

# ALLES IM GRIFF

Insights into the FIPA product world | 01.18 EN



**FIPA**  
*challenge accepted*

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**FIPA**  
challenge accepted



## TECHNOLOGIES FOR GRIPPING, VACUUM & LIFTING

**FIPA is an internationally active company specializing in the development and distribution of quality products and innovative system solutions. We handle processes in the plastics, sheet metal, packaging industries and general industries.**

Our contribution to flexible production in these industries is automation through the use of gripper, vacuum, and lifting technology. For us, automation means working ergonomically and easing difficult, stressful, and dangerous tasks in a manner that is consistent with increasing efficiency and productivity.

To make it possible to develop the ideal solution, FIPA offers a broad but finely tuned portfolio of standard components, which can be used as a modular system to build complete

systems. FIPA presents this kit in three comprehensive main catalogs. One reason for us to provide you with a comprehensive overview – use it to discover the FIPA product world and get an idea of the possibilities we have to offer. Let us advise you on the next step.

Our employees will impress you with highly-developed application expertise and professional project management. We'll stand by you and offer our support.

Best regards, Rainer Mehrer  
CEO of FIPA GmbH

# FIPA: YOUR SERVICE POINT

FIPA places the highest value on an excellent service, including personal contact and professional project management. Just call us! We will happily provide the appropriate information, service, or product you require.



## Trainings and seminars

So that no questions go unanswered



## E-academy

Your flexible FIPA further training plan



## Tests and loan equipment

Doing is better than studying



## Service package with extended guarantee

For long-term satisfaction



## Personal advice

You have the choice:  
an initial consultation or an  
expert-level meeting



## Goods management

Order Monday - Thursday by 2 p.m. (CET)  
for same-day dispatch



## Installation and commissioning

"Doesn't work" isn't an option



## Hotline

Manned continuously from 7 a.m. to  
6 p.m. (CET), Monday to Friday



## Weekend installation

Nobody wants a machine  
that's doing nothing



## FIPA Service

For all information about our services,  
see [www.fipa.com](http://www.fipa.com)

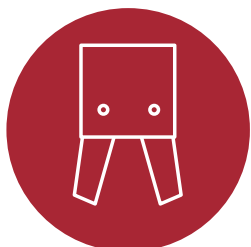


*A highly-developed service culture includes personal contact and professional project management. Both of these are important at FIPA. This is the only way to create the best possible solutions for all problems relating to End-of-Arm-Tooling, vacuum and lifting technology.*

Giovana Sarmiento Diaz-Schäfer | Project Engineer Business Unit Packaging

## KEY ELEMENTS

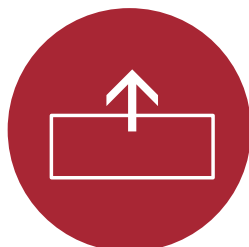
The fascination of modular systems is that a limited number of elements can give rise to endless possibilities for new developments. These can be achieved in the shortest possible time frame with reliable results.



END-OF-ARM-TOOLING



VACUUM TECHNOLOGY



LIFTING TECHNOLOGY

## MARKET PLACE

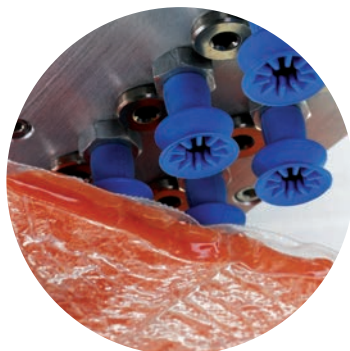
PLASTICS



SHEET METAL



PACKAGING



GENERAL INDUSTRIES



Regardless  
whether in robotics,  
lifting technology,  
or in general handling  
tasks – our  
industry-specific  
solutions make  
FIPA unique.



## END-OF-ARM-TOOLING

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With FIPA, you benefit from an innovative series of End-of-Arm-Tooling components that combine to form an extensive modular construction kit that comprises varied sizes of sprue grippers, fastening elements, and diverse accessories – all of which can be tailored to your specific application.

The FIPA product range includes a wide range of products for End-of-Arm-Tooling , such as

- Quick-change systems
- Grippers
- Parallel and angular grippers
- ID grippers and gripper fingers
- Magnetic grippers
- Needle grippers
- Air nippers
- Profile systems

And much more at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog



## Quick-change systems

The interface to the robot

- Round and square
- Also available in stainless steel
- Standardized frame sizes
- Safety ensured by SAFE-LOCK

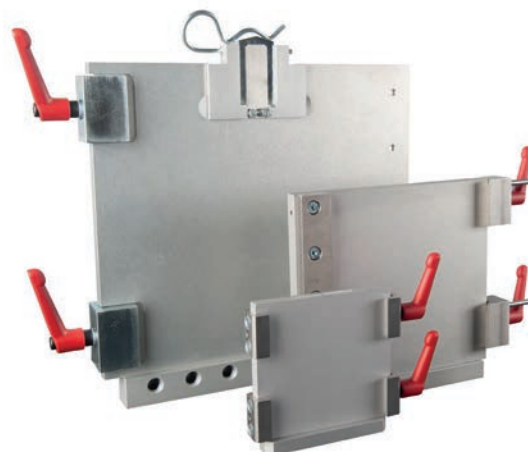


### Round

Item no.	Diameter [mm]	SAFE-LOCK	Microvalves	Gripper side	Robot side
<b>SR50-A-SL (SR50-A-SL-MV)</b>	50	•	•		•
<b>SR50-B</b>	50			•	
<b>SR90-A-SL (SR90-A-SL-MV)</b>	90	•	•		•
<b>SR90-B</b>	90			•	
<b>SR150-A-SL</b>	150	•			•
<b>SR150-B</b>	150			•	

