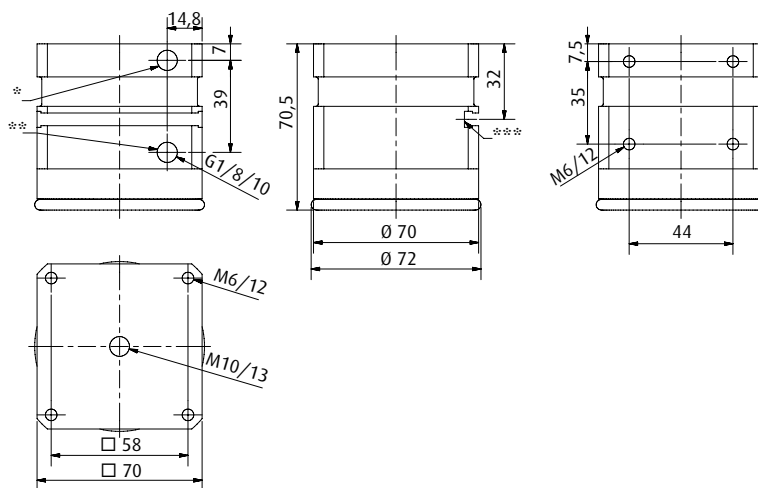
Dimensions



PMG24



PMG40



PMG70

* = Magnetic force "on" ** = Magnetic force "off" *** = Sensor slot



Special grippers | Customised

Insert gripper - compressed-air controlled

Insert gripper - compressed-air controlled

Customised design example



Application example with insert part

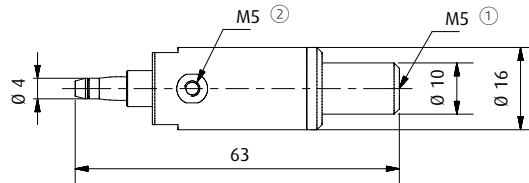
Product Description

- > Inserting (e.g. M5 nuts) threaded bushings thanks to "internal gripping"
- > Precisely tailored to the workpiece
- > Dual-action
- > Connection via \varnothing 10 mm clamp
- > Housing material: brass, other materials on request
- > Weight: 115 g

Ordering notes

- > The product example displayed is based on customer specifications
- > We would be pleased to develop a solution optimally customised to your requirements

Dimensions



① = Compressed air connection for extending the piston ② = Compressed air connection for pulling in the piston



Insert gripper - vacuum controlled

Customised design example



Application example with insert part

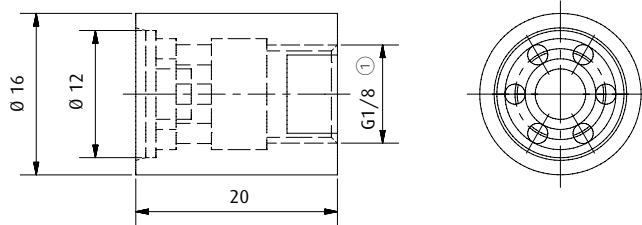
Product Description

- > Handling of customer-specific inserts on the face side
- > Alternative when internal or external gripping is not permitted
- > Gripper diameter precisely adjusted to the workpiece
- > Connection via spring leveler
- > Weight: 85 g
- > Housing material: brass, other materials on request
- > Suitable accessories: spring-loaded suction finger GR04.090A, angle clamp GR02.011A
- > Patent pending

Ordering notes

- > The product example displayed is based on customer specifications
- > We would be pleased to develop a solution optimally customised to your requirements

Dimensions



① = Vacuum connection



Special grippers | Customised

Modular gripper

Modular gripper

Customised design example



SUITABLE FOR FOODSTUFFS



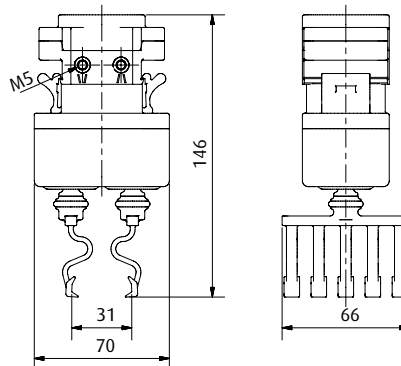
Product Description

- > Handling of food - here: chocolate bars
- > Gripper is precisely tailored to the workpiece
- > Connection to a Delta Robot
- > Dual-action
- > All components with FDA-certification
- > Material: polyamide-based high-performance plastic

Ordering notes

- > The product example displayed is based on customer specifications
- > We would be pleased to develop a solution optimally customised to your requirements

Dimensions



Examples of application

- > Modular gripper for cans - the gripper design follows the contours of the handling good, enables rapid acceleration to enable rapid acceleration



- > Modular gripper with integrated ejector EMM and Varioflex® bellows vacuum cups to compensate unevenness of the workpiece





FIPA components for gripper assembly



Suction fingers or spring levelers



Straight suction fingers



Pivoting suction fingers



Spring-loaded, non rotating suction finger



Adjustable spring levelers



Application example

Extrusions and screw connectors



Extrusion systems / framing S, M and XLine



Angle clamps



Angle connectors



Application example



Application example

Active gripping elements



Grippers



Finger grippers



Application example



Parallel grippers



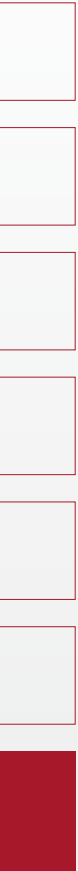
Needle grippers

Our End-of-Arm-Tooling (EOAT) catalogue can be found at:

www.fipa.com | Info & Catalogues
 or requested by e-mail (info@fipa.com)
 or by calling +49 (0)89/96 24 89-0



Notes:

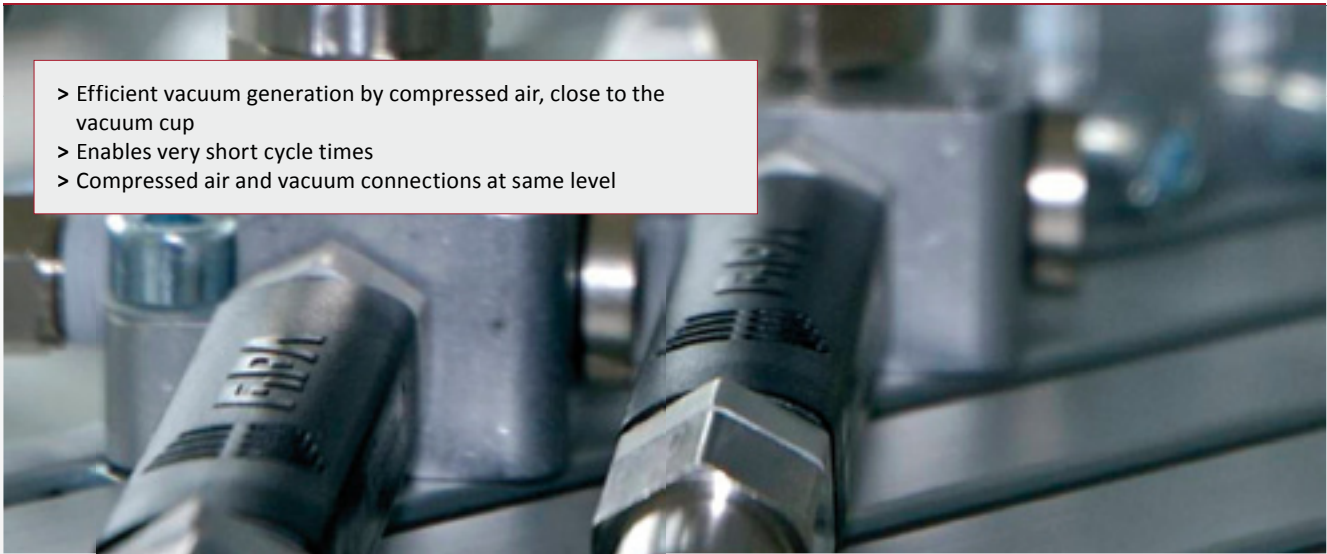


Lined area for notes.

| | |
|--|------------|
| Inline ejectors | 513 |
| Base and Heavy-duty ejectors | 526 |
| Multi-chamber ejectors | 546 |
| Compact ejectors | 555 |
| Feed ejectors | 569 |
| Silencers for vacuum ejectors | 577 |
| Rotary vane vacuum pumps | 580 |
| Vacuum units | 606 |
| Side channel blowers | 614 |
| Accessories | 617 |



FIPA Inline ejectors



- > Efficient vacuum generation by compressed air, close to the vacuum cup
- > Enables very short cycle times
- > Compressed air and vacuum connections at same level



Inline ejectors EIL

- > Handling of dense workpieces (max. vacuum level 85 % / 90 %): Index H
- > Handling of porous workpieces (higher suction power, max. vacuum level 60 % / 68 %): Index L
- > Compressed air-saving operation at only 3.5 bar (max. vacuum level 90 %) for the handling of dense workpieces: Index P

> See page 514



Inline ejectors EIL expandable

- > Very high mechanical strength
- > Application e.g. directly with vacuum suction plates in the wood industry
- > Direct vacuum monitoring through simple connection of vacuum switches
- > Short cycle times thanks to easy connection with a blow-off unit

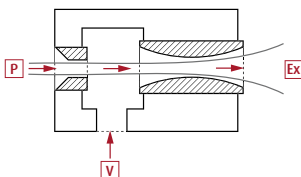
> See page 520

Examples of use

- > Handling of lightweight parts
- > Pick & place applications
- > Separation systems in sheet metal or plastic manufacturing
- > Handling of electrical components

Functional principle

Ejectors work according to the Venturi principle and generate vacuum $\square V$ from compressed air $\square P$. Vacuum is created in the subsequent chamber as a result of the high flow speed after the primary nozzle. "Used" compressed air and suctioned air leave the ejector through the secondary nozzle. Either a silencer or an exhaust air duct can be connected to the outlet $\square Ex$.





Inline ejectors EIL

Compressed air and vacuum connection via quick fittings, lateral exhaust



V = Vacuum connection P = Compressed air connection Ex = Exhaust outlet

Product Description

- > Easy installation close to the vacuum cup
- > High suction power enables short gripping times

Ordering notes

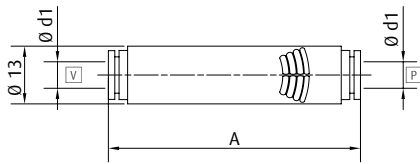
- > Index H: Ejectors for non air permeable products (max. vacuum degree 85 % / 90 %)
- > Index L: Ejectors for air permeable products, resp. in case of higher leakage (increased suction, max. vacuum degree 60 % / 68 %)
- > Index P: Ejectors designed for lower feed pressure (max. vacuum degree 90 %)

Technical data

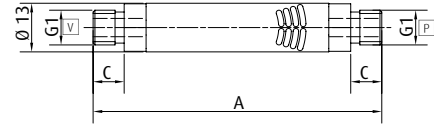
| Item no. | Series | Nozzle diameter [mm] | Optimal feed pressure [bar] | Suction power at 5 bar [N/min] | Air consumption at 5 bar [N/min] | Final vacuum at 5 bar [%] | Evacuation time 0 to 70 % [s/l] | Evacuation time 0 to 45 % [s/l] | Weight [g] | Suitable accessories |
|-----------|--------|----------------------|-----------------------------|--------------------------------|----------------------------------|---------------------------|---------------------------------|---------------------------------|------------|--|
| EIL.05H.1 | 1 | 0.5 | 5 | 8 | 14 | 85 | 13 | -- | 13 | Plug-in filter 71.071 (p.628) |
| EIL.05H.2 | 1 | 0.5 | 5 | 8 | 14 | 85 | 13 | -- | 15 | -- |
| EIL.05H.4 | 2 | 0.5 | 5 | 7 | 11.5 | 90 | 10 | -- | 18.5 | Plug-in filter 71.070 (p.628) Fitting EIL.05-HO (p.524) |
| EIL.05L.1 | 1 | 0.5 | 5 | 14 | 14 | 60 | -- | 4 | 13 | Plug-in filter 71.071 (p.628) |
| EIL.05L.2 | 1 | 0.5 | 5 | 14 | 14 | 60 | -- | 4 | 15 | -- |
| EIL.05L.4 | 2 | 0.5 | 5 | 12 | 11.5 | 68 | -- | 3.2 | 18.5 | Plug-in filter 71.070 (p.628) Fitting EIL.05-HO (p.524) |
| EIL.07H.1 | 1 | 0.7 | 5 | 13 | 28 | 85 | 7.5 | -- | 13 | Plug-in filter 71.071 (p.628) |
| EIL.07H.2 | 1 | 0.7 | 5 | 13 | 28 | 85 | 7.5 | -- | 15 | -- |
| EIL.07H.4 | 2 | 0.7 | 5 | 13 | 23 | 90 | 6 | -- | 20 | Plug-in filter 71.070 (p.628) Fitting EIL.07-HO (p.524) |
| EIL.07L.1 | 1 | 0.7 | 5 | 28 | 28 | 60 | -- | 2 | 13 | Plug-in filter 71.071 (p.628) |
| EIL.07L.2 | 1 | 0.7 | 5 | 28 | 28 | 60 | -- | 2 | 15 | -- |
| EIL.07L.4 | 2 | 0.7 | 5 | 20 | 23 | 68 | -- | 1.6 | 20 | Plug-in filter 71.070 (p.628) Fitting EIL.07-HO (p.524) |
| EIL.07P.4 | 2 | 0.7 | 3.5 | 10 | 17 | 90 | 12 | -- | 20.5 | Plug-in filter 71.070 (p.628) Fitting EIL.07-HO (p.524) |
| EIL.07P.1 | 2 | 0.7 | 3.5 | 10 | 17 | 90 | 12 | -- | 19 | Plug-in filter 71.071 (p.628) Fitting EIL.07-HO (p.524) |



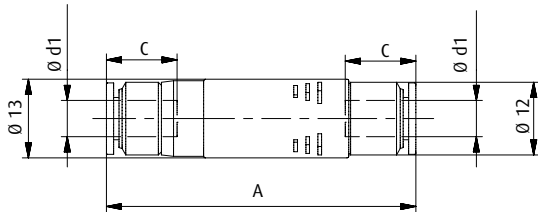
Dimensions



EIL.05H.1 | EIL.05L.1 | EIL.07H.1 | EIL.07L.1



EIL.05H.2 | EIL.05L.2 | EIL.07H.2 | EIL.07L.2



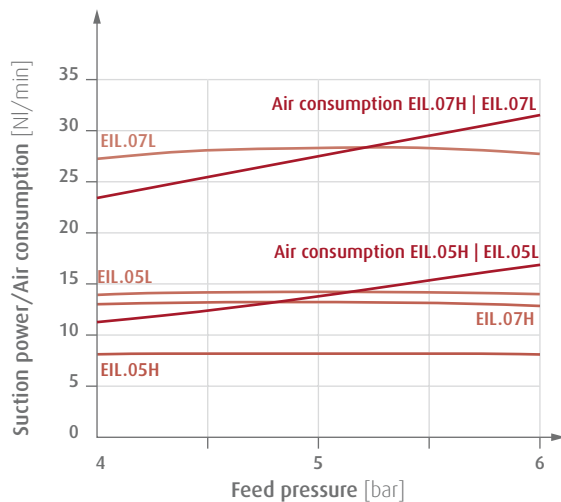
EIL.05H.4 | EIL.05L.4 | EIL.07H.4 | EIL.07L.4 | EIL.07P.4 | EIL.07P.1

V = Vacuum connection P = Compressed air connection

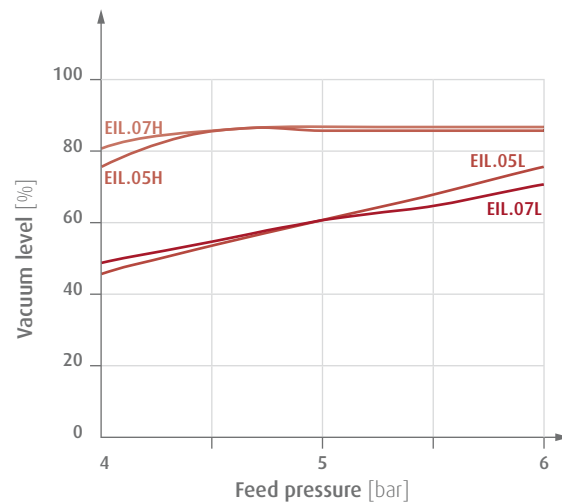
| Item no. | G1 | d1 [mm] | A [mm] | C [mm] |
|-----------|------|---------|--------|--------|
| EIL.05H.1 | -- | 6 | 61 | -- |
| EIL.05H.2 | G1/8 | -- | 78 | 8 |
| EIL.05H.4 | -- | 4 | 49 | 11 |
| EIL.05L.1 | -- | 6 | 61 | -- |
| EIL.05L.2 | G1/8 | -- | 78 | 8 |
| EIL.05L.4 | -- | 4 | 49 | 11 |
| EIL.07H.1 | -- | 6 | 61 | -- |
| EIL.07H.2 | G1/8 | -- | 78 | 8 |
| EIL.07H.4 | -- | 4 | 55.5 | 11 |
| EIL.07L.1 | -- | 6 | 61 | -- |
| EIL.07L.2 | G1/8 | -- | 78 | 8 |
| EIL.07L.4 | -- | 4 | 55.5 | 11 |
| EIL.07P.4 | -- | 4 | 55.5 | 11 |
| EIL.07P.1 | -- | 6 | 57 | 11.5 |

Diagrams

> Series 1: Suction power and air consumption against feed pressure



> Series 1: Vacuum level against feed pressure

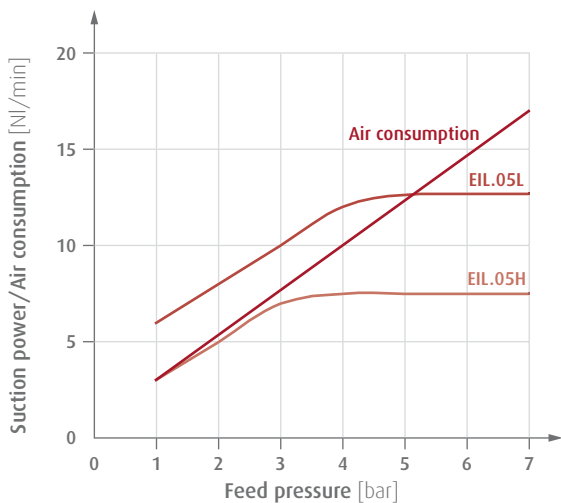


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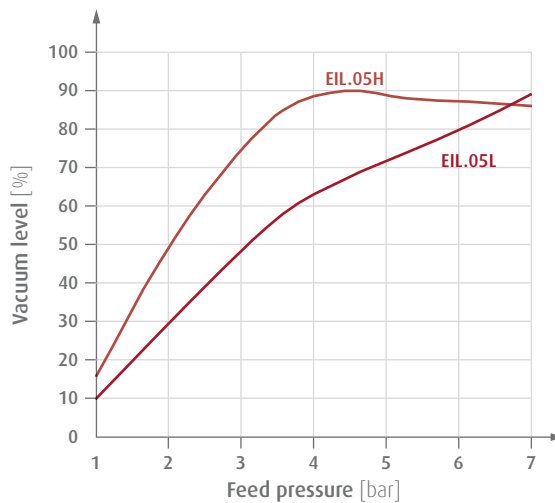


Diagrams

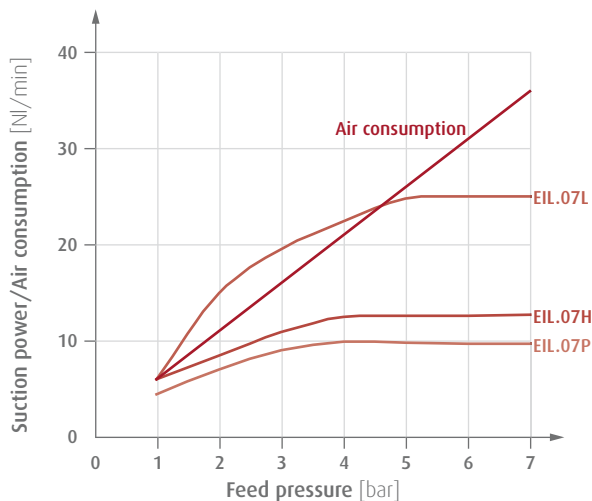
> Series 2: Suction power and air consumption against feed pressure



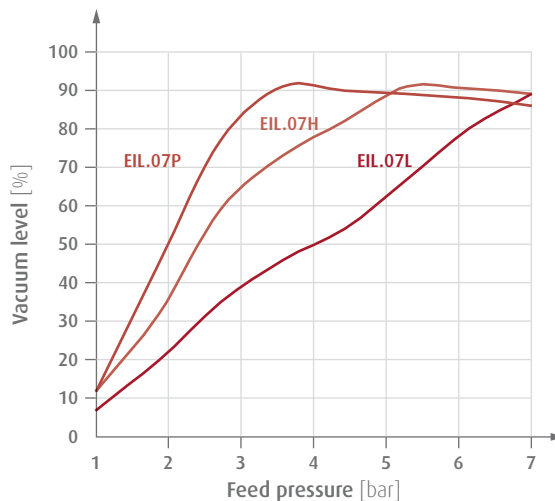
> Series 2: Vacuum level against feed pressure



> Series 2: Suction power and air consumption against feed pressure



> Series 2: Vacuum level against feed pressure



Suction power [NI/min] at vacuum level

| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % |
|-----------|-----|------|------|------|------|------|------|------|------|
| EIL.05H.1 | 8 | 5.3 | 4.2 | 3.9 | 3.3 | 2.5 | 1.3 | 0.4 | 0.1 |
| EIL.05H.2 | 8 | 5.3 | 4.8 | 3.9 | 3.3 | 2.5 | 1.3 | 0.4 | 0.1 |
| EIL.05H.4 | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 |
| EIL.05L.1 | 14 | 11.9 | 9 | 6.8 | 4.3 | 2.2 | 0.1 | -- | -- |
| EIL.05L.2 | 14 | 11.9 | 9 | 6.8 | 4.3 | 2.2 | 0.1 | -- | -- |
| EIL.05L.4 | 12 | 10.2 | 8.3 | 6.5 | 4.7 | 2.9 | 1.1 | -- | -- |
| EIL.07H.1 | 13 | 10.8 | 9.2 | 8.1 | 7 | 5.2 | 4.1 | 2.7 | 1.1 |
| EIL.07H.2 | 13 | 10.8 | 9.2 | 8.1 | 7 | 5.2 | 4.1 | 2.7 | 1.1 |
| EIL.07H.4 | 13 | 11.5 | 10.1 | 8.7 | 7.2 | 5.8 | 4.4 | 3 | 1.5 |
| EIL.07L.1 | 28 | 26 | 22.1 | 17.6 | 10.8 | 5.4 | 1.9 | -- | -- |
| EIL.07L.2 | 28 | 26 | 22.1 | 17.6 | 10.8 | 5.4 | 1.9 | -- | -- |
| EIL.07L.4 | 22 | 18.7 | 15.3 | 12 | 8.6 | 5.3 | 2 | -- | -- |
| EIL.07P.4 | 10 | 8.9 | 7.7 | 6.6 | 5.5 | 4.4 | 3.3 | 2.2 | 1.1 |
| EIL.07P.1 | 10 | 8.9 | 7.7 | 6.6 | 5.5 | 4.4 | 3.3 | 2.2 | 1.1 |



Inline ejectors EIL

Compressed air, vacuum and exhaust via quick fittings, two fixing holes



V = Vacuum connection **P** = Compressed air connection **Ex** = Exhaust outlet

Product Description

- > Easy installation close to the vacuum cup
- > High suction power for short gripping time

Ordering notes

- > Index H: Ejectors for dense products (max. vacuum degree 90 %)
- > Index L: Ejectors for air permeable products, resp. in case of higher leakage (increased suction, max. vacuum degree 68 %)
- > Index P: Ejectors designed for lower feed pressure (max. vacuum degree 90 %)

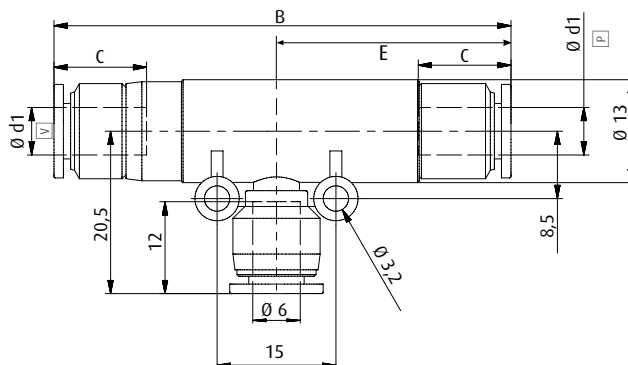
Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum at 5 bar [%] | Suction power at 5 bar [Nl/min] | Air consumption at 5 bar [Nl/min] | Evacuation time 0 to 70 % [s/l] | Evacuation time 0 to 45 % [s/l] | Weight [g] | Suitable accessories |
|--------------------|----------------------|-----------------------------|---------------------------|---------------------------------|-----------------------------------|---------------------------------|---------------------------------|------------|---|
| EIL.05H.1-B | 0.5 | 5 | 90 | 7 | 11.5 | 13 | -- | 19.5 | Fitting EIL.05-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.071 (p.628) |
| EIL.05H.4-B | 0.5 | 5 | 90 | 7 | 11.5 | 13 | -- | 21 | Fitting EIL.05-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.070 (p.628) |
| EIL.07H.1-B | 0.7 | 5 | 90 | 13 | 23 | 7 | -- | 20.5 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.071 (p.628) |
| EIL.07H.4-B | 0.7 | 5 | 90 | 13 | 23 | 7 | -- | 22.5 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.070 (p.628) |
| EIL.05L.1-B | 0.5 | 5 | 68 | 12 | 11.5 | -- | 4 | 19.5 | Fitting EIL.05-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.071 (p.628) |
| EIL.05L.4-B | 0.5 | 5 | 68 | 12 | 11.5 | -- | 4 | 21 | Fitting EIL.05-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.070 (p.628) |
| EIL.07L.1-B | 0.7 | 5 | 68 | 22 | 23 | -- | 1.6 | 20.5 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.071 (p.628) |
| EIL.07L.4-B | 0.7 | 5 | 68 | 20 | 23 | -- | 1.6 | 22 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.070 (p.628) |
| EIL.07P.1-B | 0.7 | 3.5 | 90 | 10 | 17 | 7.5 | -- | 20.5 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.071 (p.628) |
| EIL.07P.4-B | 0.7 | 3.5 | 90 | 10 | 17 | 7.5 | -- | 22 | Fitting EIL.07-HO (p.524) Filter element FEE8.2x2 Plug-in filter 71.070 (p.628) |

Continued on the next page →



Dimensions

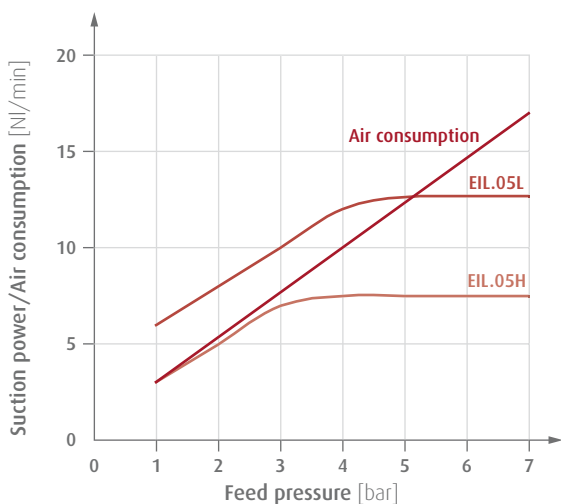


V = Vacuum connection P = Compressed air connection

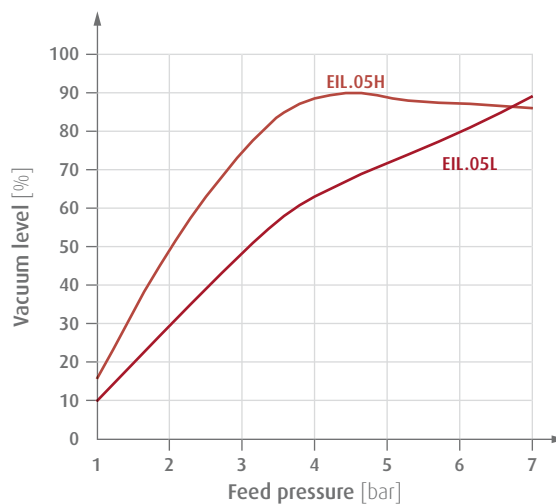
| Item no. | Ø d1 [mm] | B [mm] | C [mm] | E [mm] |
|-------------|-----------|--------|--------|--------|
| EIL.05H.1-B | 6 | 50.5 | 11.5 | 22.5 |
| EIL.05H.4-B | 4 | 49 | 11 | 22 |
| EIL.07H.1-B | 6 | 57 | 11.5 | 26 |
| EIL.07H.4-B | 4 | 55.5 | 11 | 25.5 |
| EIL.05L.1-B | 6 | 50.5 | 11.5 | 22.5 |
| EIL.05L.4-B | 4 | 49 | 11 | 22 |
| EIL.07L.1-B | 6 | 57 | 11.5 | 26 |
| EIL.07L.4-B | 4 | 55.5 | 11 | 25.5 |
| EIL.07P.1-B | 6 | 57 | 11.5 | 26 |
| EIL.07P.4-B | 4 | 55.5 | 11 | 25.5 |

Diagrams

> Suction power and air consumption against feed pressure



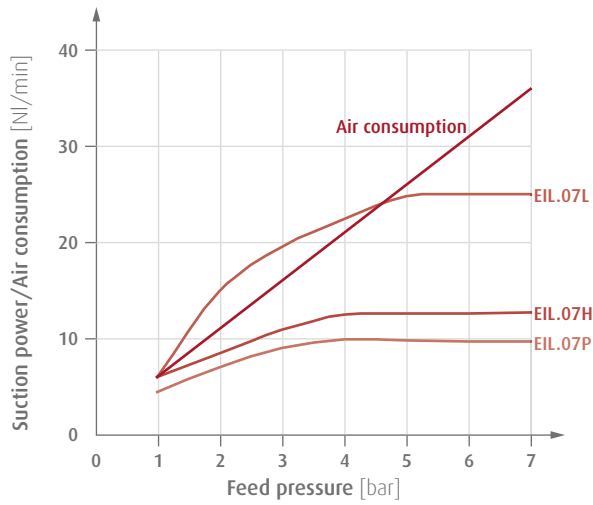
> Vacuum level against feed pressure



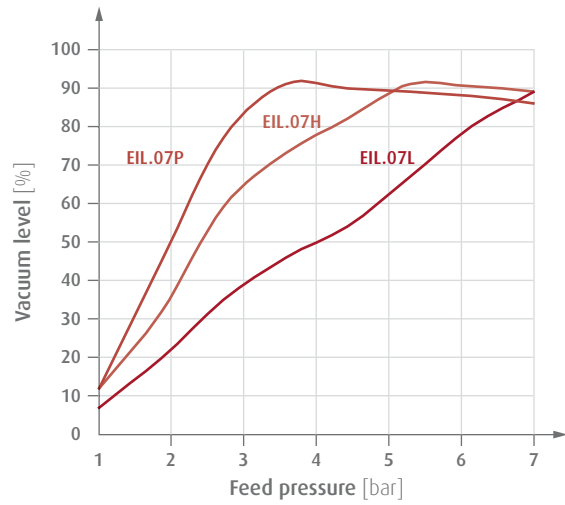


Diagrams

> Suction power and air consumption against feed pressure



> Vacuum level against feed pressure



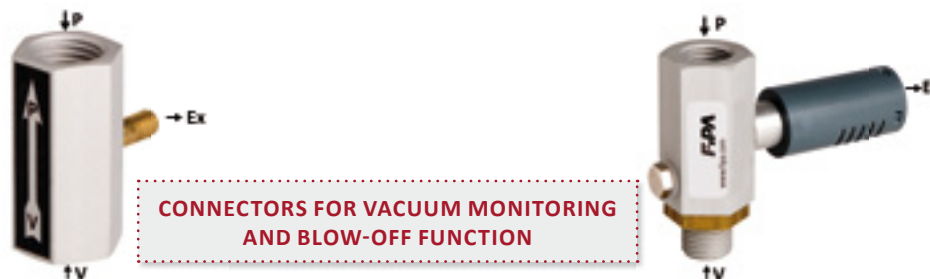
Suction power [Nl/min] at vacuum level

| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|-------------|-----|------|------|------|------|------|------|------|------|------|
| EIL.05H.1-B | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 | -- |
| EIL.05H.4-B | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 | -- |
| EIL.07H.1-B | 13 | 11.5 | 10.1 | 8.7 | 7.2 | 5.8 | 4.4 | 3 | 1.5 | 0.1 |
| EIL.07H.4-B | 13 | 11.5 | 10.1 | 8.7 | 7.2 | 5.8 | 4.4 | 3 | 1.5 | 0.1 |
| EIL.05L.1-B | 12 | 10.2 | 8.3 | 6.5 | 4.7 | 2.9 | 1.1 | -- | -- | -- |
| EIL.05L.4-B | 12 | 10.2 | 8.3 | 6.5 | 4.7 | 2.9 | 1.1 | -- | -- | -- |
| EIL.07L.1-B | 22 | 18.7 | 15.3 | 12 | 8.6 | 5.3 | 2 | -- | -- | -- |
| EIL.07L.4-B | 22 | 18.7 | 15.3 | 12 | 8.6 | 5.3 | 2 | -- | -- | -- |
| EIL.07P.1-B | 10 | 8.9 | 7.7 | 6.6 | 5.5 | 4.4 | 3.3 | 2.2 | 1.1 | -- |
| EIL.07P.4-B | 10 | 8.9 | 7.7 | 6.6 | 5.5 | 4.4 | 3.3 | 2.2 | 1.1 | -- |



Inline ejectors EIL, expandable

Compressed air, vacuum connection and exhaust via G-threads



Series EIL.05 - EIL.09

Series EIL.10 - EIL.14 optionally with silencer

TV = Vacuum connection P = Compressed air connection Ex = Exhaust outlet

Product Description

- > High suction power for short gripping time
- > Easy installation directly on the vacuum cup
- > Compact design for installation where space is limited
- > Robust aluminium body
- > Very short cycle time using optional blow-off function
- > Vacuum switch connection for high process reliability
- > Effective noise reduction through open and closed silencers

Ordering notes

Connection blow-off device

- > Connection via M5-female
- > EIL.05-09: with I18 vacuum connection
- > EIL.10-14: always be connected

Connection of check valve with blow-off device 32.638

- > Connection to the vacuum outlet

Silencers

- > EIL.05-09: Closed diffuser silencer (72.045)
- > EIL.10-14: See item number specification

Vacuum monitoring: Connection to the ejector via M5-female

- > EIL.05-09: Vacuum switch connection possible with I18 vacuum connection
- > EIL.10-14: Vacuum switch can always be connected via M5-female

Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power at 5 bar [N/min] | Air consumption at 5 bar [N/min] | Operating temperature [°C] | Weight [g] | Suitable accessories |
|---------------|----------------------|-----------------------------|------------------|--------------------------------|----------------------------------|----------------------------|------------|--|
| EIL.05 | 0.5 | 5 | 87 | 7 | 12 | -10 - 80 | 20 | Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.045 (p.578) |
| EIL.07 | 0.7 | 5 | 90 | 14 | 21 | -10 - 80 | 20 | Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.045 (p.578) |
| EIL.09 | 0.9 | 5 | 90 | 21 | 36 | -10 - 80 | 20 | Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.045 (p.578) |
| EIL.10 | 1 | 5 | 90 | 27 | 44 | -10 - 80 | 50 | Check valve 32.638 (p.674), Blow-off device 32.660 (p.525), Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.000 (p.578), Silencer 72.028 (p.577) |
| EIL.12 | 1.2 | 5 | 90 | 45 | 66 | -10 - 80 | 50 | Check valve 32.638 (p.674), Blow-off device 32.660 (p.525), Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.000 (p.578), Silencer 72.028 (p.577) |
| EIL.14 | 1.4 | 5 | 90 | 64 | 108 | -10 - 80 | 50 | Check valve 32.638 (p.674), Blow-off device 32.660 (p.525), Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.000 (p.578), Silencer 72.028 (p.577) |



When ordering please specify

Type + Nozzle diameter + Vacuum output = Item number

Example: EIL.07-M6

(Mini ejector EIL., nozzle diameter 0.7 mm, with vacuum output M6-female)

| 1.: Type | 2.: Nozzle diameter | 3.: Vacuum output | |
|----------|---------------------|-------------------|-----------|
| EIL. | 05 | Ø 0.5 mm | |
| | 07 | Ø 0.7 mm | |
| | 09 | Ø 0.9 mm | |
| | | M6 | M6 |
| | | A18 | G1/8-male |
| | | A14 | G1/4-male |
| | I18 | G1/8-female | |
| | I14 | G1/4-female | |

Type + Nozzle diameter + Vacuum output + Silencer = Item number

Example: EIL.12-M10G

(Inline ejector EIL, nozzle diameter: 1.2 mm, vacuum output M10x125 male thread with silencer 72.000)

| 1.: Type | 2.: Nozzle diameter | 3.: Vacuum output | | 4.: Silencer | |
|----------|---------------------|-------------------|--------------|--------------|-----------------------------------|
| EIL. | 10 | Ø 1 mm | | G | 72.000 (closed diffusor silencer) |
| | 12 | Ø 1.2 mm | | O | 72.028 (open silencer) |
| | 14 | Ø 1.4 mm | | | |
| | | A14 | G1/4-male | | |
| | | M10 | M10x125-male | | |

Handling of wooden plates

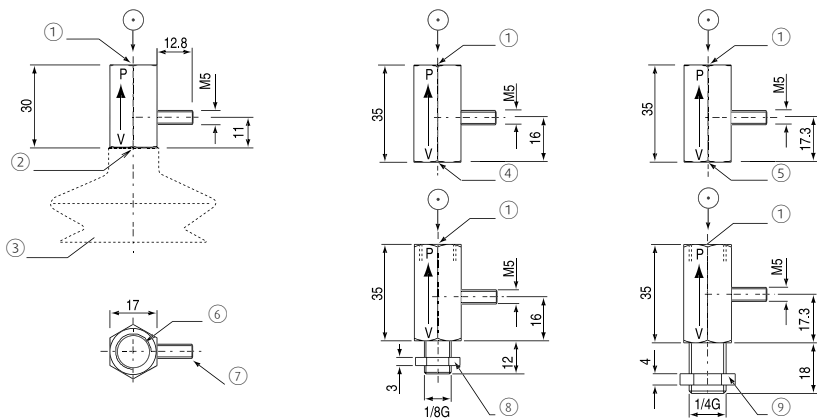


Illustration with check valve 32.638 with blow-off function and vacuum cup 102.070.234.9 for wood handling

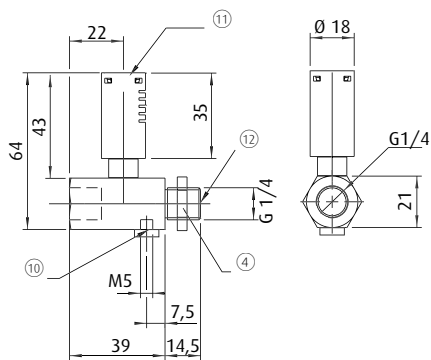
Continued on the next page →



Dimensions



EIL.05 | EIL.07 | EIL.09

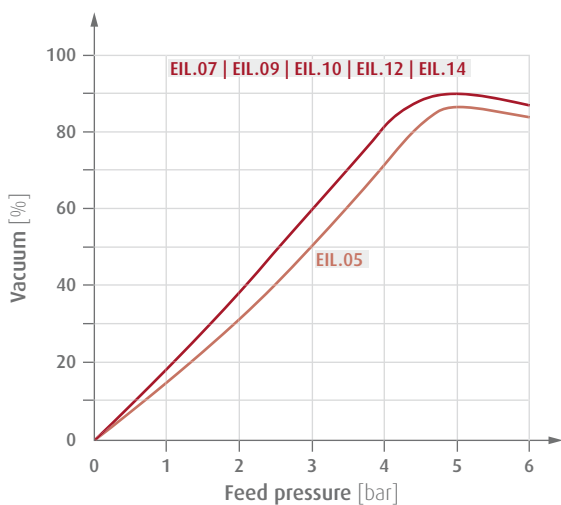


EIL.10 | EIL.12 | EIL.14

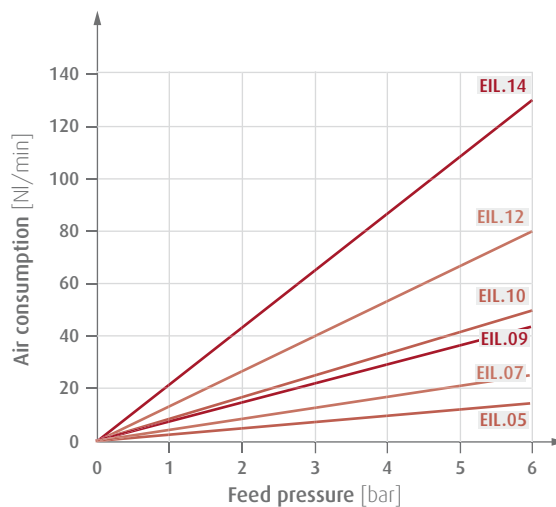
- ① = Compressed air input G1/4, depth 10 mm
- ② = Vacuum output M6, depth 6 mm
- ③ = Vacuum cup example
- ④ = Vacuum output G1/4-female, depth 7.5 mm
- ⑤ = Vacuum output G1/8-female, depth 10 mm
- ⑥ = Compressed air
- ⑦ = Exhaust
- ⑧ = Hex nut (SW14)
- ⑨ = Hex nut (SW19)
- ⑩ = Blow-off or vacuum switch connection
- ⑪ = Silencers
- ⑫ = Vacuum

Diagrams

> Vacuum level against feed pressure



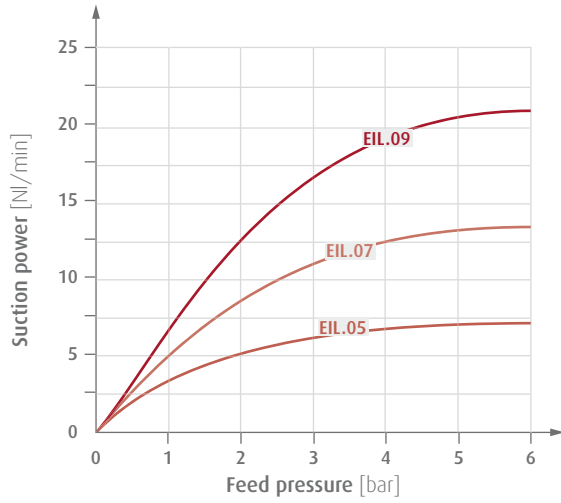
> Air consumption against feed pressure



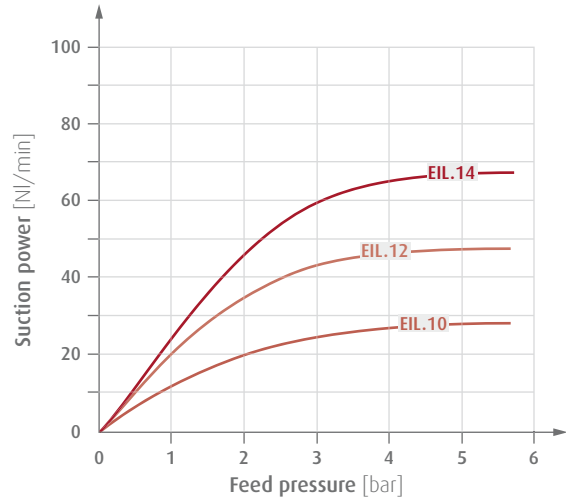


Diagrams

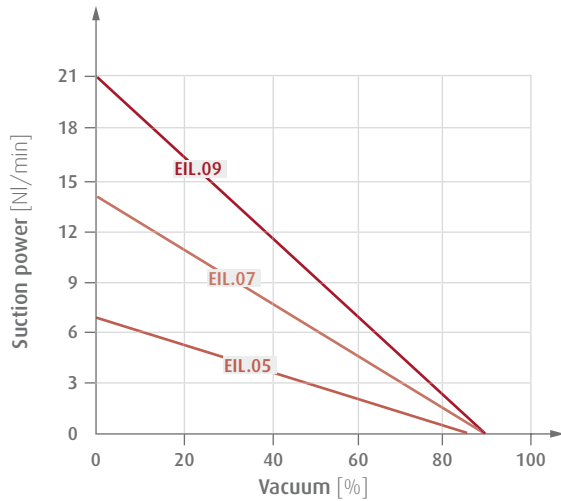
> Suction power against feed pressure



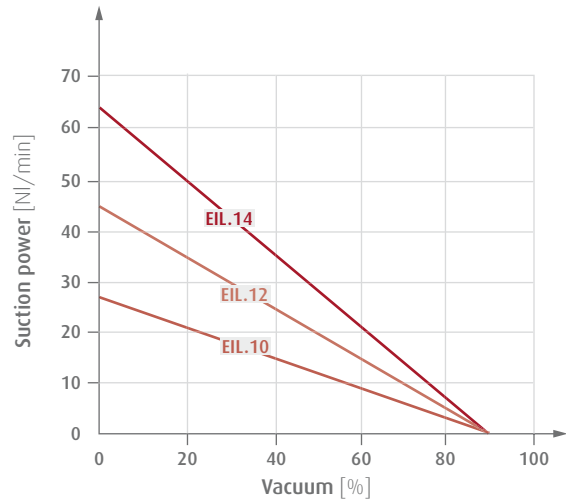
> Suction power against feed pressure



> Suction power against vacuum



> Suction power against vacuum



Evacuation time [sec.] for 1 liter at vacuum level

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 85 % |
|----------|------|------|------|------|------|------|-------|-------|-------|
| EIL.05 | 0.92 | 1.96 | 3.18 | 4.63 | 6.38 | 8.79 | 12.17 | 18.96 | 27.39 |
| EIL.07 | 0.46 | 0.98 | 1.58 | 2.28 | 3.13 | 4.27 | 5.8 | 8.55 | 11.01 |
| EIL.09 | 0.31 | 0.65 | 1.05 | 1.52 | 2.09 | 2.85 | 3.87 | 5.7 | 7.34 |
| EIL.10 | 0.24 | 0.51 | 0.82 | 1.18 | 1.62 | 2.21 | 3.01 | 4.43 | 5.71 |
| EIL.12 | 0.14 | 0.3 | 0.49 | 0.71 | 0.97 | 1.33 | 1.81 | 2.66 | 3.42 |
| EIL.14 | 0.1 | 0.21 | 0.34 | 0.5 | 0.68 | 0.93 | 1.27 | 1.85 | 2.44 |



Inline ejectors EIL - accessories

Ejector bracket



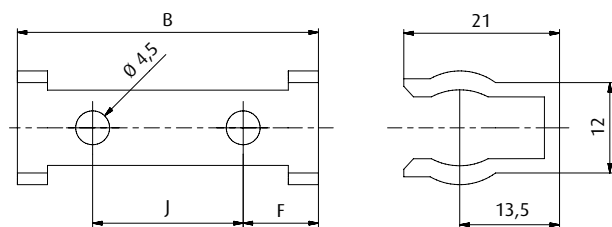
Technical data

| Item no. | Weight [g] |
|-----------|------------|
| EIL.05-HO | 2 |
| EIL.07-HO | 2 |

Dimensions

| B [mm] | F [mm] | J [mm] |
|--------|--------|--------|
| 33 | 9 | 15 |
| 39 | 10 | 20 |

Dimensions





Blow-off device for ejectors



32.660 enables blow-off with check valve 32.638

Product Description

- > Short cycle times thanks to direct connection to ejectors via M5 external thread
- > Suitable e.g. for inline ejectors EIL, expandable

Notes

- > Blow-off device is part of check valve 32.638 with blow-off function

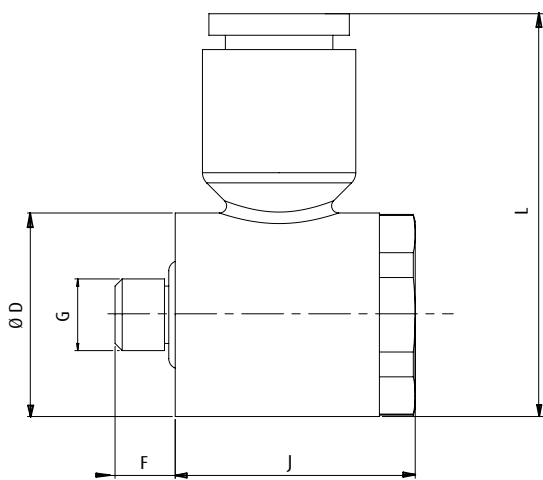
Technical data

| Item no. | Plug connection [mm] | Blow-off capacity at 5 bar [NI/min] |
|----------|----------------------|-------------------------------------|
| 32.660 | 6 | 100 |

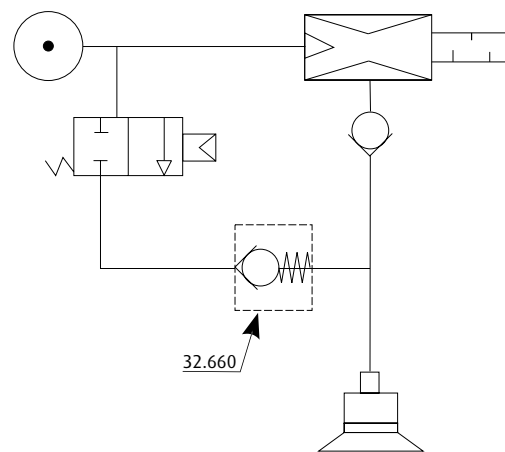
Dimensions

| G | ∅ D [mm] | F [mm] | J [mm] | L [mm] |
|----|----------|--------|--------|--------|
| M5 | 14.2 | 4.2 | 16.75 | 28.1 |

Dimensions

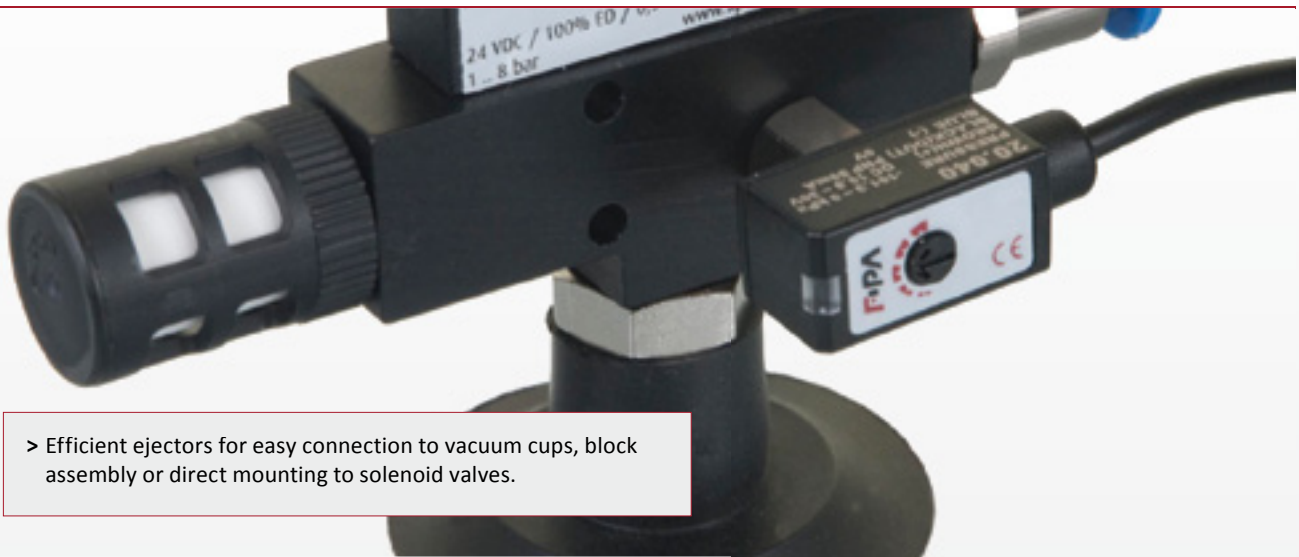


Wiring diagram





FIPA Basic and Heavy-duty ejectors



> Efficient ejectors for easy connection to vacuum cups, block assembly or direct mounting to solenoid valves.



Base ejectors with graded blow-off

- > Very short cycle times thanks to fast-reacting micro valve
- > Ideally suited for robotic applications, such as Delta robots (e.g. FlexPickers)

> See page 528



Ejector boxes EBO

- > Rectangular design for space-saving parallel connection in centralised or decentralised vacuum systems
- > For handling dense workpieces (max. vacuum level 93 %): Index H
- > For handling porous workpieces (higher suction power, max. vacuum level 68 %): Index L
- > Special compressed air-saving operation for handling dense workpieces at only 3.5 bar (max. vacuum level 90 %): Index P

> See page 530



Base ejectors EBA

- > For handling dense workpieces (max. vacuum level 93 %): Index H
- > For handling porous workpieces (higher suction power, max. vacuum level 68 %): Index L
- > Special compressed air-saving operation for handling dense workpieces at only 3.5 bar (max. vacuum level 90 %): Index P

> See page 533



Base ejectors EBM

- > Easy installation directly on the vacuum cup
- > Small dimensions for installation where space is limited
- > Miniature silencer that can be dismantled for fast servicing and short downtimes

> See page 541



FIPA Base and Heavy-duty ejectors



Heavy-duty ejectors 65.102A - 65.130

- > Robust and compact aluminium housing
- > Compensation of compressed air fluctuations between 3 to 6 bar
- > Additional inlet for blow-off for short cycle times or vacuum switch connection for process monitoring (65.111, 65.130)
- > Rectangular design for space-saving parallel connection in centralised or decentralised vacuum systems

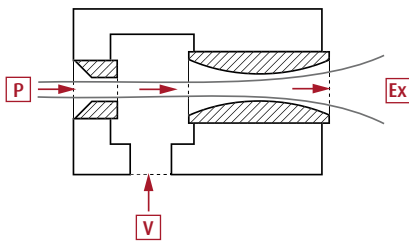
> See page 544

Examples of use

- > Handling of lightweight parts
- > Pick & place applications
- > Separation systems in sheet metal handling or plastic manufacturing
- > Handling of electrical components

Functional principle

Ejectors work according to the Venturi principle and generate vacuum **V** from compressed air **P**. Vacuum is created in the subsequent chamber as a result of the high flow speed to the primary nozzle. "Used" compressed air and suctioned air leave the ejector through the secondary nozzle. Either a silencer or an exhaust air duct can be connected to the outlet **Ex**.





Vacuum generation | Base ejectors

Base ejectors with graded blow-off

Base ejectors with graded blow-off

NEW

VERY SHORT RESPONSE TIME, SAFE AND GENTLE PRODUCT RELEASE



Example: Ejector EBA.08H.2-A with digital mini vacuum switch 20.040, closed diffusor silencer 72.000 and flat vacuum cup \varnothing 40 mm

Product Description

- > Small and very light for installation directly on vacuum cups for fast vacuum build-up and short gripping times
- > Blow-off pulse from a fast-reacting micro valve enables very short cycle times
- > Graded blow-off boost effect: Initially the blow-off is supported by ambient air, for placement that is both quick and gentle
- > Robust design and long service life of > 100 million switching cycles
- > M5 connection for digital mini vacuum switch to ensure reliable process monitoring
- > Ideally suited for robotic applications with very short cycles such as Delta robots (e.g. FlexPickers)

Ordering notes

- > Included in delivery: control cable 20.550, length 1,5 meter, 2-wire, free end

Technical data

| Item no. | EBA.08H.2-A |
|---|--|
| Nozzle diameter [mm] | 0.8 |
| Optimal feed pressure [bar] | 5 |
| Max. feed pressure [bar] | 8 |
| Final vacuum [%] | 85 |
| Suction power at 5 bar [NI/min] | 25 |
| Air consumption at 5 bar [NI/min] | 30 |
| Flow rate solenoid valve [NI/min] | 15 |
| Blow-off volumes of flow [NI/min] | 110 - 45 |
| Power-on time solenoid valve (ED) [%] | 100 |
| Power-on/ -off time solenoid valve [ms] | 5 |
| Power consumption solenoid valve [W] | 0.9 |
| Protection class | IP40 |
| Operating temperature [°C] | -10 - 50 |
| Weight [g] | 35 |
| Suitable accessories | Connector cable 20.550 (p.717), Vacuum switch 20.040 (p.689), Vacuum switch 20.041 (p.689), Silencer 72.000 (p.578), Silencer 72.028 (p.577) |

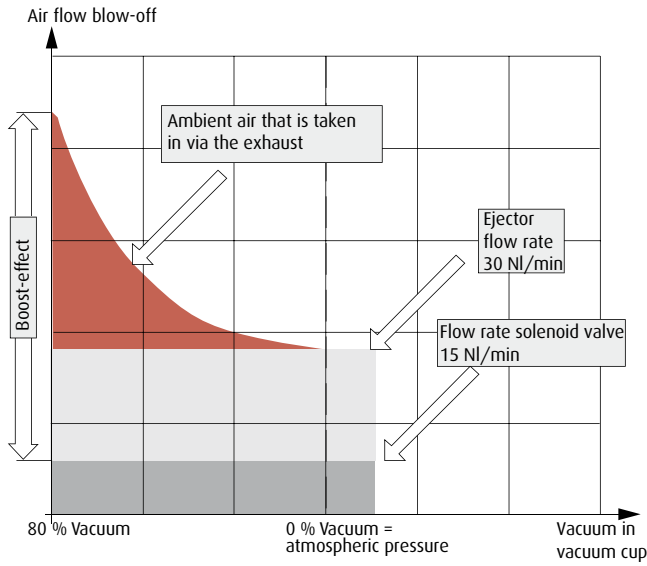
Control cable 20.550



Cable assignment: red (+), black (-)



Graded blow-off with boost-effect

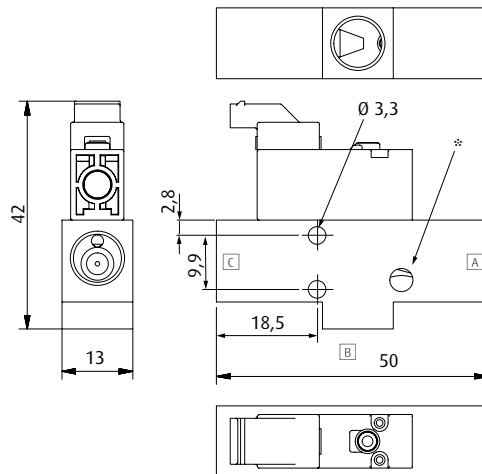


Evacuation / Blow-off time

| Evacuation / Blow-off time 1 liter volume up to % vacuum / atmospheric pressure [sec.] | | |
|---|---------------------|---------------------|
| 0 → 50 % / 50 % → 0 | 0 → 60 % / 60 % → 0 | 0 → 70 % / 70 % → 0 |
| 1.8 / 0.5 | 2.5 / 0.56 | 3.9 / 0.61 |

| Evacuation / Blow-off time: example with Ø 30 mm flat suction cups, volume 1.7 cm ³ up to % vacuum / atmospheric pressure [ms] | | |
|---|---------------------|---------------------|
| 0 → 50 % / 50 % → 0 | 0 → 60 % / 60 % → 0 | 0 → 70 % / 70 % → 0 |
| 3 / < 1 | 4 / < 1 | 7 / 1 |

Dimensions



A = Compressed air connection G1/8-female
 B = Vacuum connection G1/8-female
 C = Exhaust outlet G1/8-female
 * = M5 connection for vacuum switches



Ejector boxes EBO

Compressed air and vacuum connection via quick fittings, exhaust via rectangular silencer



Series "-S" with mechanical vacuum switch

V = Vacuum connection
 P = Compressed air connection
 Ex = Exhaust outlet

Product Description

- > High suction power for fast evacuation and short gripping time
- > Easy installation directly in the vacuum line
- > Rectangular design enables space-conserving parallel mounting of several ejector boxes
- > Replaceable silencer filter element
- > "-S" series with mechanical / electrical vacuum switch
 - Monitoring of vacuum circuits for high process reliability
 - NO / NC switching function

Notes

"-S" series with mechanical / electrical vacuum switch:

- > Factory setting: -534 mbar
- > Contact capacity: 3 A at 250 V
- > Regulating range: -200 to -667 mbar
- > Repeat accuracy: ± 50 mbar
- > Hysteresis: -200 mbar

Ordering notes

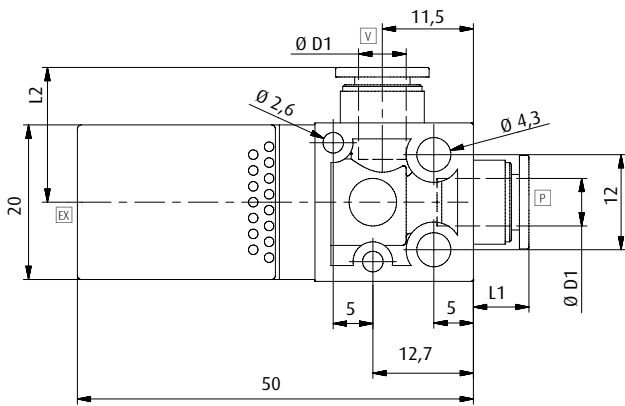
- > Index H: Ejectors for dense products (max. vacuum degree 90 %)
- > Index L: Ejectors for porous products, resp. in case of higher leakage (increased suction, max. vacuum degree 68 %)
- > Index P: Ejectors designed for lower feed pressure (max. vacuum degree 90 %)

Technical data

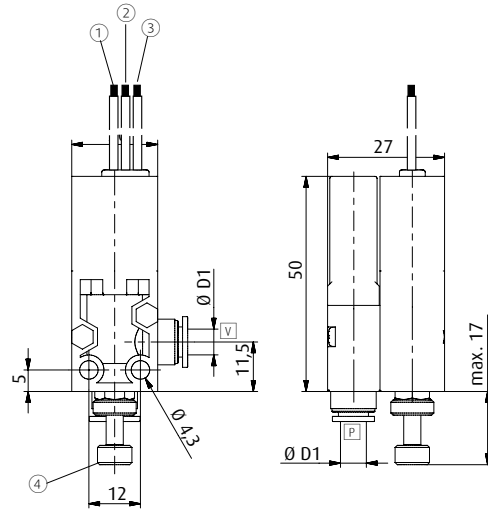
| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Suitable filter and silencer set |
|--------------------|----------------------|-----------------------------|------------------|------------------------|--------------------------|----------------------------|------------|----------------------------------|
| EBO.05H.4 | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 18 | 72.105 |
| EBO.07H.1 | 0.7 | 5 | 93 | 13 | 23 | 0 - 60 | 18.5 | 72.105 |
| EBO.10H.1 | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 18.5 | 72.105 |
| EBO.12H.1 | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 18 | 72.105 |
| EBO.05L.4 | 0.5 | 5 | 68 | 12 | 11.5 | 0 - 60 | 18 | 72.105 |
| EBO.07L.1 | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 18.5 | 72.105 |
| EBO.10L.1 | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 17.5 | 72.105 |
| EBO.07P.1 | 0.7 | 3.5 | 90 | 10.5 | 17 | 0 - 60 | 18.5 | 72.105 |
| EBO.10P.1 | 1 | 3.5 | 90 | 21 | 34 | 0 - 60 | 18.5 | 72.105 |
| EBO.12P.1 | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 18 | 72.105 |
| EBO.05H.4-S | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 46.5 | 72.105 |
| EBO.07H.1-S | 0.7 | 5 | 93 | 13 | 23 | 0 - 60 | 46 | 72.105 |
| EBO.10H.1-S | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 47 | 72.105 |
| EBO.12H.1-S | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 47.5 | 72.105 |
| EBO.05L.4-S | 0.5 | 5 | 68 | 12 | 11.5 | 0 - 60 | 46.5 | 72.105 |
| EBO.07L.1-S | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 48 | 72.105 |
| EBO.10L.1-S | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 46.5 | 72.105 |
| EBO.07P.1-S | 0.7 | 3.5 | 90 | 10.5 | 17 | 0 - 60 | 48.5 | 72.105 |
| EBO.10P.1-S | 1 | 3.5 | 90 | 21 | 34 | 0 - 60 | 48.5 | 72.105 |
| EBO.12P.1-S | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 47.5 | 72.105 |



Dimensions



EBO.05H.4 | EBO.07H.1 | EBO.10H.1 | EBO.12H.1 | EBO.05L.4 |
EBO.07L.1 | EBO.10L.1 | EBO.07P.1 | EBO.10P.1 | EBO.12P.1



EBO.05H.4-S | EBO.07H.1-S | EBO.10H.1-S | EBO.12H.1-S |
EBO.05L.4-S | EBO.07L.1-S | EBO.10L.1-S | EBO.07P.1-S |
EBO.10P.1-S | EBO.12P.1-S

P = Compressed air side with tubing connection V = Vacuum side with tubing connection EX = Exhaust outlet ① = White ② = Red (NC)
③ = Black (NO) ④ = knurled screw

| Item no. | Ø D1 [mm] | L1 [mm] | L2 [mm] |
|-------------|-----------|---------|---------|
| EBO.05H.4 | 4 | 6.6 | 6.6 |
| EBO.07H.1 | 6 | 7 | 7 |
| EBO.10H.1 | 6 | 7 | 7 |
| EBO.12H.1 | 6 | 7 | 7 |
| EBO.05L.4 | 4 | 6.6 | 6.6 |
| EBO.07L.1 | 6 | 7 | 7 |
| EBO.10L.1 | 6 | 7 | 7 |
| EBO.07P.1 | 6 | 7 | 7 |
| EBO.10P.1 | 6 | 7 | 7 |
| EBO.12P.1 | 6 | 7 | 7 |
| EBO.05H.4-S | 4 | -- | -- |
| EBO.07H.1-S | 6 | -- | -- |
| EBO.10H.1-S | 6 | -- | -- |
| EBO.12H.1-S | 6 | -- | -- |
| EBO.05L.4-S | 4 | -- | -- |
| EBO.07L.1-S | 6 | -- | -- |
| EBO.10L.1-S | 6 | -- | -- |
| EBO.07P.1-S | 6 | -- | -- |
| EBO.10P.1-S | 6 | -- | -- |
| EBO.12P.1-S | 6 | -- | -- |

Continued on the next page →



Suction power [NI/min] at vacuum level

| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|--------------------|------|------|------|------|------|------|------|------|------|------|
| EBO.05H.4 | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBO.07H.1 | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBO.10H.1 | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBO.12H.1 | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBO.05L.4 | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBO.07L.1 | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBO.10L.1 | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBO.07P.1 | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBO.10P.1 | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBO.12P.1 | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBO.05H.4-S | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBO.07H.1-S | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBO.10H.1-S | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBO.12H.1-S | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBO.05L.4-S | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBO.07L.1-S | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBO.10L.1-S | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBO.07P.1-S | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBO.10P.1-S | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBO.12P.1-S | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |

Diagrams see pages 542 - 543



Base ejectors EBA for vacuum cups

Compressed air connection via quick fittings, vacuum connection via R-threads, exchangeable silencer



Series with fixed air connection



Series with rotatable, angular air connection

☐ = Vacuum connection ☐ = Compressed air connection ☐ = Exhaust outlet

Product Description

- > High suction power for short gripping time
- > Easy installation directly on the vacuum cup
- > Robust aluminium body
- > Replaceable silencer filter element for short downtimes

Ordering notes

- > Index H: Ejectors for dense products (max. vacuum degree 93 %)
- > Index L: Ejectors for porous products, resp. in case of higher leakage (increased suction power, max. vacuum degree 68 %)
- > Index P: Ejectors designed for lower feed pressure (max. vacuum degree 90 %)
- > Index -W: Order code for rotatable, angular air connection

Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [N/min] | Air consumption [N/min] | Operating temperature [°C] | Weight [g] | Suitable Silencer elements |
|-----------|----------------------|-----------------------------|------------------|-----------------------|-------------------------|----------------------------|------------|----------------------------|
| EBA.07H.1 | 0.7 | 5 | 93 | 13 | 23 | 5 - 50 | 31.5 | 72.102 |
| EBA.07H.2 | 0.7 | 5 | 93 | 13 | 23 | 5 - 50 | 31.5 | 72.102 |
| EBA.10H.1 | 1 | 5 | 93 | 28 | 46 | 5 - 50 | 31.5 | 72.102 |
| EBA.10H.2 | 1 | 5 | 93 | 28 | 46 | 5 - 50 | 31.5 | 72.102 |
| EBA.12H.1 | 1.2 | 5 | 93 | 38 | 70 | 5 - 50 | 31.5 | 72.102 |
| EBA.12H.2 | 1.2 | 5 | 93 | 38 | 70 | 5 - 50 | 31.5 | 72.102 |
| EBA.15H.1 | 1.5 | 5 | 93 | 63 | 100 | 5 - 50 | 87 | 72.103 |
| EBA.15H.2 | 1.5 | 5 | 93 | 63 | 100 | 5 - 50 | 88 | 72.103 |
| EBA.20H.1 | 2 | 5 | 93 | 110 | 200 | 5 - 50 | 92.5 | 72.104 |
| EBA.15L.1 | 1.5 | 5 | 68 | 95 | 100 | 5 - 50 | 85 | 72.103 |
| EBA.15L.2 | 1.5 | 5 | 68 | 95 | 100 | 5 - 50 | 86 | 72.103 |
| EBA.20L.1 | 2 | 5 | 68 | 180 | 200 | 5 - 50 | 88 | 72.104 |
| EBA.07P.1 | 0.7 | 5 | 90 | 10.5 | 17 | 5 - 50 | 31.5 | 72.102 |
| EBA.07P.2 | 0.7 | 5 | 90 | 10.5 | 17 | 5 - 50 | 31.5 | 72.102 |
| EBA.10P.1 | 1 | 5 | 90 | 21 | 34 | 5 - 50 | 31.5 | 72.102 |
| EBA.10P.2 | 1 | 5 | 90 | 21 | 34 | 5 - 50 | 31.5 | 72.102 |
| EBA.12P.1 | 1.2 | 5 | 90 | 27 | 47 | 5 - 50 | 31.5 | 72.102 |
| EBA.12P.2 | 1.2 | 5 | 90 | 27 | 47 | 5 - 50 | 31.5 | 72.102 |
| EBA.15P.1 | 1.5 | 5 | 90 | 42 | 70 | 5 - 50 | 87.5 | 72.103 |
| EBA.15P.2 | 1.5 | 5 | 90 | 42 | 70 | 5 - 50 | 88.5 | 72.103 |

Continued on the next page →



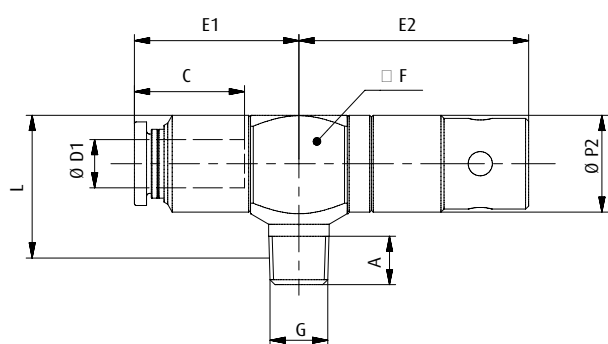
Vacuum generation | Base ejectors

Base ejectors EBA for vacuum cups

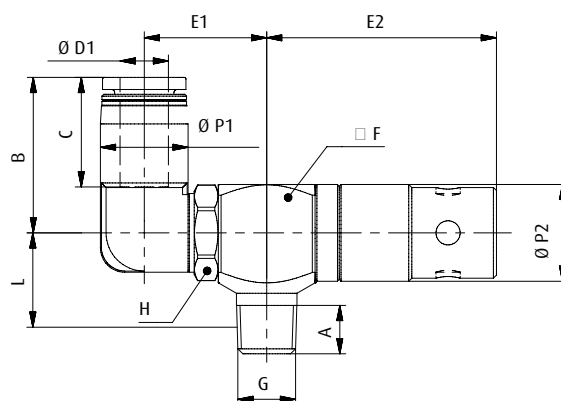
Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Suitable Silencer elements |
|-------------|----------------------|-----------------------------|------------------|------------------------|--------------------------|----------------------------|------------|----------------------------|
| EBA.20P.1 | 2 | 5 | 90 | 84 | 150 | 5 - 50 | 94 | 72.104 |
| EBA.07H.1-W | 0.7 | 5 | 93 | 13 | 23 | 5 - 50 | 31.5 | 72.102 |
| EBA.07H.2-W | 0.7 | 5 | 93 | 13 | 23 | 5 - 50 | 34 | 72.102 |
| EBA.10H.1-W | 1 | 5 | 93 | 28 | 46 | 5 - 50 | 31.5 | 72.102 |
| EBA.10H.2-W | 1 | 5 | 93 | 28 | 46 | 5 - 50 | 34 | 72.102 |
| EBA.12H.1-W | 1.2 | 5 | 93 | 38 | 70 | 5 - 50 | 31.5 | 72.102 |
| EBA.12H.2-W | 1.2 | 5 | 93 | 38 | 70 | 5 - 50 | 34 | 72.102 |
| EBA.15H.1-W | 1.5 | 5 | 93 | 63 | 100 | 5 - 50 | 85.5 | 72.103 |
| EBA.15H.2-W | 1.5 | 5 | 93 | 63 | 100 | 5 - 50 | 86.5 | 72.103 |
| EBA.20H.1-W | 2 | 5 | 93 | 110 | 200 | 5 - 50 | 95 | 72.104 |
| EBA.15L.1-W | 1.5 | 5 | 68 | 95 | 100 | 5 - 50 | 84 | 72.103 |
| EBA.15L.2-W | 1.5 | 5 | 68 | 95 | 100 | 5 - 50 | 85 | 72.103 |
| EBA.20L.1-W | 2 | 5 | 68 | 180 | 200 | 5 - 50 | 90.5 | 72.104 |
| EBA.07P.1-W | 0.7 | 5 | 90 | 10.5 | 17 | 5 - 50 | 31.5 | 72.102 |
| EBA.07P.2-W | 0.7 | 5 | 90 | 10.5 | 17 | 5 - 50 | 34 | 72.102 |
| EBA.10P.1-W | 1 | 5 | 90 | 21 | 34 | 5 - 50 | 31.5 | 72.102 |
| EBA.10P.2-W | 1 | 5 | 90 | 21 | 34 | 5 - 50 | 34 | 72.102 |
| EBA.12P.1-W | 1.2 | 5 | 90 | 27 | 47 | 5 - 50 | 31.5 | 72.102 |
| EBA.12P.2-W | 1.2 | 5 | 90 | 27 | 47 | 5 - 50 | 34 | 72.102 |
| EBA.15P.1-W | 1.5 | 5 | 90 | 42 | 70 | 5 - 50 | 86.5 | 72.103 |
| EBA.15P.2-W | 1.5 | 5 | 90 | 42 | 70 | 5 - 50 | 87.5 | 72.103 |
| EBA.20P.1-W | 2 | 5 | 90 | 84 | 150 | 5 - 50 | 96.5 | 72.104 |

Dimensions



EBA.07H.1 - EBA20P.1



EBA.07H.1-W - EBA20P.1-W



| Item no. | G | Ø D1 [mm] | A [mm] | B [mm] | C [mm] | E1 [mm] | E2 [mm] | □ F [mm] | H [mm] | L [mm] | Ø P1 [mm] | Ø P2 [mm] |
|-------------|------|-----------|--------|--------|--------|---------|---------|----------|--------|--------|-----------|-----------|
| EBA.07H.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.07H.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.10H.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.10H.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.12H.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.12H.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.15H.1 | R1/4 | 8 | 11 | -- | 18 | 29.5 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.15H.2 | R3/8 | 8 | 12 | -- | 18 | 29.5 | 75 | 22 | -- | 20.5 | -- | 24 |
| EBA.20H.1 | R1/4 | 10 | 11 | -- | 20 | 31 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.15L.1 | R1/4 | 8 | 11 | -- | 18 | 29.5 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.15L.2 | R3/8 | 8 | 12 | -- | 18 | 29.5 | 75 | 22 | -- | 20.5 | -- | 24 |
| EBA.20L.1 | R1/4 | 10 | 11 | -- | 20 | 31 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.07P.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.07P.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.10P.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.10P.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.12P.1 | R1/8 | 6 | 8 | -- | 17 | 24.5 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.12P.2 | R1/8 | 8 | 8 | -- | 18.5 | 28 | 38 | 16 | -- | 16 | -- | 16 |
| EBA.15P.1 | R1/4 | 8 | 11 | -- | 18 | 29.5 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.15P.2 | R3/8 | 8 | 12 | -- | 18 | 29.5 | 75 | 22 | -- | 20.5 | -- | 24 |
| EBA.20P.1 | R1/4 | 10 | 11 | -- | 20 | 31 | 75 | 22 | -- | 21 | -- | 24 |
| EBA.07H.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.07H.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.10H.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.10H.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.12H.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.12H.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.15H.1-W | R1/4 | 8 | 11 | 26 | 18.5 | 23 | 75 | 22 | 19 | 21 | 14.5 | 24 |
| EBA.15H.2-W | R3/8 | 8 | 12 | 26 | 18.5 | 23 | 75 | 22 | 19 | 20.5 | 14.5 | 24 |
| EBA.20H.1-W | R1/4 | 10 | 11 | 30 | 21 | 25.5 | 75 | 22 | 19 | 21 | 17.5 | 24 |
| EBA.15L.1-W | R1/4 | 8 | 11 | 26 | 18.5 | 23 | 75 | 22 | 19 | 21 | 14.5 | 24 |
| EBA.15L.2-W | R3/8 | 8 | 12 | 26 | 18.5 | 23 | 75 | 22 | 19 | 20.5 | 14.5 | 24 |
| EBA.20L.1-W | R1/4 | 10 | 11 | 30 | 21 | 25.5 | 75 | 22 | 19 | 21 | 17.5 | 24 |
| EBA.07P.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.07P.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.10P.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.10P.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.12P.1-W | R1/8 | 6 | 8 | 23 | 17 | 19 | 38 | 16 | 14 | 16 | 12.5 | 16 |
| EBA.12P.2-W | R1/8 | 8 | 8 | 24 | 18.5 | 20 | 38 | 16 | 14 | 16 | 14.5 | 16 |
| EBA.15P.1-W | R1/4 | 8 | 11 | 26 | 18.5 | 23 | 75 | 22 | 19 | 21 | 14.5 | 24 |
| EBA.15P.2-W | R3/8 | 8 | 12 | 26 | 18.5 | 23 | 75 | 22 | 19 | 20.5 | 14.5 | 24 |
| EBA.20P.1-W | R1/4 | 10 | 11 | 30 | 21 | 25.5 | 75 | 22 | 19 | 21 | 17.5 | 24 |

