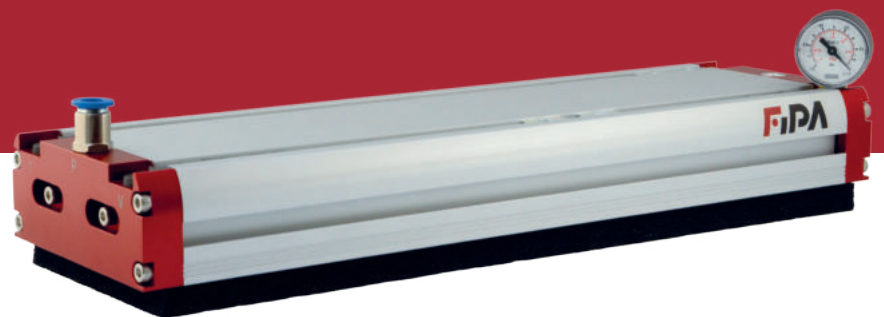


# VACUUM GRIPPING SYSTEMS

Product catalog



**FiPA**





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## Area grippers are the key to reducing downtime

Highly efficient and reliable: Area gripping systems can handle individual workpieces or entire layers without changing grippers and regardless of the position of the workpiece.

### FSG

**Robust, resistant, reliable**

The flat grippers are available in two widths and eight standard lengths each: With a low-wear sealing foam for handling inherently stable products, such as wood or glass, or with insert suction cups for moving flexible packaging.

Details from page 6



### SBX-F

**Efficient, secure grip, highly dynamic**

The premium product of the area gripper family in different versions, suitable for very complex applications. Components that are worn out or are no longer required for operation can be replaced in seconds thanks to the sophisticated design.

Details from page 34

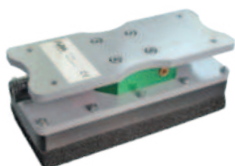


### TG

**Maximum service life, minimum maintenance**

The bag gripper is suitable for flexible, bag-like packs and shrink-wrap packaging.

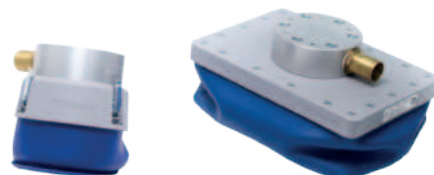
Details from page 44



### FORMHAND

**Bulky parcels, soft fleece or unwieldy objects – FORMHAND is the universal gripping cushion for making production and logistics more flexible.**

Details from page 48



### Sealing foam vs. vacuum cups

Sealing foam is always used for dimensionally stable workpieces. The surface may be smooth or even slightly textured. The sealing foam adapts very well to slight unevenness, can level it out and seal it.



Vacuum cups are ideal for workpieces that give way or deform slightly under their own weight during handling. This can be, for example, heavily loaded cardboard boxes as well as large panels made of different materials.



### Integrated ejectors vs. connection to an external pump

Area grippers with integrated ejectors are suitable for most applications and have the advantage that they can be controlled very easily with external control valves.

When handling air-permeable workpieces, an area gripper in combination with an external pump is advantageous, as an external pump can generate even higher volume flows than integrated ejectors. If several large area grippers are used at the same time, it may also make sense to use area grippers with an external pump, as in this case the maintenance costs for vacuum generation must be taken into account.



## Closing valves (check valves) vs. flow resistors

Both the closing valves and the flow resistors limit leakage when the gripper is partially occupied. The closing valves, designed as check valves in the FSG, largely close the openings behind unoccupied vacuum cells.

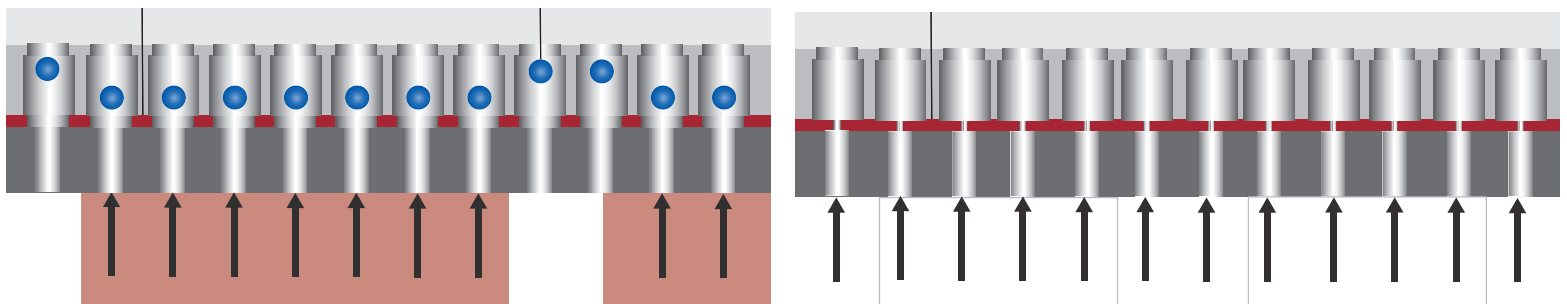
In contrast, the flow resistors limit the leakage that occurs. However, the openings behind unoccupied vacuum cells remain open.

With check valves, lower occupancy rates can therefore be achieved at higher vacuum levels than with flow resistors. However, surface grippers with ball valves may only be swivelled at angles of less than 90° to the horizontal.

Flow resistors are used in applications in which the gripper and workpiece must be swivelled at large angles.

They are also preferable for workpieces that are permeable to air and therefore require a high flow rate.

The minimum occupancy level for both variants depends on the workpiece.



## Integrated control valves

The standard area grippers in the FSG 130 series are available in the FSG-V 130 version with integrated control valves with suction and blow-off functions. This version eliminates the need for externally positioned control valves.

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*If you have any questions, we will be happy to advise you and test the area gripper for your application.*

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# Solutions for automated handling

Grip and move products or product layers dynamically and reliably without changing grippers: The FIPA area grippers of the FSG series can be used almost anywhere where the handling of larger parts is required. Typical applications can be found in the packaging industry.

Thanks to construction from an extruded aluminium profile, you benefit from an optimal price-performance ratio. Our sealing foams are characterised by a long service life and high reliability. They are extremely wear-resistant and resistant to ageing. Since they can be replaced quickly and without leaving residues, maintenance costs are low. In addition, the contamination-proof valve technology ensures high system availability and process reliability.



Available with check valves or flow reduction for safe gripping and handling of various products.



Robust design, long service life and high reliability.



Variants with low-wear foam or two sizes of plug-in vacuum cups.



Reliable vacuum supply through integrated ejectors or through a connection to an external vacuum source.

### FSG 60 – the narrow one



- > Small width of only 60 mm, for use in confined space
- > Compact due to built-in ejectors; alternatively with connection to central vacuum supply
- > With check valves or flow resistors
- > The sealing foam can be replaced quickly, non-destructively and different sealing foams are on request (height, moulding)
- > The plug-in vacuum cups with a diameter of 20 mm can be replaced quickly and easily
- > Low noise emissions for a pleasant working environment

### FSG 130 – the all-rounder



- > Width 130 mm, the „all-round gripper“ for most applications
- > With built-in ejectors or with connection to the central vacuum supply
- > With check valves or flow resistors
- > The sealing foam can be replaced quickly, non-destructively and different sealing foams are on request (height, moulding)
- > The plug-in vacuum cups with a diameter of 20 mm or 40 mm can be replaced quickly and easily



FSG-V 130 – with integrated valves



- > Only with built-in cartridge ejectors
- > With integrated valves to control the suction (NO) and blow-off (NC) functions
- > With check valves or flow reduction
- > Only with sealing foam that can be replaced quickly, non-destructively and without leaving residues

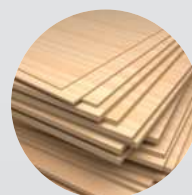
Simple, flexible and secure.  
One device for many applications.



Packaging



Cans & Bottles



Wood



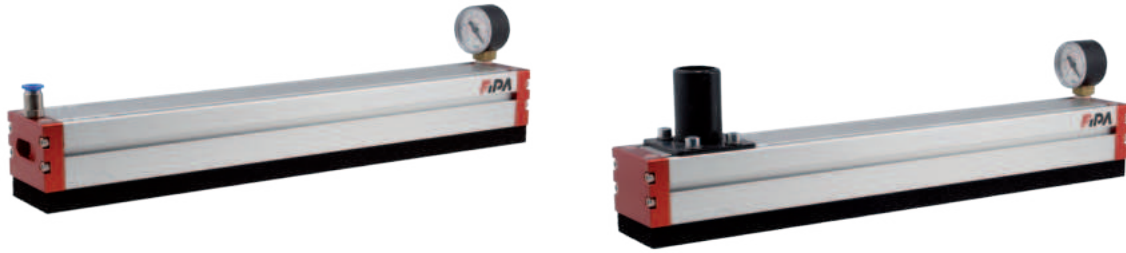
Glass



# Area gripper FSG 60

## Area gripper FSG 60 with sealing foam

### Area gripper FSG 60 with sealing foam



#### Product notes

- > For automated handling of individual products or product layers without changing grippers.
- > Especially for use in confined spaces
- > Low noise emissions for a pleasant working environment
- > With built-in ejectors or with connection to central vacuum supply
- > With check valves or flow resistors
- > The sealing foam can be replaced quickly, non-destructively and without leaving residues
- > Suitable for handling inherently stable products such as wood or glass

#### Technical data

Item no.	Valve type	Vacuum generation	Number of suction cells	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [l/min]	Suction power at 6 bar (87 psi) [W/min]	Nominal flow rate [l/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	Dimensions
											A [mm]
<b>FSG.VG60.320.3F15C1</b>	Check valve	with integrated ejectors	45	4 - 6 (58 - 87)	100	350	--	243	-600 (-17.7)	1.4	320
<b>FSG.VG60.420.3F15C2</b>	Check valve	with integrated ejectors	60	4 - 6 (58 - 87)	200	700	--	324	-600 (-17.7)	1.6	420
<b>FSG.VG60.520.3F15C2</b>	Check valve	with integrated ejectors	75	4 - 6 (58 - 87)	200	700	--	405	-600 (-17.7)	1.8	520
<b>FSG.VG60.720.3F15C2</b>	Check valve	with integrated ejectors	105	4 - 6 (58 - 87)	200	700	--	567	-600 (-17.7)	2.3	720
<b>FSG.VG60.820.3F15C2</b>	Check valve	with integrated ejectors	120	4 - 6 (58 - 87)	200	700	--	648	-600 (-17.7)	2.5	820
<b>FSG.VG60.1020.3F15C3</b>	Check valve	with integrated ejectors	150	4 - 6 (58 - 87)	300	1,050	--	811	-600 (-17.7)	3	1,020
<b>FSG.VG60.1120.3F15C3</b>	Check valve	with integrated ejectors	165	4 - 6 (58 - 87)	300	1,050	--	892	-600 (-17.7)	3.2	1,120
<b>FSG.VG60.1220.3F15C3</b>	Check valve	with integrated ejectors	180	4 - 6 (58 - 87)	300	1,050	--	973	-600 (-17.7)	3.4	1,220
<b>FSG.PG60.320.3F15C1</b>	Flow reduction	with integrated ejectors	45	4 - 6 (58 - 87)	100	350	--	243	-600 (-17.7)	1.4	320
<b>FSG.PG60.420.3F15C2</b>	Flow reduction	with integrated ejectors	60	4 - 6 (58 - 87)	200	700	--	324	-600 (-17.7)	1.6	420
<b>FSG.PG60.520.3F15C2</b>	Flow reduction	with integrated ejectors	75	4 - 6 (58 - 87)	200	700	--	405	-600 (-17.7)	1.8	520
<b>FSG.PG60.720.3F15C2</b>	Flow reduction	with integrated ejectors	105	4 - 6 (58 - 87)	200	700	--	567	-600 (-17.7)	2.3	720
<b>FSG.PG60.820.3F15C2</b>	Flow reduction	with integrated ejectors	120	4 - 6 (58 - 87)	200	700	--	648	-600 (-17.7)	2.5	820
<b>FSG.PG60.1020.3F15C3</b>	Flow reduction	with integrated ejectors	150	4 - 6 (58 - 87)	300	1,050	--	811	-600 (-17.7)	3	1,020
<b>FSG.PG60.1120.3F15C3</b>	Flow reduction	with integrated ejectors	165	4 - 6 (58 - 87)	300	1,050	--	892	-600 (-17.7)	3.2	1,120



Technical data											Dimen- sions
Item no.	Valve type	Vacuum generation	Number of suction cells	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power at 6 bar (87 psi) [Nl/min]	Nominal flow rate [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	A [mm]
<b>FSG.PG60.1220.3F15C3</b>	Flow reduction	with integrated ejectors	180	4 - 6 (58 - 87)	300	1,050	--	973	-600 (-17.7)	3.4	1,220
<b>FSG.VG60.320.3F15T</b>	Check valve	central vacuum supply	45	--	--	--	150	162	-400 (-11.8)	1	320
<b>FSG.VG60.420.3F15T</b>	Check valve	central vacuum supply	60	--	--	--	300	216	-400 (-11.8)	1.2	420
<b>FSG.VG60.520.3F15T</b>	Check valve	central vacuum supply	75	--	--	--	390	270	-400 (-11.8)	1.4	520
<b>FSG.VG60.720.3F15T</b>	Check valve	central vacuum supply	105	--	--	--	510	378	-400 (-11.8)	1.9	720
<b>FSG.VG60.820.3F15T</b>	Check valve	central vacuum supply	120	--	--	--	560	432	-400 (-11.8)	2.1	820
<b>FSG.VG60.1020.3F15T</b>	Check valve	central vacuum supply	150	--	--	--	750	540	-400 (-11.8)	2.6	1,020
<b>FSG.VG60.1120.3F15T</b>	Check valve	central vacuum supply	165	--	--	--	900	594	-400 (-11.8)	2.8	1,120
<b>FSG.VG60.1220.3F15T</b>	Check valve	central vacuum supply	180	--	--	--	900	648	-400 (-11.8)	3.1	1,220
<b>FSG.PG60.320.3F15T</b>	Flow reduction	central vacuum supply	45	--	--	--	150	162	-400 (-11.8)	1	320
<b>FSG.PG60.420.3F15T</b>	Flow reduction	central vacuum supply	60	--	--	--	300	216	-400 (-11.8)	1.2	420
<b>FSG.PG60.520.3F15T</b>	Flow reduction	central vacuum supply	75	--	--	--	390	270	-400 (-11.8)	1.4	520
<b>FSG.PG60.720.3F15T</b>	Flow reduction	central vacuum supply	105	--	--	--	510	378	-400 (-11.8)	1.9	720
<b>FSG.PG60.820.3F15T</b>	Flow reduction	central vacuum supply	120	--	--	--	560	432	-400 (-11.8)	2.1	820
<b>FSG.PG60.1020.3F15T</b>	Flow reduction	central vacuum supply	150	--	--	--	750	540	-400 (-11.8)	2.6	1,020
<b>FSG.PG60.1120.3F15T</b>	Flow reduction	central vacuum supply	165	--	--	--	900	594	-400 (-11.8)	2.8	1,120
<b>FSG.PG60.1220.3F15T</b>	Flow reduction	central vacuum supply	180	--	--	--	900	648	-400 (-11.8)	3.1	1,220