### Square

Item no.	Dimensions [mm]	Gripper side	Robot side
<b>GR05.041</b>	60 x 60		•
<b>GR05.042</b>	60 x 60	•	
<b>GR05.021</b>	100 x 100		•
<b>GR05.022</b>	100 x 100	•	
<b>GR05.031</b>	160 x 160		•
<b>GR05.032</b>	160 x 160	•	
<b>GR05.051</b>	250 x 250		•
<b>GR05.052</b>	250 x 250	•	



You can find out all about quick-change systems at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog.

# Grippers

The industry standard for gripping sprues

- Miniature grippers for very tight spaces
- Power gripper with a very high clamping force
- A number of different jaw shapes
- Easy to replace due to identical connection and external dimensions



## Miniature grippers, Series 60, 80 and 90 – single-action

Principle	Jaw shapes	
	Standard	HNBR pad
without sensor	GR04.060	--
without sensor	GR04.080	--
without sensor	GR04.090	GR04.090H
mechanical direct PNP	GR04.090-1P	--
mechanical direct NPN	GR04.090-1N	--
direct PNP	--	GR04.090H-2P
direct NPN	--	GR04.090H-2N
indirect PNP	GR04.090-3P	--



Miniature grippers  
Series 60

Details of grippers can be found at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog.



**Grippers, Series 100 – single-action**

Principle	Jaw shapes						
	Standard	Rounded sawtooth	Straight sawtooth	HNBR pad	Completely HNBR shape	Universal	extra-wide
without sensor	GR04.100	GR04.100B	GR04.100S	GR04.100H	GR04.100HNBR	GR04.100U	GR04.100XW
mechanical direct PNP	GR04.100-1P	--	GR04.100S-1P	--	--	--	--
mechanical direct NPN	GR04.100-1N	--	GR04.100S-1N	--	--	--	--
direct PNP	GR04.100-2P	--	--	GR04.100H-2P	--	--	GR04.100XW-2P
direct NPN	GR04.100-2N	--	--	GR04.100H-2N	--	--	GR04.100XW-2N
indirect PNP	GR04.100-3P	--	--	--	--	--	GR04.100XW-3P
indirect NPN	GR04.100-3N	--	--	--	--	--	GR04.100XW-3N

**Grippers, Series 100 – dual-action**

without sensor	GR04.102	--	--	--	--	--	--
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**Grippers, Series 130 – single-action**

Principle	Jaw shapes						
	Standard	Sawtooth round	Sawtooth straight	Sawtooth extra-long	HNBR pads	Universal	extra-wide
without sensor	GR04.130	GR04.130B	GR04.130S	GR04.130SXL	GR04.130H	GR04.130U	GR04.130XW
mechanical direct PNP	GR04.130-1P	GR04.130B-1P	--	--	--	--	--
mechanical direct NPN	GR04.130-1N	GR04.130B-1N	--	--	--	--	--
indirect PNP	GR04.130-3P	GR04.130B-3P	--	--	--	--	GR04.130XW-3P

**Grippers, Series 2016 – single-action**

Principle	Jaw shapes		
	straight	Sawtooth	HNBR pads
without sensor	GR04.2016R	GR04.2016S	GR04.2016H
mechanical direct PNP	GR04.2016RC	GR04.2016SC	GR04.2016HC
mechanical direct NPN	GR04.2016RC/NPN	GR04.2016SC/NPN	GR04.2016HC/NPN

**The product range is completed by**

- Series 140 with very high gripping force
- Series 840 with feed stroke for retraction to the component and back stroke for the complete retraction to deposit the component



## Parallel and angular grippers

Accurately positioned gripping, lifting up and depositing of components

- Parallel grippers for large strokes
- 2-finger parallel grippers for pick & place applications, handling of inserts
- 3-finger gripper for precise handling of, for example, inserts
- Angular grippers for gripping on undercuts or for clamping components
- Single-acting and for short cycle times  
double-acting versions available



## ID grippers

For workpieces with recesses or drilled holes

- Compact design
- Gripper heads in 3 - 10 mm available in food-safe materials
- High holding force
- Elastomer bellows made of EPDM or silicon
- Simple and non-destructive change of the gripper heads or of the elastomer bellows



## Gripper fingers

Removal of complex components with undercuts

- 35° and 95° angle stroke
- Single-action with return spring
- Gentle gripping with HNBR elastomer pads
- Housing and jaws made of anodized aluminum alloy



You can find out all about our products at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog.

## Magnetic grippers

Handling of metal sheets or ferromagnetic workpieces

- Powerful permanent magnets
- Handling without a vacuum
- Energy supply is needed only for gripping or depositing



Item no.	Control principle		Holding force [N]*	Sensor monitoring optionally available
	electronic	pneumatic		
<b>MG35</b>	•		160	
<b>MG55</b>	•		420	
<b>MG70</b>	•		720	
<b>PMG24</b>		•	13	
<b>PMG40</b>		•	57	•
<b>PMG70</b>		•	135	•

\* The actual holding force depends on many factors. Please consult us if in doubt.