Continued on the next page →



Vacuum generation | Base ejectors

Base ejectors EBA for vacuum cups

Suction power [NI/min] at vacuum level

| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|-------------|------|-------|-------|------|------|------|------|------|------|------|
| EBA.07H.1 | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.07H.2 | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.10H.1 | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.10H.2 | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.12H.1 | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.12H.2 | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.15H.1 | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.15H.2 | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.20H.1 | 110 | 98.1 | 86.3 | 74.5 | 62.7 | 50.8 | 39 | 27.2 | 15.3 | 3.5 |
| EBA.15L.1 | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.15L.2 | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.20L.1 | 180 | 153.1 | 126.3 | 99.4 | 72.5 | 45.6 | 18.8 | -- | -- | -- |
| EBA.07P.1 | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.07P.2 | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.10P.1 | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.10P.2 | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.12P.1 | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.12P.2 | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.15P.1 | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |
| EBA.15P.2 | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |
| EBA.20P.1 | 84 | 74.7 | 65.5 | 56.3 | 47 | 37.8 | 28.6 | 19.4 | 10.1 | 0.9 |
| EBA.07H.1-W | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.07H.2-W | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.10H.1-W | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.10H.2-W | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.12H.1-W | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.12H.2-W | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.15H.1-W | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.15H.2-W | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.20H.1-W | 110 | 98.1 | 86.3 | 74.5 | 62.7 | 50.8 | 39 | 27.2 | 15.3 | 3.5 |
| EBA.15L.1-W | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.15L.2-W | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.20L.1-W | 180 | 153.1 | 126.3 | 99.4 | 72.5 | 45.6 | 18.8 | -- | -- | -- |
| EBA.07P.1-W | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.07P.2-W | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.10P.1-W | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.10P.2-W | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.12P.1-W | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.12P.2-W | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.15P.1-W | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |
| EBA.15P.2-W | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |
| EBA.20P.1-W | 84 | 74.7 | 65.5 | 56.3 | 47 | 37.8 | 28.6 | 19.4 | 10.1 | 0.9 |

Diagrams see pages 542 - 543



Base ejectors EBA for solenoid valves

Compressed air connection via R-threads, vacuum connection via quick fittings



Series with exhaust outlet via silencer



Series with exhaust outlet via quick fitting

☑ = Vacuum connection ☐ = Compressed air connection ☒ = Exhaust outlet

Product Description

- > Suitable for direct fitting to solenoid valves
- > High suction power for short gripping times
- > Flexible installation thanks to rotatable, angled vacuum connection
- > Replaceable silencer for fast servicing and short downtimes
- > Avoidance of product contamination with exhaust outlet through quick fitting (index MV-I)

Ordering notes

- > Index H: Ejectors for dense products (max. vacuum degree 93 %)
- > Index L: Ejectors for porous products, resp. in case of higher leakage (increased suction power, max. vacuum degree 68 %)
- > Index P: Ejectors designed for lower feed pressure (max. vacuum degree 90 %)
- > Index MV-I: Order code with exhaust outlet via quick fitting: Example: EBA.10H.1-MV-I

Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Suitable silencer elements |
|--------------|----------------------|-----------------------------|------------------|------------------------|--------------------------|----------------------------|------------|----------------------------|
| EBA.05H.1-MV | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 13 | SEE0802 |
| EBA.05H.2-MV | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 36.5 | SE01 |
| EBA.07H.1-MV | 0.7 | 5 | 93 | 13 | 23 | 0 - 60 | 37 | SE01 |
| EBA.10H.1-MV | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 36.5 | SE01 |
| EBA.10H.2-MV | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 38 | SE01 |
| EBA.12H.1-MV | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 36.5 | SE01 |
| EBA.12H.2-MV | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 37.5 | SE01 |
| EBA.15H.1-MV | 1.5 | 5 | 93 | 63 | 100 | 0 - 60 | 77 | SE02 |
| EBA.05L.1-MV | 0.5 | 5 | 65 | 12 | 11.5 | 0 - 60 | 13 | SEE0802 |
| EBA.05L.2-MV | 0.5 | 5 | 65 | 11 | 11.5 | 0 - 60 | 36.5 | SE01 |
| EBA.07L.1-MV | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 37 | SE01 |
| EBA.07L.2-MV | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 38.5 | SE01 |
| EBA.10L.1-MV | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 36 | SE01 |
| EBA.10L.2-MV | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 37.5 | SE01 |
| EBA.15L.1-MV | 1.5 | 5 | 68 | 95 | 100 | 0 - 60 | 75 | SE02 |
| EBA.07P.1-MV | 0.7 | 3.5 | 90 | 10.5 | 17 | 0 - 60 | 36.5 | SE01 |
| EBA.10P.1-MV | 1 | 3.5 | 90 | 21 | 34 | 0 - 60 | 37 | SE01 |
| EBA.10P.2-MV | 1 | 3.5 | 90 | 21 | 34 | 0 - 60 | 38.5 | SE01 |

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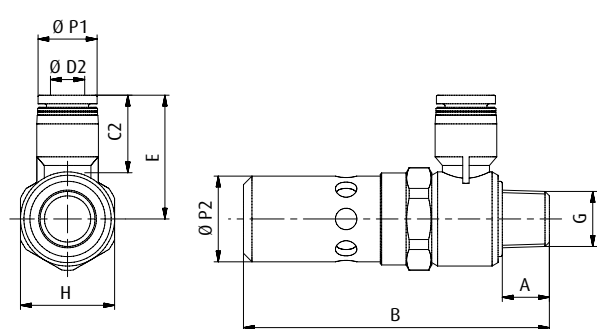
Vacuum generation | Base ejectors

Base ejectors EBA for solenoid valves

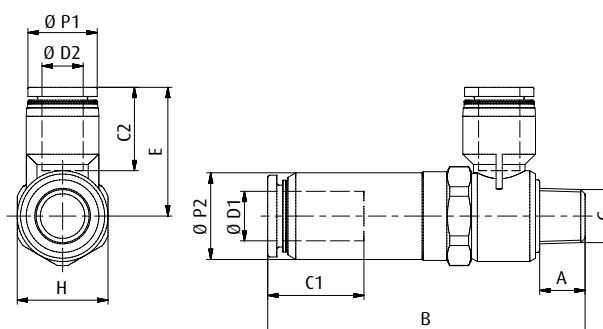
Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Suitable Silencer elements |
|----------------|----------------------|-----------------------------|------------------|------------------------|--------------------------|----------------------------|------------|----------------------------|
| EBA.12P.1-MV | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 36.5 | SE01 |
| EBA.12P.2-MV | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 38 | SE01 |
| EBA.15P.1-MV | 1.5 | 3.5 | 90 | 37 | 74 | 0 - 60 | 78 | SE02 |
| EBA.05H.1-MV-I | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 18 | -- |
| EBA.05H.2-MV-I | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 44.5 | -- |
| EBA.07H.1-MV-I | 0.7 | 5 | 90 | 13 | 23 | 0 - 60 | 45.5 | -- |
| EBA.10H.1-MV-I | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 44.5 | -- |
| EBA.10H.2-MV-I | 1 | 5 | 93 | 28 | 46 | 0 - 60 | 45.5 | -- |
| EBA.12H.1-MV-I | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 44 | -- |
| EBA.12H.2-MV-I | 1.2 | 5 | 93 | 38 | 70 | 0 - 60 | 46 | -- |
| EBA.15H.1-MV-I | 1.5 | 5 | 93 | 63 | 100 | 0 - 60 | 92 | -- |
| EBA.05L.1-MV-I | 0.5 | 5 | 65 | 12 | 11.5 | 0 - 60 | 18 | -- |
| EBA.05L.2-MV-I | 0.5 | 5 | 65 | 11 | 11.5 | 0 - 60 | 44.5 | -- |
| EBA.07L.1-MV-I | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 45 | -- |
| EBA.07L.2-MV-I | 0.7 | 5 | 68 | 26 | 23 | 0 - 60 | 46 | -- |
| EBA.10L.1-MV-I | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 44 | -- |
| EBA.10L.2-MV-I | 1 | 5 | 68 | 42 | 46 | 0 - 60 | 45 | -- |
| EBA.15L.1-MV-I | 1.5 | 5 | 68 | 95 | 100 | 0 - 60 | 89.4 | -- |
| EBA.07P.1-MV-I | 0.7 | 3.5 | 90 | 10.5 | 17 | 0 - 60 | 45 | -- |
| EBA.10P.1-MV-I | 1 | 3.5 | 90 | 23 | 34 | 0 - 60 | 44.5 | -- |
| EBA.10P.2-MV-I | 1 | 3.5 | 90 | 23 | 34 | 0 - 60 | 46.5 | -- |
| EBA.12P.1-MV-I | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 44.5 | -- |
| EBA.12P.2-MV-I | 1.2 | 3.5 | 90 | 27 | 47 | 0 - 60 | 45.5 | -- |
| EBA.15P.1-MV-I | 1.5 | 3.5 | 90 | 37 | 74 | 0 - 60 | 92 | -- |

Dimensions



EBA.05H.1-MV - EBA15P.1-MV



EBA.05H.1-MV-I - EBA15P.1-MV-I



| Item no. | G | Ø D1 [mm] | Ø D2 [mm] | A [mm] | B [mm] | C2 [mm] | C1 [mm] | E [mm] | H [mm] | Ø P1 [mm] | Ø P2 [mm] |
|----------------|------|-----------|-----------|--------|--------|---------|---------|--------|--------|-----------|-----------|
| EBA.05H.1-MV | M5 | -- | 4 | 4 | 35 | 15 | -- | 21.5 | 8 | 10 | 9.5 |
| EBA.05H.2-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.07H.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.10H.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.10H.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.12H.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.12H.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.15H.1-MV | R1/4 | -- | 8 | 11 | 72 | 17.5 | -- | 28 | 22 | 14.5 | 20 |
| EBA.05L.1-MV | M5 | -- | 4 | 4 | 35 | 15 | -- | 21.5 | 8 | 10 | 9.5 |
| EBA.05L.2-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.07L.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.07L.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.10L.1-MV | R1/8 | -- | -- | 8 | 48 | -- | -- | 25 | 17 | 12.5 | 16 |
| EBA.10L.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.15L.1-MV | R1/4 | -- | 8 | 11 | 72 | 17.5 | -- | 28 | 22 | 14.5 | 20 |
| EBA.07P.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.10P.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.10P.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.12P.1-MV | R1/8 | -- | 6 | 8 | 48 | 16.5 | -- | 25 | 17 | 12.5 | 16 |
| EBA.12P.2-MV | R1/8 | -- | 8 | 8 | 48 | 17.5 | -- | 28 | 17 | 15 | 16 |
| EBA.15P.1-MV | R1/4 | -- | 8 | 11 | 72 | 17.5 | -- | 28 | 22 | 14.5 | 20 |
| EBA.05H.1-MV-I | M5 | 6 | 4 | 4 | 35 | 15 | 12.5 | 21.5 | 8 | 9.5 | 10 |
| EBA.05H.2-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.07H.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.10H.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.10H.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28 | 17 | 16 | 15 |
| EBA.12H.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.12H.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28.5 | 17 | 16 | 15 |
| EBA.15H.1-MV-I | R1/4 | 12 | 8 | 11 | 77 | 17.5 | 21.5 | 28.5 | 22 | 20 | 14.5 |
| EBA.05L.1-MV-I | M5 | 6 | 4 | 4 | 35 | 15 | 12.5 | 21.5 | 8 | 9.5 | 10 |
| EBA.05L.2-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.07L.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.07L.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28 | 17 | 16 | 15 |
| EBA.10L.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.10L.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28.5 | 17 | 16 | 15 |
| EBA.15L.1-MV-I | R1/4 | 12 | 8 | 11 | 77 | 17.5 | 21.5 | 28.5 | 22 | 20 | 14.5 |
| EBA.07P.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.10P.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.10P.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28 | 17 | 16 | 15 |
| EBA.12P.1-MV-I | R1/8 | 8 | 6 | 8 | 58 | 16.5 | 17.5 | 25 | 17 | 16 | 12.5 |
| EBA.12P.2-MV-I | R1/8 | 8 | 8 | 8 | 58 | 17.5 | 17.5 | 28.5 | 17 | 16 | 15 |
| EBA.15P.1-MV-I | R1/4 | 12 | 8 | 11 | 77 | 17.5 | 21.5 | 28.5 | 22 | 20 | 14.5 |

Continued on the next page →



Vacuum generation | Base ejectors

Base ejectors EBA for solenoid valves

Suction power [NI/min] at vacuum level

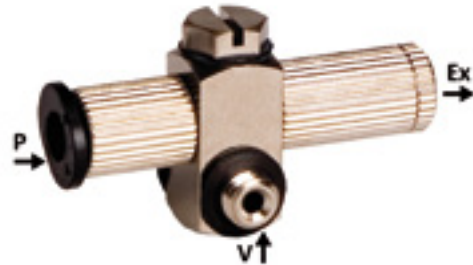
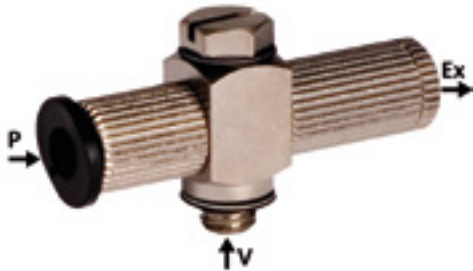
| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|----------------|------|------|------|------|------|------|------|------|------|------|
| EBA.05H.1-MV | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBA.05H.2-MV | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBA.07H.1-MV | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.10H.1-MV | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.10H.2-MV | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.12H.1-MV | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.12H.2-MV | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.15H.1-MV | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.05L.1-MV | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBA.05L.2-MV | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBA.07L.1-MV | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBA.07L.2-MV | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBA.10L.1-MV | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBA.10L.2-MV | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBA.15L.1-MV | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.07P.1-MV | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.10P.1-MV | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.10P.2-MV | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.12P.1-MV | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.12P.2-MV | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.15P.1-MV | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |
| EBA.05H.1-MV-I | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBA.05H.2-MV-I | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3 | 2.2 | 1.5 | 0.7 | -- |
| EBA.07H.1-MV-I | 13 | 11.6 | 10.1 | 8.8 | 7.5 | 5.9 | 4.2 | 3 | 1.6 | 0.4 |
| EBA.10H.1-MV-I | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.10H.2-MV-I | 28 | 25 | 22 | 18.9 | 15.9 | 12.9 | 9.9 | 6.9 | 3.9 | 0.9 |
| EBA.12H.1-MV-I | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.12H.2-MV-I | 38 | 33.9 | 29.8 | 25.7 | 21.6 | 17.5 | 13.4 | 9.3 | 5.3 | 1.2 |
| EBA.15H.1-MV-I | 63 | 56.2 | 49.4 | 42.6 | 35.9 | 29.1 | 22.3 | 15.6 | 8.8 | 2 |
| EBA.05L.1-MV-I | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBA.05L.2-MV-I | 12 | 10.8 | 9 | 7.5 | 5.5 | 4 | 2.5 | 0.8 | -- | -- |
| EBA.07L.1-MV-I | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBA.07L.2-MV-I | 26 | 22 | 18.2 | 14 | 10 | 6.3 | 2.4 | -- | -- | -- |
| EBA.10L.1-MV-I | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBA.10L.2-MV-I | 42 | 35.6 | 29.3 | 22.9 | 16.5 | 10.2 | 3.8 | -- | -- | -- |
| EBA.15L.1-MV-I | 95 | 80.6 | 66.2 | 51.8 | 37.4 | 23 | 8.6 | -- | -- | -- |
| EBA.07P.1-MV-I | 10.5 | 9.3 | 8.1 | 7 | 5.8 | 4.6 | 3.5 | 2.2 | 1.1 | -- |
| EBA.10P.1-MV-I | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.10P.2-MV-I | 21 | 18.7 | 16.4 | 14 | 11.8 | 9.5 | 7.1 | 4.8 | 2.5 | 0.2 |
| EBA.12P.1-MV-I | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.12P.2-MV-I | 27 | 24 | 21 | 18.1 | 15.1 | 12 | 9.2 | 6.2 | 3.3 | 0.3 |
| EBA.15P.1-MV-I | 37 | 32.9 | 28.8 | 24.8 | 20.7 | 16.6 | 12.6 | 8.5 | 4.5 | 0.4 |

Diagrams see pages 542 - 543



Base ejectors EBM - miniature size

Compressed air connection via quick fittings, vacuum connection via M-threads, exchangeable silencer element



Series with fixed tubing connection

∇ = Vacuum connection P = Compressed air connection Ex = Exhaust outlet

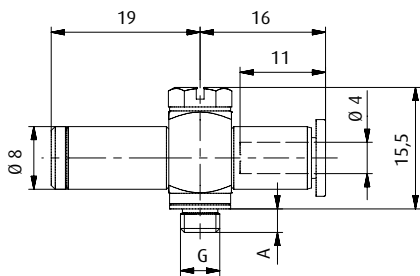
Product Description

- > High suction power for fast evacuation and short gripping time
- > Easy installation directly on the vacuum cup
- > Small dimensions for installation where space is limited
- > Robust design with nickel-plated brass body
- > Miniature silencer that can be dismantled for fast servicing and short downtimes

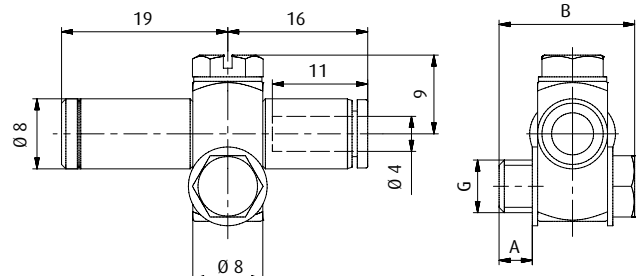
Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Final vacuum [%] | Suction power [NI/min] | Air consumption at 5 bar [NI/min] | Operating temperature [°C] | Weight [g] | Suitable spare silencer element |
|--------------------|----------------------|-----------------------------|------------------|------------------------|-----------------------------------|----------------------------|------------|---------------------------------|
| EBM.05H.5 | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 14.5 | EBA.05-S |
| EBM.05H.6 | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 14.5 | EBA.05-S |
| EBM.05H.5-W | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 17 | EBA.05-S |
| EBM.05H.6-W | 0.5 | 5 | 90 | 7 | 11.5 | 0 - 60 | 17.5 | EBA.05-S |

Dimensions



EBM.05H.5 | EBM.05H.6



EBM.05H.5-W | EBM.05H.6-W

| Item no. | G | A [mm] | B [mm] |
|--------------------|----|--------|--------|
| EBM.05H.5 | M5 | 3.5 | -- |
| EBM.05H.6 | M6 | 4 | -- |
| EBM.05H.5-W | M5 | 4 | 14.5 |
| EBM.05H.6-W | M6 | 6 | 15.5 |

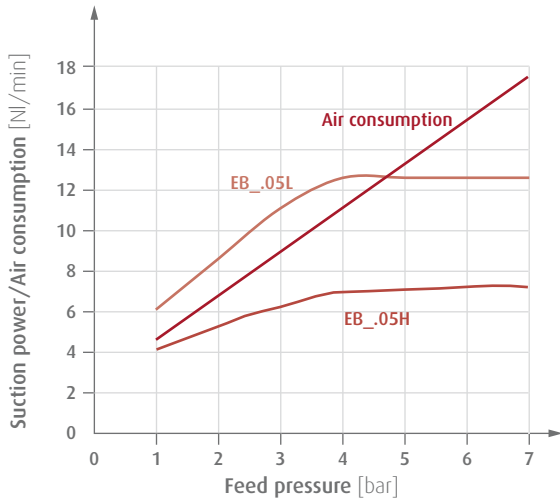
Suction power [NI/min] at vacuum level

| Item no. | 0 % | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % |
|--------------------|-----|------|------|------|------|------|------|------|------|
| EBM.05H.5 | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 |
| EBM.05H.6 | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 |
| EBM.05H.5-W | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 |
| EBM.05H.6-W | 7 | 6.2 | 5.4 | 4.6 | 3.8 | 3.1 | 2.3 | 1.5 | 0.7 |

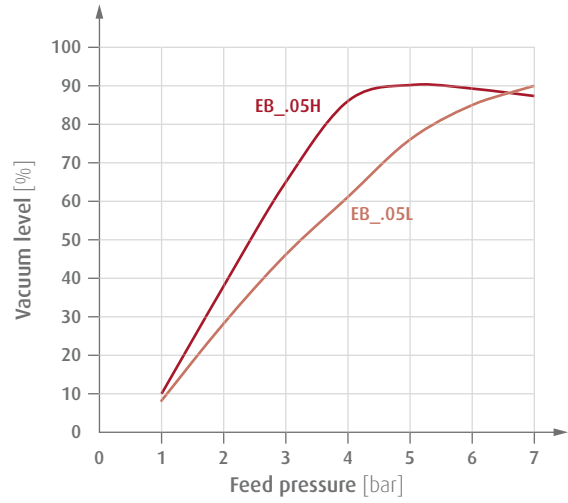
Diagrams see pages 542 - 543

Diagrams

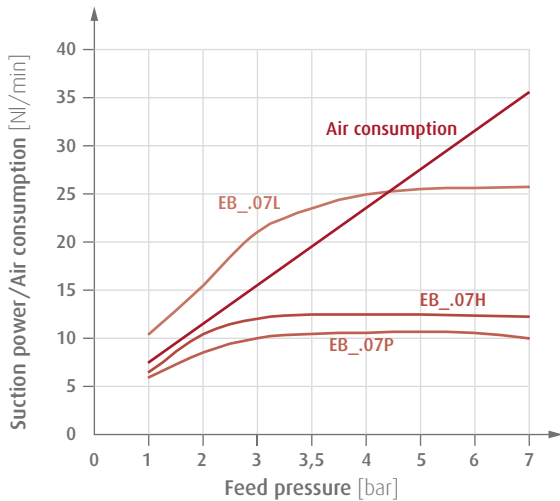
> Suction power and air consumption against feed pressure



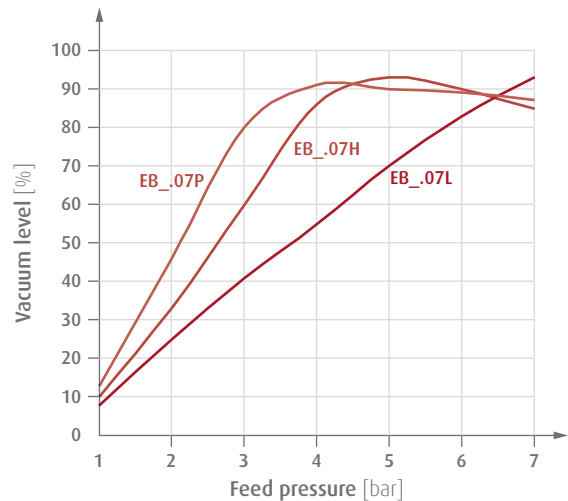
> Vacuum level against feed pressure



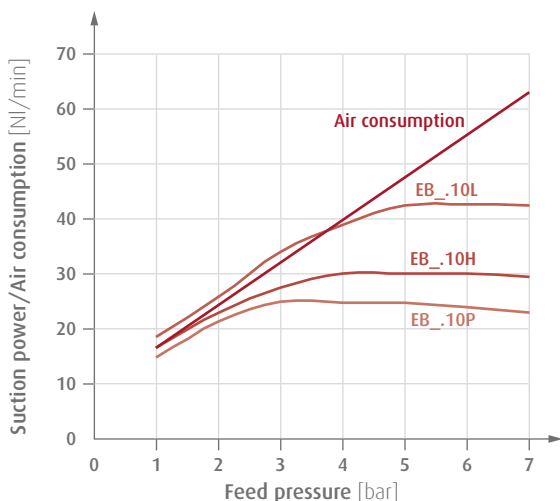
> Suction power and air consumption against feed pressure



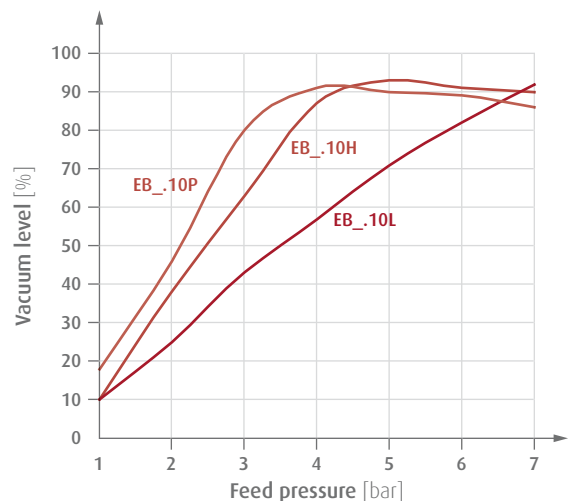
> Vacuum level against feed pressure



> Suction power and air consumption against feed pressure



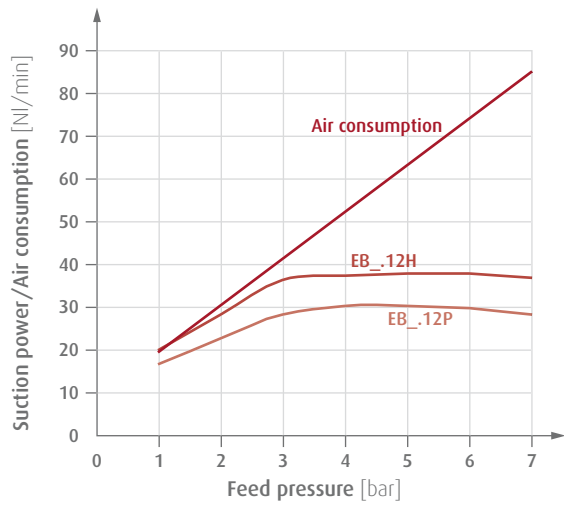
> Vacuum level against feed pressure



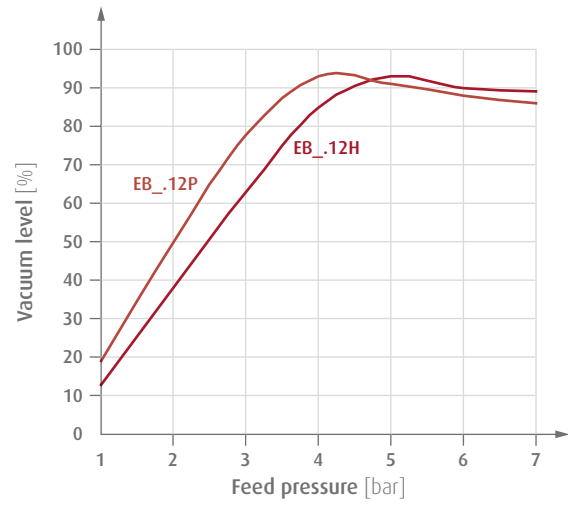


Diagrams

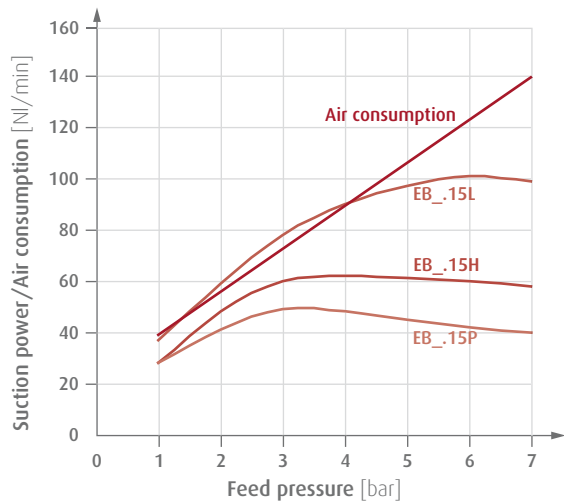
> Suction power and air consumption against feed pressure



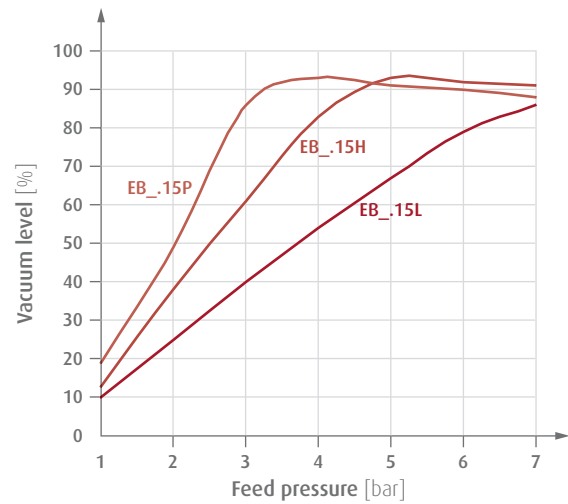
> Vacuum level against feed pressure



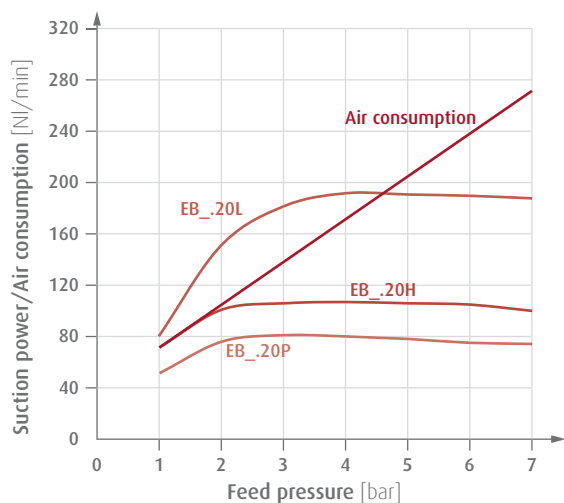
> Suction power and air consumption against feed pressure



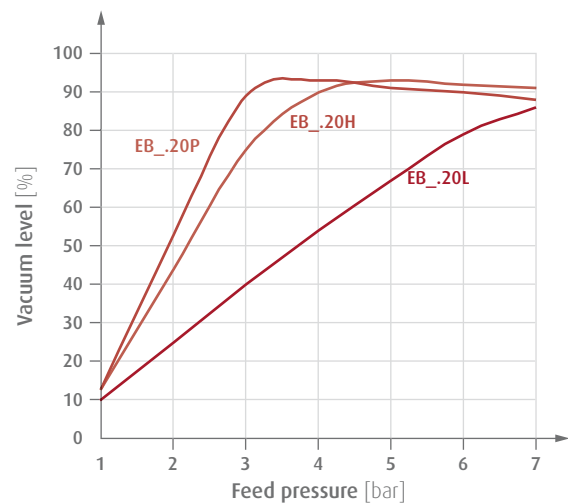
> Vacuum level against feed pressure



> Suction power and air consumption against feed pressure



> Vacuum level against feed pressure





Heavy-duty ejectors

Vacuum generation under harsh conditions of use



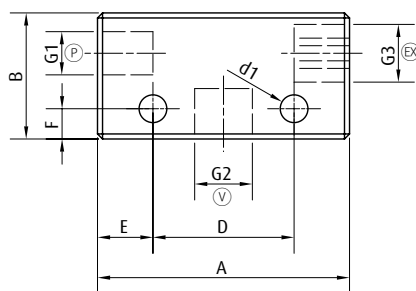
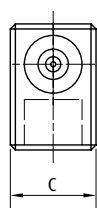
Product Description

- > Robust and compact aluminium housing
- > Compensation of compressed air fluctuations between 3 and 6 bar
- > Additional inlet for blow-off for fast product release or vacuum switch connection for process monitoring (65.111, 65.130)
- > Rectangular design enables block assembly in centralised or decentralised vacuum systems

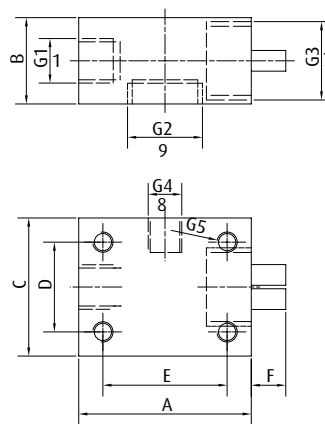
Technical data

| Item no. | Optimal feed pressure [bar] | Max. feed pressure [bar] | Final vacuum [%] | Suction power [Nl/min] | Air consumption to 4 bar [Nl/min] | Evacuation time 0 to 70 % [s/l] | Weight [g] | Suitable accessories |
|----------|-----------------------------|--------------------------|------------------|------------------------|-----------------------------------|---------------------------------|------------|--|
| 65.102A | 4 | 6 | 85 | 30 | 50 | 3.5 | 48 | Silencer 72.001 (p.578) Silencer 72.029 (p.577) |
| 65.111 | 4 | 6 | 85 | 33 | 60 | 3 | 120 | Silencer 72.002 (p.578) Silencer 72.030 (p.577) |
| 65.120 | 4 | 6 | 85 | 85 | 130 | 1.5 | 125 | Silencer 72.031 (p.577) |
| 65.130 | 4 | 6 | 85 | 130 | 240 | 0.7 | 225 | -- |

Dimensions



65.102A



65.111 | 65.120 | 65.130

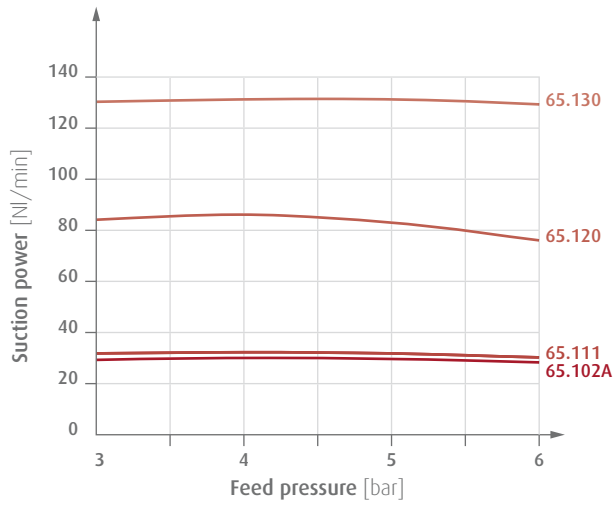
Ⓟ = Compressed air connection Ⓥ = Vacuum connection Ⓧ = Exhaust Ⓞ = Blow-off (65.111 and 65.130)

| Item no. | G1 | G2 | G3 | G4 | G5 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] |
|----------|------|------|------|------|-----|--------|--------|--------|--------|---------|--------|--------|
| 65.102A | G1/8 | G1/4 | G1/4 | -- | -- | 50 | 25 | 17 | 28 | 5.5 | 11 | 6 |
| 65.111 | G1/4 | G1/2 | G3/8 | G1/8 | 6.5 | 50 | 25 | 40 | 25 | -- | 34 | 8 |
| 65.120 | G1/4 | G1/2 | G1/2 | G1/8 | M6 | 50 | 25 | 40 | 25 | -- | 34 | 10 |
| 65.130 | G1/4 | G1/2 | G1 | G1/8 | M6 | 60 | 40 | 40 | 25 | -- | 34 | -- |

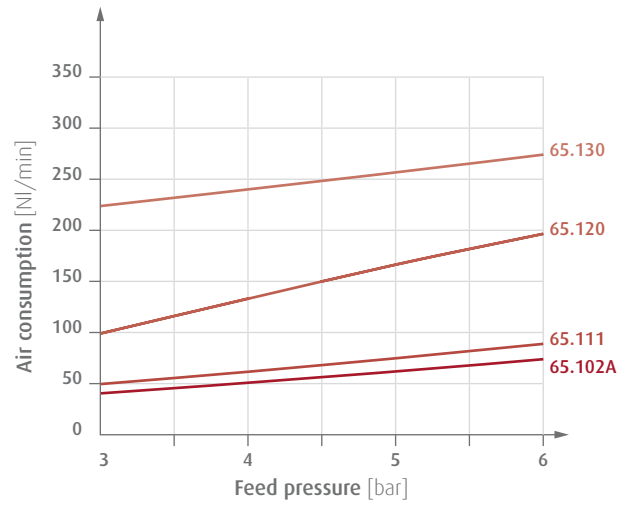


Diagrams

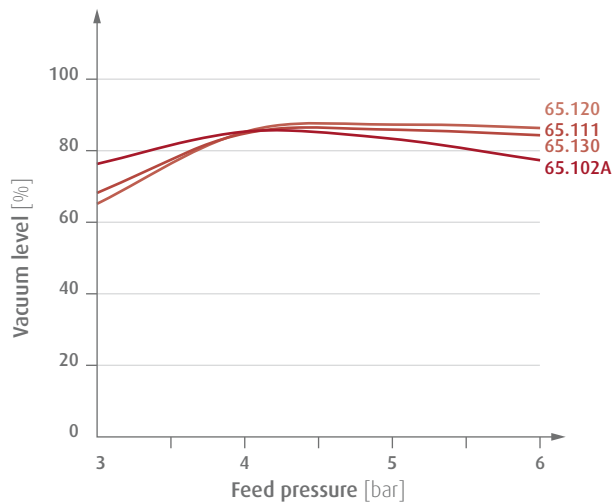
> Suction power against feed pressure



> Air consumption against feed pressure



> Vacuum level against feed pressure

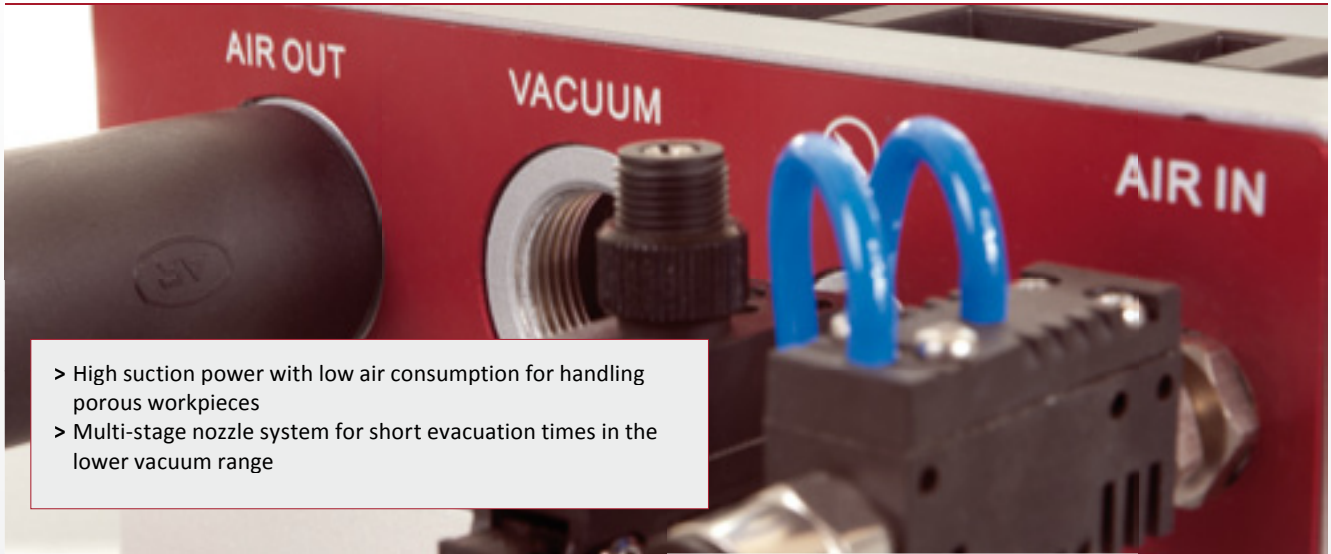


Suction power [NI/min] at vacuum level

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % |
|----------|------|------|------|------|------|------|------|------|
| 65.102A | 25 | 23 | 19 | 15 | 13 | 8 | 4 | 1 |
| 65.111 | 25 | 23 | 20 | 17 | 13 | 8 | 4 | 1 |
| 65.120 | 76 | 66 | 55 | 41 | 34 | 22 | 12 | 3 |
| 65.130 | 182 | 160 | 135 | 69 | 52 | 33 | 17 | 6 |



FIPA Multi-chamber ejectors



- > High suction power with low air consumption for handling porous workpieces
- > Multi-stage nozzle system for short evacuation times in the lower vacuum range



Multi-chamber ejectors 65.310 - 65.330

- > Robust aluminium construction
- > Very compact design for space-saving installation in handling systems
- > Low weight allows for high handling dynamics

> See page 548



Multi-chamber ejectors 65.410

- > Robust aluminium construction
- > Particularly fast product release due to additional compressed air inlet for blow-off

> See page 548



Multi-chamber ejectors 65.340 - 65.390

- > Robust aluminium construction
- > Compensation of fluctuations in compressed air supply
- > Compressed air inlet for blow-off enables fast release of the workpiece (65.410)
- > Optional air-saving function when handling dense products

> See page 550



FIPA Multi-chamber ejectors

Examples of use

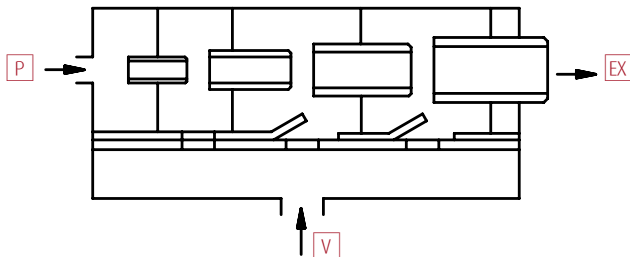
- > Handling porous materials (cardboard, wood fiber boards, insulation materials, etc.)
- > Handling dense workpieces at moderate cycle times (single-stage ejectors such as basic or compact ejectors are generally preferable for short cycle times in the handling of heavy products, as these more quickly achieve high vacuum levels)

Multi-chamber ejectors with air-saving function (65.340-LSE - 65.390-LSE)

- > Handling of products with different air permeabilities (activation of the air-saving function for heavy products)
- > Switch-off of vacuum generation while assuming a “waiting position” in the event of a delay in downstream processes
- > Saving compressed air when using multi-chamber ejectors for the supply of vacuum tanks

Functional principle

Prior to discharge into the atmosphere, the compressed air flows through a series of several connected nozzle chambers. In this way the kinetic energy of the supplied compressed air generates a partial vacuum in each of the chambers. These ejectors set themselves apart from single-stage ejectors such as basic or compact ejectors thanks to their lower consumption of compressed air despite the same suction power.





Multi-chamber ejectors



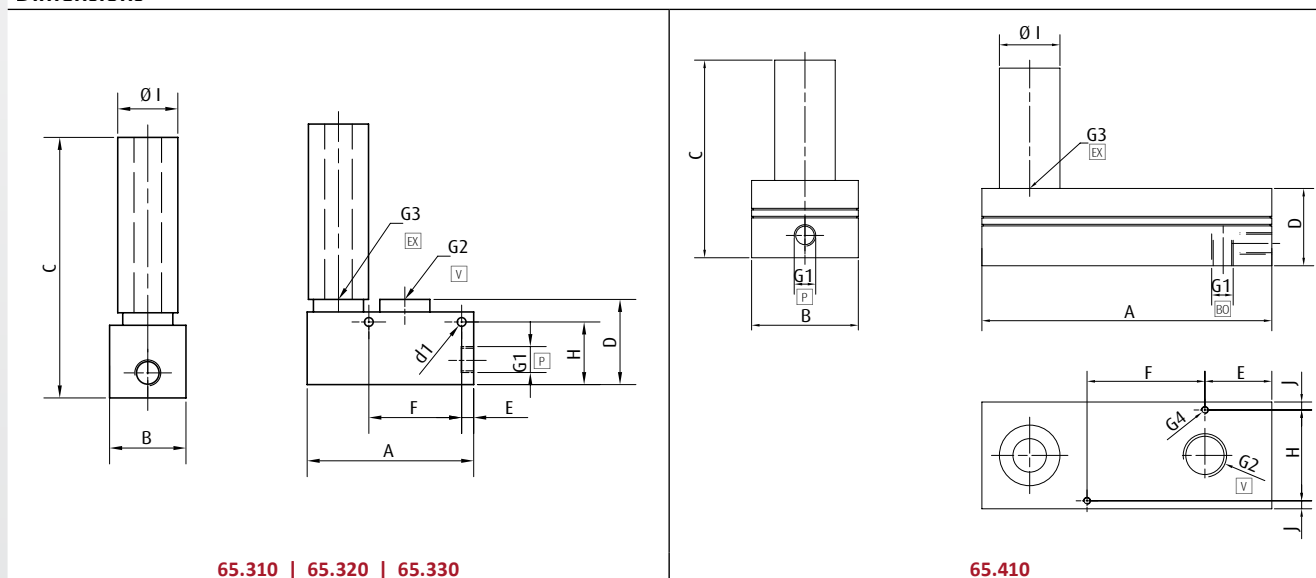
Product Description

- > Handling of air-permeable products, or for high leakages
- > High suction power for short evacuation times and fast vacuum build-up
- > Low space requirements due to small construction size (65.310 - 65.330)
- > Particularly fast product release due to additional compressed air inlet for blow-off (65.410)
- > Noise-optimised operation due to open silencer
- > Industry examples: packaging and printing

Technical data

| Item no. | Optimal feed pressure [bar] | Max. feed pressure [bar] | Final vacuum [%] | Suction power [NI/min] | Air consumption at 6 bar [NI/min] | Evacuation time 0 to 70 % [s/l] | Weight [g] |
|----------|-----------------------------|--------------------------|------------------|------------------------|-----------------------------------|---------------------------------|------------|
| 65.310 | 6 | 7 | 85 | 120 | 56 | 1.95 | 111 |
| 65.320 | 6 | 7 | 85 | 180 | 108 | 1.07 | 111 |
| 65.330 | 6 | 7 | 85 | 250 | 144 | 0.5 | 169 |
| 65.410 | 6 | 7 | 85 | 320 | 95 | 1.15 | 1,006 |

Dimensions



65.310 | 65.320 | 65.330

65.410

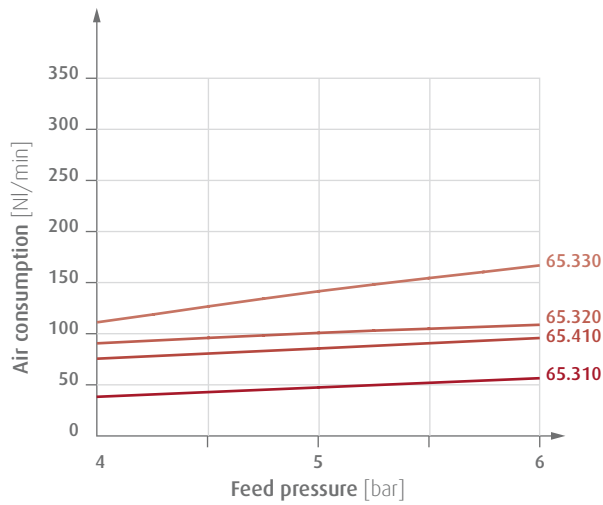
[P] = Compressed air connection [V] = Vacuum connection [EX] = Exhaust [BO] = Compressed air connection for blow-off

| Item no. | G1 | G2 | G3 | G4 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] | H [mm] | Ø I [mm] | J [mm] |
|----------|------|------|------|----|--------|--------|--------|--------|---------|--------|--------|--------|----------|--------|
| 65.310 | G1/8 | G3/8 | G3/8 | -- | 67 | 31 | 104 | 34 | 3.7 | 9.6 | 32.5 | 24 | 24 | -- |
| 65.320 | G1/8 | G1/8 | G3/8 | -- | 67 | 31 | 104 | 34 | 3.7 | 9.6 | 32.5 | 24 | 24 | -- |
| 65.330 | G1/8 | G1/2 | G3/8 | -- | 67 | 45 | 114 | 44 | 3.7 | 10.5 | 46.5 | 13.3 | 24 | -- |
| 65.410 | G1/4 | G1/2 | G1/2 | M4 | 182 | 67 | 124.5 | 49 | -- | 41.5 | 74 | 57 | 38 | 5 |

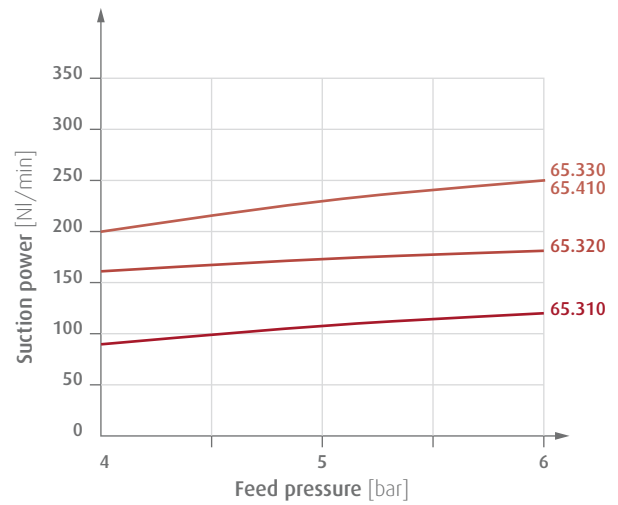


Diagrams

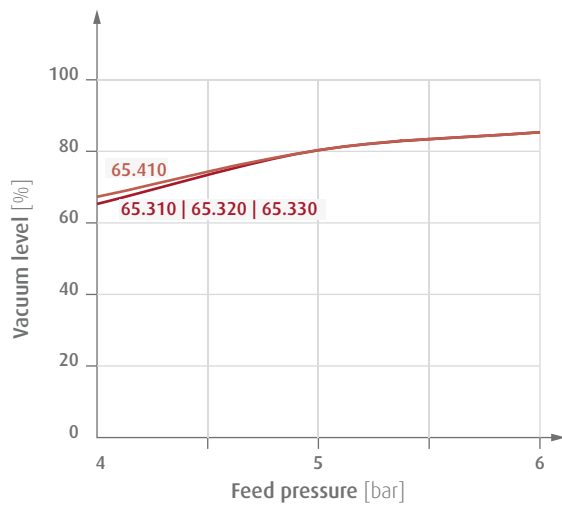
> Air consumption against feed pressure



> Suction power against feed pressure



> Vacuum level against feed pressure



Suction power [NI/min] at vacuum level

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % |
|----------|------|------|------|------|------|------|------|------|
| 65.310 | 89 | 62 | 38 | 22 | 18 | 10 | 5 | -- |
| 65.320 | 130 | 81 | 52 | 30 | 22 | 14 | 8 | -- |
| 65.330 | 178 | 116 | 91 | 63 | 44 | 15 | 6 | -- |
| 65.410 | 175 | 118 | 58 | 42 | 33 | 23 | 16 | 10 |



Multi-chamber ejectors

High suction power for fast vacuum build up with porous workpieces



Application example: Multi-chamber ejector with vacuum gauge 91.001 (mounting on front or rear side)



Application example: Multi-chamber ejector 65.340-LSE with air saving function

Product Description

- > High vacuum level at low feed pressures, and thus particularly efficient use of compressed air as well as suitability for fluctuating air pressure levels
- > Handling of porous products, or for high leakages
- > High suction power for short evacuation times in the lower vacuum range
- > Noise-optimised operation due to open silencer
- > Industry examples: packaging and printing

Air saving function (Index LSE)

- > Saving compressed air during handling of dense workpieces
- > Examples of use:
Automatic switching off of vacuum generation during pick-and-place applications of dense workpieces if e.g. downstream processes are delayed. Saving compressed air when using the multi-chamber ejectors for feeding vacuum tanks.

Notes

Construction / operation (Index -LSE):

- > Combination of pneumatic control valve with spring return and normally closed (NC) pneumatic vacuum switch
- > Setting target vacuum values by means of setting screw
- > Compressed air is conveyed through the valve to the compressed-air inlet of the injector; there is a partial airflow at input 1 of the vacuum switch
- > When set target vacuum is reached, vacuum switch opens, compressed air from input 1 is conducted to the control valve via output 2 and closes it - the vacuum generation is stopped
- > If the vacuum level has reached the hysteresis value (see table), the vacuum switch closes again and the spring opens the control valve - vacuum generation is activated again
- > Please note: The air saving function does not work with porous products, or in the case of high leakage

Ordering notes

- > Seals optionally available in NBR as standard
- > Optionally available in EPDM or Viton upon request
- > Included in scope of delivery: two mounting brackets and G1/4"-AG - Ø 10 mm quick fitting for compressed air connection

Technical data

| Item no. | 65.340 | 65.350 | 65.360 | 65.370 | 65.380 | 65.390 |
|---|--------|--------|--------|--------|--------|--------|
| Optimal feed pressure [bar] | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 |
| Max. feed pressure [bar] | 7 | 7 | 7 | 7 | 7 | 7 |
| Final vacuum at 3.4 bar [%] | 92 | 92 | 92 | 92 | 92 | 92 |
| Final vacuum at 6 bar [%] | 89 | 89 | 89 | 89 | 89 | 89 |
| Suction power at 3.4 bar [NI/min] | 360 | 600 | 760 | 850 | 1,150 | 1,200 |
| Suction power at 6 bar [NI/min] | 420 | 700 | 950 | 1,010 | 1,400 | 1,500 |
| Air consumption at 3.4 bar [NI/min] | 116 | 230 | 365 | 445 | 545 | 655 |
| Air consumption at 6 bar [NI/min] | 185 | 370 | 610 | 720 | 780 | 810 |
| Evacuation time 1 liter from 0 to 70 % at 3.4 bar [s] | 0.95 | 0.5 | 0.46 | 0.27 | 0.2 | 0.23 |



Technical data

| Item no. | 65.340 | 65.350 | 65.360 | 65.370 | 65.380 | 65.390 |
|--|---|----------|----------|----------|----------|----------|
| Evacuation time 0 to 70 % at 6 bar [s] | 0.62 | 0.35 | 0.31 | 0.19 | 0.19 | 0.2 |
| Vacuum switch hysteresis at LSE [mbar] | 120 | 120 | 120 | 120 | 120 | 120 |
| Noise level with silencer [dB] | 60 - 65 | 60 - 65 | 60 - 65 | 60 - 65 | 60 - 65 | 60 - 65 |
| Usage temperature [°C] | -20 - 80 | -20 - 80 | -20 - 80 | -20 - 80 | -20 - 80 | -20 - 80 |
| Weight incl. silencer [g] | 690 | 690 | 880 | 880 | 1,160 | 1,160 |
| Suitable accessories | Vacuum gauge 91.001 (p.696) Vacuum switch 20.021 (p.691) Double nipple 270.138 (p.751) Double nipple 270.148 (p.751) | | | | | |

When ordering please specify

Air saving function

| Item no. | Design |
|-------------|-----------------------------|
| 65.340 | without air saving function |
| 65.340 -LSE | with air saving function |

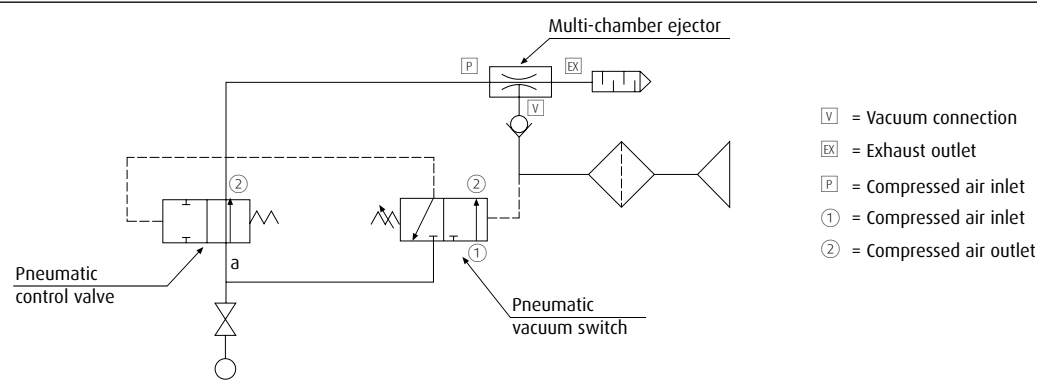
Already built in for 65.340-LSE to 65.390-LSE.

If the LSE is integrated in already delivered structurally identical ejectors without an air saving function, a non-return valve, item no. 32.662, is necessary at the compressed air input. For conversion of existing ejectors please consult the FIPA technical sales department.

For 65-380-LSE and 65.390-LSE:

It is recommended particular to consult FIPA technical sales department as to whether an air saving function is useful in the application.

Wiring diagram air saving function LSE



Continued on the next page →



Suction power [NI/min] at vacuum level (feed pressure 3.4 bar)

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|----------|------|------|------|------|------|------|------|------|------|
| 65.340 | 180 | 115 | 80 | 43 | 30 | 22.5 | 15.5 | 7.5 | 1.2 |
| 65.350 | 320 | 250 | 135 | 75 | 60 | 46 | 30 | 13 | 1.5 |
| 65.360 | 445 | 340 | 175 | 110 | 85 | 70 | 43 | 20 | 1.8 |
| 65.370 | 550 | 430 | 280 | 145 | 115 | 85 | 60 | 28 | 2.2 |
| 65.380 | 760 | 530 | 350 | 180 | 148 | 115 | 78 | 34.5 | 3.5 |
| 65.390 | 830 | 550 | 360 | 215 | 170 | 130 | 90 | 36 | 5 |

Suction power [NI/min] at vacuum level (feed pressure 6 bar)

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|----------|------|------|------|------|------|------|------|------|------|
| 65.340 | 240 | 125 | 100 | 82 | 65 | 38 | 12.5 | 3.5 | -- |
| 65.350 | 510 | 290 | 195 | 160 | 115 | 70 | 22 | 8 | -- |
| 65.360 | 710 | 380 | 285 | 230 | 170 | 100 | 32 | 11 | -- |
| 65.370 | 800 | 460 | 385 | 310 | 215 | 125 | 42 | 15.5 | -- |
| 65.380 | 1120 | 560 | 490 | 355 | 260 | 150 | 50 | 25 | -- |
| 65.390 | 1110 | 630 | 560 | 385 | 315 | 210 | 65 | 26 | -- |

Evacuation time [s/l] at vacuum level (operating pressure 3.4 bar)

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|----------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 65.340 | 0.022 | 0.06 | 0.11 | 0.21 | 0.4 | 0.65 | 0.95 | 1.6 | 4 |
| 65.350 | 0.014 | 0.031 | 0.06 | 0.1 | 0.2 | 0.34 | 0.5 | 0.8 | 2.5 |
| 65.360 | 0.012 | 0.029 | 0.058 | 0.095 | 0.18 | 0.31 | 0.46 | 0.89 | 1.5 |
| 65.370 | 0.01 | 0.025 | 0.043 | 0.075 | 0.11 | 0.19 | 0.27 | 0.45 | 1.2 |
| 65.380 | 0.006 | 0.015 | 0.029 | 0.052 | 0.085 | 0.145 | 0.202 | 0.33 | 1 |
| 65.390 | 0.005 | 0.013 | 0.027 | 0.045 | 0.07 | 0.105 | 0.23 | 0.46 | 0.9 |

Evacuation time [s/l] at vacuum level (operating pressure 6 bar)

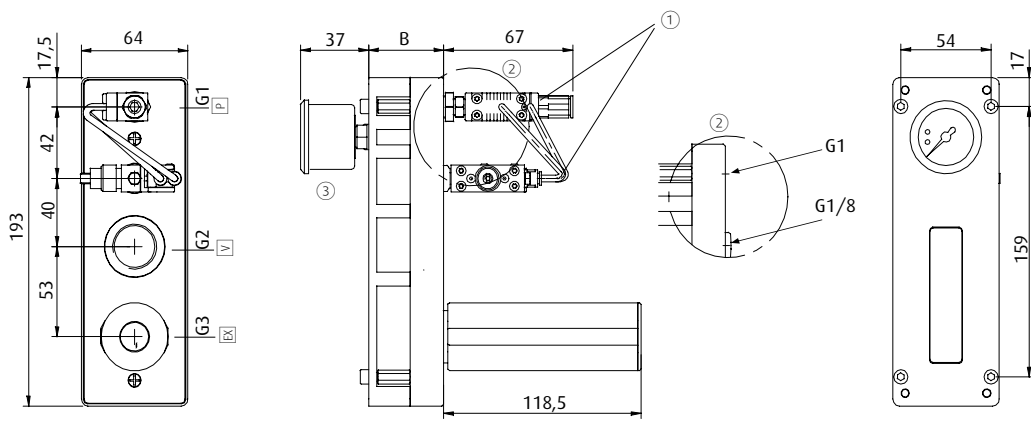
| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 90 % |
|----------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 65.340 | 0.018 | 0.05 | 0.08 | 0.18 | 0.25 | 0.4 | 0.62 | 1.55 | -- |
| 65.350 | 0.01 | 0.022 | 0.048 | 0.08 | 0.11 | 0.2 | 0.35 | 0.78 | -- |
| 65.360 | 0.009 | 0.019 | 0.045 | 0.075 | 0.13 | 0.18 | 0.31 | 0.7 | -- |
| 65.370 | 0.007 | 0.018 | 0.038 | 0.055 | 0.08 | 0.12 | 0.19 | 0.47 | -- |
| 65.380 | 0.005 | 0.013 | 0.026 | 0.045 | 0.062 | 0.115 | 0.194 | 0.56 | -- |
| 65.390 | 0.003 | 0.009 | 0.014 | 0.030 | 0.060 | 0.095 | 0.2 | 0.8 | -- |



Recommended inner diameter [mm] for tubing up to length of 2 meter

| Item no. | | Air supply | Vacuum | Exhaust |
|----------|------------|------------|--------|---------|
| 65.340 | 65.340-LSE | > 4 | > 12 | > 12 |
| 65.350 | 65.350-LSE | > 6 | > 15 | > 15 |
| 65.360 | 65.360-LSE | > 8 | > 19 | > 22 |
| 65.370 | 65.370-LSE | > 8 | > 19 | > 22 |
| 65.380 | 65.380-LSE | > 10 | > 25 | > 32 |
| 65.390 | 65.390-LSE | > 10 | > 25 | > 32 |

Dimensions



① = Air saving function (optional) ② = Connection vacuum gauge and/or vacuum switch ③ = Vacuum gauge (optional)
 P = Compressed air connection V = Vacuum connection E = Exhaust outlet

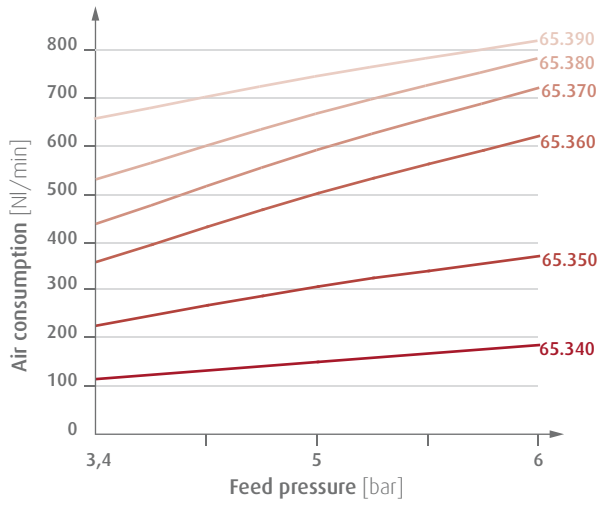
| Item no. | 65.340 | 65.350 | 65.360 | 65.370 | 65.380 | 65.390 |
|----------|--------|--------|--------|--------|--------|--------|
| G2 | G3/4 | G3/4 | G3/4 | G3/4 | G1 | G1 |
| G3 | G3/4 | G3/4 | G3/4 | G3/4 | G1 | G1 |
| A [mm] | 163.5 | 163.5 | 183.5 | 183.5 | 203.5 | 203.5 |
| B [mm] | 45 | 45 | 65 | 65 | 85 | 85 |
| G1 | G1/4 | G1/4 | G1/4 | G1/4 | G1/4 | G1/4 |

Continued on the next page →

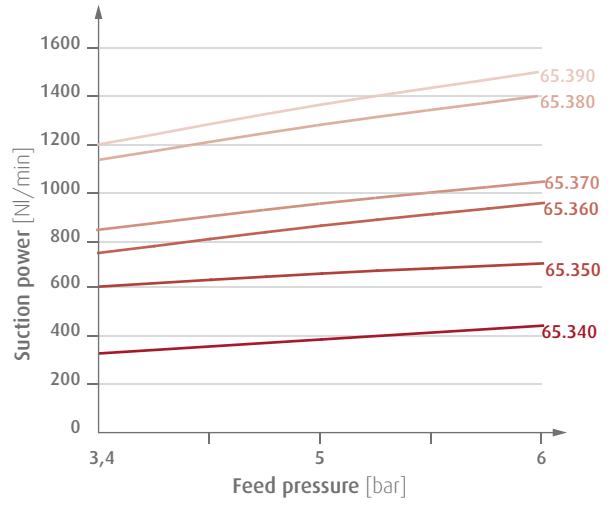


Diagrams

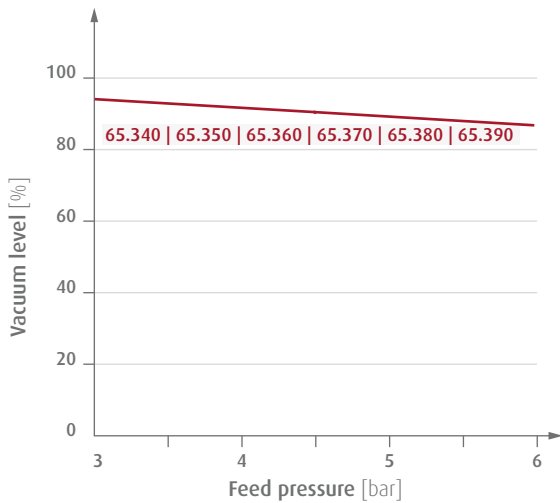
> Air consumption against feed pressure



> Suction power against feed pressure



> Vacuum level against feed pressure





FIPA Compact ejectors



> Highly efficient vacuum supply, regardless of the air permeability of the workpiece



Compact ejectors EMM / EMA

- > Handling of dense and porous workpieces
- > Very compact design for in-line installation directly onto the vacuum cup
- > Integrated vacuum monitoring
- > Integrated pressure-regulating air saving function reduces operating costs by up to 50 %

EMM

- > Pressure-regulating air saving function plus valves for electronic vacuum and blow-off control ensure short cycle times

> See page 556

EMA

- > Pressure-regulating air saving function and electronic air saving function reduce operating costs by up to 97 % for dense workpieces

> See page 559



Compact ejectors EKPP / EKP

- > Handling of dense and porous workpieces
- > Integrated pressure-regulating air saving function reduces operating costs by up to 50 %
- > Process monitoring via optional vacuum switch

EKPP

- > Base version, with pressure-regulating air saving function, no valves
- > Performance data identical to that of EKP

EKP

- > Pressure-regulating air saving function plus electronic vacuum and blow-off control for short cycle times

> See page 563



Vacuum generation | Compact ejectors

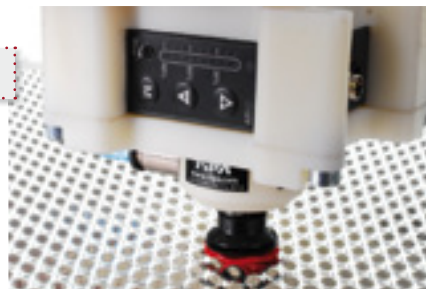
Ejectors with air saving function EMM

Ejectors with air saving function EMM

Energy saving function by integrated pressure control



SAVES UP TO 50 % OF ENERGY



Ejector EMM integrated into gripper housing for Delta robots with Varioflex® bellows vacuum cups and workpiece

V = Vacuum connection P = Compressed air connection Ex = Exhaust outlet

Product Description

- > Handling of dense and porous workpieces
- > Within the supply pressure of 4 - 8 bar, the ejector works at 3.5 bar with same high performance
- > Energy saving increases along with the difference between supply pressure and operating pressure
- > Electronic vacuum and blow-off control for short cycle times
- > Manual adjustment of the blow-off flow rate using a setscrew
- > Very compact design with integrated open silencer
- > Dust-resistant design, no additional filters required

Ordering notes

- > Two model ranges available
 - EMM.90: for dense workpieces, max. vacuum level 90 %
 - EMM.60: Higher suction power for porous workpieces, max. vacuum level 60 %
- > Optionally available with integrated check valve to maintain vacuum in case of power failure

Technical data

| Item no. | EMM.60x10 | EMM.60x12 | EMM.60x14 | EMM.90x10 | EMM.90x12 | EMM.90x14 |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Nozzle diameter [mm] | 1 | 1.2 | 1.4 | 1 | 1.2 | 1.4 |
| Feed pressure [bar] | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 |
| Internal working pressure [bar] | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Final vacuum [%] | 60 | 60 | 60 | 90 | 90 | 90 |
| Suction power [NI/min] | 38 | 72 | 92 | 29 | 45 | 70 |
| Air consumption [NI/min] | 44 | 65 | 90 | 44 | 65 | 90 |
| Protection class | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 |
| Operating principle | NC | NC | NC | NC | NC | NC |
| Control voltage | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % |
| Current consumption for vacuum and blow-off feature [mA] | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) |
| Operating temperature [°C] | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 |
| Weight [g] | 120 | 120 | 120 | 120 | 120 | 120 |
| Suitable connector cable | 20.501 (p.717) 20.502 (p.717) | 20.501 (p.717) 20.502 (p.717) | 20.501 (p.717) 20.502 (p.717) | 20.501 (p.717) 20.502 (p.717) | 20.501 (p.717) 20.502 (p.717) | 20.501 (p.717) 20.502 (p.717) |



When ordering please specify

Type + Vacuum level x Nozzle diameter + Composition of module + Vacuum switch = Item number

Example: **EMM.90x12-AVA**

(Compact ejector EMM, vacuum level 90 %, nozzle diameter 1.2 mm, with controlled blow-off-function and with electric vacuum switch with display)

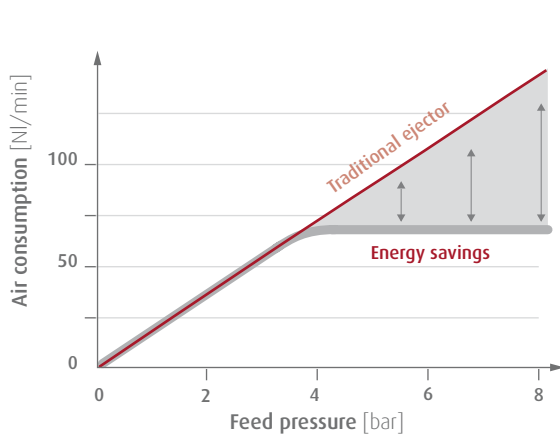
| 1.: Type | 2.: Vacuum level | | 3.: Nozzle diameter | | 4.: Composition of module | | 5.: Vacuum switch | | 6.: Optional | |
|----------|------------------|--|---------------------|----|---------------------------|---|-----------------------------------|----|-----------------------|-------------------------------|
| EMM. | 60 | max. 60 % vacuum (porous products) | X | 10 | ∅ 1.0 mm | E | without blow-off-function | VA | digital with display | _CV (with check valve) |
| | | max. 90 % vacuum (non-porous products) | | 12 | ∅ 1.2 mm | A | with controlled blow-off-function | VO | without vacuum switch | |
| | 14 | ∅ 1.4 mm | | | | | | | | |

Suitable connector cables for vacuum switch:

20.501: M8 thread, female, 4-pin, straight plug, cable length 5 m

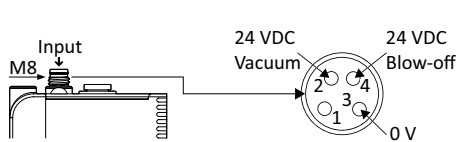
20.502: M8 thread, female, 4-pin, 90° elbow plug, cable length 5 m

Display of the energy saving potential by integrated pressure control

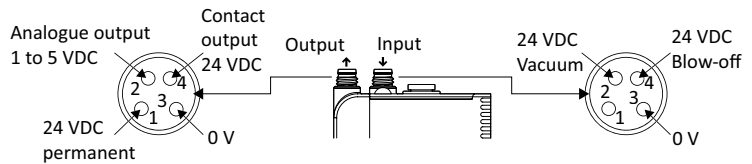


Vacuum switches

Ejectors without vacuum switch



Ejectors with vacuum switch



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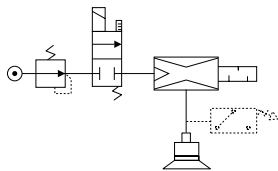


Vacuum generation | Compact ejectors

Ejectors with air saving function EMM

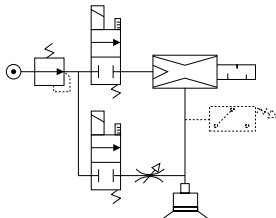
Pneumatic Diagram

Ejector with blow-off-function
EMM__X__EV__



- > Basic product
- > Only one control signal
- > Display of vacuum level
- > Manual control option

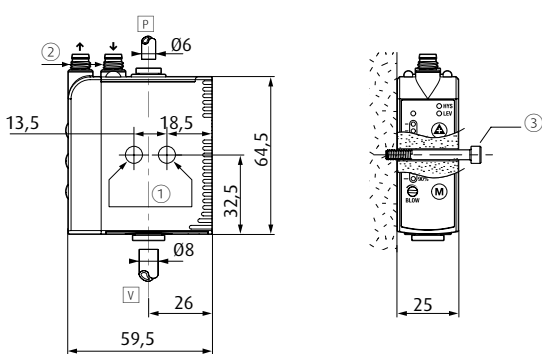
Ejector with controlled blow-off-function
EMM__X__AV__



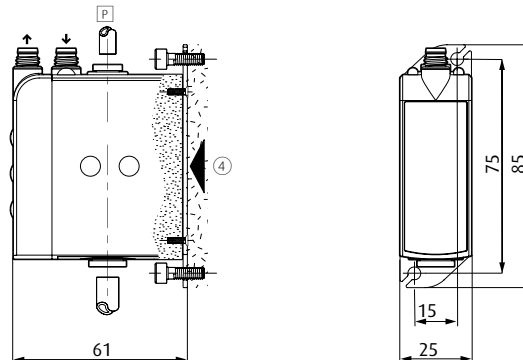
- > Automatic blow-off through external signal, with adjusting screw
- > Two control signals
- > Display of vacuum level and blow-off-function
- > Manual control option

Dimensions and mounting options

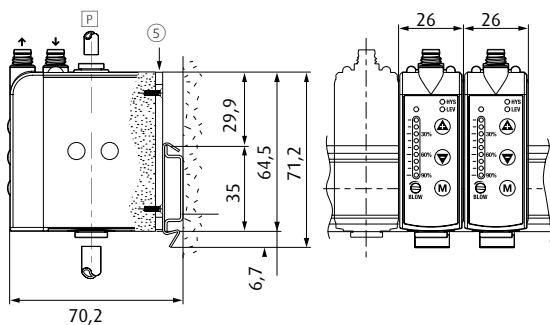
> Mounting sideways



> Mounting in the front



> Block mounting on a DIN rail



- P = Compressed air connection V = Vacuum connection ① = 2 Bore holes for 4 mm screws ② = M8 plug ③ = 2 Continuous screws
 ④ = Mounting plate with 4 screws (Item no. EMM.FIX-V)
 ⑤ = Mounting plate for DIN rail with 4 screws (Item no. EMM.FIX-D) - on plate per EMM-module

Evacuation time [sec.] for 1 liter at vacuum level

| Item no. | 30 % | 40 % | 45 % | 50 % | 55 % | 60 % | 65 % | 70 % | 75 % | 80 % |
|-----------|------|------|------|------|------|------|------|------|------|------|
| EMM.60x10 | 0.66 | 1.04 | 1.31 | 1.7 | 2.35 | -- | -- | -- | -- | -- |
| EMM.60x12 | 0.41 | 1.66 | 0.83 | 1.07 | 1.49 | -- | -- | -- | -- | -- |
| EMM.60x14 | 0.27 | 0.43 | 0.54 | 0.7 | 0.97 | -- | -- | -- | -- | -- |
| EMM.90x10 | -- | -- | -- | -- | 1.76 | 2.04 | 2.38 | 2.8 | 3.33 | 4.09 |
| EMM.90x12 | -- | -- | -- | -- | 1.13 | 1.31 | 1.8 | 2.15 | 2.15 | 2.64 |
| EMM.90x14 | -- | -- | -- | -- | 0.73 | 0.85 | 0.99 | 1.16 | 1.38 | 1.7 |

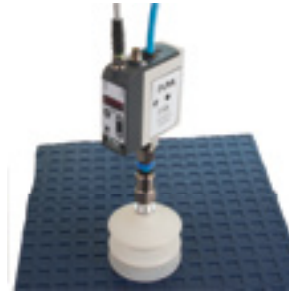


Ejectors with air saving function EMA

Double energy efficient by integrated pressure control and electronic air saving function



SAVES UP TO 97 % OF ENERGY



Ejector EMA with bellows vacuum cup and workpiece

Product Description

- > Electronic air saving function reduces operating costs by up to 97 % with dense workpieces
- > Pressure regulation energy-saving function at constant 3.5 bar reduces operating costs by up to 50 % with porous workpieces
 - Energy saving increases along with the difference between supply pressure and operating pressure
- > Electronic vacuum and blow-off control for short cycle times
- > Manual adjustment of the blow-off flow rate using a setscrew
- > Very compact design with integrated open silencer
- > Dust-resistant design, no additional filters required

Notes

- > If the ejector experiences power failure, the workpiece is only held by the vacuum between non-return valve and product surface
- > Vacuum and blow-off are controlled using a single signal

Technical data

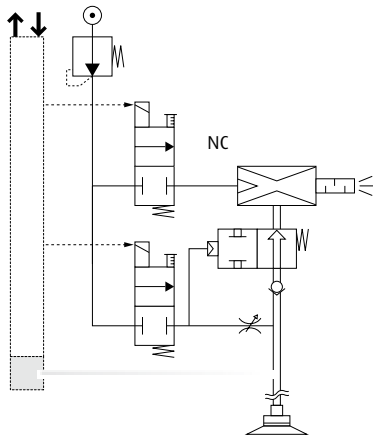
| Item no. | EMA.90x14 |
|--|----------------------------------|
| Nozzle diameter [mm] | 1.4 |
| Feed pressure [bar] | 4 - 8 |
| Internal working pressure [bar] | 3.5 |
| Final vacuum [%] | 90 |
| Suction power [NI/min] | 70 |
| Air consumption [NI/min] | 90 |
| Protection class | IP65 |
| Operating principle | NC |
| Control voltage | 24 VDC (adjusted) ± 10 % |
| Current consumption for vacuum and blow-off feature [mA] | 30 (0.7 W) |
| Operating temperature [°C] | 10 - 60 |
| Weight [g] | 130 |
| Suitable connector cable | 20.502 (p.717) 20.501 (p.717) |

Continued on the next page →

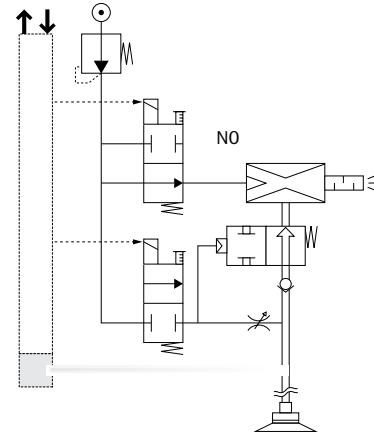


Pneumatic diagram

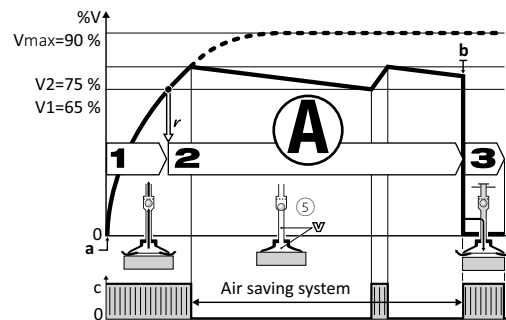
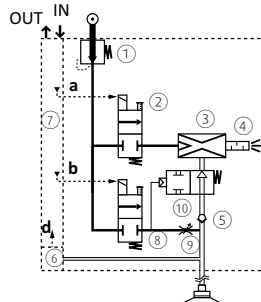
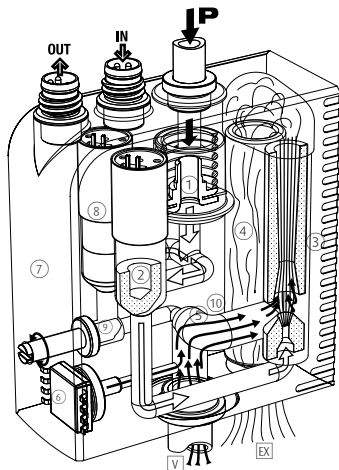
Solenoid valve NC



Solenoid valve NO



Operating principle EMA series



1. Gripping the workpiece

The vacuum solenoid valve ② starts the cycle. Venturi nozzle ③ is supplied with compressed air and generates the vacuum to grip the item quickly with the vacuum cup → short-term energy consumption.