### Optional accessories and spare parts

Optional accessories:

- > Electronic vacuum switch with display GS02.001
- > Electronic vacuum switch GS02.003
- > Electronic vacuum and pressure switch 20.026

Spare parts:

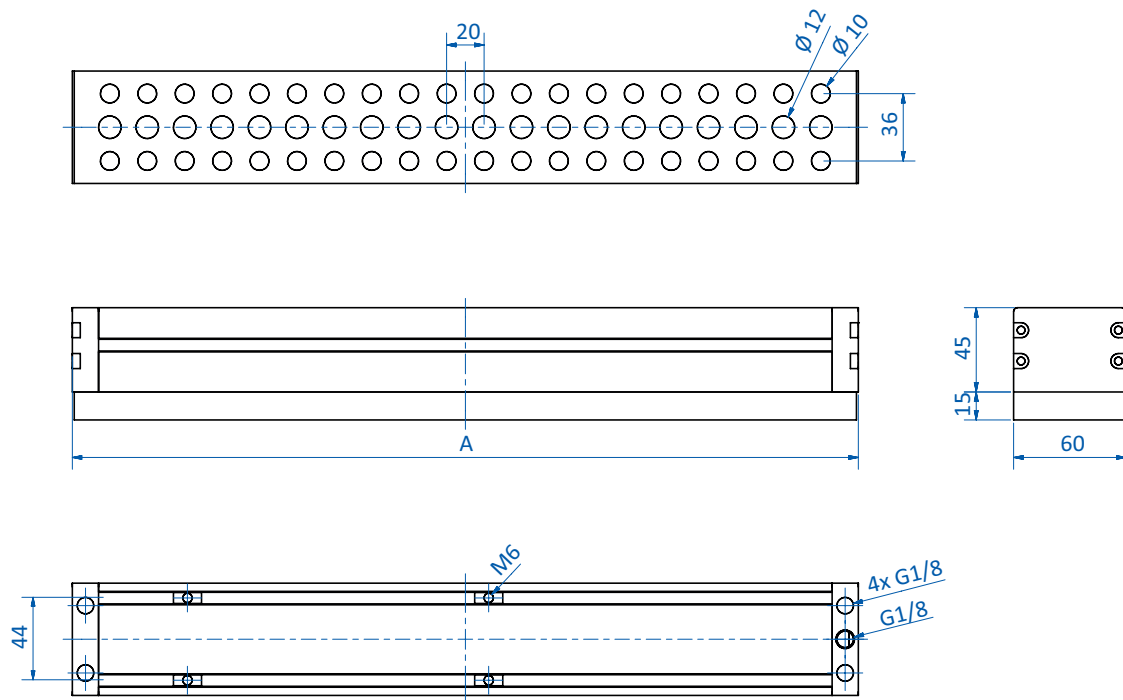
- > Cartridge ejector for area gripper FSG.ACC130.0003

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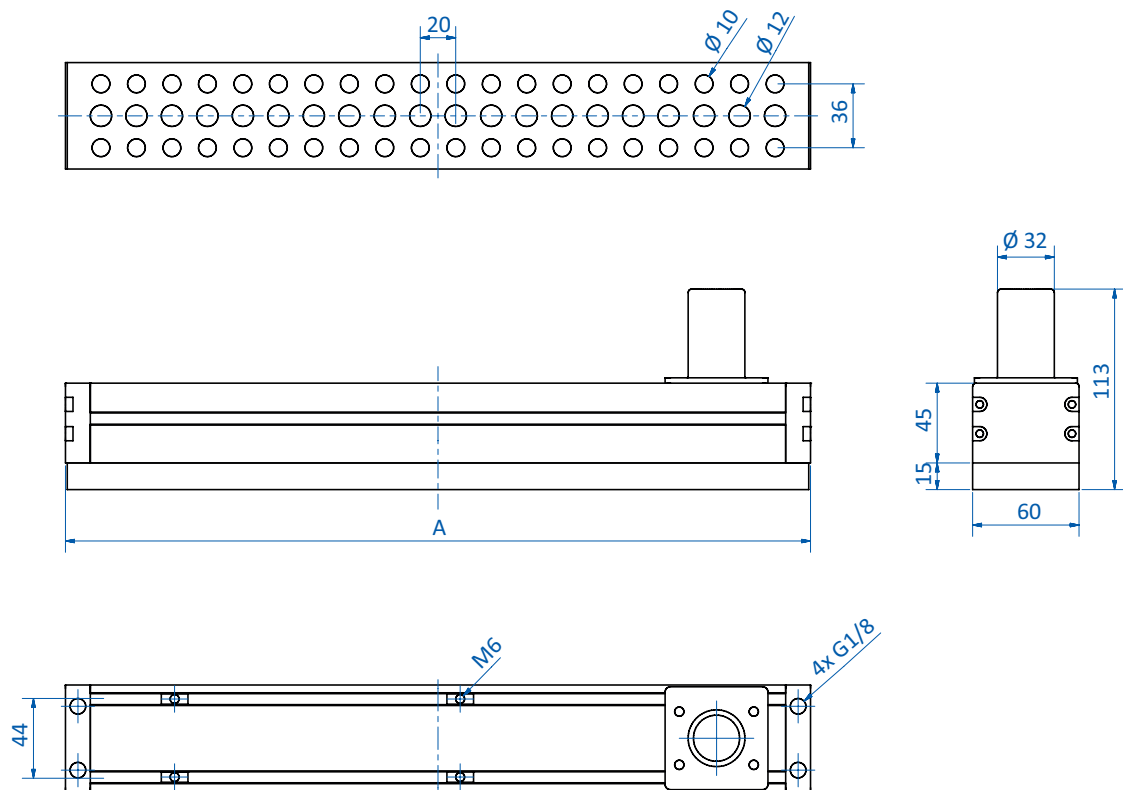
# Area gripper FSG 60

Area gripper FSG 60 with sealing foam

## Dimensions



FSG.VG60.320.3F15C1 | FSG.VG60.420.3F15C2 | FSG.VG60.520.3F15C2 | FSG.VG60.720.3F15C2 | FSG.VG60.820.3F15C2 | FSG.VG60.1020.3F15C3 | FSG.VG60.1120.3F15C3 | FSG.VG60.1220.3F15C3 | FSG.PG60.320.3F15C1 | FSG.PG60.420.3F15C2 | FSG.PG60.520.3F15C2 | FSG.PG60.720.3F15C2 | FSG.PG60.820.3F15C2 | FSG.PG60.1020.3F15C3 | FSG.PG60.1120.3F15C3 | FSG.PG60.1220.3F15C3



FSG.VG60.320.3F15T | FSG.VG60.420.3F15T | FSG.VG60.520.3F15T | FSG.VG60.720.3F15T | FSG.VG60.820.3F15T | FSG.VG60.1020.3F15T | FSG.VG60.1120.3F15T | FSG.VG60.1220.3F15T | FSG.PG60.320.3F15T | FSG.PG60.420.3F15T | FSG.PG60.520.3F15T | FSG.PG60.720.3F15T | FSG.PG60.820.3F15T | FSG.PG60.1020.3F15T | FSG.PG60.1120.3F15T | FSG.PG60.1220.3F15T

# Area gripper FSG 60

Area gripper FSG 60 with plug-in cups

Area gripper FSG 60 with plug-in cups



## Product notes

- > For automated handling of individual products or product layers without changing grippers.
- > Especially for use in confined spaces
- > Low noise emissions for a pleasant working environment
- > With built-in ejectors or with connection to central vacuum supply
- > With check valves or flow resistors
- > The plug-in cups can be replaced easily
- > Ideal for moving flexible packaging, such as cardboard boxes

## Technical data

## Dimensions

Item no.	Valve type	Vacuum generation	Number of vacuum cups	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power at 6 bar (87 psi) [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	A [mm]
<b>FSG.VG60.285.3C20C1</b>	Check valve	with integrated ejectors	32	4 - 6 (58 - 87)	100	350	386	-600 (-17.7)	1	285
<b>FSG.VG60.401.3C20C2</b>	Check valve	with integrated ejectors	47	4 - 6 (58 - 87)	200	700	566	-600 (-17.7)	1.6	401
<b>FSG.VG60.516.3C20C2</b>	Check valve	with integrated ejectors	62	4 - 6 (58 - 87)	200	700	747	-600 (-17.7)	1.9	516
<b>FSG.VG60.701.3C20C2</b>	Check valve	with integrated ejectors	86	4 - 6 (58 - 87)	200	700	1,037	-600 (-17.7)	2.4	701
<b>FSG.VG60.816.3C20C2</b>	Check valve	with integrated ejectors	101	4 - 6 (58 - 87)	200	700	1,218	-600 (-17.7)	2.7	816
<b>FSG.VG60.1001.3C20C3</b>	Check valve	with integrated ejectors	125	4 - 6 (58 - 87)	300	1,050	1,507	-600 (-17.7)	3.2	1,001
<b>FSG.VG60.1117.3C20C3</b>	Check valve	with integrated ejectors	140	4 - 6 (58 - 87)	300	1,050	1,688	-600 (-17.7)	3.5	1,117
<b>FSG.VG60.1209.3C20C3</b>	Check valve	with integrated ejectors	152	4 - 6 (58 - 87)	300	1,050	1,833	-600 (-17.7)	3.7	1,209
<b>FSG.PG60.285.3C20C1</b>	Flow reduction	with integrated ejectors	32	4 - 6 (58 - 87)	100	350	386	-600 (-17.7)	1	285
<b>FSG.PG60.401.3C20C2</b>	Flow reduction	with integrated ejectors	47	4 - 6 (58 - 87)	200	700	566	-600 (-17.7)	1.6	401
<b>FSG.PG60.516.3C20C2</b>	Flow reduction	with integrated ejectors	62	4 - 6 (58 - 87)	200	700	747	-600 (-17.7)	1.9	516
<b>FSG.PG60.701.3C20C2</b>	Flow reduction	with integrated ejectors	86	4 - 6 (58 - 87)	200	700	1,037	-600 (-17.7)	2.4	701
<b>FSG.PG60.816.3C20C2</b>	Flow reduction	with integrated ejectors	101	4 - 6 (58 - 87)	200	700	1,218	-600 (-17.7)	2.7	816
<b>FSG.PG60.1001.3C20C3</b>	Flow reduction	with integrated ejectors	125	4 - 6 (58 - 87)	300	1,050	1,507	-600 (-17.7)	3.2	1,001
<b>FSG.PG60.1117.3C20C3</b>	Flow reduction	with integrated ejectors	140	4 - 6 (58 - 87)	300	1,050	1,688	-600 (-17.7)	3.5	1,117
<b>FSG.PG60.1209.3C20C3</b>	Flow reduction	with integrated ejectors	152	4 - 6 (58 - 87)	300	1,050	1,833	-600 (-17.7)	3.7	1,209



# Area gripper FSG 60

## Area gripper FSG 60 with plug-in cups

### Optional accessories and spare parts

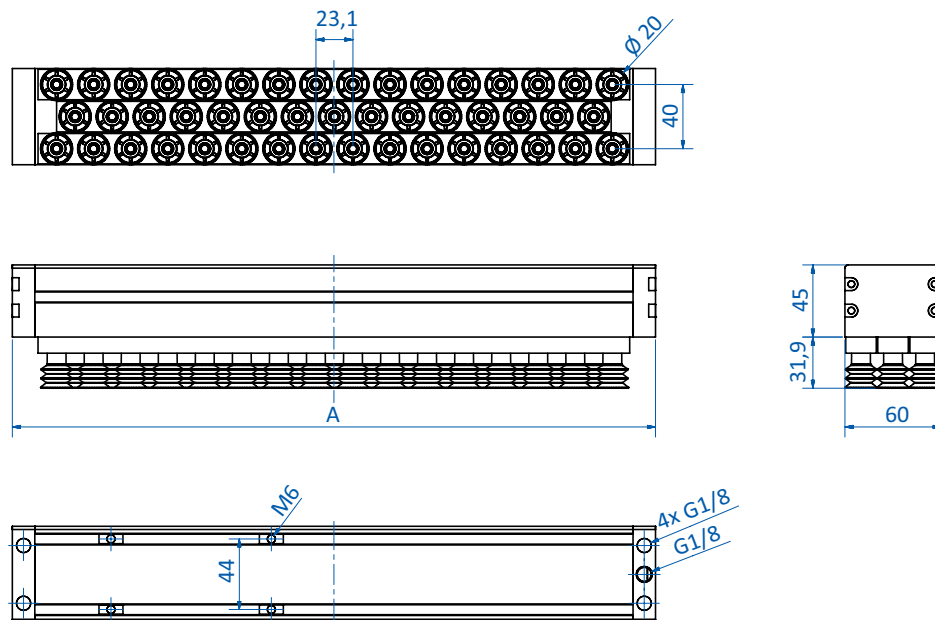
Optional accessories:

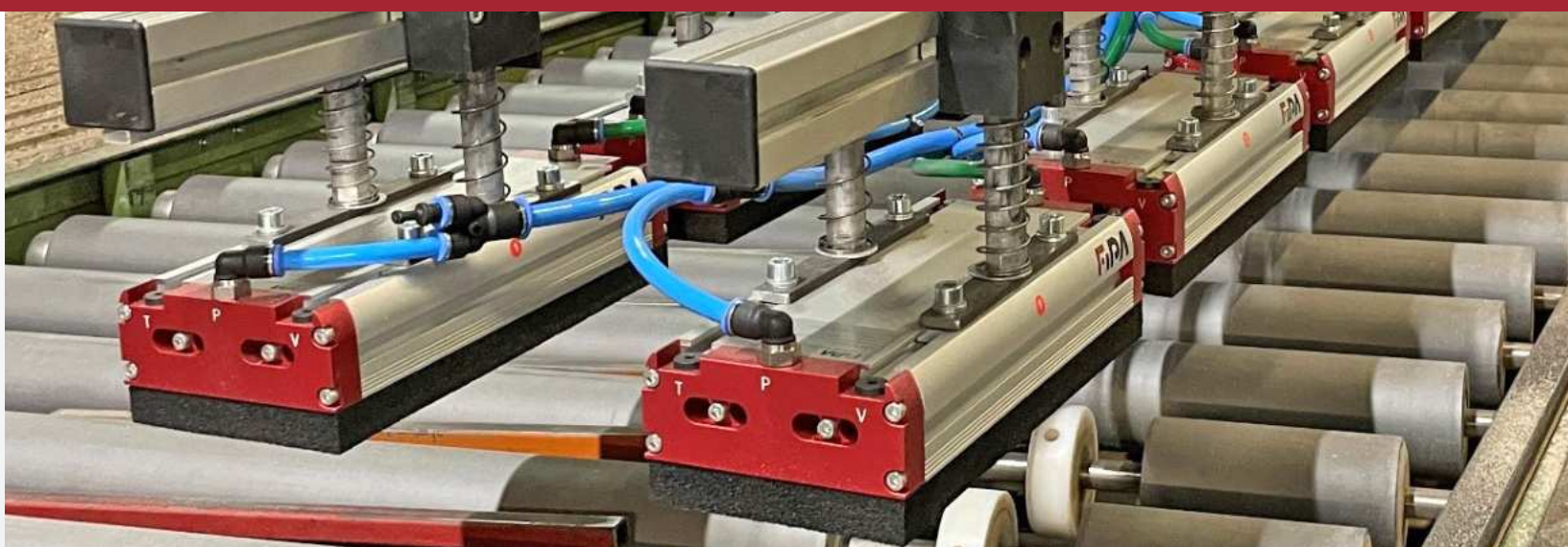
- > Electronic vacuum switch with display GS02.001
- > Electronic vacuum switch GS02.003
- > Electronic vacuum and pressure switch 20.026

Spare parts:

- > Cartridge ejector for area gripper FSG.ACC130.0003

### Dimensions





## In action at the customer

### Safe and reliable feeding of chipboard

Handling wooden panels in the furniture industry is a tricky business. A variety of formats, different surface coatings and a dusty production environment place high demands on gripper systems. In a modernised feeding system at a German furniture manufacturer, FIPA area grippers from the FSG series make a significant contribution to reducing downtimes.

In collaboration with the FIPA field service, the decision was made in favour of two rows of ten area grippers each for handling individual chipboard panels with different dimen-

sions. The wooden parts are picked up reliably even if the exact position of the part to be gripped is not clearly defined. As the system is located in a dusty environment close to an old HOLZMA saw, the sealing foam of the area grippers has to be cleaned and replaced regularly. This is very easy with the FIPA area grippers from the FSG series, as the sealing foam can be replaced quickly and without leaving any damage or residue.

#### The challenge:

- > High downtimes of 20 to 25 percent
- > Feeding a double-sided edging system with chipboard
- > Panels are coated with PVC film, different formats
- > Panels up to 2 metres long, 22 mm thick and up to 10 kg in weight
- > Including narrow, short and thick workpieces

#### Result:

The Technical Manager of the furniture manufacturer is delighted with the new solution:

*„After the modernisation, there are hardly any faults. Downtimes have been reduced to less than 5 percent. A further reduction is hardly possible due to the complexity of the workpieces. We are more than satisfied with the solution.“*

# Area gripper FSG 130

Area gripper with sealing foam



## Product notes

- > For automated handling of individual products or product layers without changing grippers
- > Low noise emissions for a pleasant working environment
- > With built-in ejectors or with connection to a central vacuum supply
- > With check valves or flow reduction
- > The sealing foam can be replaced quickly, non-destructively and without residues
- > Area grippers with check valves are suitable for swivel/tilt movements up to less than 90°
- > Equipped with vacuum gauge 91.005 as standard
- > Other sealing foams (height, shape) on request
- > Suitable for handling inherently stable products such as wood or glass

## Technical data

Item no.	Valve type	Vacuum generation	Number of suction cells	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [l/min]	Suction power at 6 bar (87 psi) [W/min]	Nominal flow rate [l/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	Dimensions		
											A [mm]	Ø G [mm]	H [mm]
<b>FSG.VG130.295.5F20C2</b>	Check valve	with integrated ejectors	53	4 - 6 (58 - 87)	200	700	--	426	-550 (-16.2)	2.6	295	--	--
<b>FSG.VG130.434.5F20C2</b>	Check valve	with integrated ejectors	83	4 - 6 (58 - 87)	200	700	--	688	-550 (-16.2)	3.3	434	--	--
<b>FSG.VG130.572.5F20C3</b>	Check valve	with integrated ejectors	113	4 - 6 (58 - 87)	300	1,050	--	909	-550 (-16.2)	3.8	572	--	--
<b>FSG.VG130.711.5F20C4</b>	Check valve	with integrated ejectors	143	4 - 6 (58 - 87)	400	1,400	--	1,150	-550 (-16.2)	4.5	711	--	--
<b>FSG.VG130.849.5F20C4</b>	Check valve	with integrated ejectors	173	4 - 6 (58 - 87)	400	1,400	--	1,391	-550 (-16.2)	5.2	849	--	--
<b>FSG.VG130.988.5F20C5</b>	Check valve	with integrated ejectors	203	4 - 6 (58 - 87)	500	1,750	--	1,633	-550 (-16.2)	5.6	988	--	--
<b>FSG.VG130.1126.5F20C6</b>	Check valve	with integrated ejectors	233	4 - 6 (58 - 87)	600	2,100	--	1,874	-550 (-16.2)	7	1,126	--	--
<b>FSG.VG130.1265.5F20C6</b>	Check valve	with integrated ejectors	263	4 - 6 (58 - 87)	600	2,100	--	2,115	-550 (-16.2)	7.4	1,265	--	--
<b>FSG.PG130.295.5F20C2</b>	Flow reduction	with integrated ejectors	53	4 - 6 (58 - 87)	200	700	--	426	-550 (-16.2)	2.6	295	--	--
<b>FSG.PG130.434.5F20C2</b>	Flow reduction	with integrated ejectors	83	4 - 6 (58 - 87)	200	700	--	688	-550 (-16.2)	3.3	434	--	--
<b>FSG.PG130.572.5F20C3</b>	Flow reduction	with integrated ejectors	113	4 - 6 (58 - 87)	300	1,050	--	909	-550 (-16.2)	3.8	572	--	--
<b>FSG.PG130.711.5F20C4</b>	Flow reduction	with integrated ejectors	143	4 - 6 (58 - 87)	400	1,400	--	1,150	-550 (-16.2)	4.5	711	--	--
<b>FSG.PG130.849.5F20C4</b>	Flow reduction	with integrated ejectors	173	4 - 6 (58 - 87)	400	1,400	--	1,391	-550 (-16.2)	5.2	849	--	--
<b>FSG.PG130.988.5F20C5</b>	Flow reduction	with integrated ejectors	203	4 - 6 (58 - 87)	500	1,750	--	1,633	-550 (-16.2)	5.6	988	--	--



Technical data											Dimensions		
Item no.	Valve type	Vacuum generation	Number of suction cells	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [l/min]	Suction power at 6 bar (87 psi) [W/min]	Nominal flow rate [l/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	A [mm]	Ø G [mm]	H [mm]
FSG.PG130.1126.5F20C6	Flow reduction	with integrated ejectors	233	4 - 6 (58 - 87)	600	2,100	--	1,874	-550 (-16.2)	7	1,126	--	--
FSG.PG130.1265.5F20C6	Flow reduction	with integrated ejectors	263	4 - 6 (58 - 87)	600	2,100	--	2,115	-550 (-16.2)	7.4	1,265	--	--
FSG.VG130.295.5F20T	Check valve	central vacuum supply	53	--	--	--	150	320	-300 (-8.9)	2.3	295	32.5	54
FSG.VG130.434.5F20T	Check valve	central vacuum supply	83	--	--	--	300	501	-300 (-8.9)	3	434	32.5	54
FSG.VG130.572.5F20T	Check valve	central vacuum supply	113	--	--	--	400	682	-300 (-8.9)	3.5	572	32.5	54
FSG.VG130.711.5F20T	Check valve	central vacuum supply	143	--	--	--	510	863	-300 (-8.9)	4.2	711	60	49
FSG.VG130.849.5F20T	Check valve	central vacuum supply	173	--	--	--	600	1,044	-300 (-8.9)	4.9	849	60	49
FSG.VG130.988.5F20T	Check valve	central vacuum supply	203	--	--	--	750	1,224	-300 (-8.9)	5.1	988	60	49
FSG.VG130.1126.5F20T	Check valve	central vacuum supply	233	--	--	--	850	1,405	-300 (-8.9)	6.6	1,126	60	49
FSG.VG130.1265.5F20T	Check valve	central vacuum supply	263	--	--	--	950	1,586	-300 (-8.9)	7	1,265	60	49
FSG.PG130.295.5F20T	Flow reduction	central vacuum supply	53	--	--	--	150	320	-300 (-8.9)	2.3	295	32.5	54
FSG.PG130.434.5F20T	Flow reduction	central vacuum supply	83	--	--	--	300	501	-300 (-8.9)	3	434	32.5	54
FSG.PG130.572.5F20T	Flow reduction	central vacuum supply	113	--	--	--	400	682	-300 (-8.9)	3.5	572	32.5	54
FSG.PG130.711.5F20T	Flow reduction	central vacuum supply	143	--	--	--	510	863	-300 (-8.9)	4.2	711	60	49
FSG.PG130.849.5F20T	Flow reduction	central vacuum supply	173	--	--	--	600	1,044	-300 (-8.9)	4.9	849	60	49
FSG.PG130.988.5F20T	Flow reduction	central vacuum supply	203	--	--	--	750	1,224	-300 (-8.9)	5.1	988	60	49
FSG.PG130.1126.5F20T	Flow reduction	central vacuum supply	233	--	--	--	850	1,405	-300 (-8.9)	6.6	1,126	60	49
FSG.PG130.1265.5F20T	Flow reduction	central vacuum supply	263	--	--	--	950	1,586	-300 (-8.9)	7	1,265	60	49

### Hinweis

Die Saugkraft ist abhängig vom anzusetzenden Werkstück und der Vakuumerzeugung.  
 Für Typen mit integrierten Ejektoren kann der angegebene Vakuumgrad nur bei nichtdurchsaugenden Werkstücken erreicht werden.  
 Bei Typen mit externer Vakuerversorgung sind die Vakuumquelle und der Abstand zur Vakuumquelle für den Vakuumgrad und damit die Saugkraft entscheidend. Der angegebene Vakuumgrad und die angegebene Saugkraft dienen hier nur als beispielhaft Orientierung.  
 Durch den Einsatz verschiedener Vakuumerzeuger sind sowohl höhere, als auch niedrigere Vakuumgrade/Saugkräfte möglich.

# Area gripper FSG 130

Area gripper with sealing foam

## Optional accessories and spare parts

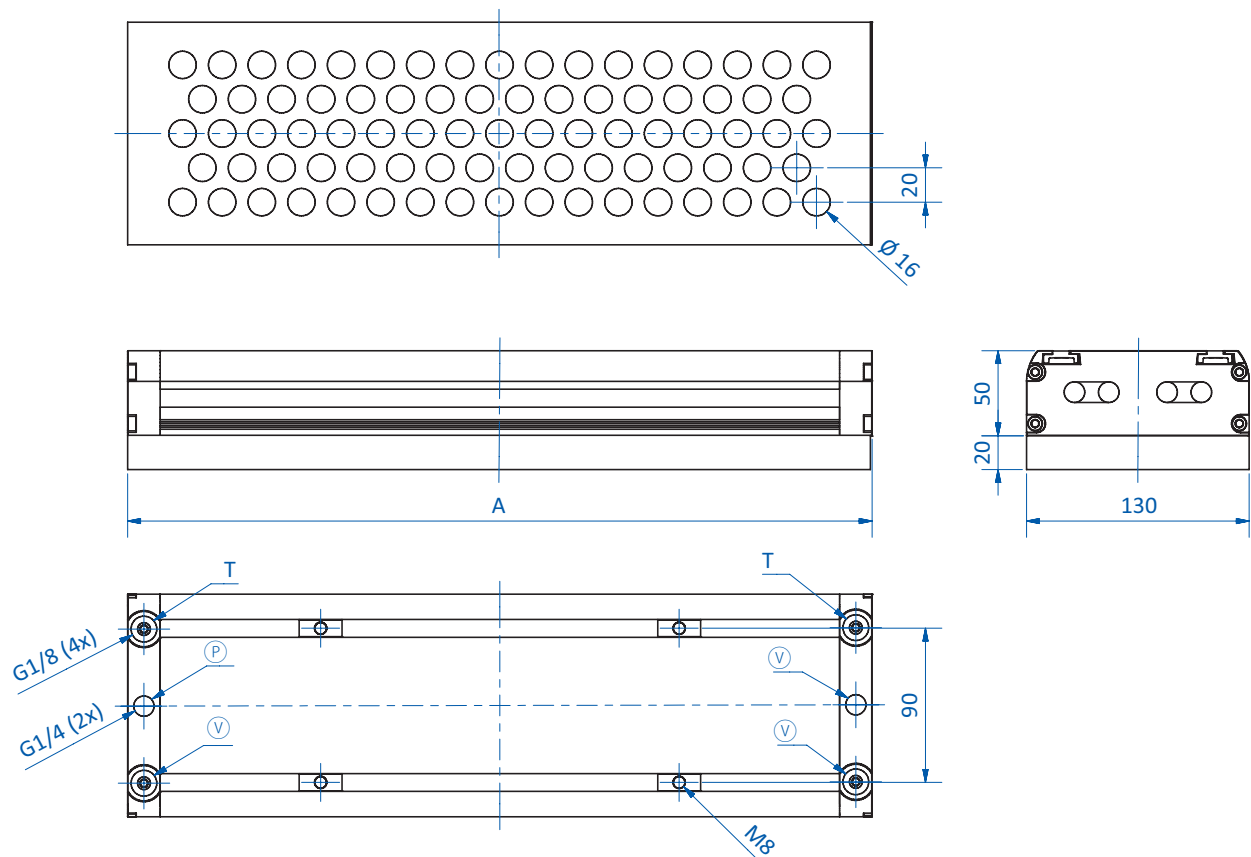
Optional accessories:

- > Electronic vacuum switch with display GS02.001
- > Electronic vacuum switch GS02.003
- > Electronic vacuum and pressure switch 20.026
- > Flange module for area gripper FSG.ACC130.0001
- > Slot nut 1x M8 for area gripper FSG.ACC130.0002
- > Optical sensor with sensor holder FSG.ACC130.0004

Spare parts:

- > Spare foam length 295 mm FSG.ACC130.295.5F20
- > Spare foam length 434 mm FSG.ACC130.434.5F20
- > Spare foam length 572 mm FSG.ACC130.572.5F20
- > Spare foam length 711 mm FSG.ACC130.711.5F20
- > Spare foam length 849 mm FSG.ACC130.849.5F20
- > Spare foam length 988 mm FSG.ACC130.988.5F20
- > Spare foam length 1126 mm FSG.ACC130.1126.5F20
- > Spare foam length 1265 mm FSG.ACC130.1265.5F20
- > Ejector for area gripper FSG.ACC130.0003

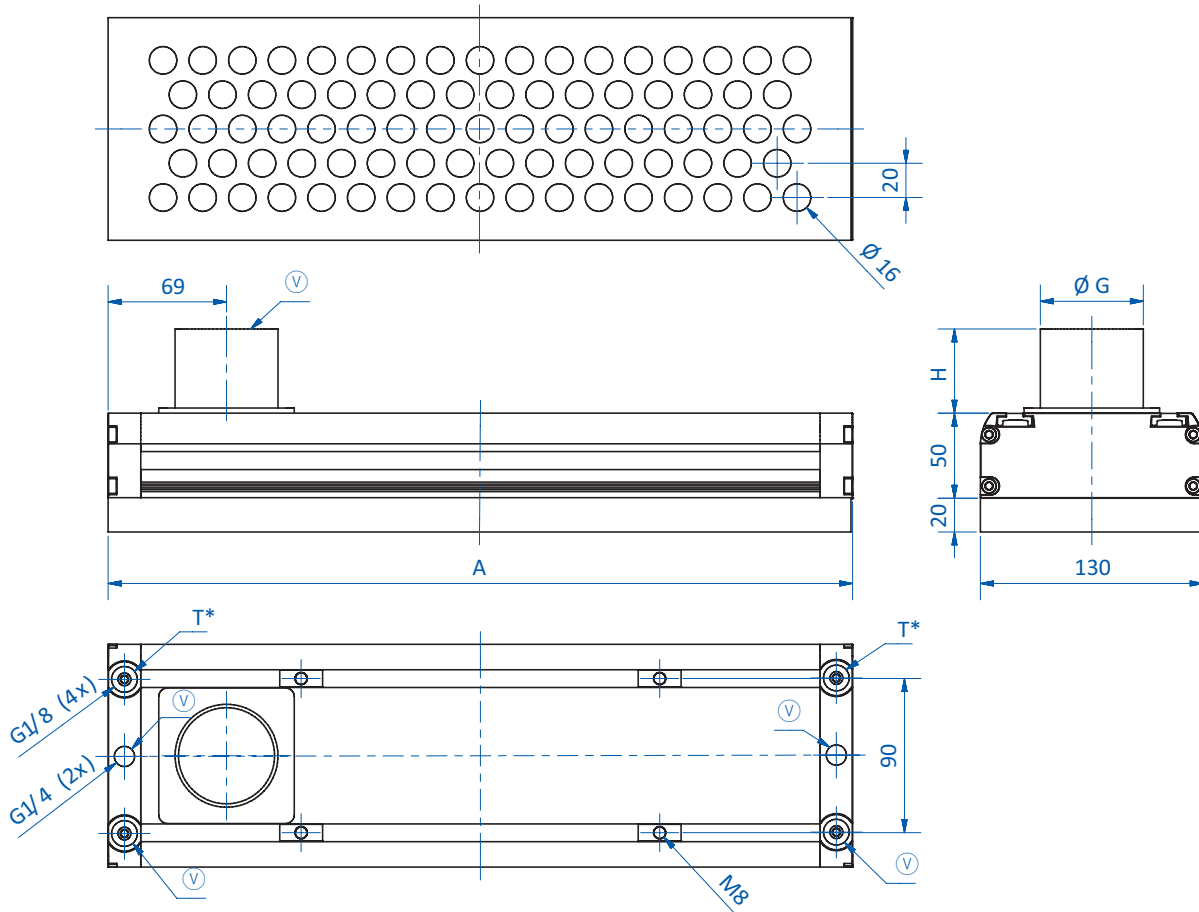
## Dimensions



Vacuum generation with integrated ejectors

⊕ = Compressed air connection ⊖ = Vacuum connection \* = Transfer line

## Dimensions



Vacuum generation via central vacuum supply

Ⓟ = Compressed air connection    Ⓢ = Vacuum connection    \* = Transfer line



# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 20 mm

Area gripper with plug-in vacuum cups diameter 20 mm



## Product notes

- > For automated handling of individual products or product layers without changing grippers
- > Low noise emissions for a pleasant working environment
- > With built-in ejectors or with connection to central vacuum supply
- > With check valves or flow reduction
- > Plug-in cups can be changed easily and quickly
- > Area grippers with check valves are suitable for swivel/tilt movements up to less than 90°
- > Equipped with vacuum gauge 91.005 as standard

## Technical data

Item no.	Valve type	Vacuum generation	Number of vacuum cups	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power at 6 bar (87 psi) [Nl/min]	Nominal flow rate [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	Dimensions		
											A [mm]	Ø G [mm]	H [mm]
<b>FSG.VG130.295.5C02C2</b>	Check valve	with integrated ejectors	53	4 - 6 (58 - 87)	200	700	--	253	-550 (-16.2)	3	295	--	--
<b>FSG.VG130.434.5C02C2</b>	Check valve	with integrated ejectors	83	4 - 6 (58 - 87)	200	700	--	396	-550 (-16.2)	3.8	434	--	--
<b>FSG.VG130.572.5C02C3</b>	Check valve	with integrated ejectors	113	4 - 6 (58 - 87)	300	1,050	--	539	-550 (-16.2)	4.5	572	--	--
<b>FSG.VG130.711.5C02C4</b>	Check valve	with integrated ejectors	143	4 - 6 (58 - 87)	400	1,400	--	682	-550 (-16.2)	5.3	711	--	--
<b>FSG.VG130.849.5C02C4</b>	Check valve	with integrated ejectors	173	4 - 6 (58 - 87)	400	1,400	--	825	-550 (-16.2)	6.2	849	--	--
<b>FSG.VG130.988.5C02C5</b>	Check valve	with integrated ejectors	203	4 - 6 (58 - 87)	500	1,750	--	968	-550 (-16.2)	7.2	988	--	--
<b>FSG.VG130.1126.5C02C6</b>	Check valve	with integrated ejectors	233	4 - 6 (58 - 87)	600	2,100	--	1,111	-550 (-16.2)	8.1	1,126	--	--
<b>FSG.VG130.1265.5C02C6</b>	Check valve	with integrated ejectors	263	4 - 6 (58 - 87)	600	2,100	--	1,254	-550 (-16.2)	8.9	1,265	--	--
<b>FSG.PG130.295.5C02C2</b>	Flow reduction	with integrated ejectors	53	4 - 6 (58 - 87)	200	700	--	253	-550 (-16.2)	3	295	--	--
<b>FSG.PG130.434.5C02C2</b>	Flow reduction	with integrated ejectors	83	4 - 6 (58 - 87)	200	700	--	396	-550 (-16.2)	3.8	434	--	--
<b>FSG.PG130.572.5C02C3</b>	Flow reduction	with integrated ejectors	113	4 - 6 (58 - 87)	300	1,050	--	539	-550 (-16.2)	4.5	572	--	--
<b>FSG.PG130.711.5C02C4</b>	Flow reduction	with integrated ejectors	143	4 - 6 (58 - 87)	400	1,400	--	682	-550 (-16.2)	5.3	711	--	--
<b>FSG.PG130.849.5C02C4</b>	Flow reduction	with integrated ejectors	173	4 - 6 (58 - 87)	400	1,400	--	825	-550 (-16.2)	6.2	849	--	--
<b>FSG.PG130.988.5C02C5</b>	Flow reduction	with integrated ejectors	203	4 - 6 (58 - 87)	500	1,750	--	968	-550 (-16.2)	7.2	988	--	--
<b>FSG.PG130.1126.5C02C6</b>	Flow reduction	with integrated ejectors	233	4 - 6 (58 - 87)	600	2,100	--	1,111	-550 (-16.2)	8.1	1,126	--	--

Technical data											Dimensions		
Item no.	Valve type	Vacuum generation	Number of vacuum cups	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power at 6 bar (87 psi) [Nl/min]	Nominal flow rate [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	A [mm]	Ø G [mm]	H [mm]
<b>FSG.PG130.1265.5C02C6</b>	Flow reduction	with integrated ejectors	263	4 - 6 (58 - 87)	600	2,100	--	1,254	-550 (-16.2)	8.9	1,265	--	--
<b>FSG.VG130.295.5C02T</b>	Check valve	central vacuum supply	53	--	--	--	150	138	-300 (-8.9)	2.8	295	32.5	54
<b>FSG.VG130.434.5C02T</b>	Check valve	central vacuum supply	83	--	--	--	300	216	-300 (-8.9)	3.8	434	32.5	54
<b>FSG.VG130.572.5C02T</b>	Check valve	central vacuum supply	113	--	--	--	400	294	-300 (-8.9)	4.3	572	32.5	54
<b>FSG.VG130.711.5C02T</b>	Check valve	central vacuum supply	143	--	--	--	510	372	-300 (-8.9)	5.1	711	60	49
<b>FSG.VG130.849.5C02T</b>	Check valve	central vacuum supply	173	--	--	--	600	450	-300 (-8.9)	6	849	60	49
<b>FSG.VG130.988.5C02T</b>	Check valve	central vacuum supply	203	--	--	--	750	528	-300 (-8.9)	7	988	60	49
<b>FSG.VG130.1126.5C02T</b>	Check valve	central vacuum supply	233	--	--	--	850	606	-300 (-8.9)	7.7	1,126	60	49
<b>FSG.VG130.1265.5C02T</b>	Check valve	central vacuum supply	263	--	--	--	950	684	-300 (-8.9)	8.5	1,265	60	49
<b>FSG.PG130.295.5C02T</b>	Flow reduction	central vacuum supply	53	--	--	--	150	138	-300 (-8.9)	2.8	295	32.5	54
<b>FSG.PG130.434.5C02T</b>	Flow reduction	central vacuum supply	83	--	--	--	300	216	-300 (-8.9)	3.8	434	32.5	54
<b>FSG.PG130.572.5C02T</b>	Flow reduction	central vacuum supply	113	--	--	--	400	294	-300 (-8.9)	4.3	572	32.5	54
<b>FSG.PG130.711.5C02T</b>	Flow reduction	central vacuum supply	143	--	--	--	510	372	-300 (-8.9)	5.1	711	60	49
<b>FSG.PG130.849.5C02T</b>	Flow reduction	central vacuum supply	173	--	--	--	600	450	-300 (-8.9)	6	849	60	49
<b>FSG.PG130.988.5C02T</b>	Flow reduction	central vacuum supply	203	--	--	--	750	528	-300 (-8.9)	7	988	60	49
<b>FSG.PG130.1126.5C02T</b>	Flow reduction	central vacuum supply	233	--	--	--	850	606	-300 (-8.9)	7.7	1,126	60	49
<b>FSG.PG130.1265.5C02T</b>	Flow reduction	central vacuum supply	263	--	--	--	950	684	-300 (-8.9)	8.5	1,265	60	49

### Notes

The suction force depends on the workpiece to be suctioned and the vacuum generation.  
 For types with integrated ejectors, the specified vacuum level can only be achieved with non-suctioning workpieces.  
 For types with external vacuum supply, the vacuum source and the distance to the vacuum source are decisive for the vacuum level and thus the suction force. The specified vacuum level and the specified suction force serve here only as an exemplary orientation.  
 By using different vacuum generators, both higher and lower vacuum levels/suction forces are possible.

# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 20 mm

## Optional accessories and spare parts

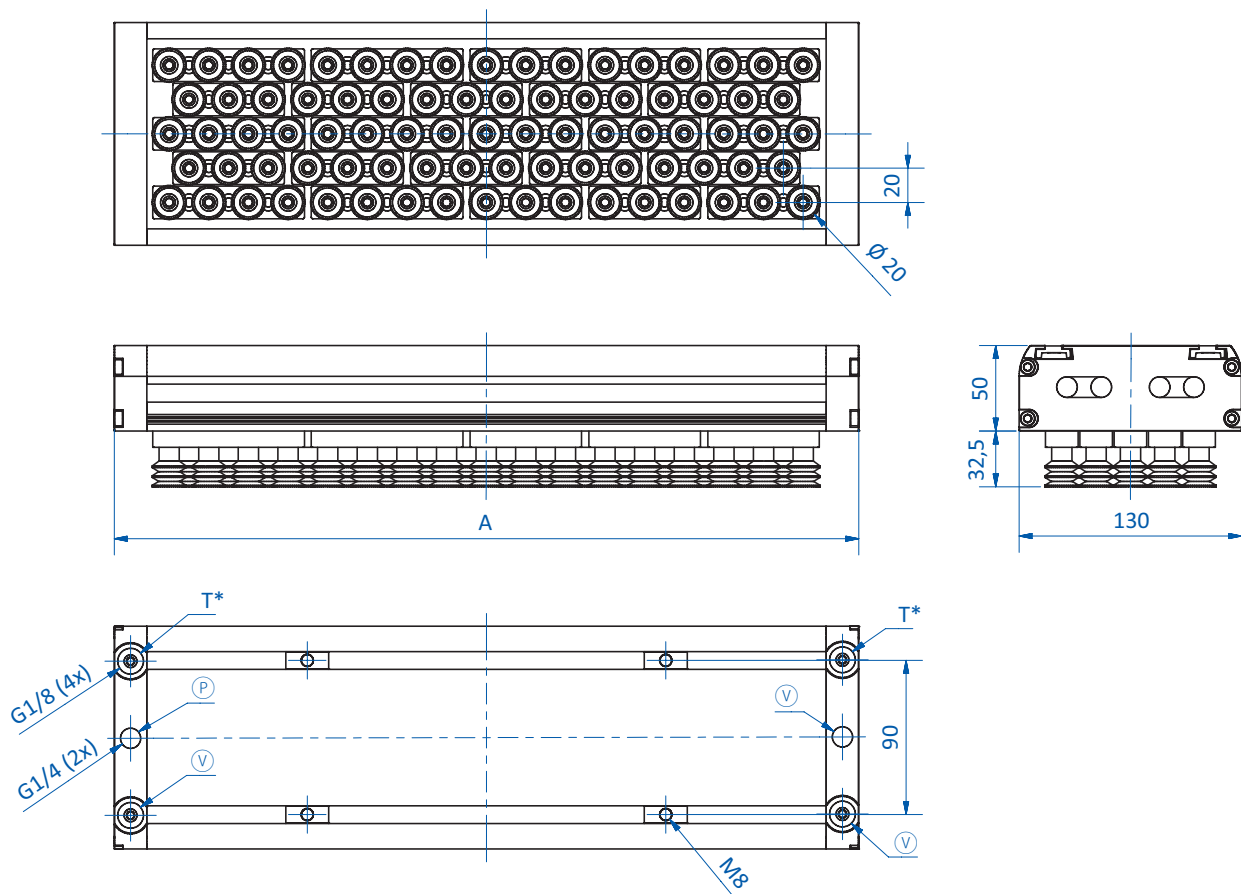
Optional accessories:

- > Electronic vacuum switch with display GS02.001
- > Electronic vacuum switch GS02.003
- > Electronic vacuum and pressure switch 20.026
- > Flange module for area gripper FSG.ACC130.0001
- > Slot nut 1x M8 for area gripper FSG.ACC130.0002
- > Optical sensor with sensor holder FSG.ACC130.000

Spare parts:

- > Replacement plug-in cup in silicone 55° Shore A 21.020.185.2
- > Ejector for area gripper FSG.ACC130.0003

## Dimensions



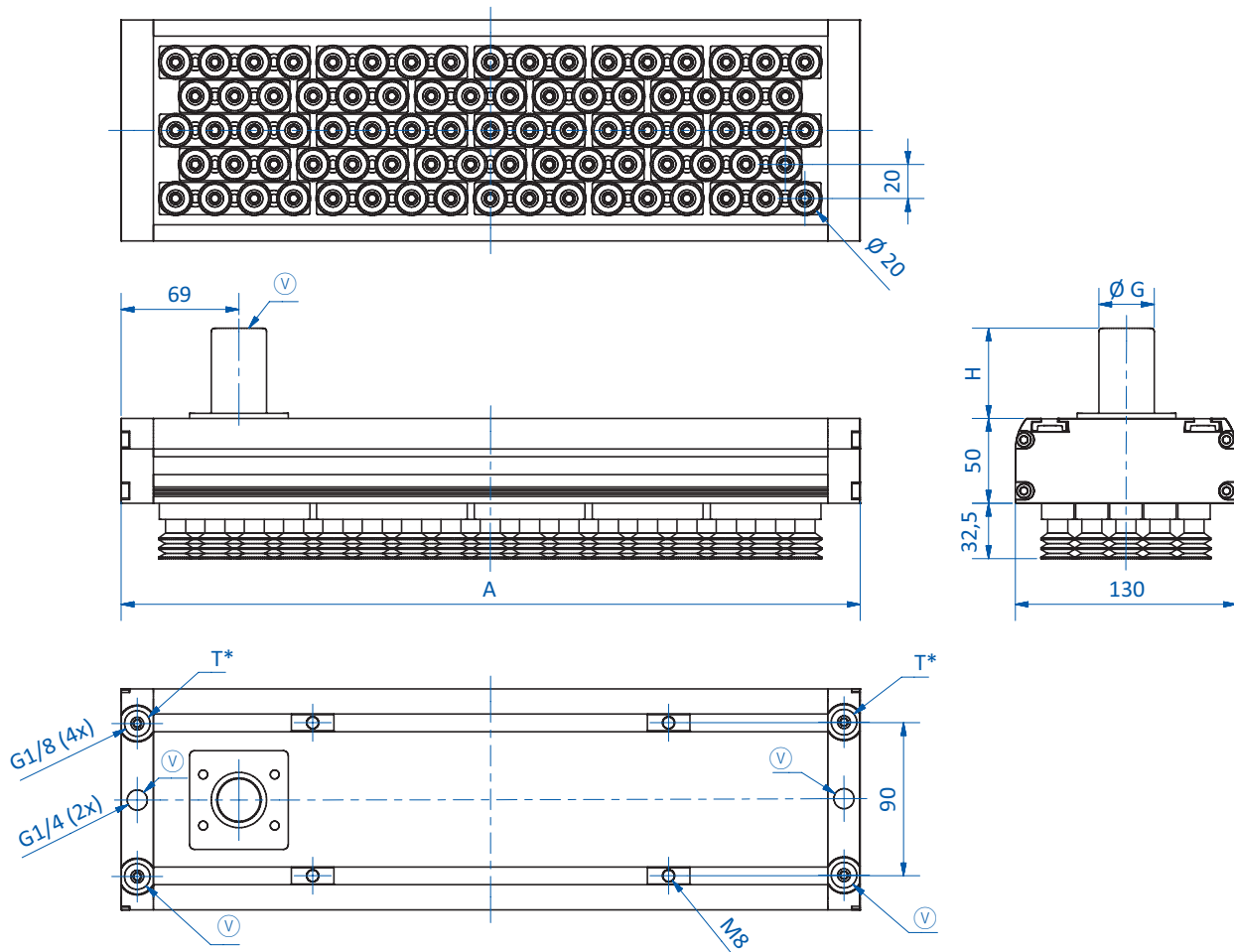
Vacuum generation with integrated ejectors

$\textcircled{P}$  = Compressed air connection  $\textcircled{V}$  = Vacuum connection  $\textcircled{T^*}$  = Transfer line

# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 20 mm

## Dimensions



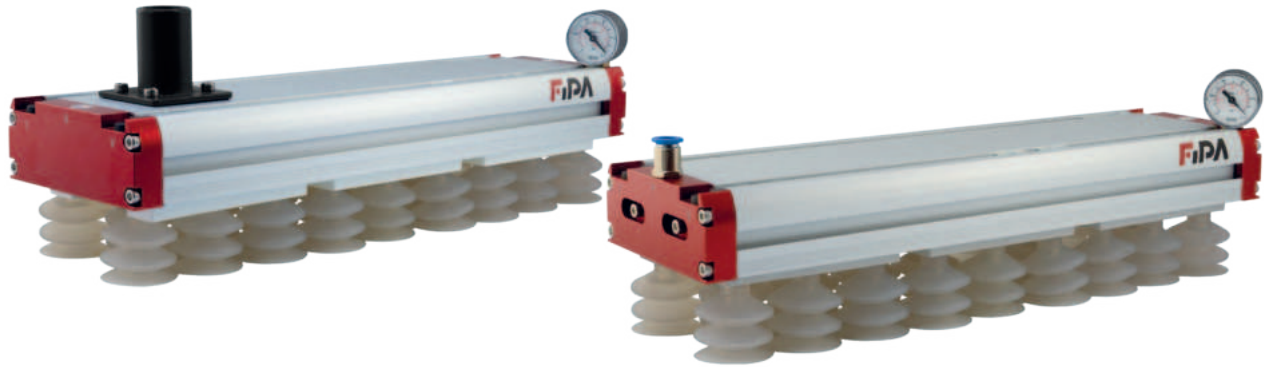
Vacuum generation via central vacuum supply

Ⓟ = Compressed air connection    Ⓥ = Vacuum connection    \* = Transfer line

# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 40 mm

Area gripper with plug-in vacuum cups diameter 40 mm



## Product notes

- > For automated handling of individual products or product layers without changing grippers
- > Low noise emissions for a pleasant working environment
- > With built-in ejectors or with connection to a central vacuum supply
- > With check valves or flow reduction
- > The plug-in vacuum cups can be exchanged easily and quickly
- > Area grippers with check valves are suitable for swivel/tilt movements up to less than 90°
- > Equipped with vacuum gauge 91.005 as standard

## Technical data

Item no.	Valve type	Vacuum generation	Number of vacuum cups	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [NI/min]	Suction power at 6 bar (87 psi) [NI/min]	Nominal flow rate [NI/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	Dimensions		
											A [mm]	Ø G [mm]	H [mm]
<b>FSG.VG130.295.3C02C2</b>	Check valve	with integrated ejectors	17	4 - 6 (58 - 87)	200	700	--	169	-550 (-16.2)	3	295	--	--
<b>FSG.VG130.434.3C02C2</b>	Check valve	with integrated ejectors	26	4 - 6 (58 - 87)	200	700	--	258	-550 (-16.2)	3.8	434	--	--
<b>FSG.VG130.572.3C02C3</b>	Check valve	with integrated ejectors	35	4 - 6 (58 - 87)	300	1,050	--	348	-550 (-16.2)	4.5	572	--	--
<b>FSG.VG130.711.3C02C4</b>	Check valve	with integrated ejectors	44	4 - 6 (58 - 87)	400	1,400	--	437	-550 (-16.2)	5.3	711	--	--
<b>FSG.VG130.849.3C02C4</b>	Check valve	with integrated ejectors	53	4 - 6 (58 - 87)	400	1,400	--	526	-550 (-16.2)	6.2	849	--	--
<b>FSG.VG130.988.3C02C5</b>	Check valve	with integrated ejectors	62	4 - 6 (58 - 87)	500	1,750	--	616	-550 (-16.2)	7.2	988	--	--
<b>FSG.VG130.1126.3C02C6</b>	Check valve	with integrated ejectors	71	4 - 6 (58 - 87)	600	2,100	--	705	-550 (-16.2)	8.1	1,126	--	--
<b>FSG.VG130.1265.3C02C6</b>	Check valve	with integrated ejectors	80	4 - 6 (58 - 87)	600	2,100	--	795	-550 (-16.2)	8.9	1,265	--	--
<b>FSG.PG130.295.3C02C2</b>	Flow reduction	with integrated ejectors	17	4 - 6 (58 - 87)	200	700	--	169	-550 (-16.2)	3	295	--	--
<b>FSG.PG130.434.3C02C2</b>	Flow reduction	with integrated ejectors	26	4 - 6 (58 - 87)	200	700	--	258	-550 (-16.2)	3.8	434	--	--
<b>FSG.PG130.572.3C02C3</b>	Flow reduction	with integrated ejectors	35	4 - 6 (58 - 87)	300	1,050	--	348	-550 (-16.2)	4.5	572	--	--
<b>FSG.PG130.711.3C02C4</b>	Flow reduction	with integrated ejectors	44	4 - 6 (58 - 87)	400	1,400	--	437	-550 (-16.2)	5.3	711	--	--
<b>FSG.PG130.849.3C02C4</b>	Flow reduction	with integrated ejectors	53	4 - 6 (58 - 87)	400	1,400	--	526	-550 (-16.2)	6.2	849	--	--
<b>FSG.PG130.988.3C02C5</b>	Flow reduction	with integrated ejectors	62	4 - 6 (58 - 87)	500	1,750	--	616	-550 (-16.2)	7.2	988	--	--



Technical data											Dimensions		
Item no.	Valve type	Vacuum generation	Number of vacuum cups	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power at 6 bar (87 psi) [Nl/min]	Nominal flow rate [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Weight [kg]	A [mm]	Ø G [mm]	H [mm]
<b>FSG.PG130.1126.3C02C6</b>	Flow reduction	with integrated ejectors	71	4 - 6 (58 - 87)	600	2,100	--	705	-550 (-16.2)	8.1	1,126	--	--
<b>FSG.PG130.1265.3C02C6</b>	Flow reduction	with integrated ejectors	80	4 - 6 (58 - 87)	600	2,100	--	795	-550 (-16.2)	8.9	1,265	--	--
<b>FSG.VG130.295.3C02T</b>	Check valve	central vacuum supply	17	--	--	--	150	127	-300 (-8.9)	2.8	295	32.5	54
<b>FSG.VG130.434.3C02T</b>	Check valve	central vacuum supply	26	--	--	--	300	194	-300 (-8.9)	3.8	434	32.5	54
<b>FSG.VG130.572.3C02T</b>	Check valve	central vacuum supply	35	--	--	--	400	261	-300 (-8.9)	4.3	572	32.5	54
<b>FSG.VG130.711.3C02T</b>	Check valve	central vacuum supply	44	--	--	--	510	328	-300 (-8.9)	5.1	711	60	49
<b>FSG.VG130.849.3C02T</b>	Check valve	central vacuum supply	53	--	--	--	600	395	-300 (-8.9)	6	849	60	49
<b>FSG.VG130.988.3C02T</b>	Check valve	central vacuum supply	62	--	--	--	750	462	-300 (-8.9)	7	988	60	49
<b>FSG.VG130.1126.3C02T</b>	Check valve	central vacuum supply	71	--	--	--	850	529	-300 (-8.9)	7.7	1,126	60	49
<b>FSG.VG130.1265.3C02T</b>	Check valve	central vacuum supply	80	--	--	--	950	596	-300 (-8.9)	8.5	1,265	60	49
<b>FSG.PG130.295.3C02T</b>	Flow reduction	central vacuum supply	17	--	--	--	150	127	-300 (-8.9)	2.8	295	32.5	54
<b>FSG.PG130.434.3C02T</b>	Flow reduction	central vacuum supply	26	--	--	--	300	194	-300 (-8.9)	3.8	434	32.5	54
<b>FSG.PG130.572.3C02T</b>	Flow reduction	central vacuum supply	35	--	--	--	400	261	-300 (-8.9)	4.3	572	32.5	54
<b>FSG.PG130.711.3C02T</b>	Flow reduction	central vacuum supply	44	--	--	--	510	328	-300 (-8.9)	5.1	711	60	49
<b>FSG.PG130.849.3C02T</b>	Flow reduction	central vacuum supply	53	--	--	--	600	395	-300 (-8.9)	6	849	60	49
<b>FSG.PG130.988.3C02T</b>	Flow reduction	central vacuum supply	62	--	--	--	750	462	-300 (-8.9)	7	988	60	49
<b>FSG.PG130.1126.3C02T</b>	Flow reduction	central vacuum supply	71	--	--	--	850	529	-300 (-8.9)	7.7	1,126	60	49
<b>FSG.PG130.1265.3C02T</b>	Flow reduction	central vacuum supply	80	--	--	--	950	596	-300 (-8.9)	8.5	1,265	60	49