## Needle grippers

Handling of flexible or air-permeable goods

- Control using compressed air
- Short cycle times
- Monitoring of the piston position optionally available
- Designs that include sensors are available



Item no.	Number of needles	Needle diameter [mm]	Mandrel hole	Stroke [mm]
<b>GR04.740B</b>	4	2	•	0 - 3
<b>GR04.711-70</b>	12	2		0 - 7.5
<b>GR04.720-75</b>	8	2	•	0 - 7.5

## Air nippers

Separating and cutting of plastic sprues or metal wires

- A large selection of cutting inserts provide individual options for applications
- Integration directly into the gripper, into trimming stations, or for manual actuation



Item no.	Shape		Type of handling		Max. cutting force[N]	suitable cutting insert*	
	round	square	manual	automatic		straight	angled
<b>GT-N10</b>	•		•		588	N10LAB2	N10AP
<b>GT-N20</b>	•		•		1372	N20AJ	N20PF
<b>GT-N30</b>	•		•		2744	N30AJ	N30AP
<b>GT-NR10L</b>	•			•	588	N10LAB2	N10LAP
<b>GT-NR20</b>	•			•	1372	N20AJ	N20PF
<b>GT-NR30</b>	•			•	2744	N30AJ	N30AP
<b>GT-NS10L</b>		•		•	588	N10LAB2	N10LAP
<b>GT-NS20</b>		•		•	1372	N20AJ	N20PF
<b>GT-NS30</b>		•		•	2744	N30AJ	N30AP

\* Cutting inserts are just a selection of examples



Cutting inserts for plastic,  
L-shape



Cutting inserts for plastic,  
lateral cutting edge



Cutting inserts for plastic,  
Z-shape

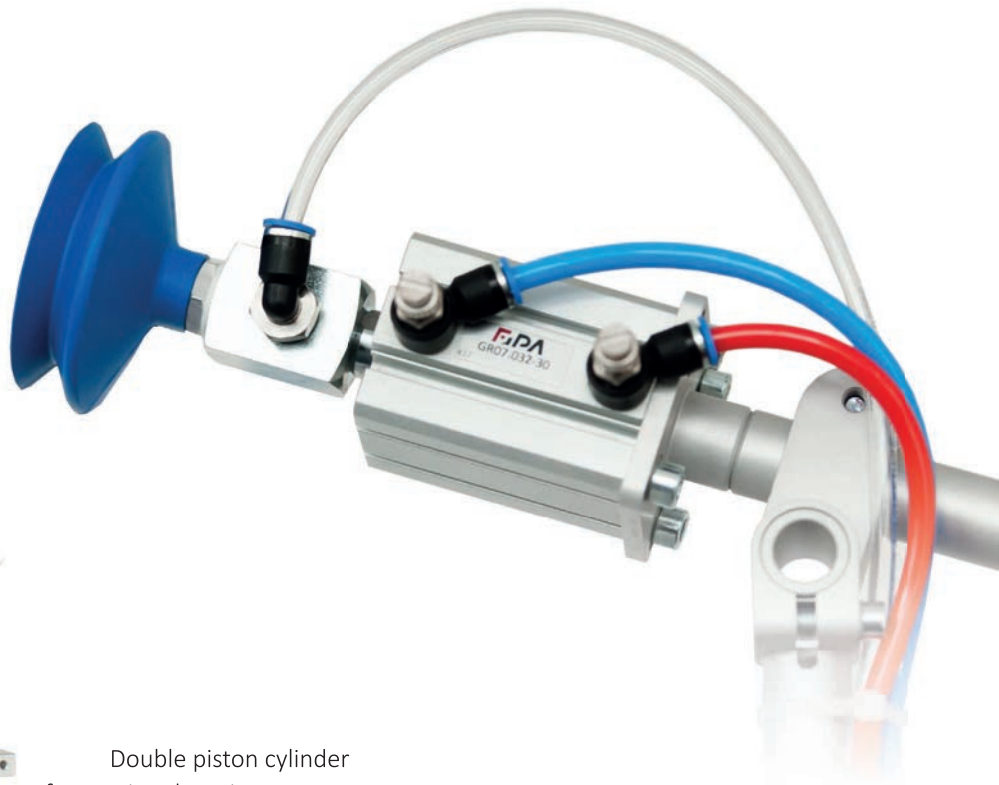


Cutting inserts for plastic  
and metal, straight shape

## Linear technology

### Double-acting linear components

- Precise positioning of gripper components and vacuum cups possible
- Corresponding sensors for monitoring the operating position can be provided as an option



Double piston cylinder  
for moving the gripper component  
precisely to the workpiece

Short-stroke cylinder  
to compensate for the  
height difference



Guide carriages  
for the precise positioning  
of gripper elements

## Profile systems

The basis for gripper systems

- Aluminum extrusions
- Material: AlMgSi 0.5 F25
- Special lengths over 2,000 mm on request