2. Operations on the suctioned item

The vacuum level is continually monitored by the vacuum switch ⑥. When the vacuum threshold limit V1 (65 %) is reached the signal "Item gripped" is triggered. This gives a green light for the scheduled operation (transfer, processing etc.). When the vacuum reaches the threshold limit V2 (75 %), the compressed air supply to the venturi nozzles via the solenoid valve ⑤ is interrupted. Energy consumption falls to zero. The item remains gripped because of the vacuum that remains because of the closed non-return valve. Tiny leakages often lead to a slow release of the vacuum. If the vacuum falls to the threshold limit of 65 %, new vacuum is briefly generated, i.e. until the threshold limit V2 (75 %) is reached.

3. Releasing the workpiece

At the end of the procedures blow-off is triggered. The blow-off valve ⑧ generates an air jet that closes the closing valve ⑩. This blows off the item using the air pressure regulator ⑨ so that it can be released more quickly.



Nozzle diameter and energy saving potential

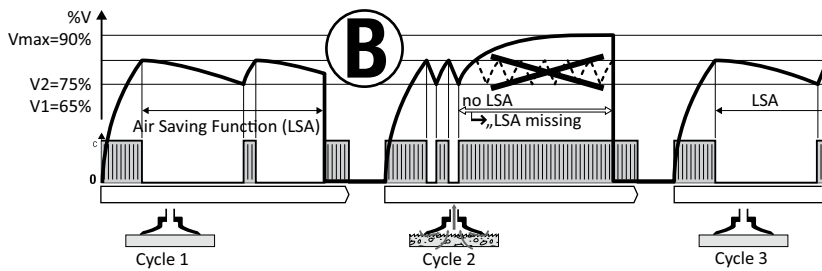
Air saving control cycle self-adaptation

Cycle 1:
Deals with an air tight product under the influence of LSA, resulting in optimum energy savings.

Cycle 2:
The porous product generates leaks that provoke repeated intermittent vacuum regeneration. The anomaly is automatically detected, and the cycle goes on but without LSA. An LSA missing signal is then emitted and displayed, and production goes on.

Cycle 3:
Illustrates the automatic return to the LSA cycle as soon as leaks are eliminated due to air tight products. Vacuum level will be maintained.

The compact-ejector EMA thus provides maximum energy saving, without any limitations to the performance and functioning of the overall production system.



| Without automatic air saving system | | | With automatic air saving system | | |
|-------------------------------------|------------------------|--------------------------|--------------------------------------|--------------------------------------|--------------------------|
| Nozzle diameter [mm] | Suction power [NI/min] | Air consumption [NI/min] | Suction duration (65 % vacuum) [sec] | Suction duration (75 % vacuum) [sec] | Air consumption [NI/min] |
| 1 | 29 | 44 | 2.38 | 3.33 | 2.2 |
| 1.2 | 45 | 65 | 1.53 | 2.15 | 2.2 |
| 1.4 | 70 | 90 | 0.99 | 1.38 | 2.2 |

> Automatic air saving system activation allows a larger tube diameter to grip more quickly without increased consumption.

Example of the air saving potential

The examples show how the automatic air saving function reduces the energy demand:
 > 75 % energy saved during product transfer
 > 97 % energy saved during holding products while they are further processed or treated
 The investment will often amortise itself within a couple of months.

Gripping + Transfer (Nozzle Ø 1.4 mm, Evacuation of 0.2 l)

| Phase | Duration | Air consumption | | air saving potential |
|-----------|----------|-----------------|------------|----------------------|
| | | without "LSA" | with "LSA" | |
| Grip | 0.28 s | 0.4 NI | 0.4 NI | 75 % |
| Transfer | 1.20 s | 1.8 NI | 0 | |
| Placement | 0.14 s | 0.2 NI | 0.2 NI | |
| | | 2.4 NI | 0.6 NI | |

Fixation + Operation process (Nozzle Ø 1.4 mm, Evacuation of 0.4 l)

| Phase | Duration | Air consumption | | air saving potential |
|-------------------|----------|-----------------|------------|----------------------|
| | | without "LSA" | with "LSA" | |
| Fixation | 0.55 s | 0.8 NI | 0.8 NI | 97 % |
| Operation process | 60 s | 90 NI | 0 | |
| Placement | 0.14 s | 0.2 NI | 0.2 NI | |
| | | 91 NI | 1.0 NI | |

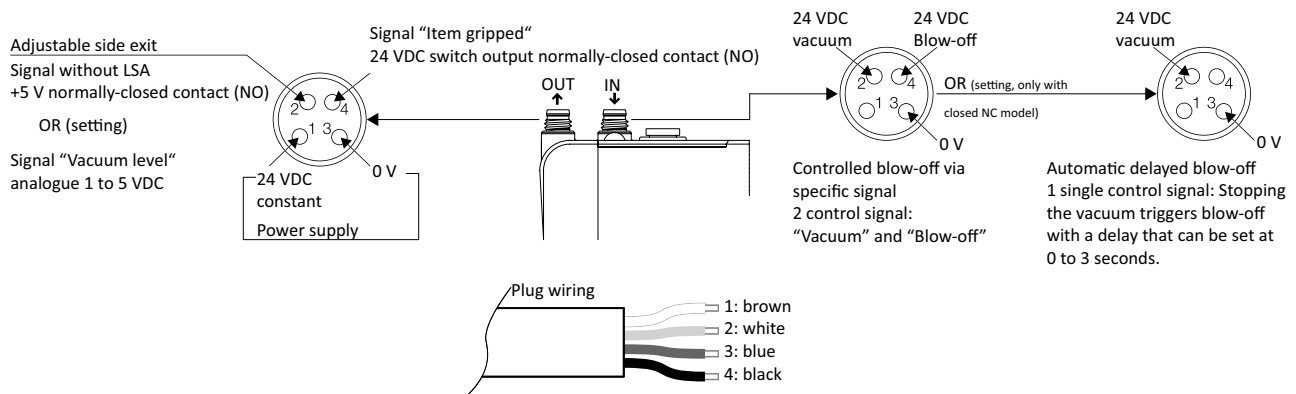
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Vacuum generation | Compact ejectors

Ejectors with air saving function EMA

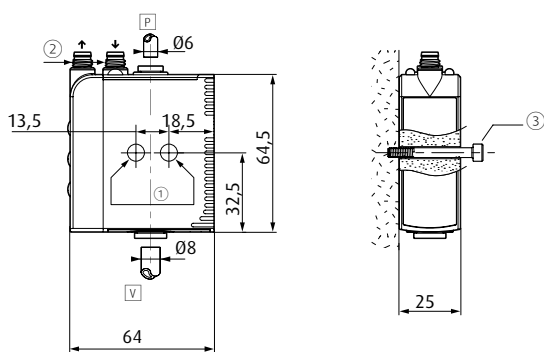
Wiring diagram



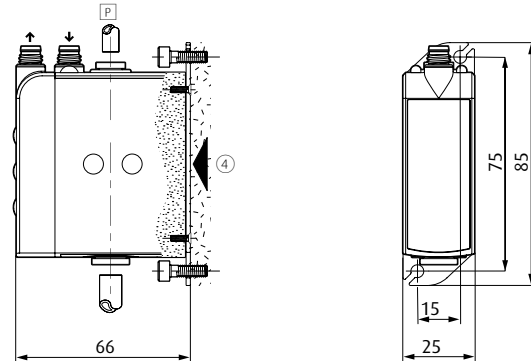
- > Output signal "object gripped", 24 VDC, switching output NO, switching current 125 mA, PNP
- > Adjustable side output:
 1. Signal without air saving function, +5 V switching output NO: eg. signal for failure indication
 2. Signal "vacuum level", analogue, 1-5 VDC of measuring range

Dimensions and mounting options

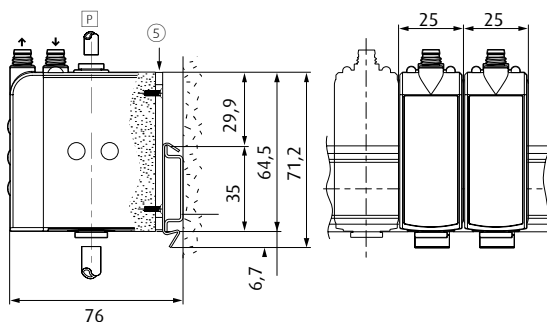
> Mounting sideways



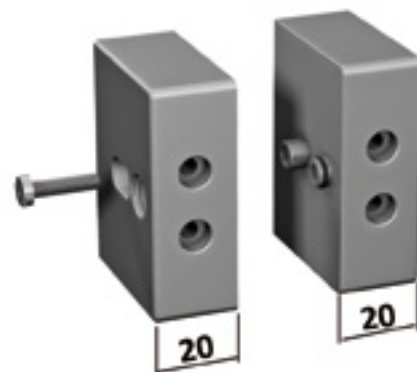
> Mounting in the front



> Block mounting on a DIN rail



> EMA.FIX-B endpieces, with connecting screws and closing pins for collecting main



- P = Compressed air connection V = Vacuum connection ① = 2 Bore holes for 4 mm screws ② = M8 plug ③ = 2 Continuous screws
- ④ = Mounting plate with 4 screws (Item no. EMM.FIX-V)
- ⑤ = Mounting plate for DIN rail with 4 screws (Item no. EMM.FIX-D) - on plate per EMM-modul

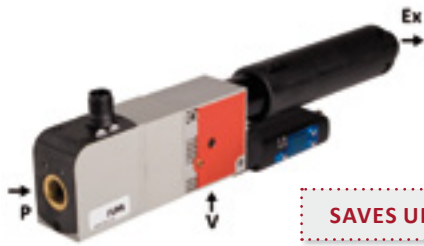
Evacuation time [sec.] for 1 liter at vacuum level

| Item no. | 55 % | 60 % | 65 % | 70 % | 75 % | 80 % |
|-----------|------|------|------|------|------|------|
| EMA.90x14 | 0.73 | 0.85 | 0.99 | 1.16 | 1.38 | 1.7 |



Ejectors with air saving function EKP and EKPP

Energy saving function by integrated pressure control



Check valve with wire mesh to keep out impurities

□ = Vacuum connection □ = Compressed air connection □ = Exhaust outlet

Product Description

- > Handling of dense and porous workpieces
- > Within the supply pressure of 4 - 8 bar, the ejector works at 3.5 bar with same high performance
- > Electronic vacuum and blow-off control for short cycle times
- > Manual adjustment of the blow-off flow rate using a setscrew
- > Low noise emissions as, starting from 4 bar, outlet pressure is independent of inlet pressure
- > Open silencer further reduces the noise level and is completely maintenance-free

Notes

- > Ejector with digital vacuum switch 20.021 for process monitoring (Index „-VA“)
- > The vacuum switch can be freely adjusted after mounting the ejector

Ordering notes

- > Index EKP: with control valves
- > Index EKPP: without control valves
- > The performance data are identical for the two series
- > The optional check valve maintains the vacuum in cases of compressed air failure for a certain period of time to prevent sudden dropping of the workpiece
- > On request, ejectors are also available normally (current free) open (NO):
In case of power failure, compressed air line remains open and workpiece is held by the gripper

Technical data

| Item no. | EKP.60x12 | EKP.60x15 | EKP.60x20 | EKP.60x25 | EKP.60x30 | EKP.90x12 | EKP.90x15 | EKP.90x20 | EKP.90x25 | EKP.90x30 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Nozzle diameter [mm] | 1.2 | 1.5 | 2 | 2.5 | 3 | 1.2 | 1.5 | 2 | 2.5 | 3 |
| Feed pressure [bar] | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 | 4 - 8 |
| Internal working pressure [bar] | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Final vacuum [%] | 60 | 60 | 60 | 60 | 60 | 90 | 90 | 90 | 90 | 90 |
| Suction power [Nl/min] | 72 | 110 | 189 | 275 | 385 | 50 | 75 | 125 | 200 | 245 |
| Air consumption [Nl/min] | 65 | 97 | 179 | 200 | 385 | 65 | 97 | 179 | 260 | 385 |
| Protection class | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 |
| Operating principle | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC |
| Control voltage | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % | 24 VDC (adjusted) ± 10 % |
| Current consumption for vacuum and blow-off feature [mA] | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) | 30 (0.7 W) |

Continued on the next page →



Vacuum generation | Compact ejectors

Ejectors with air saving function EKP and EKPP

Technical data

| Item no. | EKP.60x12 | EKP.60x15 | EKP.60x20 | EKP.60x25 | EKP.60x30 | EKP.90x12 | EKP.90x15 | EKP.90x20 | EKP.90x25 | EKP.90x30 |
|----------------------------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Operating temperature [°C] | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 | 10 - 60 |
| Weight [g] | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| Suitable accessories | Connector cable 20.518 (p.717) Connector cable 20.519 (p.717) Check valve 32.658 | | | | | | | | | |

When ordering please specify

Type + Vacuum level + Nozzle diameter + Composition of module + Vacuum switch = Item number

Example: **EKP.90x12-AVA**

(Compact ejector EKP., vacuum level 90 %, nozzle diameter 1.2 mm, with controlled blow-off function and with electric vacuum switch with display)

| 1.: Type | 2.: Vacuum level | | 3.: Nozzle diameter | | 4.: Composition of module | | 5.: Vacuum switch | | 6.: Optional |
|----------|------------------|--|---------------------|----------|---------------------------|-----------------------------------|-------------------|---|----------------------------|
| EKP | 60 | max. 60 % vacuum (porous products) | 12 | Ø 1.2 mm | -E | without blow-off-function | VA | digital with display | -NO (normally open) |
| | | | 15 | Ø 1.5 mm | -A | with controlled blow-off-function | | | |
| | | | 20 | Ø 2 mm | | | -Z | with automatic blow-off-function with time release 0-3 sec. | |
| | 90 | max. 90 % vacuum (non-porous products) | 25 | Ø 2.5 mm | VO | without vacuum switch | | | |
| | | | 30 | Ø 3 mm | | | | | |

Example: **EKPP.60x15-VA:**

(Compact ejector EKPP vacuum level 60 %, nozzle diameter 1.5 mm, without additional function)

| 1.: Model without vacuum- / blow-off control | 2.: Vacuum level | | 3.: Nozzle diameter | | 4.: Vacuum switch | |
|--|------------------|--|---------------------|----------|-------------------|-----------------------|
| EKPP. | 60 | max. 60 % vacuum (porous products) | 12 | Ø 1.2 mm | -VA | digital with display |
| | | | 15 | Ø 1.5 mm | | |
| | | | 20 | Ø 2 mm | -VO | without vacuum switch |
| | 90 | max. 90 % vacuum (non-porous products) | 25 | Ø 2.5 mm | | |
| | | | 30 | Ø 3 mm | | |

Suitable connector cables for vacuum switch:

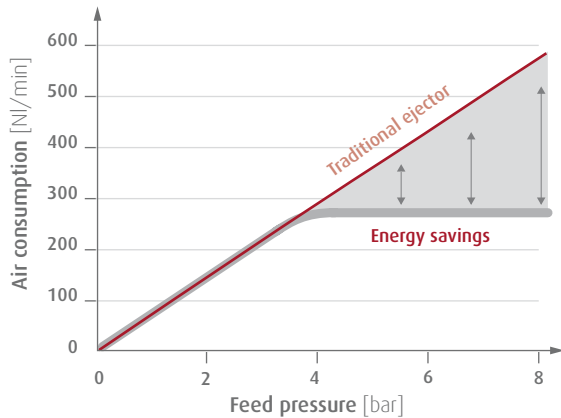
20.501: M8 thread, female, 4-pin, straight plug, cable length 5 m
20.502: M8 thread, female, 4-pin, 90° elbow plug, cable length 5 m

Suitable connector cables for EKP for vacuum valve and blow-off control:

20.518: M12 thread, female, 4-pin, straight plug, cable length 2 m
20.519: M12 thread, female, 4-pin, 90° elbow plug, cable length 2 m



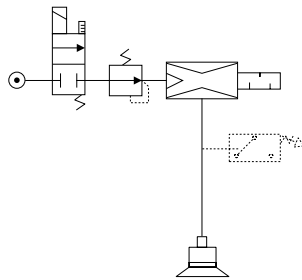
Display of the energy saving potential by integrated pressure control



Example of EKP.90x25 resp. EKP.60x25

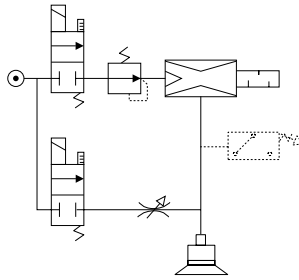
Pneumatic Diagram

Ejector without blow-off-function
EKP_ X _ EV _



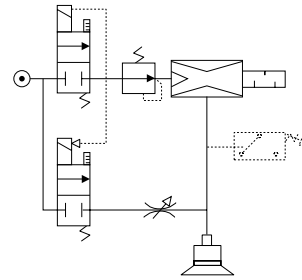
- > Basic product
- > Only one control signal

Ejector with controlled blow-off-function
EKP_ X _ AV _



- > Control of blow-off-function through outer signal with screw to adjust blow-off-volume
- > Two control signals

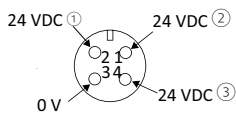
Ejector with automatic blow-off-function with time release
EKP_ X _ ZV _



- > Automatic blow-off when ejector is switched off, delay of blow-off can be manually set between 0 and 3 s, with adjusting screw
- > Only one control signal

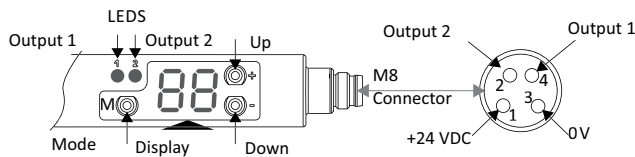
Electric plug / Vacuum switch

Electric connection EKP



- ① = Control of vacuum
- ② = Permanent (version Z)
- ③ = Blow-off-control (version A)

Ejectors with electronic (digital) vacuum switch
EKP-VA with display, 2 outputs



- > Ejectors without vacuum switch EKP-V0: This type needs to be complemented by an independent vacuum switch in the vacuum system or, during evacuation of a manually controlled volume, by a vacuum gauge.

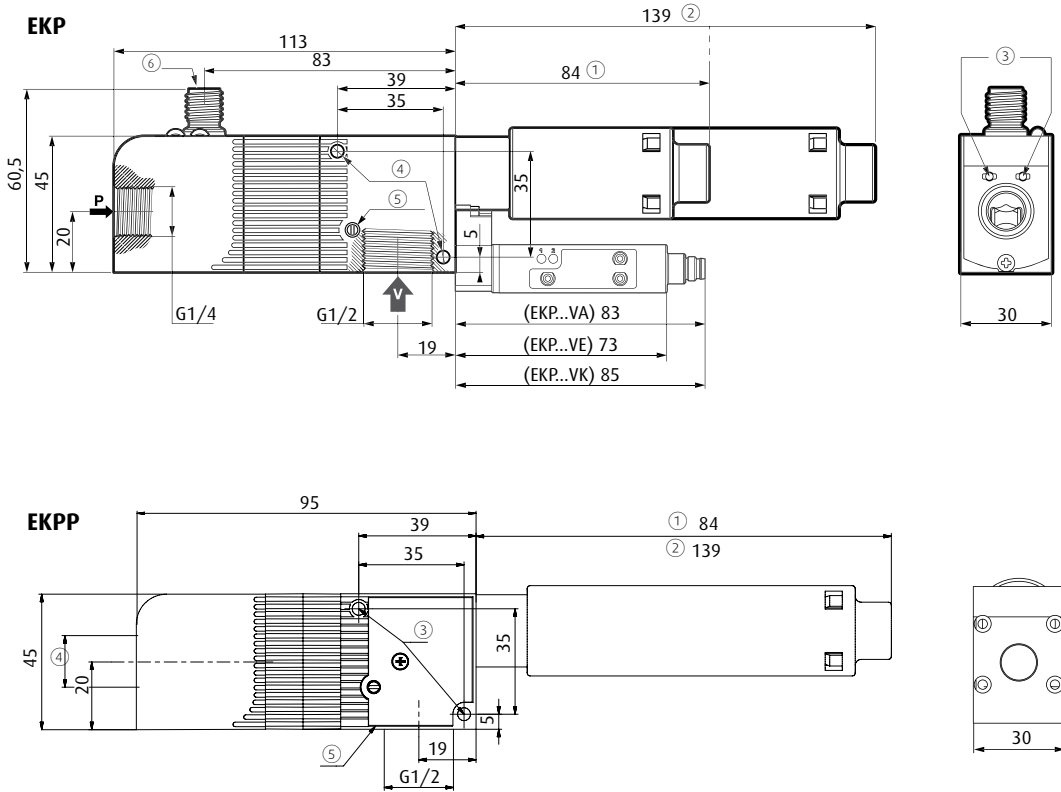
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Vacuum generation | Compact ejectors

Ejectors with air saving function EKP and EKPP

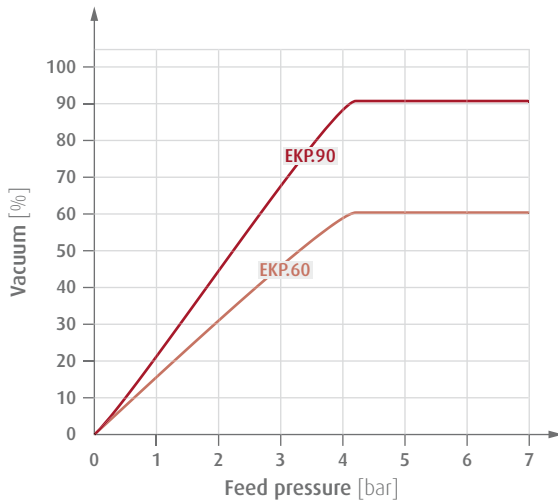
Dimensions



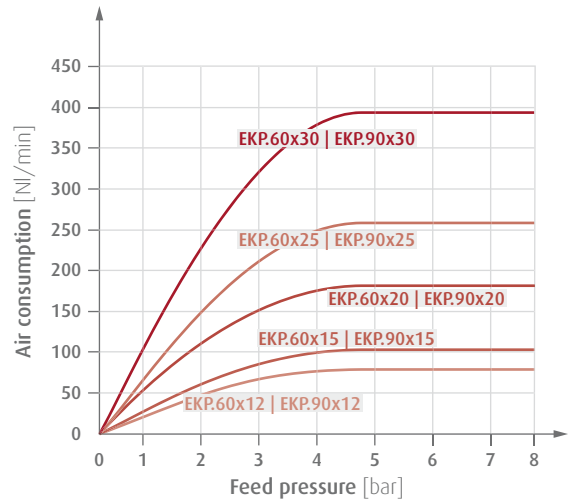
- ① = Silencers for nozzle \varnothing 1.2 or 1.5 mm
- ② = Silencers for nozzle \varnothing 2 - 2.5 or 3 mm
- ③ = Manual vacuum and blow-off control
- ④ = Mounting \varnothing 4.2 mm
- ⑤ = Adjusting blow-off power

Diagrams

> Vacuum level against feed pressure



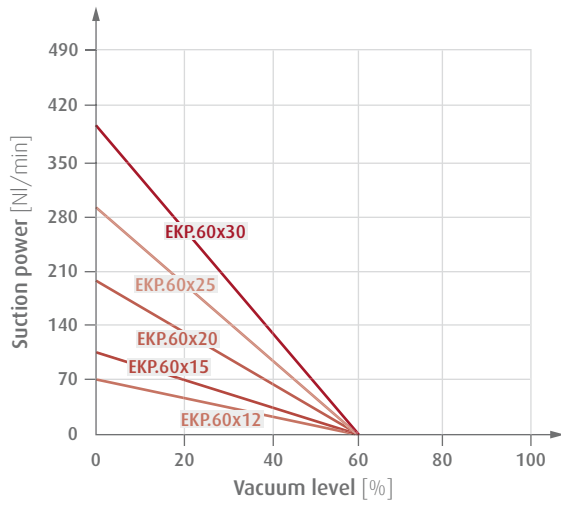
> Air consumption against feed pressure



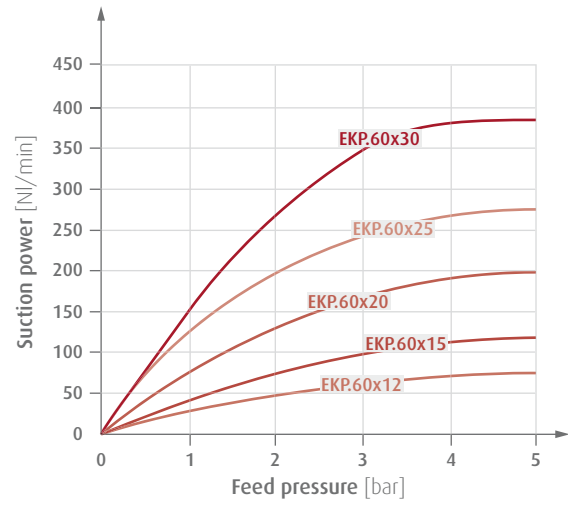


Diagrams

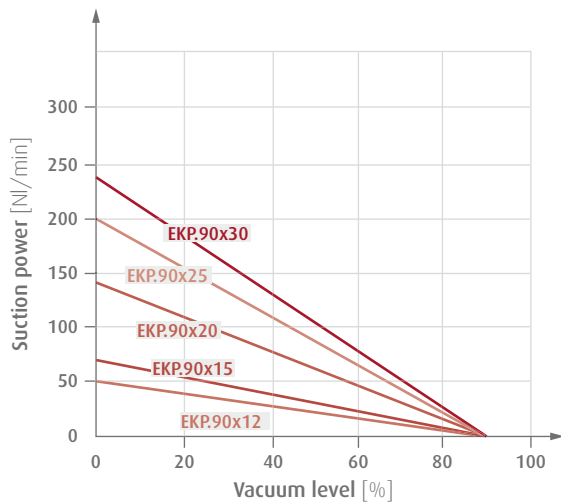
> Suction power against vacuum level



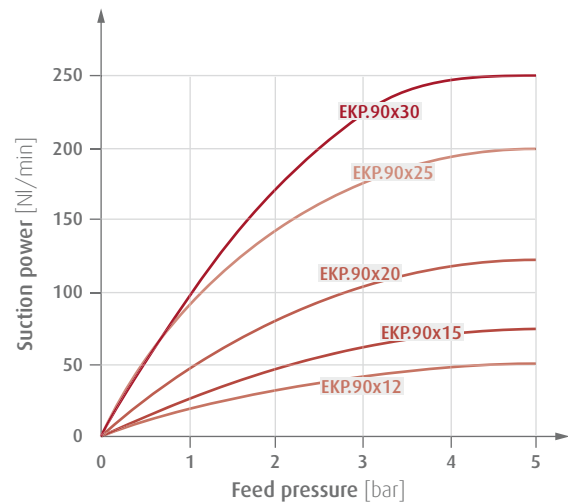
> Suction power against feed pressure



> Suction power against vacuum level



> Suction power against feed pressure

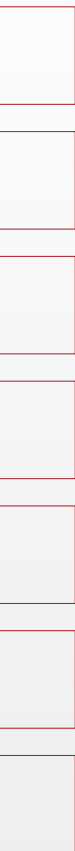


Evacuation time [sec.] for 1 liter at vacuum level

| Item no. | 10 % | 20 % | 30 % | 40 % | 50 % | 60 % | 70 % | 80 % | 85 % |
|-----------|------|------|------|------|------|------|------|------|------|
| EKP.60x12 | 0.09 | 0.2 | 0.35 | 0.55 | 0.9 | -- | -- | -- | -- |
| EKP.60x15 | 0.06 | 0.14 | 0.23 | 0.36 | 0.59 | -- | -- | -- | -- |
| EKP.60x20 | 0.04 | 0.08 | 0.13 | 0.21 | 0.34 | -- | -- | -- | -- |
| EKP.60x25 | 0.03 | 0.05 | 0.09 | 0.14 | 0.24 | -- | -- | -- | -- |
| EKP.60x30 | 0.01 | 0.04 | 0.07 | 0.1 | 0.17 | -- | -- | -- | -- |
| EKP.90x12 | 0.13 | 0.27 | 0.44 | 0.64 | 0.88 | 1.19 | 1.62 | 2.37 | 3.12 |
| EKP.90x15 | 0.09 | 0.18 | 0.29 | 0.42 | 0.58 | 0.79 | 1.08 | 1.59 | 2.08 |
| EKP.90x20 | 0.05 | 0.11 | 0.18 | 0.25 | 0.35 | 0.46 | 0.65 | 0.95 | 1.25 |
| EKP.90x25 | 0.03 | 0.07 | 0.11 | 0.16 | 0.22 | 0.3 | 0.41 | 0.59 | 0.78 |
| EKP.90x30 | 0.03 | 0.06 | 0.09 | 0.13 | 0.18 | 0.24 | 0.33 | 0.48 | 0.64 |



Notes:



A large area of the page containing horizontal lines for writing notes, starting below the 'Notes:' header and extending to the bottom of the page.



FIPA Feed ejectors

- > Secure transport of bulk material
- > Extraction of non-aggressive gases or steams
- > Ideal source of vacuum in applications with high leakage



Feed ejectors for large throughput

- > Contamination-resistant construction for reliable operation, even under harsh operating conditions

65.701 - 65.731

- > High vacuum level
- > For overcoming larger height differences
- > Suction volume and vacuum level can be adapted to level of compressed air pressure



65.742 - 85.802

- > Low vacuum level
- > For overcoming smaller height differences
- > Suction volume and vacuum level dependent on level of compressed air pressure

> See page 570



Feed ejectors for small throughput EFO

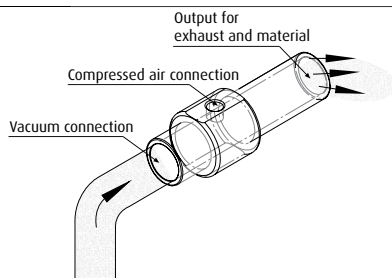
- > Low suction power due to medium vacuum levels
- > Various connections for inlets and outlets as well as for compressed air supply
- > Suitable filters or collection vessels available as accessories

> See page 574

Examples of use

- > Gentle product feeding thanks to axial arrangement of inlet and outlet
- > Vacuum supply for vacuum cups used to handle porous workpieces, or for a high degree of leakage
- > Electricity-free alternative to motor-driven vacuum pumps or side channel blowers
- > Continual operation without heat development as there are no moving parts

Functional principle





Feed ejectors - rotatable

High suction power for handling with high leakage

ALSO AVAILABLE IN STAINLESS STEEL FOR FOOD INDUSTRY OR ABRASIVE MEDIA



Product Description

- > High suction power for safe handling of air-permeable products or generally in the presence of high leakage
- > Gentle transportation of powdery substances or small-size products such as granular material, coffee, flour
- > Extraction of non-aggressive vapors and gases
- > Volume of suction air and required vacuum level can be adjusted by turning the suction pipe, allowing for an energy efficient increase in performance without increasing air consumption
- > Can even be used in rough conditions thanks to the robust, maintenance-free construction without moving parts
- > No build-up of heat because of no moving parts and therefore no risk of ignition during transport
- > High maximum vacuum level for over coming larger height differences
- > Stainless steel designs for easy cleaning when transporting foods and for handling abrasive media
- > Extremely flexible integration into gripper systems thanks to any mounting position

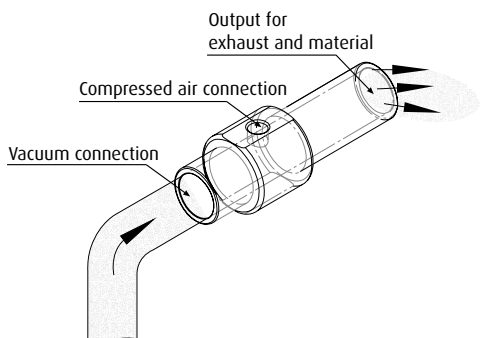
Notes

- > The transport length depends on the feed pressure, the transport volume and the transport goods
- > Rule of thumb:
 - Tubing length from suction point to ejector ~ 2/3 of the total tubing length
 - Tubing length from ejector to point of use ~ 1/3 of the total tubing length
- > Prior to installation a test at customer site is recommended
- > For longer distances, multiple ejectors can be serially connected

Technical data

| Item no. | Nozzle diameter [mm] | Pressure range [bar] | Optimal feed pressure [bar] | Final vacuum [mbar] | Suction power [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Material | Suitable silencers |
|----------|----------------------|----------------------|-----------------------------|---------------------|------------------------|--------------------------|----------------------------|------------|--------------------|--------------------|
| 65.701 | 7 | 4 - 7 | 5 | 850 | 0 - 284 | 0 - 235 | -20 - 80 | 105 | Aluminium anodised | 72.029 (p.577) |
| 65.711 | 10 | 4 - 7 | 5 | 850 | 0 - 848 | 0 - 481 | -20 - 80 | 275 | Aluminium anodised | 72.031 (p.577) |
| 65.731 | 20 | 4 - 7 | 5 | 850 | 0 - 3,402 | 0 - 1,246 | -20 - 80 | 550 | Aluminium anodised | 72.033 (p.577) |
| 65.701-S | 7 | 4 - 7 | 5 | 850 | 0 - 284 | 0 - 235 | -20 - 80 | 300 | Stainless steel | 72.029 (p.577) |
| 65.711-S | 10 | 4 - 7 | 5 | 850 | 0 - 848 | 0 - 481 | -20 - 80 | 700 | Stainless steel | 72.031 (p.577) |
| 65.731-S | 20 | 4 - 7 | 5 | 850 | 0 - 3,402 | 0 - 1,246 | -20 - 80 | 1,500 | Stainless steel | 72.033 (p.577) |

Functional principle





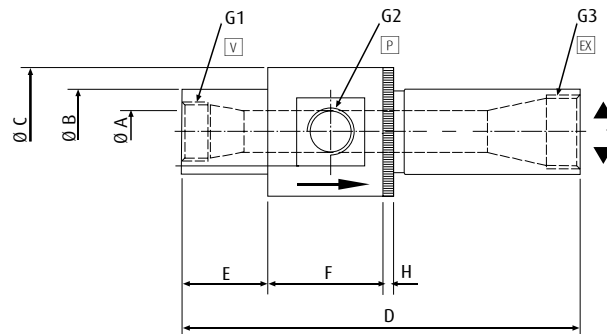
Air consumption [NI/min] at vacuum level (feed pressure 5.5 bar)

| Item no. | 17 % | 34 % | 50 % | 68 % | 84 % |
|----------|------|------|------|------|------|
| 65.701 | 112 | 169 | 233 | 276 | 342 |
| 65.711 | 176 | 327 | 485 | 595 | 825 |
| 65.731 | 650 | 875 | 1250 | 1790 | 2550 |
| 65.701-S | 112 | 169 | 233 | 276 | 342 |
| 65.711-S | 176 | 327 | 485 | 595 | 825 |
| 65.731-S | 650 | 875 | 1250 | 1790 | 2550 |

Suction power [NI/min] at vacuum level (feed pressure 5.5 bar)

| Item no. | 17 % | 34 % | 50 % | 68 % | 84 % |
|----------|------|------|------|------|------|
| 65.701 | 280 | 240 | 200 | 162 | 125 |
| 65.711 | 846 | 735 | 620 | 520 | 395 |
| 65.731 | 3390 | 2460 | 1970 | 1440 | 1130 |
| 65.701-S | 280 | 240 | 200 | 162 | 125 |
| 65.711-S | 846 | 735 | 620 | 520 | 395 |
| 65.731-S | 3390 | 2460 | 1970 | 1440 | 1130 |

Dimensions



V = Vacuum connection
 P = Compressed air connection
 EX = Exhaust outlet
 * = rotatable

| Item no. | G1 | G2 | G3 | Ø A [mm] | Ø B [mm] | Ø C [mm] | D [mm] | E [mm] | F [mm] | H [mm] |
|----------|------|------|------|----------|----------|----------|-----------|--------|--------|--------|
| 65.701 | G1/4 | G1/8 | G1/4 | 7 | 18.8 | 32 | 94 - 105 | 22 | 31.5 | 5 |
| 65.711 | G1/2 | G3/8 | G1/2 | 10 | 25.1 | 51 | 155 - 165 | 38.1 | 44.2 | 5 |
| 65.731 | G3/4 | G1/2 | G1 | 20 | 37.8 | 58 | 175 - 189 | 38.1 | 56.4 | 5 |
| 65.701-S | G1/4 | G1/8 | G1/4 | 7 | 18.8 | 32 | 94 - 105 | 22.1 | 31.5 | 5 |
| 65.711-S | G1/2 | G3/8 | G1/2 | 10 | 25.1 | 51 | 155 - 165 | 38.1 | 44.2 | 5 |
| 65.731-S | G3/4 | G1/2 | G1 | 20 | 37.8 | 58 | 175 - 189 | 38.1 | 56.4 | 5 |



Feed ejectors - with a large passage

Very high suction power for high transportation throughput



Product Description

- > Very high suction power for high transportation throughput
- > Gentle transportation of powdery substances or small-size products such as granular material, pills, chippings
- > Extraction of non-aggressive vapors and gases
- > Can even be used in rough conditions thanks to the robust, maintenance-free construction
- > No build-up of heat because of no moving parts and therefore no risk of ignition during transport
- > Extremely flexible integration into gripper systems thanks to any mounting position

Notes

- > The transport length depends on the feed pressure, the transport volume and the transport goods
- > Rule of thumb:
 - Tubing length from suction point to ejector ~ 2/3 of the total tubing length
 - Tubing length from ejector to point of use ~ 1/3 of the total tubing length
- > Prior to installation a test at customer site is recommended
- > For longer distances, multiple ejectors can be serially connected

Ordering notes

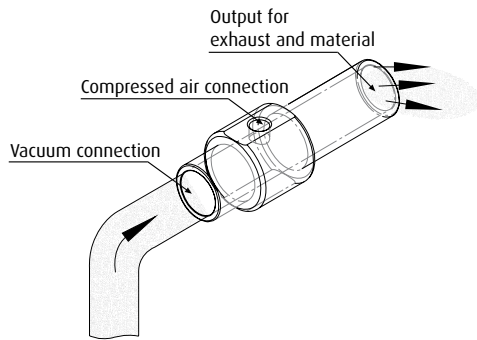
- > Mounting options:
65.752: Connections for vacuum and outlet on both sides using G3/8 female thread (see drawing)

Technical data

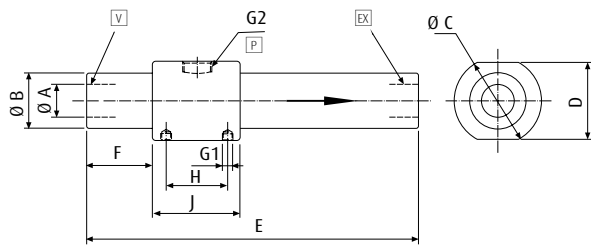
| Item no. | Nozzle diameter [mm] | Pressure range [bar] | Max. feed pressure [bar] | Final vacuum [mbar] | Suction power at 5.5 bar [Nl/min] | Air consumption at 2.8 bar [Nl/min] | Air consumption at 5.5 bar [Nl/min] | Operating temperature [°C] | Weight [g] | Material | Suitable silencers |
|----------|----------------------|----------------------|--------------------------|---------------------|-----------------------------------|-------------------------------------|-------------------------------------|----------------------------|------------|--------------------|--------------------|
| 65.742 | 7 | 2.5 - 6 | 7 | 260 | 295 | 85 | 160 | -10 - 80 | 92 | Aluminium anodised | -- |
| 65.752 | 10 | 2.5 - 6 | 7 | 160 | 425 | 95 | 170 | -10 - 80 | 81 | Aluminium anodised | 72.030 (p.577) |
| 65.762 | 13 | 2.5 - 6 | 7 | 350 | 870 | 395 | 680 | -10 - 80 | 177 | Aluminium anodised | -- |
| 65.772 | 19 | 2.5 - 6 | 7 | 280 | 1,825 | 790 | 1,365 | -10 - 80 | 380 | Aluminium anodised | -- |
| 65.792 | 38 | 2.5 - 6 | 7 | 90 | 4,400 | 405 | 695 | -10 - 80 | 607 | Aluminium anodised | -- |
| 65.802 | 38 | 2.5 - 6 | 7 | 90 | 5,610 | 790 | 1,356 | -10 - 80 | 777 | Aluminium anodised | -- |



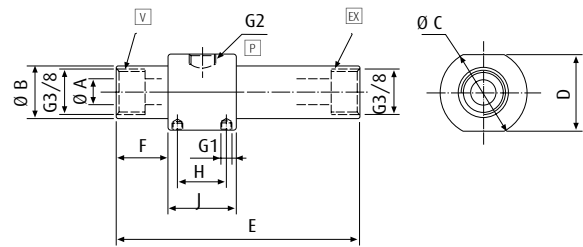
Functional principle



Dimensions



65.742 | 65.762 | 65.772 | 65.792 | 65.802



65.752

Ⓥ = Vacuum connection Ⓟ = Compressed air connection Ⓧ = Exhaust outlet

| Item no. | G1 | G2 | Ø A [mm] | Ø B [mm] | Ø C [mm] | D [mm] | E [mm] | F [mm] | H [mm] | J [mm] |
|----------|----|------|----------|----------|----------|--------|--------|--------|--------|--------|
| 65.742 | M4 | G1/8 | 6.5 | 18.5 | 32 | 30 | 89 | 19 | 18 | 25 |
| 65.752 | M4 | G1/8 | 9.5 | 18.5 | 32 | 30 | 89 | 19 | 18 | 25 |
| 65.762 | M4 | G1/4 | 12.5 | 24 | 38 | 34 | 140 | 25.5 | 23 | 32 |
| 65.772 | M6 | G3/8 | 19 | 32 | 50 | 45 | 190 | 38 | 35 | 50 |
| 65.792 | M6 | G3/8 | 38 | 50 | 69 | 65 | 205 | 40 | 42 | 60 |
| 65.802 | M6 | G3/8 | 38 | 50 | 69 | 65 | 205 | 40 | 42 | 60 |



Feed ejectors EFO - with a small passage

Compressed air connection via quick fittings, outlet via R-threads, exhaust via R-threads or quick fittings



Exhaust via R-threads



Exhaust via tubing connection

V = Vacuum connection P = Compressed air connection Ex = Output

Product Description

- > Transport of powdery or granular materials
- > Extraction of non-aggressive vapors and gases
- > Medium vacuum level for overcoming larger height differences
- > No build-up of heat because of no moving parts and therefore no risk of ignition during transport
- > Maximum availability thanks to robust, maintenance-free design
- > Rotatable, angled compressed air connection and any mounting position for flexible system integration

Notes

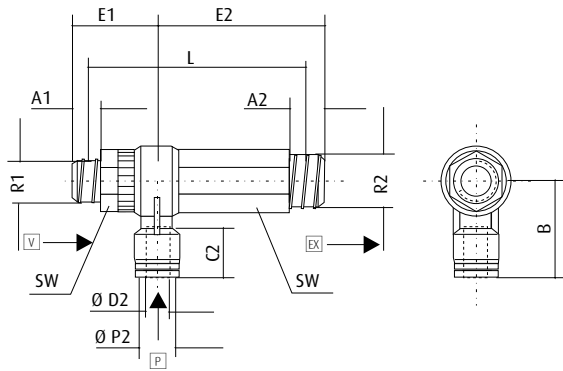
- > The transport length depends on the feed pressure, the transport volume and the transport goods
- > Rule of thumb:
 - Tubing length from suction point to ejector ~ 2/3 of the total tubing length
 - Tubing length from ejector to point of use ~ 1/3 of the total tubing length
- > Prior to installation a test at customer site is recommended
- > For longer distances, multiple ejectors can be serially connected

Technical data

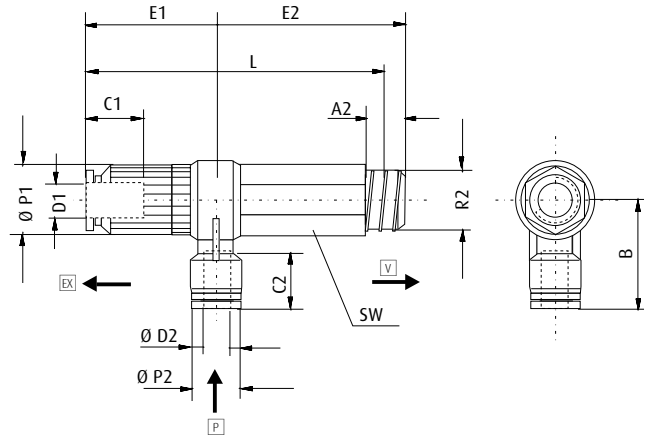
| Item no. | Series | Nozzle diameter [mm] | Optimal feed pressure [bar] | Pressure range [bar] | ∅ Free passage [mm] | Final vacuum [%] | Suction power at 5 bar [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] | Material |
|-----------|------------------------|----------------------|-----------------------------|----------------------|---------------------|------------------|---------------------------------|--------------------------|----------------------------|------------|--------------------|
| EFO.30L.1 | With R-thread | 3 | 5 | 0 - 10 | 2.3 | 52 | 50 | 50 | 0 - 60 | 41 | Aluminium anodised |
| EFO.40L.1 | With R-thread | 4 | 5 | 0 - 10 | 3.6 | 52 | 100 | 100 | 0 - 60 | 81 | Aluminium anodised |
| EFO.60L.1 | With R-thread | 6 | 5 | 0 - 10 | 5.5 | 52 | 200 | 200 | 0 - 60 | 190 | Aluminium anodised |
| EFO.75L.1 | With R-thread | 7.5 | 5 | 0 - 10 | 7 | 52 | 300 | 300 | 0 - 60 | 193 | Aluminium anodised |
| EFO.30L.2 | With tubing connection | 3 | 5 | 0 - 10 | 2.3 | 52 | 50 | 50 | 0 - 60 | 37.5 | Aluminium anodised |
| EFO.40L.2 | With tubing connection | 4 | 5 | 0 - 10 | 3.6 | 52 | 100 | 100 | 0 - 60 | 77 | Aluminium anodised |
| EFO.60L.2 | With tubing connection | 6 | 5 | 0 - 10 | 5.5 | 52 | 200 | 200 | 0 - 60 | 182 | Aluminium anodised |
| EFO.75L.2 | With tubing connection | 7.5 | 5 | 0 - 10 | 7 | 52 | 300 | 300 | 0 - 60 | 183 | Aluminium anodised |



Dimensions



EFO.30L.1 | EFO.40L.1 | EFO.60L.1 | EFO.75L.1



EFO.30L.2 | EFO.40L.2 | EFO.60L.2 | EFO.75L.2

V = Vacuum connection P = Compressed air connection EX = Output

| Item no. | R1 | R2 | A1 [mm] | A2 [mm] | B [mm] | C1 [mm] | C2 [mm] | Ø D1 [mm] | Ø D2 [mm] | E1 [mm] | E2 [mm] | L [mm] | Ø P1 [mm] | Ø P2 [mm] | SW |
|-----------|------|------|---------|---------|--------|---------|---------|-----------|-----------|---------|---------|--------|-----------|-----------|----|
| EFO.30L.1 | R1/8 | R1/8 | 8 | 8 | 25 | -- | 16.5 | -- | 6 | 23 | 36 | 51 | -- | 12.5 | 14 |
| EFO.40L.1 | R1/4 | R1/4 | 11 | 11 | 29 | -- | 17.5 | -- | 8 | 29.5 | 53 | 70 | -- | 14.5 | 17 |
| EFO.60L.1 | R3/8 | R1/2 | 12 | 15 | 34 | -- | 20 | -- | 10 | 35 | 69.5 | 90 | -- | 17.5 | 22 |
| EFO.75L.1 | R1/2 | R1/2 | 15 | 15 | 34 | -- | 20 | -- | 10 | 38 | 69.5 | 91.5 | -- | 17.5 | 24 |
| EFO.30L.2 | -- | R1/8 | -- | 8 | 25 | 17.5 | 16.5 | 8 | 6 | 30 | 36 | 62 | 16 | 12.5 | 14 |
| EFO.40L.2 | -- | R1/4 | -- | 11 | 29 | 20 | 17.5 | 10 | 8 | 35.5 | 53 | 82.5 | 20 | 14.5 | 17 |
| EFO.60L.2 | -- | R1/2 | -- | 15 | 34 | 23.5 | 20 | 12 | 10 | 43.5 | 69.5 | 105 | 25 | 17.5 | 24 |
| EFO.75L.2 | -- | R1/2 | -- | 15 | 34 | 25 | 20 | 16 | 10 | 45 | 69.5 | 106.5 | 25 | 17.5 | 24 |



Vacuum generation | Feed ejectors

Feed ejectors EFO - with a small passage

Feed ejectors EFO - with a small passage

Compressed air, vacuum and exhaust side with quick fittings



V = Vacuum connection **P** = Compressed air connection **Ex** = Output

Product Description

- > Transport of powdery or granular materials
- > Extraction of non-aggressive vapors and gases
- > Medium vacuum level for overcoming larger height differences
- > No build-up of heat because of no moving parts and therefore no risk of ignition during transport
- > Maximum availability thanks to robust, maintenance-free design
- > Rotatable, angled compressed air connection and any mounting position for flexible system integration

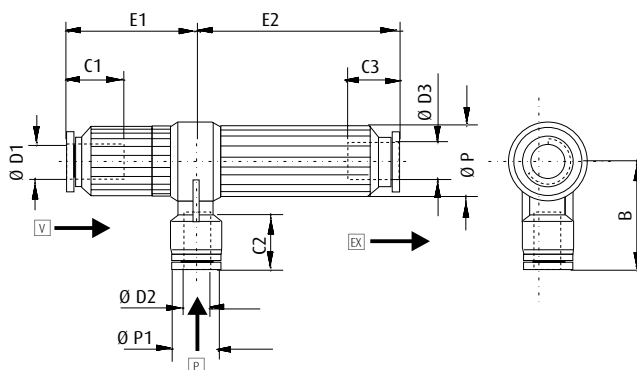
Notes

- > The transport length depends on the feed pressure, the transport volume and the transport goods
- > Rule of thumb:
 - Tubing length from suction point to ejector ~ 2/3 of the total tubing length
 - Tubing length from ejector to point of use ~ 1/3 of the total tubing length
- > Prior to installation a test at customer site is recommended
- > For longer distances, multiple ejectors can be serially connected

Technical data

| Item no. | Nozzle diameter [mm] | Optimal feed pressure [bar] | Pressure range [bar] | Ø Free passage [mm] | Final vacuum [%] | Suction power at 5 bar [Nl/min] | Air consumption [Nl/min] | Operating temperature [°C] | Weight [g] |
|------------------|----------------------|-----------------------------|----------------------|---------------------|------------------|---------------------------------|--------------------------|----------------------------|------------|
| EFO.30L.3 | 3 | 5 | 0 - 10 | 2.3 | 52 | 50 | 50 | 0 - 60 | 49 |
| EFO.40L.3 | 4 | 5 | 0 - 10 | 3.6 | 52 | 100 | 100 | 0 - 60 | 101.5 |
| EFO.60L.3 | 6 | 5 | 0 - 10 | 5.5 | 52 | 200 | 200 | 0 - 60 | 186 |
| EFO.75L.3 | 7.5 | 5 | 0 - 10 | 7 | 52 | 300 | 300 | 0 - 60 | 176.5 |

Dimensions



V = Vacuum connection **P** = Compressed air connection **Ex** = Exhaust outlet

| Item no. | Ø D1 [mm] | Ø D2 [mm] | Ø D3 [mm] | B [mm] | C1 [mm] | C2 [mm] | C3 [mm] | E1 [mm] | E2 [mm] | Ø P [mm] | Ø P1 [mm] |
|------------------|-----------|-----------|-----------|--------|---------|---------|---------|---------|---------|----------|-----------|
| EFO.30L.3 | 8 | 6 | 8 | 25 | 17.5 | 16.5 | 17.5 | 30 | 55 | 16 | 12.5 |
| EFO.40L.3 | 10 | 8 | 12 | 29 | 20 | 17.5 | 23.5 | 35.5 | 76.5 | 20 | 14.5 |
| EFO.60L.3 | 12 | 10 | 16 | 34 | 23.5 | 20 | 25 | 43.5 | 74.5 | 25 | 17.5 |
| EFO.75L.3 | 16 | 10 | 16 | 34 | 25 | 20 | 25 | 45 | 74.5 | 25 | 17.5 |



Open silencers for ejectors



Product Description

- > Suitable for Heavy-duty ejectors or inline ejectors EIL, expandable
- > Open design, specially suitable for dusty, high-particle environments (e.g. wood industry)

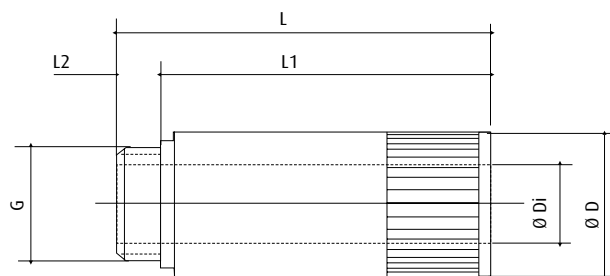
Technical data

| Item no. | Weight [g] |
|----------|------------|
| 72.028 | 3 |
| 72.029 | 20 |
| 72.030 | 25 |
| 72.031 | 35 |
| 72.032 | 55 |
| 72.033 | 175 |

Dimensions

| G | ϕD [mm] | ϕDi [mm] | L [mm] | L1 [mm] | L2 [mm] |
|------|---------------|----------------|--------|---------|---------|
| G1/8 | 14 | 7 | 46 | 41 | 5 |
| G1/4 | 20 | 11 | 73 | 65 | 8 |
| G3/8 | 24 | 11 | 72 | 64 | 8 |
| G1/2 | 30 | 17 | 128 | 121 | 7 |
| G3/4 | 40 | 17 | 126 | 119 | 7 |
| G1 | 49 | 26 | 126 | 119 | 7 |

Dimensions





Closed silencers for ejectors



Product Description

- > Closed diffusor / silencer specially designed for dust-free environments
- > Suitable for Heavy-duty ejectors or inline ejectors EIL, expandable

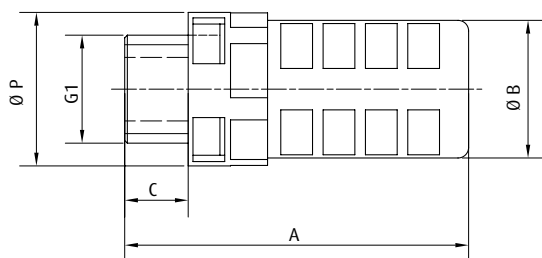
Technical data

| Item no. | Weight [g] |
|----------|------------|
| 72.045 | 5 |
| 72.000 | 2 |
| 72.001 | 3.5 |
| 72.002 | 12 |
| 72.003 | 15 |
| 72.007 | 5.5 |
| 72.008 | 3 |
| 72.009 | 6.5 |

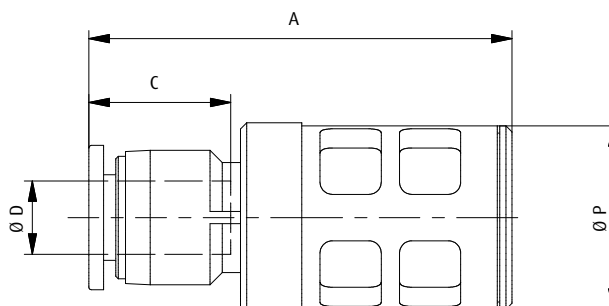
Dimensions

| G1 | Ø D [mm] | A [mm] | Ø B [mm] | C [mm] | Ø P [mm] |
|------|----------|--------|----------|--------|----------|
| M5 | -- | 36 | 18 | 5.1 | -- |
| G1/8 | -- | 28 | 15.5 | 6 | 15.5 |
| G1/4 | -- | 38 | 17.5 | 8 | 17.5 |
| G3/8 | -- | 58 | 26 | 10 | 26.5 |
| G1/2 | -- | 66 | 29 | 12 | 29 |
| -- | 4 | 30 | -- | 11 | 10.5 |
| -- | 6 | 34.5 | -- | 11.5 | 15.5 |
| -- | 8 | 48.5 | -- | 17.5 | 17.5 |

Dimensions



72.045 | 72.000 | 72.001 | 72.002 | 72.003



72.007 | 72.008 | 72.009



Silencers with filter function



Series 1: Brass construction with stainless steel wire fabric



Series 2: Brass construction with sintered material

Product Description

- > Combination of silencer and air filter
- > 72.015 - 72.021: Also suitable as protective filter for 3/2-way valves at ventilation / blow-off inlet (under contaminated environmental conditions)
- > 72.022 - 72.027: Can be mounted directly into the vacuum cup or the fitting, temperature resistant up to 120 °C

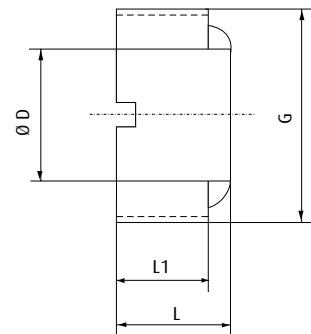
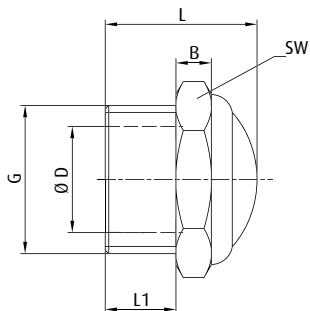
Technical data

| Item no. | Series | Weight [g] |
|-----------|--------|------------|
| 72.015 | 1 | 2 |
| 72.016 | 1 | 6 |
| 72.017 | 1 | 10 |
| 72.018 | 1 | 15 |
| 72.019 | 1 | 25 |
| 72.020 | 1 | 38 |
| 72.021 | 1 | 56 |
| 72.022 | 2 | 1 |
| 72.022-1* | 2 | 1 |
| 72.023 | 2 | 3 |
| 72.024 | 2 | 6 |
| 72.025 | 2 | 12 |
| 72.026 | 2 | 16 |
| 72.027 | 2 | 29 |

Dimensions

| G | B [mm] | Ø D [mm] | L [mm] | L1 [mm] | SW |
|------|--------|----------|--------|---------|----|
| M5 | 3.5 | 2.5 | 9.5 | 4 | 8 |
| G1/8 | 4 | 6 | 14 | 6 | 13 |
| G1/4 | 5 | 8.5 | 18.5 | 8 | 16 |
| G3/8 | 6 | 11 | 19.5 | 8 | 19 |
| G1/2 | 5 | 15 | 22.5 | 10 | 24 |
| G3/4 | 6 | 20 | 25.5 | 10 | 30 |
| G1 | 6.5 | 26 | 31 | 11.5 | 36 |
| G1/8 | -- | 5.5 | 4.5 | 3.5 | -- |
| G1/8 | -- | 5.5 | 5 | 3.5 | -- |
| G1/4 | -- | 7 | 6.8 | 4.5 | -- |
| G3/8 | -- | 9.5 | 6.8 | 5 | -- |
| G1/2 | -- | 12 | 9 | 7 | -- |
| G3/4 | -- | 18 | 9 | 6.5 | -- |
| G1 | -- | 23.5 | 10.5 | 7.5 | -- |

Dimensions



72.015 | 72.016 | 72.017 | 72.018 | 72.019 | 72.020 | 72.021

72.022 | 72.022-1* | 72.023 | 72.024 | 72.025 | 72.026 | 72.027

* = Special design: Coarse filter with mesh opening size 0.4 mm



FIPA Rotary vane vacuum pumps



Rotary vane vacuum pumps - oil-free

- > Handling of dense workpieces in dry areas
- > Suitable for load alternation and continuous operation
- > Available in single-phase and three-phase designs
- > Any installation position
- > Very low maintenance

> See page 582



Piston pumps

- > Small output at compact design
- > Suitable for dry and wet areas
- > Long-life and low maintenance thanks to the permanently lubricated piston seals
- > Oil-free operation
- > Also suitable as compressors

> See page 592



Rotary vane vacuum pumps - oil-lubricated

- > Handling dense and porous workpieces
- > Partially suitable for applications in wet areas
- > Suitable for continuous operation in product-dependent vacuum levels
- > Available in single-phase and three-phase designs
- > Horizontal installation position

> See page 594



Centralised vacuum units

- > Supply of several modules via a central station
- > Made up of one to three oil-lubricated vacuum pumps
- > Incl. vacuum tank and electronic control

> See page 606



FIPA rotary vane vacuum pumps



Accessories

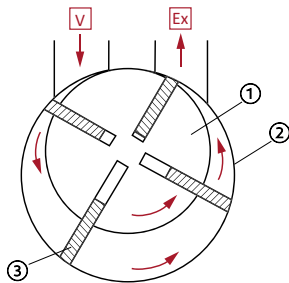
Vacuum tanks

- > As storage device for compressed air, vacuums and non-aggressive liquids
- > Efficient compressed air/vacuum usage (energy saving, protection of the unit)
- > For compressed air/vacuum systems with highly fluctuating consumption

> See page 617

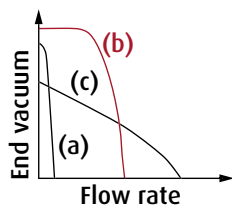
Vacuum generation according to the displacement principle

- > A cylindrical rotor ① rotates eccentrically in a circular cavity ②.
- > The rotary vanes ③ are pushed against the outer walls of the cavity by centrifugal force, sealing the chambers that are created by this motion.
- > During rotation, the expanding chambers draw in air on the vacuum side $\square V$.
- > The suctioned aspirated air is then released via the exhaust $\square Ex$.



Performance characteristics

- (a) Characteristic of ejectors
- (b) Rotary vane vacuum pumps achieve a very good ultimate vacuum along with a high flow volume
- (c) Characteristic of side channel blowers





Rotary vane vacuum pumps - oil-free

Handling in dry areas



Product Description

- > High reliability and low maintenance costs owing to simple design
- > Universal application: Continuous operation at different vacuum levels
- > Compact design and low weight

Ordering notes

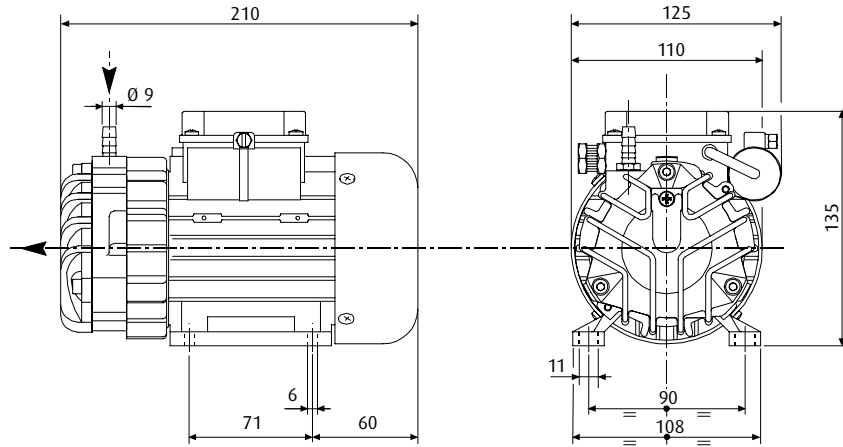
- > Available in single-phase and three-phase designs (Index -1 or -3)
- > Included in scope of delivery:
 - Silencer on suction side
 - DT.3C-1: Thermal protection 130 °C
 - DT.6, DT.10: Safety filter on suction side
- > Delivery without electric cables

Technical data

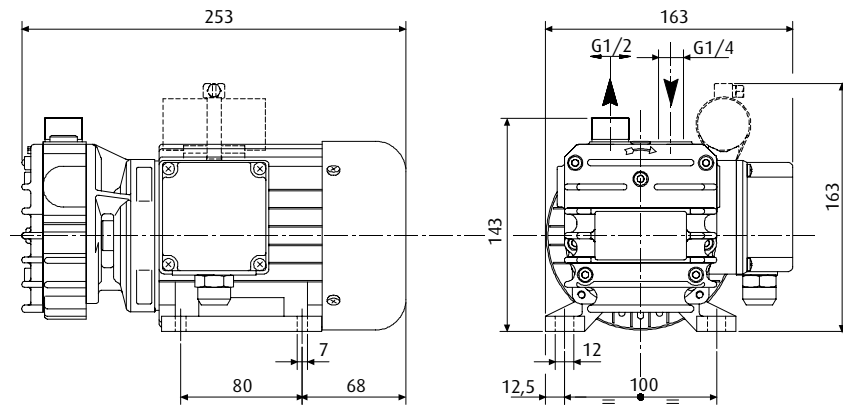
| Item no. | DT.3A-1 | DT.3A-3 | DT.6B-1 | DT.6B-3 | DT.10B-1 | DT.10B-3 |
|--|--|---|---|---|---|---|
| Suction power at 50 Hz [m ³ /h] | 3 | 3 | 6 | 6 | 10 | 10 |
| Suction power at 60 Hz [m ³ /h] | 3.3 | 3.3 | 7 | 7 | 12 | 12 |
| Final vacuum [%] | 88 | 88 | 88 | 88 | 88 | 88 |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) |
| Current consumption at 50 (60) Hz [A] | 1 (1.1) | Delta: 0.7-0.8 (0.7) Star: 0.4-0.46 (0.38-0.42) | 2.3 (2.5) | Delta: 1.4-1.5 (1.5-1.4) Star: 0.8-0.86 (0.86-0.8) | 2.9 (2.7) | Delta: 1.8-2.3 (1.6-2.3) Star: 1-1.3 (0.9-1.3) |
| Rated power at 50 Hz [kW] | 0.12 | 0.12 | 0.25 | 0.25 | 0.37 | 0.37 |
| Rated power at 60 Hz [kW] | 0.15 | 0.14 | 0.3 | 0.3 | 0.45 | 0.45 |
| Noise level at 50 Hz [dB(A)] | 62 | 62 | 60 | 60 | 64 | 64 |
| Noise level at 60 Hz [dB(A)] | 65 | 65 | 65 | 65 | 66 | 66 |
| Operating temperature at 50 Hz [°C] | 65 - 70 | 65 - 70 | 65 - 70 | 65 - 70 | 70 - 75 | 70 - 75 |
| Operating temperature at 60 Hz [°C] | 70 - 75 | 70 - 75 | 70 - 75 | 70 - 75 | 80 - 85 | 80 - 85 |
| Weight [kg] | 5 | 5 | 8.5 | 7.5 | 15.5 | 14 |
| Suitable accessories | Spare part kit KIT-DT.3A* Vacuum regulator 73.002 (p.640) Pre-filter FC 10F (p.624) Pre-filter 71.032 (p.625) | | Spare part kit KIT-DT.6B** Vacuum regulator 73.002 (p.640) Pre-filter FC 10F (p.624) Pre-filter 71.032 (p.625) | | Spare part kit KIT-DT.10B*** Vacuum regulator 73.002 (p.640) Pre-filter FC 20F (p.624) Pre-filter 71.034 (p.625) | |



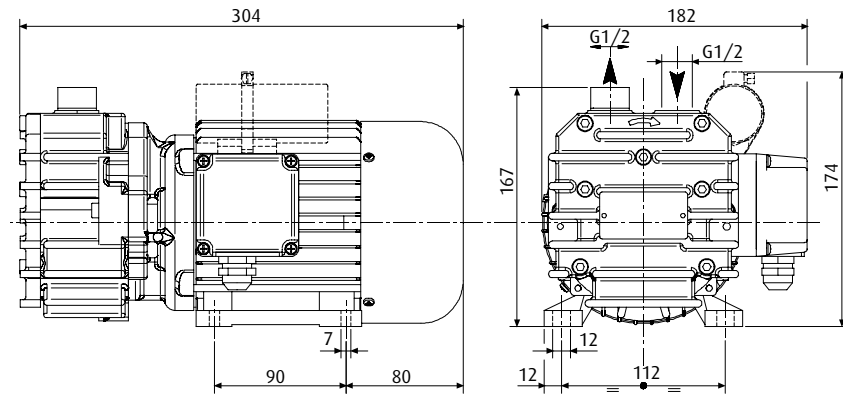
Dimensions



DT.3A-1 | DT.3A-3



DT.6B-1 | DT.6B-3



DT.10B-1 | DT.10B-3

* = 3 vanes, rotor ** = 4 vanes, rotor *** = 6 vanes, rotor

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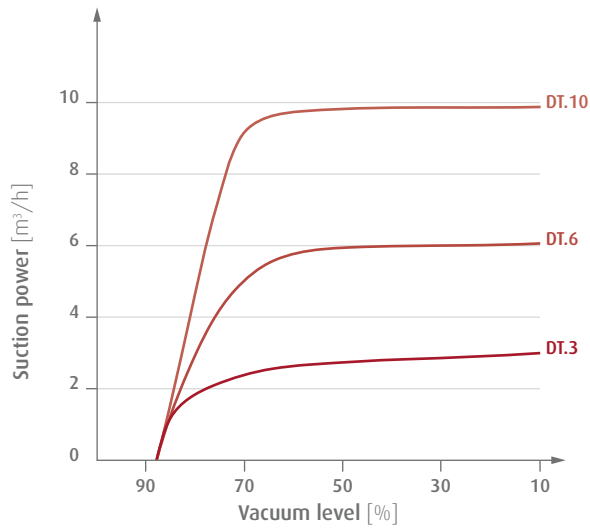


Vacuum generation | Oil-free vacuum pumps

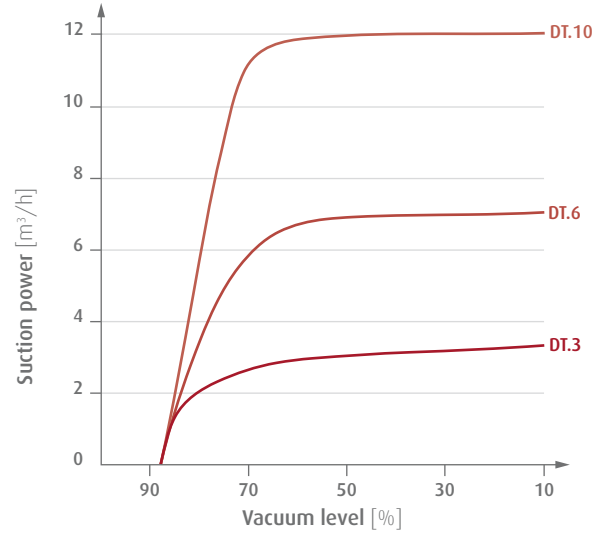
Rotary vane vacuum pumps - oil-free

Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-free

Handling in dry areas



Product Description

- > High reliability and low maintenance costs owing to simple design
- > Universal application: Continuous operation at different vacuum levels
- > Cooling with powerful fan at the rear of the motor
- > Compact design and low weight

Ordering notes

- > Available in single-phase and three-phase designs (Index -1 or -3)
- > Included in scope of delivery:
 - Safety filter on suction side
 - Silencer on pressure side
- > Electric cables not included

Technical data

| Item no. | DT.16B-1 | DT.16B-3 | DT.25B-1 | DT.25B-3 | DT.40B-1 | DT.40B-3 |
|--|--|---|--|---|--|---|
| Suction power at 50 Hz [m ³ /h] | 16 | 16 | 25 | 25 | 40 | 40 |
| Suction power at 60 Hz [m ³ /h] | 19 | 19 | 29 | 29 | 46 | 46 |
| Final vacuum [%] | 88 | 88 | 88 | 88 | 88 | 88 |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 220-255 220-266 Star: 380-440 (380-460) | 220 - 240 | Delta: 220-255 220-266 Star: 380-440 (380-460) | 220 - 240 | Delta: 220-255 220-266 Star: 380-440 (380-460) |
| Current consumption at 50 (60) Hz [A] | 5.6 (5) | Delta: 2,8-3 (3.8-3.2) Star: 1.6-1.7 (2.2-1.8) | 5.8 (6.2) | Delta: 3.8-4.2 (4.4-4.2) Star: 2.2-2.4 (2.5-2.4) | 9.8 (9) | Delta: 7 (7.1-7) Star: 4 (4.1-4.0) |
| Rated power at 50 Hz [kW] | 0.66 | 0.55 | 0.75 | 0.75 | 1.5 | 1.5 |
| Rated power at 60 Hz [kW] | 0.72 | 0.66 | 0.9 | 0.9 | 1.8 | 1.8 |
| Noise level at 50 Hz [dB(A)] | 63 | 63 | 65 | 65 | 68 | 68 |
| Noise level at 60 Hz [dB(A)] | 65 | 65 | 67 | 67 | 70 | 70 |
| Operating temperature at 50 Hz [°C] | 55 - 60 | 55 - 60 | 65 - 70 | 65 - 70 | 75 - 80 | 75 - 80 |
| Operating temperature at 60 Hz [°C] | 60 - 65 | 60 - 65 | 70 - 75 | 70 - 75 | 80 - 85 | 80 - 85 |
| Weight [kg] | 29.5 | 27.5 | 29 | 28.5 | 40 | 37.5 |
| Suitable accessories | Spare part kit KIT-DT.16B* Vacuum regulator 73.002 (p.640) Pre-filter FC 20F (p.624) | | Spare part kit KIT-DT.25B* Vacuum regulator 73.003 (p.640) Pre-filter FC 25F (p.624) | | Spare part kit KIT-DT.40B* Vacuum regulator 73.003 (p.640) Pre-filter FC 30F (p.624) | |

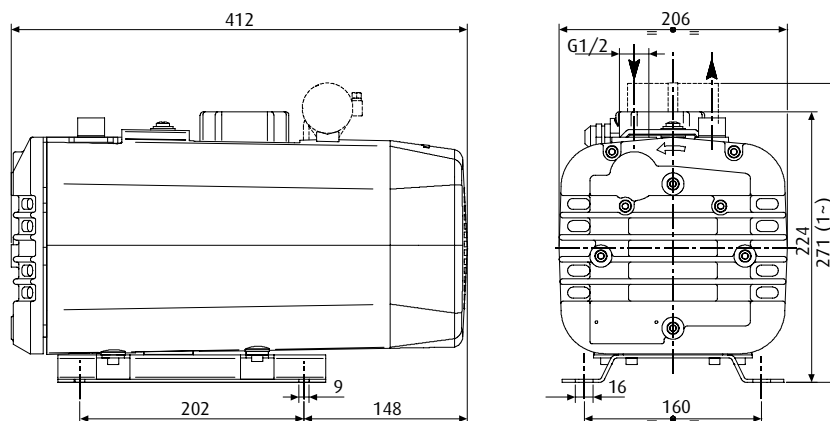
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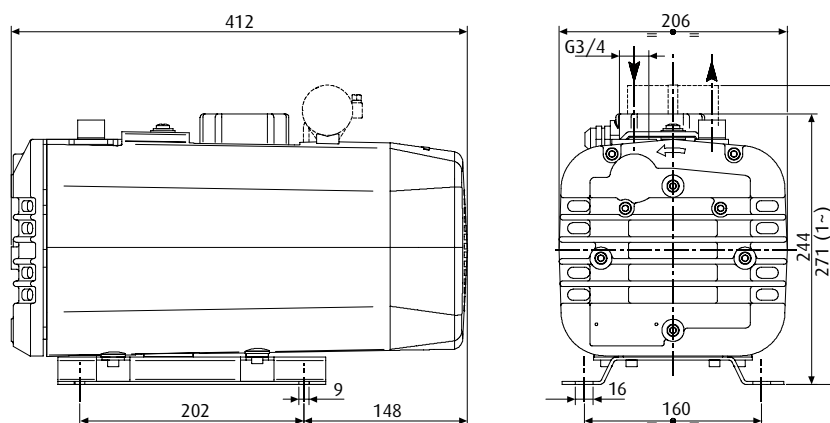
Vacuum generation | Oil-free vacuum pumps