### Notes

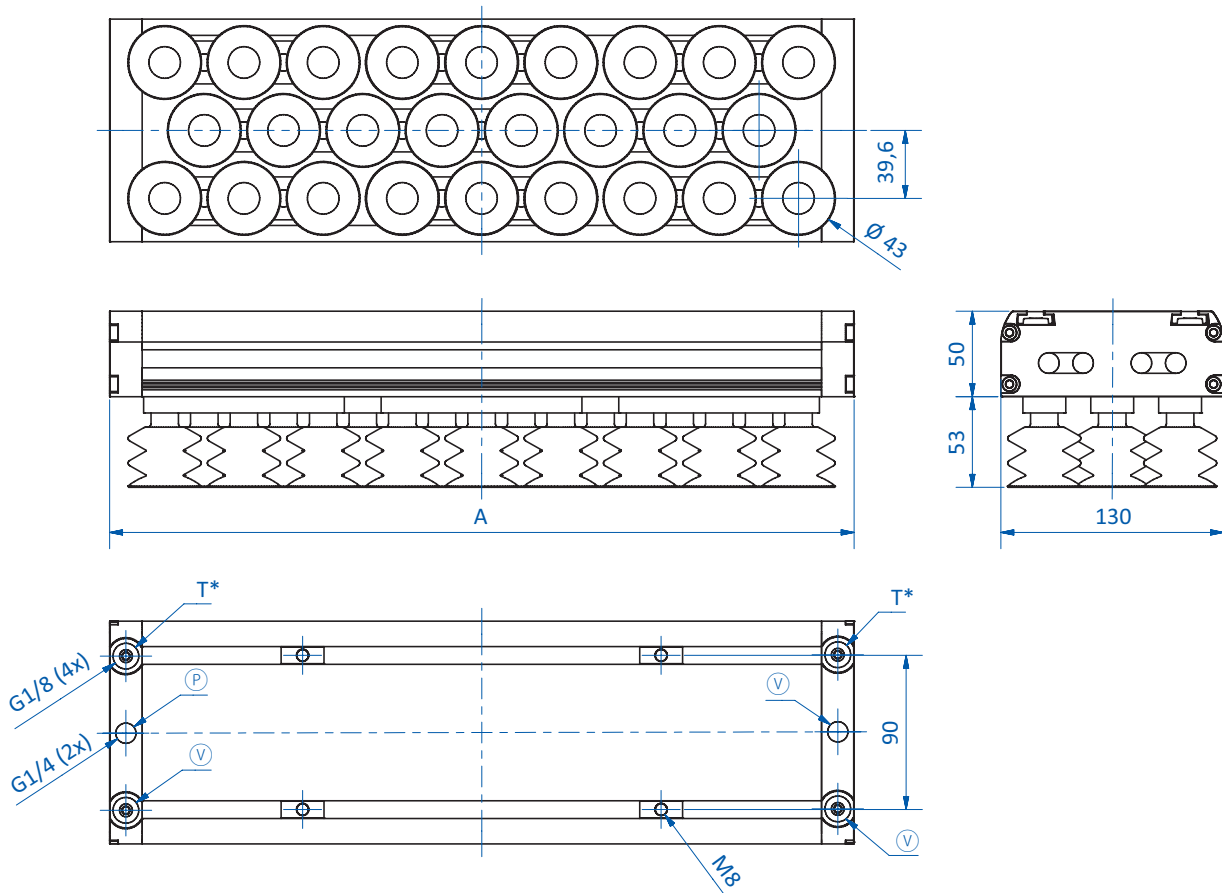
The suction force depends on the workpiece to be suctioned and the vacuum generation.  
 For types with integrated ejectors, the specified vacuum level can only be achieved with non-suctioning workpieces.  
 For types with external vacuum supply, the vacuum source and the distance to the vacuum source are decisive for the vacuum level and thus the suction force. The specified vacuum level and the specified suction force serve here only as an exemplary orientation.  
 By using different vacuum generators, both higher and lower vacuum levels/suction forces are possible.

Continued on the next page →

# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 40 mm

## Dimensions



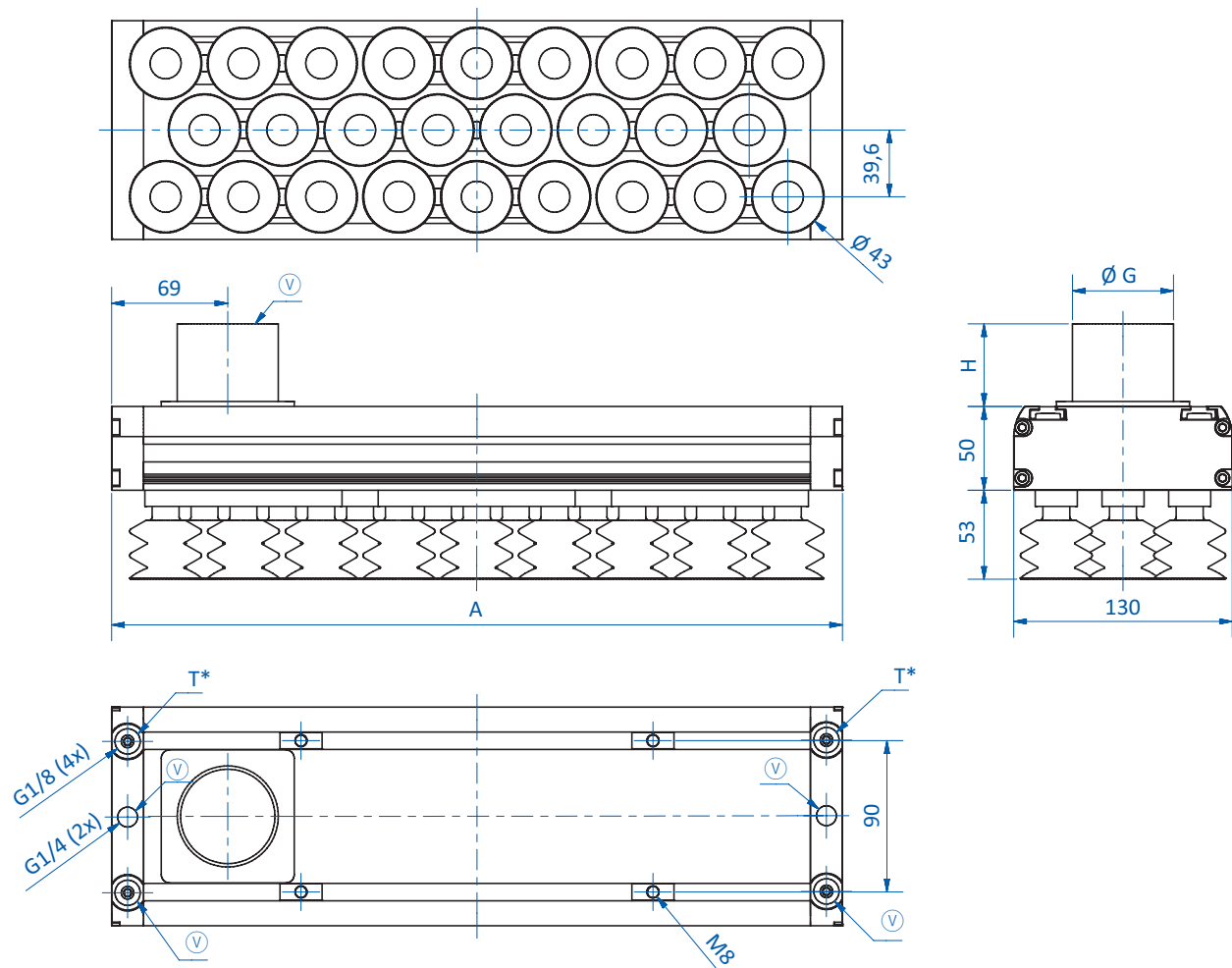
Vacuum generation with integrated ejectors

Ⓟ = Compressed air connection   Ⓥ = Vacuum connection   \* = Transfer line

# Area gripper FSG 130

Area gripper with plug-in vacuum cups diameter 40 mm

## Dimensions



Vacuum generation via central vacuum supply

Ⓟ = Compressed air connection    Ⓥ = Vacuum connection    \* = Transfer line

# Area gripper FSG 130

## Area gripper FSG-V with integrated valves

### Area gripper FSG-V with integrated valves



#### Product notes

- > For automated handling of individual products or product layers without changing grippers
- > Low noise emissions for a pleasant working environment
- > With built-in cartridge ejectors
- > With integrated valves to control the suction (NO) and blow-off (NC) functions
- > With check valves or flow reduction
- > The sealing foam can be replaced quickly, non-destructively and without leaving residues

#### Technical data

Item no.	Valve type	Length [mm]	Number of suction cells	Working pressure [bar (psi)]	Air consumption at 6 bar (87 psi) [l/min]	Suction power at 6 bar (87 psi) [Nl/min]	Suction force at nominal power [N]	Vacuum level [mbar (inHg)]	Power supply [V]	Current consumption at 24 VDC max [mA]	Electric connection	Weight [kg]
<b>FSG-V.VG130.434.5F20C2</b>	Check valve	434	83	4 - 6 (58 - 87)	200	700	668	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	3.8
<b>FSG-V.VG130.572.5F20C3</b>	Check valve	572	113	4 - 6 (58 - 87)	300	1,050	909	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	4.3
<b>FSG-V.VG130.711.5F20C4</b>	Check valve	711	143	4 - 6 (58 - 87)	400	1,400	1,150	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	5
<b>FSG-V.VG130.849.5F20C4</b>	Check valve	849	173	4 - 6 (58 - 87)	400	1,400	1,391	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	5.7
<b>FSG-V.VG130.988.5F20C5</b>	Check valve	988	203	4 - 6 (58 - 87)	500	1,750	1,633	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	6.1
<b>FSG-V.VG130.1126.5F20C6</b>	Check valve	1,126	233	4 - 6 (58 - 87)	600	2,100	1,874	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	7.5
<b>FSG-V.VG130.1265.5F20C6</b>	Check valve	1,265	263	4 - 6 (58 - 87)	600	2,100	2,115	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	7.9
<b>FSG-V.PG130.434.5F20C2</b>	Flow reduction	434	83	4 - 6 (58 - 87)	200	700	668	-550 (-16.2)	24	92	1x Plug M8x1; 4-pin	3.8
<b>FSG-V.PG130.572.5F20C3</b>	Flow reduction	575	113	4 - 6 (58 - 87)	300	1,050	909	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	4.3
<b>FSG-V.PG130.711.5F20C4</b>	Flow reduction	711	143	4 - 6 (58 - 87)	400	1,400	1,150	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	5
<b>FSG-V.PG130.849.5F20C4</b>	Flow reduction	849	173	4 - 6 (58 - 87)	400	1,400	1,391	-550 (-16.2)	24	46	1x Plug M8x1; 4-pin	5.7
<b>FSG-V.PG130.988.5F20C5</b>	Flow reduction	988	203	4 - 6 (58 - 87)	500	1,750	1,633	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	6.1
<b>FSG-V.PG130.1126.5F20C6</b>	Flow reduction	1,126	233	4 - 6 (58 - 87)	600	2,100	1,874	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	7.5
<b>FSG-V.PG130.1265.5F20C6</b>	Flow reduction	1,265	263	4 - 6 (58 - 87)	600	2,100	2,115	-550 (-16.2)	24	92	2x Plug M8x1; 4-pin	7.9

## Notes

- > Area grippers with check valves are suitable for swivel/tilt movements up to less than 90°
- > Equipped with pressure gauge as standard, vacuum switch optionally available
- > Other sealing foams (height, shape) on request

## Optional accessories and spare parts

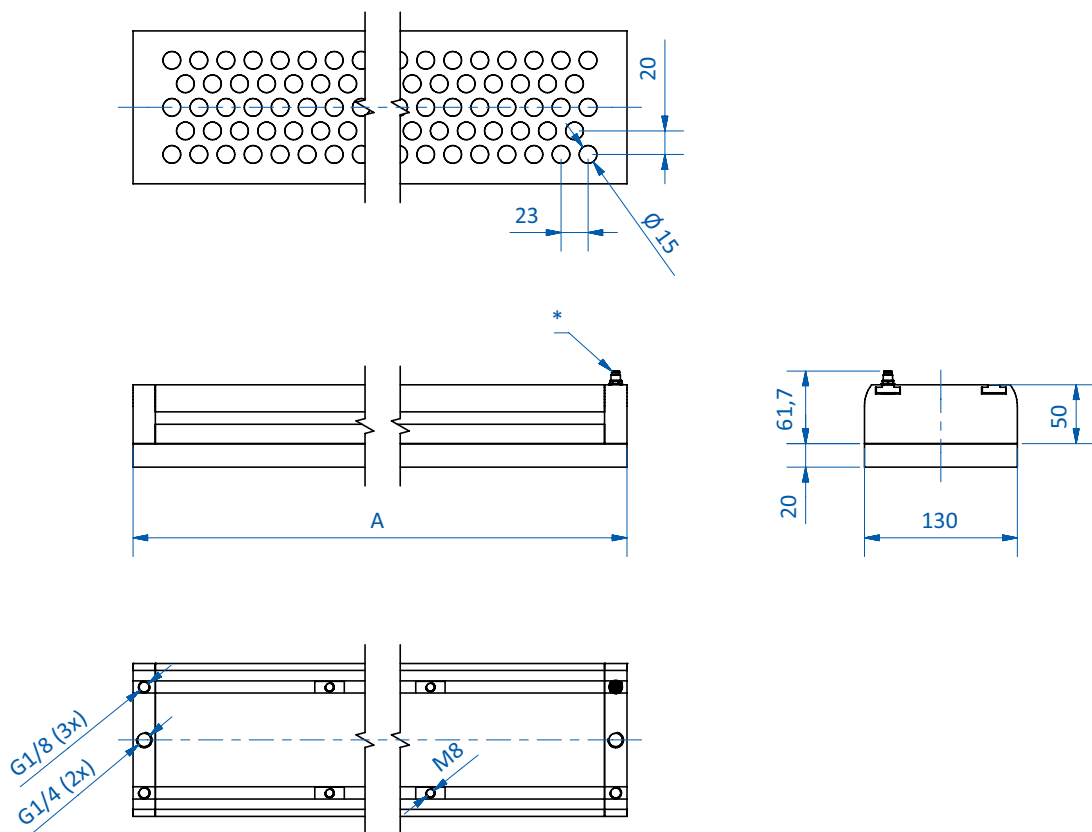
Optional accessories:

- > Electronic vacuum switch with display GS02.001
- > Electronic vacuum switch GS02.003
- > Electronic vacuum and pressure switch 20.026
- > Flange module for large-area gripper FSG.ACC130.0001
- > Slot nut 1x M8 for large-area gripper FSG.ACC130.0002
- > Optical sensor with sensor holder FSG.ACC130.0004

Spare parts:

- > Spare foam length 295 mm FSG.ACC130.295.5F20
- > Spare foam length 434 mm FSG.ACC130.434.5F20
- > Spare foam length 572 mm FSG.ACC130.572.5F20
- > Spare foam length 711 mm FSG.ACC130.711.5F20
- > Spare foam length 849 mm FSG.ACC130.849.5F20
- > Spare foam length 988 mm FSG.ACC130.988.5F20
- > Spare foam length 1126 mm FSG.ACC130.1126.5F20
- > Spare foam length 1265 mm FSG.ACC130.1265.5F20

## Dimensions



FSG-V.VG130.434.5F20C2 | FSG-V.VG130.572.5F20C3 | FSG-V.VG130.711.5F20C4 | FSG-V.VG130.849.5F20C4 |  
 FSG-V.PG130.434.5F20C2 | FSG-V.PG130.572.5F20C3 | FSG-V.PG130.711.5F20C4 | FSG-V.PG130.849.5F20C4

\* = Control connection 4-pole M8x1

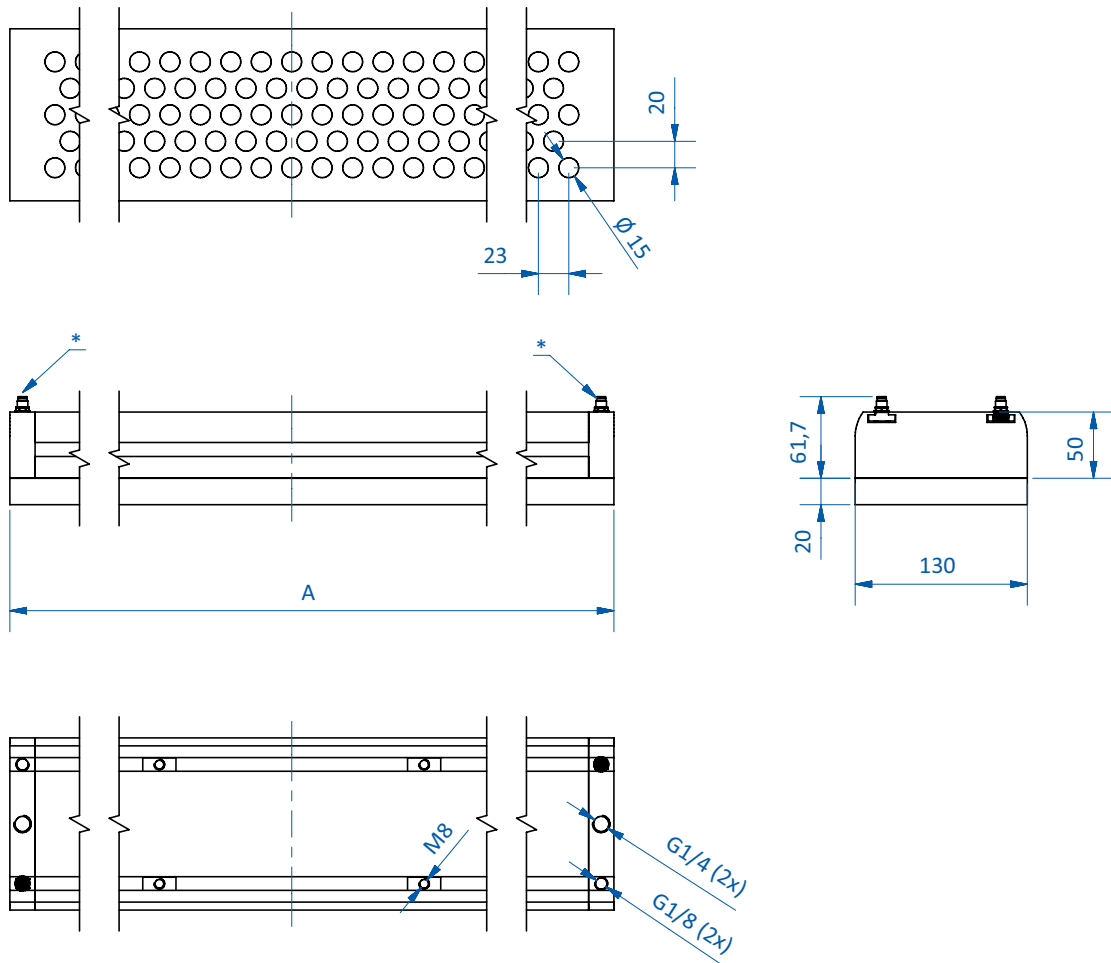
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# Area gripper FSG 130

Area gripper FSG-V with integrated valves

## Dimensions



FSG-V.VG130.988.5F20C5 | FSG-V.VG130.1126.5F20C6 | FSG-V.VG130.1265.5F20C6 |  
 FSG-V.PG130.988.5F20C5 | FSG-V.PG130.1126.5F20C6 | FSG-V.PG130.1265.5F20C6

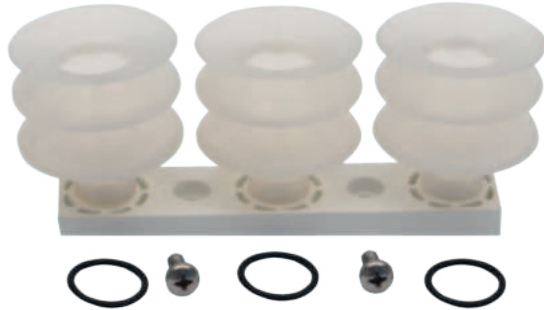
\* = Control connection 4-pole M8x1

Item no.	A [mm]
FSG-V.VG130.434.5F20C2	434
FSG-V.VG130.572.5F20C3	572
FSG-V.VG130.711.5F20C4	711
FSG-V.VG130.849.5F20C4	849
FSG-V.VG130.988.5F20C5	988
FSG-V.VG130.1126.5F20C6	1,126
FSG-V.VG130.1265.5F20C6	1,265
FSG-V.PG130.434.5F20C2	434
FSG-V.PG130.572.5F20C3	572
FSG-V.PG130.711.5F20C4	711
FSG-V.PG130.849.5F20C4	849
FSG-V.PG130.988.5F20C5	988
FSG-V.PG130.1126.5F20C6	1,126
FSG-V.PG130.1265.5F20C6	1,265

# Area gripper FSG 130

Set of replacement vacuum cups for area gripper FSG

Set of replacement vacuum cups for area gripper FSG



## Product notes

- > Complete set of pre-assembled replacement vacuum cups for area gripper FSG.
- > The set contains the correct number of vacuum cups made of silicone 55° Shore, mounting strips, sealing rings and screws depending on the length of the gripper.
- > The spare vacuum cups are pre-mounted on mounting strips.
- > The mounting strips can be very easily screwed onto the area gripper with just a few screws.
- > **Advantage:** Great time savings when replacing the vacuum cups on the area gripper.

## Technical data

Item no.	Diameter vacuum cups [mm]	Number of vacuum cups	For area grippers with length [mm]
FSG.ACC130.295.3C02	40	17	295
FSG.ACC130.434.3C02	40	26	434
FSG.ACC130.572.3C02	40	35	572
FSG.ACC130.711.3C02	40	44	711
FSG.ACC130.849.3C02	40	53	849
FSG.ACC130.988.3C02	40	62	988
FSG.ACC130.1126.3C02	40	71	1,126
FSG.ACC130.1265.3C02	40	80	1,265
FSG.ACC130.295.5C02	20	53	295
FSG.ACC130.434.5C02	20	83	434
FSG.ACC130.572.5C02	20	113	572
FSG.ACC130.711.5C02	20	143	711
FSG.ACC130.849.5C02	20	173	849
FSG.ACC130.988.5C02	20	203	988
FSG.ACC130.1126.5C02	20	233	1,126
FSG.ACC130.1265.5C02	20	263	1,265

# Area gripper FSG 130

Replacement foam for area gripper FSG

## Replacement foam for area gripper FSG

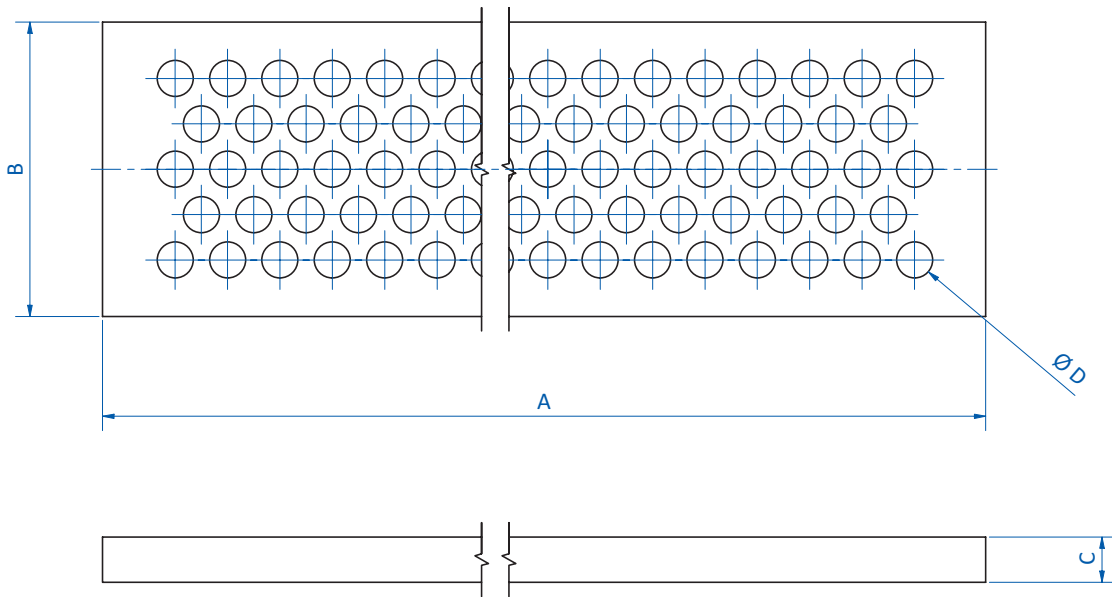


### Product notes

- > Material EPDM, resistant to weathering, ozone and most acids and alkalis. Not resistant to oils and greases.
- > Good stand-up behaviour for short cycle times.
- > Applied on strong self-adhesive film for quick and easy replacement of the foam on the area gripper
- > The foam on the film comes off the area gripper without leaving residues
- > As filter foam with plastic fabric with hole size 0.1 mm for applications in dusty and dirty environments – on request
- > As valve foam for handling cans, jars, bottles, etc. – on request

Technical data			Dimensions			
Item no.	Model	Number of suction cells	A [mm]	B [mm]	C [mm]	Ø D [mm]
FSG.ACC130.295.5F20	Standard foam	53	295	130	20	16
FSG.ACC130.434.5F20	Standard foam	83	434	130	20	16
FSG.ACC130.572.5F20	Standard foam	113	572	130	20	16
FSG.ACC130.711.5F20	Standard foam	143	711	130	20	16
FSG.ACC130.849.5F20	Standard foam	173	849	130	20	16
FSG.ACC130.988.5F20	Standard foam	203	988	130	20	16
FSG.ACC130.1126.5F20	Standard foam	233	1,126	130	20	16
FSG.ACC130.1265.5F20	Standard foam	263	1,265	130	20	16
FSG.ACC130.295.5F20F	Filter foam	53	295	130	10F10	16
FSG.ACC130.434.5F20F	Filter foam	83	434	130	10F10	16
FSG.ACC130.572.5F20F	Filter foam	113	572	130	10F10	16
FSG.ACC130.711.5F20F	Filter foam	143	711	130	10F10	16
FSG.ACC130.849.5F20F	Filter foam	173	849	130	10F10	16
FSG.ACC130.988.5F20F	Filter foam	203	988	130	10F10	16
FSG.ACC130.1126.5F20F	Filter foam	233	1,126	130	10F10	16
FSG.ACC130.1265.5F20F	Filter foam	263	1,265	130	10F10	16
FSG.ACC130.295.5F20V	Valve foam	53	295	130	20	2 - 10
FSG.ACC130.434.5F20V	Valve foam	83	434	130	20	2 - 10
FSG.ACC130.572.5F20V	Valve foam	113	572	130	20	2 - 10
FSG.ACC130.711.5F20V	Valve foam	143	711	130	20	2 - 10
FSG.ACC130.849.5F20V	Valve foam	173	849	130	20	2 - 10
FSG.ACC130.988.5F20V	Valve foam	203	988	130	20	2 - 10
FSG.ACC130.1126.5F20V	Valve foam	233	1,126	130	20	2 - 10
FSG.ACC130.1265.5F20V	Valve foam	263	1,265	130	20	2 - 10