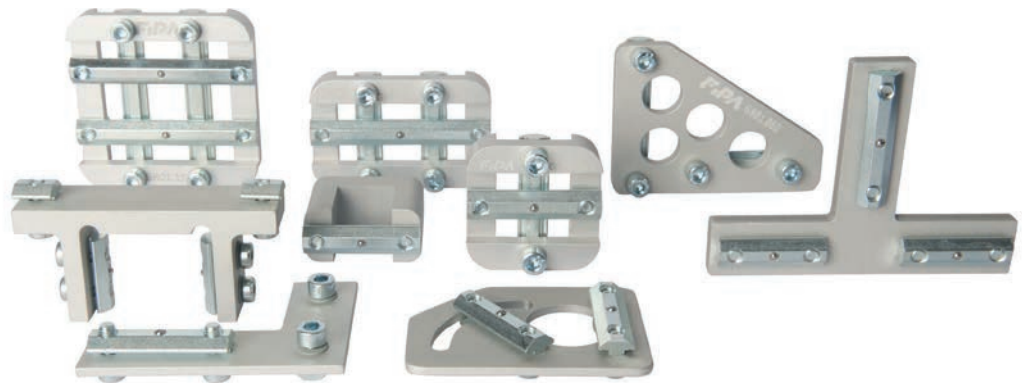


Item no.	Type of extrusion	Height [mm]	Width [mm]	Layout
<b>GR01.003.2000</b>	S-line	20	20	
<b>GR01.004.2000</b>	S-line	20	40	
<b>GR01.007.2000</b>	S-line	40	40	
<b>GR01.008.2000</b>	M-line	25	25	
<b>GR01.009.2000</b>	M-line	25	50	
<b>GR-XL01.003.2000</b>	X-line	40	40	
<b>GR-XL01.004.2000</b>	X-line	40	80	
<b>GR-XL01.005.2000</b>	X-line	80	80	

## Profile connectors

Ensure solid holding

- FIPA profile connectors ensure the firm connection of two profile pieces
- Cross connectors are often used here
- Additional designs, for example for connections at variable angles, are also available

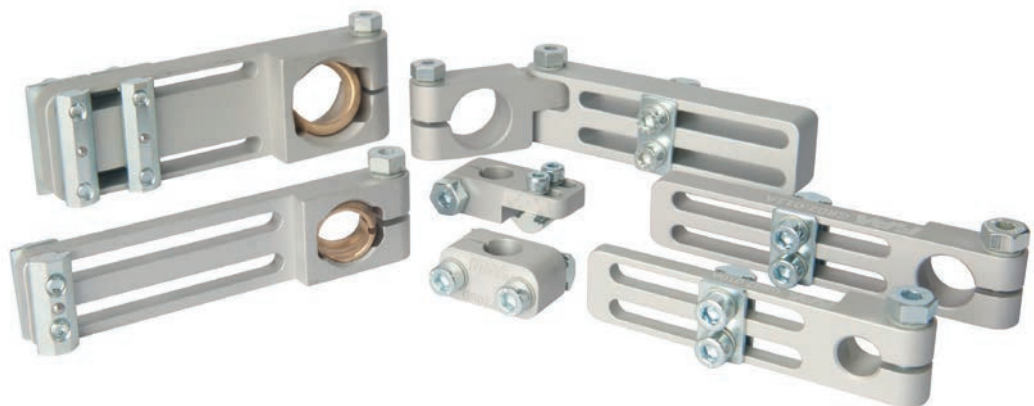


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## Angle clamps

Versatile integration of suction elements into gripper systems

- Various designs and clamp diameters are available
- For connecting suction fingers and elbow arms
- Functionality plays a significant role here. FIPA offers a wide variety of components.





## Gripper arms



Attaching and integrating suction and gripper components in gripper systems

- Spring-loaded models with anti-rotation device ensure handling that is gentle on workpieces and process-reliable
- Spring-loaded designs absorb the stroke during the ejection movement of the injection molding machine
- Rigid and adjustable designs of the elbow arm and suction fingers are available

### Elbow arms

	Clamping Ø [mm]	Design				Stroke [mm]
		rigid	adjustable	spring-loaded	non-rotating	
	10	•				
	14	•				
	20	•				
	30	•				
	10		•	•		20
	14		•	•		35
	20		•	•		40

### Suction fingers

	Clamping Ø [mm]	Design				Stroke [mm]
		rigid	adjustable	spring-loaded	non-rotating	
	10	•		•	•	20
	14	•		•	•	35
	20	•		•	•	40
	10		•	•		20
	14		•	•		35
	20		•	•		40

Additional designs can be found at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog.





## Suspensions

Compensates for differences in height or in the ejector stroke in the injection molding

- For fast cycle times in highly dynamic applications
- With no additional expense in control technology
- Non-rotating designs allow the use of oval vacuum cups

### Suspensions, secured against rotating by internal spring

	Stroke [mm]	Smooth body	Threaded insert
	10	•	
	25	•	
	20	•	
	35	•	
	25	•	
	50	•	
	10		•
	25		•
	10		•
	25		•
	20		•
	35		•
	25		•
	50		•
	40		•
	80		•

The product range is completed by:



Suspensions with  
internal spring



Suspensions  
Standard



Suspensions  
Heavy-duty



Suspensions for  
direct vacuum cup  
mounting

You can find out all about suspensions at [www.fipa.com](http://www.fipa.com) or in the End-of-Arm-Tooling catalog.

## Sensors

Component monitoring and monitoring of the operating position

- Magnetic-field and inductive sensors for active gripper elements, such as grippers, parallel grippers, and gripper fingers
- Optical sensors for direct component inspection
- Signal distributors are used to bundle sensor signals. The signals are not just bundled here, however. They are also linked using an AND/OR logic.