Rotary vane vacuum pumps - oil-free

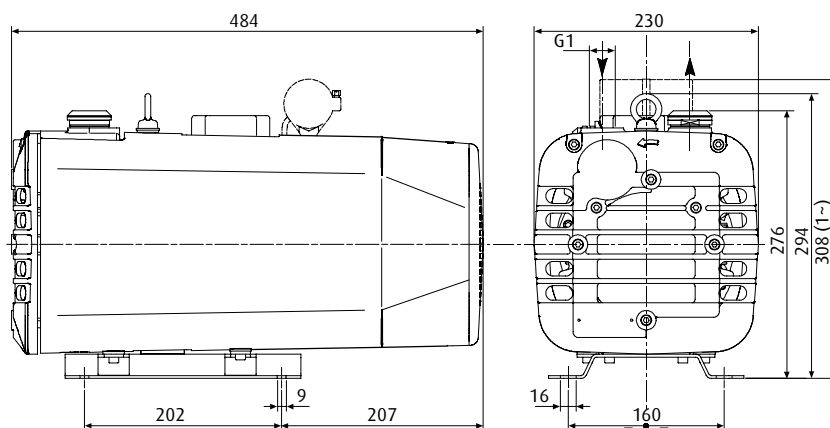
Dimensions



DT.16B-1 | DT.16B-3



DT.25B-1 | DT.25B-3



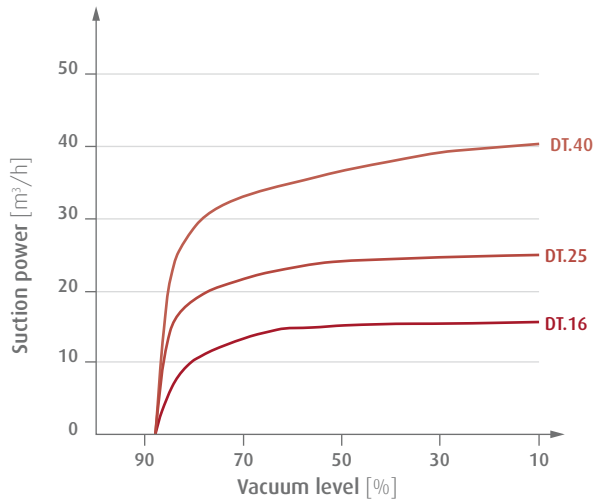
DT.40B-1 | DT.40B-3

* = 4 vanes, filter cartridge

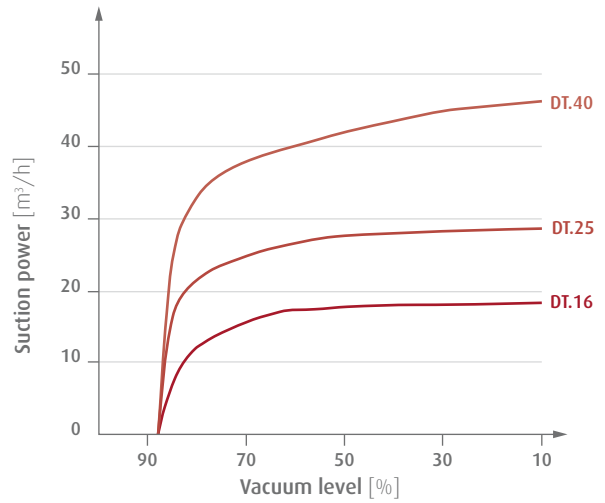


Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-free

Handling in dry areas



Product Description

- > High reliability and low maintenance costs owing to simple design
- > Universal application: Continuous operation at different vacuum levels
- > Compact design due to robust protective housing that also reduces the sound level
- > DT.60C-3: Universal motor according to IE class 2 with wide voltage spectrum for worldwide use

Ordering notes

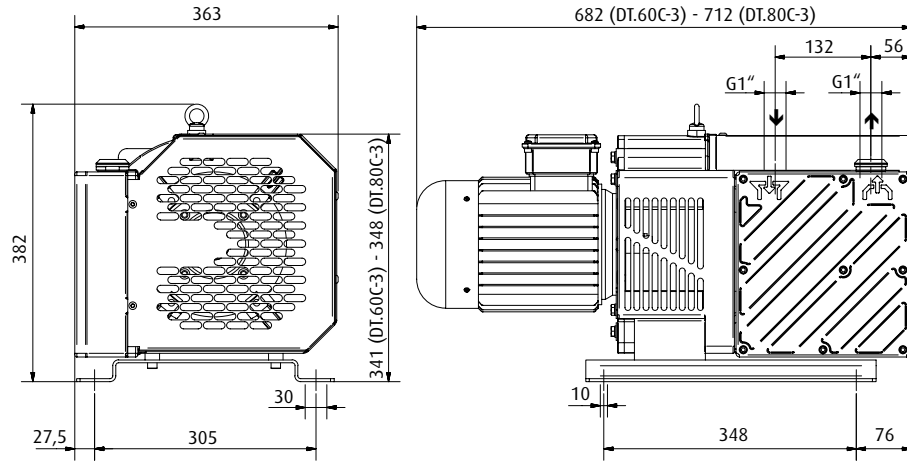
- > Included in scope of delivery:
 - Safety filter on suction side
 - Silencer on pressure side
- > Electric cables not included

Technical data

| Item no. | DT.60C-3 | DT.80C-3 |
|--|---|---|
| Suction power at 50 Hz [m ³ /h] | 60 | 80 |
| Suction power at 60 Hz [m ³ /h] | 70 | 90 |
| Final vacuum [%] | 88 | 88 |
| Power supply at 50 (60) Hz [V] | Delta: 230 (265) Star: 400 (460) | Delta: 230 (265) Star: 400 (460) |
| Current consumption at 50 (60) Hz [A] | Delta: 5.91 (5.6) Star: 3.4 (3.23) | Delta: 8.8 (9) Star: 5.1 (5.2) |
| Rated power at 50 Hz [kW] | 1.5 | 2.2 |
| Rated power at 60 Hz [kW] | 1.8 | 2.7 |
| Noise level at 50 Hz [dB(A)] | 70 | 72 |
| Noise level at 60 Hz [dB(A)] | 72 | 74 |
| Operating temperature at 50 Hz [°C] | 70 - 73 | 72 - 78 |
| Operating temperature at 60 Hz [°C] | 72 - 75 | 75 - 80 |
| Weight [kg] | 66 | 71 |
| Suitable accessories | Spare part kit KIT-DT.60C Silencer 72.003 (p.578) Pre-filter FC 30F (p.624) | Spare part kit KIT-DT.80C Silencer 72.003 (p.578) Pre-filter FC 35F (p.624) |

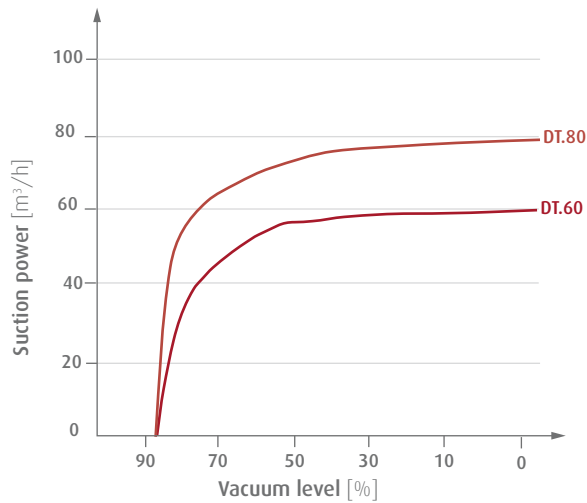


Dimensions

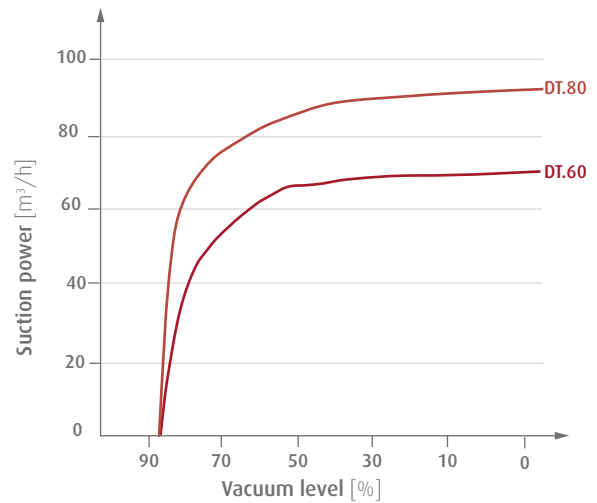


Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-free

Handling in dry areas



Product Description

- > High reliability and low maintenance costs owing to simple assembly
- > Universal application: Continuous operation at different vacuum levels
- > Compact design due to robust protective housing that also reduces the sound level
- > Universal motor according to IE class 2 with wide voltage spectrum for worldwide use

Ordering notes

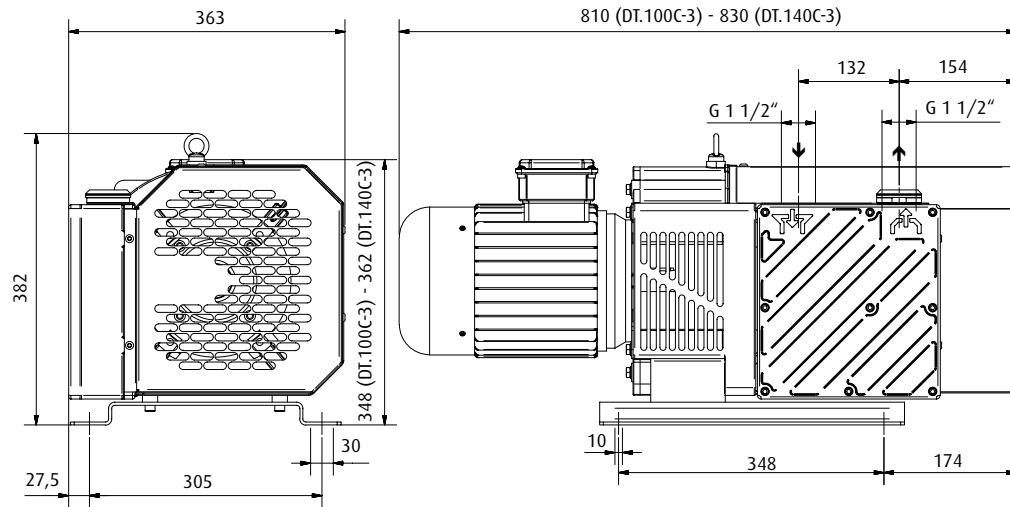
- > Included in scope of delivery:
 - Safety filter on suction side
 - Silencer on pressure side
- > Electric cables not included

Technical data

| Item no. | DT.100C-3 | DT.140C-3 |
|--|---|---|
| Suction power at 50 Hz [m ³ /h] | 100 | 130 |
| Suction power at 60 Hz [m ³ /h] | 115 | 150 |
| Final vacuum [%] | 88 | 88 |
| Power supply at 50 (60) Hz [V] | Delta: 230 (265) Star: 400 (460) | Delta: 230 (265) Star: 400 (460) |
| Current consumption at 50 (60) Hz [A] | Delta: 11.8 (11.4) Star: 6.8 (6.6) | Delta: 14.7 (13.5) Star: 8.5 (7.8) |
| Rated power at 50 Hz [kW] | 3 | 4 |
| Rated power at 60 Hz [kW] | 3.6 | 4.8 |
| Noise level at 50 Hz [dB(A)] | 75 | 76 |
| Noise level at 60 Hz [dB(A)] | 77 | 78 |
| Operating temperature at 50 Hz [°C] | 78 - 82 | 80 - 83 |
| Operating temperature at 60 Hz [°C] | 80 - 85 | 85 - 90 |
| Weight [kg] | 87 | 95 |
| Suitable accessories | Spare part kit KIT-DT.100C Pre-filter FC 40F (p.624) | Spare part kit KIT-DT.140C Pre-filter FC 50F (p.624) |

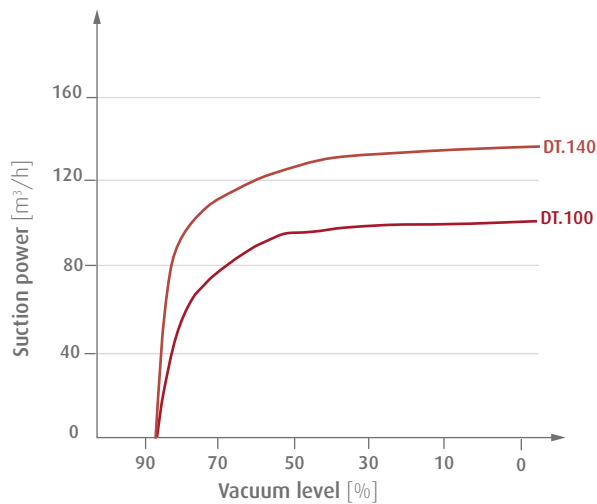


Dimensions

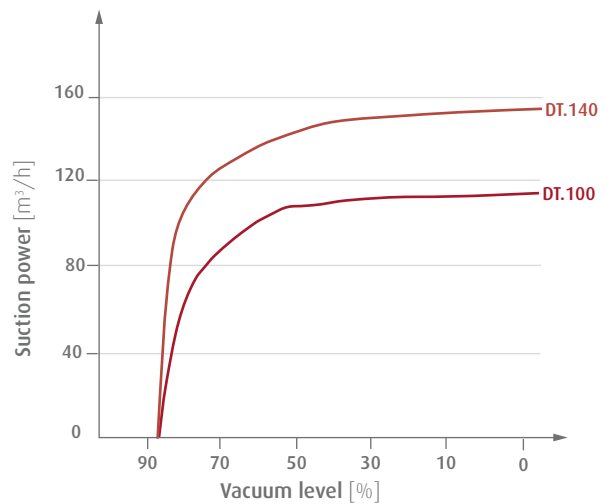


Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Piston pumps



Product Description

- > High volume flow and high vacuum level at low installation space
- > Can also be used as compressor
- > Low-vibration operation
- > Robust design
- > Long service life and maintenance-free operation due to permanently lubricated piston seals
- > Suitable for dry and moist air

Notes

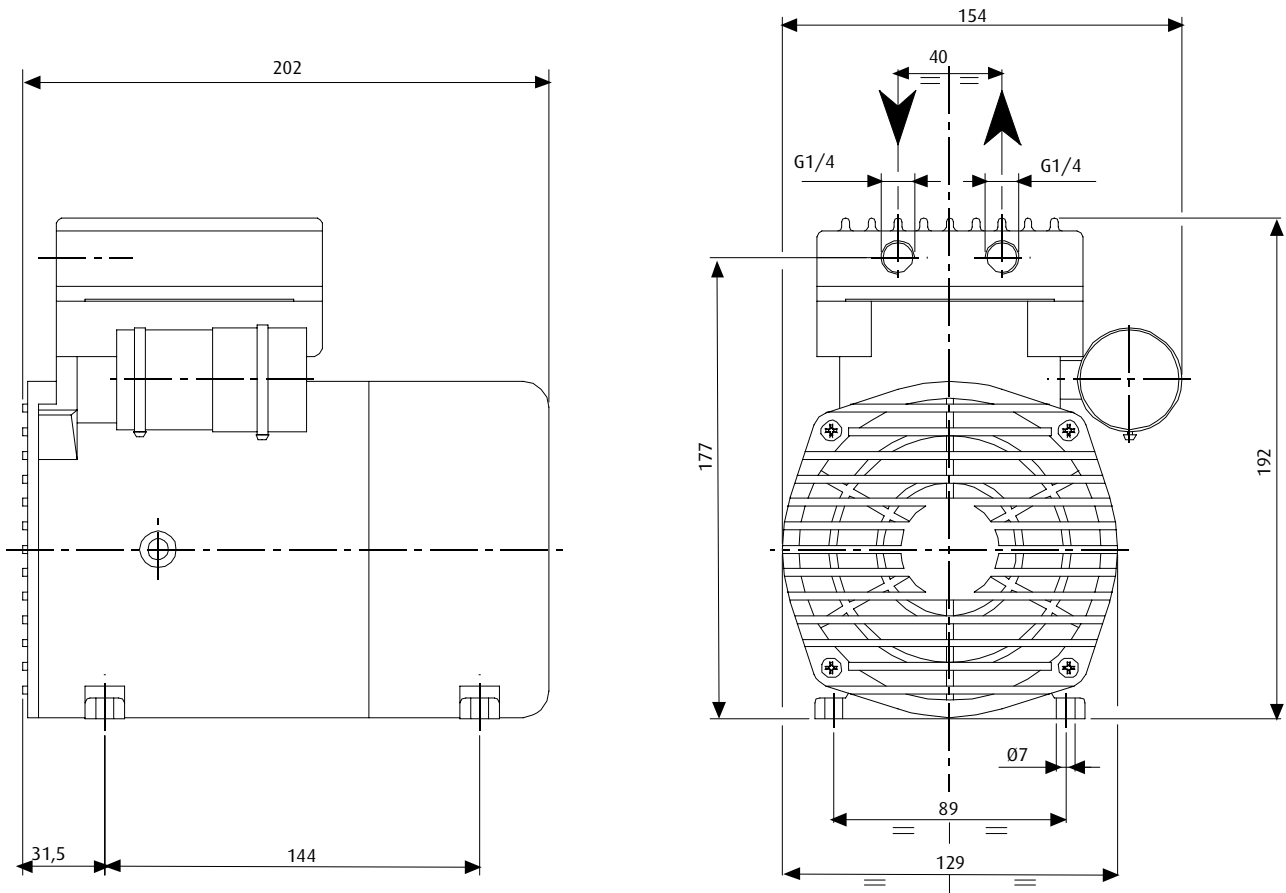
- > A 3/2-way valve must be installed at the inlet in case of pressure-vacuum alternating operation

Technical data

| | |
|--|------------------|
| Item no. | KE.1.9A-1 |
| Suction power at 50 Hz [m ³ /h] | 1.9 |
| Suction power at 60 Hz [m ³ /h] | 2.2 |
| Final vacuum [%] | 89 |
| Power supply [V] | 220 - 240 |
| Rated power at 50 Hz [kW] | 0.2 |
| Noise level at 50 Hz [dB(A)] | 50 |
| Noise level at 60 Hz [dB(A)] | 52 |
| Operating temperature [°C] | 40 - 45 |
| Weight [kg] | 7.1 |
| Suitable Pre-filters | FB 5 (p.626) |

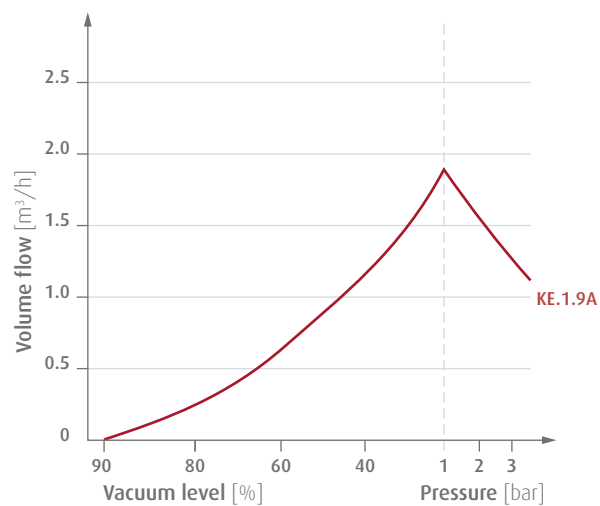


Dimensions



Diagrams

> Volume flow against pressure





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high final vacuum level
- > Drives with multi-range voltages
- > Especially suited for the evacuation of small closed containers
- > Efficient damping and oil recovery system prevents oil mist and reduces sound level
- > Compact and lightweight design for low space requirements or installation on moving devices (sufficient ventilation needs to be ensured)
- > Pump is cooled via mounting fan
- > Horizontal mounting position

Notes

- > Continuous operation only under full load (min. 99.8 % vacuum), otherwise, risk of oil discharge, no gas ballast
- > For operation under moist conditions please consult FIPA

Ordering notes

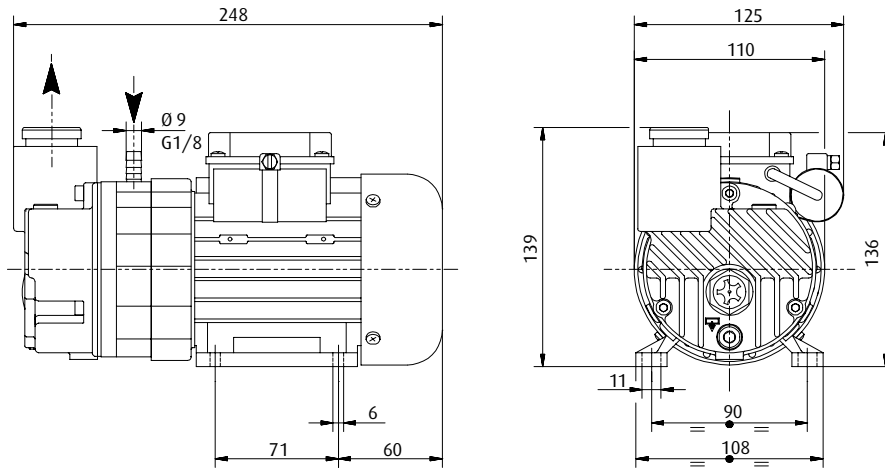
- > Available in single-phase and three-phase designs (Index -1 to -3)
- > Included in scope of delivery: Condensate exhaust filter oil SW 40, thermal protection 130 °C (with single-phase motor)

Technical data

| Item no. | DO.3B-1 | DO.3B-3 | DO.4B-1 | DO.4B-3 |
|--|---|----------------------------------|--|----------------------------------|
| Suction power at 50 Hz [m ³ /h] | 3 | 3 | 4 | 4 |
| Suction power at 60 Hz [m ³ /h] | 3.2 | 3.2 | 4.4 | 4.4 |
| Final vacuum [%] | 99.8 | 99.8 | 99.8 | 99.8 |
| Power supply +/- 5 % at 50 Hz [V] | 220 - 240 | Delta: 220-255 Star: 380-440 | 220 - 240 | Delta: 220-255 Star: 380-440 |
| Power supply +/- 5 % at 60 Hz [V] | 220 - 240 | Delta: 220-266 Star: 380-460 | 220 - 240 | Delta: 220-266 Star: 380-460 |
| Current consumption at 50 Hz [A] | 1 | Delta: 0.7-0.8 Star: 0.4-0.46 | 1 | Delta: 0.7-0.8 Star: 0.4-0.46 |
| Current consumption at 60 Hz [A] | 1.1 | Delta: 0.7 Star: 0.38-0.42 | 1.1 | Delta: 0.7 Star: 0.38-0.42 |
| Rated power at 50 (60) Hz [kW] | 0.12 (0.15) | 0.12 (0.14) | 0.12 (0.15) | 0.12 (0.14) |
| Noise level at 50 Hz [dB(A)] | 56 | 56 | 57 | 57 |
| Noise level at 60 Hz [dB(A)] | 58 | 58 | 59 | 59 |
| Operating temperature at 50 Hz [°C] | 60 - 65 | 60 - 65 | 60 - 65 | 60 - 65 |
| Operating temperature at 60 Hz [°C] | 65 - 70 | 65 - 70 | 65 - 70 | 65 - 70 |
| Weight [kg] | 5.4 | 5.4 | 5.4 | 5.4 |
| Suitable accessories | Spare part kit KIT-DO.3B/K*** Spare part kit KIT-DO.3B/G* Pre-filter FB 5 (p.626) | | Spare part kit KIT-DO.4B/K*** Spare part kit KIT-DO.4B/G** Pre-filter FB 5 (p.626) | |



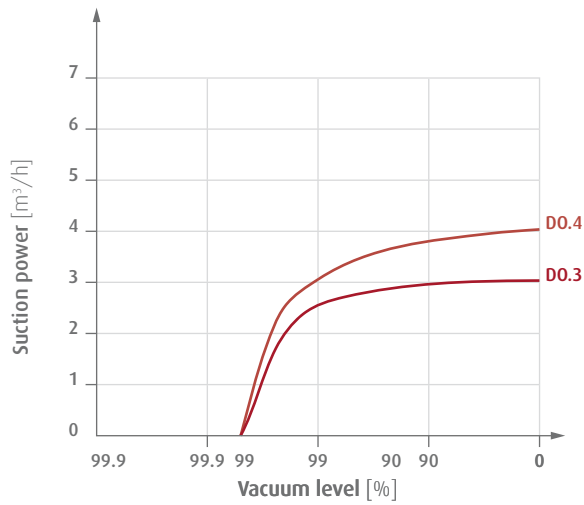
Dimensions



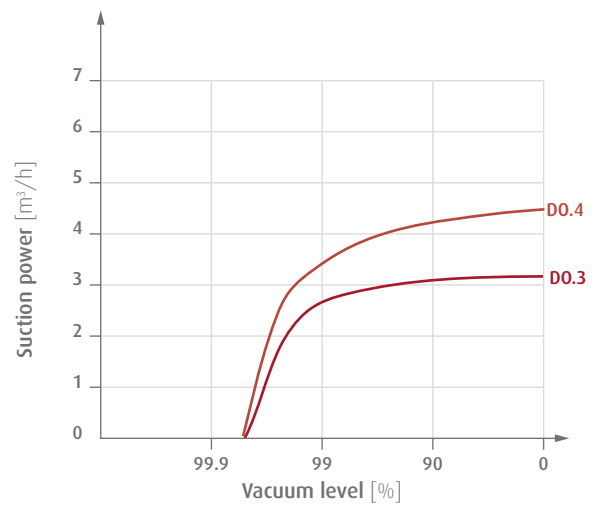
- * = 6 x vanes, FKM O-Rings, oil recirculation valve, oil mist separator, filter
- ** = 6 x vanes, FKM O-Rings, seal, oil recirculation valve, oil mist separator, filter
- *** = Oil mist separator, rubber washer, follower, 1 x filter cartridge, 1 x O-ring FKM

Diagrams

> Suction power against vacuum level at 50 Hz

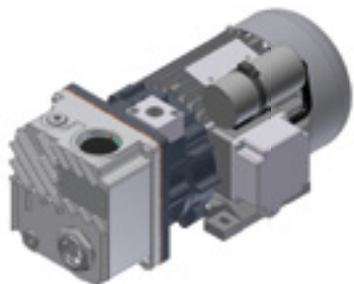


> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high final vacuum level
- > Suitable for moist environments
- > Effective damping and recovery system prevents oil mist and reduces sound level
- > Innovative sealing system prevents oil recirculation at standstill under vacuum
- > Compact design and low weight
- > Horizontal mounting position

Notes

- > Designed for continuous operation under vacuum levels of 60 % to 99 %, integrated gas ballast, water vapor tolerance

Ordering notes

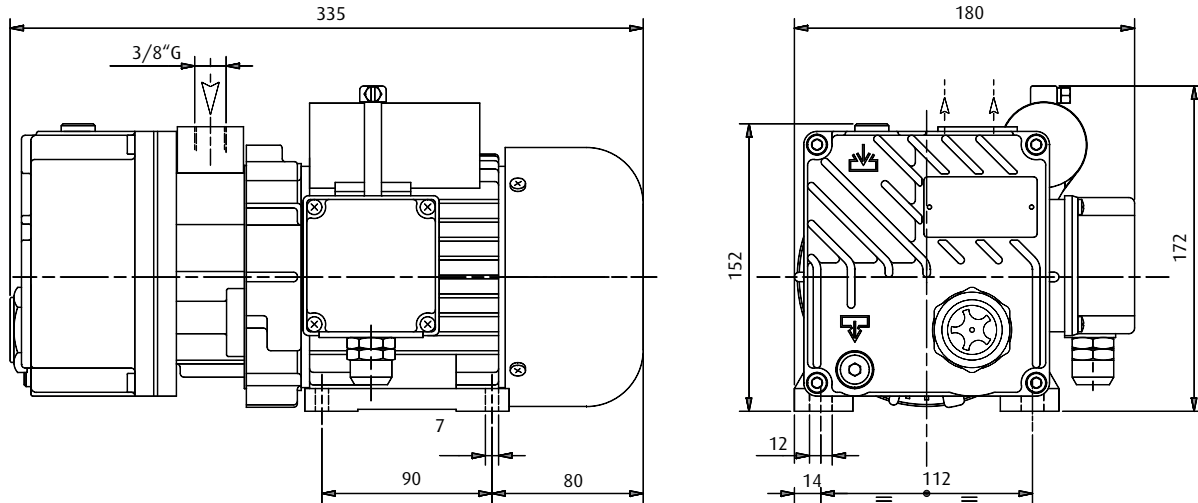
- > Available in single-phase and three-phase designs (Index -1 to -3)
- > Included in scope of delivery: Condensate exhaust filter, gas ballast, oil SW 60, oil non-return valve

Technical data

| Item no. | DO.5B-1 | DO.5B-3 |
|---|-------------------------------|--|
| Suction power at 50 Hz [m ³ /h] | 5 | 5 |
| Suction power at 60 Hz [m ³ /h] | 6 | 6 |
| Final vacuum [%] | 99 | 99 |
| Gas ballast | Yes | Yes |
| Max. inlet pressure for water vapour [mbar] | 30 | 30 |
| Steam capacity [l/h] | 0.11 | 0.11 |
| Check valve | Yes | Yes |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) |
| Current consumption at 50 (60) Hz [A] | 1.7 - 2.1 | Delta: 1.8-2.3 (1.6-2.3) Star: 1-1.3 (0.9-1.3) |
| Rated power at 50 (60) Hz [kW] | 0.25 (0.25) | 0.37 (0.45) |
| Noise level at 50 (60) Hz [dB(A)] | 58 (60) | 58 (60) |
| Operating temperature [°C] | 65 - 75 | 65 - 75 |
| Weight [kg] | 13 | 11.5 |
| Suitable Spare-part-kits | KIT-DO.5B/G** KIT-DO.5B/K* | KIT-DO.5B/G** KIT-DO.5B/K* |



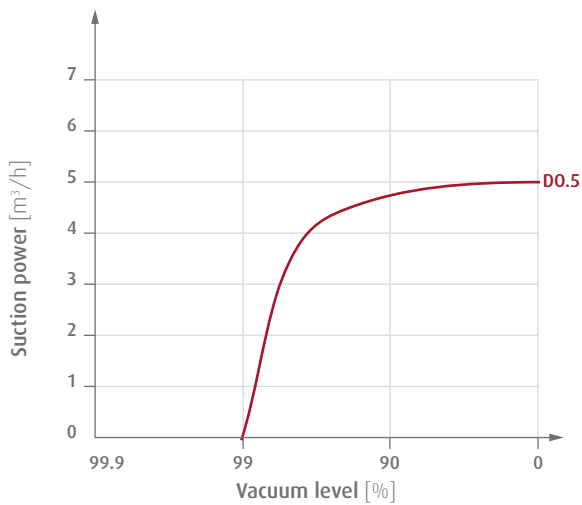
Dimensions



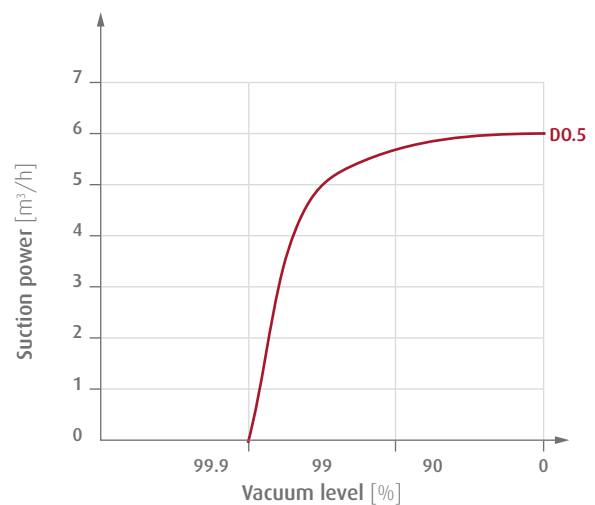
* = O-Ring 121 FKM, filter element ** = Shaft seal, 2 x O-Ring 3300 NBR, 3 x vanes, 2 x ejector, inlet shield, inlet rubber NBR, filter disk, NBR rubber for exhaust valve, 3 x copper washer, O-Ring 121 FKM, filter element, gasket, sintered filter G1/8

Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high final vacuum level
- > Effective damping and recovery system prevents oil mist and reduces sound level
- > Innovative sealing system prevents oil recirculation at standstill under vacuum
- > Compact design and low weight
- > Horizontal mounting position

Notes

- > DO.8: Continuous operation only under full load (min. 99.8 % vacuum), otherwise, risk of oil discharge, no gas ballast
- > DO.8: For operation under moist conditions please consult FIPA
- > DO.12: Designed for continuous operation for vacuum levels between 60 and 99.9 %, gas ballast available, can tolerate water vapor

Ordering notes

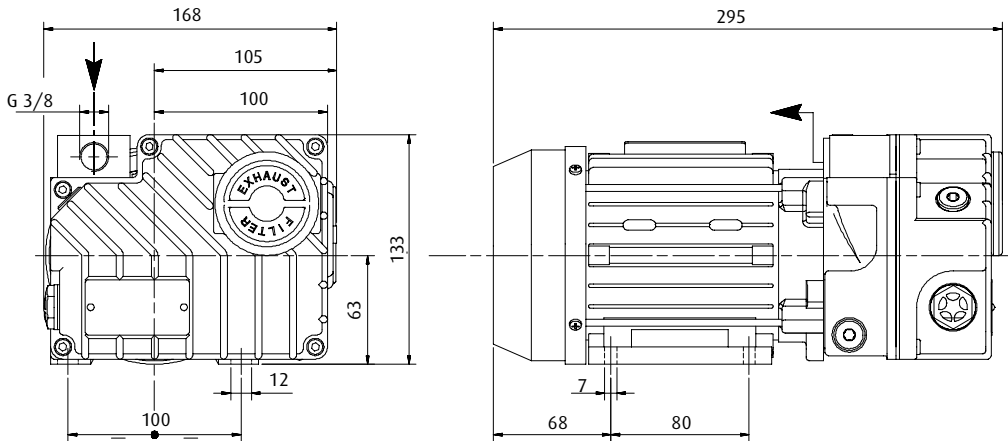
- > Available in single-phase and three-phase designs (Index -1 or -3)
- > Included in scope of delivery: Condensate exhaust filter, gas ballast (with DO.12C-3), oil SW 40, oil non-return valve

Technical data

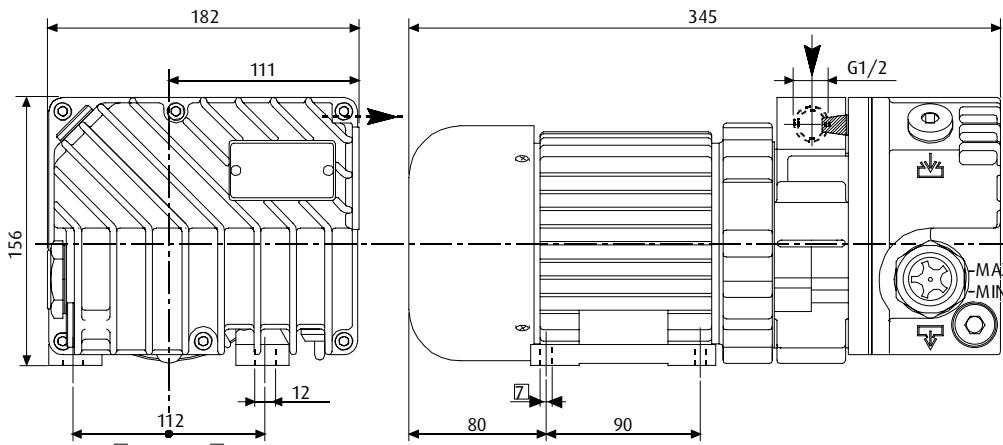
| Item no. | DO.8B-1 | DO.8B-3 | DO.12C-1 | DO.12C-3 |
|---|---|---|---|---|
| Suction power at 50 Hz [m ³ /h] | 8 | 8 | 12 | 12 |
| Suction power at 60 Hz [m ³ /h] | 9 | 9 | 14 | 14 |
| Final vacuum [%] | 99.8 | 99.8 | 99.8 | 99.8 |
| Gas ballast | -- | -- | Yes | Yes |
| Max. inlet pressure for water vapour [mbar] | -- | -- | 40 | 40 |
| Steam capacity [l/h] | -- | -- | 0.3 | 0.3 |
| Check valve | Yes | Yes | Yes | Yes |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) | 220 - 240 | Delta: 220-255 (220-266) Star: 380-440 (380-460) |
| Current consumption at 50 (60) Hz [A] | 2.3 (2.5) | Delta: 1.4-1.5 (1.5-1.4) Star: 0.8-0.86 (0.86-0.8) | 3-3.6 (3.3-3.1) | Delta: 1.4-1.5 (1.5-1.4) Star: 0.8-0.86 (0.86-0.8) |
| Rated power at 50 (60) Hz [kW] | 0.37 (0.45) | 0.25 (0.3) | 0.45 (0.55) | 0.37 (0.45) |
| Noise level at 50 (60) Hz [dB(A)] | 58 (60) | 58 (60) | 60 (62) | 60 (62) |
| Operating temperature [°C] | 65 - 75 | 65 - 75 | 65 - 75 | 65 - 75 |
| Weight [kg] | 10 | 9 | 14 | 12.5 |
| Suitable accessories | Spare part kit KIT-DO.8B/G** Spare part kit KIT-DO.8B/K* Pre-filter FB 10 (p.626) | Spare part kit KIT-DO.8B/G** Spare part kit KIT-DO.8B/K* Pre-filter FB 10 (p.626) | Spare part kit KIT-DO.12C/G**** Spare part kit KIT-DO.12C/K*** Pre-filter FB 20 (p.626) | Spare part kit KIT-DO.12C/G**** Spare part kit KIT-DO.12C/K*** Pre-filter FB 20 (p.626) |



Dimensions



DO.8B-1 | DO.8B-3

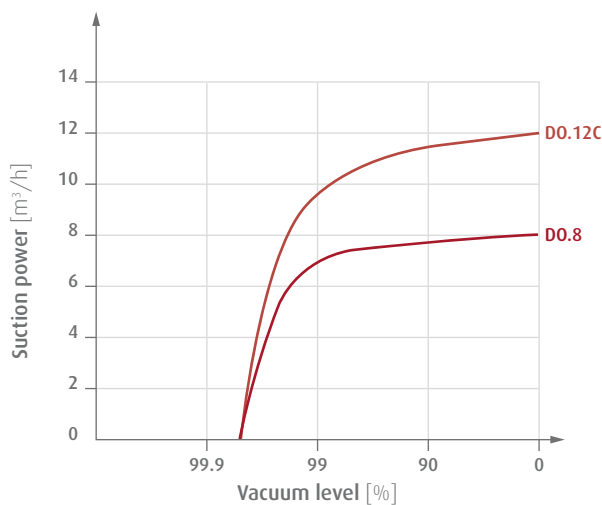


DO.12C-1 | DO.12C-3

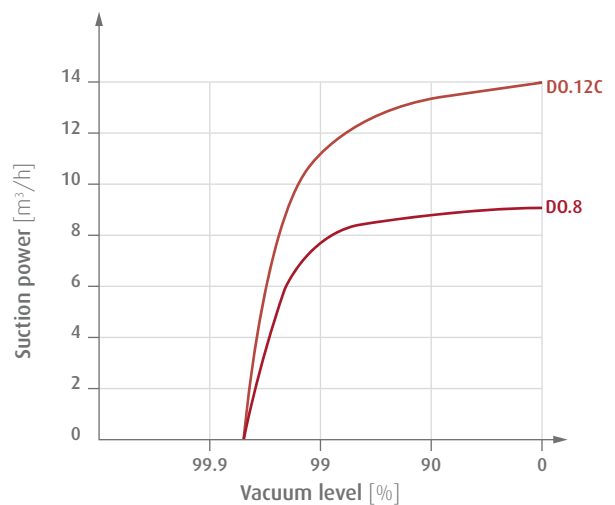
* = FKM O-Rings, outlet filter ** = 3 vanes, FKM-O rings, seal, valve, inlet and outlet filter, oil recirculation valve
 *** = FKM O-rings, oil mist separator **** = 3 vanes, FKM o-rings, seal, filter, oil mist separator, spring

Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high level of final vacuum
- > Suitable for moist environments
- > Effective damping and recovery system prevents oil mist and reduces sound level
- > Innovative sealing system prevents oil recirculation at standstill under vacuum
- > DO.20C-3 und DO.25C-3: Universal motor according to IE class 2 with wide voltage spectrum for worldwide use
- > Horizontal mounting position

Notes

- > DO.20: Designed for continuous operation for vacuum level between 60 % and 99.8 %, gas ballast available, can tolerate water vapor
- > DO.25: Designed for continuous operation for vacuum level between 60 % and 99.95 %, gas ballast available, can tolerate water vapor

Ordering notes

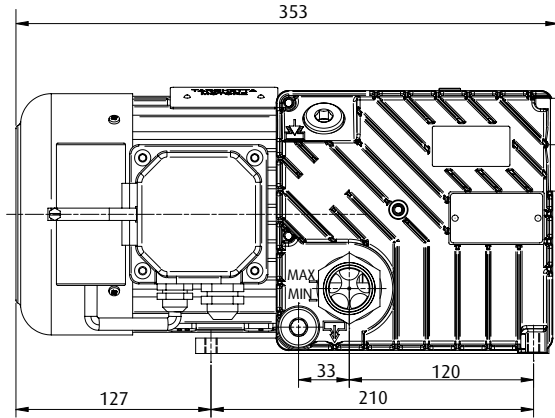
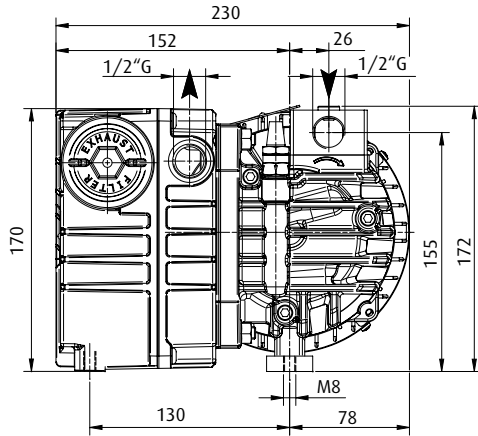
- > Available in single-phase and three-phase designs (Index -1 or -3)
- > Included in scope of delivery: Gas ballast, oil non-return valve, oil SW 40 (with DO.20), oil SW 60 (with DO.25)

Technical data

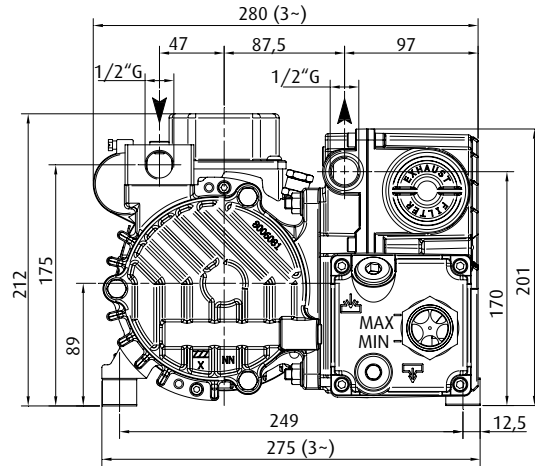
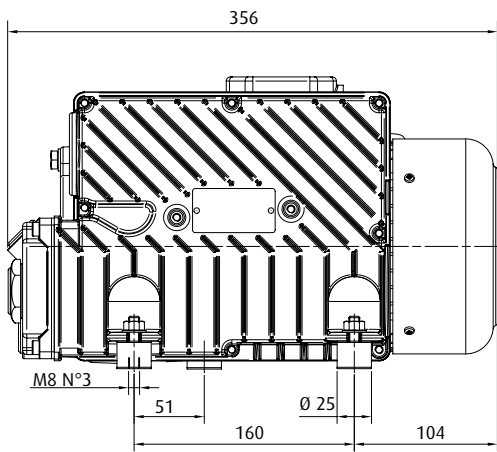
| Item no. | DO.20C-1 | DO.20C-3 | DO.25C-1 | DO.25C-3 |
|---|---|---|---|-------------------------------------|
| Suction power at 50 Hz [m ³ /h] | 20 | 20 | 25 | 25 |
| Suction power at 60 Hz [m ³ /h] | 24 | 24 | 29 | 29 |
| Final vacuum [%] | 99.8 | 99.8 | 99.95 | 99.95 |
| Gas ballast | Yes | Yes | Yes | Yes |
| Max. inlet pressure for water vapour [mbar] | 15 | 15 | 40 | 40 |
| Steam capacity [l/h] | 0.25 | 0.25 | 0.7 | 0.7 |
| Check valve | Yes | Yes | Yes | Yes |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 175-260 (200-300) Star: 300-450 (346-520) | 220 - 240 | Delta: 230 (265) Star: 400 (460) |
| Current consumption at 50 (60) Hz [A] | 4-4.1 (5.7-5.6) | Delta: 3.4-3.3 (4.1-3.3) Star: 2.0-1.9 (2.4-1.9) | 3 (3) | Delta: 3.0 (3.0) Star: 1.7 (1.7) |
| Rated power at 50 (60) Hz [kW] | 0.75 (0.90) | 0.75 (0.90) | 0.75 (0.90) | 0.75 (0.90) |
| Noise level at 50 (60) Hz [dB(A)] | 64 (67) | 64 (67) | 62 (65) | 62 (65) |
| Operating temperature [°C] | 60 - 70 | 60 - 70 | 80 - 90 | 80 - 90 |
| Weight [kg] | 19 | 17 | 26 | 25 |
| Suitable accessories | Spare part kit KIT-DO.20C/G** Spare part kit KIT-DO.20C/K* Pre-filter FB 20 (p.626) | | Spare part kit KIT-DO.25C/G**** Spare part kit KIT-DO.25C/K*** Pre-filter FB 25 (p.626) | |



Dimensions



DO.20C-1 | DO.20C-3

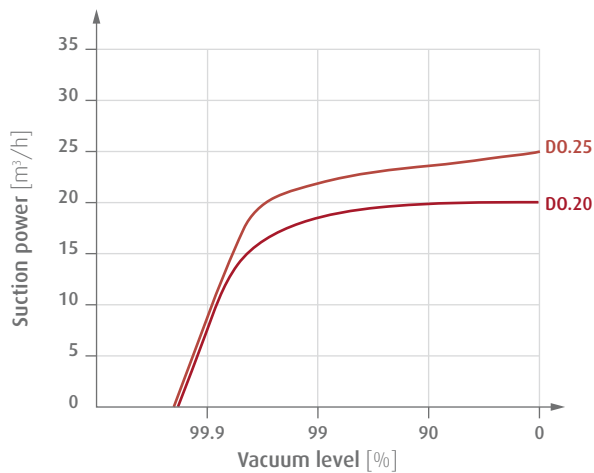


DO.25C-1 | DO.25C-3

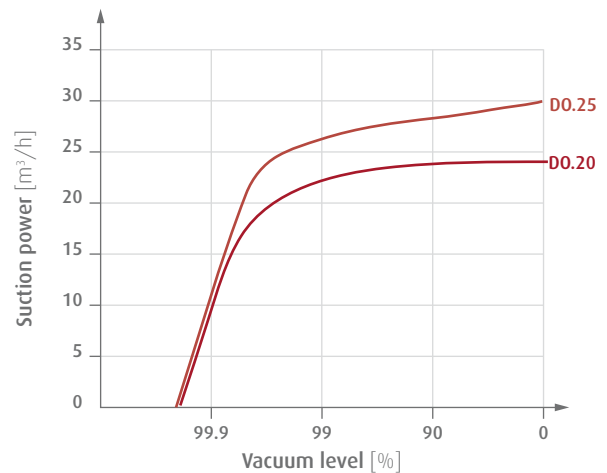
* = FKM O-rings, oil mist separator ** = 3 x vanes, FKM O-rings, valve, filter, copper washer G1/8" *** = FKM and NBR O-rings, outlet filter
 **** = 2x FKM shaft seals, FKM O-rings, filter, valve, 3 vanes

Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high level of final vacuum
- > Suitable for moist environments
- > Effective damping and recovery system with by-pass and novel float valve guarantees oil-free exhaust air
- > Innovative sealing system prevents oil recirculation at standstill under vacuum
- > DO.40B-3 und DO.60B-3: Universal motor according to IE class 2 with wide voltage spectrum for worldwide use
- > Horizontal mounting position

Notes

- > Designed for continuous operation for vacuum level between 60 % to 99,95 %, gas ballast available, can tolerate water vapor

Ordering notes

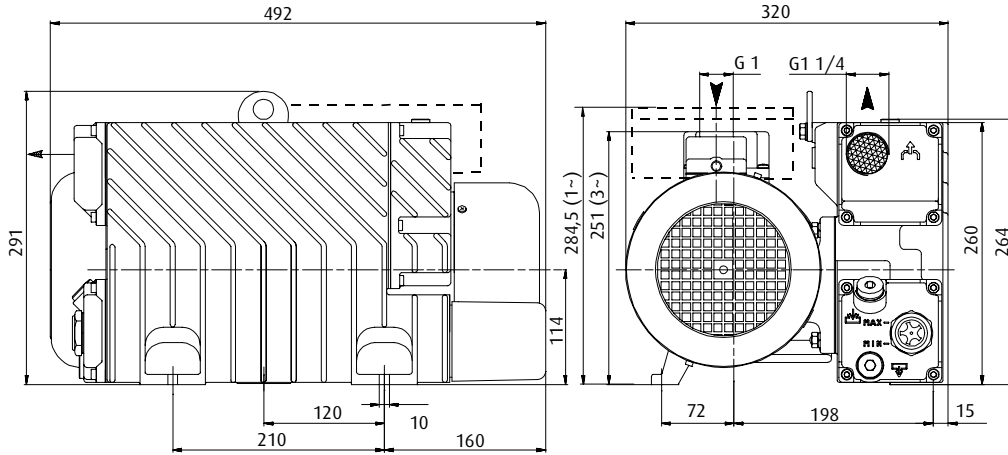
- > Available in single-phase and three-phase designs (Index -1 or -3)
- > Included in scope of delivery: Condensate exhaust filter, gas ballast, oil SW 60, oil non-return valve

Technical data

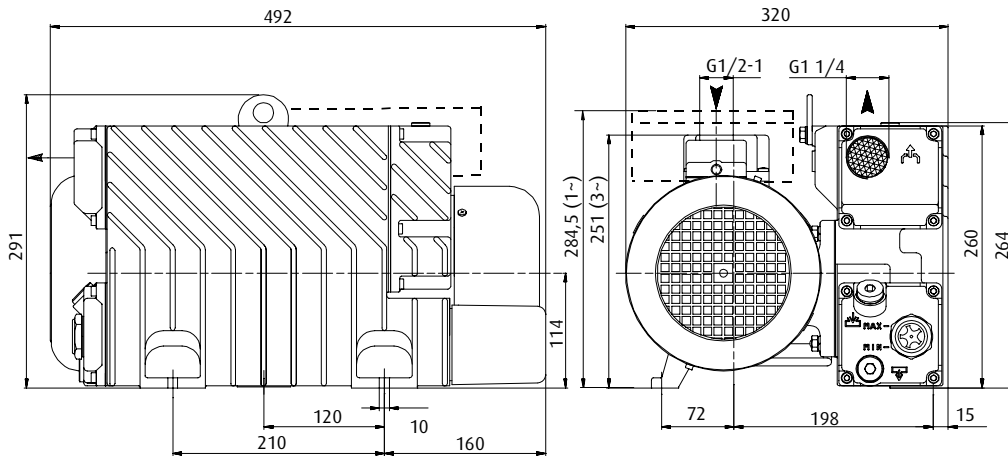
| Item no. | DO.40B-1 | DO.40B-3 | DO.60B-1 | DO.60B-3 |
|---|--|---------------------------------------|--|---|
| Suction power at 50 Hz [m ³ /h] | 40 | 40 | 60 | 60 |
| Suction power at 60 Hz [m ³ /h] | 48 | 48 | 72 | 72 |
| Final vacuum [%] | 99.95 | 99.95 | 99.95 | 99.95 |
| Gas ballast | Yes | Yes | Yes | Yes |
| Max. inlet pressure for water vapour [mbar] | 30 | 30 | 40 | 40 |
| Steam capacity [l/h] | 0.9 | 0.9 | 1.8 | 1.8 |
| Check valve | Yes | Yes | Yes | Yes |
| Power supply at 50 (60) Hz [V] | 220 - 240 | Delta: 230 (265) Star: 400 (460) | 220 - 240 | Delta: 230 (265) Star: 400 (460) |
| Current consumption at 50 (60) Hz [A] | 4.1 (2.37) | Delta: 4.1 (4.3) Star: 2.37 (2,49) | 5.76 (3.33) | Delta: 5.76 (5.72) Star: 3.33 (3.31) |
| Rated power at 50 (60) Hz [kW] | 1.1 (1.35) | 1.1 (1.35) | 1.5 (1.8) | 1.5 (1.8) |
| Noise level at 50 (60) Hz [dB(A)] | 66 (68) | 66 (68) | 68 (70) | 68 (70) |
| Operating temperature [°C] | 70 - 80 | 70 - 80 | 75 - 85 | 75 - 85 |
| Weight [kg] | 49.5 | 43.5 | 50 | 44.5 |
| Suitable accessories | Spare part kit KIT-DO.40B/G** Spare part kit KIT-DO.40B/k** Pre-filter FB 30 (p.626) | | Spare part kit KIT-DO.60B/G** Spare part kit KIT-DO.60B/k** Pre-filter FB 30 (p.626) | |



Dimensions



DO.40B-1 | DO.40B-3

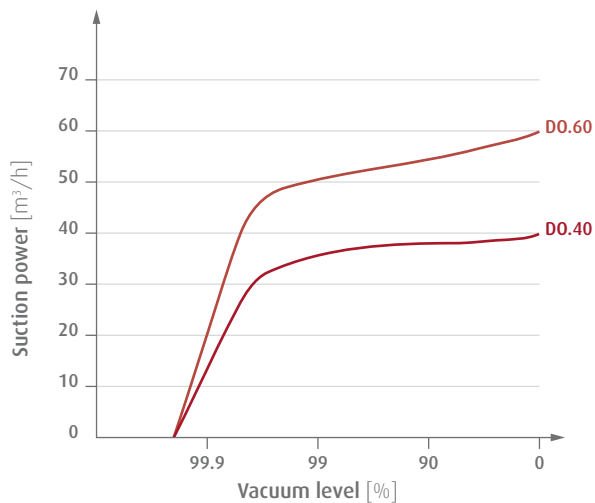


DO.60B-1 | DO.60B-3

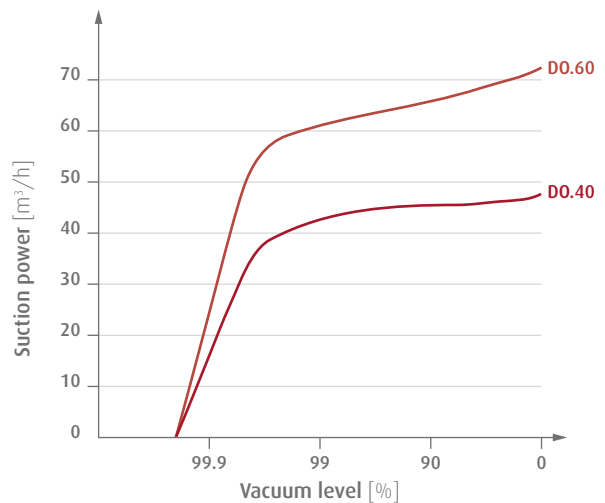
* = Seal, Oil mist separator, Oil filter ** = 2 x FKM shaft seals, FKM O-rings, seals, filter, 3 x vanes

Diagrams

> Suction power against vacuum level at 50 Hz



> Suction power against vacuum level at 60 Hz





Rotary vane vacuum pumps - oil-lubricated



Product Description

- > Very high final vacuum
- > Suitable for moist environments
- > Effective damping and recovery system with by-pass and novel float valve guarantees oil-free exhaust air
- > Innovative sealing system prevents oil recirculation at standstill under vacuum
- > Elastic motor coupling effectively absorbs shocks
- > Universal motor according to IE class 2 with wide voltage spectrum for worldwide use
- > Horizontal mounting position

Notes

- > Designed for continuous operation for vacuum level between 60 % to 99.95 %, gas ballast available, can tolerate water vapor

Ordering notes

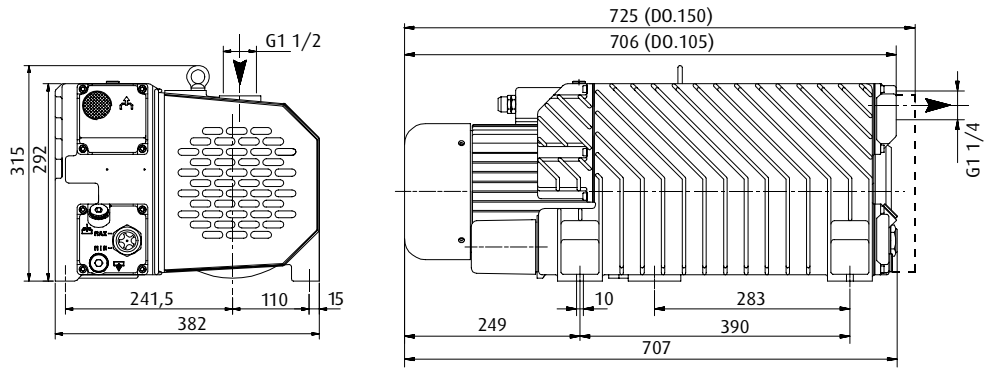
- > Scope of supply: Condensate exhaust filter, gas ballast, oil non-return valve, oil SW 100

Technical data

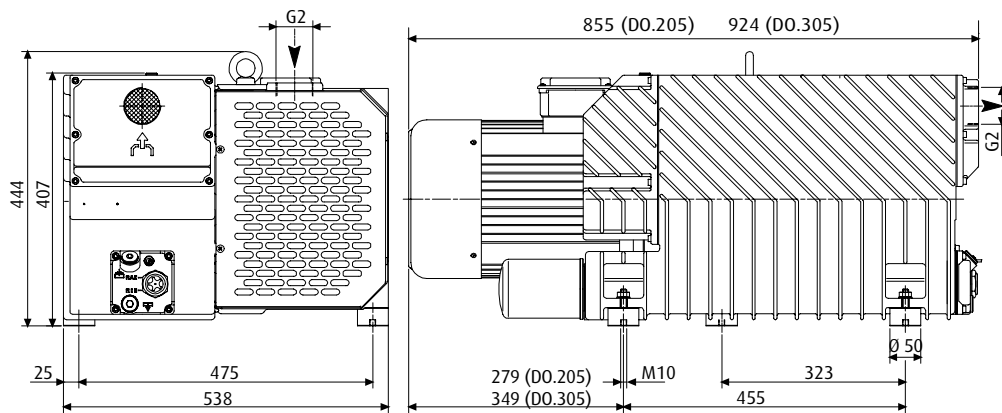
| Item no. | DO.105C-3 | DO.150C-3 | DO.205C-3 | DO.305C-3 |
|---|--|--|---|---|
| Suction power at 50 Hz [m ³ /h] | 105 | 150 | 205 | 305 |
| Suction power at 60 Hz [m ³ /h] | 125 | 180 | 245 | 365 |
| Final vacuum [%] | 99.95 | 99.95 | 99.95 | 99.95 |
| Gas ballast | Yes | Yes | Yes | Yes |
| Max. inlet pressure for water vapour [mbar] | 30 | 25 | 25 | 25 |
| Steam capacity [l/h] | 2.2 | 2.5 | 3.5 | 5 |
| Check valve | Yes | Yes | Yes | Yes |
| Power supply at 50 (60) Hz [V] | Delta: 230 (265) Star: 400 (460) | Delta: 230 (265) Star: 400 (460) | Delta: 230 (265) Star: 400 (460) | Delta: 230 (265) Star: 400 (460) |
| Current consumption at 50 (60) Hz [A] | Delta: 8.8 (9.0) Star: 5.1 (5.2) | Delta: 8.8 (9.0) Star: 5.1 (5.2) | Delta: 20 (20.3) Star: 11.6 (11.7) | Delta: 27.7 (26.8) Star: 16 (15.5) |
| Rated power at 50 (60) Hz [kW] | 2.2 (2.7) | 3 (3.6) | 4 (4.8) | 7.5 (8.6) |
| Noise level at 50 (60) Hz [dB(A)] | 68 (70) | 70 (72) | 72 (74) | 74 (76) |
| Operating temperature [°C] | 75 - 85 | 75 - 85 | 70 - 80 | 75 - 85 |
| Weight [kg] | 70 | 82 | 154 | 164 |
| Suitable accessories | Spare part kit KIT-DO.105C/K*** Spare part kit KIT-DO.105C/G* Pre-filter FB 40 (p.626) | Spare part kit KIT-DO.150C/K*** Spare part kit KIT-DO.150C/G* Pre-filter FB 50 (p.626) Pre-filter FB 60 (p.626) | Spare part kit KIT-DO.205C/K*** Spare part kit KIT-DO.205C/G** Pre-filter FB 50 (p.626) Pre-filter FB 60 (p.626) | Spare part kit KIT-DO.305C/K*** Spare part kit KIT-DO.305C/G** Pre-filter FB 60 (p.626) |



Dimensions



DO.105C-3 | DO.150C-3

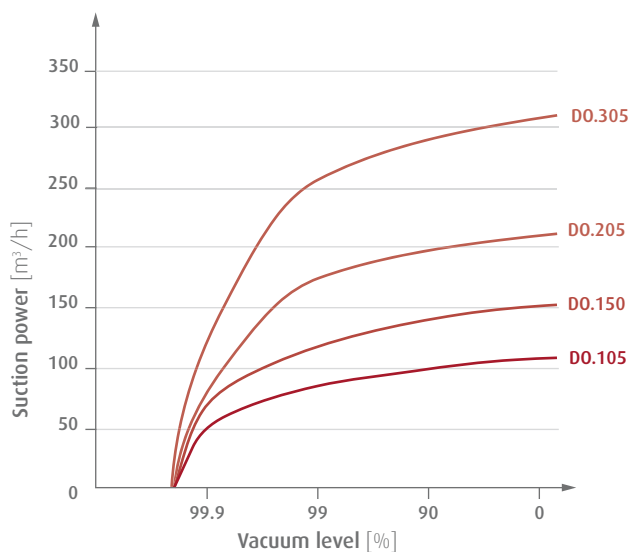


DO.205C-3 | DO.305C-3

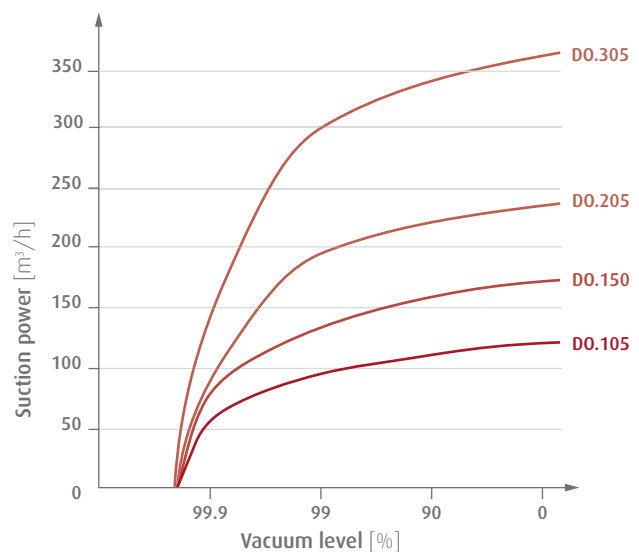
- * = Rubber link, seals, 3 vanes, FKM shaft seal, FKM O-rings, oil filter with bypass
- ** = Rubber link, FKM and NBR O-rings, 3 x vanes, oil recirculation pipe, gas ballast pipe, filters, oil inspection glass
- *** = Oil filter with bypass valve, exhaust filter, gasket

Diagrams

> Suction power against vacuum level at 50 Hz

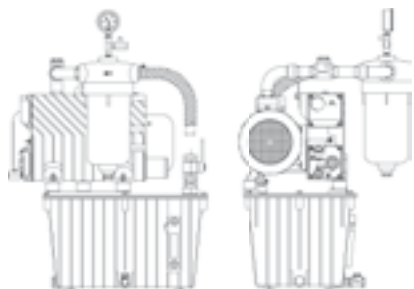


> Suction power against vacuum level at 60 Hz





Portable vacuum units with condensate discharge for liquids



Product Description

- > Portable system for vacuum supply for i.e. suction cups or fixing tools
- > Specially developed for the extraction of non-aggressive liquids such as e.g. cooling lubricants in the glass, marble and CNC machine markets

Ordering notes

Included in scope of delivery:

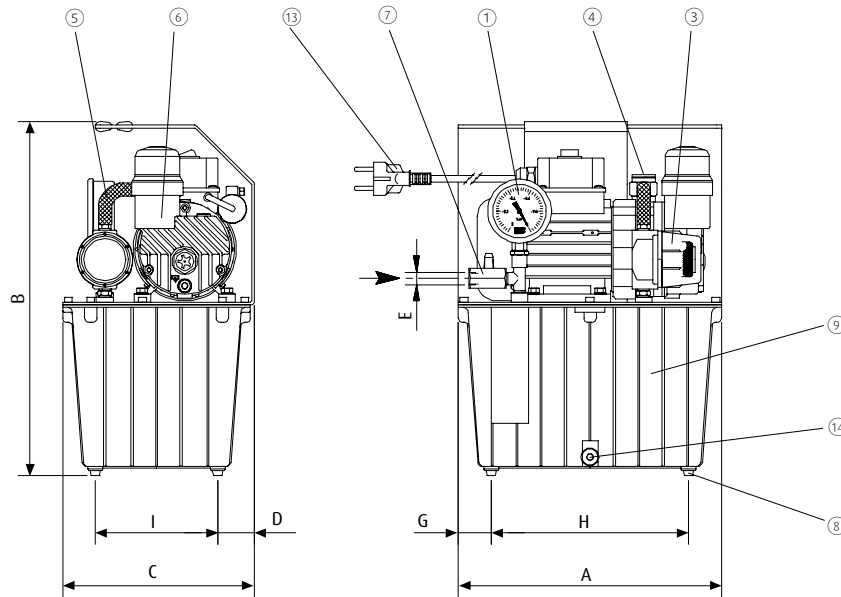
- > Vacuum tank
- > Oil-lubricated vacuum pump
- > Vacuum gauge
- > Condensate trap filter
- > Non-return valve at the tank inlet to separate the pump for maintenance
- > Float level control for automatic discharge of the collected liquid
- > Condensate discharge
- > Non-return valve and gas ballast for trapping and discharge the condensed water from the oil at standstill

Technical data

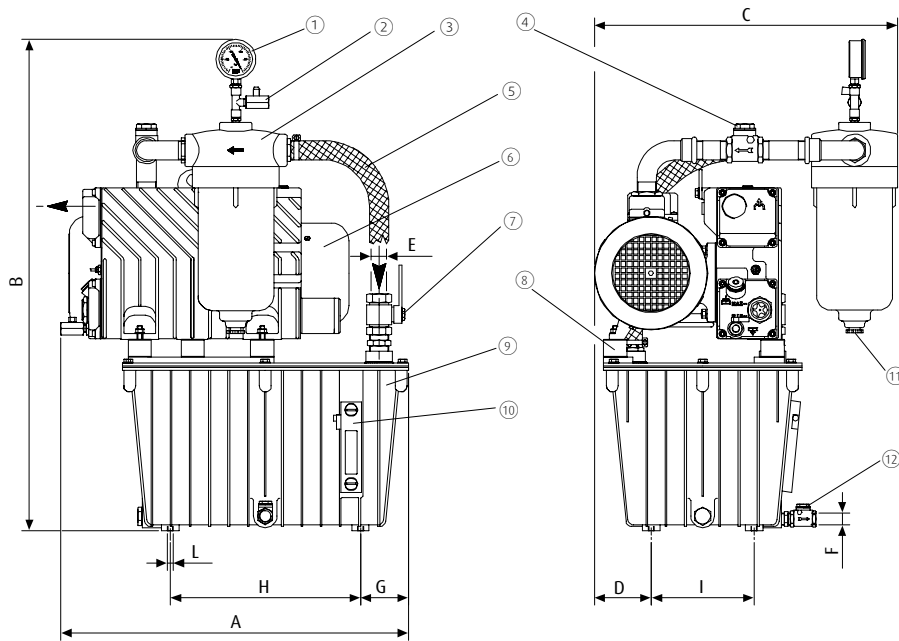
| Item no. | Safety tank volume of vacuum tank [l] | Suction power at 50 Hz [m ³ /h] | Suction power at 60 Hz [m ³ /h] | Final vacuum [%] | Rated power at 50 Hz [kW] | Rated power at 60 Hz [kW] | Weight [kg] |
|-----------------|---------------------------------------|--|--|------------------|---------------------------|---------------------------|-------------|
| VZ.DO.4B-1/8L | 8 | 4 | 4.4 | 99.8 | 0.12 | 0.15 | 11 |
| VZ.DO.5B-1/25L | 25 | 5 | 6 | 99 | 0.25 | 0.25 | 31 |
| VZ.DO.25C-3/25L | 25 | 25 | 29 | 99.5 | 0.75 | 0.9 | 55 |
| VZ.DO.40C-3/25L | 25 | 40 | 48 | 99.5 | 1.1 | 1.35 | 71 |
| VZ.DO.60C-3/25L | 25 | 60 | 75 | 99.5 | 1.5 | 1.8 | 72 |



Dimensions



VZ.DO.4B-1/8L



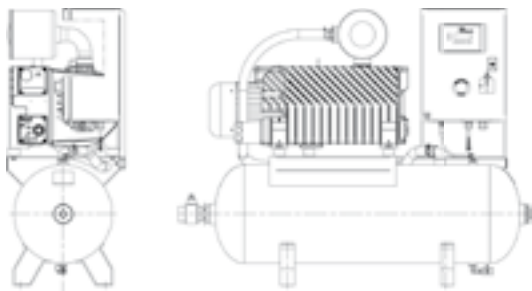
VZ.DO.5B-1/25L | VZ.DO.25C-3/25L | VZ.DO.40C-3/25L | VZ.DO.60C-3/25L

- ① = Vacuum gauge ② = Blow-off valve ③ = Filter ④ = Check valve ⑤ = Reinforced PVC tubing ⑥ = Vacuum pump
- ⑦ = Connection valve of the system ⑧ = Vibration absorber ⑨ = Vacuum tank ⑩ = Liquid display ⑪ = Condensate blow-off valve
- ⑫ = Automatic blow-off valve ⑬ = Power cable ⑭ = Blow-off vacuum tank

| Item no. | A [mm] | B [mm] | C [mm] | D [mm] | E | F | G [mm] | H [mm] | I [mm] | L |
|-----------------|--------|--------|--------|--------|------|------|--------|--------|--------|-------|
| VZ.DO.4B-1/8L | 280 | 371 | 204 | 39 | G1/4 | -- | 35 | 210 | 130 | -- |
| VZ.DO.5B-1/25L | 490 | 712 | 362 | 82 | G1 | G1/2 | 82 | 326 | 176 | 4xM10 |
| VZ.DO.25C-3/25L | 526 | 703 | 437 | 82 | G1 | G1/2 | 82 | 326 | 176 | 4xM10 |
| VZ.DO.40C-3/25L | 595 | 831 | 520 | 98 | G1 | G1/2 | 82 | 326 | 176 | 4xM10 |
| VZ.DO.60C-3/25L | 595 | 841 | 520 | 98 | G1 | G1/2 | 82 | 326 | 176 | 4xM10 |



Vacuum units with one pump



Product Description

- > Centralised vacuum supply with horizontal buffer tank

Ordering notes

Included in scope of delivery:

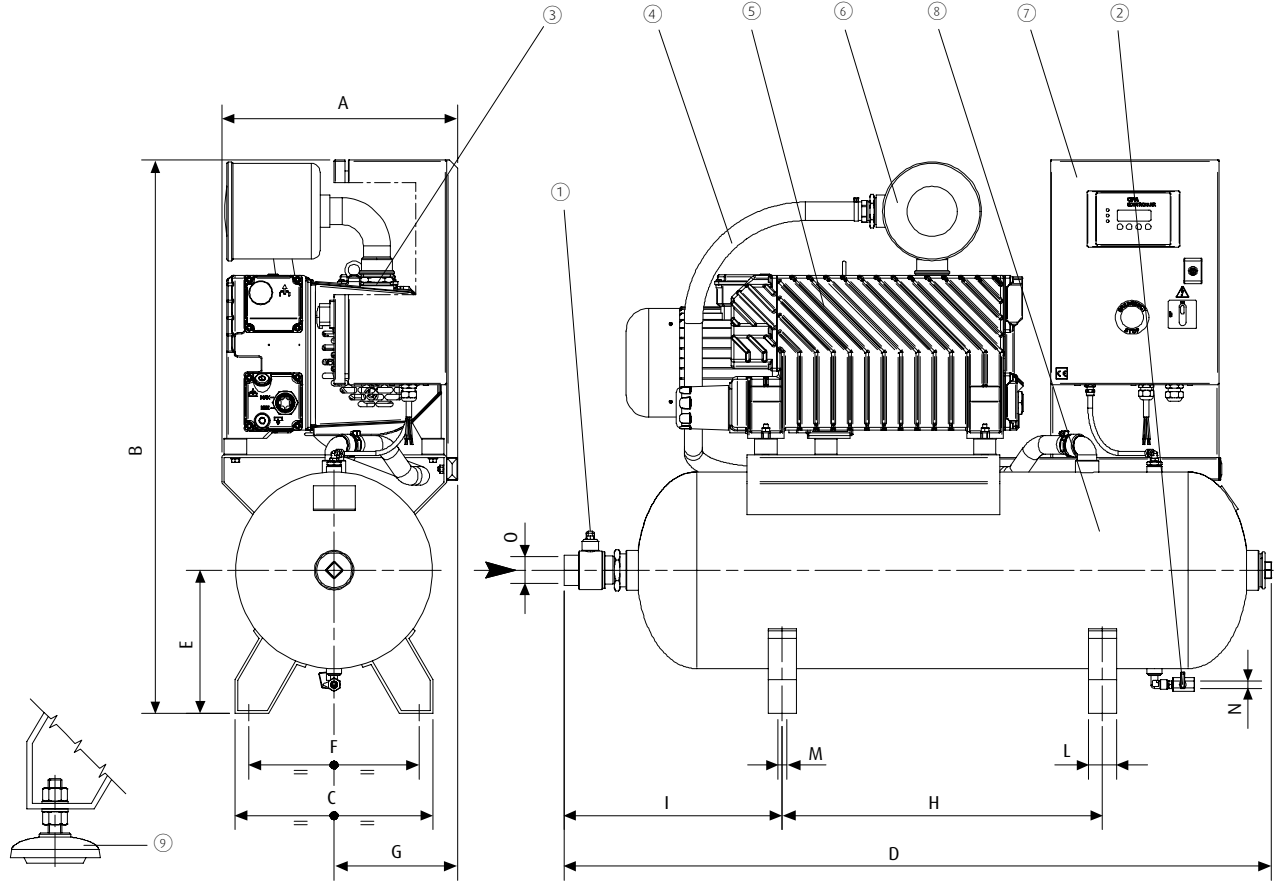
- > Oil-lubricated rotary vane pump with integrated oil mist separator at the outlet
- > Horizontal vacuum tank with condensate discharge valve
- > Particle filter to protect the pump
- > Non-return valve to maintain the vacuum when the pump is at standstill
- > Control panel (400 VAC, 50/60 Hz) with current protection, pressure sensor and PLC for manual and automatic operation
- > Switching cabinet IP 55
- > On request: Optional filter between the non-return valve and the vacuum system

Technical data

| Item no. | Safety tank volume of vacuum tank [l] | Suction power at 50 Hz [m ³ /h] | Suction power at 60 Hz [m ³ /h] | Final vacuum [%] | Rated power at 50 Hz [kW] | Rated power at 60 Hz [kW] | Weight [kg] |
|---------------------|---------------------------------------|--|--|------------------|---------------------------|---------------------------|-------------|
| VZ.1xDO.25C-3/100L | 100 | 25 | 29 | 99 | 0.75 | 0.9 | 88 |
| VZ.1xDO.25C-3/300L | 300 | 25 | 29 | 99 | 0.75 | 0.9 | 133 |
| VZ.1xDO.40B-3/100L | 100 | 40 | 48 | 99 | 1.1 | 1.35 | 109 |
| VZ.1xDO.40B-3/300L | 300 | 40 | 48 | 99 | 1.1 | 1.35 | 154 |
| VZ.1xDO.40B-3/500L | 500 | 40 | 48 | 99 | 1.1 | 1.35 | 214 |
| VZ.1xDO.60B-3/100L | 100 | 60 | 75 | 99 | 1.5 | 1.8 | 112 |
| VZ.1xDO.60B-3/300L | 300 | 60 | 75 | 99 | 1.5 | 1.8 | 157 |
| VZ.1xDO.60B-3/500L | 500 | 60 | 75 | 99 | 1.5 | 1.8 | 217 |
| VZ.1xDO.105C-3/100L | 100 | 105 | 125 | 99 | 2.2 | 2.7 | 137 |
| VZ.1xDO.105C-3/300L | 300 | 105 | 125 | 99 | 2.2 | 2.7 | 182 |
| VZ.1xDO.105C-3/500L | 500 | 105 | 125 | 99 | 2.2 | 2.7 | 242 |
| VZ.1xDO.205C-3/500L | 500 | 205 | 245 | 99 | 4 | 4.8 | 400 |
| VZ.1xDO.305C-3/500L | 500 | 305 | 365 | 99 | 5.5 | 6.5 | 410 |