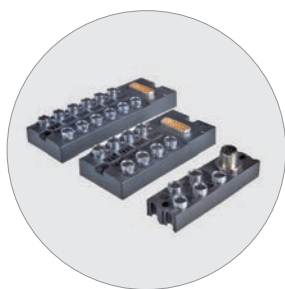


## Signal processing

As a link to the control unit



T-coupler  
with AND/OR logic link



Signal distributor M8  
with no logic link for  
transmitting up to twelve  
sensor signals



Sensor relay switch box  
for bundling and logic  
linking (AND) of sensor  
signals, since signal inputs  
on the robot control sys-  
tem are usually limited



Signal converter M8 /  
signal inverter M8  
Conversion of  
sensor signals  
independently of the  
robot control system

## Customer-specific gripper systems

Consulting, planning, realization

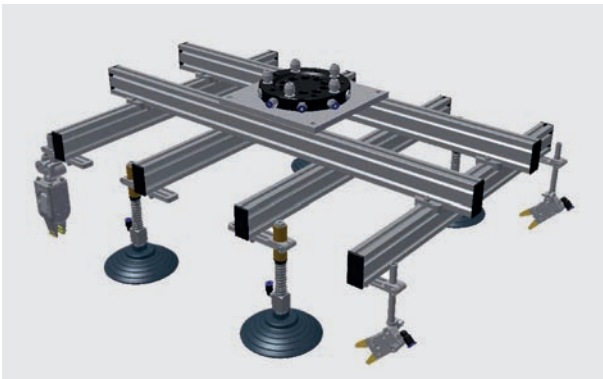
- FIPA specializes in handling tasks using pneumatic and vacuum technology
- Our range of services also includes completely pre-assembled gripper systems
- Our system solutions are used in a wide variety of industries: plastics, sheet-metal, packaging, foodstuffs, and more

### Three versions on offer for your gripper system:



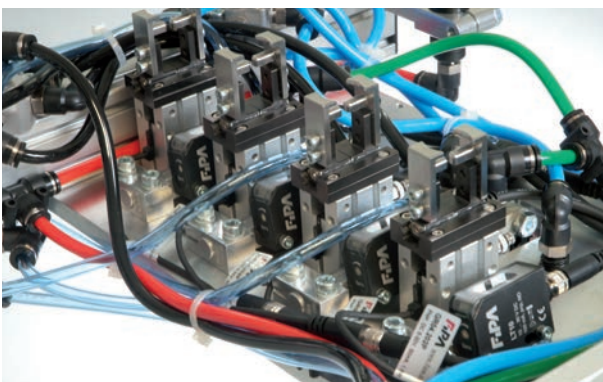
#### Variant 1

- Technical consultancy services by FIPA
- Delivery of all necessary components
- You take over the planning and the assembly of the gripper system



#### Variant 2

- FIPA plans the gripper system in the CAD
- We will provide you with all of the necessary components and instructions
- You build the gripper system yourself



#### Variant 3

- Turn-key solution
- FIPA takes over all of the project steps from planning to assembly
- Only fine adjustment needs to be performed on-site



## VACUUM TECHNOLOGY

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Our vacuum technology services range from the delivery of individual components to project planning and the supply of entire systems. FIPA covers the entire process chain – from vacuum generation to system peripheries, vacuum cups, and active gripping elements at the interface of industrial handling.

Our product range includes

- Vacuum cups
- Ejectors
- High-efficiency vacuum pumps
- Vacuum filter
- Valve technology
- Vacuum switch
- Vacuum regulator
- Vast assortment of connecting elements

You can find much more at [www.fipa.com](http://www.fipa.com) or in the Vacuum technology catalog.



## Vacuum cups

Used in various industries such as plastics, sheet-metal, packaging, and more

- Many vacuum cup designs – flat, bellows, and oval
- Handling of a wide array of plastic molded parts
- Handling of oily and dry metal sheets
- Use in an endless array of packaging and food applications



Series	Lip dimensions [mm]	Suitable for			
		Universal	Plastics	Sheet metal	Packaging
<b>Flat vacuum cups</b>					
SFU-A	Ø 1 - 19	•			
SKT-F	Ø 5 - 60		•		
SM-F	Ø 30 - 125			•	
SFU-D	Ø 4 - 85	•			
<b>Bellows vacuum cup – 1.5 bellows</b>					
SBU-1	Ø 5 - 88	•			
SKT-B1	Ø 11 - 63		•		
SM-B	Ø 30 - 125			•	
SP-BX1	Ø 15 - 75			•	•
SBF-A	Ø 10 - 80	•			
SBV-1	Ø 5 - 70				•
<b>Bellows vacuum cup – 2.5 bellows</b>					
SBU-2	Ø 4 - 88	•			
SKT-B2	Ø 5 - 62		•		
SP-BX2	Ø 15 - 75			•	•
SBV-2	Ø 4 - 50				•
<b>Oval vacuum cup – flat</b>					
SO-FU	4 x 2 - 100 x 35	•			
SKT-O	4 x 2 - 75 x 25		•		
SM-OF	55 x 16 - 145 x 70			•	
<b>Oval vacuum cups – 1.5 bellows</b>					
SM-OB	65 x 30 - 145 x 70			•	
SO-BV	35 x 28 - 100 x 55				•
<b>Oval vacuum cups – 2.5 bellows</b>					
SO-BU	25 x 8 - 75 x 25	•			

You will find additional vacuum cups at [www.fipa.com](http://www.fipa.com) or in the Vacuum technology catalog.

## Vacuum cups made of Thermalon®

High-quality material mixture, up to 160 °C (360 °F)

- Mark-free material made of Thermalon®
- Free of paint-inhibiting substances
- Labs-free and silicon-free
- Optimal adaption to uneven or slightly curved component surfaces
- High temperature resistance



Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Flat vacuum cups SKT-F

SKT-F-5	0.9
SKT-F-8	1.3
SKT-F-10	1.5
SKT-F-15	1.9
SKT-F-20	2.3
SKT-F-25	3
SKT-F-30	2
SKT-F-40	3.9
SKT-F-50	4
SKT-F-60	4.9

### Bellows vacuum cups SKT-B2

SKT-B2-5	3
SKT-B2-7	3
SKT-B2-9	3
SKT-B2-12	7
SKT-B2-14	10
SKT-B2-18	10
SKT-B2-20	10
SKT-B2-25	20
SKT-B2-32	14.5
SKT-B2-42	22
SKT-B2-52	27
SKT-B2-62	31

Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SKT-B1

SKT-B1-11	5.5
SKT-B1-14	5
SKT-B1-16	8.5
SKT-B1-18	5
SKT-B1-20	5
SKT-B1-22	8
SKT-B1-25	12
SKT-B1-33	11
SKT-B1-43	12.5
SKT-B1-53	15
SKT-B1-63	15

### Oval vacuum cups SKT-O

SKT-O-4x2	0.4
SKT-O-7x4	0.5
SKT-O-15x5	0.6
SKT-O-18x6	1
SKT-O-24x8	1
SKT-O-30x10	1
SKT-O-45x15	2
SKT-O-60x20	2.5
SKT-O-75x25	2.5

# Vacuum cup for dynamic handling of oily metal sheets

## Anti-slip cleats

- Very high shear force absorption
- Long service life even when deployed in highly dynamic processes
- Short set-up times and maintenance intervals
- No slippage in the dynamic handling of metal sheets



Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Flat vacuum cups SM-F

SM-F-30	3
SM-F-40	4
SM-F-50	5
SM-F-60	6
SM-F-80	7.6
SM-F-100	9.5
SM-F-125	12.5

### Oval flat vacuum cups SM-OF

SM-OF-55x16	3
SM-OF-65x20	3
SM-OF-95x30	3
SM-OF-85x40	4
SM-OF-105x50	5
SM-OF-125x60	6
SM-OF-145x70	7

Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SM-B

SM-B-30	8
SM-B-40	11
SM-B-50	12.5
SM-B-60	16.5
SM-B-80	22
SM-B-100	25
SM-B-125	32

### Oval bellows vacuum cups SM-OB

SM-OB-65x30	7
SM-OB-85x40	9
SM-OB-115x55	13
SM-OB-145x70	16.5



• **Flexible sealing lip** for high holding forces even on curved sheets

• **Anti-slip** supports for absorbing lateral forces and preventing deformations

## Bellows vacuum cups made of Varioflex®

Special polyurethane in different hardness levels

- Dimensionally stable black body (60° Shore A)
- Soft red sealing lip (30° Shore A)
- Very long service life
- Short cycle times thanks to a stable body and fast resetting
- Excellent holding force on dry component surfaces



Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SP-BX1

SP-BX1-15	4.5
SP-BX1-20	5
SP-BX1-25	5
SP-BX1-35	9
SP-BX1-50	10
SP-BX1-75	18
SP-BX1-115	28
SP-BX1-160	40

Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SP-BX2\*

SP-BX2-15	5.5
SP-BX2-20	6.5
SP-BX2-25	8
SP-BX2-35	14
SP-BX2-50	19
SP-BX2-75	25

\* Optionally available with a filter disk



• **Dimensionally stable body**  
60° Shore A

• **Flexible, mark-free sealing lip**  
30° Shore A



## Bellows vacuum cups made of vinyl

Gripping flexible or curved goods

- Long service life even in the case of abrasive product surfaces such as cardboard packaging
- Durable bellows vacuum cup with a long stroke
- Conformable sealing lip thanks to flexible material



Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SBV-1

SBV-1-5	2
SBV-1-7	2
SBV-1-13	5
SBV-1-15	5
SBV-1-20	8
SBV-1-22	8
SBV-1-28	9
SBV-1-30	10.5
SBV-1-35	12
SBV-1-52	6
SBV-1-70	20

Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SBV-2

SBV-2-4	1.3
SBV-2-6	3.5
SBV-2-10	5
SBV-2-18	11
SBV-2-23	9
SBV-2-32	14
SBV-2-40	16
SBV-2-50	20

## Silicon vacuum cup

FDA and EU1935/2004 compliant

- For direct and indirect contact with foodstuffs
- Vacuum cups for handling baked goods or chocolates
- Vacuum cups for various primary packaging
- Customized solutions are also possible



Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Flat vacuum cups SL-PF

SL-PF-16	2,4
SL-PF-18A	--
SL-PF-22	5

### Bellows vacuum cups SL-B

SL-B-38	24
SL-B-40	24
SL-B-40A	25

Series / lip dimensions	Stroke [mm]
-------------------------	-------------

### Bellows vacuum cups SL-PB

SL-PB-12	7
SL-PB-16	6

### Bellows vacuum cups SL-E

SL-E-33	16
SL-E-33	39

### Bellows vacuum cups SV-SB1

SV-SB1-16	6
SV-SB1-30	7

### Bellows vacuum cups SV-SB2

SV-SB2-30	13
SV-SB2-40	11

### Example applications from the food industry



Bellows vacuum cups  
Series SL-PF



Bellows vacuum cups  
Series SL-B



Bellows vacuum cups  
Series SL-E



Bellows vacuum cups  
Series SV-SB

## Bernoulli vacuum cups

Non-contact, deformation-resistant transport

- Also suitable for porous workpieces
- The gentlest handling
- When handling larger or heavier products, several Bernoulli vacuum cups can easily be combined



Series	Diameter [mm]	Holding force [N]
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### Bernoulli vacuum cups SX-B

<b>SX-B-20</b>	20	2.6
<b>SX-B-30</b>	30	4
<b>SX-B-40</b>	40	6.4
<b>SX-B-60</b>	60	13

### Bernoulli vacuum cups SX-B-PK

<b>SX-B-PK-20</b>	20	2.5
<b>SX-B-PK-30</b>	30	3
<b>SX-B-PK-40</b>	40	5.5
<b>SX-B-PK-60</b>	60	12

Sensitive foods can be transported using FIPA Bernoulli vacuum cups made of PEEK. PEEK is permitted for direct contact with foodstuffs (FDA/EC 1935/2004) and meets the stringent requirements of hygienic design.

# Ejectors

Working according to the Venturi-principle

- Inline ejectors, compact and light
- Heavy-duty ejectors for harsh operating conditions
- Basic ejectors for direct installation on the vacuum cup or solenoid valve
- Multi-chamber ejectors require little compressed air and provide high suction capacity
- Compact ejectors take up little space and provide a wide variety of functions



Designation	High Vacuum level	High Suction capacity	Resilient Construction	Integrated Blow-off function	Integrated Vacuum switches	Air-saving function
<b>Inline ejectors</b>	•	•				
<b>Heavy-duty ejectors</b>	•	•	•			
<b>Basic ejectors</b>	•	•			•	
<b>Multi-chamber ejectors</b>	•	•			•	•
<b>Compact ejectors</b>	•	•		•	•	•

## Sample designs of multi-chamber ejectors



Basic version with analog vacuum gauge



Air-saving function with pneumatic vacuum switches for operation without power



Air-saving function with a digital vacuum switch, for external disconnection of pressurized air

## Vacuum pumps

### Compact vacuum generator

- Dry-running vacuum pumps (DT) are preferred in plants in the pharmaceutical, packaging, and food industry
- Oil-lubricated vacuum pumps (DO) can be used both in dry and wet areas
- Uniform volume flow
- DO pumps also available as central vacuum supply unit

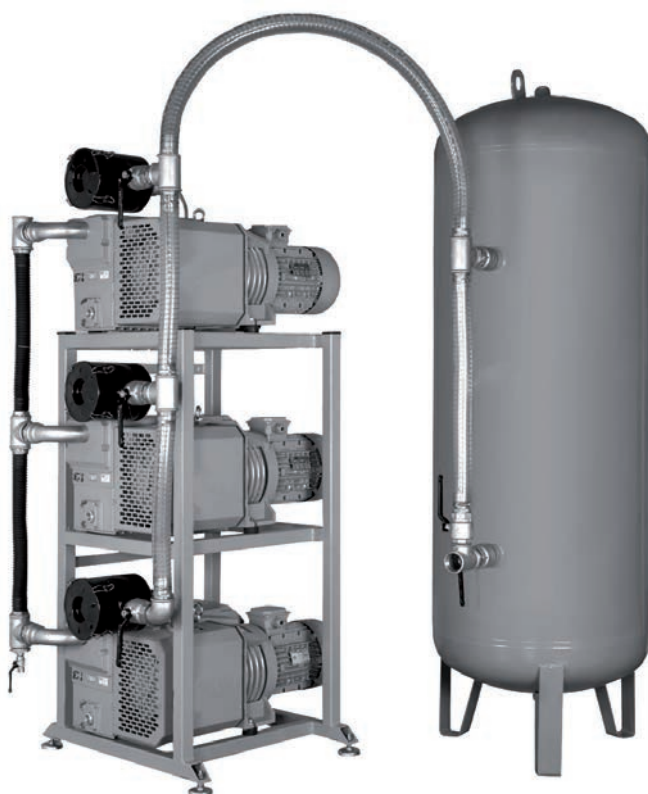


Designation	High Final vacuum	Dry Application	Wet Application	Continuous operation against final vacuum	Continuous operation against atmosphere
<b>DT – oil-free</b>		•		•	•
<b>DO – oil-lubricated</b>	•	•	•	•	

## Vacuum central supply units

### Complete solution for vacuum generation

- Compact construction, reliable operation
- One to three oil-lubricated pumps and control devices
- Portable vacuum central supply units
- Integrated vacuum tank



## Vacuum filter

Protect systems from damage

- Vacuum filters protect vacuum generators against contamination, damage, or moisture
- Pre-filter with paper insert for the dry area
- Universal filter for dry and wet areas
- Condensate separator for separating out water droplets



## Valve technology

To control vacuum and compressed-air applications

- The 2/2-way and 3/2-way valves can control processes such as suctioning, venting, and ventilation
- Directly controlled, internally vacuum-controlled, or compressed air-driven variants available
- Flow-control and touch valves for a wide array of handling applications



You can find out all about our products at [www.fipa.com](http://www.fipa.com), or in the Vacuum technology catalog.