Dimensions

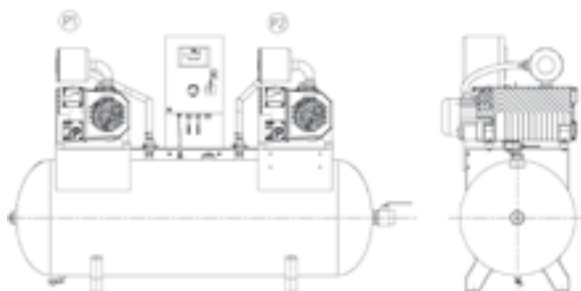


① = Connection valve of the system ② = Condensate blow-off valve ③ = Check valve ④ = Reinforced PVC tubing ⑤ = Vacuum pump
 ⑥ = Filter ⑦ = Switchbox ⑧ = Vacuum tank ⑨ = Vibration absorber (on request)

| Item no. | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] | G [mm] | H [mm] | I [mm] | L [mm] | M | N | O |
|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|------|--------|
| VZ.1xDO.25C-3/100L | 488 | 985 | 353 | 1,235 | 255 | 295 | 220 | 570 | 364 | 50 | 4xØ13 | G1/4 | G1 |
| VZ.1xDO.25C-3/300L | 493 | 1,220 | 512 | 1,626 | 330 | 454 | 245 | 895 | 410 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.40B-3/100L | 493 | 985 | 353 | 1,260 | 255 | 295 | 236 | 570 | 389 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.40B-3/300L | 502 | 1,220 | 512 | 1,620 | 330 | 454 | 245 | 895 | 404 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.40B-3/500L | 624 | 1,329 | 540 | 2,020 | 385 | 480 | 300 | 1,020 | 541 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.1xDO.60B-3/100L | 493 | 985 | 353 | 1,260 | 255 | 295 | 236 | 570 | 389 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.60B-3/300L | 502 | 1,220 | 512 | 1,620 | 330 | 454 | 245 | 895 | 404 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.60B-3/500L | 624 | 1,329 | 540 | 2,025 | 385 | 480 | 300 | 1,020 | 541 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.1xDO.105C-3/100L | 420 | 985 | 353 | 1,260 | 255 | 295 | 220 | 570 | 389 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.105C-3/300L | 450 | 1,220 | 512 | 1,620 | 330 | 454 | 245 | 895 | 404 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.105C-3/500L | 707 | 1,329 | 540 | 2,025 | 385 | 480 | 396 | 1,020 | 548 | 60 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.1xDO.205C-3/500L | 600 | 1,412 | 540 | 2,020 | 385 | 480 | 300 | 1,020 | 543 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.1xDO.305C-3/500L | 600 | 1,412 | 540 | 2,020 | 385 | 480 | 300 | 1,020 | 543 | 60 | 4xØ13 | G1/4 | G2 |



Vacuum units with two pumps



Product Description

- > Centralised vacuum supply with two pumps and horizontal buffer tank
- > Redundant system that enables maintenance work to be done during operation

Ordering notes

Included in scope of delivery:

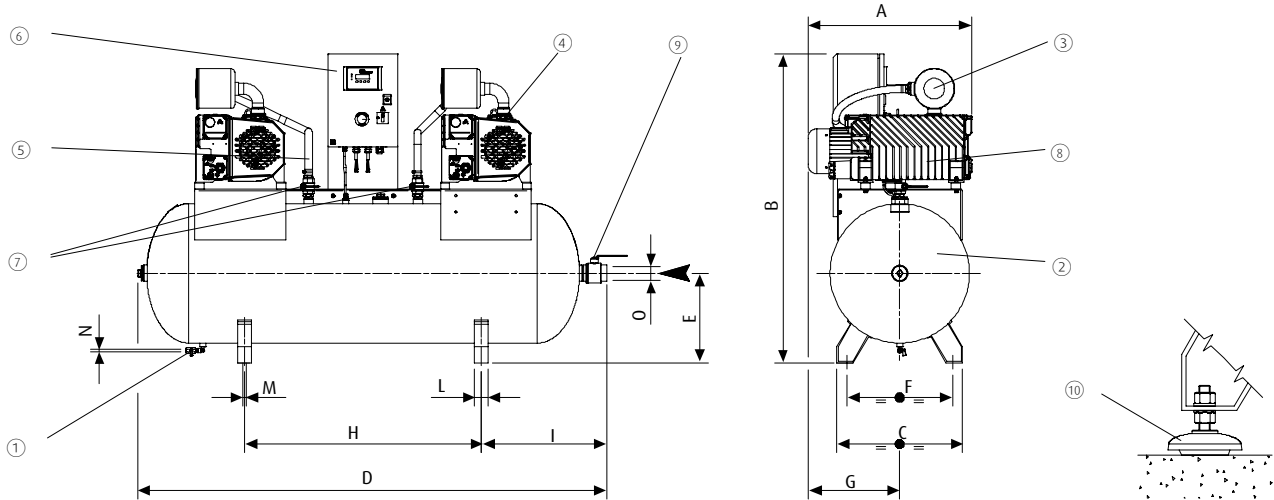
- > Two oil-lubricated rotary vane pumps with integrated oil mist separator at the outlet
- > Integrated non-return valve at the suction inlet to maintain the vacuum at standstill
- > Horizontal vacuum tank with condensate discharge valve
- > Two manual valves at the tank inlet to separate the pump from the system for maintenance
- > Particle filter to protect the pump
- > Control panel (400 VAC, 50/60 Hz) with current protection, pressure sensor and PLC for manual and automatic operation
- > Switching cabinet IP 55
- > On request: Optional filter between non-return valve and load end

Technical data

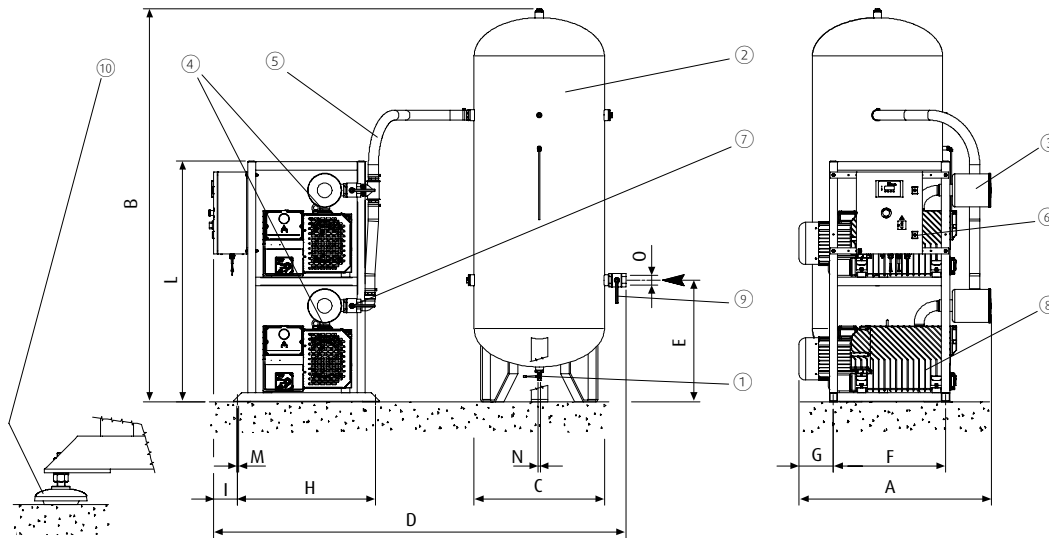
| Item no. | Safety tank volume of vacuum tank [l] | Suction power at 50 Hz [m ³ /h] | Suction power at 60 Hz [m ³ /h] | Final vacuum [%] | Rated power at 50 Hz [kW] | Rated power at 60 Hz [kW] | Weight [kg] |
|----------------------|---------------------------------------|--|--|------------------|---------------------------|---------------------------|-------------|
| VZ.2xDO.25C-3/300L | 300 | 50 | 58 | 99 | 2x0.75 | 2x0.90 | 165 |
| VZ.2xDO.40B-3/300L | 300 | 80 | 96 | 99 | 2x1.1 | 2x1.35 | 195 |
| VZ.2xDO.40B-3/500L | 500 | 80 | 96 | 99 | 2x1.1 | 2x1.35 | 280 |
| VZ.2xDO.60B-3/300L | 300 | 120 | 150 | 99 | 2x1.5 | 2x1.8 | 200 |
| VZ.2xDO.60B-3/500L | 500 | 120 | 150 | 99 | 2x1.5 | 2x1.8 | 285 |
| VZ.2xDO.105C-3/500L | 500 | 210 | 250 | 99 | 2x2.2 | 2x2.7 | 340 |
| VZ.2xDO.205C-3/1000L | 1,000 | 410 | 490 | 99 | 2x4 | 2x4.8 | 580 |
| VZ.2xDO.305C-3/1000L | 1,000 | 610 | 730 | 99 | 2x7.5 | 2x9 | 600 |



Dimensions



VZ.2xDO.25C-3/300L | VZ.2xDO.40B-3/300L | VZ.2xDO.40B-3/500L | VZ.2xDO.60B-3/300L | VZ.2xDO.60B-3/500L | VZ.2xDO.105C-3/500L



VZ.2xDO.205C-3/1000L | VZ.2xDO.305C-3/1000L

- ① = Condensate blow-off valve
- ② = Vacuum tank
- ③ = Filter
- ④ = Check valve
- ⑤ = Reinforced PVC tubing
- ⑥ = Switchbox
- ⑦ = Vacuum pump blocking valve
- ⑧ = Vacuum pump
- ⑨ = Connection valve of the system
- ⑩ = Vibration absorber

| Item no. | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] | G [mm] | H [mm] | I [mm] | L [mm] | M | N | O |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|------|--------|
| VZ.2xDO.25C-3/300L | 498 | 1,322 | 512 | 1,626 | 330 | 454 | 245 | 895 | 410 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.2xDO.40B-3/300L | 502 | 1,320 | 512 | 1,620 | 330 | 454 | 245 | 895 | 404 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.2xDO.40B-3/500L | 624 | 1,329 | 540 | 2,020 | 385 | 480 | 300 | 1,020 | 543 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.2xDO.60B-3/300L | 502 | 1,320 | 512 | 1,620 | 330 | 454 | 245 | 895 | 404 | 50 | 4xØ13 | G1/4 | G1 1/2 |
| VZ.2xDO.60B-3/500L | 624 | 1,429 | 540 | 2,020 | 385 | 480 | 300 | 1,020 | 541 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.2xDO.105C-3/500L | 707 | 1,429 | 540 | 2,020 | 385 | 480 | 396 | 1,020 | 541 | 60 | 4xØ13 | G1/4 | G2 |
| VZ.2xDO.205C-3/1000L | 1,068 | 2,381 | 790 | 2,500 | 738 | 680 | 109 | 835 | 145 | 1,460 | 4xØ13 | G1/2 | G2 |
| VZ.2xDO.305C-3/1000L | 1,138 | 2,381 | 790 | 2,500 | 738 | 680 | 179 | 835 | 145 | 1,460 | 4xØ13 | G1/2 | G2 |



Vacuum units with three pumps



Product Description

- > Centralised vacuum supply with three pumps and vertical buffer tank
- > Redundant system that enables maintenance work to be done during operation

Ordering notes

Included in scope of delivery:

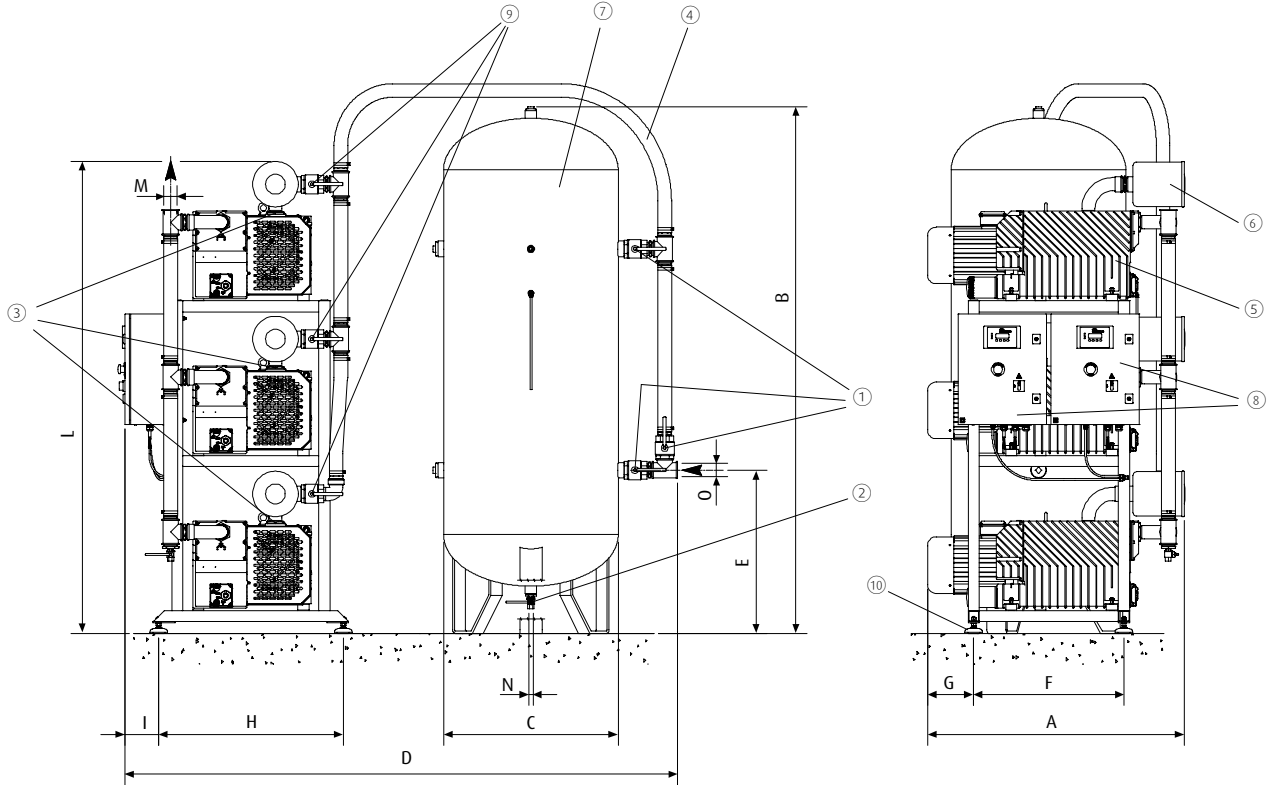
- > Three oil-lubricated rotary vane pumps mounted on one frame to conserve space
- > One vertical vacuum tank with condensate discharge valve and additional bypass system to separate the system
- > Three non-return valves integrated in the suction line of the pumps to maintain vacuum at standstill
- > Three particle filter elements to protect the pumps
- > Two independent control panels (400 VAC, 50/60 Hz) with current protection, pressure sensor and PLC for manual and automatic operation
- > Switching cabinet IP 55
- > Optional GFB hygiene filter element (Standard EN 773/3) with bypass system between the non-return valve and the load

Technical data

| Item no. | Safety tank volume of vacuum tank [l] | Suction power at 50 Hz [m ³ /h] | Suction power at 60 Hz [m ³ /h] | Final vacuum [%] | Rated power at 50 Hz [kW] | Rated power at 60 Hz [kW] | Weight [kg] |
|----------------------|---------------------------------------|--|--|------------------|---------------------------|---------------------------|-------------|
| VZ.3xDO.25C-3/300L | 300 | 75 | 87 | 99 | 3x0.75 | 3x0.90 | 240 |
| VZ.3xDO.25C-3/500L | 500 | 75 | 87 | 99 | 3x0.75 | 3x0.90 | 300 |
| VZ.3xDO.40B-3/500L | 500 | 120 | 144 | 99 | 3x1.1 | 3x1.35 | 395 |
| VZ.3xDO.60B-3/500L | 500 | 180 | 125 | 99 | 3x1.5 | 3x1.8 | 410 |
| VZ.3xDO.105C-3/500L | 500 | 315 | 375 | 99 | 3x2.2 | 3x2.7 | 520 |
| VZ.3xDO.105C-3/1000L | 1,000 | 315 | 375 | 99 | 3x2.2 | 3x2.7 | 580 |
| VZ.3xDO.150C-3/1000L | 1,000 | 450 | 540 | 99 | 3x3 | 3x3.6 | 620 |
| VZ.3xDO.205C-3/1000L | 1,000 | 615 | 735 | 99 | 3x4 | 3x4.8 | 850 |
| VZ.3xDO.305C-3/1000L | 1,000 | 915 | 1,095 | 99 | 3x7.5 | 3x9 | 880 |



Dimensions

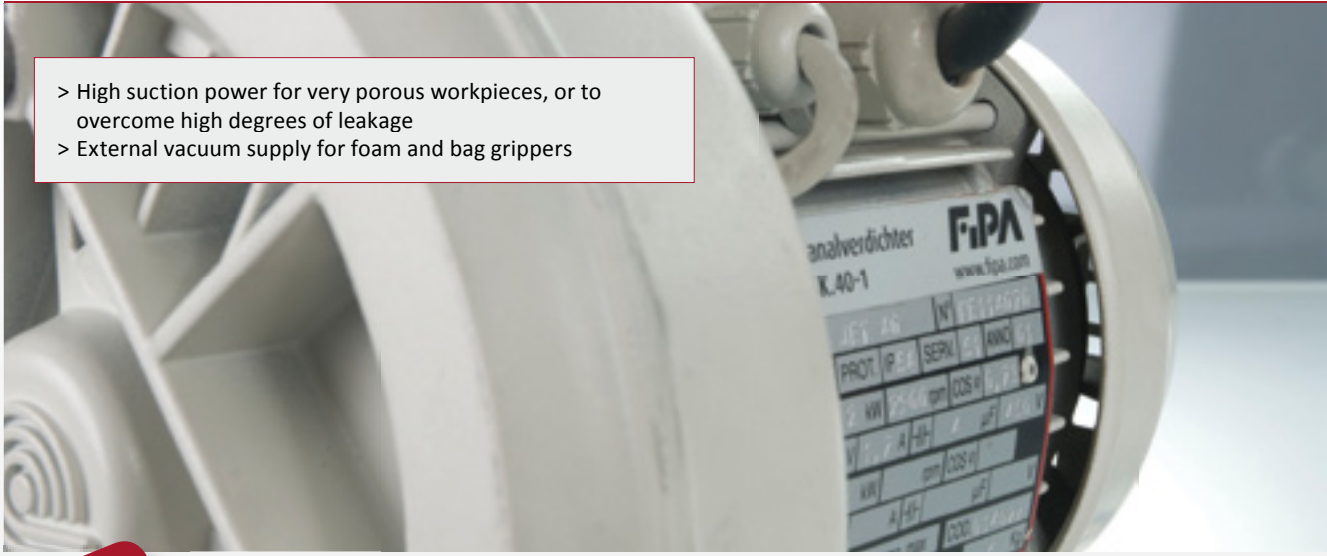


① = Vacuum tank bypass valve ② = Condensate blow-off valve ③ = Check valve ④ = Reinforced PVC tubing ⑤ = Vacuum pump
 ⑥ = Filter ⑦ = Vacuum tank ⑧ = Switchbox ⑨ = Vacuum pump blocking valve ⑩ = Vibration absorber

| Item no. | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] | G [mm] | H [mm] | I [mm] | L [mm] | M | N | O |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|--------|
| VZ.3xDO.25C-3/300L | 750 | 1,677 | 500 | 1,821 | 612 | 670 | 40 | 550 | 245 | 1,407 | G1 | G1/2 | G1 |
| VZ.3xDO.25C-3/500L | 750 | 2,139 | 600 | 1,810 | 708 | 670 | 40 | 550 | 245 | 1,407 | G1 | G1/2 | G1 |
| VZ.3xDO.40B-3/500L | 750 | 2,142 | 600 | 2,071 | 708 | 670 | 40 | 550 | 245 | 1,567 | G1 | G1/2 | G1 1/2 |
| VZ.3xDO.60B-3/500L | 796 | 2,142 | 600 | 2,045 | 708 | 670 | 40 | 550 | 245 | 1,592 | G1 | G1/2 | G1 1/2 |
| VZ.3xDO.105C-3/500L | 874 | 2,142 | 600 | 2,515 | 708 | 670 | 109 | 550 | 245 | 1,643 | G1 1/2 | G1/2 | G1 1/2 |
| VZ.3xDO.105C-3/1000L | 874 | 2,381 | 790 | 2,509 | 738 | 670 | 109 | 550 | 245 | 1,643 | G1 1/2 | G1/2 | G1 1/2 |
| VZ.3xDO.150C-3/1000L | 897 | 2,381 | 790 | 2,453 | 738 | 670 | 129 | 550 | 245 | 1,643 | G1 1/2 | G1/2 | G2 |
| VZ.3xDO.205C-3/1000L | 1,068 | 2,381 | 790 | 2,504 | 738 | 680 | 109 | 835 | 145 | 2,133 | G2 | G1/2 | G2 |
| VZ.3xDO.305C-3/1000L | 1,138 | 2,381 | 790 | 2,500 | 738 | 680 | 179 | 835 | 145 | 2,133 | G2 | G1/2 | G2 |



FIPA Side channel blowers



- > High suction power for very porous workpieces, or to overcome high degrees of leakage
- > External vacuum supply for foam and bag grippers

On request



Side channel blowers - single-stage and double-stage

- > Handling of porous workpieces, such as cardboard boxes or untreated wooden plates
- > Double-stage design offers higher suction power at the same vacuum level for effective leak compensation
- > Suitable for use in wet and dry areas
- > Suitable for continuous operation
- > Horizontal and vertical installation
- > Practically maintenance free



Accessories

Additional silencer for side channel blowers

- > Open silencer for "further processing" of the exhaust air

> See page 618



Vacuum pressure changeover valve

- > Fast switching between vacuum mode (vacuum) and pressure mode (blow-off)
- > Enables short cycle times
- > Installation of a vacuum relief valve at the suction inlet is recommended

> See page 619



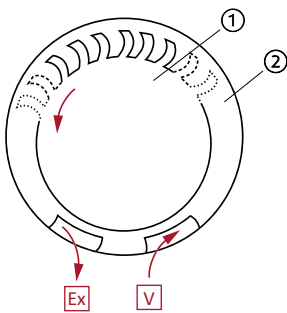
FIPA Side channel blowers

Examples of use

- > Vacuum generation for the TC/TL series foam grippers or TG series bag grippers
- > Handling of cardboard packaging with vacuum cups
- > Pneumatic conveying
- > Extraction of particles which are not too coarse, such as wood dust in woodworking

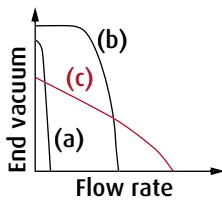
Principle of operation

- > Side channel blowers use the momentum principle for generating vacuums or compressed air
- > The rapidly rotating blade wheel ① accelerates the air within the annular housing ②
- > In addition, a swirling motion is created in the side channels which increases efficiency
- > The shape of the inlet channel [V] or the outlet channel [Ex] allows air to be suctioned in or expelled



Performance characteristics

- (a) Characteristic of ejectors
- (b) Characteristic of vacuum pumps
- (c) Side channel blowers have an extremely high output, but achieve only a low ultimate vacuum





Vacuum tanks 5 - 60 liters



Product Description

- > Storage for compressed air, vacuum and non-aggressive liquids
- > Energy saving assembly of compressed air and vacuum
- > For compressed air / vacuum networks with fluctuating demand
- > For preventing frequent startup of the compressor system
- > To cover high demands short-term
- > As supplement to screw / piston compressors, rotary compressors or vacuum pumps

Notes

- > 92.001: Two fittings in line with G1/2-female with 90° offset
One fitting per front face with G1/4-female
- > 92.002 to 92.004: One fitting in line with G1/2-female
2 x one fitting with G3/4-female and distance 120 mm and 1 x one fitting with G3/4-female on the front faces

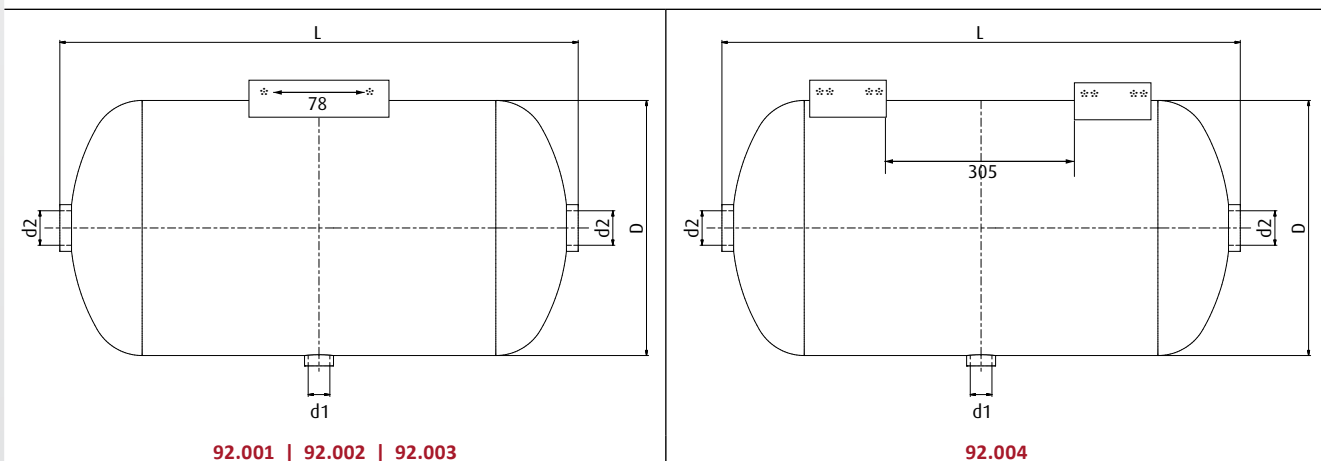
Technical data

| Item no. | Safety tank volume [l] | Operating pressure [bar] | Medium | Design | Weight [kg] |
|----------|------------------------|--------------------------|-------------------------|-----------|-------------|
| 92.001 | 5 | 0 - 11 | Compressed air / vacuum | Aluminium | 1.7 |
| 92.002 | 10 | 0 - 11 | Compressed air / vacuum | Aluminium | 2.4 |
| 92.003 | 20 | 0 - 11 | Compressed air / vacuum | Aluminium | 3.7 |
| 92.004 | 60 | 0 - 11 | Compressed air / vacuum | Aluminium | 9.3 |

Dimensions

| d1 | d2 | D [mm] | L [mm] |
|------|------|--------|--------|
| G1/2 | G3/4 | 152 | 356 |
| G1/2 | G3/4 | 206 | 355 |
| G1/2 | G3/4 | 245 | 500 |
| G1/2 | G3/4 | 276 | 1,111 |

Dimensions



92.001 | 92.002 | 92.003

92.004

* = Two pairs of fixing bores, each with 2x M12x14 ** = Two pairs of fixing bores, each with 4x M12x14



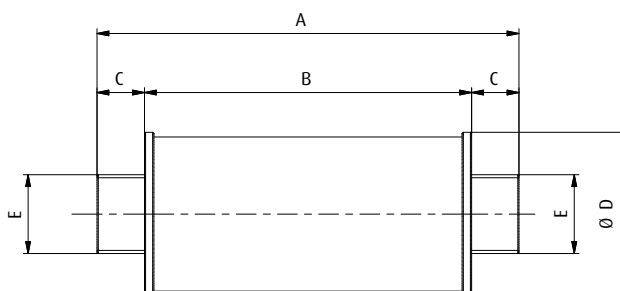
Additional silencer for side channel blowers



Product Description

- > Silencer with direct opening
- > Suitable for "processing" of the exhaust air: e.g. ventilation or heating of halls or use as silencer and release into the open

Dimensions



| Item no. | E | A [mm] | B [mm] | C [mm] | Ø D [mm] |
|----------|--------|--------|--------|--------|----------|
| 72.038 | G1 | 178 | 138 | 20 | 69 |
| 72.039 | G1 1/4 | 242 | 138 | 52 | 69 |
| 72.040 | G1 1/2 | 232 | 168 | 32 | 80 |
| 72.041 | G2 | 262 | 198 | 32 | 89 |
| 72.042 | G2 1/2 | 262 | 198 | 32 | 100 |



Electro-pneumatic reversing valves for side channel blowers



Product Description

- > Operation of a side channel blower as a vacuum pump for suction or compressor for blow-off
- > Blow-off volume flow is directed to the vacuum cup / load, without reversing the direction of rotation of the blower
- > Three settig positions: Suction, blow-off, neutral
- > Working principle: Rotation of a cylinder, which is operated by an electrical motor-driven actuator

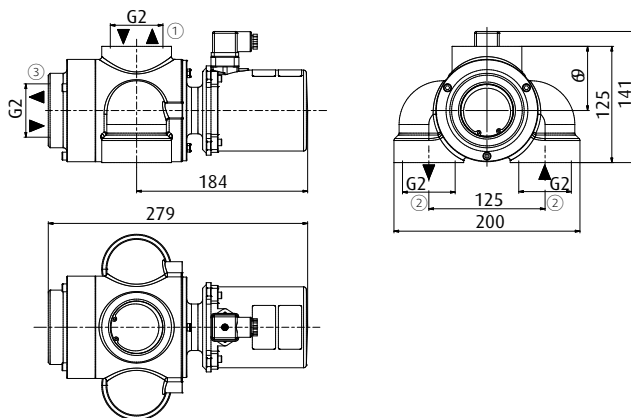
Notes

- Please note for the neutral position (0°):
- > If operation with closed suction inlets cannot be excluded, a vacuum limiting valve (safety valve) must be installed before the suction inlet

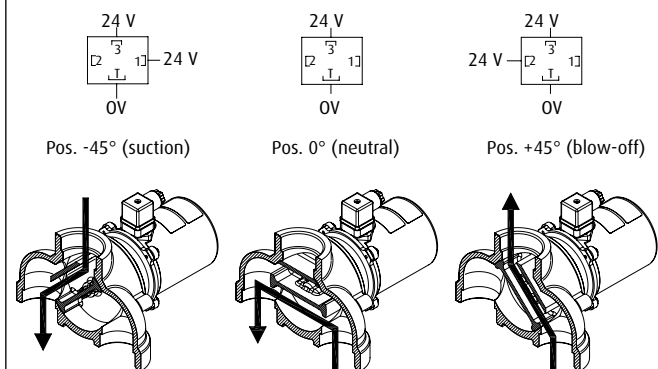
Technical data

| Item no. | Suction power [m ³ /h] | Power supply [VDC] | Power consumption [W] | Duty ratio [%] | Direction of rotation [°] | Mean control time [s] | Minimum time interval between successive cycles [s] | Protection class | Weight [kg] |
|----------|-----------------------------------|--------------------|-----------------------|----------------|---------------------------|-----------------------|---|------------------|-------------|
| 33.074 | 300 | 24 | 10 | 100 | -45 / 0 / +45 | 0.5 | 0.1 | IP55 | 3.2 |

Dimensions



Wiring diagrams



① = System connection ② = Side channel blower connection ③ = Air inlet / outlet



Notes:

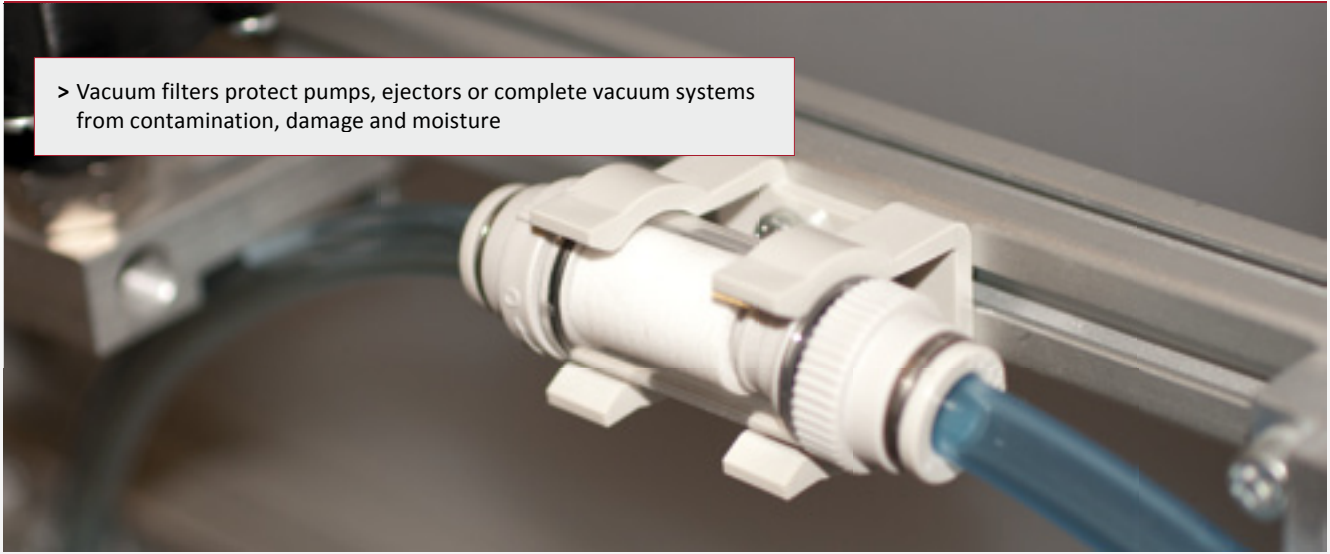
A large area for taking notes, featuring a vertical red line on the left side and horizontal lines for writing.

| | |
|--|-----|
| Vacuum filters at a glance | 622 |
| Universal filters for large volume flows | 624 |
| Filters for wet areas | 627 |
| Inline filters | 628 |



FIPA Vacuum filters

> Vacuum filters protect pumps, ejectors or complete vacuum systems from contamination, damage and moisture



Pump filters / pre-filters with paper cartridge

- > Installation at suction inlet of vacuum pumps or side channel blowers
- > Separation of fine particles using a very fine filter mesh of 5 to 7 μm
- > Suitable for dry areas

FC 10F - FC 100F

- > Aluminium housing with quick release for filtration control or for cartridge change

> See page 624

71.032 - 71.043

- > Plastic housing with sight glass for checking the filtration effect

> See page 625



Universal filters with steel cartridge (FB 5 - FB 60)

- > Installation at the suction inlet or in the suction line of vacuum pumps or side channel blowers
- > Suitable for wet and dry areas
- > Separation of coarse particles, dust and dirt using a 60 μm filter mesh
- > Robust filter inserts made of stainless steel
- > Filter bowl and connection cover made from die-cast aluminium
with the exception of FB 5 - FB 20: filter bowl made from transparent plastic

> See page 626



FIPA Vacuum filters



Filters / condensate traps

- > Installation at suction inlet of vacuum pumps or side channel blowers
- > Suitable for wet and dry areas
- > Protects vacuum generators from excessive water uptake
- > Separation of coarse particles, dust and dirt using a filter mesh of between 30 and 100 μm
- > Plastic housing with sight glass for checking the filtration effect
- > Drainage screw on the bottom for draining the collected liquid

> See page 627



Inline, plug-in and ring filters

- > Installation between vacuum cup and ejector or generally in the tubing line of vacuum systems
- > Separation of fine particles and moisture using a 10 μm filter mesh
- > Suitable for wet and dry areas

> See page 628



Disposable filters

- > Installation between vacuum cup and ejector or generally in the tubing of vacuum systems
- > Suitable for wet and dry areas

71.030

- > Separation of very fine particles using a 7 μm filter mesh

71.031

- > Separation of coarse particles, dust and dirt using a 152 μm filter mesh

> See page 630



Filters for feed ejectors

- > Separation of fine particles using a 10 μm filter mesh

71.012 - 71.016

- > Mounting in front of compressed air inlet on ejector

> See page 631

71.017 - 71.021

- > Mounting behind ejector as collection or separation vessel

> See page 632



Vacuum filters | Universal filters for large volume flows

Pump filters / pre-filters with paper cartridge

Pump filters / pre-filters with paper cartridge

Suitable for dry areas



Product Description

- > For use directly on the suction opening of dry-running rotary-vane pumps
- > To protect vacuum pumps from damage or excessive wear
- > High filtration efficiency due to large filter surface
- > Robust metallic housing for long service life
- > Quick fastener for prompt checking or replacement of the filter cartridge

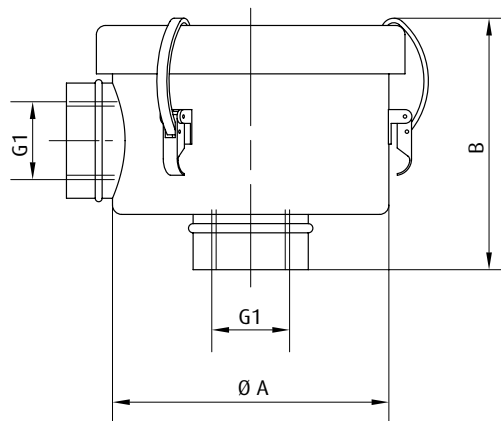
Technical data

| Item no. | Max. volume flow [m ³ /h] | Grade of filtration [µm] | Weight [kg] | Suitable spare cartridges |
|----------------|---|-----------------------------|-------------|------------------------------|
| FC 10F | 25 | 5 - 7 | 0.36 | FC 10F-Kartusche |
| FC 20F | 45 | 5 - 7 | 0.72 | FC 20F/25F-Kartusche |
| FC 25F | 50 | 5 - 7 | 0.73 | FC 20F/25F-Kartusche |
| FC 30F | 90 | 5 - 7 | 1 | FC 30F/35F-Kartusche |
| FC 35F | 110 | 5 - 7 | 1 | FC 30F/35F-Kartusche |
| FC 40F | 150 | 5 - 7 | 1.88 | FC 40F-Kartusche |
| FC 50F | 200 | 5 - 7 | 2.5 | FC 50F-Kartusche |
| FC 60F | 320 | 5 - 7 | 3.75 | FC 60F-Kartusche |
| FC 80F | 360 | 5 - 7 | 3.3 | FC 80F-Kartusche |
| FC 100F | 540 | 5 | 5 | FC 100F-Kartusche |

Dimensions

| G1 | Ø A [mm] | B [mm] |
|--------|----------|--------|
| G3/8 | 83 | 80 |
| G1/2 | 108 | 93 |
| G3/4 | 108 | 93 |
| G1 | 133 | 96 |
| G1 1/4 | 133 | 96 |
| G1 1/4 | 176 | 161 |
| G1 1/2 | 176 | 200 |
| G2 | 200 | 258 |
| G3 | 200 | 258 |
| G4 | 305 | 320 |

Dimensions





Pump filters / pre-filters with paper cartridge

Suitable for dry areas



Product Description

- > For use directly on the suction opening of dry-running rotary-vane pumps
- > To protect vacuum pumps from damage or excessive wear
- > High filtration efficiency due to large filter surface
- > Light-weight plastic housing
- > Inspection glass to monitor the filtration effect
- > Examples of use: graphics, textile and pharmaceutical industries

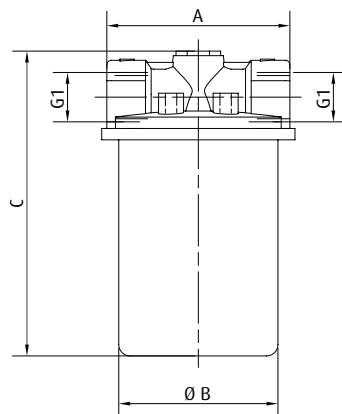
Technical data

| Item no. | Max. volume flow [m ³ /h] | Grade of filtration [μm] | Weight [g] | Suitable spare cartridges |
|----------|---|-----------------------------|------------|------------------------------|
| 71.032 | 12 | 30 | 180 | 71.032-Kartusche |
| 71.033 | 24 | 30 | 370 | 71.033-Kartusche |
| 71.034 | 30 | 30 | 360 | 71.033-Kartusche |
| 71.043 | 100 | 25 | 900 | 71.043-Kartusche |

Dimensions

| G1 | A [mm] | Ø B [mm] | C [mm] |
|------|--------|----------|--------|
| G1/4 | 62 | 62 | 82 |
| G3/8 | 85 | 85 | 138 |
| G1/2 | 85 | 85 | 138 |
| G1 | 145 | 145 | 240 |

Dimensions





Vacuum filters | Universal filters for large volume flows

Universal filter with steel cartridge

Universal filter with steel cartridge

Suitable for dry and wet areas



FB 25 to FB 60

Product Description

- > To protect vacuum pumps from damage or excessive wear
- > Separation of coarser particles, dust and dirt
- > Resistant filter elements made of stainless steel (INOX)
- > Filter incl. condensate trap

Notes

- > FB 5 to FB 20: filter bowl made of transparent plastic
- > FB 25 to 60: filter bowl made of die cast aluminium

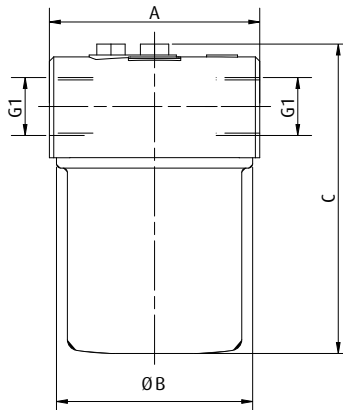
Technical data

| Item no. | Max. volume flow [m ³ /h] | Grade of filtration [µm] | Operating pressure [bar] | Max. operating temperature [°C] | Weight [kg] |
|--------------|--------------------------------------|--------------------------|--------------------------|---------------------------------|-------------|
| FB 5 | 5 | 60 | 2 | 90 | 0.14 |
| FB 10 | 10 | 60 | 2 | 90 | 0.26 |
| FB 20 | 20 | 60 | 2 | 90 | 0.34 |
| FB 25 | 40 | 60 | 4 | 90 | 0.87 |
| FB 30 | 70 | 60 | 4 | 90 | 0.83 |
| FB 40 | 150 | 60 | 4 | 90 | 3 |
| FB 50 | 200 | 60 | 4 | 90 | 3.1 |
| FB 60 | 300 | 60 | 4 | 90 | 3.2 |

Dimensions

| G1 | A [mm] | Ø B [mm] | C [mm] |
|--------|--------|----------|--------|
| G1/4 | 61 | 59 | 74.5 |
| G3/8 | 81 | 79 | 89 |
| G1/2 | 81 | 79 | 117 |
| G3/4 | 120 | 120 | 175 |
| G1 | 120 | 112 | 175 |
| G1 1/4 | 190 | 182 | 255 |
| G1 1/2 | 190 | 182 | 300 |
| G2 | 182 | 260 | 420 |

Dimensions





Filter / Condensate trap Precipitation of condensable vapors



Product Description

- > Efficient and reliable separation of water droplets out of vacuum systems
- > Easy installation after vacuum pumps or ejectors
- > Housing made of transparent plastics for filtration monitoring
- > Drainage valve at the bottom to discharge the collected condensate

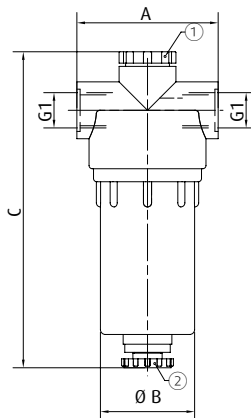
Notes

- > Filter needs to be ventilated before opening

Technical data

| Item no. | Max. volume flow [m³/h] | Max. filling capacity [cm³] | Grade of filtration [µm] | Filter material | Max. input pressure [bar] | Max. operating temperature [°C] | Weight [kg] | Suitable spare cartridges |
|----------|-------------------------|-----------------------------|--------------------------|-------------------------|---------------------------|---------------------------------|-------------|---------------------------|
| 71.035 | 10.6 | 30 | 100 | Stainless steel mesh | 7.3 | 122 | 0.6 | 71.035-Kartusche |
| 71.036 | 17.7 | 25 | 50 | Polyethylene - sintered | 7.3 | 122 | 0.8 | 71.036-Kartusche |
| 71.037 | 21.2 | 40 | 30 | Synthetic felt | 7.3 | 122 | 1.7 | 71.037-Kartusche |
| 71.038 | 35.3 | 50 | 30 | Synthetic felt | 7.3 | 122 | 5 | 71.038-Kartusche |
| 71.039 | 58.9 | 100 | 30 | Synthetic felt | 7.3 | 122 | 9.3 | 71.039-Kartusche |

Dimensions



① = Bleeding screw ② = Blow-off screw

| Item no. | G1 | A [mm] | Ø B [mm] | C [mm] |
|----------|--------|--------|----------|--------|
| 71.035 | G3/8 | 80 | 75 | 135 |
| 71.036 | G1/2 | 87 | 60 | 196 |
| 71.037 | G3/4 | 125 | 100 | 255 |
| 71.038 | G1 | 175 | 150 | 370 |
| 71.039 | G1 1/2 | 220 | 190 | 450 |



Plug-in filters



71.070 and 71.071: Plug-in pipe (\varnothing d1) fits in \varnothing 4 mm / 6 mm tubing connections

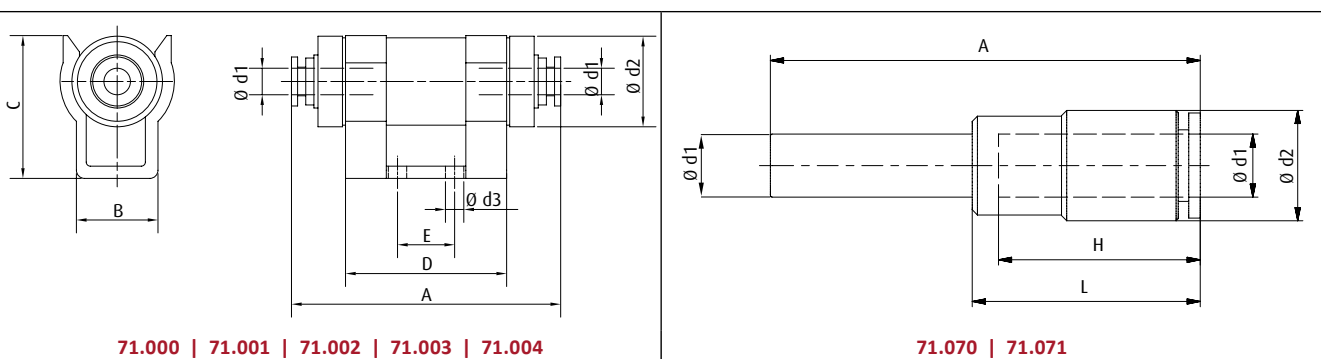
Product Description

- > Trapping impurities and liquids, which can be suctioned via the vacuum cup or other systems
- > To protect vacuum components (e.g. ejectors) from damage or excessive wear
- > 71.000 to 71.004: Economical use due to replaceable filter cartridges

Technical data

| Item no. | Filter surface [cm ²] | Grade of filtration [μ m] | Weight [g] | Suitable accessories |
|----------|-----------------------------------|--------------------------------|------------|--|
| 71.000 | 7.5 | 10 | 16 | Holder VFUH2 Spare cartridge 71.005-Kartusche |
| 71.001 | 7.5 | 10 | 17 | Holder VFUH2 Spare cartridge 71.005-Kartusche |
| 71.002 | 12.5 | 10 | 25 | Holder VFUH3 Spare cartridge 71.006-Kartusche |
| 71.003 | 12.5 | 10 | 27 | Holder VFUH3 Spare cartridge 71.006-Kartusche |
| 71.004 | 12.5 | 10 | 33 | Holder VFUH3 Spare cartridge 71.006-Kartusche |
| 71.070 | 0.8 | 10 | 1.5 | -- |
| 71.071 | 1.1 | 10 | 2.5 | -- |

Dimensions



| Item no. | \varnothing d1 [mm] | \varnothing d2 [mm] | \varnothing d3 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | H [mm] | L [mm] |
|----------|-----------------------|-----------------------|-----------------------|--------|--------|--------|--------|--------|--------|--------|
| 71.000 | 4 | 18.5 | 4.5 | 55 | 18 | 29 | 33 | 10 | -- | -- |
| 71.001 | 6 | 18.5 | 4.5 | 58 | 18 | 29 | 33 | 10 | -- | -- |
| 71.002 | 6 | 22.5 | 4.5 | 66 | 20 | 35 | 39.5 | 14 | -- | -- |
| 71.003 | 8 | 22.5 | 4.5 | 67.5 | 20 | 35 | 39.5 | 14 | -- | -- |
| 71.004 | 10 | 22.5 | 4.5 | 75 | 20 | 35 | 39.5 | 14 | -- | -- |
| 71.070 | 4 | 8 | -- | 38.6 | -- | 11 | -- | -- | 11 | 21.5 |
| 71.071 | 6 | 10.5 | -- | 41 | -- | 11.6 | -- | -- | 11.6 | 21.8 |



Ring filters

Used in connection with ejectors



Product Description

- > Installation between vacuum cup (IN) and ejector (OUT)
- > Absorption of dust and dirt that is introduced by the vacuum cup
- > Application primarily for inline and base ejectors
- > Economical use due to replaceable filter cartridges

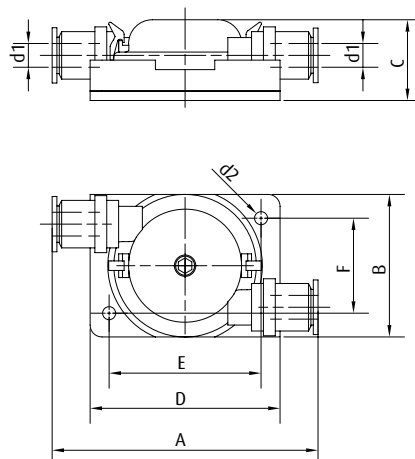
Technical data

| Item no. | Filter surface [cm ²] | Grade of filtration [µm] | Weight [g] | Suitable spare cartridges |
|----------|-----------------------------------|--------------------------|------------|---------------------------|
| 71.007 | 20 | 10 | 206 | 71.022-Kartusche |
| 71.008 | 20 | 10 | 204.5 | 71.022-Kartusche |
| 71.009 | 20 | 10 | 198 | 71.022-Kartusche |
| 71.010 | 20 | 10 | 190.5 | 71.022-Kartusche |
| 71.011 | 20 | 10 | 231.5 | 71.022-Kartusche |

Dimensions

| d1 [mm] | d2 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|---------|---------|--------|--------|--------|--------|--------|--------|
| 6 | 5.5 | 113 | 60 | 37.5 | 80 | 60 | 40 |
| 8 | 5.5 | 113 | 60 | 37.5 | 80 | 60 | 40 |
| 10 | 5.5 | 114 | 60 | 37.5 | 80 | 60 | 40 |
| 12 | 5.5 | 113 | 60 | 37.5 | 80 | 60 | 40 |
| 16 | 5.5 | 128 | 60 | 37.5 | 80 | 60 | 40 |

Dimensions





Disposable filters



71.030



71.031

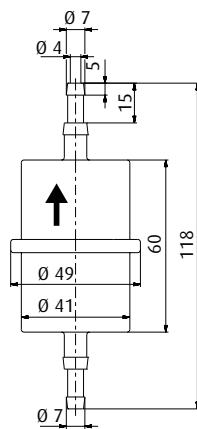
Product Description

- > 71.030: Separation of very fine particles with a 7µm filter mesh
- > 71.031: Separation of coarse particles, dust and dirt using a 152µm filter unit

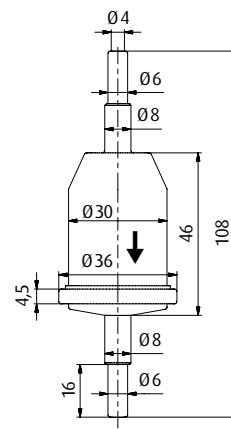
Technical data

| Item no. | Max. volume flow [NI/min] | Grade of filtration [µm] | Filter material | Max. operating temperature [°C] | Weight [g] |
|----------|---------------------------|--------------------------|-----------------|---------------------------------|------------|
| 71.030 | 120 | 7 | Paper | 50 | 30 |
| 71.031 | 100 | 152 | PP, PE | 50 | 12 |

Dimensions



71.030



71.031



Filters for feed ejectors



Product Description

> Filter is connected, for instance, at the outlet of the feed ejectors, to separate particles out of the transport flow

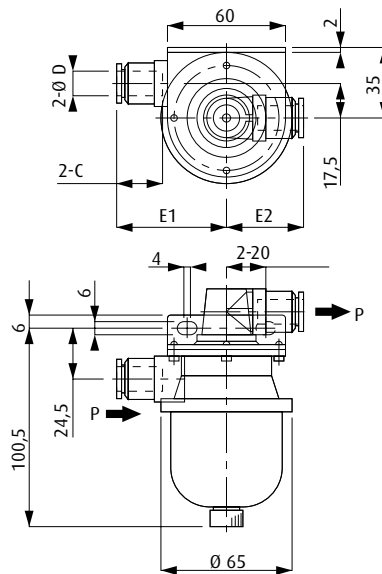
Technical data

| Item no. | Filter surface [cm ²] | Grade of filtration [µm] | Weight [g] |
|----------|-----------------------------------|--------------------------|------------|
| 71.012 | 20 | 10 | 232.2 |
| 71.013 | 20 | 10 | 230.5 |
| 71.014 | 20 | 10 | 224.5 |
| 71.015 | 20 | 10 | 217 |
| 71.016 | 20 | 10 | 240 |

Dimensions

| Ø D [mm] | C [mm] | E1 [mm] | E2 [mm] |
|----------|--------|---------|---------|
| 6 | 17 | 48 | 38 |
| 8 | 18.5 | 48 | 38 |
| 10 | 21 | 48.5 | 38.5 |
| 12 | 23.5 | 48 | 38 |
| 16 | 25 | 55.5 | 43.5 |

Dimensions





Vacuum filters | Inline filters

Filters for feed ejectors

Filters for feed ejectors



Product Description

Filter is used at the exhaust outlet of an ejector (IN) to collect the transported particles. The air is released via OUT.

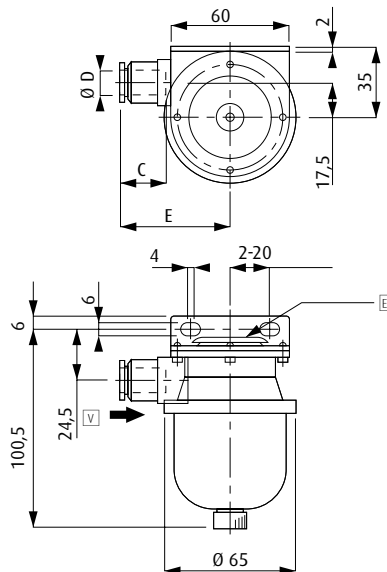
Technical data

| Item no. | Filter surface [cm ²] | Grade of filtration [μm] | Weight [g] |
|----------|-----------------------------------|--------------------------|------------|
| 71.017 | 20 | 10 | 195.5 |
| 71.018 | 20 | 10 | 194.5 |
| 71.019 | 20 | 10 | 191.5 |
| 71.020 | 20 | 10 | 187.5 |
| 71.021 | 20 | 10 | 199 |

Dimensions

| Ø D [mm] | C [mm] | E [mm] |
|----------|--------|--------|
| 6 | 17 | 48 |
| 8 | 18.5 | 48 |
| 10 | 21 | 48.5 |
| 12 | 23.5 | 48 |
| 16 | 25 | 55.5 |

Dimensions



☐ = Vacuum connection ☐ = Output

| | |
|--------------------------------------|-----|
| Control technology at a glance | 635 |
| Pressure regulators | 636 |
| Vacuum regulators | 640 |



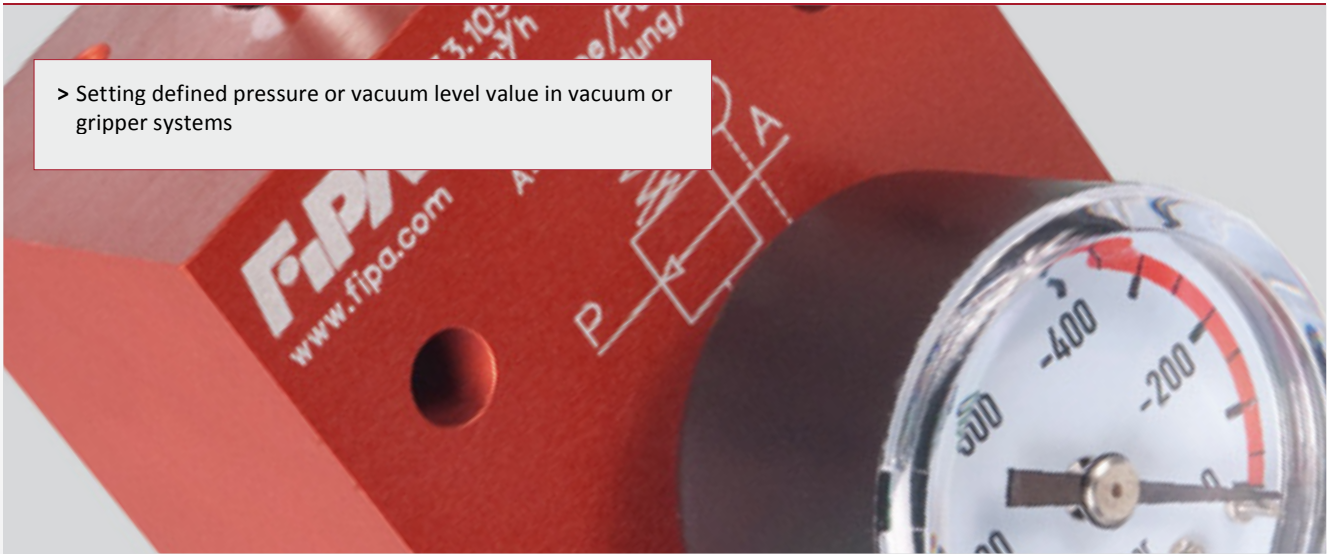
Notes:

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Series of horizontal lines for writing notes.



FIPA control technology



> Setting defined pressure or vacuum level value in vacuum or gripper systems



Pressure regulators

- > Defined reduction in operating pressure for compressed air-operated vacuum generators (ejectors)
- > Limitation of gripper holding force in End-of-Arm-Tooling
- > Simple adjustment
- > Models for inline installation available

> See page 636



Vacuum regulators with external leakage

- > Limitation of vacuum level, e.g. from rotary-vane pumps or vacuum tanks (safety adjustment)
- > Can also be used in dust-contaminated environments
- > Simple adjustment

> See page 640



Vacuum regulators

- > Maintenance of system vacuum independently of air-permeability of workpiece and of fluctuations in the vacuum supply
- > Precise adjustment
- > Suitable for measuring or testing purposes

> See page 642



Pressure regulators - screw-in type



Product Description

- > Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
- > Pressure adjustment by means of knurled screw
- > Integrated overpressure protection

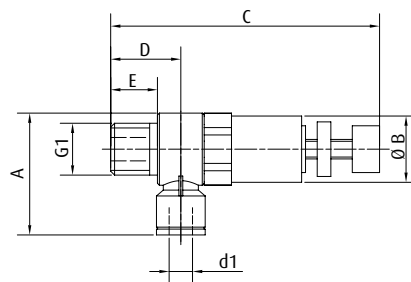
Notes

- > Only suitable for compressed air

Technical data

| Item no. | Operating pressure [bar] | Regulating range [bar] | Accuracy (\pm) [%] | Operating temperature [$^{\circ}$ C] | Weight [g] |
|----------|--------------------------|------------------------|------------------------|---------------------------------------|------------|
| 32.570 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 16 |
| 32.571 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 36 |
| 32.572 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 17 |
| 32.573 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 37 |
| 32.574 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 59 |
| 32.575 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 38 |
| 32.576 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 60 |

Dimensions



| Item no. | G1 | d1 [mm] | A [mm] | Ø B [mm] | C [mm] | D [mm] | E [mm] |
|----------|------|---------|--------|----------|--------|--------|--------|
| 32.570 | M5 | 4 | 20.5 | 10 | 48.5 | 9 | 3.5 |
| 32.571 | R1/8 | 4 | 28.5 | 14 | 60 | 14.5 | 8 |
| 32.572 | M5 | 6 | 22.5 | 10 | 48.5 | 9.5 | 3.5 |
| 32.573 | R1/8 | 6 | 30.5 | 14 | 60 | 14.5 | 8 |
| 32.574 | R1/4 | 6 | 34 | 17 | 65 | 17.5 | 11 |
| 32.575 | R1/8 | 8 | 34 | 14 | 60 | 15.5 | 8 |
| 32.576 | R1/4 | 8 | 37 | 17 | 65 | 18.5 | 11 |



Pressure regulators - screw-in type, with pressure gauge



Product Description

- > Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
- > Pressure adjustment by means of knurled screw, pressure monitoring by means of gauge (readout in MPa)
- > Integrated overpressure protection

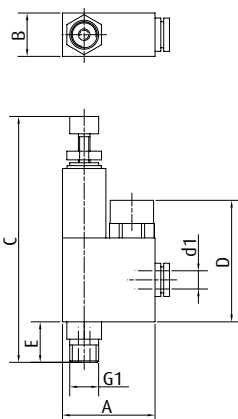
Notes

- > Only suitable for compressed air

Technical data

| Item no. | Operating pressure [bar] | Regulating range [bar] | Accuracy (\pm) [%] | Operating temperature [$^{\circ}$ C] | Weight [g] |
|----------|--------------------------|------------------------|------------------------|---------------------------------------|------------|
| 32.587 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 28 |
| 32.588 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 55 |
| 32.589 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 28 |
| 32.590 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 55 |
| 32.591 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 84 |
| 32.592 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 55 |
| 32.593 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 84 |

Dimensions



| Item no. | G1 | d1 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] |
|----------|------|---------|--------|--------|--------|--------|--------|
| 32.587 | M5 | 4 | 27.5 | 15 | 57.5 | 42 | 3.5 |
| 32.588 | R1/8 | 4 | 36 | 15 | 81.5 | 42 | 8 |
| 32.589 | M5 | 6 | 28 | 15 | 57.5 | 42 | 3.5 |
| 32.590 | R1/8 | 6 | 36.5 | 15 | 81.5 | 42 | 8 |
| 32.591 | R1/4 | 6 | 39.5 | 19 | 89.5 | 42 | 11 |
| 32.592 | R1/8 | 8 | 36.5 | 15 | 81.5 | 42 | 8 |
| 32.593 | R1/4 | 8 | 39.5 | 19 | 89.5 | 42 | 11 |



"Inline" pressure regulators



Product Description

- > Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
- > Pressure adjustment by means of knurled screw
- > Integrated overpressure protection

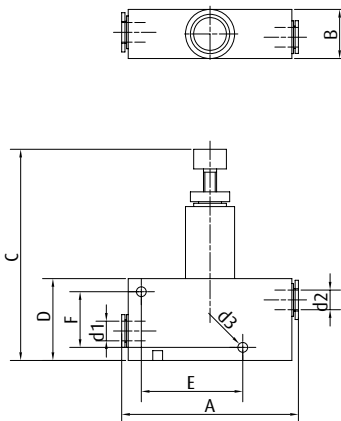
Notes

- > Only suitable for compressed air

Technical data

| Item no. | Operating pressure [bar] | Regulating range [bar] | Accuracy (\pm) [%] | Operating temperature [$^{\circ}$ C] | Weight [g] |
|----------|--------------------------|------------------------|------------------------|---------------------------------------|------------|
| 32.577 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 36 |
| 32.578 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 36 |
| 32.579 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 36 |
| 32.580 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 60 |
| 32.581 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 60 |

Dimensions



| Item no. | d1 [mm] | d2 [mm] | d3 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 32.577 | 4 | 4 | 3.2 | 44 | 15 | 63 | 25 | 30 | 17 |
| 32.578 | 6 | 4 | 3.2 | 44.5 | 15 | 63 | 25 | 30 | 17 |
| 32.579 | 6 | 6 | 3.2 | 45 | 15 | 63 | 25 | 30 | 17 |
| 32.580 | 8 | 6 | 3.2 | 57 | 19 | 68 | 29 | 39 | 21 |
| 32.581 | 8 | 8 | 3.2 | 57 | 19 | 68 | 29 | 39 | 21 |



"Inline" pressure regulators with pressure gauge



Product Description

- > Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
- > Easy installation thanks to vertical and horizontal cross-holes
- > Pressure adjustment by means of knurled screw, pressure monitoring by means of gauge (readout in MPa)
- > Integrated overpressure protection

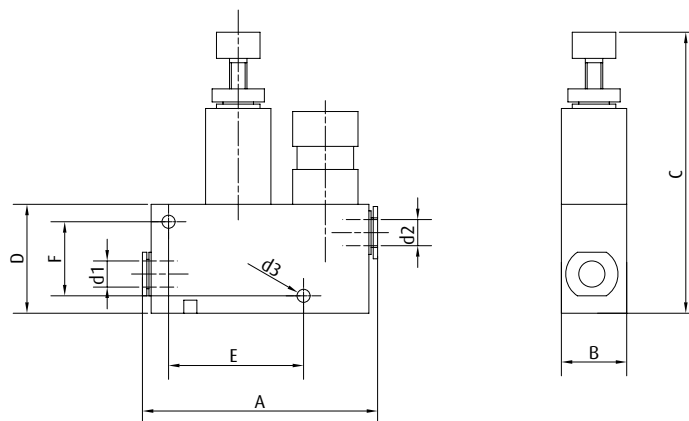
Notes

- > Only suitable for compressed air

Technical data

| Item no. | Operating pressure [bar] | Regulating range [bar] | Accuracy (\pm) [%] | Operating temperature [$^{\circ}$ C] | Weight [g] |
|----------|--------------------------|------------------------|------------------------|---------------------------------------|------------|
| 32.582 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 48 |
| 32.583 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 48 |
| 32.584 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 48 |
| 32.585 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 73 |
| 32.586 | 0 - 9 | 1 - 8 | 5 | 0 - 60 | 73 |

Dimensions



| Item no. | d1 [mm] | d2 [mm] | d3 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 32.582 | 4 | 4 | 3.2 | 55 | 15 | 63 | 25 | 30 | 17 |
| 32.583 | 6 | 4 | 3.2 | 55.5 | 15 | 63 | 25 | 30 | 17 |
| 32.584 | 6 | 6 | 3.2 | 56 | 15 | 63 | 25 | 30 | 17 |
| 32.585 | 8 | 6 | 3.2 | 69 | 19 | 67.5 | 29 | 39 | 21 |
| 32.586 | 8 | 8 | 3.2 | 69 | 19 | 67.5 | 29 | 39 | 21 |



Vacuum regulators with external leakage

Safety control valve particularly for oil-free rotary-vane pumps



Product Description

- > Setting a constant vacuum level when handling workpieces with varying porosities or leakage
- > Suitable as safety valve if dry-running rotary-vane pumps are to run continuously at maximum vacuum
- > Control of vacuum through automatic venting when a preset vacuum level is reached
- > Manual adjustment via fine thread, mechanical opening via spring load

Notes

- > Turn the knob towards the (+) to increase the vacuum threshold value at which the regulator will start drawing in outside air. Turn the knob towards the (-) to reduce this value.

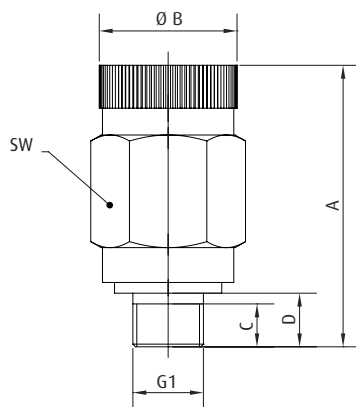
Ordering notes

- > On request suitable as safety valve for side channel blowers to limit the max. vacuum level (diameter of regulator and blower inlet should be identical)

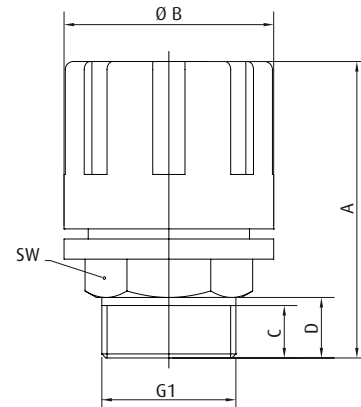
Technical data

| Item no. | Maximum control volume [m ³ /h] | Regulating range [mbar] | Operating temperature [°C] | Weight [g] |
|----------|--|-------------------------|----------------------------|------------|
| 73.002 | 16 | -999 - 0 | -20 - 80 | 270 |
| 73.003 | 40 | -999 - 0 | -20 - 80 | 658 |

Dimensions



73.002



73.003

| Item no. | G1 | A [mm] | Ø B [mm] | C [mm] | D [mm] | SW |
|----------|------|--------|----------|--------|--------|----|
| 73.002 | G1/4 | 63 | 26 | 8 | 10 | 25 |
| 73.003 | G1 | 82 | 52 | 13 | 15 | 32 |



Vacuum regulators



Product Description

- > Vacuum adjustment of consumer loads, such as vacuum cups in handling systems
- > Automatic compensation of fluctuations in vacuum supply
- > Highly precise, continuous vacuum adjustment via a rotary knob with locking mechanism
- > Suitable for conducting leakage tests for inspection / measurement purposes

Notes

- > Turning the rotary knob clockwise increases the vacuum on the consumer side (SET) with the vacuum generator connected (VAC)

Ordering notes

- > Included in scope of delivery: Vacuum gauge incl. connection adapter

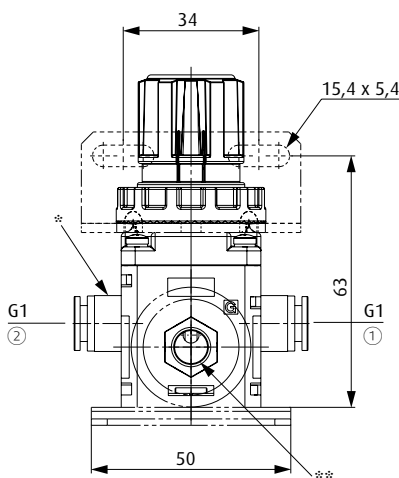
Technical data

| Item no. | Maximum flow rate [m ³ /h] | Regulating range [mbar] | Accuracy [mbar] | Operating temperature [°C] | Weight [g.] | Suitable vacuum gauge |
|--------------------|---------------------------------------|-------------------------|-----------------|----------------------------|-------------|-----------------------|
| 33.220 | 8.4 | -999 - 0 | < 1.3 | 5 - 60 | 135 | 91.001-R (p.696) |
| 33.220-G1/4 | 8.4 | -999 - 0 | < 1.3 | 5 - 60 | 135 | 91.001-R (p.696) |
| 33.230 | 14 | -999 - 0 | < 1.3 | 5 - 60 | 250 | 91.001-R (p.696) |
| 33.230-G1/2 | 14 | -999 - 0 | < 1.3 | 5 - 60 | 250 | 91.001-R (p.696) |
| 33.230-G1/4 | 14 | -999 - 0 | < 1.3 | 5 - 60 | 250 | 91.001-R (p.696) |

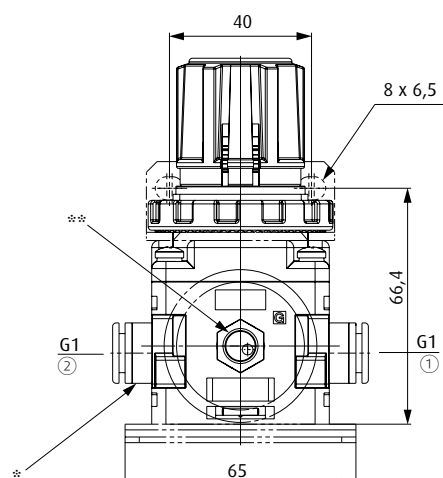
Dimensions

| G1 | d1 [mm] |
|------|---------|
| -- | 8 |
| G1/4 | -- |
| -- | 8 |
| G1/2 | -- |
| G1/4 | -- |

Dimensions



33.220 | 33.220-G1/4



33.230 | 33.230-G1/2 | 33.230-G1/4

① = Connection to the vacuum cup / product side (description SET) ② = Pump connection (description VAC) * = Plug connection
 ** = R1/8 Gauge connection



Vacuum regulators



Vacuum regulator 33.105 with vacuum gauge

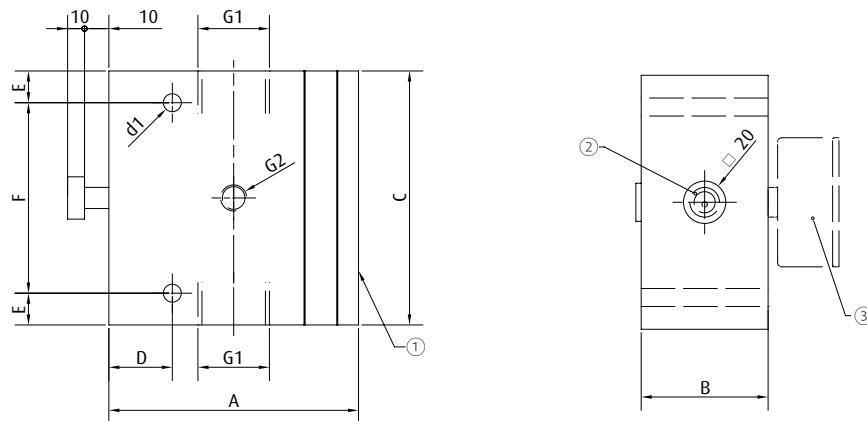
Product Description

- > Vacuum adjustment of consumer loads, such as vacuum cups in handling systems
- > Integration of a vacuum gauge recommended
- > Blow-off is possible if vacuum gauge is not connected
- > Any installation position

Technical data

| Item no. | Maximum flow rate [m ³ /h] | Regulating range [mbar] | Operating temperature [°C] | Weight [kg] | Suitable vacuum gauge |
|----------|---------------------------------------|-------------------------|----------------------------|-------------|-----------------------|
| 33.105 | 10 | -200 - -999 | -10 - 80 | 0.6 | 91.001 (p.696) |
| 33.120 | 80 | -200 - -999 | -10 - 80 | 2.1 | 91.003 (p.696) |

Dimensions



① = The bottom side must not be covered ② = Adjusting screw ③ = Vacuum gauge (optional)

| Item no. | G1 | G2 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] |
|----------|------|------|--------|--------|--------|--------|---------|--------|--------|
| 33.105 | G3/8 | G1/8 | 89 | 40 | 60 | 20 | 6.5 | 10 | 40 |
| 33.120 | G1 | G1/4 | 118 | 60 | 120 | 30 | 8.5 | 15 | 90 |

| | |
|--|-----|
| Electromagnetic and pneumatic valves at a glance | 644 |
| Solenoid valves for vacuum | 646 |
| Pneumatic valves for vacuum | 657 |
| Solenoid valves for compressed air | 660 |
| Base valves at a glance | 662 |
| Flow control valves | 665 |
| Touch valves | 670 |
| Non-return valves | 672 |
| Butterfly valves | 675 |
| Manual valves | 678 |



FIPA Valve technology



- > Control of suction, blow-off or ventilation processes in vacuum systems
- > Fast switching between suction and air intake for short cycle times



2/2-way solenoid valves for vacuum, directly controlled

- > NC version - closed without current
- > No compressed air required
- > Short switching times
- > Small, compact design for small throughputs

> See page 646



3/2-way solenoid valves for vacuum, directly controlled

- > NC version - closed without current, or NO - open without current
- > No compressed air connection required
- > Short switching times
- > Small, compact design for small throughputs
- > Optional construction of valve clusters

> See page 648



3/2-way solenoid valves for vacuum, internal vacuum piloted

- > NC version - closed without current, or NO - open without current
- > No compressed air connection required
- > Short switching times
- > Minimum vacuum level required: 40 %
- > NO: Holds workpiece in the event of a power failure

> See page 652



3/2-way solenoid valve, supported by compressed air

- > Suction on/off, blow-off, ventilation
- > Short switching times
- > NC version - closed without current, or NO - open without current
- > NO: Holds workpiece in the event of a power failure

> See page 654



FIPA Valve technology



3/2-way valves, pneumatically controlled

- > Suction on/off, blow-off, ventilation
- > Shortest switching times compared to vacuum piloted and compressed air supported valves
- > No electrical power connection required
- > NO: Holds workpiece in the event of a power failure
- > Combination with pneumatic vacuum switch: Activation of the "suction" function when the set switching point is reached

> See page 657



3/2-way and 5/2-way solenoid valves for compressed air, indirectly controlled

36.061 (3/2 way)

- > Control of compressed air, e.g. for the vacuum generation of ejectors or foam grippers with integrated ejectors
- > Control of pneumatically controlled valves, e.g. 36.810 - 36.825

36.060 (5/2 way)

- > Vacuum control as with article 36.061
- > Additional blow-off function resulting in short release times for ejectors with direct connection between compressed air and vacuum chamber
- Examples: Heavy-duty ejectors 65.111 and 65.130

> See page 660

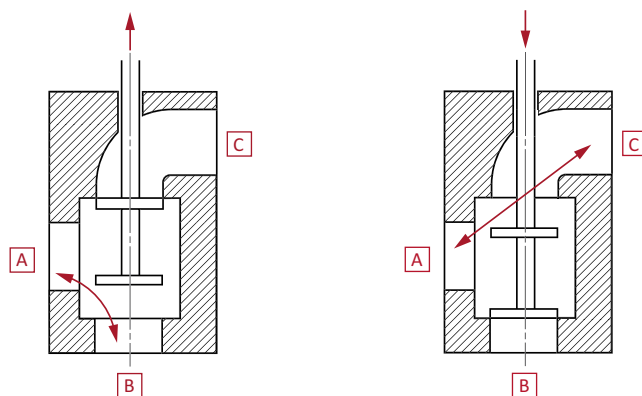
Examples of use

- > Packaging machines
- > Bottle openers
- > Paper feeding
- > Robotic applications
- > General automation

Construction and functional principle of the 3/2-way valve

[A] = vacuum cup output | [B] = compressed air supply | [C] = to the vacuum pump

- > Versions in plastic or metal housings
- > Protection class up to IP65
- > Directly controlled
- > Piloted by internal vacuum
- > Supported by compressed air
- > Controlled by compressed air
- > NC and NO switching functions available





Valve technology | Solenoid valves for vacuum

2/2-way electromagnetic vacuum valves, directly controlled

2/2-way electromagnetic vacuum valves, directly controlled



Product Description

- > Very high suction power at small size for short evacuation time and fast vacuum build-up
- > Short response time
- > Robust brass housing and compact design for demanding applications
- > Also suitable for positive pressure
- > Incl. energy saving coil for minimised power consumption and less heat development

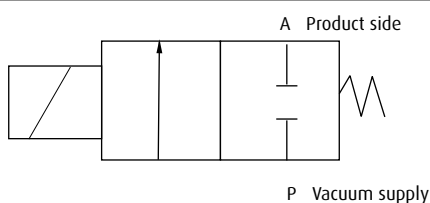
Ordering notes

- > Energy saving coil 24 VDV or 230 VAC and DIN plug IP65 included
- > Further available voltages:
 - VAC: 115, 48, 24
 - VDC: 12

Technical data

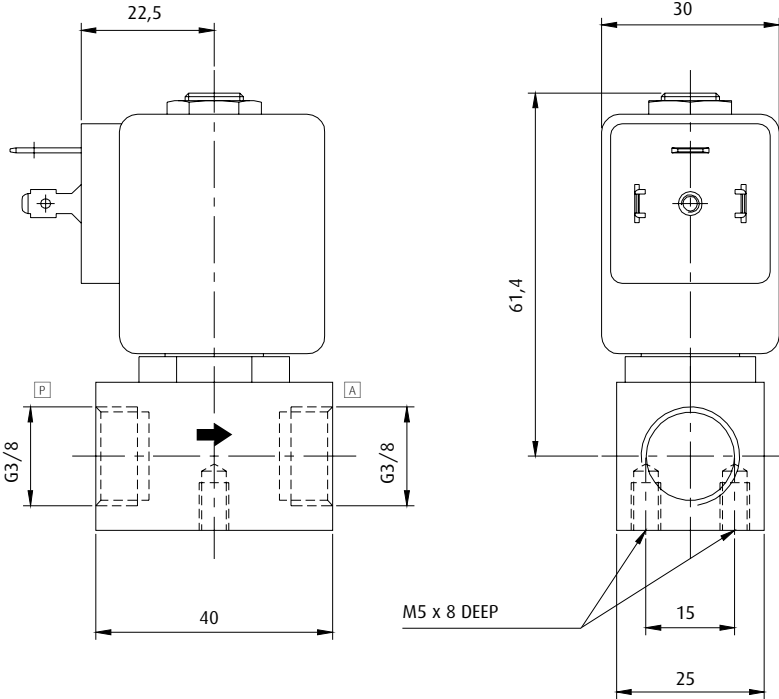
| Item no. | 36.004-24VDC | 36.004-230VAC |
|---------------------------------------|-----------------------------------|------------------------------------|
| Nominal width [mm] | 7 | 7 |
| Nominal flow rate [m ³ /h] | 4.8 | 4.8 |
| Pressure range [bar] | -1 - 4 | -1 - 4 |
| Operating principle | NC | NC |
| Switching time [ms] | 20 | 20 |
| Power-on time [ED] | 100 % | 100 % |
| Max. Power consumption [W] | 12 | 9 |
| Protection class | IP65 | IP65 |
| Operating temperature [°C] | -10 - 60 | -10 - 60 |
| Weight [g] | 520 | 520 |
| Suitable accessories | Plug 10.007 Coil 10.0050/24VDC | Plug 10.007 Coil 10.0050/230VAC |

Wiring diagram





Dimensions



A = Product side P = Vacuum supply



Valve technology | Solenoid valves for vacuum

3/2-way solenoid vacuum valves, directly controlled

3/2-way solenoid vacuum valves, directly controlled

RESISTANCE AGAINST LOW OZONE CONCENTRATIONS



Product Description

- > Very high suction power at small size for short evacuation time and fast vacuum build-up
- > Small, compact and lightweight
- > Suction on/off, blow-off or ventilation of vacuum cups
- > HNBR - Diaphragm allows for flexible installation due to resistance against low ozone concentrations
- > Fast switching time
- > Factory set NO, can be switched to NC by the customer
- > To be mounted in any position

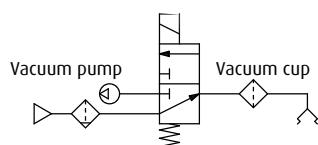
Ordering notes

- > Included in scope of delivery: Coil 24 VDC and DIN plug
- > Other voltages on request

Technical data

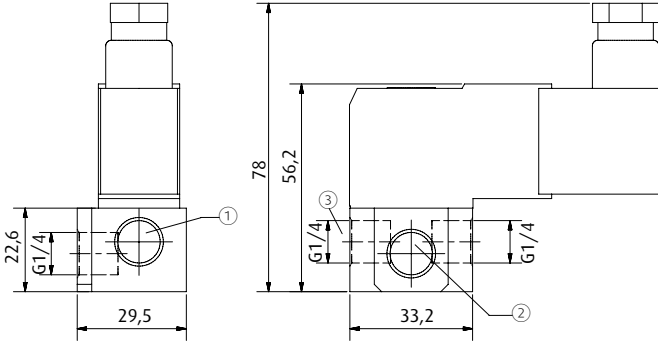
| | |
|---------------------------------------|----------|
| Item no. | 36.003 |
| Connection | G 1/4 |
| Nominal width [mm] | 4.5 |
| Nominal flow rate [m ³ /h] | 2.1 |
| Pressure range [bar] | -1 - 0 |
| Max. switching frequency [Hz] | 10 |
| Response time [ms] | 20 |
| Protection class | IP65 |
| Operating principle | NC/NO |
| Duty ratio [%] | 75 |
| Operating voltage [VDC] | 24 |
| Power consumption [W] | 4 |
| DIN-plug | Yes |
| Operating temperature [°C] | -10 - 50 |
| Weight [g] | 155 |

Wiring diagram

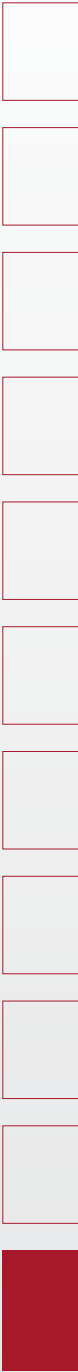




Dimensions



① = Vacuum supply ② = Compressed air, blow-off ③ = Vacuum connection (Product side)





Valve technology | Solenoid valves for vacuum

3/2-way solenoid vacuum valves, directly controlled

3/2-way solenoid vacuum valves, directly controlled



Product Description

- > Very high suction power at small construction size for short evacuation time and fast vacuum build-up
- > Fast product release due to integrated vent port
- > Suction on/off, blow-off or ventilation of vacuum systems
- > Also suitable for positive pressure
- > Short response time
- > Robust brass housing in compact design for demanding applications
- > Incl. energy saving coil for minimised power consumption and less heat development

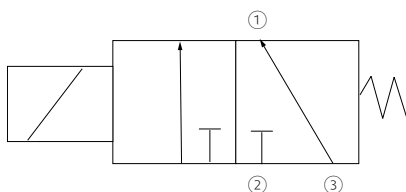
Ordering notes

- > Included in scope of delivery: Energy saving coil 24 VDC or 230 VAC for minimised power consumption and less generation of heat and DIN IP65 plug
- > Further available voltages:
 - VAC: 115, 48, 24
 - VDC: 12
- > Standard seal is NBR, different material, such as EPDM, for higher temperatures on request

Technical data

| Item no. | 36.009-24VDC | 36.009-230VAC |
|---------------------------------------|---|--|
| Nominal width [mm] | 13 | 13 |
| Nominal flow rate [m ³ /h] | 8.8 | 8.8 |
| Pressure range [bar] | -0.99 - 4 | -0.99 - 4 |
| Operating principle | NC | NC |
| Closing time [ms] | 21 | 21 |
| Duty ratio [%] | 100 | 100 |
| Power consumption [W] | 12 | 12 |
| Protection class | IP65 | IP65 |
| Operating temperature [°C] | -10 - 60 | -10 - 60 |
| Weight [g] | 540 | 540 |
| Suitable accessories | Push-in fitting 30.017 (p.724) Plug 10.007 Coil 10.0050/24VDC | Push-in fitting 30.017 (p.724) Plug 10.007 Coil 10.0050/230VAC |

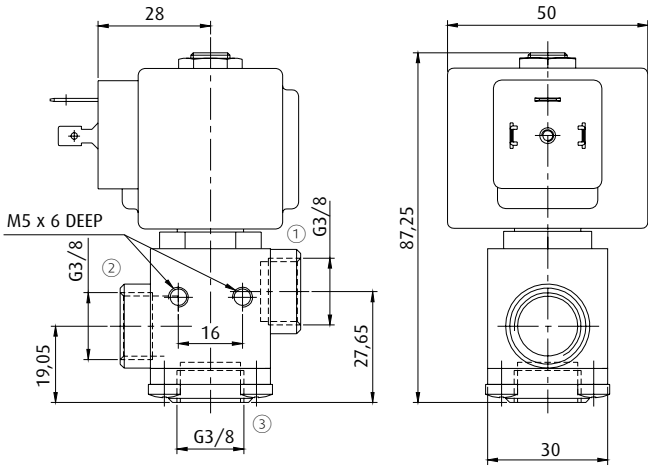
Wiring diagram



- Assignment:
- ① = A (Product side)
 - ② = P (Vacuum supply)
 - ③ = R (Ventilation (Blow-off))



Dimensions



① = Vacuum supply ② = Product side ③ = Ventilation (Blow-off)





Valve technology | Solenoid valves for vacuum

3/2-way solenoid vacuum valves, internally vacuum pilot operated

3/2-way solenoid vacuum valves, internally vacuum pilot operated



36.610 | 36.611



36.615 to 36.626

Product Description

- > Suction on/off, blow-off, ventilation of vacuum cups
- > High suction power at small construction for short evacuation time and fast vacuum build-up
- > Valve operation requires no compressed air connection due to internal vacuum control
- > Required minimum vacuum level 40 %
- > Short switching times
- > NO: Safe gripping of workpiece during power failure
- > Robust and light-weight housing

Ordering notes

- > 36.610 and 36.611: Coil and DIN plug included in scope of delivery
- > 36.615 to 36.625: Delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 VA

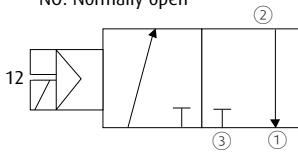
Technical data

| Item no. | Nominal width [mm] | Nominal flow rate [m ³ /h] | Pressure range [bar] | Operating principle | Switching time at -800 mbar [ms] | Material | Operating temperature [°C] | Weight [g] | Suitable accessories |
|----------|--------------------|---------------------------------------|----------------------|---------------------|----------------------------------|--|----------------------------|------------|--|
| 36.610 | 10 | 10 | -0.99 - 0 | NO | 30 | Aluminium anodised | -5 - 50 | 420 | - |
| 36.611 | 10 | 10 | -0.99 - 0 | NC | 30 | Aluminium anodised | -5 - 50 | 420 | -- |
| 36.615 | 15 | 20 | -0.99 - 0 | NO | 85 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 390 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.616 | 15 | 20 | -0.99 - 0 | NC | 85 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 390 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.620 | 20 | 40 | -0.99 - 0 | NO | 85 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 370 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.621 | 20 | 40 | -0.99 - 0 | NC | 85 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 370 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.625 | 25 | 90 | -0.99 - 0 | NO | 100 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 520 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.626 | 25 | 90 | -0.99 - 0 | NC | 100 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 520 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |



Wiring diagrams

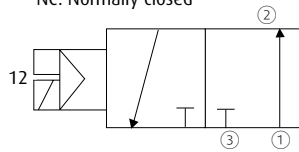
NO: Normally open



Assignment:

- ① = P (Vacuum supply)
- ② = A (Product side)
- ③ = R (Ventilation (Blow-off))

NC: Normally closed



Assignment:

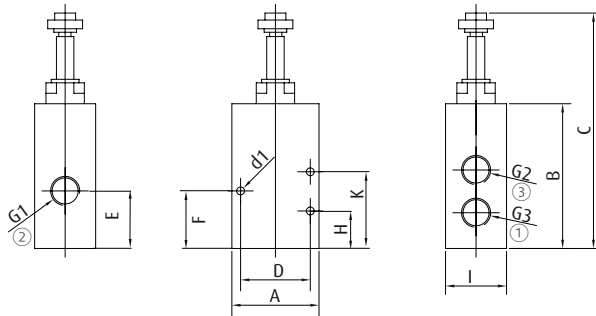
- ① = P (Ventilation (Blow-off))
- ② = A (Product side)
- ③ = R (Vacuum supply)

Pilot valve

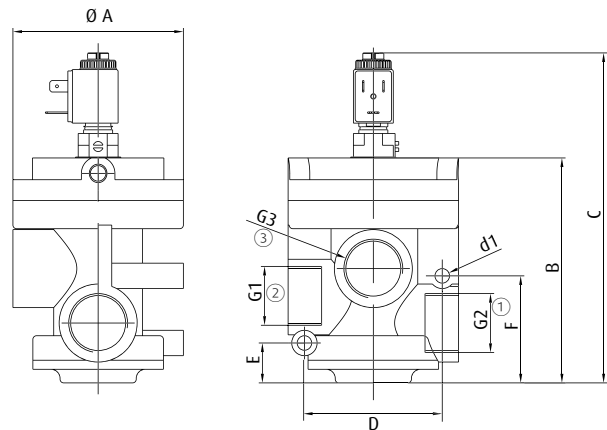


- > Manual mode for functional test: Setscrew in zero position
- > Automatic mode: Setscrew in position "1"

Dimensions



36.610 | 36.611



36.615 | 36.616 | 36.620 | 36.621 | 36.625 | 36.626

① = Vacuum supply / Ventilation (Blow-off) ② = Product side ③ = Ventilation (Blow-off) / Vacuum supply

| Item no. | G1 | G2 | G3 | Ø A [mm] | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] | H [mm] | I [mm] | K [mm] |
|----------|------|------|------|----------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|
| 36.610 | G3/8 | G3/8 | G3/8 | -- | 50 | 83 | 137 | 40 | 4.5 | 22.5 | 33 | 21.5 | 35 | 44 |
| 36.611 | G3/8 | G3/8 | G3/8 | -- | 50 | 83 | 137 | 40 | 4.5 | 35 | 33 | 21.5 | 35 | 44 |
| 36.615 | G1/2 | G1/2 | G1/2 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.616 | G1/2 | G1/2 | G1/2 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.620 | G3/4 | G3/4 | G3/4 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.621 | G3/4 | G3/4 | G3/4 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.625 | G1 | G1 | G1 | 94 | -- | 124 | 178 | 63 | 8.2 | 22 | 58 | -- | -- | -- |
| 36.626 | G1 | G1 | G1 | 94 | -- | 124 | 178 | 63 | 8.2 | 22 | 58 | -- | -- | -- |



Valve technology | Solenoid valves for vacuum

3/2-way solenoid vacuum valves, pneumatically supported with spring reset

3/2-way solenoid vacuum valves, pneumatically supported with spring reset



36.210 | 36.211



36.515 to 36.525

Product Description

- > Suction, blow-off, ventilation of vacuum cups
- > High suction power at small construction for short evacuation times and fast vacuum build-up
- > Short switching times
- > Function: NC/NO as vacuum supply and blow-off / ventilation inlets can be exchanged
- > NO: Safe gripping of workpiece during power failure
- > Robust and lightweight housing

Ordering notes

- > 36.210 and 36.211: Coil and DIN plug included in scope of delivery
- > 36.515 to 36.525: Delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 VA

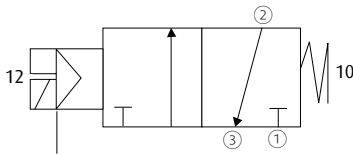
Technical data

| Item no. | Nominal width [mm] | Nominal flow rate [m ³ /h] | Pressure range [bar] | Operating principle | Control pressure [bar] | Switching time [ms] | Material | Operating temperature [°C] | Weight [g] | Suitable accessories |
|----------|--------------------|---------------------------------------|----------------------|---------------------|------------------------|---------------------|--|----------------------------|------------|--|
| 36.210 | 10 | 10 | -0.99 - 0 | NC | 2.5 | 22 | Aluminium anodised | -5 - 50 | 360 | -- |
| 36.211 | 10 | 10 | -0.99 - 0 | NO | 2.5 | 22 | Aluminium anodised | -5 - 50 | 360 | -- |
| 36.515 | 15 | 20 | -0.99 - 0 | NO/NC | 2.5 | 90 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 390 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.520 | 20 | 40 | -0.99 - 0 | NO/NC | 2.5 | 90 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 370 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |
| 36.525 | 25 | 90 | -0.99 - 0 | NO/NC | 2.5 | 90 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 500 | Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006 |



Wiring diagrams

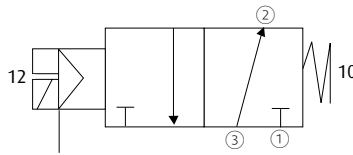
NO: Normally open



Assignment:

- ① = P (Ventilation (Blow-off))
- ② = A (Product side)
- ③ = R (Vacuum supply)

NC: Normally closed



Assignment:

- ① = P (Vacuum supply)
- ② = A (Product side)
- ③ = R (Ventilation (Blow-off))

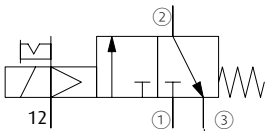
Pilot valve



- > Manual mode for functional test: Setscrew in zero position
- > Automatic mode: Setscrew in position "1"

Wiring diagram: how to combine vacuum valve with pneumatic control valve for blow-off

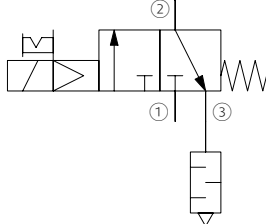
Vacuum valve 36.520



Assignment

- ① Vacuum supply
- ② Product side
- ③ Ventilation (Blow-off)

Control valve 36.061



Assignment

- ① Compressed air inlet
- ② Compressed air output
- ③ Use of silencer (e.g. 72.016): this connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Application example: 3/2-way vacuum valves 36.520 with control valve 36.061

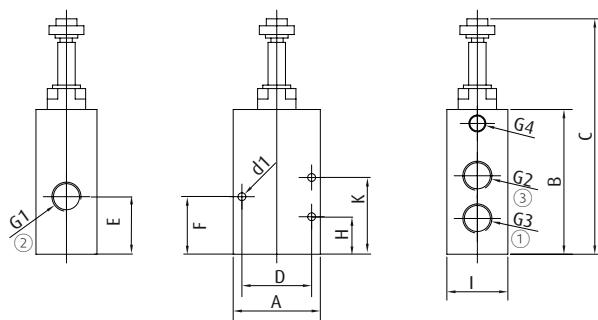
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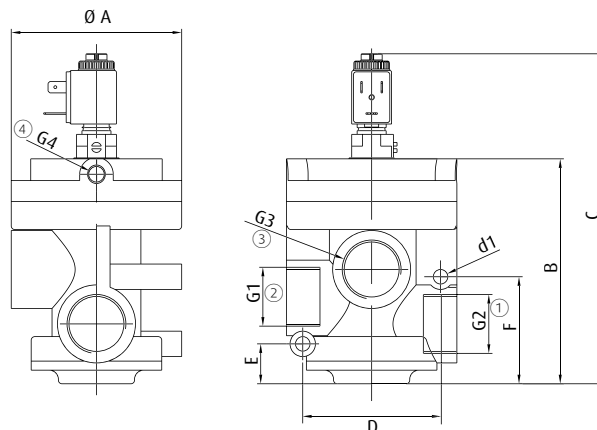
Valve technology | Solenoid valves for vacuum

3/2-way solenoid vacuum valves, pneumatically supported with spring reset

Dimensions



36.210 | 36.211



36.515 | 36.520 | 36.525

① = Vacuum supply / Ventilation (Blow-off) ② = Product side ③ = Ventilation (Blow-off) / Vacuum supply ④ = Control pressure connection

| Item no. | G1 | G2 | G3 | G4 | Ø A [mm] | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | E [mm] | F [mm] | H [mm] | I [mm] | K [mm] |
|----------|------|------|------|------|----------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|
| 36.210 | G3/8 | G3/8 | G3/8 | G1/8 | -- | 50 | 83 | 137 | 40 | 4.5 | 33 | 32.8 | 22.5 | 35 | 44 |
| 36.211 | G3/8 | G3/8 | G3/8 | G1/8 | -- | 50 | 83 | 137 | 40 | 4.5 | 33 | 32.8 | 22.5 | 35 | 44 |
| 36.515 | G1/2 | G1/2 | G1/2 | G1/8 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.520 | G3/4 | G3/4 | G3/4 | G1/8 | 75 | -- | 101 | 155 | 63 | 6.5 | 22.5 | 55 | -- | -- | -- |
| 36.525 | G1 | G1 | G1 | G1/8 | 92 | -- | 114.5 | 168.5 | 63 | 6.9 | 22 | 58 | -- | -- | -- |



3/2-way vacuum valve, pneumatically controlled with spring reset



Product Description

- > Suction blow-off, ventilation of vacuum cups
- > High suction power at small construction for short evacuation time and fast vacuum build-up
- > Assembly of pneumatically controlled vacuum systems
- > Valve operation requires no electric connection
- > Shortest switching times compared to vacuum piloted and compressed air supported valves
- > 36.815 to 36.825: Function: NC or NO as vacuum supply and blow-off / ventilation inlets can be exchanged

Ordering notes

- > 36.335 to 36.341: Electronic valve for switching control independent of compressed air supply available on request; ordering example for version with electronic valve: 36.335_24VDC, 36.341_230VAC etc.

Technical data

| Item no. | Nominal width [mm] | Nominal flow rate [m ³ /h] | Control pressure [bar] | Pressure range [bar] | Operating principle | Switching time [ms] | Material | Operating temperature [°C] | Weight [g] |
|----------|--------------------|---------------------------------------|------------------------|----------------------|---------------------|---------------------|--|----------------------------|------------|
| 36.810 | 10 | 10 | 2 - 6 | -0.99 - 0 | NO | 22 | Aluminium anodised | -5 - 50 | 360 |
| 36.811 | 10 | 10 | 2 - 6 | -0.99 - 0 | NC | 22 | Aluminium anodised | -5 - 50 | 360 |
| 36.815 | 15 | 20 | 2 - 6 | -0.99 - 0 | NO/NC | 60 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 350 |
| 36.820 | 20 | 40 | 2 - 6 | -0.99 - 0 | NO/NC | 50 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 330 |
| 36.825 | 25 | 90 | 2 - 6 | -0.99 - 0 | NO/NC | 50 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 500 |
| 36.335 | 32 | 130 | 4 - 8 | -0.99 - 0 | NC | 200 | High resistant, fiber-glass reinforced Polyamide (GPR) | -5 - 50 | 470 |
| 36.336 | 32 | 130 | 4 - 8 | -0.99 - 0 | NO | 200 | High resistant, fiber-glass reinforced Polyamide (GPR) | -5 - 50 | 470 |
| 36.340 | 50 | 310 | 4 - 8 | -0.99 - 0 | NC | 300 | High resistant, fiber-glass reinforced Polyamide (GPR) | -5 - 50 | 990 |
| 36.341 | 50 | 310 | 4 - 8 | -0.99 - 0 | NO | 300 | High resistant, fiber-glass reinforced Polyamide (GPR) | -5 - 50 | 990 |

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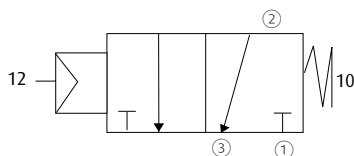


Valve technology | Pneumatic valves for vacuum

3/2-way vacuum valve, pneumatically controlled with spring reset

Wiring diagrams

NO: Normally open

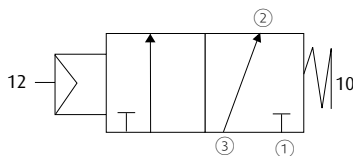


Description of connections:

- ① = R (Compressed air, blow-off)
- ② = A (Product side)
- ③ = P (Vacuum supply)

36.810 | 36.811

NC: Normally closed

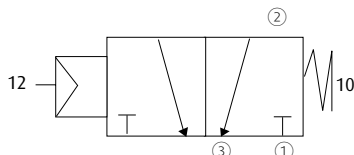


Description of connections:

- ① = R (Compressed air, blow-off)
- ② = A (Product side)
- ③ = P (Vacuum supply)

Wiring diagrams

NO: Normally open

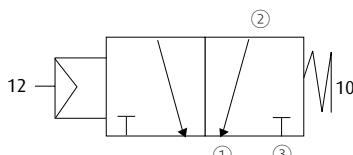


Description of connections:

- ① = R (Compressed air, blow-off)
- ② = A (Product side)
- ③ = P (Vacuum supply)

36.815 | 36.820 | 36.825 | 36.835 | 36.836 | 36.840 | 36.841

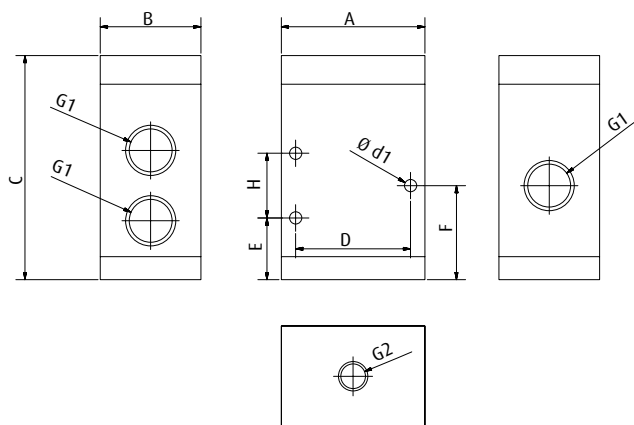
NC: Normally closed



Description of connections:

- ① = R (Compressed air, blow-off)
- ② = A (Product side)
- ③ = P (Vacuum supply)

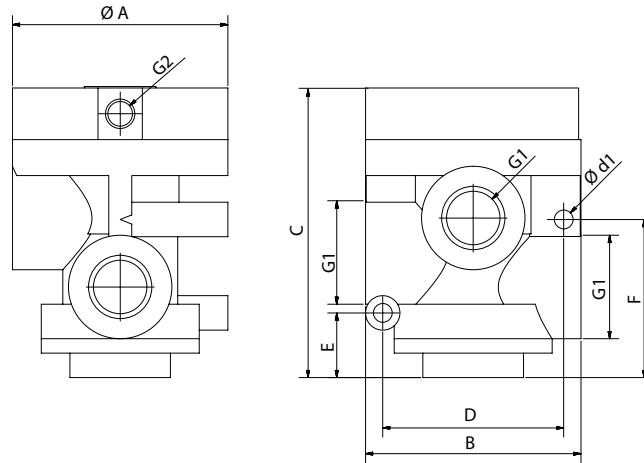
Dimensions



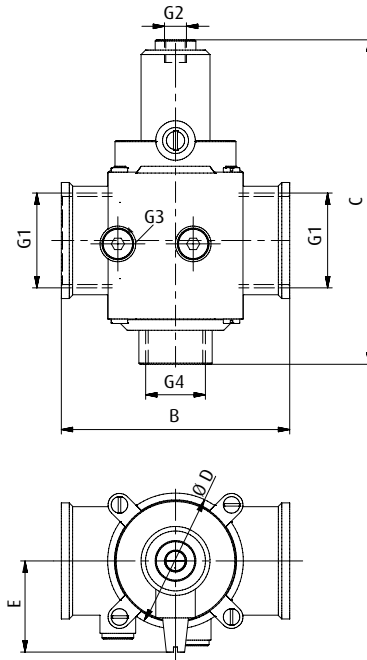
36.810 | 36.811



Dimensions



36.815 | 36.820 | 36.825



36.335 | 36.336 | 36.340 | 36.341

| Item no. | G1 | G2 | G3 | G4 | Ø A [mm] | A [mm] | B [mm] | C [mm] | D [mm] | Ø D [mm] | Ø d1 [mm] | E [mm] | F [mm] | H [mm] |
|----------|--------|------|------|--------|----------|--------|--------|--------|--------|----------|-----------|--------|--------|--------|
| 36.810 | G3/8 | G1/8 | -- | -- | -- | 50 | 35 | 78 | 40 | -- | 4.25 | 21.5 | 32.75 | 22.5 |
| 36.811 | G3/8 | G1/8 | -- | -- | -- | 50 | 35 | 78 | 40 | -- | 4.25 | 21.5 | 32.75 | 22.5 |
| 36.815 | G1/2 | G1/8 | -- | -- | 75 | -- | 75 | 101 | 63 | -- | 6.5 | 22.5 | 55 | -- |
| 36.820 | G3/4 | G1/8 | -- | -- | 75 | -- | 75 | 101 | 63 | -- | 6.5 | 22.5 | 55 | -- |
| 36.825 | G1 | G1/8 | -- | -- | 75 | -- | 75 | 101 | 63 | -- | 6.5 | 22.5 | 55 | -- |
| 36.335 | G1 1/4 | G1/8 | G1/8 | G 3/4 | -- | -- | 101 | 144 | -- | 60 | -- | 43 | -- | -- |
| 36.336 | G1 1/4 | G1/8 | G1/8 | G 3/4 | -- | -- | 101 | 144 | -- | 60 | -- | 43 | -- | -- |
| 36.340 | G2 | G1/8 | G3/8 | G1 1/4 | -- | -- | 142 | 183.5 | -- | 90 | -- | 56 | -- | -- |
| 36.341 | G2 | G1/8 | G3/8 | G1 1/4 | -- | -- | 142 | 183.5 | -- | 90 | -- | 56 | -- | -- |



Solenoid valves for compressed air

Indirectly controlled, with spring reset



36.060



36.061

Product Description

- > Suitable for compressed air
- > 36.060: For use e.g. to increase cycle times for ejectors without valve technology
Example: Vacuum and blow-off control for multi-chamber ejectors e.g. 65.410
 - 1x compressed air vacuum generation
 - 1x compressed air blow-off
- > 36.061: For use e.g. as a blow-off control valve for 3/2-way vacuum valves
- > Robust and lightweight housing

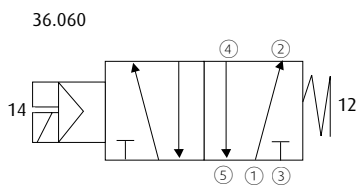
Ordering notes

- > Included in scope of delivery: Coil and DIN plug 10.006 for 24 VDC, IP65
- > Spare part kits available on request

Technical data

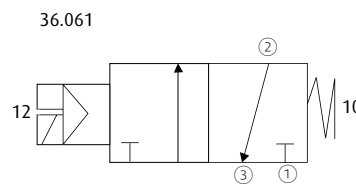
| Item no. | Nominal width [mm] | Nominal flow rate at 6 bar [m ³ /h] | Control pressure [bar] | Design | Supply voltage [VDC] | Duty ratio [%] | Max. Power consumption [W] | Protection class | Material | Operating temperature [°C] | Weight [g] |
|----------|--------------------|--|------------------------|--------|----------------------|----------------|----------------------------|------------------|--|----------------------------|------------|
| 36.060 | 6 | 37.2 | 2.5 - 10 | 5/2 | 24 | 100 | 3.8 | IP 65 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 180 |
| 36.061 | 6 | 37.2 | 2.5 - 10 | 3/2 | 24 | 100 | 3.8 | IP 65 | High resistant, fiber-glass reinforced Polyarylamide (IXEF®) | -5 - 50 | 260 |

Wiring diagrams



Assignment

- ① Compressed air inlet
- ②, ④ Working connection
- ③, ⑤ Bleeding



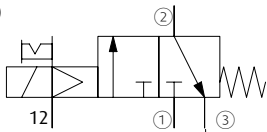
Assignment

- ① Compressed air inlet
- ② Working connection
- ③ Bleeding (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line



Application example: Usage of 36.061 as control valve to activate blow-off of 3/2-way vacuum valves (here: Valve 36.520)

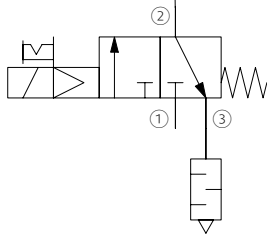
36.520



Assignment

- ① Vacuum supply
- ② Product side
- ③ Ventilation (Blow-off)

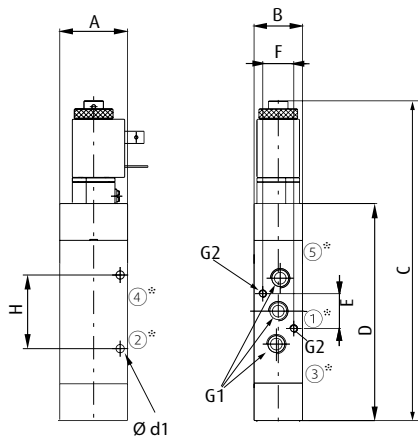
36.061



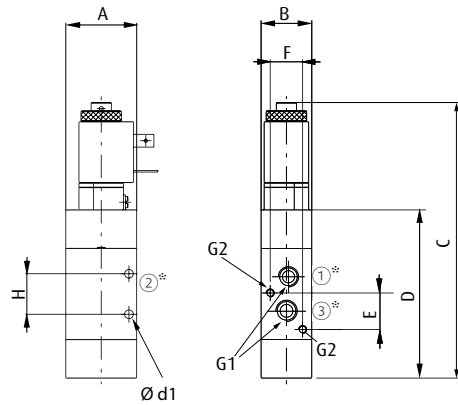
Assignment

- ① Compressed air inlet
- ② Compressed air output
- ③ Use of silencer (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Dimensions



36.060



36.061

* = Assignment see wiring diagrams

| Item no. | G1 | G2 | A [mm] | B [mm] | C [mm] | D [mm] | Ø d1 [mm] | E [mm] | F [mm] | H [mm] |
|----------|------|----|--------|--------|--------|--------|-----------|--------|--------|--------|
| 36.060 | G1/8 | M4 | 35 | 25 | 153 | 100 | 4.25 | 18 | 16 | 38 |
| 36.061 | G1/8 | M4 | 35 | 25 | 136 | 83 | 4.25 | 18 | 16 | 20 |



FIPA Base valves

> System vacuum is maintained by closing unused suction openings



Flow control valves with flow pin

- > Installation near to vacuum cup
- > Sealing of unused suction openings to maintain the system vacuum for vacuum cups still in use
- > Handling of porous workpieces, as there is no, or very little leakage
- > Suitable for short cycle times
- > Partially suited for dusty environments due to basic self-cleaning by means of blow-off

> See page 665



Touch valves

- > Installation directly in vacuum cups
- > Sealing of unused suction openings to maintain the system vacuum for vacuum cups still in use
- > Spring-loaded push-button plunger opens vacuum channel following mechanical scanning
- > Any installation position

> See page 670



Check valves

- > Maintenance of the vacuum level in suction systems in cases of vacuum generator failure

32.631 to 32.635

- > Inline version for mounting in the tubing line

32.647 to 32.653

- > Suitable for installation between vacuum pumps and storage device
- > Prevents oil return into the vacuum system in vacuum pumps without built-in check valve



32.638

- > Check valves with compressed air inlet for short release times
- > Installation directly between vacuum cup and ejector

> See page 672



FIPA Base valves



Butterfly valves

- > Reduction of air flow at a constant vacuum level to compensate leakages through unused vacuum openings
- > Also suitable for compressed air
- > Inline-model available

> See page 675



Manual valves

- > Valves for manual switching on/off of pressure or vacuum circuits
- > 3/2-way versions for the manual aeration of vacuum circuits
- > Inline-models available
- > Any installation position

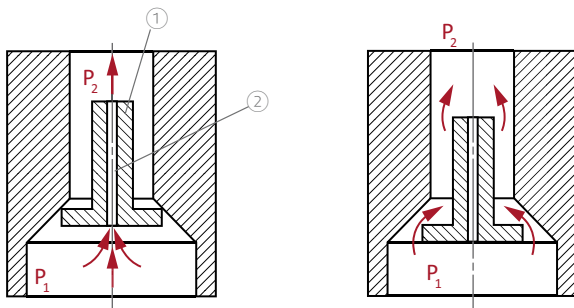
> See page 678

Method of operation: Flow valves

Flow valves are generally installed vertically, close to the vacuum cup. The vacuum cups are applied under vacuum, without these touching the goods being handled, and the flow control pin ① is forced upwards by the pressure difference between P1 and P2.

The flow control pin then closes the valve and only a small amount of leakage flows through the central bore ②.

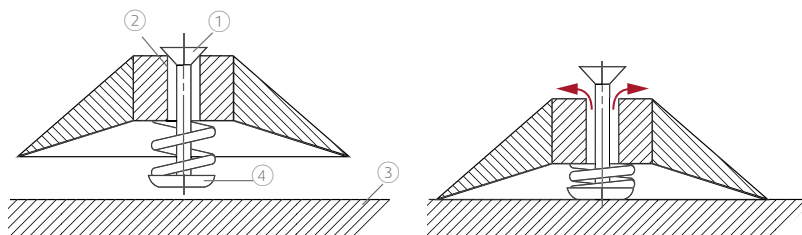
When the vacuum cups are placed on the goods being handled, air flows through the central bore until the pressures P1 and P2 are equalised, at which point the flow control pin falls down.



Method of operation: Touch valves

The touch valve is attached directly to the vacuum cup. A spring presses a sealing element ① (e.g. a pin) against a sealing seat ② and maintains the vacuum in the system.

When the vacuum cup is placed on the workpiece ③, the valve plunger ④ is pushed upwards and the touch valve opens.



Continued on the next page →



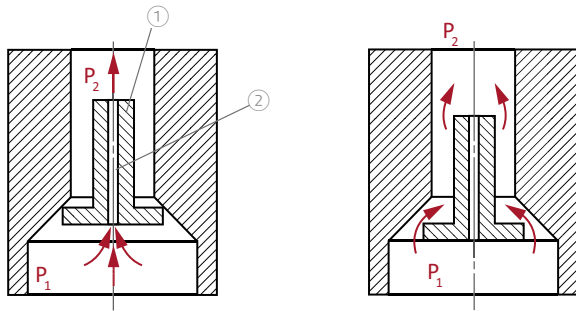
FIPA Base valves

Method of operation: Check valves

A spring presses a sealing element ① (e.g. a pin) against a sealing seat ②. If a pressure difference ΔP is applied to the valve, the medium is only able to flow in one direction. The valve locks in the other direction.

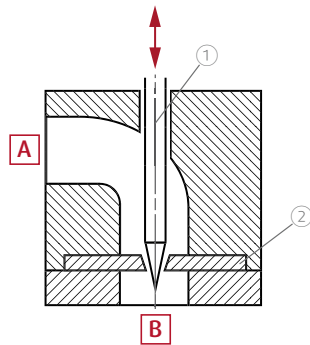
Type A: Flow pattern from vacuum cup to vacuum generator

Type B: Flow pattern from vacuum generator to vacuum cup



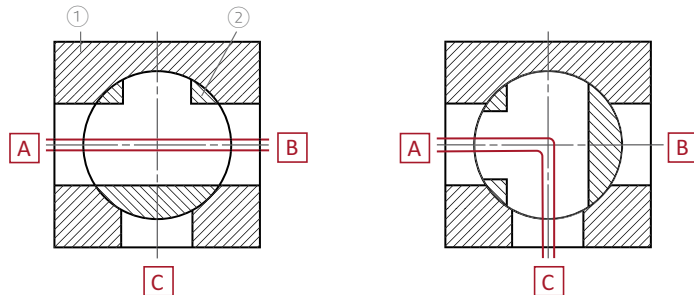
Method of operation: Butterfly valves

The resulting annular gap between the control needle ① and the cavity plate ② acts as a control valve for the air flow. The higher the flow rate, the higher the pressure difference between A and B. The cross-section of the annular gap, and therefore also the action of the control valve, can be adjusted via the axial position of the control needle. Butterfly valves are bidirectional.



Method of operation: Manual valves

A housing ① has three air connections (A, B, C). A rotary vane ② which can pivot up to 90° is mounted inside the housing. In the initial position, there is a free passage from A to B. If the rotary vane is rotated by 90°, B closes and a passage is opened from A to C. Alternatively, C can be fixed closed, making it a 2/2-way valve.





Flow control valves with flow pin

For handling of porous products



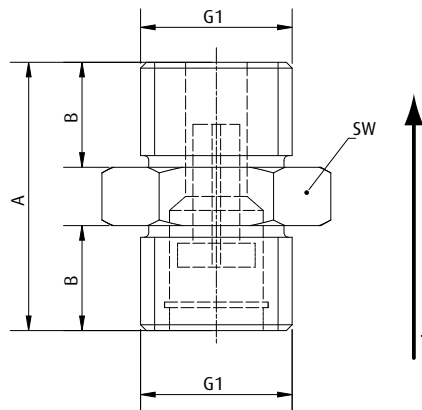
Product Description

- > Sealing of unused suction openings to maintain the system vacuum
- > Limited leakage prevents premature triggering with porous workpieces
- > Very short design
- > Optimal installation position is vertical

Technical data

| Item no. | Suction power to achieve 30 % vacuum [NI/min] | Suction power to achieve 60 % vacuum [NI/min] | Max. flow rate with blow-off at 5 bar [NI/min] | Flow pin bore hole diameter [mm] | Leakage loss [m ³ /h] | Weight [g] |
|----------|---|---|--|----------------------------------|----------------------------------|------------|
| 63.036 | 5 | 5 | 370 | 0.8 | 0.46 | 8 |
| 63.037 | 11 | 11 | 620 | 1.2 | 1.04 | 8 |
| 63.038 | 17 | 18 | 480 | 1.5 | 1.62 | 8 |
| 63.055 | 3 | 3 | 320 | 0.6 | 0.21 | 8 |

Dimensions



* = Flow direction

| Item no. | G1 | A [mm] | B [mm] | SW |
|----------|------|--------|--------|----|
| 63.036 | G1/4 | 23 | 9 | 17 |
| 63.037 | G1/4 | 23 | 9 | 17 |
| 63.038 | G1/4 | 23 | 9 | 17 |
| 63.055 | G1/8 | 16 | 5 | 17 |



Flow control valves with flow pin, self-cleaning

For harsh environmental conditions



Product Description

- > Sealing of unused suction openings to maintain the system vacuum
- > Limited leakage prevents premature triggering with porous workpieces
- > Self-cleaning by blow-off
- > Suitable for harsh environmental conditions (Heavy-duty)
- > Optimal installation position is vertical

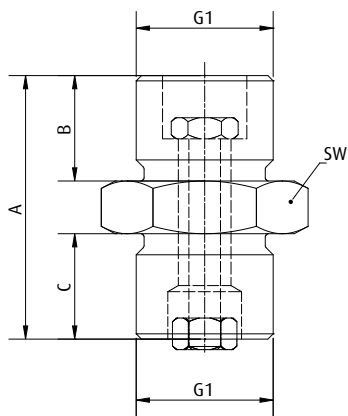
Notes

- > 63.015 can be plugged directly into a vacuum cup to conserve space

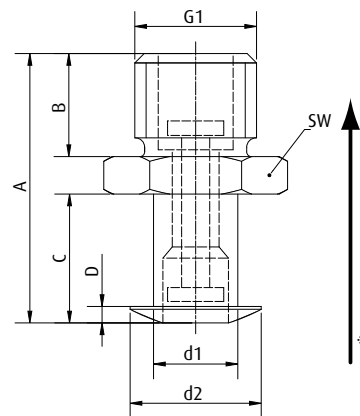
Technical data

| Item no. | Suction power to achieve 30 % vacuum [NI/min] | Suction power to achieve 60 % vacuum [NI/min] | Max. flow rate with blow-off at 5 bar [NI/min] | Weight [g] |
|----------|---|---|--|------------|
| 63.013 | 38 | 55 | 450 | 10 |
| 63.015 | 38 | 55 | 450 | 8 |

Dimensions



63.013



63.015

* = Flow direction

| Item no. | G1 | A [mm] | B [mm] | C [mm] | D [mm] | d1 [mm] | d2 [mm] | SW |
|----------|------|--------|--------|--------|--------|---------|---------|----|
| 63.013 | G1/4 | 25 | 10 | 10 | -- | -- | -- | 17 |
| 63.015 | G1/4 | 29 | 11 | 14 | 2 | 9 | 14 | 17 |



Flow control valves with flow pin and filter, low leakage loss

Inch thread



Product Description

- > Sealing of unused suction openings to maintain the system vacuum
- > Ball seat valve with filter (not suitable for high levels of dust or dirt)
- > Suitable for short cycle times
- > Limited leakage prevents premature triggering with porous workpieces
- > Preset at the factory, 63.003 can be adjusted if necessary
- > Vertical mounting, exception of 63.001 to 63.003: Any mounting position

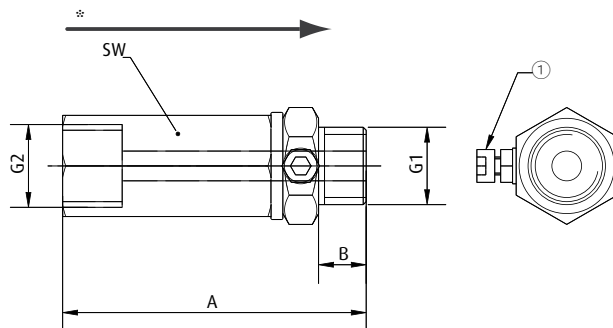
Technical data

| Item no. | Suction power to achieve 30 % vacuum [Nl/min] | Suction power to achieve 60 % vacuum [Nl/min] | Max. flow rate with blow-off at 5 bar [Nl/min] | Weight [g] |
|----------|---|---|--|------------|
| 63.001 | 4 | 7 | 260 | 15 |
| 63.002 | 4 | 8 | 360 | 24 |
| 63.003 | 0 - 22.6 | 0 - 28.6 | 550 | 25 |
| 63.008 | 3 | 3 | 340 | 17 |
| 63.011 | 7 | 8 | 590 | 31 |
| 63.012 | 8 | 9 | 790 | 49 |
| 63.060 | 7 | 8 | 590 | 10 |

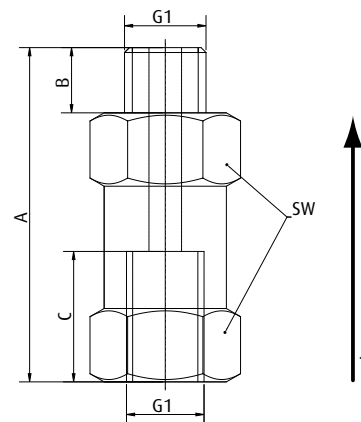
Dimensions

| G1 | G2 | A [mm] | B [mm] | C [mm] | SW |
|------|------|--------|--------|--------|----|
| G1/8 | G1/8 | 48.5 | 6 | -- | 14 |
| G1/4 | G1/4 | 50 | 10 | -- | 17 |
| G1/4 | G1/4 | 50 | 8 | -- | 17 |
| G1/4 | -- | 36 | 10 | 11 | 17 |
| G3/8 | -- | 39 | 10 | 12 | 22 |
| G1/2 | -- | 41 | 12 | 14 | 27 |
| R1/8 | -- | 39 | 10 | 12 | 22 |

Dimensions



63.001 | 63.002 | 63.003



63.008 | 63.011 | 63.012 | 63.060

① = Adjusting screw for 63.003 * = Flow direction



Valve technology | Flow control valves

Flow control valves with flow pin and filter, low leakage loss

Flow control valves with flow pin and filter, low leakage loss

Metric thread



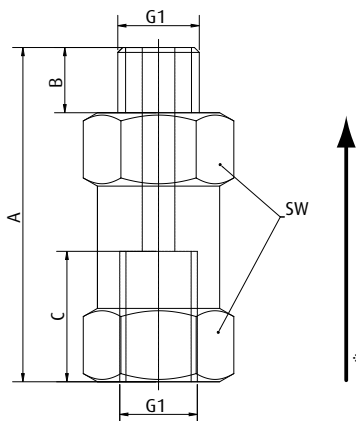
Product Description

- > Sealing of unused suction openings to maintain the system vacuum
- > Ball seat valve with filter (not suitable for high levels of dust or dirt)
- > Suitable for short cycle times
- > Low leakage prevents premature triggering with porous workpieces

Technical data

| Item no. | Suction power to achieve 30 % vacuum [NI/min] | Suction power to achieve 60 % vacuum [NI/min] | Max. flow rate with blow-off at 5 bar [NI/min] | Leakage loss [m ³ /h] | Weight [g] |
|----------|---|---|--|----------------------------------|------------|
| 63.058 | 1 | 1 | 80 | 0.105 | 6 |
| 63.059 | 1.5 | 1.5 | 100 | 0.105 | 12 |

Dimensions



* = Flow direction

| Item no. | G1 | A [mm] | B [mm] | C [mm] | SW |
|----------|----|--------|--------|--------|----|
| 63.058 | M5 | 19.9 | 3 | 4.5 | 10 |
| 63.059 | M6 | 28.1 | 4 | 4.9 | 12 |



Flow control valves with flow pin, without leakage loss



Product Description

- > Sealing of unused suction openings to maintain the system vacuum
- > No leakage loss, which means it is particularly well suited for dense workpieces
- > Closed valves are reset by switching off the vacuum
- > Can be mounted in any installation position

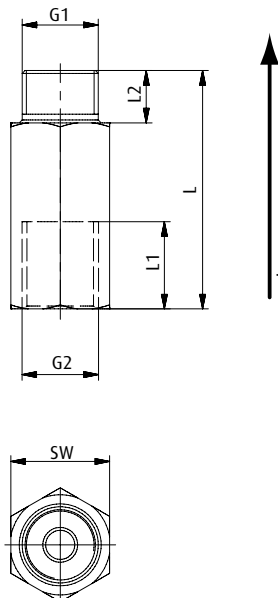
Notes

- > These valves work only if the vacuum is switched on after the vacuum cup has been set in position

Technical data

| Item no. | Suction power [NI/min] | Min. vacuum level required [mbar] |
|----------|------------------------|-----------------------------------|
| 63.017 | 28.3 | -250 |
| 63.018 | 28.3 | -250 |

Dimensions



* = Flow direction

| Item no. | G1 | G2 | L [mm] | L1 [mm] | L2 [mm] | SW |
|----------|------|------|--------|---------|---------|----|
| 63.017 | G1/8 | G1/4 | 41 | 15 | 9 | 17 |
| 63.018 | G1/4 | G1/4 | 41 | 15 | 9 | 17 |



Touch valves



Product Description

- > Maintains the vacuum level in vacuum systems
- > Mechanical scanning leaves unused suction openings closed
- > Spring-loaded spring leveler allows for any mounting position
- > Low susceptibility to dirt and very safe operation

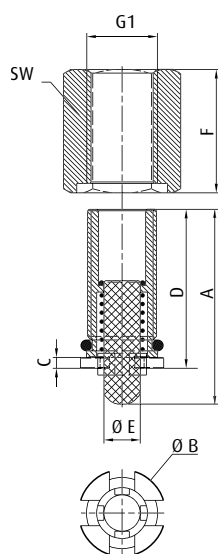
Notes

- > Touch valves are directly screwed into vacuum cup, no further fittings needed

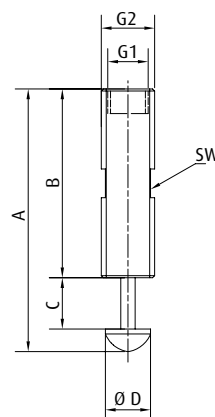
Technical data

| Item no. | Weight [g] | Suitable holder |
|----------|------------|---|
| 270.129 | 7 | -- |
| 270.130 | 62 | 270.268 (p.438), 270.266 (p.438), 270.286 (p.438) |
| 63.026 | 29 | 270.268 (p.438), 270.266 (p.438), 270.286 (p.438) |
| 63.027 | 21 | 270.268 (p.438), 270.266 (p.438), 270.286 (p.438) |
| 63.032 | 8 | 270.090 (p.752) |

Dimensions



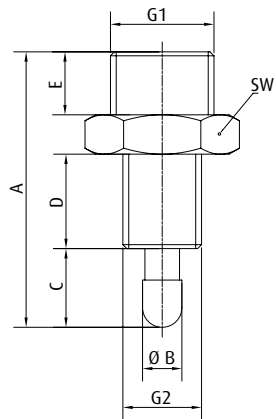
270.129 | 270.130



63.026 | 63.027



Dimensions



63.032

| Item no. | G1 | G2 | A [mm] | B [mm] | Ø B [mm] | C [mm] | D [mm] | Ø D [mm] | E [mm] | Ø E [mm] | F [mm] | SW |
|----------|------|------|--------|--------|----------|--------|--------|----------|--------|----------|--------|----|
| 270.129 | G1/8 | -- | 27 | -- | 12 | 1.5 | 22 | -- | -- | 5 | 17 | 14 |
| 270.130 | G1/2 | -- | 43 | -- | 25 | 1.5 | 35 | -- | -- | 8 | 32 | 30 |
| 63.026 | G1/8 | G1/4 | 65 | 45 | -- | 13 | -- | 11 | -- | -- | -- | 11 |
| 63.027 | G1/8 | G1/4 | 56 | 46 | -- | 5 | -- | 11 | -- | -- | -- | 11 |
| 63.032 | G1/4 | G1/4 | 45 | -- | 7.2 | 10 | 6.5 | -- | 10 | -- | -- | 17 |



"Inline" non-return valves



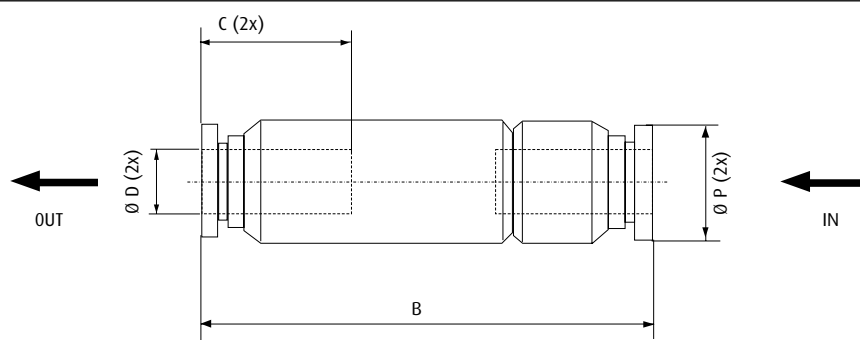
Product Description

- > Maintenance of the vacuum level in suction systems in cases of vacuum generator failure
- > Can also be used with dense workpieces as an energy-saving system
- > Two-sided quick fittings for fast installation in existing vacuum systems
- > Robust metal bodies
- > Very small design
- > Can be mounted in any installation position

Technical data

| Item no. | Effective surface area [mm ²] | Material | Weight [g] |
|----------|---|--------------------|------------|
| 32.631 | 2.7 | Aluminium | 5 |
| 32.632 | 6.8 | Aluminium anodised | 9.5 |
| 32.633 | 15.5 | Aluminium anodised | 20 |
| 32.634 | 32 | Aluminium anodised | 61.5 |
| 32.635 | 46 | Aluminium anodised | 68 |

Dimensions



| Item no. | Ø D [mm] | B [mm] | C [mm] | Ø P [mm] |
|----------|----------|--------|--------|----------|
| 32.631 | 4 | 34 | 11 | 9 |
| 32.632 | 6 | 38.5 | 12 | 12 |
| 32.633 | 8 | 55.5 | 18.5 | 15 |
| 32.634 | 10 | 82.5 | 21 | 25 |
| 32.635 | 12 | 87.5 | 23.5 | 25 |



Non-return valves for very high volume flows



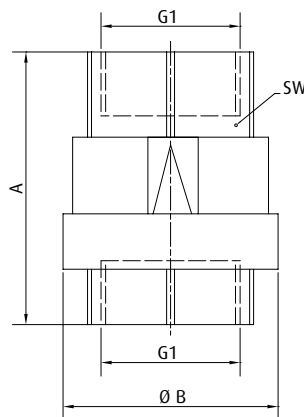
Product Description

- > Maintenance of the vacuum level in suction systems in cases of vacuum generator failure
- > Suitable for installation between the vacuum pump and vacuum tank
- > Prevents return flow of the oil into the vacuum system with vacuum pumps without an integrated non-return valve
- > Can be mounted in any installation position

Technical data

| Item no. | Nominal flow rate [m ³ /h] | Material | Weight [g] |
|----------|---------------------------------------|---------------------------------|------------|
| 32.647 | 20 | Bronze with oil-resistant seals | 151 |
| 32.648 | 26 | Bronze with oil-resistant seals | 196 |
| 32.649 | 45 | Bronze with oil-resistant seals | 280 |
| 32.650 | 75 | Bronze with oil-resistant seals | 421 |
| 32.651 | 125 | Bronze with oil-resistant seals | 658 |
| 32.652 | 200 | Bronze with oil-resistant seals | 897 |
| 32.653 | 350 | Bronze with oil-resistant seals | 1,346 |

Dimensions



| Item no. | G1 | A [mm] | Ø B [mm] | SW |
|----------|--------|--------|----------|----|
| 32.647 | G3/8 | 55 | 34.5 | 23 |
| 32.648 | G1/2 | 58 | 35 | 27 |
| 32.649 | G3/4 | 65 | 41 | 33 |
| 32.650 | G1 | 74.5 | 48 | 40 |
| 32.651 | G1 1/4 | 83 | 60.5 | 50 |
| 32.652 | G1 1/2 | 93 | 71 | 55 |
| 32.653 | G2 | 101 | 87 | 70 |



Non-return valves with blow-off device



Handling of wooden plates with ejector EIL.09 and check valve 32.638 (vacuum cup 102.070.234.4 for wood)

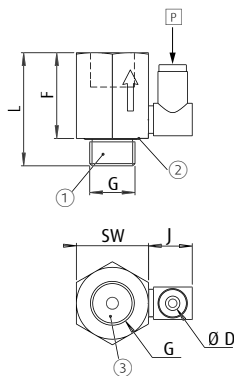
Product Description

- > Installation directly between vacuum cup and ejector
- > Short release time thanks to blow-off function via compressed air inlet P
- > Suitable as a safety valve: In cases of tubing damage, malfunction or emergency shutdown of the vacuum generator, the vacuum is maintained
- > Metal screen made from stainless steel (Inox) with mesh width of 200 μ prevents dirt from entering the ejector

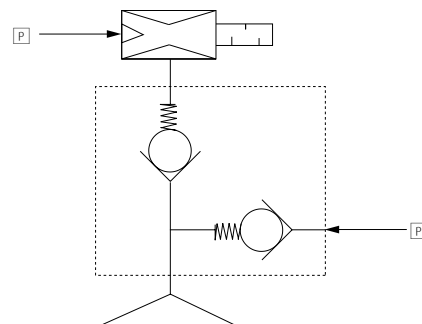
Technical data

| Item no. | Minimum blow-off pressure [bar] | Suitable blow-off device |
|----------|---------------------------------|--------------------------|
| 32.638 | 5 | 32.660 (p.525) |

Dimensions



Wiring diagram



P = Compressed air blow-off at 5 bar 4/6 tubing ① = To the vacuum cup ② = O-ring ③ = To vacuum generator

| Item no. | G | Ø D [mm] | F [mm] | L [mm] | J [mm] | SW |
|----------|------|----------|--------|--------|--------|----|
| 32.638 | G1/4 | 4 | 25 | 33 | 12.8 | 21 |



Butterfly valves - screw-in type



Product Description

- > Limitation of suction flow at a constant vacuum level
- > Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
- > Manual adjustment using knurled screw
- > Flexible installation using horizontal swivel air connector

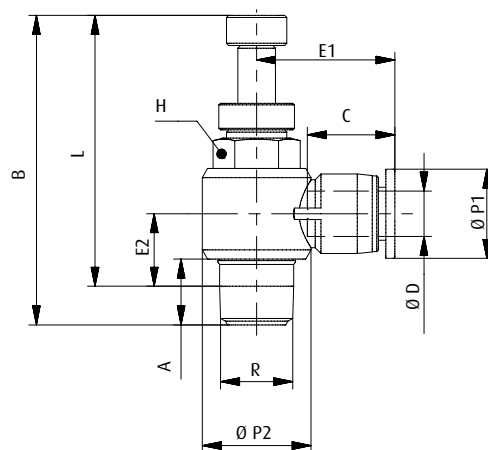
Technical data

| Item no. | Operating pressure [bar] | Operating temperature [°C] | Weight [g] |
|----------|--------------------------|----------------------------|------------|
| 32.500 | -1 - 8 | 0 - 60 | 9 |
| 32.501 | -1 - 8 | 0 - 60 | 20 |
| 32.502 | -1 - 8 | 0 - 60 | 10 |
| 32.503 | -1 - 8 | 0 - 60 | 20 |
| 32.504 | -1 - 8 | 0 - 60 | 36 |
| 32.505 | -1 - 8 | 0 - 60 | 20 |
| 32.506 | -1 - 8 | 0 - 60 | 36 |
| 32.507 | -1 - 8 | 0 - 60 | 67 |
| 32.508 | -1 - 8 | 0 - 60 | 40 |
| 32.509 | -1 - 8 | 0 - 60 | 69 |
| 32.510 | -1 - 8 | 0 - 60 | 72 |
| 32.511 | -1 - 8 | 0 - 60 | 103 |

Dimensions

| R | Ø D [mm] | A [mm] | B [mm] | C [mm] | E1 [mm] | E2 [mm] | H [mm] | L [mm] | Ø P1 [mm] | Ø P2 [mm] |
|------|----------|--------|-------------|--------|---------|---------|--------|-----------|-----------|-----------|
| M5 | 4 | 3.5 | 27 - 29.5 | 15 | 20 | 6.5 | 8 | 23.5 - 26 | 10 | 10 |
| G1/8 | 4 | 8 | 34 - 40.5 | 15 | 21.5 | 10.5 | 10 | 30 - 36.5 | 10 | 14.5 |
| M5 | 6 | 3.5 | 27 - 29.5 | 17 | 24 | 7.5 | 8 | 23.5 - 26 | 12.5 | 10 |
| G1/8 | 6 | 8 | 34 - 40.5 | 17 | 23.5 | 10.5 | 10 | 30 - 36.5 | 12.5 | 14.5 |
| G1/4 | 6 | 11 | 41 - 47.5 | 17 | 25.5 | 12 | 14 | 35 - 41.5 | 12.5 | 18.5 |
| G1/8 | 8 | 8 | 34 - 40.5 | 18.5 | 27 | 11.5 | 10 | 30 - 36.5 | 14.5 | 14.5 |
| G1/4 | 8 | 11 | 41 - 47.5 | 18.5 | 28.5 | 13 | 14 | 35 - 41.5 | 14.5 | 18.5 |
| G3/8 | 8 | 12 | 46.5 - 53.5 | 18.5 | 29 | 15 | 19 | 40 - 47 | 14.5 | 22 |
| G1/4 | 10 | 11 | 41 - 47.5 | 20.5 | 31 | 14.5 | 14 | 35 - 41.5 | 18 | 18 |
| G3/8 | 10 | 12 | 46.5 - 53.5 | 20.5 | 31.5 | 16.5 | 19 | 40 - 47 | 18 | 22 |
| G3/8 | 12 | 12 | 46.5 - 53.5 | 23.5 | 37 | 18 | 19 | 40 - 47 | 21.5 | 22 |
| G1/2 | 12 | 15 | 51.5 - 59 | 23.5 | 36.5 | 19.5 | 24 | 45.5 - 51 | 21.5 | 28 |

Dimensions





"Inline" - butterfly valves



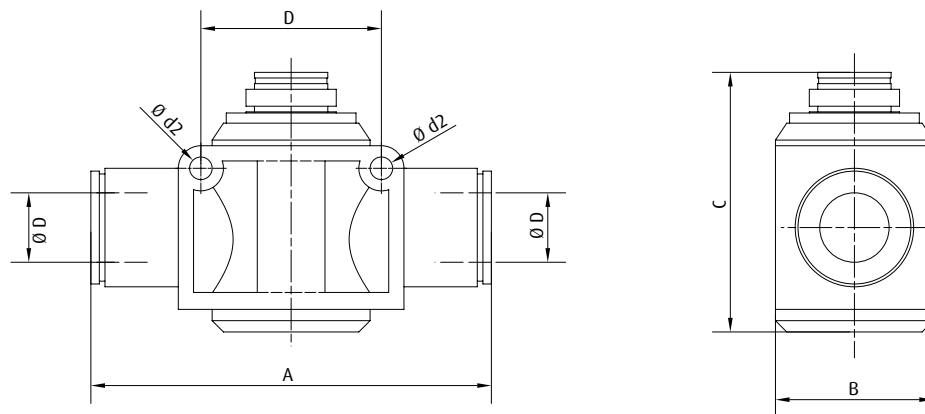
Product Description

- > Limitation of suction flow at a constant vacuum level
- > Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
- > Manual adjustment using knurled screw
- > Simple installation in the tubing line

Technical data

| Item no. | Operating pressure [bar] | Operating temperature [°C] | Weight [g] |
|----------|--------------------------|----------------------------|------------|
| 32.540 | -1 - 9 | 0 - 60 | 12 |
| 32.541 | -1 - 9 | 0 - 60 | 33 |
| 32.542 | -1 - 9 | 0 - 60 | 44 |
| 32.543 | -1 - 9 | 0 - 60 | 77 |
| 32.544 | -1 - 9 | 0 - 60 | 127 |

Dimensions



| Item no. | Ø D [mm] | A [mm] | B [mm] | C [mm] | D [mm] | d2 [mm] |
|----------|----------|--------|--------|--------|--------|---------|
| 32.540 | 4 | 37.5 | 11 | 29.5 | 14 | 3.2 |
| 32.541 | 6 | 46 | 15 | 44 | 20 | 4.3 |
| 32.542 | 8 | 51.5 | 18 | 48 | 22 | 4.3 |
| 32.543 | 10 | 59.5 | 21 | 53.5 | 26 | 4.3 |
| 32.544 | 12 | 72 | 28 | 58 | 32 | 4.3 |



"Inline" - one-way flow control valves



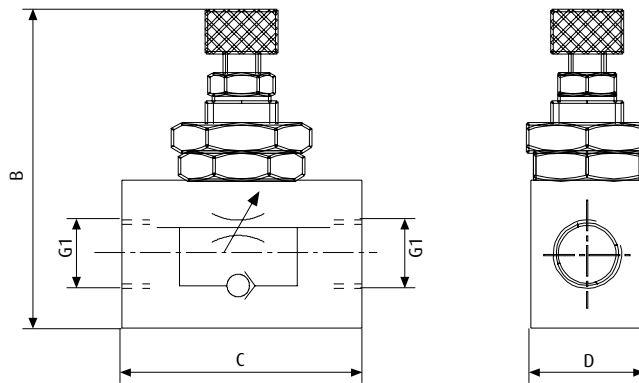
Product Description

- > Limitation of suction power at a constant vacuum level
- > Reducing leakage at unoccupied vacuum cups maintains an adequate vacuum level for vacuum cups covered by products and thus prevents products from being dropped
- > Manual adjustment using knurled screw

Technical data

| Item no. | Maximum flow rate [m ³ /h] | Regulating range [mbar] | Operating temperature [°C] | Weight [g] |
|----------|---------------------------------------|-------------------------|----------------------------|------------|
| 73.001 | 2.4 | -999 - 0 | -20 - 80 | 95 |
| 73.004 | 5.4 | -999 - 0 | -20 - 80 | 95 |

Dimensions



| Item no. | G1 | B [mm] | C [mm] | D [mm] |
|----------|------|--------|--------|--------|
| 73.001 | G1/4 | 60 | 39 | 22 |
| 73.004 | G1/2 | 75 | 56 | 30 |



2/2-way manual shut-off valves



Product Description

> Use when electro valves are not possible or uneconomical

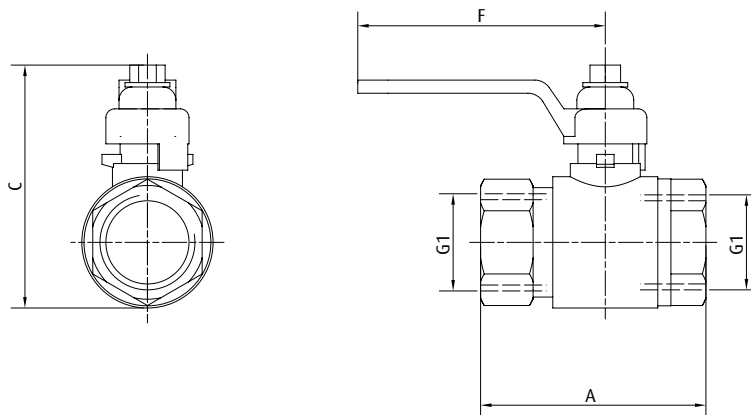
Technical data

| Item no. | Free passage [mm] | Pressure range [bar] | Weight [g] |
|----------|-------------------|----------------------|------------|
| 33.075 | 10 | 0 - 30 | 121 |
| 33.076 | 10 | 0 - 30 | 121 |
| 33.077 | 15 | 0 - 30 | 177 |
| 33.078 | 20 | 0 - 30 | 298 |
| 33.079 | 25 | 0 - 30 | 560 |
| 33.080 | 32 | 0 - 30 | 830 |
| 33.081 | 40 | 0 - 30 | 1,000 |
| 33.082 | 50 | 0 - 30 | 1,600 |
| 33.083 | 80 | 0 - 30 | 2,200 |

Dimensions

| G1 | A [mm] | C [mm] | F [mm] |
|--------|--------|--------|--------|
| G1/4 | 44 | 49 | 80 |
| G3/8 | 44 | 51 | 80 |
| G1/2 | 50 | 57 | 80 |
| G3/4 | 57 | 74 | 113 |
| G1 | 70 | 83 | 113 |
| G1 1/4 | 80 | 90 | 138 |
| G1 1/2 | 94 | 110 | 138 |
| G2 | 112 | 115 | 157 |
| G3 | 157 | 175 | 250 |

Dimensions





3/2-way manual shut-off valves



Product Description

- > Switching on/off individual vacuum cups in vacuum systems
- > Blow-off and ventilation of vacuum cups
- > Valve type with L-bore

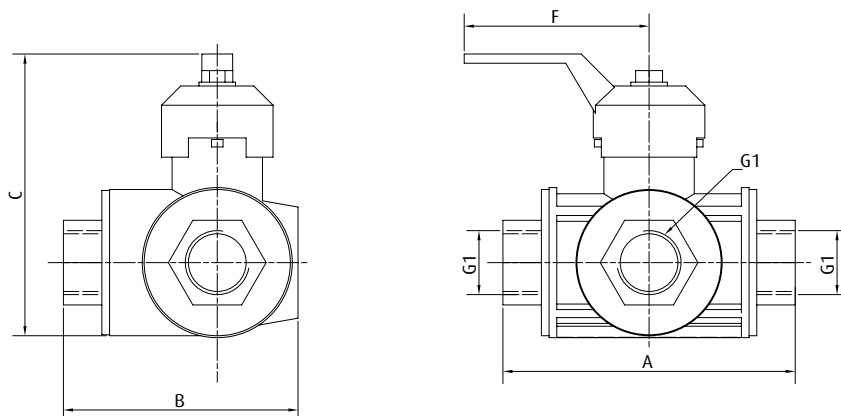
Technical data

| Item no. | Free passage [mm] | Pressure range [bar] | Weight [g] |
|----------|-------------------|----------------------|------------|
| 33.084 | 10 | 0 - 30 | 160 |
| 33.085 | 12 | 0 - 30 | 190 |
| 33.086 | 14 | 0 - 30 | 300 |
| 33.087 | 18 | 0 - 30 | 490 |
| 33.088 | 23 | 0 - 30 | 850 |
| 33.089 | 29 | 0 - 30 | 1,760 |
| 33.090 | 36 | 0 - 30 | 2,490 |

Dimensions

| G1 | A [mm] | B [mm] | C [mm] | F [mm] |
|--------|--------|--------|--------|--------|
| G1/4 | 77 | 58 | 85 | 125 |
| G3/8 | 77 | 58 | 85 | 125 |
| G1/2 | 77 | 58 | 85 | 125 |
| G3/4 | 92 | 70 | 107 | 145 |
| G1 | 104 | 80 | 124 | 170 |
| G1 1/4 | 118 | 92 | 134 | 170 |
| G1 1/2 | 138 | 109 | 145 | 170 |

Dimensions





Valve technology | Manual valves

3/2-way manual shut-off valves with quick fittings on both sides

3/2-way manual shut-off valves with quick fittings on both sides



Product Description

- > Switching on/off individual vacuum cups in vacuum systems
- > Blow-off and ventilation of vacuum cups
- > Easy in line installation in the tubing line

Ordering notes

- > Other connections available on request

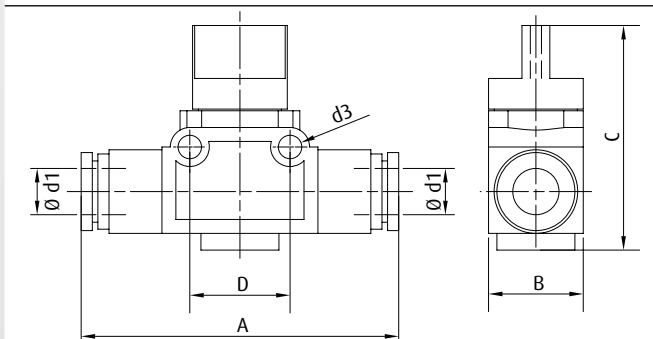
Technical data

| Item no. | Pressure range [bar] | Weight [g] |
|----------|----------------------|------------|
| 33.000 | -1 - 9 | 24 |
| 33.001 | -1 - 9 | 24.5 |
| 33.002 | -1 - 9 | 25.5 |
| 33.003 | -1 - 9 | 27 |
| 33.004 | -1 - 9 | 44 |
| 33.005 | -1 - 9 | 47.5 |
| 33.006 | -1 - 9 | 50 |

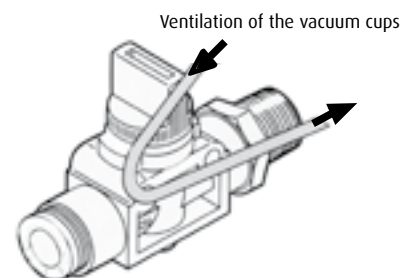
Dimensions

| d1 [mm] | A [mm] | B [mm] | C [mm] | D [mm] | d3 [mm] |
|---------|--------|--------|--------|--------|---------|
| 4 | 52 | 17 | 40.5 | 18 | 4.2 |
| 6 | 52 | 17 | 40.5 | 18 | 4.2 |
| 8 | 54 | 17 | 40.5 | 18 | 4.2 |
| 8 | 56 | 17 | 40.5 | 18 | 4.2 |
| 10 | 65 | 21 | 41 | 24 | 4.2 |
| 12 | 68 | 21 | 41 | 24 | 4.2 |
| 12 | 71 | 21 | 41 | 24 | 4.2 |

Dimensions



Operating principle





3/2-way manual shut-off valves with quick fitting / threaded connection



Product Description

- > Switching on/off individual vacuum cups in vacuum systems
- > Blow-off and ventilation of vacuum cups

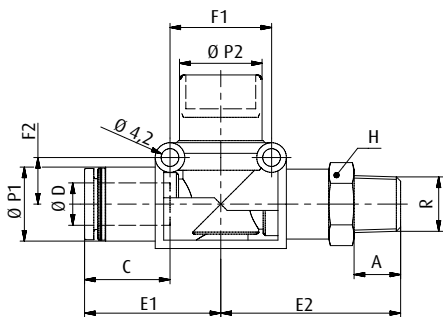
Technical data

| Item no. | Free passage [mm] | Pressure range [bar] | Weight [g] |
|----------|-------------------|----------------------|------------|
| 33.016 | 5 | -1 - 9 | 33 |
| 33.017 | 5 | -1 - 9 | 39.5 |
| 33.018 | 5 | -1 - 9 | 52 |
| 33.019 | 5 | -1 - 9 | 34.5 |
| 33.020 | 5 | -1 - 9 | 40.5 |
| 33.021 | 5 | -1 - 9 | 53.5 |
| 33.022 | 7 | -1 - 9 | 61.5 |
| 33.023 | 7 | -1 - 9 | 70 |
| 33.024 | 7 | -1 - 9 | 91.5 |
| 33.025 | 7 | -1 - 9 | 65 |
| 33.026 | 7 | -1 - 9 | 73 |
| 33.027 | 7 | -1 - 9 | 95 |

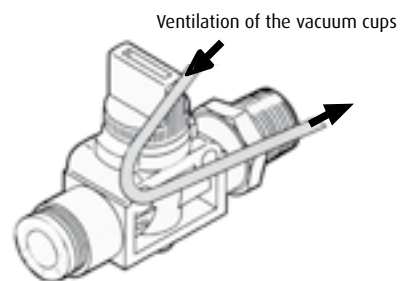
Dimensions

| R | Ø D [mm] | A [mm] | B1 [mm] | B2 [mm] | C [mm] | E1 [mm] | E2 [mm] | F1 [mm] | F2 [mm] | H [mm] | Ø P1 [mm] | Ø P2 [mm] |
|------|----------|--------|---------|---------|--------|---------|---------|---------|---------|--------|-----------|-----------|
| R1/8 | 6 | 8 | 17 | 40.5 | 17 | 26 | 33.5 | 18 | 8 | 14 | 12.5 | 16.5 |
| R1/4 | 6 | 11 | 17 | 40.5 | 17 | 26 | 36.5 | 18 | 8 | 14 | 12.5 | 16.5 |
| R3/8 | 6 | 12 | 17 | 40.5 | 17 | 26 | 38.5 | 18 | 8 | 17 | 12.5 | 16.5 |
| R1/8 | 8 | 8 | 17 | 40.5 | 18 | 28 | 33.5 | 18 | 8 | 14 | 15 | 16.5 |
| R1/4 | 8 | 11 | 17 | 40.5 | 18 | 28 | 36.5 | 18 | 8 | 14 | 15 | 16.5 |
| R3/8 | 8 | 12 | 17 | 40.5 | 18 | 28 | 38.5 | 18 | 8 | 17 | 15 | 16.5 |
| R1/4 | 10 | 11 | 21 | 41 | 20 | 32.5 | 42.5 | 24 | 11 | 17 | 17.5 | 19.5 |
| R3/8 | 10 | 12 | 21 | 41 | 20 | 32.5 | 43.5 | 24 | 11 | 17 | 17.5 | 19.5 |
| R1/2 | 10 | 15 | 21 | 41 | 20 | 32.5 | 46.5 | 24 | 11 | 21 | 17.5 | 19.5 |
| R1/4 | 12 | 11 | 21 | 41 | 23.5 | 35 | 42.5 | 24 | 11 | 17 | 21 | 19.5 |
| R3/8 | 12 | 12 | 21 | 41 | 23.5 | 35 | 43.5 | 24 | 11 | 17 | 21 | 19.5 |
| R1/2 | 12 | 15 | 21 | 41 | 23.5 | 35 | 46.5 | 24 | 11 | 21 | 21 | 19.5 |