## Pneumatic vacuum switch

Control and monitoring of system parameters

- No electrical connection required
- Switching point can be freely adjusted via an adjusting screw
- Hysteresis permanently pre-set to 120 mbar (rel.)



## Electromagnetic vacuum switch

Control and monitoring of system parameters

- Max. switching capacity (DC to 28 V, AC to 250 V) 2 A
- Switching point can be freely adjusted via an adjusting screw
- Hysteresis fixed at 6 % from switching point



## Digital and analog vacuum and pressure switches

Control and monitoring of system parameters

- Digital PNP- or NPN-signal
- Analog voltage signal 1 - 5 V
- Switching point and hysteresis freely adjustable via 7-segment LED



## Vacuum and pressure regulator

Allow a constant pressure or degree of vacuum

- Pressure regulator for the defined reduction of the operating pressure when activating linear cylinders, guide carriages, etc.
- Vacuum regulators with external leakage are suitable for application with a generous control range
- Precision vacuum regulator for meticulous processes



### Pressure regulator

- Pressure adjustment by knurled screw
- Integrated overpressure protection
- Limiting of the holding force of grippers during End-of-Arm-Tooling



### Vacuum regulators with external leakage

- Adjustment by knurled screw
- Use as a safety valve
- Can also be used in dusty environments



### Precision vacuum regulator

- Highly precise, continuous vacuum adjustment via a rotary knob with locking mechanism
- Suitable for measuring or testing purposes



### Vacuum regulator

- Precise adjustment via induction regulator
- Installation of a vacuum gauge recommended
- Suitable for measuring or testing purposes



## Tubing

Use in various industries and applications

- Hoses in various diameters, technical properties, and colors
- Versatile and robust



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## Connecting elements

Use in various industries and applications

- Large assortment of threaded connectors
- Connecting elements for vacuum and compressed air circuits in automation and handling systems





## LIFTING TECHNOLOGY

# FIPA.LIFT

With FIPALIFT tube lifters, work is accomplished with ease. The lifting devices can be adjusted to your individual needs – depending on your sector. This enables a more efficient, faster work process and relieves the stress on employees' bodies. A further advantage: all components are compatible with the entire FIPA vacuum technology and End-of-Arm-Tooling ranges

The FIPA hose lifters cover a lifting capacity of 5 to 230 kg

- FIPALIFT Basic, lifting force of 5 to 65 kg
- FIPALIFT Smart, lifting force of 5 to 55 kg
- FIPALIFT Easy, lifting force of 5 to 65 kg
- FIPALIFT Expert, lifting force of 30 to 230 kg
- FIPA Spider plug & play, load capacity of up to 500 kg

You can find much more at [www.fipa.com](http://www.fipa.com) or in the Lifting technology catalog.



Discover the entire range of lifting technology now at [www.fipa.com](http://www.fipa.com) or in the Lifting technology catalog.



## FIPALIFT set for handling packages up to 35 kg

Item no. **SH.SET.SMA.0035**

- FIPALIFT Smart  $\varnothing$  100 mm with Varioflex vacuum cups  $\varnothing$  160 mm
- Vacuum pump DT.40-3
- Filter and 10-m-hose



The lifting force depends on the suction tightness of the material to be lifted; the more leakage, the greater the losses in carrying capacity.



## FIPALIFT set for handling packages up to 65 kg

Item no. **SH.SET.SMA.0065**

- FIPALIFT Smart  $\varnothing$  120 mm with NBR bellows vacuum cup  $\varnothing$  200 mm
- Vacuum pump DT.60C-3
- Filter and 10-m-hose



The lifting force depends on the suction tightness of the material to be lifted; the more leakage, the greater the losses in carrying capacity.



## FIPALIFT set for handling bags up to 35 kg

Item no. **SH.SET.EXP.0035/BH**

- FIPALIFT Expert Ø 100 mm with oval suction shell 205 x 370 mm
- Side channel blowers 120 m<sup>3</sup>/h
- Filter and 10-m-hose



The lifting force depends on the suction tightness of the material to be lifted; the more leakage, the greater the losses in carrying capacity.

## Vacuum lifter – FIPA Spider

Modularity as a principle of thought

- Suitable for the horizontal handling of plates, metal sheets, or disks
- Easy to use with hand-slide valve; only one person is required to lift the load safely
- Easy to install:  
suspend – plug in – finished
- Low dead weight due to lightweight aluminum construction
- Loads of up to 250 kg and 500 kg in the case of suction-tight surfaces
- The vacuum lifter is used on a chain hoist





## PRODUCT CATALOGS

### Can't get enough of FiPA?

Visit [www.fiipa.com](http://www.fiipa.com), where you can find out all about End-of-Arm-Tooling, vacuum and lifting technology. Request the catalogs you want easily and quickly using our order form. You will also find detailed data sheets and CAD drawings.

#### END-OF-ARM-TOOLING



#### VACUUM TECHNOLOGY



#### LIFTING TECHNOLOGY



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