Dimensions



Operating principle



| | |
|-------------------------------------|-----|
| System monitoring at a glance | 684 |
| Vacuum switches | 686 |
| Vacuum / Pressure switches | 694 |
| Pressure switches | 695 |
| Vacuum and pressure gauges | 696 |
| Accessories | 698 |



FIPA System monitoring

> Monitoring and control of vacuum systems



Vacuum and pressure switches

- > Regulation and monitoring of vacuum circuits
- > High degree of user flexibility thanks to models with digital, analogue, pneumatic or mechanical controls
- > See next page for overview

> See page 691










Vacuum and pressure gauge

- > Visual monitoring of vacuum circuits
- > Analogue or digital display

> See page 696



FIPA System monitoring - Overview

| | | Vacuum and pressure switches | | | | | | | |
|---|-----------------|------------------------------|---|---|--------------------------|-------------------------------|---------------------------|---|--|
| Item no. | Page | Product | Special applications | Signal output | Hysteresis | Protection class | Operation | Display | |
|  | 20.002 | 687 | Vacuum switch - pneumatic | No electrical connection required | 1 x pneumatic | 120 mbar | -- | | |
|  | 20.011 | 686 | Vacuum switch - electromechanical | NO/NC change-over contact function, for example for controlling solenoid valves | 1 x electric, 250 V max. | 6 % from switching point | IP65 | -- | |
|  | 20.007 | 688 | Vacuum switch - electronic with analogue output | Monitoring of the continuous vacuum trend | 1 x 1-5 V | 0 - 30 % from switching point | IP50 | Adjustment screw | |
|  | 20.040 | 689 | Mini vacuum switch with digital output | Vacuum measurement at vacuum cup or ejector, Switch freely rotatable after mounting | 1 x PNP | 3 % from switching point | IP 40 | Red LED | |
|  | 20.041 | 689 | | | 1 x NPN | | | | |
|  | 20.020 | 690 | Vacuum switch - electronic with analogue and digital output | Switch freely rotatable after mounting | 1 x PNP 1 x 1-5 V | | Keys | Yellow LED | |
|  | 20.021 | 691 | Vacuum switch with two digital outputs | Monitoring of a pressure range possible, Switch freely rotatable after mounting | 2 x PNP | IP65 | Keys with menu navigation | Red / green LED 7-segment | |
|  | 20.022 | 691 | | Round design, Monitoring of a pressure range possible, Switch freely rotatable after mounting | | | | | |
|  | 20.023 | 695 | Pressure switch - electronic with two digital outputs | | | freely programmable | | | |
|  | 20.035 | 692 | Vacuum switch - electronic with two digital outputs and analogue output | Monitoring of two switching points (digital) as well as of the continuous vacuum trend (analogue) | 2 x PNP 1 x 1-5 V | IP40 | | | |
|  | 20.036 | 692 | | | 2 x NPN 1 x 1-5 V | | | | |
|  | 20.026 / 20.027 | 694 | Vacuum pressure switch - electronic with two digital outputs | Small design Monitoring of a pressure window possible, 20.027 with plug-in connection for ejector or tubing line | 1 x PNP | | IP65 | Self-learning via connection cable, PC or preset Red / green LED | |



Vacuum switch - electromechanical

With NO/NC function for DC- and AC-connection



Product Description

- > An electrical signal is triggered when set vacuum value is reached
- > Switching point set via setscrew
- > Hysteresis is fixed
- > Standard vacuum connection via galvanised steel G1/8 screw-in port
- > Long service life due to high quality, robust design
- > Can be mounted in any position

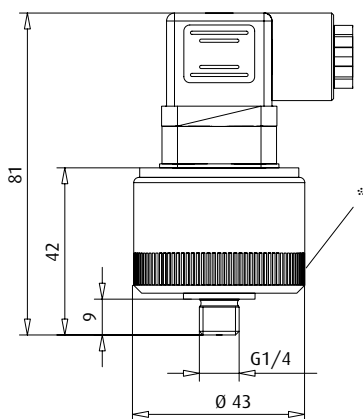
Ordering notes

- > If desired the switching point can be preset

Technical data

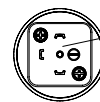
| | |
|---------------------------------------|--|
| Item no. | 20.011 |
| Adjustable range [mbar] | 20 - 800 |
| Hysteresis | 6 % switch point |
| Switching capacity DC up to 28 V [A] | max. 2 |
| Switching capacity AC up to 250 V [A] | max. 2 |
| Max. switching frequency [Hz] | 200 |
| Protection class | IP65 |
| Suitable media | Filtered, oiled or unoled air or neutral gases |
| Operating temperature [°C] | -25 - 85 |
| Weight [g] | 120 |

Dimensions



* = Knurled screw

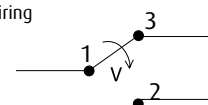
Electrical connection / changeover contact



Setting screw
M3 DIN 914

1. Completely screw in with hex-wrench
2. Apply switching vacuum
3. Ease screw until contact toggles

Wiring





Vacuum switch - pneumatic

NEW



Product Description

- > Switch outputs a pneumatic signal when the set vacuum level is reached
- > No electrical connection required
- > Usable as switch element for pneumatic valves

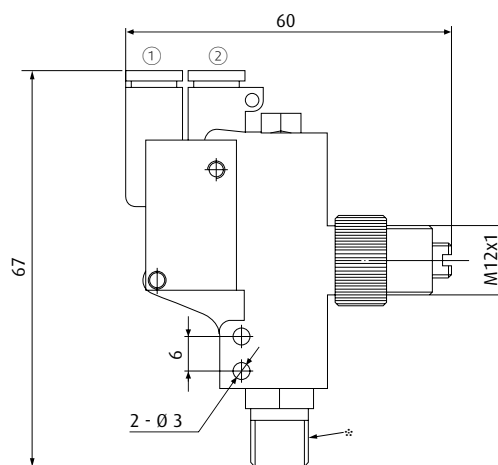
Notes

- > Vacuum switch 20.002 is part of the air-saving function for multi-chamber ejectors 65.340-LSE to 65.390-LSE

Technical data

| | |
|----------------------------|---|
| Item no. | 20.002 |
| Adjustable range [mbar] | -950 - -150 |
| Hysteresis [mbar] | 120 |
| Operating pressure [bar] | 1.5 - 8 |
| Operating principle | NC |
| Repeat accuracy [%] | ± 5 |
| Suitable media | Dry, unooled air and non-abrasive gases |
| Operating temperature [°C] | 10 - 60 |
| Weight [g] | 44 |

Dimensions



① = Compressed air inlet, quick fitting \varnothing 4 mm ② = Compressed air output, quick fitting \varnothing 4 mm * = G1/8-male



Vacuum switch - electronic with analogue output



Product Description

- > Analogue output enables monitoring of the continuous vacuum trend
- > Compact and light design for installation directly on the vacuum cup
- > LED display in plug connection

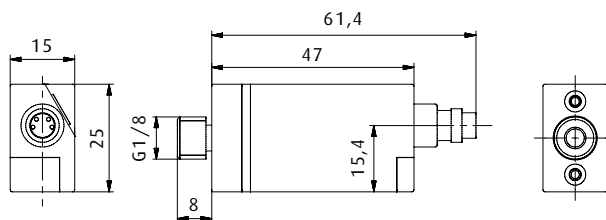
Notes

- > As an option: Mounting rail 20.008-H incl. channel nut for mounting the vacuum switch, e.g. on FIPA SLine extrusions

Technical data

| | |
|----------------------------|--|
| Item no. | 20.007 |
| Adjustable range [mbar] | -999 - 0 |
| Hysteresis | 0 - 30 % |
| Analogue output [VDC] | 1 - 5 |
| Switching logic | Contact breaker (NC) |
| Response time [ms] | < 5 |
| Thermal error | ± 3 % from measuring range |
| Overpressure safety [bar] | 3 |
| Supply voltage [VDC] | 18 - 30 |
| Current consumption [mA] | < 20 |
| Protection class | IP50 |
| Suitable media | Dry, unoled air and non-abrasive gases |
| Operating temperature [°C] | 0 - 50 |
| Weight [g] | 85 |
| Electric connection | Plug M8x1, 4-pin |
| Suitable accessories | Mounting rail 20.008-H Connector cable 20.501 (p.717) Connector cable 20.502 (p.717) |

Dimensions





Mini vacuum switch - electronic with digital output



Example: Mini vacuum switch 20.040 on ejector EBA.08H.2-A and flat vacuum cup \varnothing 40 mm

Product Description

- > Switch outputs a digital signal when a specific vacuum level is reached
- > Vacuum level is manually set with a potentiometer screw
- > Hysteresis is fixed
- > Red LED indicates set level reached
- > Space-saving installation on ejectors thanks to very small design

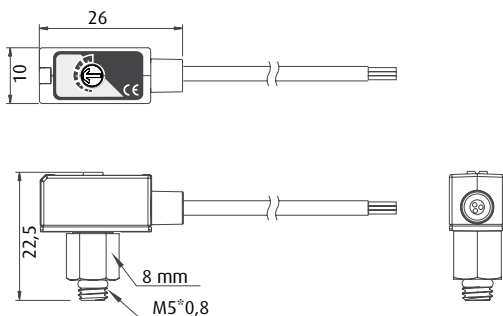
Ordering notes

- > Included in scope of delivery: Cable 1.5 meter, 3-pole, open wire

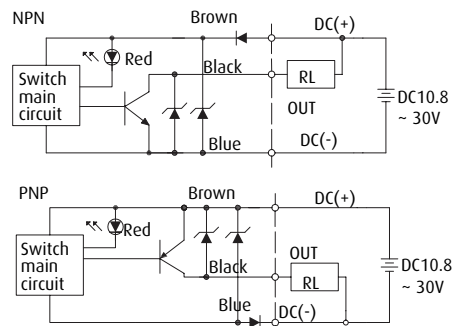
Technical data

| Item no. | 20.040 | 20.041 |
|-------------------------------|--|--|
| Adjustable range [mbar] | -990 - 0 | -990 - 0 |
| Hysteresis | 3 % from default setting | 3 % from default setting |
| Digital switching outputs | PNP | NPN |
| Response time [ms] | ~ 1 | ~ 1 |
| Repeat accuracy [%] | $\leq \pm 1$ % from measuring range | $\leq \pm 1$ % from measuring range |
| Overpressure safety [bar] | 2 | 2 |
| Supply voltage [VDC] | 10.8 - 30 | 10.8 - 30 |
| Max. Current consumption [mA] | 10 | 10 |
| Vacuum connection | M5 | M5 |
| Protection class | IP40 | IP40 |
| Suitable media | Filtered, oiled or unoled air or neutral gases | Filtered, oiled or unoled air or neutral gases |
| Operating temperature [°C] | 0 - 60 | 0 - 60 |
| Weight [g] | 20 | 20 |

Dimensions



Wiring diagrams





System monitoring | Vacuum switches

Vacuum switch - electronic with analogue and digital output

Vacuum switch - electronic with analogue and digital output



Product Description

- > Monitoring of vacuum levels e.g. in handling systems
- > Intelligent sensor with "teaching" feature
- > Suitable for all vacuum levels due to flexible setting of switching point and hysteresis
- > Small and robust
- > Easy operation
- > Protection class IP65 (no ventilation tube required)
- > Flexible mounting: Control panel can be rotated 360° after installation

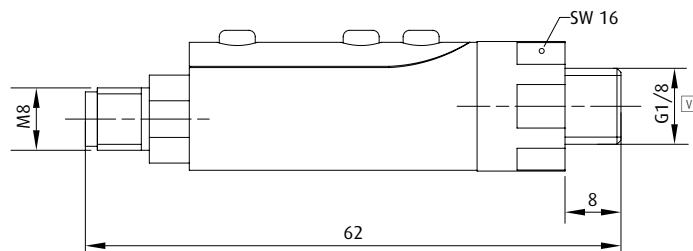
Notes

- > Transient emissions: EN 61000-6-4:2007; EN 61326-2-3:2006
- > Interference resistance: EN 61000-6-2:2005; EN 61326-2-3:2006

Technical data

| | |
|--------------------------------|--|
| Item no. | 20.020 |
| Measuring range [bar] | -1 - 0 |
| Digital switching outputs | 1x PNP (NO or NC) |
| Analogue output [V] | 1 - 5 |
| Repeat accuracy [%] | ± 0.2 % from measuring range |
| Overpressure safety [bar] | 6 |
| Supply voltage [VDC] | 11 - 30 |
| Current consumption [mA] | < 25 |
| Maximum switching current [mA] | 125 |
| Electric connection | Plug M8x1, 4-pin |
| Protection class | IP65 |
| Suitable media | Dry, unoled air and non-abrasive gases |
| Operating temperature [°C] | 0 - 50 |
| Weight [g] | 20 |
| Suitable accessories | Connector cable 20.501 (p.717), Connector cable 20.502 (p.717), Adapter 20.511 (p.698), Adapter 20.523 (p.698), Adapter 20.522 (p.698), Wall clip 20.520 (p.700) |

Dimensions



∇ = Vacuum connection



Vacuum switch - electronic with two digital outputs and display



Product Description

- > Monitoring of vacuum levels, e.g. in handling systems
- > Optimisation of cycle times to improve the economy of vacuum systems
- > Two freely adjustable digital outputs to set lower and upper threshold values
- > Additional analogue output
- > 7-segment LED-display
- > Protection class IP65 (no ventilation tube required)
- > Integrated reverse voltage protection
- > Compact, lightweight and robust design
- > Flexible mounting: 20.021 can be rotated 360° after installation

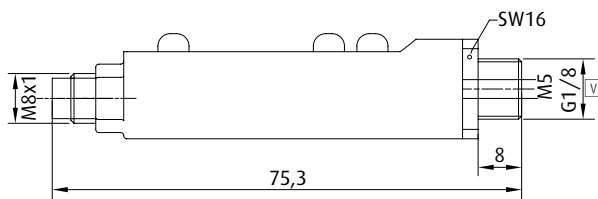
Notes

- > Transient emissions: EN 61000-6-4:2007; EN 61326-2-3:2006
- > Interference resistance: EN 61000-6-2:2005; EN 61326-2-3:2006
- > Vacuum values can be displayed and adjusted by the customer in following units: MPa, bar, inHg, mmHg

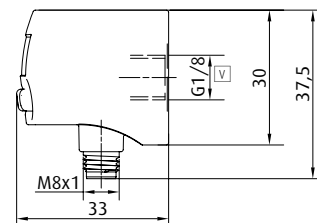
Technical data

| Item no. | 20.021 | 20.022 |
|--------------------------------|--|--|
| Measuring range [bar] | -1 - 0 | -1 - 0 |
| Digital switching outputs | 2x PNP (NO or NC) | 2x PNP (NO or NC) |
| Repeat accuracy [%] | ± 0.2 % from measuring range | ± 0.2 % from measuring range |
| Overpressure safety [bar] | 6 | 6 |
| Supply voltage [VDC] | 11 - 30 | 11 - 30 |
| Current consumption [mA] | < 55 | < 55 |
| Maximum switching current [mA] | 125 | 125 |
| Electric connection | Plug M8x1, 4-pin | Plug M8x1, 4-pin |
| Protection class | IP65 | IP65 |
| Suitable media | Filtered, oiled or unoled air or neutral gases | Filtered, oiled or unoled air or neutral gases |
| Operating temperature [°C] | 0 - 50 | 0 - 50 |
| Weight [g] | 25 | 45 |
| Suitable accessories | Connector cable 20.501, 20.502 (p.717), Adapter 20.522, 20.523, 20.511 (p.698), Wall clip 20.520 (p.700) | Connector cable 20.501, 20.502 (p.717), Mounting bracket 20.514 (p.699), Mounting bracket 20.515 (p.699) |

Dimensions



20.021



20.022

∇ = Vacuum connection



System monitoring | Vacuum switches

Vacuum switch - electronic with two digital outputs and analogue output

Vacuum switch - electronic with two digital outputs and analogue output



Product Description

- > Monitoring of vacuum levels, e.g. in handling systems
- > Optimisation of cycle times to improve the economy of vacuum systems
- > Two freely adjustable digital outputs to set lower and upper threshold values
- > Analogue output for continuous monitoring of vacuum level
- > Stable measurement even with short fluctuations of the supply pressure due to anti-chattering function
- > 7-segment 3 digit LED display
- > Integrated reverse voltage protection
- > Compact and lightweight design

Notes

- > Vacuum values can be displayed and adjusted by the customer in following units: kPa, kgf/cm², bar, psi, inHg, mmHg

Ordering notes

- > Connector cable 0.3 meter with plug (M12 5-pin, straight) included in delivery
- > Connector cable optional
 - 20.508: M12, 5-pin, straight, open wires, 2 m
 - 20.509: M12, 5-pin, 90°, open wires, 2 m

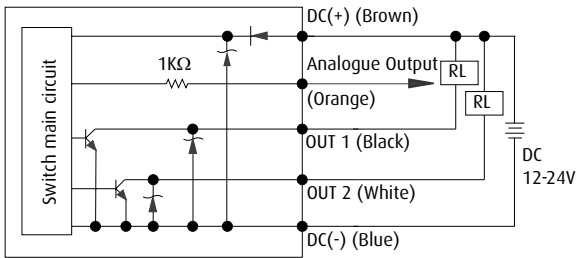
Technical data

| Item no. | 20.035 | 20.036 |
|--------------------------------|--|--|
| Measuring range [bar] | -1 - 0 | -1 - 0 |
| Digital switching outputs | 2 x PNP | 2 x NPN |
| Analogue output [V] | 1 - 5 | 1 - 5 |
| Repeat accuracy [%] | ≤ ± 0.2 % from measuring range | ≤ ± 0.2 % from measuring range |
| Overpressure safety [bar] | 3 | 3 |
| Supply voltage [VDC] | 10.8 - 30 | 10.8 - 30 |
| Current consumption [mA] | ≤ 55 | ≤ 55 |
| Maximum switching current [mA] | 80 | 80 |
| Electric connection | Plug M12x1, 5-pin | Plug M12x1, 5-pin |
| Protection class | IP40 | IP40 |
| Suitable media | Dry, unoled air and non-abrasive gases | Dry, unoled air and non-abrasive gases |
| Operating temperature [°C] | 0 - 50 | 0 - 50 |
| Weight [g] | 35 | 35 |
| Suitable connector cable | 20.508 (p.717) 20.509 (p.717) | 20.508 (p.717) 20.509 (p.717) |

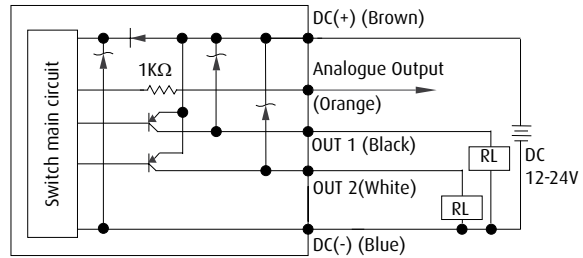


Wiring diagrams

20.035 (NPN)

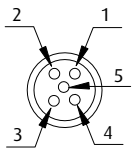


20.036 (PNP)



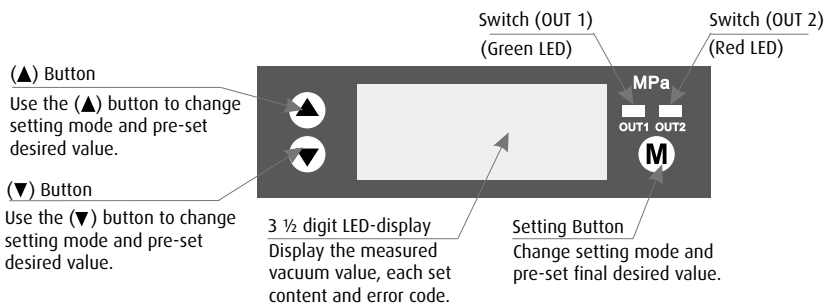
Plug assignment

20.035 and 20.036

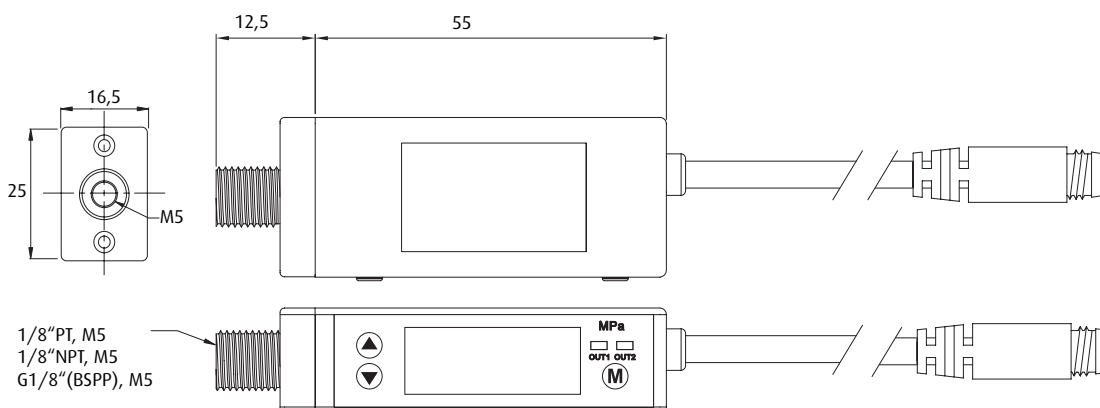


- (1) Brown (+)
- (2) White (OUT 2)
- (3) Blue (-)
- (4) Black (OUT 1)
- (5) Orange (analogue OUT 1-5)

Panel instructions



Dimensions





Vacuum / Pressure switches - electronic with digital output

Compact design



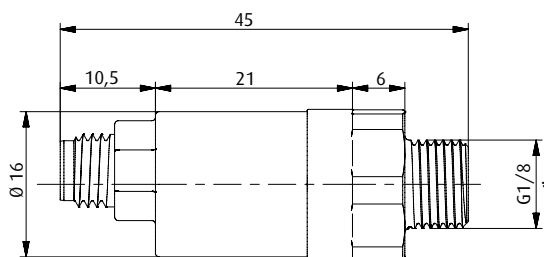
Product Description

- > Digital monitoring of vacuum and pressure in handling and automation systems
- > Small, lightweight and compact
- > Transistor output
- > Simple programming of the switching point, hysteresis and switching logic NC/NO
- > Monitoring of a pressure window is possible
- > Locking feature
- > LED operation and status indication
- > Item 20.027: With fitting pipe \varnothing 6 mm to be inserted into tubing or ejectors (e.g. inline or base ejectors)

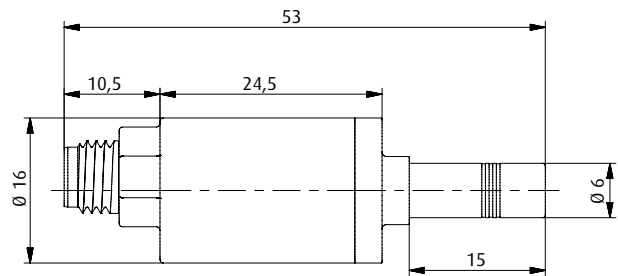
Technical data

| Item no. | 20.026 | 20.027 |
|--------------------------------|--|--|
| Adjustable range [mbar] | -999 - 999 | -999 - 999 |
| Hysteresis | 0 - 100 % | 0 - 100 % |
| Digital switching outputs | PNP Transistor | PNP Transistor |
| Switching logic | NO/NC | NO/NC |
| Repeat accuracy [%] | \pm 0.2 % from measuring range | \pm 0.2 % from measuring range |
| Supply voltage [VDC] | 9 - 30 (reverse polarity, short circuit protected) | 9 - 30 (reverse polarity, short circuit protected) |
| Current consumption [mA] | < 20 | < 20 |
| Maximum switching current [mA] | 250 | 250 |
| Voltage at the output | ca. U_b -1,5 V | ca. U_b -1,5 V |
| EMI / EMC | According to EU-directive 2004 / 108 / EG | According to EU-directive 2004 / 108 / EG |
| Protection class | IP65 | IP65 |
| Suitable media | Dry, unoiled air and non-abrasive gases | Dry, unoiled air and non-abrasive gases |
| Operating temperature [°C] | -10 - 80 | -10 - 80 |
| Electric connection | Plug M8x1, 4-pin | Plug M8x1, 4-pin |
| Suitable accessories | Connector cable 20.501 (p.717) Connector cable 20.502 (p.717) Adapter 20.511 (p.698), Adapter 20.522 (p.698) Adapter 20.523 (p.698) | Connector cable 20.501 (p.717) Connector cable 20.502 (p.717) Adapter 20.511 (p.698), Adapter 20.522 (p.698) Adapter 20.523 (p.698) |

Dimensions



20.026



20.027

* = M5-female



Pressure switches - electronic with two digital switching outputs



Diagram with installation kit 20.515 for control panel installation

Product Description

- > Intelligent sensor for pressure monitoring
- > Adjustable with "teaching" feature
- > Switching point and hysteresis can be programmed as desired
- > Simple operation using button functions and LCD display
- > Small and robust

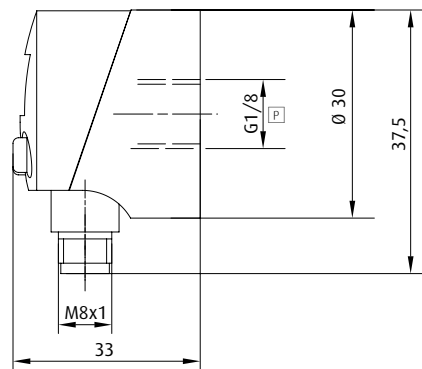
Notes

- > Transient emissions: EN 61000-6-4:2007; EN 61326-2-3:2006
- > Interference resistance: EN 61000-6-2:2005; EN 61326-2-3:2006
- > Vacuum values can be displayed and adjusted by the customer in following units: MPa, bar, psi

Technical data

| | |
|--------------------------------|--|
| Item no. | 20.023 |
| Measuring range [bar] | 0 - 10 |
| Digital switching outputs | 2x PNP (NO/NC) |
| Repeat accuracy [%] | ± 0.2 % from measuring range |
| Overpressure safety [bar] | 0.2 |
| Supply voltage [V] | 11 - 30 |
| Current consumption [mA] | < 55 |
| Maximum switching current [mA] | 125 |
| Electric connection | Plug M8x1, 4-pin |
| Protection class | IP65 |
| Suitable media | Filtered, oiled or unoled air or neutral gases |
| Operating temperature [°C] | 0 - 50 |
| Weight [g] | 40 |
| Suitable accessories | Connector cable 20.501 (p.717), Connector cable 20.502 (p.717), Mounting bracket 20.514 (p.699), Mounting bracket 20.515 (p.699) |

Dimensions



P = Compressed air connection



Vacuum - and pressure gauge

With red-green indication



Vacuum gauge



Pressure gauge

Product Description

- > Visual monitoring of the vacuum and/or pressure level in gripper systems
- > Standardised design for flexible use in vacuum and/or pressure systems

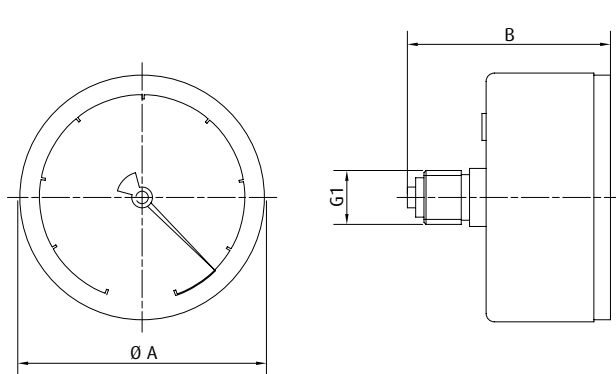
Technical data

| Item no. | Measuring range [bar] | Measuring range [mbar] | Connection | Weight [g] |
|----------|-----------------------|------------------------|---------------|------------|
| 91.001 | -- | 0 - -1,000 | At the rear | 45 |
| 91.001-R | -- | 0 - -1,000 | At the rear | 40 |
| 91.003 | -- | 0 - -1,000 | At the rear | 90 |
| 91.000 | -- | 0 - -1,000 | At the bottom | 47 |
| 91.002 | -- | 0 - -1,000 | At the bottom | 92 |
| 91.004 | -- | 0 - -1,000 | At the bottom | 975 |
| 91.013 | 1 - 10 | -- | At the bottom | 90 |
| 91.014 | 1 - 10 | -- | At the rear | 90 |

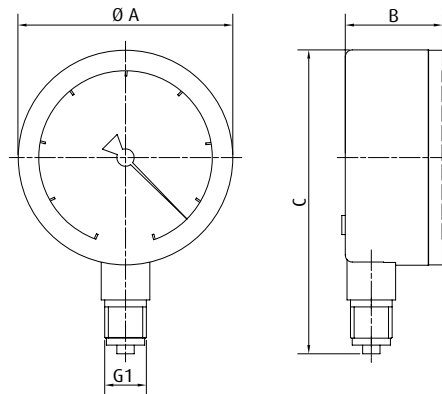
Dimensions

| G1 | Ø A [mm] | B [mm] | C [mm] |
|------|----------|--------|--------|
| G1/8 | 40 | 41 | -- |
| R1/8 | 40 | 41 | -- |
| G1/4 | 63 | 49 | -- |
| G1/8 | 40 | 26.5 | 55.5 |
| G1/4 | 63 | 27.5 | 86 |
| G1/2 | 160 | 50 | 200 |
| G1/4 | 63 | 27.5 | 86 |
| G1/4 | 63 | 27.5 | 86 |

Dimensions



91.001 | 91.001-R | 91.003 | 91.014



91.000 | 91.002 | 91.004 | 91.013



Digital pressure gauge - connection at the bottom



Diagram with installation kit 20.515 for front panel mounting

Product Description

- > Visual monitoring of the vacuum and/or pressure level in gripper systems
- > Calibration feature
- > Very compact
- > LCD display with selectable pressure units
- > Robust aluminium housing

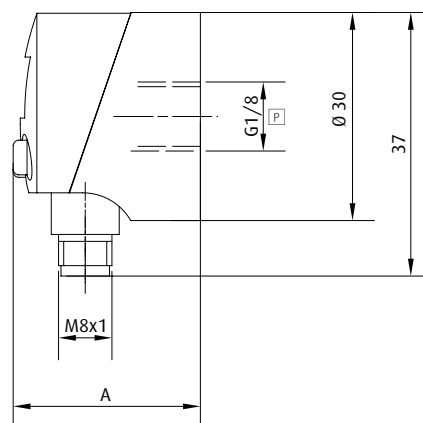
Notes

- > Vacuum values can be displayed and adjusted by the customer in following units: MPa, bar, psi

Technical data

| | |
|-------------------------------------|--|
| Item no. | 91.012 |
| Measuring range [bar] | -1 - 1 |
| Overpressure safety [bar] | 5 |
| Supply voltage [VDC] | 10.8 - 30 (with reverse current protection) |
| Current consumption [mA] | < 30 |
| Response time [ms] | 2.5 |
| Insulation resistance [mOhm] | > 100 (500 VDC) |
| Electric connection | Plug M8x1, 4-pin |
| Mounting position | any |
| EMI / EMC | According to EN 50081-1 / 50082-2 |
| Operating temperature [°C] | -10 - 0 |
| Weight [g] | 45 |
| Suitable accessories | Connector cable 20.501 (p.717), Connector cable 20.502 (p.717), Mounting bracket 20.514 (p.699), Mounting bracket 20.515 (p.699) |

Dimensions



P = Pressure / Vacuum connection



System monitoring | Accessories

Adapter and mounting brackets for vacuum switches and pressure switches

Adapter and mounting brackets for vacuum switches and pressure switches



20.522 | 20.523



20.511

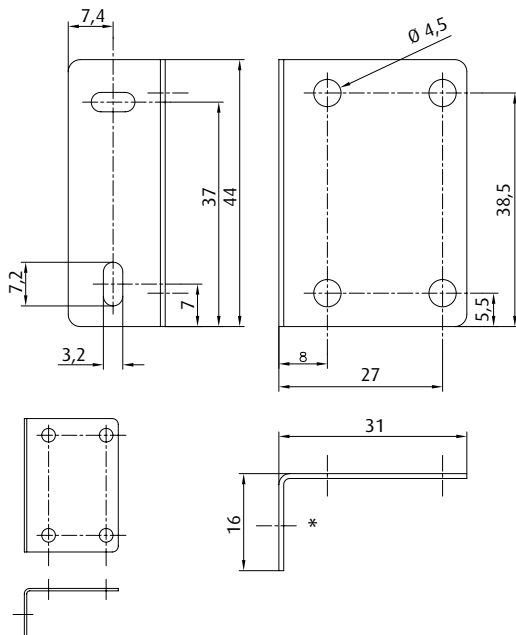
Ordering notes

> Mounting material included in scope of delivery

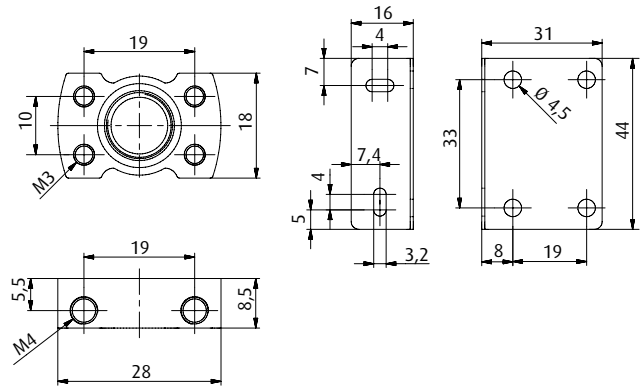
Technical data

| Item no. | Description | Suitable for vacuum / pressure switches |
|----------|--|---|
| 20.511 | Push-In Fitting G1/8, tubing- \varnothing 6 mm with mounting angle | 20.020, 20.021, 20.026, 20.027 |
| 20.522 | Adapter with angle bracket for flange assembly | 20.020, 20.021, 20.026, 20.027 |
| 20.523 | Adapter for flange assembly | 20.020, 20.021, 20.026, 20.027 |

Dimensions



20.511



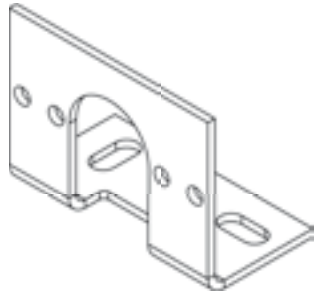
20.522 | 20.523

* = Push-In Fitting G1/8, tubing- \varnothing 6 mm not displayed



Mounting frame and brackets for front panel mounting

NEW



Example application: Gauge 20.023 with installation kit 20.515

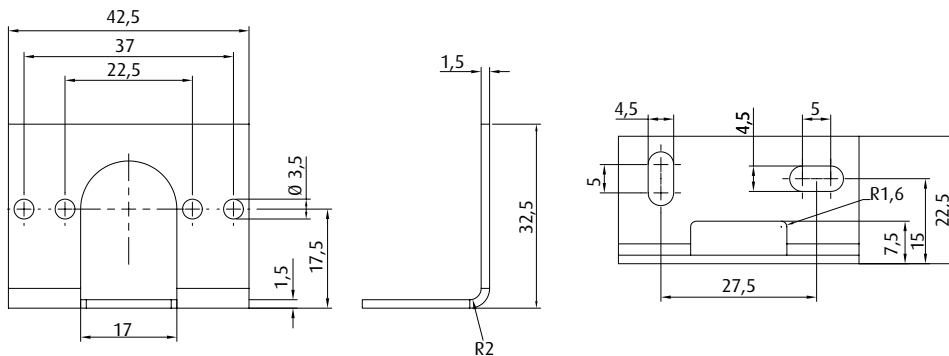
Ordering notes

> Mounting material included in scope of delivery

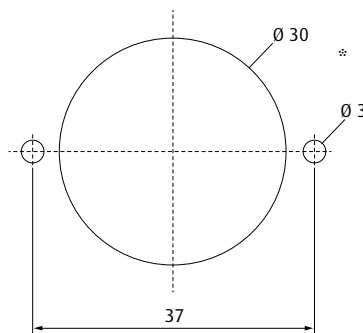
Technical data

| Item no. | Description | Suitable for vacuum / pressure switches |
|----------|-----------------------------|---|
| 20.514 | Bracket | 20.022, 20.023, 91.012 |
| 20.515 | Mounting frame with bracket | 20.022, 20.023, 91.012 |

Dimensions



20.514



20.515

* = Installation frame drilling dimensions



System monitoring | Accessories

Clip 16 mm for wall mounting

Clip 16 mm for wall mounting

Suitable for vacuum switches 20.020 and 20.021

NEW



Notes

> Mounting via through hole \varnothing 5 mm located centric at bottom side

Technical data

| | |
|---------------|---|
| Item no. | Suitable for vacuum / pressure switches |
| 20.520 | 20.020, 20.021 |

| | |
|---|-----|
| Tubing and cables at a glance | 702 |
| Tubing | 704 |
| Cables | 717 |
| Push-in fittings at a glance | 718 |
| Vacuum manifolds and rotary feedthroughs | 720 |
| Push-in fittings and plug-in connectors | 724 |
| Quick couplings with vacuum / pressure lock | 748 |
| Accessories | 750 |



FIPA Tubings and cables



- > Piping of vacuum and compressed air systems
- > Control cables for ejectors and vacuum switches



Flexible vacuum pressure tubing made from polyurethane (PUR)

- > Very small bending radius
- > Standard blue transparent or intransparent

61.090 - 61.096

- > High chemical stability and mechanical resistance
- > Outer diameter toleranced tubing, making them suitable for quick fittings

61.056 - 61.062

- > Available in a wide range of colors
- > Outer diameter toleranced tubing, making them suitable for quick fittings

61.020 - 61.030

- > Suitable for use in trailing chains, corrugated external surface

61.005S - 61.011S

- > Self-extinguishing, flame-resistant according to DIN 4102 B1, corrugated external surface

> See page 704



Vacuum-pressure tubing made from transparent fluoro resin (PFA)

- > Excellent resistance to chemicals, temperature and weather conditions
- > Used predominantly in chemical, foodstuff and medical industries

> See page 706



Vacuum-pressure tubing made from highly flexible PVC, reinforced

- > Very abrasion-resistant
- > Suitable for use as transport tubing thanks to smooth interior walls

61.160 - 61.169

- > Smooth external surface

> See page 707



FIPA Tubings and cables



Highly flexible, soft PVC tubing for pressure applications

- > Suitable for frequently occurring pivoting motions and oscillations
- > Not suitable for vacuum

> See page 710



Spiral tubings made from black polyurethane (PUR) for vacuum and pressure applications

- > Space-saving tubings for mobile vacuum or pressure systems without straining the connections
- > Suitable for pneumatic tools

> See page 711



Accessories:

Tubing nipples with male M and G threads

> See page 713



Reinforcing sleeves, especially for soft tubings

> See page 715



Tubing cutter with measuring tape

> See page 715



Connection cable made from polyurethane (PUR)

- > Connection of vacuum switches, sensors or ejectors
- > Weather and oil resistant

> See page 717



Connectors | Tubing

Flexible vacuum and pressure tubing made from PUR blue transparent

Flexible vacuum and pressure tubing made from PUR blue transparent

SUITABLE FOR INSTALLATION IN DRAG CHAINS



Product Description

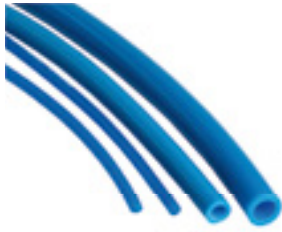
- > High flexibility enables small bending curve to build compact tubing systems
- > Suitable for air and tap water
- > Cut marks at 500 mm intervals facilitate installation
- > High chemical and mechanical resistance
- > Very high oil resistance

Notes

- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.090 | 3 | 2 | 8 | -1 - 8 | 29 | -15 - 60 | 7 | 20 |
| 61.091 | 4 | 2.5 | 10 | -1 - 8 | 29 | -15 - 60 | 9 | 20 |
| 61.092 | 6 | 4 | 15 | -1 - 8 | 29 | -15 - 60 | 19 | 20 |
| 61.093 | 8 | 5 | 15 | -1 - 8 | 29 | -15 - 60 | 36 | 20 |
| 61.094 | 10 | 6.5 | 20 | -1 - 8 | 29 | -15 - 60 | 54 | 20 |
| 61.095 | 12 | 8 | 30 | -1 - 8 | 29 | -15 - 60 | 74 | 20 |
| 61.096 | 12 | 9 | 30 | -1 - 8 | 29 | -15 - 60 | 68 | 20 |



Flexible vacuum and pressure tubing made of blue PUR

SUITABLE FOR INSTALLATION IN DRAG CHAINS

Product Description

- > High flexibility enables small bending curve to build compact tubing systems
- > Suitable for air and tap water
- > Cut marks at 500 mm intervals facilitate installation

Notes

- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

Ordering notes

- > Standard length 20 meters, colour blue
- > Available in various tubing lengths and a wide selection of colours (black, red, orange, ocher, yellow, green, blue, light blue, transparent, pure white)
- > 61.062 The standard colour is black
- > Length of 50 meters generally only available in black

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.056 | 3 | 2 | 8 | -1 - 8 | 29 | -15 - 60 | 7 | 20 / 50 / 100 |
| 61.057 | 4 | 2.5 | 10 | -1 - 8 | 29 | -15 - 60 | 9 | 20 / 50 / 100 |
| 61.058 | 6 | 4 | 15 | -1 - 8 | 29 | -15 - 60 | 19 | 20 / 50 / 100 |
| 61.059 | 8 | 5 | 15 | -1 - 8 | 29 | -15 - 60 | 36 | 20 / 50 / 100 |
| 61.060 | 10 | 6.5 | 20 | -1 - 8 | 29 | -15 - 60 | 54 | 20 / 50 / 100 |
| 61.061 | 12 | 8 | 30 | -1 - 8 | 29 | -15 - 60 | 74 | 20 / 50 / 100 |
| 61.062 | 16 | 11 | 60 | -1 - 8 | 29 | -15 - 60 | 128 | 20 / 50 / 100 |



Connectors | Tubing

Vacuum and pressure tubing made of transparent Fluororesin (PFA)

Vacuum and pressure tubing made of transparent Fluororesin (PFA)



FOR CHEMICAL, FOODSTUFF AND MEDICAL INDUSTRIES

Product Description

- > Excellent resistance to chemicals, temperature and weather conditions
- > Very smooth, transparent inner surface
- > Suitable for air, water and corrosive fluids

Notes

- > 61.069 to 61.073: Suitable for cleanroom applications

Ordering notes

- > Standard packaging unit: 5 meters

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range for air / gas [bar] | Pressure range for liquids [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|------------------------------------|----------------------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.063 | 4 | 2.5 | 20 | -0.99 - 9 | 3 | 49 | -65 - 260 | 18 | 5 / 20 |
| 61.064 | 6 | 4 | 30 | -0.99 - 9 | 3 | 49 | -65 - 260 | 36 | 5 / 20 |
| 61.065 | 8 | 6 | 48 | -0.99 - 9 | 3 | 39 | -65 - 260 | 50 | 5 / 20 |
| 61.066 | 10 | 7.5 | 60 | -0.99 - 9 | 3 | 39 | -65 - 260 | 78 | 5 / 20 |
| 61.067 | 12 | 9 | 72 | -0.99 - 9 | 3 | 59 | -65 - 260 | 112 | 5 / 20 |
| 61.068 | 16 | 13 | 78 | -0.99 - 9 | 3 | 34 | -65 - 260 | 154 | 5 / 20 |
| 61.069 | 4 | 2.5 | 20 | -0.99 - 9 | 3 | 49 | -65 - 260 | 55 | 5 |
| 61.070 | 6 | 4 | 30 | -0.99 - 9 | 3 | 49 | -65 - 260 | 95 | 5 |
| 61.071 | 8 | 6 | 30 | -0.99 - 9 | 3 | 39 | -65 - 260 | 125 | 5 |
| 61.072 | 10 | 7.5 | 60 | -0.99 - 9 | 3 | 39 | -65 - 260 | 190 | 5 |
| 61.073 | 12 | 9 | 72 | -0.99 - 9 | 3 | 39 | -65 - 260 | 270 | 5 |



Vacuum and pressure tubing made of highly flexible transparent PVC, reinforced with wire spiral

Vacuum and pressure tubing made of highly flexible transparent PVC, reinforced with wire spiral



Product Description

- > Vacuum applications up to 95 %
- > Very smooth inner surface for residue-free transport of materials such as granulate
- > Suitable for continuous movement
- > High abrasion-proof

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.160 | 13 | 8 | 32 | -0.9 - 16 | -5 - 65 | 140 | 1 |
| 61.161 | 16 | 10 | 20 | -0.95 - 8 | -5 - 65 | 155 | 1 |
| 61.162 | 18 | 12 | 25 | -0.95 - 8 | -5 - 65 | 180 | 1 |
| 61.163 | 20 | 14 | 30 | -0.95 - 8 | -5 - 65 | 200 | 1 |
| 61.164 | 22 | 16 | 35 | -0.95 - 8 | -5 - 65 | 225 | 1 |
| 61.165 | 24 | 18 | 40 | -0.95 - 7 | -5 - 65 | 280 | 1 |
| 61.166 | 27 | 20 | 50 | -0.95 - 7 | -5 - 65 | 340 | 1 |
| 61.167 | 33 | 25 | 60 | -0.95 - 7 | -5 - 65 | 510 | 1 |
| 61.168 | 42 | 32 | 75 | -0.95 - 7 | -5 - 65 | 730 | 1 |
| 61.169 | 53 | 40 | 100 | -0.95 - 7 | -5 - 65 | 1,220 | 1 |



Connectors | Tubing

Highly flexible vacuum and pressure tubing made of PUR, reinforced with PVC spiral

Highly flexible vacuum and pressure tubing made of PUR, reinforced with PVC spiral



SUITABLE FOR INSTALLATION IN DRAG CHAINS

Product Description

- > Vacuum applications up to 40 % vacuum
- > Very smooth inner surface for residue-free transport of materials such as granulate
- > Resistant to weather conditions and many chemicals
- > Outer surface slightly corrugated
- > Colour transparent

Notes

- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

Ordering notes

- > Other sizes on request

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.020 | 25 | 20 | 20 | -0.4 - 1 | -10 - 70 | 100 | 20 |
| 61.021 | 30 | 25 | 25 | -0.4 - 1 | -10 - 70 | 150 | 20 |
| 61.022 | 36 | 30 | 30 | -0.4 - 1 | -10 - 70 | 190 | 20 |
| 61.023 | 38 | 32 | 32 | -0.3 - 0.5 | -10 - 70 | 200 | 20 |
| 61.024 | 41 | 35 | 35 | -0.3 - 0.5 | -10 - 70 | 230 | 20 |
| 61.025 | 44 | 38 | 38 | -0.3 - 0.5 | -10 - 70 | 230 | 20 |
| 61.026 | 46 | 40 | 40 | -0.3 - 0 | -10 - 70 | 250 | 20 |
| 61.027 | 51 | 45 | 45 | -0.3 - 0 | -10 - 70 | 280 | 20 |
| 61.028 | 57 | 50 | 50 | -0.3 - 0 | -10 - 70 | 310 | 20 |
| 61.029 | 62 | 55 | 55 | -0.3 - 0 | -10 - 70 | 350 | 20 |
| 61.030 | 67 | 60 | 60 | -0.3 - 0 | -10 - 70 | 390 | 20 |
| 61.031 | 70 | 63 | 63 | -0.3 - 0 | -10 - 70 | 410 | 20 |
| 61.033 | 78 | 70 | 70 | -0.3 - 0 | -10 - 70 | 500 | 20 |
| 61.034 | 84 | 76 | 76 | -0.3 - 0 | -10 - 70 | 555 | 20 |
| 61.035 | 89 | 80 | 80 | -0.3 - 0 | -10 - 70 | 610 | 20 |
| 61.036 | 99 | 90 | 90 | -0.3 - 0 | -10 - 70 | 715 | 20 |
| 61.037 | 112 | 102 | 102 | -0.3 - 0 | -10 - 70 | 835 | 20 |
| 61.038 | 120 | 110 | 110 | -0.3 - 10 | -10 - 70 | 890 | 20 |
| 61.039 | 131 | 120 | 120 | -0.3 - 0 | -10 - 70 | 950 | 20 |
| 61.040 | 138 | 127 | 127 | -0.2 - 0 | -10 - 70 | 1,015 | 20 |
| 61.043 | 164 | 152 | 152 | -0.2 - 0 | -10 - 70 | 1,380 | 20 |



PUR highly flexible vacuum pressure tubing, reinforced, self-extinguishing



SUITABLE FOR INSTALLATION IN DRAG CHAINS

Product Description

- > Highly flexible polyurethane for pressure and vacuum application tubing
- > Self-extinguishing, flame resistant according to DIN 4102 B 1
- > Alternative product in case of flying sparks, weld spatter or special fire safety obstructions
- > Reinforced with PVC-coated spring coil
- > Highly abrasion-proof
- > Smooth inner walls, corrugated external surface
- > Colour transparent

Notes

- > Tubing built acc. to TRBS 2153 (zone 1 and 21) suitable for non-combustible dusts / bulk goods and gases / liquids of low conductivity Spiral ends shall be earthed at both sides to ensure good dissipation
- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.005S | 18 | 13 | 13 | -0.5 - 2 | -40 - 90 | 82 | 10 |
| 61.006S | 25 | 20 | 20 | -0.45 - 1.8 | -40 - 90 | 147 | 10 |
| 61.007S | 30 | 25 | 25 | -0.4 - 1.6 | -40 - 90 | 183 | 10 |
| 61.008S | 35 | 30 | 30 | -0.35 - 1.5 | -40 - 90 | 220 | 10 |
| 61.009S | 45 | 40 | 40 | -0.3 - 1.4 | -40 - 90 | 380 | 10 |
| 61.010S | 50 | 45 | 45 | -0.28 - 1.5 | -40 - 90 | 410 | 10 |
| 61.011S | 56 | 50 | 50 | -0.28 - 1.5 | -40 - 90 | 460 | 10 |



Connectors | Tubing

Highly flexible tubing made of soft PVC for light pressure applications

Highly flexible tubing made of soft PVC for light pressure applications



SUITABLE FOR FOODSTUFFS

Product Description

- > Unpressurised and low-pressure applications with concurrent pivoting motions and oscillations
- > High flexibility enables small bending curves for compact tubing systems
- > FDA approval for aqueous foods
- > Extremely resistant to acids and bases
- > Colour transparent

Notes

- > Not suitable for vacuum

Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.211 | 4 | 2 | 5 | 0 - 1 | -5 - 60 | 9 | 20 |
| 61.212 | 6 | 4 | 14 | 0 - 1 | -5 - 60 | 17 | 20 |
| 61.213 | 8 | 6 | 25 | 0 - 0.5 | -5 - 60 | 23 | 20 |
| 61.214 | 10 | 7 | 25 | 0 - 0.5 | -5 - 60 | 36 | 20 |
| 61.215 | 12 | 9 | 35 | 0 - 0.5 | -5 - 60 | 52 | 10 |



Spiral tubing made of black PUR for vacuum and pressure applications



Product Description

- > Space-saving tubing for mobile vacuum or pressure systems without straining the connections
- > Suitable for pneumatic tools

Technical data

| Item no. | Pressure range [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] |
|----------|----------------------|-----------------------------------|------------------------|
| 61.100 | -1 - 7 | 29 | -15 - 60 |
| 61.101 | -1 - 7 | 29 | -15 - 60 |
| 61.102 | -1 - 7 | 29 | -15 - 60 |
| 61.103 | -1 - 7 | 29 | -15 - 60 |
| 61.104 | -1 - 7 | 29 | -15 - 60 |
| 61.105 | -1 - 7 | 29 | -15 - 60 |
| 61.106 | -1 - 7 | 29 | -15 - 60 |
| 61.107 | -1 - 7 | 29 | -15 - 60 |
| 61.108 | -1 - 7 | 29 | -15 - 60 |
| 61.109 | -1 - 7 | 29 | -15 - 60 |
| 61.110 | -1 - 7 | 29 | -15 - 60 |
| 61.135 | -1 - 7 | 29 | -15 - 60 |
| 61.111 | -1 - 7 | 29 | -15 - 60 |
| 61.112 | -1 - 7 | 29 | -15 - 60 |
| 61.113 | -1 - 7 | 29 | -15 - 60 |
| 61.114 | -1 - 7 | 29 | -15 - 60 |
| 61.115 | -1 - 7 | 29 | -15 - 60 |
| 61.116 | -1 - 7 | 29 | -15 - 60 |
| 61.117 | -1 - 7 | 29 | -15 - 60 |
| 61.118 | -1 - 7 | 29 | -15 - 60 |
| 61.119 | -1 - 7 | 29 | -15 - 60 |
| 61.120 | -1 - 7 | 29 | -15 - 60 |
| 61.121 | -1 - 7 | 29 | -15 - 60 |
| 61.122 | -1 - 7 | 29 | -15 - 60 |
| 61.123 | -1 - 7 | 29 | -15 - 60 |

Dimensions

| A [mm] | ø d [mm] | ø D [mm] | L [mm] |
|--------|----------|----------|--------|
| 70 | 3 | 16 | 210 |
| 150 | 3 | 16 | 450 |
| 230 | 3 | 16 | 700 |
| 390 | 3 | 16 | 1,200 |
| 120 | 4 | 24 | 360 |
| 180 | 4 | 24 | 540 |
| 350 | 4 | 24 | 1,100 |
| 480 | 4 | 24 | 1,500 |
| 700 | 4 | 24 | 2,100 |
| 1,040 | 4 | 24 | 3,200 |
| 1,450 | 4 | 24 | 4,400 |
| 90 | 6 | 30 | 270 |
| 160 | 6 | 30 | 500 |
| 230 | 6 | 30 | 700 |
| 430 | 6 | 30 | 1,300 |
| 620 | 6 | 30 | 1,900 |
| 910 | 6 | 30 | 2,800 |
| 1,300 | 6 | 30 | 3,900 |
| 1,850 | 6 | 30 | 5,600 |
| 250 | 8 | 42 | 750 |
| 390 | 8 | 42 | 1,200 |
| 540 | 8 | 42 | 1,700 |
| 770 | 8 | 42 | 2,400 |
| 1,045 | 8 | 42 | 3,200 |
| 1,550 | 8 | 42 | 4,700 |

Continued on the next page →



Tubing nipple with external thread



Ordering notes

> Select the tubing inner diameter about 1 - 2 mm smaller than the tubing nipple

Technical data

| Item no. | For hose inner Ø [mm] | Material |
|----------|-----------------------|---------------------|
| 62.019 | 9 | Nickel-plated brass |
| 62.020 | 6 | Nickel-plated brass |
| 62.021 | 8 | Nickel-plated brass |
| 62.022 | 10 | Nickel-plated brass |
| 62.023 | 6 | Nickel-plated brass |
| 62.024 | 8 | Nickel-plated brass |
| 62.025 | 10 | Nickel-plated brass |
| 62.026 | 12 | Nickel-plated brass |
| 62.027 | 16 | Nickel-plated brass |
| 62.028 | 19 | Nickel-plated brass |
| 62.029 | 25 | Nickel-plated brass |
| 62.030 | 10 | Nickel-plated brass |
| 62.031 | 12 | Nickel-plated brass |
| 62.033 | 16 | Nickel-plated brass |
| 62.034 | 18 | Nickel-plated brass |
| 62.035 | 25 | Nickel-plated brass |
| 62.036 | 32 | Nickel-plated brass |
| 62.037 | 38 | Nickel-plated brass |
| 62.038 | 32 | Brass |
| 62.040 | 50 | Brass |
| 62.041 | 50 | Brass |
| 62.042 | 63 | Brass |
| 62.045 | 6 | Brass |
| 62.046 | 9 | Brass |
| 62.047 | 12 | Brass |
| 62.048 | 16 | Nickel-plated brass |
| 62.060 | 14 | Nickel-plated brass |
| 62.061 | 32 | Brass |
| 62.062 | 4 | Brass |
| 62.063 | 6 | Brass |

Dimensions

| G1 | Ø D [mm] | SW |
|-------------|----------|----|
| G1/8 | 9 | 12 |
| G1/8 | 6 | 12 |
| G1/8 | 8 | 12 |
| G1/8 | 10 | 12 |
| G1/4 | 6 | 14 |
| G1/4 | 8 | 14 |
| G1/4 | 10 | 14 |
| G1/4 | 12 | 14 |
| G3/4 | 16 | 17 |
| G3/4 | 19 | 32 |
| G3/4 | 25 | 32 |
| G1/2 | 10 | 22 |
| G1/2 | 12 | 22 |
| G1/2 | 16 | 22 |
| G1/2 | 18 | 22 |
| G1 | 25 | 37 |
| G1 1/4 | 32 | 50 |
| G1 1/2 | 38 | 55 |
| G1 1/2-male | 32 | 48 |
| G1 1/2-male | 50 | 52 |
| G2-male | 50 | 70 |
| G2 1/2-male | 63 | 80 |
| G3/8-male | 6 | 19 |
| G3/8-male | 9 | 19 |
| G3/8-male | 12 | 19 |
| R3/8-male | 16 | 17 |
| G1/2-male | 14 | 24 |
| G1-male | 32 | 36 |
| M5 | 4 | 7 |
| M5 | 6 | 7 |



Tubing clamps

Material: Steel, galvanised



Product Description

> Corrosion-proof thanks to the use of galvanised steel

Technical data

| Item no. | Adjustment range of diameter [mm] | Weight [g] |
|----------|-----------------------------------|------------|
| 66.010 | 8 - 12 | 6 |
| 66.011 | 12 - 22 | 6 |
| 66.015 | 16 - 27 | 10 |
| 66.017 | 25 - 40 | 15 |
| 66.019 | 30 - 43 | 18 |
| 66.020 | 40 - 60 | 22 |



Reinforcing sleeves
Material: Stainless steel



Product Description

- > We recommend the use of reinforcing for all soft tubing
- > Reinforced sleeves also recommended for water transportation

Technical data

| Item no. | Hose outer \varnothing [mm] | Hose inner \varnothing [mm] |
|----------|-------------------------------|-------------------------------|
| WR 0425 | 4 | 2.5 |
| WR 0640 | 6 | 4 |
| WR 0850 | 8 | 5 |
| WR 0860 | 8 | 6 |
| WR 1065 | 10 | 6.5 |
| WR 1075 | 10 | 7.5 |
| WR 1280 | 12 | 8 |
| WR 1290 | 12 | 9 |
| WR 1613 | 16 | 13 |

Tubing cutter with measuring tape



Technical data

| Item no. | Compatible hose diameter [mm] |
|----------|-------------------------------|
| 61.083 | 3 - 16 |



Connector cable M8, M12, 2-5-pin, Material PUR



Product Description

> Electric connection e. g. of vacuum switches, sensors or ejectors

Technical data

| Item no. | Contact | Plug Design | Cable length [mm] | Suitable for |
|----------|--|-------------|-------------------|---|
| 20.550 | Plug with plastic housing, 2-pin, open cable | Straight | 1,500 | Connection of base ejectors with blow-off boost EBA.08H.2-A |
| 20.503 | Plug M8, 3-pin, open cable | Straight | 2,500 | Connection of sensors and sensor grippers |
| 20.504 | Plug M8, 3-pin, jack M8, 3-pin | 90° elbow | 300 | Connection of sensors and sensor grippers |
| 20.507 | Plug M8, 3-pin, jack M8, 3-pin | 90° elbow | 2,000 | Connection of sensors and sensor grippers |
| 20.570 | Plug M8, 3-pin, jack M8, 3-pin | Straight | 1,500 | Connection of sensors and sensor grippers |
| 20.501 | M8, 4-pin, female, open cable | Straight | 5,000 | Connection of vacuum switches or compact ejectors |
| 20.502 | M8, 4-pin, female, open cable | 90° elbow | 5,000 | Connection of vacuum switches or compact ejectors |
| 20.518 | M12, 4-pin, female, open cable | Straight | 2,000 | Connection of vacuum switches or compact ejectors |
| 20.519 | M12, 4-pin, female, open cable | 90° elbow | 2,000 | Connection of vacuum switches or compact ejectors |
| 20.508 | Plug M12, 5-pin, open cable | 90° elbow | 2,000 | Connection of compact ejectors |
| 20.509 | Plug M12, 5-pin, open cable | 90° elbow | 2,000 | Connection of compact ejectors |



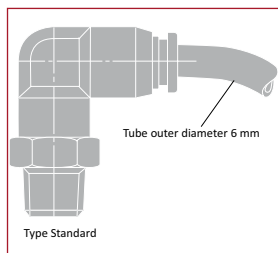
FIPA Push-in fittings



Vacuum manifolds

- > Construction of vacuum systems by means of simple installation of Push-in fittings or quick fittings
- > Inlets on one or both sides
- > Up to six inlets or outlets, male and female threads from M5 to G1 1/4
- > Design: Aluminium or brass

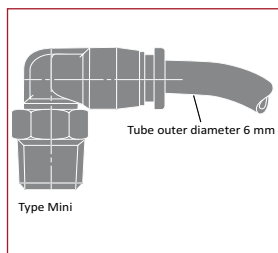
> See page 720



Push-in fittings and plug-in connectors - Standard

- > Suitable for vacuum and pressure applications (-1 to 10 bar)
- > M, G and R male and female threads, straight or 90° version
- > T and Y manifolds, 2-way and 3-way angle swivel screw connections
- > Stackable plug-in connector (QC-3-3M - QC 8-8)
- > Lock connection push-in connectors 30.761 - 20.765 (straight); 30.774 - 30.778 (90°): locking of compressed air or vacuum during hose disassembly, release after reconnection
- > Rotation screw connections for mounting in with fast-running machines

> See page 724



Push-in fittings and plug-in connectors - Mini

- > Suitable for vacuum and pressure applications (-1 to 10 bar)
- > 40 % smaller than standard version
- > M, R and G male and female threads, straight, 45° or 90° version
- > T-manifold
- > Easy assembly and disassembly thanks to elliptical mini-release-ring

> See page 744



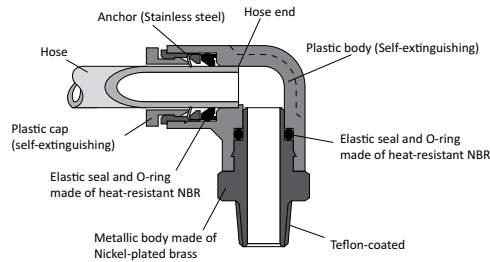
FIPA Push-in fittings



Push-in fittings and plug-in connectors - self-extinguishing

- > These quick-action Push-in fittings with spark protection are specifically designed for use with flying sparks and weld spatter
- > No chance of release ring malfunctions, for example due to the penetration of dirt or scale
- > The Push-in fittings are made from self-extinguishing plastic (UL94 V-0) and brass

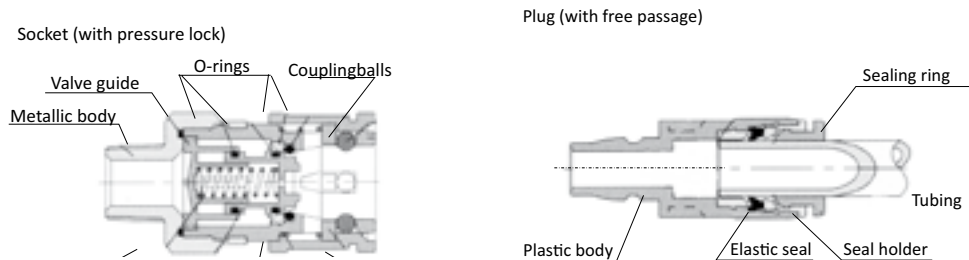
> See page 741



Quick-action couplings with pressure / vacuum lock

- > Locking of compressed air or vacuum during disassembly, release after reconnection
- > Coupling can be operated with one hand

> See page 748



Accessories

- > Double nipples
- > Thread adapters
- > Threaded sockets
- > Screw plugs
- > Sealing rings

> See page 750



Connectors | Vacuum manifolds

Manifolds for simple assembly of vacuum loads

Manifolds for simple assembly of vacuum loads

Outputs on one side, at the front



Product Description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Material: Aluminium

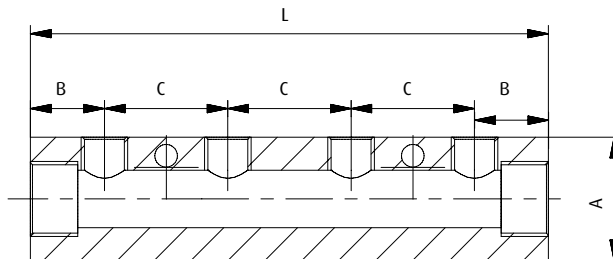
Technical data

| Item no. | Input connection | Output connection | Suitable sealing plugs |
|----------|------------------|-------------------|--------------------------------|
| 79.000 | 2x 1/8 | 2x M5 | 77.000 (p.753), 77.009 (p.753) |
| 79.001 | 2x 1/8 | 4x M5 | 77.000 (p.753), 77.009 (p.753) |
| 79.002 | 2x 1/8 | 6x M5 | 77.000 (p.753), 77.009 (p.753) |
| 79.003 | 2x 1/4 | 2x 1/8 | 77.008 (p.753), 77.009 (p.753) |
| 79.004 | 2x 1/4 | 4x 1/8 | 77.008 (p.753), 77.009 (p.753) |
| 79.005 | 2x 1/4 | 6x 1/8 | 77.008 (p.753), 77.009 (p.753) |
| 79.006 | 2x 3/8 | 2x 1/4 | 77.008 (p.753), 77.010 (p.753) |
| 79.007 | 2x 3/8 | 4x 1/4 | 77.008 (p.753), 77.010 (p.753) |
| 79.008 | 2x 3/8 | 6x 1/4 | 77.008 (p.753), 77.010 (p.753) |
| 79.009 | 2x 3/8 | 2x 1/8 | 77.009 (p.753), 77.010 (p.753) |
| 79.010 | 2x 3/8 | 4x 1/8 | 77.009 (p.753), 77.010 (p.753) |
| 79.011 | 2x 3/8 | 6x 1/8 | 77.009 (p.753), 77.010 (p.753) |
| 79.012 | 2x 1/2 | 2x 1/4 | 77.007 (p.753), 77.008 (p.753) |
| 79.013 | 2x 1/2 | 4x 1/4 | 77.007 (p.753), 77.008 (p.753) |
| 79.014 | 2x 1/2 | 6x 1/4 | 77.008 (p.753), 77.007 (p.753) |

Dimensions

| A [mm] | B [mm] | C [mm] | L [mm] |
|--------|--------|--------|--------|
| 20 | 15 | 15 | 45 |
| 20 | 15 | 15 | 75 |
| 20 | 15 | 15 | 105 |
| 30 | 15 | 30 | 60 |
| 30 | 15 | 30 | 120 |
| 30 | 15 | 30 | 180 |
| 40 | 18 | 36 | 72 |
| 30 | 18 | 36 | 144 |
| 30 | 18 | 36 | 216 |
| 40 | 18 | 30 | 66 |
| 30 | 18 | 30 | 126 |
| 30 | 18 | 30 | 186 |
| 40 | 22 | 36 | 80 |
| 40 | 22 | 36 | 152 |
| 40 | 22 | 36 | 224 |

Dimensions





Manifolds for simple assembly of vacuum loads

Outputs on both sides, at the front and rear



Product Description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Material: Aluminium

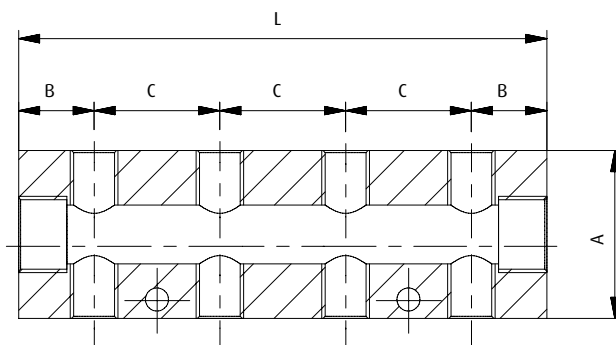
Technical data

| Item no. | Input connection | Output connection | Suitable sealing plugs |
|----------|------------------|-------------------|----------------------------------|
| 79.015 | 2x 1/8 | 2+2 x M5 | 77.000 (p.753) 77.009 (p.753) |
| 79.016 | 2x 1/8 | 4+4 x M5 | 77.000 (p.753) 77.009 (p.753) |
| 79.017 | 2x 1/4 | 2+2 x 1/8 | 77.008 (p.753) 77.009 (p.753) |
| 79.018 | 2x 1/4 | 4+4 x 1/8 | 77.008 (p.753) 77.009 (p.753) |
| 79.019 | 2x 3/8 | 2+2 x 1/4 | 77.008 (p.753) 77.010 (p.753) |
| 79.020 | 2x 3/8 | 4+4 x 1/4 | 77.008 (p.753) 77.010 (p.753) |
| 79.023 | 2x 1/2 | 2+2 x 1/4 | 77.007 (p.753) 77.008 (p.753) |
| 79.024 | 2x 1/2 | 4+4 x 1/4 | 77.007 (p.753) 77.008 (p.753) |

Dimensions

| A [mm] | B [mm] | C [mm] | L [mm] |
|--------|--------|--------|--------|
| 20 | 15 | 15 | 45 |
| 20 | 15 | 15 | 75 |
| 30 | 15 | 30 | 60 |
| 30 | 15 | 30 | 120 |
| 40 | 18 | 36 | 72 |
| 40 | 18 | 36 | 144 |
| 40 | 22 | 36 | 80 |
| 40 | 22 | 36 | 152 |

Dimensions





Distributors

With two or three outputs



Product Description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Suitable for vacuum and compressed air

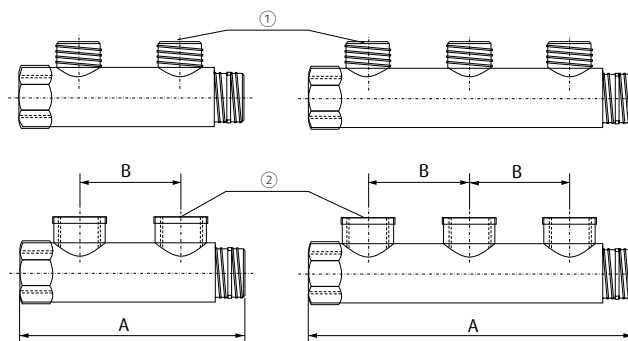
Technical data

| Item no. | Input connection | Output connection | Material | Suitable sealing caps |
|----------|------------------|-------------------|-------------|-----------------------|
| 79.025 | 2x 3/4 | 2x 1/2 male | Brass blank | 79.040, 79.041 |
| 79.026 | 2x 3/4 | 2x 1/2 female | Brass blank | 79.040, 79.041 |
| 79.027 | 2x 1 | 2x 1/2 male | Brass blank | 79.040, 79.042 |
| 79.028 | 2x 1 | 2x 1/2 female | Brass blank | 79.040, 79.042 |
| 79.029 | 2x 1 1/4 | 2x 1/2 male | Brass blank | 79.040, 79.043 |
| 79.030 | 2x 1 1/4 | 2x 1/2 female | Brass blank | 79.040, 79.043 |
| 79.031 | 2x 3/4 | 3x 1/2 male | Brass blank | 79.040, 79.041 |
| 79.032 | 2x 3/4 | 3x 1/2 female | Brass blank | 79.040, 79.041 |
| 79.033 | 2x 1 | 3x 1/2 male | Brass blank | 79.040, 79.042 |
| 79.034 | 2x 1 | 3x 1/2 female | Brass blank | 79.040, 79.042 |
| 79.035 | 2x 1 1/4 | 3x 1/2 male | Brass blank | 79.040, 79.043 |
| 79.036 | 2x 1 1/4 | 3x 1/2 female | Brass blank | 79.040, 79.043 |

Dimensions

| A [mm] | B [mm] |
|--------|--------|
| 114 | 50 |
| 114 | 50 |
| 114 | 50 |
| 114 | 50 |
| 137 | 60 |
| 137 | 60 |
| 164 | 50 |
| 164 | 50 |
| 164 | 50 |
| 164 | 50 |
| 197 | 60 |
| 197 | 60 |

Dimensions



① = Connection output (male thread) ② = Connection output (female thread)



Rotary feedthroughs for vacuum

Rotary feedthroughs for revolving machine parts



Product Description

- > Vacuum inlet for revolving machine parts
- > Suitable for fast moving machinery or gripping systems

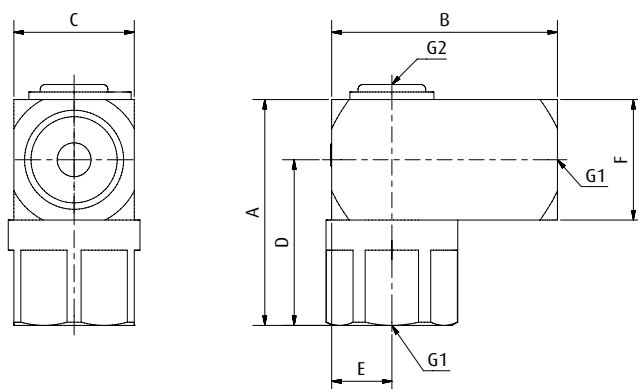
Notes

- > Only suitable for vacuum, not for compressed air
- > Construction: Housing of brass, nickel-plated, NBR seals, guide pins, flange screws and retaining ring: Steel galvanised

Technical data

| Item no. | Nominal width [mm] | Flow rate solenoid valve [Nl/min] | U max. [1/min] | Operating temperature [°C] | Weight [g] |
|----------|--------------------|-----------------------------------|----------------|----------------------------|------------|
| 30.816 | 5 | 425 | 500 | -10 - 85 | 69 |
| 30.817 | 5 | 465 | 550 | -10 - 85 | 58 |
| 30.818 | 8 | 1,350 | 300 | -10 - 85 | 150 |
| 30.819 | 11 | 3,200 | 200 | -10 - 85 | 549 |

Dimensions



| Item no. | G1 | G2 | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|----------|------|------|--------|--------|--------|--------|--------|--------|
| 30.816 | G1/8 | -- | 32 | 30 | 16 | 22 | 8 | 16 |
| 30.817 | G1/4 | -- | 32 | 30 | 16 | 22 | 8 | 16 |
| 30.818 | G3/8 | G1/8 | 39 | 40 | 25 | 26 | 12.5 | 20 |
| 30.819 | G1/2 | G3/8 | 55 | 65 | 40 | 35 | 20 | 30 |

Straight male stud connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.000 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.001 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.002 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.003 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.004 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.005 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.006 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.007 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.008 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.009 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.010 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.011 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.012 | -0.95 - 15 | 0 - 60 | 10 | R1/8 |
| 30.013 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.014 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.015 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.016 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.017 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.018 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |
| 30.019 | -0.95 - 15 | 0 - 60 | 16 | R3/8 |
| 30.020 | -0.95 - 15 | 0 - 60 | 16 | R1/2 |
| 30.002-G | -0.95 - 15 | -20 - 80 | 4 | G1/8 |
| 30.003-G | -0.95 - 15 | -20 - 80 | 4 | G1/4 |
| 30.006-G | -0.95 - 15 | -20 - 80 | 6 | G1/8 |
| 30.007-G | -0.95 - 15 | -20 - 80 | 6 | G1/4 |
| 30.008-G | -0.95 - 15 | -20 - 80 | 6 | G3/8 |
| 30.011-G | -0.95 - 15 | -20 - 80 | 8 | G3/8 |
| 30.012-G | -0.95 - 15 | -20 - 80 | 10 | G1/8 |
| 30.014-G | -0.95 - 15 | -20 - 80 | 10 | G3/8 |
| 30.015-G | -0.95 - 15 | -20 - 80 | 10 | G1/2 |
| 30.016-G | -0.95 - 15 | -20 - 80 | 12 | G1/4 |
| 30.017-G | -0.95 - 15 | -20 - 80 | 12 | G3/8 |
| 30.018-G | -0.95 - 15 | -20 - 80 | 12 | G1/2 |
| 30.019-G | -0.95 - 15 | -20 - 80 | 16 | G3/8 |
| 30.020-G | -0.95 - 15 | -20 - 80 | 16 | G1/2 |
| 30.021-G | -0.95 - 15 | -20 - 80 | 28 | G1 |



Mini male stud connectors, round, hex key



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.200 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.201 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.202 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.203 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.204 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.205 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.206 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.207 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.208 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.209 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.210 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.211 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.212 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.213 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.214 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |

Straight push-in fittings with cutoff valve

Locking of compressed air or vacuum during disassembly, release after reconnection



| Technical data | | | | Dimensions | |
|----------------|---|----------------------|----------------------------|------------|------|
| Item no. | Effective passage area [mm ²] | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.761 | 1.6 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.762 | 2 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.763 | 2.3 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.764 | 7.3 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.765 | 7.3 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |

Female stud connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.050 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.051 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.052 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.053 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.054 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.055 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.056 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.057 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.058 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.059 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.060 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.062 | -0.95 - 15 | 0 - 60 | 10 | G1/2 |
| 30.063 | -0.95 - 15 | 0 - 60 | 12 | G1/2 |
| 30.056-G | -0.95 - 15 | -20 - 80 | 8 | G3/8 |
| 30.057-G | -0.95 - 15 | -20 - 80 | 10 | G1/4 |
| 30.058-G | -0.95 - 15 | -20 - 80 | 10 | G3/8 |
| 30.059-G | -0.95 - 15 | -20 - 80 | 12 | G1/4 |
| 30.060-G | -0.95 - 15 | -20 - 80 | 12 | G3/8 |

Straight tube connector - equal



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|--|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | |
| 30.223 | -0.95 - 15 | 0 - 60 | 4 | |
| 30.224 | -0.95 - 15 | 0 - 60 | 6 | |
| 30.225 | -0.95 - 15 | 0 - 60 | 8 | |
| 30.226 | -0.95 - 15 | 0 - 60 | 10 | |
| 30.227 | -0.95 - 15 | 0 - 60 | 12 | |
| 30.228 | -0.95 - 15 | 0 - 60 | 16 | |



Straight tube reducer



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.075 | -0.95 - 15 | 0 - 60 |
| 30.076 | -0.95 - 15 | 0 - 60 |
| 30.077 | -0.95 - 15 | 0 - 60 |
| 30.078 | -0.95 - 15 | 0 - 60 |
| 30.080 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D1 [mm] | Ø D2 [mm] |
|-----------|-----------|
| 6 | 4 |
| 8 | 6 |
| 10 | 8 |
| 12 | 10 |
| 16 | 12 |

Male stud connector with ball bearing

Ball bearing enables applications with fast rotation or pivoting



Technical data

| Item no. | Max. revolutions [1/min.] | Pressure range [bar] | Operating temperature [°C] |
|----------|---------------------------|----------------------|----------------------------|
| 30.800 | 500 | -0.95 - 15 | 0 - 60 |
| 30.801 | 500 | -0.95 - 15 | 0 - 60 |
| 30.802 | 500 | -0.95 - 15 | 0 - 60 |
| 30.803 | 500 | -0.95 - 15 | 0 - 60 |
| 30.804 | 500 | -0.95 - 15 | 0 - 60 |
| 30.805 | 500 | -0.95 - 15 | 0 - 60 |
| 30.806 | 400 | -0.95 - 15 | 0 - 60 |
| 30.807 | 400 | -0.95 - 15 | 0 - 60 |
| 30.808 | 400 | -0.95 - 15 | 0 - 60 |
| 30.809 | 300 | -0.95 - 15 | 0 - 60 |
| 30.810 | 300 | -0.95 - 15 | 0 - 60 |
| 30.811 | 300 | -0.95 - 15 | 0 - 60 |
| 30.812 | 300 | -0.95 - 15 | 0 - 60 |
| 30.813 | 250 | -0.95 - 15 | 0 - 60 |
| 30.814 | 250 | -0.95 - 15 | 0 - 60 |
| 30.815 | 250 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | M5 |
| 4 | M6 |
| 4 | R1/8 |
| 6 | M6 |
| 6 | R1/8 |
| 6 | R1/4 |
| 8 | R1/8 |
| 8 | R1/4 |
| 8 | R3/8 |
| 10 | R1/8 |
| 10 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R1/4 |
| 12 | R3/8 |
| 12 | R1/2 |

Push-in stud connectors for high speed rotation

Locking of compressed air or vacuum during disassembly, release after reconnection



| Technical data | | | | Dimensions | |
|----------------|---------------------------|----------------------|----------------------------|----------------------|------|
| Item no. | Max. revolutions [1/min.] | Pressure range [bar] | Operating temperature [°C] | $\varnothing D$ [mm] | G |
| 30.846 | 1,500 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.847 | 1,500 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.848 | 1,500 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.849 | 1,200 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.850 | 1,200 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.851 | 1,200 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.852 | 1,200 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.853 | 900 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.854 | 900 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.855 | 900 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.856 | 900 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |



90° elbow male connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|----------------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | $\varnothing D$ [mm] | G |
| 30.100 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.101 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.102 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.103 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.104 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.105 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.106 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.107 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.108 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.109 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.110 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.111 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.112 | -0.95 - 15 | 0 - 60 | 10 | R1/8 |
| 30.113 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.114 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.115 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.116 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.117 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.118 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |
| 30.119 | -0.95 - 15 | 0 - 60 | 16 | R3/8 |
| 30.120 | -0.95 - 15 | 0 - 60 | 16 | R1/2 |
| 30.102-G | -0.95 - 15 | -20 - 80 | 4 | G1/8 |
| 30.103-G | -0.95 - 15 | -20 - 80 | 4 | G1/4 |
| 30.106-G | -0.95 - 15 | -20 - 80 | 6 | G1/8 |
| 30.107-G | -0.95 - 15 | -20 - 80 | 6 | G1/4 |
| 30.108-G | -0.95 - 15 | -20 - 80 | 6 | G3/8 |
| 30.109-G | -0.95 - 15 | -20 - 80 | 8 | G1/8 |
| 30.110-G | -0.95 - 15 | -20 - 80 | 8 | G1/8 |
| 30.111-G | -0.95 - 15 | -20 - 80 | 8 | G3/8 |
| 30.112-G | -0.95 - 15 | -20 - 80 | 10 | G1/8 |
| 30.113-G | -0.95 - 15 | -20 - 80 | 10 | G1/4 |
| 30.114-G | -0.95 - 15 | -20 - 80 | 10 | G3/8 |
| 30.115-G | -0.95 - 15 | -20 - 80 | 10 | G1/2 |
| 30.116-G | -0.95 - 15 | -20 - 80 | 12 | G1/4 |
| 30.117-G | -0.95 - 15 | -20 - 80 | 12 | G3/8 |
| 30.118-G | -0.95 - 15 | -20 - 80 | 12 | G1/2 |
| 30.119-G | -0.95 - 15 | -20 - 80 | 16 | G3/8 |
| 30.120-G | -0.95 - 15 | -20 - 80 | 16 | G1/2 |

90° extended elbow male connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.279 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.280 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.281 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.282 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.283 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.284 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.285 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.286 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.287 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.288 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.289 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.290 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.291 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.292 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |



90° elbow female connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.170 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.171 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.172 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.173 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.174 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.175 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.176 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.177 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.178 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.179 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.180 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.181 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.182 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.183 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.184 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.172-G | -0.95 - 15 | -20 - 80 | 4 | G1/8 |
| 30.173-G | -0.95 - 15 | -20 - 80 | 4 | G1/4 |
| 30.176-G | -0.95 - 15 | -20 - 80 | 6 | G1/8 |
| 30.178-G | -0.95 - 15 | -20 - 80 | 6 | G3/8 |
| 30.179-G | -0.95 - 15 | -20 - 80 | 8 | G1/8 |
| 30.180-G | -0.95 - 15 | -20 - 80 | 8 | G1/4 |
| 30.181-G | -0.95 - 15 | -20 - 80 | 8 | G3/8 |
| 30.182-G | -0.95 - 15 | -20 - 80 | 10 | G1/4 |
| 30.183-G | -0.95 - 15 | -20 - 80 | 10 | G3/8 |

90° male elbow with cutoff valve

Locking of compressed air or vacuum during disassembly, release after reconnection



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.774 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.775 | -0.95 - 15 | 0 - 60 | 4 | G1/8 |
| 30.776 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.777 | -0.95 - 15 | 0 - 60 | 6 | G1/8 |
| 30.778 | -0.95 - 15 | 0 - 60 | 6 | G1/4 |

90° elbow connectors - equal



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|--|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | |
| 30.270 | -0.95 - 15 | 0 - 60 | 4 | |
| 30.271 | -0.95 - 15 | 0 - 60 | 6 | |
| 30.272 | -0.95 - 15 | 0 - 60 | 8 | |
| 30.273 | -0.95 - 15 | 0 - 60 | 10 | |
| 30.274 | -0.95 - 15 | 0 - 60 | 12 | |
| 30.275 | -0.95 - 15 | 0 - 60 | 16 | |



90° male elbow with ball bearing

Ball bearing enables applications with fast rotation or pivoting



Technical data

| Item no. | Max. revolutions [1/min.] | Pressure range [bar] | Operating temperature [°C] |
|----------|---------------------------|----------------------|----------------------------|
| 30.823 | 500 | -0.95 - 15 | 0 - 60 |
| 30.824 | 500 | -0.95 - 15 | 0 - 60 |
| 30.825 | 500 | -0.95 - 15 | 0 - 60 |
| 30.826 | 500 | -0.95 - 15 | 0 - 60 |
| 30.827 | 500 | -0.95 - 15 | 0 - 60 |
| 30.828 | 500 | -0.95 - 15 | 0 - 60 |
| 30.829 | 400 | -0.95 - 15 | 0 - 60 |
| 30.830 | 400 | -0.95 - 15 | 0 - 60 |
| 30.831 | 400 | -0.95 - 15 | 0 - 60 |
| 30.832 | 300 | -0.95 - 15 | 0 - 60 |
| 30.833 | 300 | -0.95 - 15 | 0 - 60 |
| 30.834 | 300 | -0.95 - 15 | 0 - 60 |
| 30.835 | 300 | -0.95 - 15 | 0 - 60 |
| 30.836 | 250 | -0.95 - 15 | 0 - 60 |
| 30.837 | 250 | -0.95 - 15 | 0 - 60 |
| 30.838 | 250 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | M5 |
| 4 | M6 |
| 4 | R1/8 |
| 6 | M6 |
| 6 | R1/8 |
| 6 | R1/4 |
| 8 | R1/8 |
| 8 | R1/4 |
| 8 | R3/8 |
| 10 | R1/8 |
| 10 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R1/4 |
| 12 | R3/8 |
| 12 | R1/2 |

90° Male elbow for high speed rotation



Technical data

| Item no. | Max. revolutions [1/min.] | Pressure range [bar] | Operating temperature [°C] |
|----------|---------------------------|----------------------|----------------------------|
| 30.863 | 1,500 | -0.95 - 15 | 0 - 60 |
| 30.864 | 1,500 | -0.95 - 15 | 0 - 60 |
| 30.865 | 1,500 | -0.95 - 15 | 0 - 60 |
| 30.866 | 1,200 | -0.95 - 15 | 0 - 60 |
| 30.867 | 1,200 | -0.95 - 15 | 0 - 60 |
| 30.868 | 1,200 | -0.95 - 15 | 0 - 60 |
| 30.869 | 1,200 | -0.95 - 15 | 0 - 60 |
| 30.870 | 900 | -0.95 - 15 | 0 - 60 |
| 30.871 | 900 | -0.95 - 15 | 0 - 60 |
| 30.872 | 900 | -0.95 - 15 | 0 - 60 |
| 30.873 | 900 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | M5 |
| 4 | M6 |
| 4 | R1/8 |
| 6 | R1/8 |
| 6 | R1/4 |
| 8 | R1/8 |
| 8 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R3/8 |
| 12 | R1/2 |

Male banjo connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.300 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.301 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.302 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.303 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.304 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.305 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.306 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.307 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.308 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.309 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.310 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.311 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.312 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |
| 30.313 | -0.95 - 15 | 0 - 60 | 16 | R3/8 |



Male branch tee connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.332 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.333 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.334 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.335 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.336 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.337 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.338 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.339 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.340 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.341 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.342 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.343 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.344 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.345 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.346 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.347 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.348 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.349 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |
| 30.350 | -0.95 - 15 | 0 - 60 | 16 | R3/8 |
| 30.351 | -0.95 - 15 | 0 - 60 | 16 | R1/2 |

Equal tube tee connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|--|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | |
| 30.390 | -0.95 - 15 | 0 - 60 | 4 | |
| 30.391 | -0.95 - 15 | 0 - 60 | 6 | |
| 30.392 | -0.95 - 15 | 0 - 60 | 8 | |
| 30.393 | -0.95 - 15 | 0 - 60 | 10 | |
| 30.394 | -0.95 - 15 | 0 - 60 | 12 | |
| 30.395 | -0.95 - 15 | 0 - 60 | 16 | |

Unequal tube tee connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm] | Ø D2 [mm] |
| 30.399 | -0.95 - 15 | 0 - 60 | 6 | 4 |
| 30.400 | -0.95 - 15 | 0 - 60 | 8 | 6 |
| 30.401 | -0.95 - 15 | 0 - 60 | 10 | 8 |
| 30.402 | -0.95 - 15 | 0 - 60 | 12 | 10 |

Equal Y connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|--|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | |
| 30.431 | -0.95 - 15 | 0 - 60 | 4 | |
| 30.432 | -0.95 - 15 | 0 - 60 | 6 | |
| 30.433 | -0.95 - 15 | 0 - 60 | 8 | |
| 30.434 | -0.95 - 15 | 0 - 60 | 10 | |
| 30.435 | -0.95 - 15 | 0 - 60 | 12 | |
| 30.436 | -0.95 - 15 | 0 - 60 | 16 | |

Unequal Y connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm] | Ø D2 [mm] |
| 30.440 | -0.95 - 15 | 0 - 60 | 6 | 4 |
| 30.441 | -0.95 - 15 | 0 - 60 | 8 | 6 |
| 30.442 | -0.95 - 15 | 0 - 60 | 10 | 8 |
| 30.443 | -0.95 - 15 | 0 - 60 | 12 | 10 |



Male Y connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.403 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.404 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.405 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.406 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.407 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.408 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.409 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.410 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.411 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.412 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.413 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.414 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.415 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.416 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.417 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.418 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.419 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |
| 30.420 | -0.95 - 15 | 0 - 60 | 16 | R3/8 |
| 30.421 | -0.95 - 15 | 0 - 60 | 16 | R1/2 |

Elbow Y male connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.518 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.519 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.520 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.521 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.522 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.523 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.524 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.525 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.526 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.527 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.528 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.529 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.530 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.531 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.532 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.533 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.534 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.535 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |

Push-in connectors QC

Available as an option: Connecting strap for parallel circuit = QB-H, for series circuit = QB-T



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm] | Ø D2 [mm] |
| QC3-3M | -0.95 - 15 | 0 - 60 | 3 | 3 |
| QC3-4M | -0.95 - 15 | 0 - 60 | 3 | 4 |
| QC3-6M | -0.95 - 15 | 0 - 60 | 3 | 6 |
| QC4-3M | -0.95 - 15 | 0 - 60 | 4 | 3 |
| QC4-4M | -0.95 - 15 | 0 - 60 | 4 | 4 |
| QC4-6M | -0.95 - 15 | 0 - 60 | 4 | 6 |
| QC6-3M | -0.95 - 15 | 0 - 60 | 6 | 3 |
| QC6-4M | -0.95 - 15 | 0 - 60 | 6 | 4 |
| QC6-6M | -0.95 - 15 | 0 - 60 | 6 | 6 |
| QC6-6 | -0.95 - 15 | 0 - 60 | 6 | 6 |
| QC6-8 | -0.95 - 15 | 0 - 60 | 6 | 8 |
| QC8-6 | -0.95 - 15 | 0 - 60 | 8 | 6 |
| QC8-8 | -0.95 - 15 | 0 - 60 | 8 | 8 |



Two stack banjo



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.599 | -0.95 - 15 | 0 - 60 |
| 30.600 | -0.95 - 15 | 0 - 60 |
| 30.601 | -0.95 - 15 | 0 - 60 |
| 30.602 | -0.95 - 15 | 0 - 60 |
| 30.603 | -0.95 - 15 | 0 - 60 |
| 30.604 | -0.95 - 15 | 0 - 60 |
| 30.605 | -0.95 - 15 | 0 - 60 |
| 30.606 | -0.95 - 15 | 0 - 60 |
| 30.607 | -0.95 - 15 | 0 - 60 |
| 30.608 | -0.95 - 15 | 0 - 60 |
| 30.609 | -0.95 - 15 | 0 - 60 |
| 30.610 | -0.95 - 15 | 0 - 60 |
| 30.611 | -0.95 - 15 | 0 - 60 |
| 30.612 | -0.95 - 15 | 0 - 60 |
| 30.613 | -0.95 - 15 | 0 - 60 |
| 30.614 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | R1/8 |
| 4 | R1/4 |
| 4 | R3/8 |
| 6 | R1/8 |
| 6 | R1/4 |
| 6 | R3/8 |
| 8 | R1/8 |
| 8 | R1/4 |
| 8 | R3/8 |
| 8 | R1/2 |
| 10 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R1/4 |
| 12 | R3/8 |
| 12 | R1/2 |

Two stack, twin banjo



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.649 | -0.95 - 15 | 0 - 60 |
| 30.650 | -0.95 - 15 | 0 - 60 |
| 30.651 | -0.95 - 15 | 0 - 60 |
| 30.652 | -0.95 - 15 | 0 - 60 |
| 30.653 | -0.95 - 15 | 0 - 60 |
| 30.654 | -0.95 - 15 | 0 - 60 |
| 30.655 | -0.95 - 15 | 0 - 60 |
| 30.656 | -0.95 - 15 | 0 - 60 |
| 30.657 | -0.95 - 15 | 0 - 60 |
| 30.658 | -0.95 - 15 | 0 - 60 |
| 30.659 | -0.95 - 15 | 0 - 60 |
| 30.660 | -0.95 - 15 | 0 - 60 |
| 30.661 | -0.95 - 15 | 0 - 60 |
| 30.662 | -0.95 - 15 | 0 - 60 |
| 30.663 | -0.95 - 15 | 0 - 60 |
| 30.664 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | R1/8 |
| 4 | R1/4 |
| 4 | R3/8 |
| 6 | R1/8 |
| 6 | R1/4 |
| 6 | R3/8 |
| 8 | R1/8 |
| 8 | R1/4 |
| 8 | R3/8 |
| 8 | R1/2 |
| 10 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R1/4 |
| 12 | R3/8 |
| 12 | R1/2 |

3-way male elbow connector



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.490 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.491 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.492 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.493 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.494 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.495 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.496 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.497 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.498 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.499 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.500 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.501 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.502 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.503 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.504 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.505 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.506 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.507 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |

Three stack, twin banjo



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.674 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.675 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 30.676 | -0.95 - 15 | 0 - 60 | 4 | R3/8 |
| 30.677 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 30.678 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 30.679 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 30.680 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 30.681 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 30.682 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 30.683 | -0.95 - 15 | 0 - 60 | 8 | R1/2 |
| 30.684 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 30.685 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 30.686 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 30.687 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 30.688 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 30.689 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |



Self-extinguishing male stud connector



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 32.000 | -0.95 - 15 | 0 - 60 |
| 32.001 | -0.95 - 15 | 0 - 60 |
| 32.002 | -0.95 - 15 | 0 - 60 |
| 32.003 | -0.95 - 15 | 0 - 60 |
| 32.004 | -0.95 - 15 | 0 - 60 |
| 32.005 | -0.95 - 15 | 0 - 60 |
| 32.006 | -0.95 - 15 | 0 - 60 |
| 32.007 | -0.95 - 15 | 0 - 60 |
| 32.008 | -0.95 - 15 | 0 - 60 |
| 32.009 | -0.95 - 15 | 0 - 60 |
| 32.010 | -0.95 - 15 | 0 - 60 |
| 32.011 | -0.95 - 15 | 0 - 60 |
| 32.012 | -0.95 - 15 | 0 - 60 |
| 32.013 | -0.95 - 15 | 0 - 60 |
| 32.014 | -0.95 - 15 | 0 - 60 |
| 32.015 | -0.95 - 15 | 0 - 60 |
| 32.016 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] | G |
|----------|------|
| 4 | M5 |
| 4 | M6 |
| 4 | R1/8 |
| 4 | R1/4 |
| 6 | R1/8 |
| 6 | R1/4 |
| 6 | R3/8 |
| 8 | R1/8 |
| 8 | R1/4 |
| 8 | R3/8 |
| 10 | R1/8 |
| 10 | R1/4 |
| 10 | R3/8 |
| 10 | R1/2 |
| 12 | R1/4 |
| 12 | R3/8 |
| 12 | R1/2 |

Self-extinguishing equal tube connector



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 32.055 | -0.95 - 15 | 0 - 60 |
| 32.056 | -0.95 - 15 | 0 - 60 |
| 32.057 | -0.95 - 15 | 0 - 60 |
| 32.058 | -0.95 - 15 | 0 - 60 |
| 32.059 | -0.95 - 15 | 0 - 60 |

Dimensions

| Ø D [mm] |
|----------|
| 4 |
| 6 |
| 8 |
| 10 |
| 12 |



90° male elbow connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 32.033 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 32.034 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 32.035 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 32.036 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 32.037 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 32.038 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 32.039 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 32.040 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 32.041 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 32.042 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 32.043 | -0.95 - 15 | 0 - 60 | 10 | R1/8 |
| 32.044 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 32.045 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 32.046 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 32.047 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 32.048 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 32.049 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |

90° male elbow connectors - equal



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|--|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | |
| 32.050 | -0.95 - 15 | 0 - 60 | 4 | |
| 32.051 | -0.95 - 15 | 0 - 60 | 6 | |
| 32.052 | -0.95 - 15 | 0 - 60 | 8 | |
| 32.053 | -0.95 - 15 | 0 - 60 | 10 | |
| 32.054 | -0.95 - 15 | 0 - 60 | 12 | |



Male branch tee connectors, self-extinguishing



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 32.017 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 32.018 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 32.019 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 32.020 | -0.95 - 15 | 0 - 60 | 4 | R1/4 |
| 32.021 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |
| 32.022 | -0.95 - 15 | 0 - 60 | 6 | R1/4 |
| 32.023 | -0.95 - 15 | 0 - 60 | 6 | R3/8 |
| 32.024 | -0.95 - 15 | 0 - 60 | 8 | R1/8 |
| 32.025 | -0.95 - 15 | 0 - 60 | 8 | R1/4 |
| 32.026 | -0.95 - 15 | 0 - 60 | 8 | R3/8 |
| 32.027 | -0.95 - 15 | 0 - 60 | 10 | R1/4 |
| 32.028 | -0.95 - 15 | 0 - 60 | 10 | R3/8 |
| 32.029 | -0.95 - 15 | 0 - 60 | 10 | R1/2 |
| 32.030 | -0.95 - 15 | 0 - 60 | 12 | R1/4 |
| 32.031 | -0.95 - 15 | 0 - 60 | 12 | R3/8 |
| 32.032 | -0.95 - 15 | 0 - 60 | 12 | R1/2 |

Equal tube tee connectors, self-extinguishing



| Technical data | | | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] |
| 32.060 | -0.95 - 15 | 0 - 60 | 4 |
| 32.061 | -0.95 - 15 | 0 - 60 | 6 |
| 32.062 | -0.95 - 15 | 0 - 60 | 8 |
| 32.063 | -0.95 - 15 | 0 - 60 | 10 |
| 32.064 | -0.95 - 15 | 0 - 60 | 12 |



Mini male stud connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.900 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.901 | -0.95 - 15 | 0 - 60 | 3 | M5 |
| 30.902 | -0.95 - 15 | 0 - 60 | 3 | M6 |
| 30.903 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.904 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.905 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.906 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.907 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.908 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.906-G | -0.95 - 15 | -20 - 80 | 4 | G1/8 |
| 30.910-G | -0.95 - 15 | -20 - 80 | 6 | G1/8 |

Mini male stud connectors, round, hex key



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.920 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.921 | -0.95 - 15 | 0 - 60 | 3 | M5 |
| 30.922 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.923 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.924 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.925 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.926 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.927 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.928 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |



Mini tube fitting, cartridge



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|----|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.932 | -0.95 - 15 | 0 - 60 | 3 | M6 |
| 30.933 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.934 | -0.95 - 15 | 0 - 60 | 4 | M8 |
| 30.935 | -0.95 - 15 | 0 - 60 | 6 | M8 |

Mini female stud connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|----|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.914 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.915 | -0.95 - 15 | 0 - 60 | 3 | M5 |
| 30.916 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.917 | -0.95 - 15 | 0 - 60 | 4 | M5 |

Mini 45° male elbow connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.977 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.978 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.979 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.980 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.981 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.982 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |



Mini unequal tube tee connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm] | Ø D2 [mm] |
| 31.025 | -0.95 - 15 | 0 - 60 | 4 | 3 |
| 31.026 | -0.95 - 15 | 0 - 60 | 6 | 4 |

Mini extended male elbow connector



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.963 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.964 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.965 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.966 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.967 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.968 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.969 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.970 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |



Mini male elbow connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.949 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.950 | -0.95 - 15 | 0 - 60 | 3 | M5 |
| 30.951 | -0.95 - 15 | 0 - 60 | 3 | M6 |
| 30.952 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.953 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.954 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.955 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 30.956 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 30.957 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 30.958 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |

Mini male branch equal tee connectors



| Technical data | | | Dimensions | |
|----------------|----------------------|----------------------------|------------|------|
| Item no. | Pressure range [bar] | Operating temperature [°C] | Ø D [mm] | G |
| 30.993 | -0.95 - 15 | 0 - 60 | 3 | M3 |
| 30.994 | -0.95 - 15 | 0 - 60 | 3 | M5 |
| 30.995 | -0.95 - 15 | 0 - 60 | 3 | M6 |
| 30.996 | -0.95 - 15 | 0 - 60 | 4 | M3 |
| 30.997 | -0.95 - 15 | 0 - 60 | 4 | M5 |
| 30.998 | -0.95 - 15 | 0 - 60 | 4 | M6 |
| 30.999 | -0.95 - 15 | 0 - 60 | 4 | R1/8 |
| 31.000 | -0.95 - 15 | 0 - 60 | 6 | M5 |
| 31.001 | -0.95 - 15 | 0 - 60 | 6 | M6 |
| 31.002 | -0.95 - 15 | 0 - 60 | 6 | R1/8 |



Connectors | Quick couplings with vacuum / pressure lock

Sockets with threaded connection

Locking of compressed air or vacuum during disassembly, release after reconnection

Coupling: Socket (lock) and plug (open)



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| CPS20-02W | -0.95 - 13 | 0 - 60 |
| CPS20-03W | -0.95 - 13 | 0 - 60 |
| CPS20-04W | -0.95 - 13 | 0 - 60 |

Dimensions

| G | Ø P [mm] |
|------|----------|
| R1/4 | 12 |
| R3/8 | 12 |
| R1/2 | 12 |

Sockets with plug-in connection

Locking of compressed air or vacuum during disassembly, release after reconnection



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| CPS20-6W | -0.95 - 13 | 0 - 60 |
| CPS20-8W | -0.95 - 13 | 0 - 60 |
| CPS20-10W | -0.95 - 13 | 0 - 60 |
| CPS20-12W | -0.95 - 13 | 0 - 60 |

Dimensions

| Ø D [mm] | Ø P [mm] |
|----------|----------|
| 6 | 12 |
| 8 | 12 |
| 10 | 12 |
| 12 | 12 |

Connectors

Locking of compressed air or vacuum during disassembly, release after reconnection



Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| CPP20-6W | -0.95 - 13 | 0 - 60 |
| CPP20-8W | -0.95 - 13 | 0 - 60 |
| CPP20-10W | -0.95 - 13 | 0 - 60 |
| CPP20-12W | -0.95 - 13 | 0 - 60 |

Dimensions

| Ø D [mm] | Ø P [mm] |
|----------|----------|
| 6 | 16 |
| 8 | 16 |
| 10 | 20 |
| 12 | 20 |



Angle plugs

Locking of compressed air or vacuum during disassembly, release after reconnection



Technical data

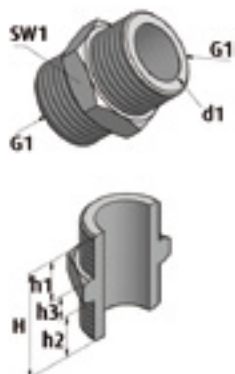
| Item no. | Pressure range [bar] | Operating temperature [°C] |
|-------------------|----------------------|----------------------------|
| CPP20L-6W | -0.95 - 13 | 0 - 60 |
| CPP20L-8W | -0.95 - 13 | 0 - 60 |
| CPP20L-10W | -0.95 - 13 | 0 - 60 |
| CPP20L-12W | -0.95 - 13 | 0 - 60 |

Dimensions

| $\varnothing D$ [mm] | $\varnothing P$ [mm] |
|----------------------|----------------------|
| 6 | 14.5 |
| 8 | 14.5 |
| 10 | 21 |
| 12 | 21 |



Double nipple, equal thread - SZ-GA-MM



| Technical data | | Dimensions | | | | | | |
|----------------|---------------------|------------|--------|---------|---------|---------|-----------|-----|
| Item no. | Material | G1 (male) | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | Ø d1 [mm] | SW1 |
| 270.420 | Brass | M5 | 13 | 5 | 5 | 3 | 2.5 | 7 |
| 270.059 | Brass | G1/8 | 18 | 7 | 7 | 4 | 5 | 14 |
| 270.120 | Brass | G1/4 | 25.5 | 10.5 | 10.5 | -- | -- | 60 |
| 270.121 | Nickel-plated brass | G3/8 | 23 | 9 | 9 | 5 | 11 | 19 |
| 270.122 | Brass | G1/2 | 35 | 14 | 14 | -- | -- | 60 |
| 270.123 | Brass | G3/4 | 33.5 | 13.5 | 13.5 | -- | -- | 60 |
| 270.124 | Brass | G1 | 36 | 14.5 | 14.5 | -- | -- | 60 |
| 270.125 | Brass | G1 1/4 | 37 | 15 | 15 | -- | -- | 60 |
| 270.126 | Brass | G1 1/2 | 40 | 16.5 | 16.5 | -- | -- | 60 |
| 270.127 | Brass | G2 | 40 | 16.5 | 16.5 | -- | -- | 60 |

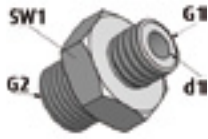
Reducing bushes with hex socket - SZ GA- MMI



| Technical data | | Dimensions | | | | | | |
|----------------|-----------|------------|-----------|--------|---------|---------|-----------|----|
| Item no. | Material | G1 (male) | G2 (male) | H [mm] | h1 [mm] | h2 [mm] | Ø d1 [mm] | SW |
| 270.561 | Aluminium | G3/8 | G1/4 | 25 | 15 | 10 | 6 | 6 |
| 270.562 | Aluminium | G3/8 | M10 | 27 | 15 | 12 | 4 | 5 |
| 270.563 | Aluminium | G3/8 | M14x1.5 | 27 | 15 | 12 | 6 | 6 |
| 270.564 | Aluminium | G1/4 | G1/4 | 22 | -- | -- | 4 | 5 |
| 270.565 | Aluminium | G1/4 | M10 | 24 | 12 | 12 | 4 | 5 |
| 270.566 | Aluminium | G1/4 | M14x1.5 | 24 | 13 | 11 | 4 | 5 |



Reducing nipples - SZ-GA-RMM



| Technical data | | Dimensions | | | | | | | |
|----------------|---------------------|------------|-----------|--------|---------|---------|---------|-----------|-----|
| Item no. | Material | G1 (male) | G2 (male) | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | ∅ d1 [mm] | SW1 |
| 270.280 | Nickel-plated brass | G1/8 | M5 | 15.5 | 4.8 | 6.5 | 4.2 | 2.4 | 14 |
| 270.279 | Aluminium | G1/8 | M6 | 21 | 7 | 9 | 5 | 3 | 14 |
| 270.131 | Brass | G1/8 | M8 | 18 | 6 | 7 | 5 | 4 | 14 |
| 270.107 | Aluminium | G1/8 | M12 | 21 | 7.5 | 8.5 | 5 | 5.5 | 17 |
| 270.227 | Brass | G1/4 | M5 | 19 | 5 | 9 | 5 | 2.5 | 17 |
| 270.320 | Aluminium | G1/4 | M10x1.25 | 25 | 10 | 10 | 5 | 5.5 | 17 |
| 270.108 | Aluminium | G1/4 | M12 | 21 | 8 | 8 | 5 | 5.5 | 17 |
| 270.181 | Nickel-plated brass | G1/4 | G1/8 | 22 | 8 | 9 | 5 | 4 | 17 |
| 270.297 | Nickel-plated brass | G1/2 | G1/4 | 25 | 9 | 10.5 | 5.5 | 8 | 24 |
| 270.323 | Nickel-plated brass | G1/2 | G3/8 | 25.5 | 9 | 10.5 | 6 | 11 | 24 |
| 270.148 | Nickel-plated brass | G3/4 | M14x1.5 | 30 | 12 | 12 | 6 | 20 | 36 |
| 270.138 | Nickel-plated brass | G3/4 | G1/2 | 30 | 12 | 12 | 6 | 15 | 32 |



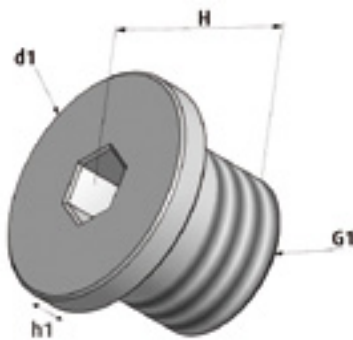
Reducing bushings male/female - SZ-GA-MF



| Technical data | | Dimensions | | | | | | |
|----------------|---------------------|------------|-------------|--------|---------|---------|----------|-----|
| Item no. | Material | G1 (male) | G2 (female) | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] | SW1 |
| 270.423 | Nickel-plated brass | M5 | M5 | 11 | 7 | 4 | 2 | 8 |
| 270.079 | Brass | M5 | G1/8 | 17 | 12 | 5 | 2.4 | 14 |
| 270.576 | Steel galvanised | M12 | G1/4 | 22 | 12 | 10 | 6.5 | 17 |
| 270.577 | Steel galvanised | M16 | G3/8 | 25 | 15 | 10 | 10 | 24 |
| 270.302 | Nickel-plated brass | G1/8 | M5 | 10 | 4 | 6 | -- | 14 |
| 270.303 | Nickel-plated brass | G1/8 | M6 | 13 | 5 | 8 | -- | 13 |
| 270.334 | Nickel-plated brass | G1/8 | G1/4 | 20 | 13.6 | 6.5 | 5.4 | 17 |
| 270.304 | Aluminium | G1/4 | M6 | 15 | 5 | 10 | -- | 17 |
| 270.090 | Brass | G1/4 | M10x1.25 | 11.5 | 5.8 | 5.7 | 17 | 19 |
| 270.088 | Aluminium | G1/4 | M10 | 28 | 16 | 12 | 4 | 17 |
| 270.245 | Brass | G1/4 | G1/8 | 13 | 4.5 | 8.5 | -- | 17 |
| 270.078 | Brass | G1/4 | G1/4 | 28 | 19 | 9 | 7.5 | 17 |
| 270.567 | Aluminium | G1/4 | G3/8 | 27 | 11 | 10 | 4 | 20 |
| 270.560 | Aluminium | G3/8 | G1/4 | 16 | 11 | 16 | -- | 22 |
| 270.229 | Brass | G1/2 | G1/4 | 18 | 6 | 12 | -- | 24 |
| 270.230 | Brass | G1/2 | G3/8 | 18 | 6 | 12 | -- | 24 |
| 270.102 | Brass | G3/4 | G3/8 | 18 | 6 | 12 | -- | 32 |
| 270.600 | Brass | G1 | G1/2 | 21 | 6 | 15 | -- | 36 |
| 270.601 | Brass | G1 | G3/4 | 21 | 6 | 15 | -- | 36 |
| 270.604 | Brass | G1 1/2 | G1 | 24 | 8 | 16 | -- | 50 |
| 270.605 | Brass | G1 1/4 | G1 | 23 | 7 | 16 | -- | 42 |

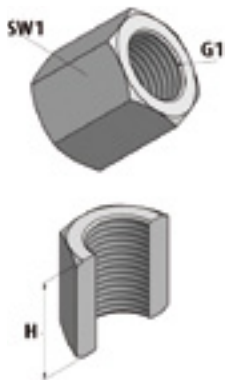


Blanking plugs with O-ring seal - SZ-SCV



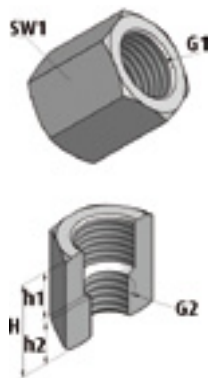
| Technical data | | Dimensions | | | |
|----------------|---------------------|------------|--------|---------|-----------|
| Item no. | Material | G1 (male) | H [mm] | h1 [mm] | Ø d1 [mm] |
| 77.000 | Nickel-plated brass | M5 | 6 | 2 | 8 |
| 77.009 | Nickel-plated brass | G1/8 | 10 | 3 | 14 |
| 77.008 | Nickel-plated brass | G1/4 | 11 | 3 | 17 |
| 77.010 | Nickel-plated brass | G3/8 | 12.5 | 3.5 | 20 |
| 77.007 | Nickel-plated brass | G1/2 | 14.5 | 4.5 | 26 |

Threaded bush - SZ-GA-FF



| Technical data | | Dimensions | | |
|----------------|---------------------|-------------|--------|-----|
| Item no. | Material | G1 (female) | H [mm] | SW1 |
| 270.343 | Nickel-plated brass | G1/8 | 17 | 14 |
| 270.182.O | Aluminium | G1/4 | 20 | 19 |
| 270.130.O | Aluminium | G1/2 | 32 | 30 |
| 270.579 | Aluminium | G3/8 | 23 | 22 |

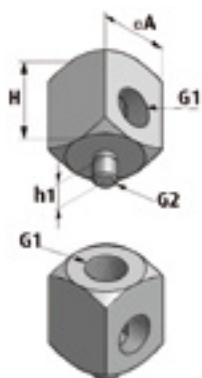
Reducing bush - SZ-GA-RFF



| Technical data | | Dimensions | | | | | |
|----------------|---------------------|-------------|-------------|--------|---------|---------|-----|
| Item no. | Material | G1 (female) | G2 (female) | H [mm] | h1 [mm] | h2 [mm] | SW1 |
| 270.306 | Aluminium | G1/8 | M5 | 14 | 9.5 | 4.5 | 13 |
| 270.307 | Aluminium | G1/8 | M6 | 14 | 9.5 | 4.5 | 13 |
| 270.308 | Aluminium | G1/4 | M6 | 17.5 | 11 | 6.5 | 17 |
| 270.089 | Aluminium | G1/4 | M10 | 18 | 9 | 9 | 17 |
| 270.228 | Nickel-plated brass | G3/8 | G1/4 | 21.5 | 11.5 | 10 | 22 |

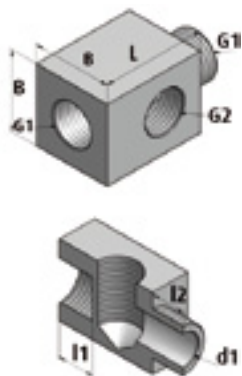


Elbow connectors AG - SZ-WAA



| Technical data | | Dimensions | | | | |
|----------------|---------------------|-------------|-----------|--------|---------|------------------|
| Item no. | Material | G1 (female) | G2 (male) | H [mm] | h1 [mm] | $\square A$ [mm] |
| GR07.010 | Steel nickel-plated | G1/8 | M5 | 20 | 6 | 16 |
| GR07.011 | Steel nickel-plated | G1/4 | M6 | 33 | 10 | 25 |
| GR07.012 | Steel nickel-plated | G1/4 | M8 | 33 | 10 | 25 |

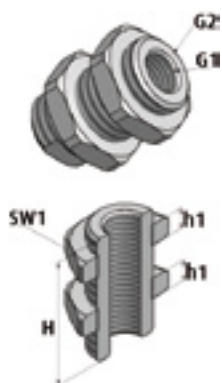
Elbow connectors IG - SZ-WAI



| Technical data | | Dimensions | | | | | | |
|----------------|------------------|------------------|-------------|----------------|--------|--------|---------|---------|
| Item no. | Material | G1 (female+male) | G2 (female) | ϕ d1 [mm] | L [mm] | B [mm] | I1 [mm] | I2 [mm] |
| 270.395 | Aluminium | G1/8 | G1/8 | 6.6 | 21 | 16 | 6 | 7 |
| 270.396 | Aluminium | G1/4 | G1/8 | 8 | 26 | 18 | 10 | 10 |
| 270.397 | Steel galvanised | G1/2 | G3/8 | 10 | 35 | 24 | 12 | 10 |

Bulkhead connectors - SZ-SVS

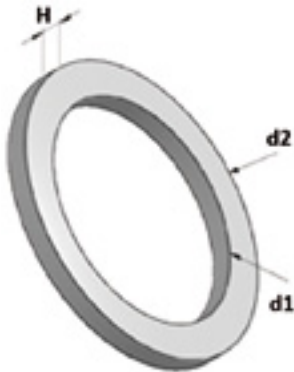
Allow for height adjustment during vacuum cup installation



| Technical data | | | Dimensions | | | | |
|----------------|------------------|--------------------|-------------|-----------|--------|---------|-----|
| Item no. | Material bushing | Material screw nut | G1 (female) | G2 (male) | H [mm] | h1 [mm] | SW1 |
| 270.518 | Stainless steel | Steel galvanised | G1/8 | M16x1 | 30 | 5 | 22 |
| 270.519 | Stainless steel | Steel galvanised | G1/4 | M20x1.5 | 30 | 5 | 24 |



Sealing rings - SZ-DR



| Technical data | | | Dimensions | | |
|----------------|--------------------|-----------------|------------|-----------|-----------|
| Item no. | For outside thread | Material | H [mm] | ∅ d1 [mm] | ∅ d2 [mm] |
| 78.052 | M5 | Rigid PVC white | 1 | 5.4 | 7.9 |
| 78.053 | G1/8 | Rigid PVC white | 2 | 10.3 | 13.5 |
| 78.054 | G1/4 | Rigid PVC white | 2 | 13.3 | 17.9 |
| 78.051 | G3/8 | Rigid PVC white | 2 | 17.2 | 21.2 |
| 78.055 | G1/2 | Rigid PVC white | 2 | 21.2 | 27.9 |
| 78.056 | G3/4 | Rigid PVC white | 2 | 26.7 | 32.5 |

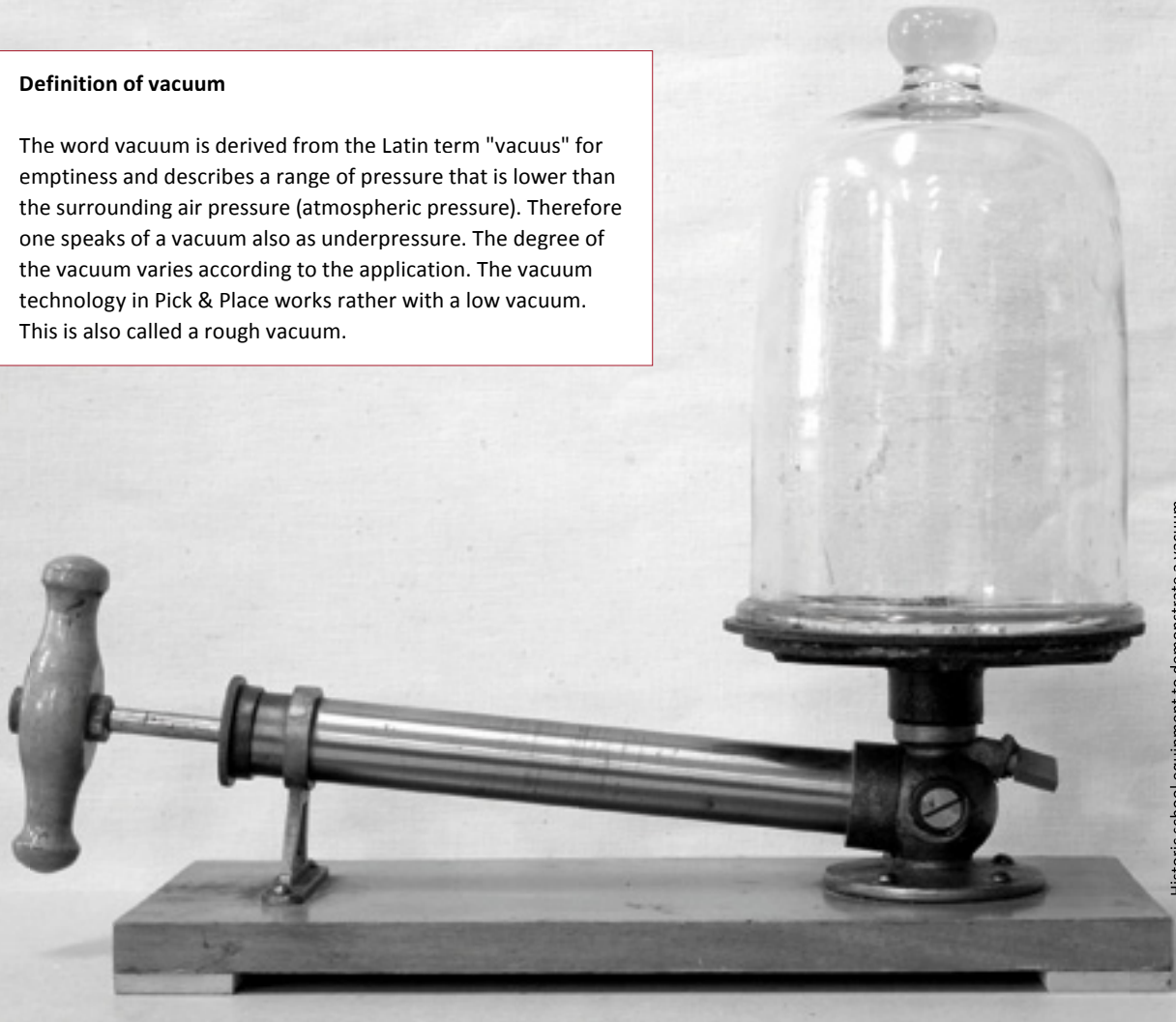
Ordering notes:

1 packing unit = 100 pieces

Vacuum: Basics

Definition of vacuum

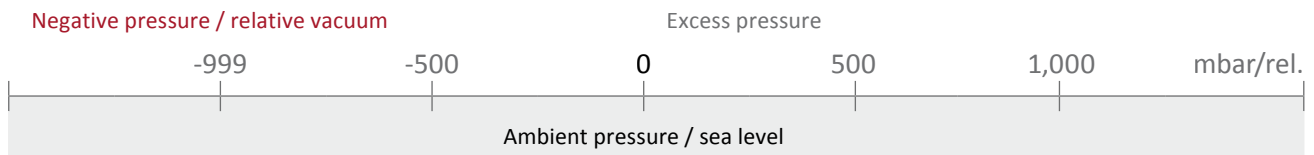
The word vacuum is derived from the Latin term "vacuus" for emptiness and describes a range of pressure that is lower than the surrounding air pressure (atmospheric pressure). Therefore one speaks of a vacuum also as underpressure. The degree of the vacuum varies according to the application. The vacuum technology in Pick & Place works rather with a low vacuum. This is also called a rough vacuum.



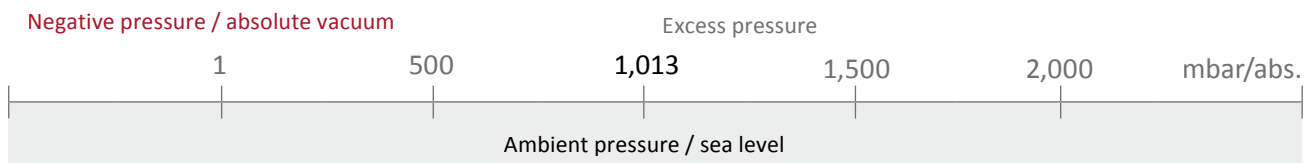
Historic school equipment to demonstrate a vacuum by Hannes Grobe

Vacuum values

The vacuum is specified as a relative or absolute value. In vacuum technology, as a rule, the vacuum is specified as a relative value with a negative prefix. The reference point for measuring the relative pressure is the air pressure at 0 mbar.



The absolute vacuum, in contrast, always has a positive prefix. Background: The conventional value used in science relates the negative pressure (vacuum) to the absolute zero point or vacuum.



Units of vacuum

Pascal (Pa), kilopascals (kPa), bar (bar) and millibars (mbar) are used as pressure units in vacuum technology. The conversion of these units is as follows:

$$0.001 \text{ bar} = 0.1 \text{ kPa} = 1 \text{ mbar} = 100 \text{ Pa}$$

or as indicated in the conversion table:

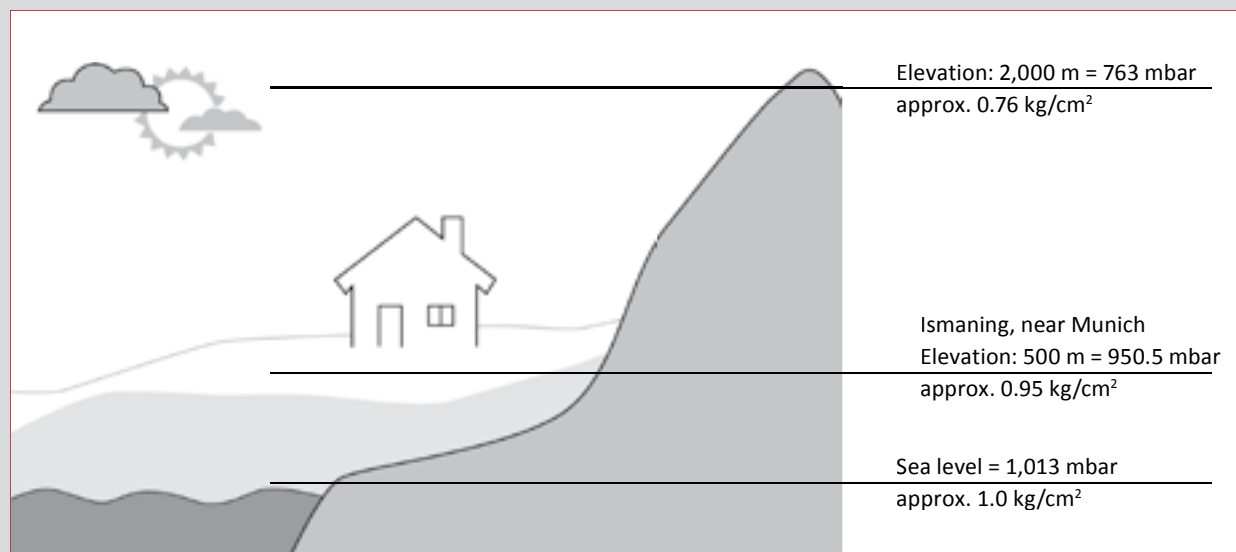
Vacuum / pressure conversion table

| Residual pressure absolute [mbar] | Relative vacuum | bar relative | N/cm ² | kPa | atm.kp/cm ² | mm H ₂ O | Torr; mmHg | inHg |
|-----------------------------------|-----------------|--------------|-------------------|-------|------------------------|---------------------|------------|------|
| 900 | 10 % | -0.101 | -1.01 | -10.1 | -0.103 | -1,030 | -76 | -3 |
| 800 | 20 % | -0.203 | -2.03 | -20.3 | -0.207 | -2,070 | -152 | -6 |
| 700 | 30 % | -0.304 | -3.04 | -30.4 | -0.31 | -3,100 | -228 | -9 |
| 600 | 40 % | -0.405 | -4.05 | -40.5 | -0.413 | -4,130 | -304 | -12 |
| 500 | 50 % | -0.507 | -5.07 | -50.7 | -0.517 | -5,170 | -380 | -15 |
| 400 | 60 % | -0.608 | -6.08 | -60.8 | -0.62 | -6,200 | -456 | -18 |
| 300 | 70 % | -0.709 | -7.09 | -70.9 | -0.723 | -7,230 | -532 | -21 |
| 200 | 80 % | -0.811 | -8.11 | -81.1 | -0.827 | -8,270 | -608 | -24 |
| 100 | 90 % | -0.912 | -9.12 | -91.2 | -0.93 | -9,300 | -684 | -27 |

Relationship between air pressure and vacuum

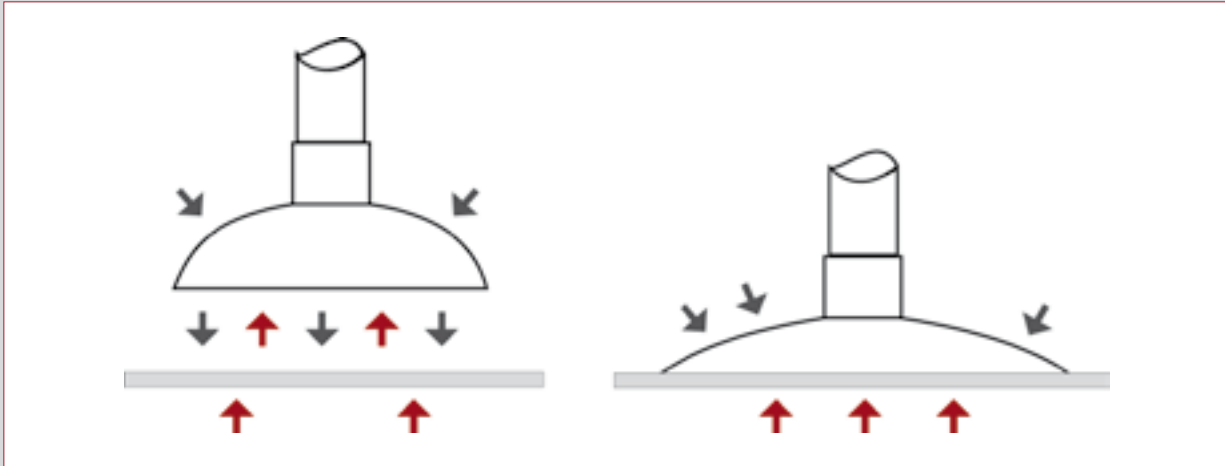
The ambient pressure or atmospheric pressure at 0 mbar is the reference quantity for the manufacture of a vacuum. The air pressure in turn depends on the height at which it is measured.

In general: Air pressure decreases with increasing altitude. Thus, the ambient pressure on the Zugspitze (2,963 metres height; 695 mbar) is much lower than at sea level (1,013 mbar) which at 0 metres marks the ideal state for vacuum generation. For vacuum technology that means: As air pressure is reduced, the difference in pressure between ambient pressure and the vacuum cup pressure narrows. The maximum holding force of the vacuum is thus reduced. The benchmark: For every 100 metre increase in altitude, the ambient pressure falls by about 12.5 mbar. That must correspondingly be considered when using components in producing a vacuum.



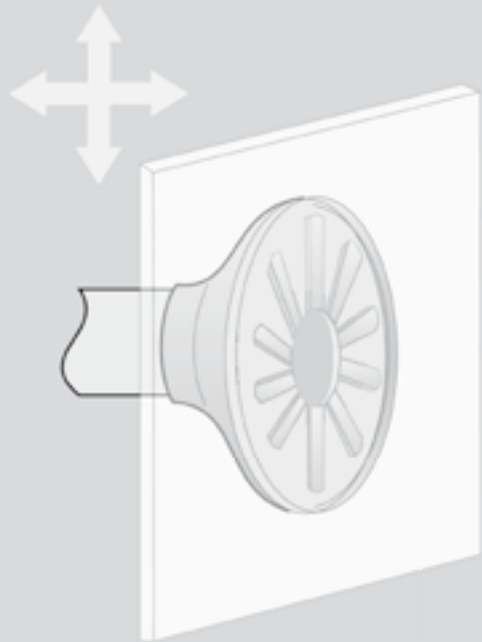
Vacuum cups: Functional principle

It is not the vacuum unit that sucks up the workpiece to be moved, but the good to be handled that is pressed firmly to the vacuum unit. This happens due to the negative pressure that is created by the built-in vacuum cup or the connected vacuum generator.



The functional principle is straightforward: The vacuum generator draws out the air located between the vacuum cup and workpiece. After contact, the vacuum cup seals off the workpiece surface against the surrounding air pressure. The underpressure or vacuum is created.

Depending on the application, different shapes and sizes of vacuum cups and vacuum cup materials are used. Example: For handling movements parallel to the vacuum surface, flat vacuum cups with cleats or knobs are especially suitable because of their high frictional resistance.



Vacuum cups: Holding forces



Calculation

The force exerted by a vacuum cup holding or lifting a workpiece depends on many factors. These include the acceleration, the safety factor, turning and tilting moments, the elasticity of the material and even the design of the vacuum cup.

Regardless of such factors, the holding power of a vacuum cup can easily be identified by the following formula:

$$\text{Holding power in N} = \frac{\text{active suction surface in cm}^2 \times \text{vacuum available in \%}}{10}$$

In short form:

$$F = \frac{A \times P}{10}$$

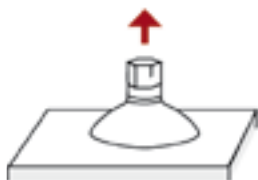
The following applies: The holding power of a vacuum cup is proportional to the active suction surface.

To determine the necessary vacuum cup diameter or the required active suction surface, the following formula helps:

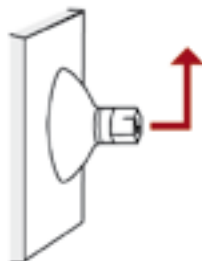
$$\text{Vacuum cup diameter in mm} = 113 \times \sqrt{\frac{\text{Weight in kg} \times \text{Safety factor}}{\text{Underpressure in \%} \times \text{Number of vacuum cups}}}$$

Important: The safety factor (dependent on the lifting direction)

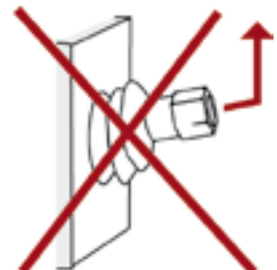
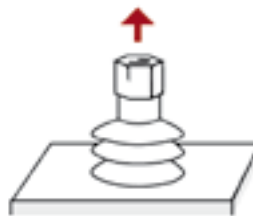
min. 2x safety factor



min. 4x safety factor



min. 2x safety factor



Average values for vacuum cups in standard applications

| Vacuum cup diameter [mm] | Effective diameter approx. [mm] | Effective suction surface approx. [cm ²] | Theoretical holding force 20 % vacuum [N] | Theoretical holding force 60 % vacuum [N] | Theoretical holding force 80 % vacuum [N] | Volume flat approx. [cm ³] | Volume folds approx. [cm ³] | Recommended internal tubing diameter approx. [mm] |
|--------------------------|---------------------------------|--|---|---|---|--|---|---|
| 1 | 0.80 | 0.0050 | 0.01 | 0.03 | 0.04 | 0.001 | 0.05 | 2 |
| 2 | 1.60 | 0.0201 | 0.04 | 0.12 | 0.16 | 0.001 | 0.05 | 2 |
| 3 | 2.40 | 0.0452 | 0.09 | 0.27 | 0.36 | 0.002 | 0.05 | 2 |
| 4 | 3.20 | 0.0804 | 0.16 | 0.48 | 0.64 | 0.003 | 0.05 | 2 |
| 5 | 4.00 | 0.1257 | 0.25 | 0.75 | 1.01 | 0.005 | 0.1 | 2 |
| 6 | 5.17 | 0.2101 | 0.42 | 1.26 | 1.68 | 0.008 | 0.1 | 2 |
| 7 | 6.03 | 0.2860 | 0.57 | 1.72 | 2.29 | 0.015 | 0.1 | 2 |
| 8 | 6.90 | 0.3736 | 0.75 | 2.24 | 2.99 | 0.03 | 0.2 | 2 |
| 9 | 7.76 | 0.4728 | 0.95 | 2.84 | 3.78 | 0.05 | 0.2 | 2 |
| 10 | 8.62 | 0.5837 | 1.17 | 3.50 | 4.67 | 0.07 | 0.5 | 4 |
| 11 | 9.48 | 0.7063 | 1.41 | 4.24 | 5.65 | 0.1 | 0.5 | 4 |
| 12 | 10.34 | 0.8405 | 1.68 | 5.04 | 6.72 | 0.1 | 1 | 4 |
| 13 | 11.21 | 0.9864 | 1.97 | 5.92 | 7.89 | 0.2 | 1 | 4 |
| 14 | 12.07 | 1.1440 | 2.29 | 6.86 | 9.15 | 0.3 | 1 | 4 |
| 15 | 12.93 | 1.3133 | 2.63 | 7.88 | 10.51 | 0.4 | 3 | 4 |
| 16 | 13.79 | 1.4942 | 2.99 | 8.97 | 11.95 | 0.5 | 3 | 4 |
| 17 | 14.66 | 1.6868 | 3.37 | 10.12 | 13.49 | 0.5 | 3 | 4 |
| 18 | 15.52 | 1.8911 | 3.78 | 11.35 | 15.13 | 0.6 | 3 | 4 |
| 19 | 16.38 | 2.1071 | 4.21 | 12.64 | 16.86 | 0.7 | 5 | 4 |
| 20 | 17.24 | 2.3347 | 4.67 | 14.01 | 18.68 | 0.8 | 5 | 4 |
| 25 | 21.55 | 3.6480 | 7.30 | 21.89 | 29.18 | 1.3 | 5 | 4 |
| 30 | 25.86 | 5.2531 | 10.51 | 31.52 | 42.02 | 1.3 | 5 | 4 |
| 35 | 30.17 | 7.1501 | 14.30 | 42.90 | 57.20 | 2.7 | 10 | 4 |
| 40 | 34.48 | 9.3389 | 18.68 | 56.03 | 74.71 | 3.8 | 10 | 4 |
| 45 | 38.79 | 11.8195 | 23.64 | 70.92 | 94.56 | 5 | 20 | 4 |
| 50 | 43.10 | 14.5920 | 29.18 | 87.55 | 116.74 | 7 | 20 | 6 |
| 60 | 51.72 | 21.0124 | 42.02 | 126.07 | 168.10 | 10 | 30 | 6 |
| 70 | 60.34 | 28.6003 | 57.20 | 171.60 | 228.80 | 20 | 50 | 6 |
| 80 | 68.97 | 37.3554 | 74.71 | 224.13 | 298.84 | 25 | 60 | 6 |
| 90 | 77.59 | 47.2780 | 94.56 | 283.67 | 378.22 | 30 | 100 | 6 |
| 100 | 86.21 | 58.3679 | 116.74 | 350.21 | 466.94 | 40 | 200 | 9 |
| 125 | 107.76 | 91.1998 | 182.40 | 547.20 | 729.60 | 80 | 300 | 9 |
| 150 | 129.31 | 131.3277 | 262.66 | 787.97 | 1,050.62 | 180 | 500 | 9 |
| 175 | 150.86 | 178.7516 | 357.50 | 1,072.51 | 1,430.01 | 250 | 650 | 12 |
| 200 | 172.41 | 233.4715 | 466.94 | 1,400.83 | 1,867.77 | 430 | 800 | 12 |
| 250 | 215.52 | 364.7992 | 729.60 | 2,188.80 | 2,918.39 | 500 | 1,600 | 12 |
| 300 | 258.62 | 525.3109 | 1,050.62 | 3,151.87 | 4,202.49 | 600 | 2,000 | 12 |
| 350 | 301.72 | 715.0065 | 1,430.01 | 4,290.04 | 5,720.05 | 1,500 | 3,000 | 12 |
| 400 | 344.83 | 933.8860 | 1,867.77 | 5,603.32 | 7,471.09 | 2,000 | 5,000 | 12 |
| 500 | 431.03 | 1,459.1969 | 2,918.39 | 8,755.18 | 11,673.58 | 4,000 | x | 16 |
| 600 | 517.24 | 2,101.2436 | 4,202.49 | 12,607.46 | 16,809.95 | 6,500 | x | 16 |

The information provided above consists of average values for smooth, dry product surfaces without a safety factor. The application, shape of the vacuum cup and product qualities (e.g. surface texture or air permeability) may result in deviations.

Air volume to be evacuated per meter of tubing, dependent on the internal tubing diameter

| Internal tubing diameter [mm] | Cross section [mm ²] | Air volume per meter [cm ³] | Air volume per meter [l] |
|-------------------------------|----------------------------------|---|--------------------------|
| 2 | 3.14 | 3.1 | 0.003 |
| 3 | 7.07 | 7.1 | 0.007 |
| 4 | 12.56 | 12.6 | 0.013 |
| 6 | 28.26 | 28.3 | 0.028 |
| 7 | 38.47 | 38.5 | 0.038 |
| 8 | 50.24 | 50.2 | 0.050 |
| 9 | 63.59 | 63.6 | 0.064 |
| 10 | 78.50 | 78.5 | 0.079 |
| 11 | 94.99 | 95.0 | 0.095 |
| 12 | 113.04 | 113.0 | 0.113 |
| 14 | 153.86 | 153.9 | 0.154 |
| 16 | 200.96 | 201.0 | 0.201 |
| 18 | 253.34 | 254.3 | 0.254 |
| 20 | 314.00 | 314.0 | 0.314 |
| 25 | 490.63 | 490.6 | 0.491 |
| 32 | 803.84 | 803.8 | 0.804 |
| 35 | 961.63 | 961.6 | 0.962 |
| 38 | 1,133.54 | 1,133.5 | 1.134 |
| 40 | 1,256.00 | 1,256.0 | 1.256 |

Required inner diameter D in the case of the branching of tubing

| Number of tubing | Calculation [diameter D x factor] |
|------------------|-----------------------------------|
| 1 | D x 1 |
| 2 | D x 0.71 |
| 4 | D x 0.50 |
| 8 | D x 0.36 |
| 16 | D x 0.25 |
| 32 | D x 0.18 |

Example calculation

If a tubing with an inner diameter of 40 mm branches out to become 4 tubing, each of these tubing requires an internal diameter of 20 mm.

If a tubing with an inner diameter of 40 mm branches out to become 16 tubing, each of these tubing requires an internal diameter of 10 mm.

Required internal diameter for compressed air tubing lines

| Air flow rate [liters/min.] | Tubing length [m] | | | | | | | | | | | | | | | | | | | |
|-----------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 100 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| 200 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 300 | 5 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 |
| 400 | 5 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 10 |
| 500 | 6 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 11 |
| 600 | 6 | 7 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| 700 | 7 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 |
| 800 | 7 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 13 |
| 900 | 7 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 |
| 1,000 | 7 | 9 | 9 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 13 | 14 |
| 1,100 | 8 | 9 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 |
| 1,200 | 8 | 9 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 15 |
| 1,300 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 |
| 1,400 | 8 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 15 |
| 1,500 | 9 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 |
| 1,600 | 9 | 10 | 11 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 |
| 1,700 | 9 | 10 | 11 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 |
| 1,800 | 9 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 |
| 1,900 | 9 | 11 | 12 | 12 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 |
| 2,000 | 10 | 11 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 18 |
| 2,100 | 10 | 11 | 12 | 13 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 18 | 18 |
| 2,200 | 10 | 11 | 12 | 13 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 18 |
| 2,300 | 10 | 12 | 13 | 13 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 |
| 2,400 | 10 | 12 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 19 | 19 |
| 2,500 | 10 | 12 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 19 | 19 | 19 |
| 2,600 | 11 | 12 | 13 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 19 | 19 | 19 | 19 |
| 2,700 | 11 | 12 | 13 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 19 | 19 | 20 |
| 2,800 | 11 | 13 | 14 | 14 | 15 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 19 | 19 | 20 | 20 |
| 2,900 | 11 | 13 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 18 | 18 | 19 | 19 | 19 | 19 | 20 | 20 | 20 |
| 3,000 | 11 | 13 | 14 | 15 | 15 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 20 |
| 3,100 | 11 | 13 | 14 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 21 |
| 3,200 | 11 | 13 | 14 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 20 | 21 |
| 3,300 | 12 | 13 | 14 | 15 | 16 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 21 | 21 | 21 |
| 3,400 | 12 | 13 | 15 | 15 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 21 | 21 | 21 | 21 |
| 3,500 | 12 | 14 | 15 | 16 | 16 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 22 |
| 3,600 | 12 | 14 | 15 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 22 | 22 |
| 3,700 | 12 | 14 | 15 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 22 | 22 | 22 |
| 3,800 | 12 | 14 | 15 | 16 | 17 | 17 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 22 |
| 3,900 | 12 | 14 | 15 | 16 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 22 | 22 | 22 | 22 |
| 4,000 | 12 | 14 | 16 | 16 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 22 | 23 |
| 4,100 | 13 | 14 | 16 | 17 | 17 | 18 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 22 | 23 | 23 |
| 4,200 | 13 | 15 | 16 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 |
| 4,300 | 13 | 15 | 16 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 23 |
| 4,400 | 13 | 15 | 16 | 17 | 18 | 18 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 23 |
| 4,500 | 13 | 15 | 16 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 23 | 24 |
| 4,600 | 13 | 15 | 16 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 22 | 22 | 23 | 23 | 23 | 24 | 24 |
| 4,700 | 13 | 15 | 16 | 17 | 18 | 19 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 24 | 24 | 24 |
| 4,800 | 13 | 15 | 17 | 18 | 18 | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 23 | 24 | 24 | 24 |
| 4,900 | 13 | 15 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 23 | 24 | 24 | 24 | 24 |
| 5,000 | 14 | 16 | 17 | 18 | 19 | 19 | 20 | 21 | 21 | 21 | 22 | 22 | 23 | 23 | 23 | 24 | 24 | 24 | 24 | 25 |
| 5,500 | 14 | 16 | 17 | 18 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 23 | 24 | 24 | 24 | 25 | 25 | 25 | 26 |
| 6,000 | 14 | 17 | 18 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 25 | 26 | 26 | 26 | 26 |
| 6,500 | 15 | 17 | 19 | 20 | 21 | 21 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 25 | 26 | 26 | 26 | 27 | 27 | 27 |
| 7,000 | 15 | 18 | 19 | 20 | 21 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 26 | 26 | 27 | 27 | 27 | 28 | 28 |
| 7,500 | 16 | 18 | 20 | 21 | 22 | 22 | 23 | 24 | 24 | 25 | 25 | 26 | 26 | 27 | 27 | 27 | 28 | 28 | 28 | 29 |
| 8,000 | 16 | 18 | 20 | 21 | 22 | 23 | 24 | 24 | 25 | 26 | 26 | 27 | 27 | 28 | 28 | 28 | 29 | 29 | 29 | 30 |
| 8,500 | 16 | 19 | 21 | 22 | 23 | 24 | 24 | 25 | 26 | 26 | 27 | 27 | 28 | 28 | 28 | 29 | 29 | 29 | 30 | 30 |
| 9,000 | 17 | 19 | 21 | 22 | 23 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 28 | 29 | 29 | 29 | 30 | 30 | 30 | 31 |
| 9,500 | 17 | 20 | 21 | 23 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 28 | 29 | 29 | 29 | 30 | 30 | 31 | 31 | 31 |
| 10,000 | 17 | 20 | 22 | 23 | 24 | 25 | 26 | 27 | 27 | 28 | 28 | 29 | 29 | 30 | 30 | 30 | 31 | 31 | 32 | 32 |

Values at an operating pressure of 6 bar and a pressure drop of 0.5 bar
 Design example: At a required air flow rate of 2,000 liters per minute and a tubing length of 10 meters, the required internal diameter is 15 mm.

Questionnaire F 100 | Vacuum Technology

To:

FIPA GmbH

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info@fipa.com

| |
|-----------------------|
| Company |
| Name |
| Street |
| City, State, Zip Code |
| Phone/Fax |

Vacuum Unit

Please answer the following questions carefully, so we can select the vacuum unit best suited for your purpose.

1. Please quote the following application:

2. What kind of parts are you handling?

3. The objects are:

- round
- oval
- square
- rectangular
- curved
- unstable

3a. Material:

4. Dimensions / Weight:

Length _____ mm

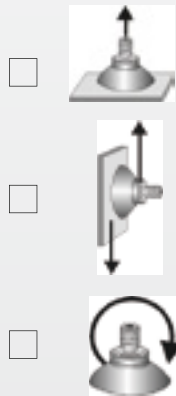
Width _____ mm

Height / Thickness
_____ mm

Ø _____ mm

Weight _____ g/kg

5. Lifting direction:



6. Surface:

- smooth
- rough
- textured
- rippled
- oily
- scaled
- wet
- dry
- porous

7. Temperature:

briefly
_____ °C

continuously
+ _____ °C
- _____ °C

8. Use:

- indoor
- outdoor

9. Vacuum generating:

- Vacuum pump
- Vacuum ejector
- existing
- not existing

Power capacity _____

Vacuum Cups

16. In use?

- no
- yes, following type _____

17. Annual requirement? approx. _____ pieces

10. Duty cycle _____

11. Distance _____

12. Suck in time _____

13. Positioning accuracy _____

14. Acceleration _____

15. Environment _____

FIPA will gladly perform individual handling tests free of charge on samples of the objects to be carried. Alternatively please feel free to request sample cups for your own tests.

Online forms and
downloads: www.fipa.com

To:

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| |
|-----------------------|
| Company |
| Name |
| Street |
| City, State, Zip Code |
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Vacuum Pumps

Please answer the following questions carefully, so we can select the vacuum unit best suited for your purpose.

1. Please specify the branch of industry in which the pump will be used

- Packaging Food & Beverage Glass
 Graphic arts Wood-working Plastic
 Marble / Stone Sheet metal

2. What will the pump be used for?

- Handling Degasification of silicon mixture
 Vacuum Clamping Degasification of synthetic resin
 Degasification of laminated materials
 Evacuating tanks: Liters: _____ / Time: _____

3. Location of pump

- Indoor Outdoor Mobile
 Temperature range: _____ to _____ °F
 Relative humidity (e.g. tropical areas) _____ %

4. Medium to be sucked

- Dry air Humid air Oily air
 Water vapor Water Grinding sludge
 Aggressive gases (which): _____
 Temperature of medium: _____ °C

5. Suction capacity: _____ m³/h or _____ NI/min

6. Vacuum Level (in continuous operation):

_____ mbar or _____ % vacuum

7. Duty cycle

- Continuous operation 8-10 h/day 16-18 h/day
 Intermittent operation:
 Operating interval of pump? _____

8. Back diffusion

- Does leakage of the medium have to be prevented when the pump is switched off? (Check valve for oil-lubricated vacuum pump)
 Yes No

9. Maintenance of vacuum

- Does the vacuum have to be maintained for a certain period (e.g. for putting down loads in case of power failure)?
 Yes No

10. Vacuum tank

- available (_____ liters) desired (_____ liters)
 Capacity suggested by FIPA

11. Maintenance

- Is the pump accessible for maintenance? Yes No
 Is sufficient cooling available for the pump? Yes No
 Is remote monitoring of pump condition possible? (e.g. oil level)
 Yes No

12. General information if new pump is desired:

- Only one pump is required
 Number of pumps needed per year: _____
 Delivery desired within: _____
 Replacement

13. In case of replacement please fill out

- Brand until now _____ Suction capacity _____
 Vacuum level _____ Electricity supply _____

Online forms and downloads: www.fipa.com

Questionnaire F 300 | Vacuum grippers

To:

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| |
|------------------------------|
| <i>Company</i> |
| <i>Name</i> |
| <i>Street</i> |
| <i>City, State, Zip Code</i> |
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Vacuum Grippers

Please answer the following questions carefully, so we can select the vacuum gripper best suited for your purpose.

Product Information

1. What kind of parts are you handling (product, material)?

2. The objects are:

- round
- oval
- square
- rectangular
- curved
- inherent stable
- deformable

3. Surface:

- smooth
- rough
- textured
- rippled
- oily
- wet
- dry
- porous
- airtight

4. Dimensions, weight:

Length _____ mm

Width _____ mm

Height / Thickness
_____ mm

Ø _____ mm

Weight _____ g/kg

5. Available surface for gripping:

Length _____ mm

Width _____ mm

Ø _____ mm

6. Is the height of the product greater than the width? no yes [mm / cm]: _____

7. Do you have to evacuate a volume of air? no yes [m³]: _____

8. Kind of packaging (strength, elasticity etc.)?

9. Remarks:

Information on product layers

1. Do you transport single products or layers of products? single in layers
2. Number of cycles? _____
3. Measurements of layers
Length _____ mm Height / Thickness _____ mm
Width _____ mm \varnothing _____ mm
Weight _____ g
4. Amount of products / layers _____ units

5. Minimum depth of coverage of a single layer? [%]: _____
6. Maximum level difference of a single layer? _____
7. Is there a progressive deformation? no yes
8. Remarks:

Application Information

1. Please describe your application:

2. Number of cycles per minute: _____
3. Max. available time to pick and place the product: _____
4. Product acceleration: _____
5. Max. carrying capacity : _____
6. Utilisation [operating hours / day / week]: _____
7. Housing required? no yes _____
8. Can parts get inside the gripper (e.g. dust, parts of the product or similar) no yes _____
9. Remarks:

Online forms and
downloads: www.fipa.com

Questionnaire F 400 | Customised grippers

To:

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| |
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| <i>Company</i> |
| <i>Name</i> |
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| <i>Phone/Fax</i> |

Customised grippers

Please complete the following questionnaire carefully, so that we can select the optimal product for you.

Robot-Gripper Interface

| | | |
|--|-----------------------------------|---|
| 1. Robot type: _____ | | |
| 2. Handling type | 3. Media supply | 4. Vacuum generation |
| <input type="checkbox"/> Linear | Number of vacuum circuits _____ | <input type="checkbox"/> by FIPA |
| <input type="checkbox"/> Swivel axes _____ No. of axes | Number of compressed air circuits | <input type="checkbox"/> by the customer |
| <input type="checkbox"/> Delta robot (3-leg); FlexPicker | _____ bar | <input type="checkbox"/> Number of ejectors _____ |
| Model name: _____ | Tubing diameter _____ mm | Model name: _____ |
| _____ | Tubing length _____ mm | <input type="checkbox"/> Pump |
| <input type="checkbox"/> Other _____ | | Model name: _____ |
| | | <input type="checkbox"/> Side channel blower |
| | | Model name: _____ |
| | | <input type="checkbox"/> Other: _____ |
| 5. Comments: _____ | | |
| _____ | | |
| _____ | | |

Application

| | | |
|---|--|-------------------------|
| 1. Type of product to be handled: _____ | | |
| Product weight: _____ g | | |
| Product dimensions (LxWxH): _____ mm | | |
| CAD available: <input type="checkbox"/> yes <input type="checkbox"/> no | | |
| 2. Item picked from: | 3. Item placed on: | 4. Cycle time |
| <input type="checkbox"/> Conveyor belt | <input type="checkbox"/> Conveyor belt | Pick-up _____ seconds |
| <input type="checkbox"/> Pallet | <input type="checkbox"/> Pallet | Placement _____ seconds |
| <input type="checkbox"/> Container | <input type="checkbox"/> Container | |
| <input type="checkbox"/> Tray | <input type="checkbox"/> Tray | |
| <input type="checkbox"/> Fixture | <input type="checkbox"/> Fixture | |
| <input type="checkbox"/> Other | <input type="checkbox"/> Other: | |

5. Description of application:

Gripper Design

Integrated vacuum generation required yes no

Media feed-through required: yes no

Interference contours (e.g. gripping space between products): _____

Labelling: _____

Colouring: _____

Special cleaning regulations: _____

Description of process: _____

Current solution: _____

Improvements required:



Your request | Fax form

Simply copy the form, fill it out and fax to +49(0)89 / 96 24 89 – 11.

Online forms and
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Please send me an offer for:

| Item number | Description | Quantity | Remarks |
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- FIPA Image brochure

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