Dimensions



# Area gripper FSG 130

## Flange modul for area gripper FSG

### Flange modul for area gripper FSG



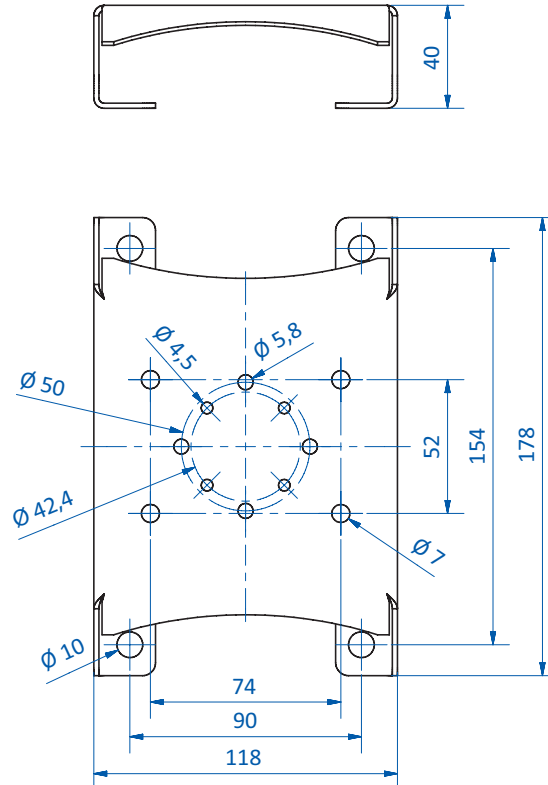
#### Product notes

- > The flange module enables easy mounting of a area gripper FSG on a quickchanger of the SR series.
- > All quickchanger of the SR series fit on the flange module - but please ensure that the quickchanger is not overloaded in your application.
- > Made of steel, powder coated black
- > Including mounting material for attachment to the area gripper

#### Technical data

Item no.	Weight [g]
FSG.ACC130.0001	500

#### Dimensions





### Sensor set for area gripper FSG



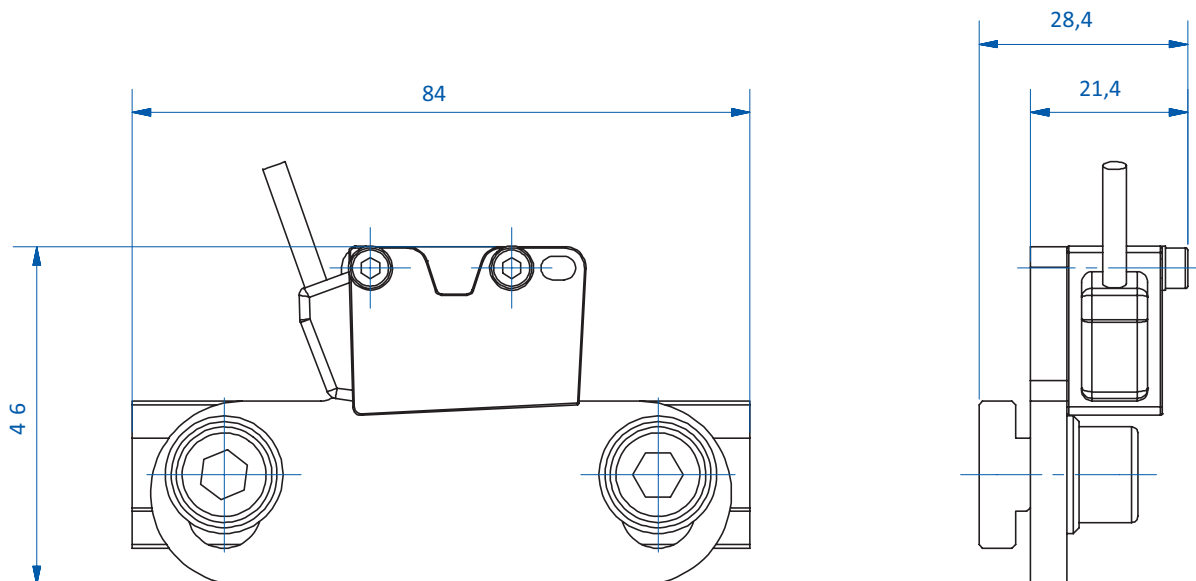
#### Product notes

- > Enables simple and reliable checking of part presence by means of an optical sensor.
- > The sensor is mounted on the large-area gripper by means of a sliding block. This allows the sensor to be positioned anywhere along the surface gripper.
- > The switching distance of the sensor can be easily adjusted continuously (30 - 300 mm).
- > Includes the optical sensor, a mounting bracket, a slot nut and all necessary screws and small parts.
- > Electrical connection with M8 plug 3-pole

#### Technical data

Item no.	Plug	Sensor	Cable length [mm]	Switching distance [mm]	Operating voltage [VDC]	Current consumption [mA]	Operating temperature [°C (°F)]
FSG.ACC130.0004	M8	PNP	200	30 - 300	10 - 30	30	-25 - 60 (-13 - 140)

#### Dimensions



# The **premium** area gripper with maximum efficiency, regardless of the coverage.

The SBX-F series is the area gripper for very high demands and complex applications.

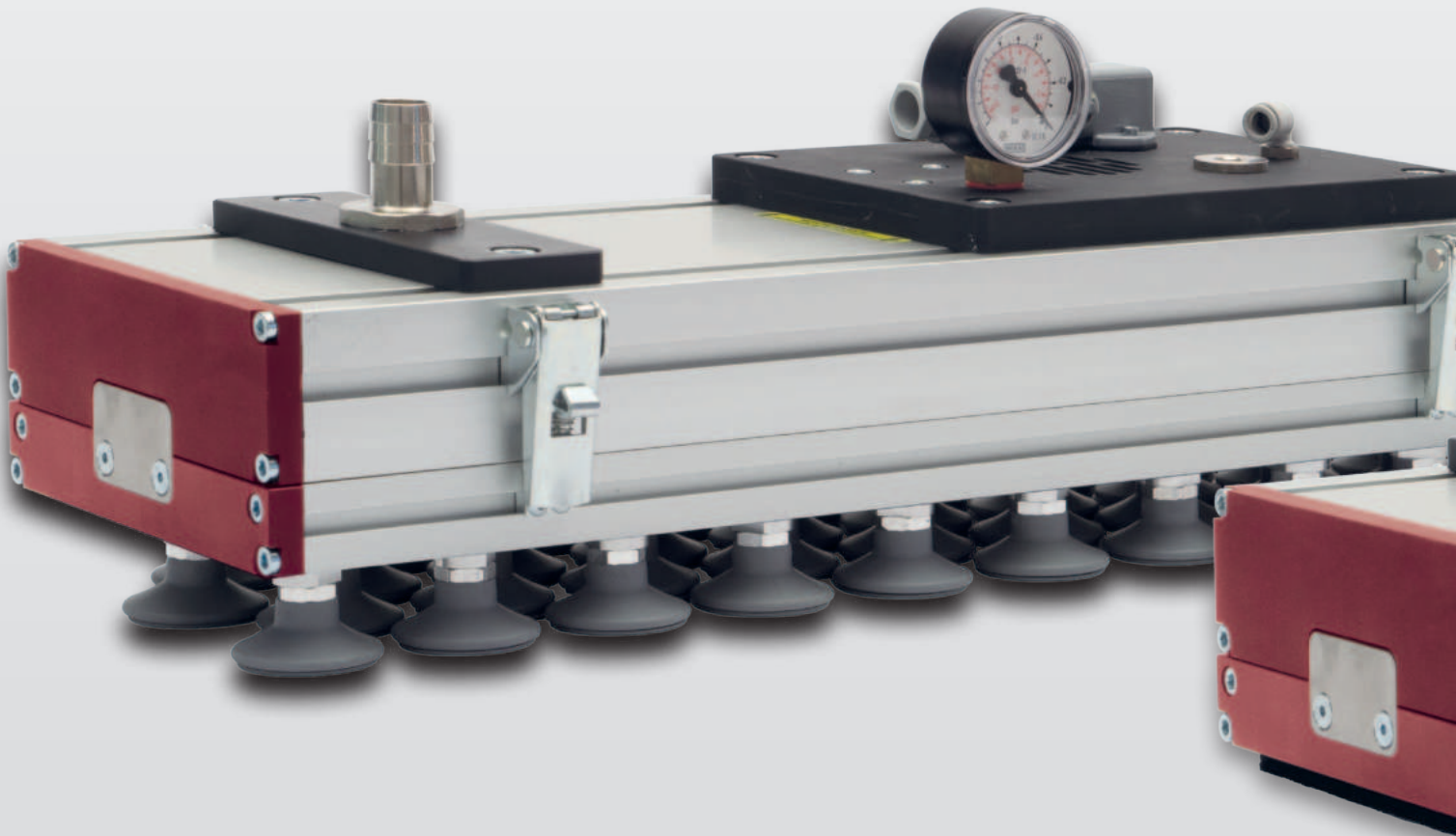
It is particularly characterised by the highest gripping reliability thanks to the special sophisticated closing valves with maximum efficiency and, at the same time, minimum coverage. With this premium area gripper for automated handling of individual products or product layers, components of any size can be gripped securely with the same vacuum level without changing grippers.

### **Highest availability**

All components subject to wear or required for operation can be replaced in seconds without having to dismantle the area gripper from the robot. This ensures maximum system availability with minimum downtime, for example due to maintenance or repair.

### **Customer-specific adaptation**

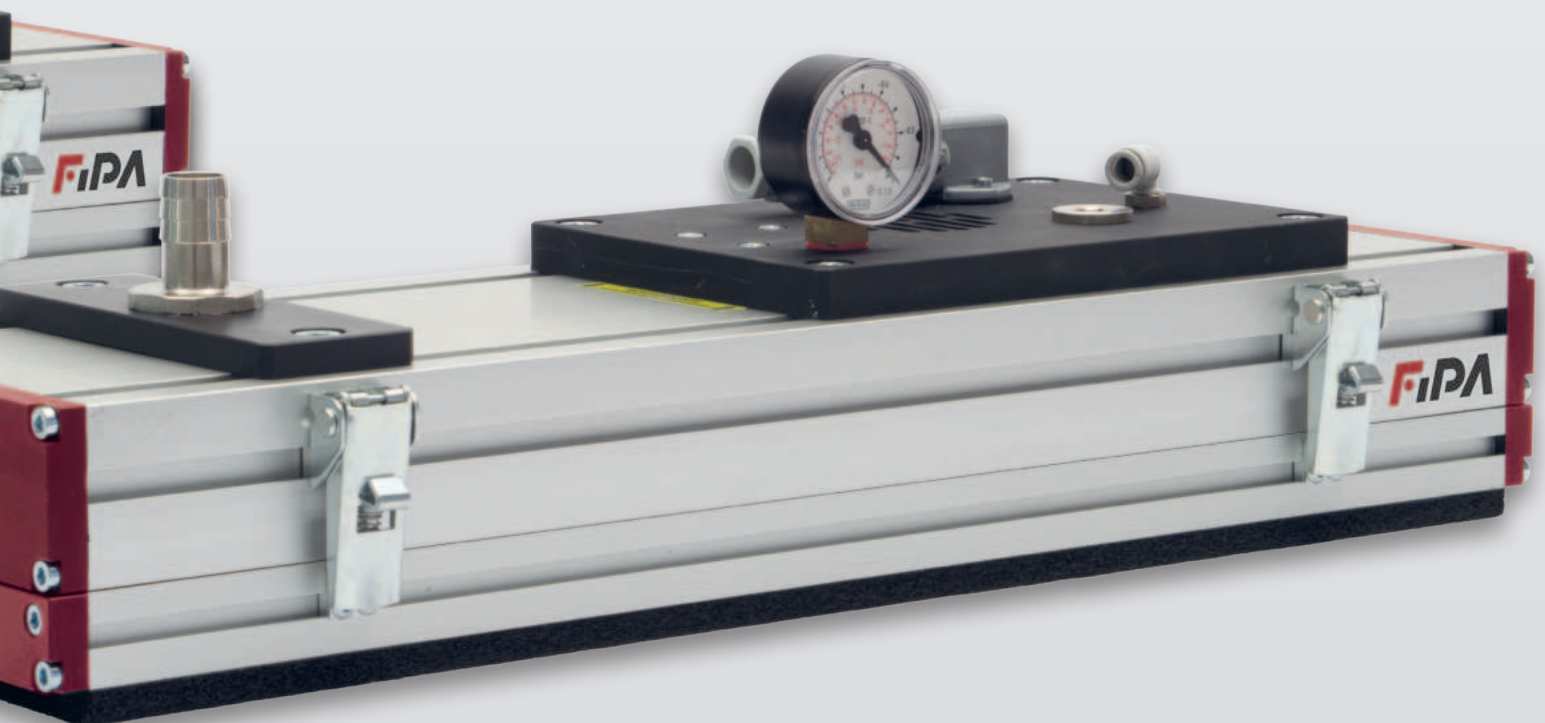
Depending on customer requirements, the arrangement and design of the suction cells/vacuum cups can be modified for each variant. Any arrangement other than the standard can be selected. Any vacuum cups can be mounted on the gripper to suit the application - we will be happy to advise you on this. The SBX-F can therefore be optimally customised to all application requirements.





The SBX-F area gripper is available in widths of 130 and 165 mm, each equipped with sealing foam made of EPDM or vacuum cups in various designs.

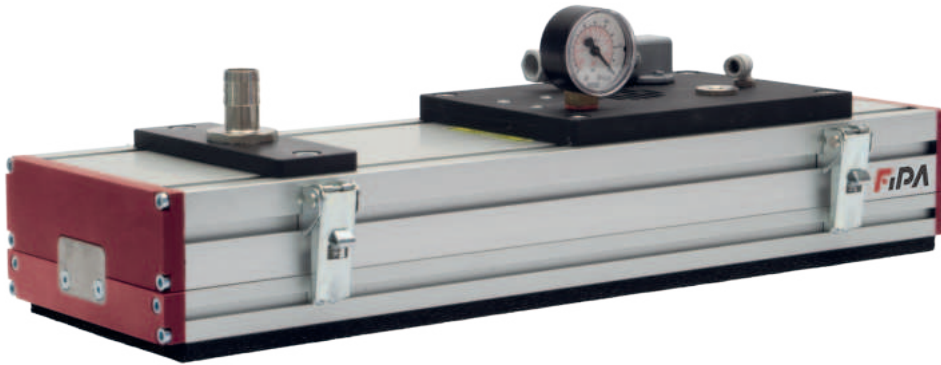
- > Maximum vacuum level with minimum coverage (depending on the workpiece)
- > Functional and wear parts can be replaced in seconds
- > Highest availability
- > Short cycle times due to very fast vacuum build-up on the workpiece
- > Particularly energy-saving as no bypasses at the valves and reduced leakage
- > Foam made of EPDM 20 mm high (standard)
- > Various other foams (e.g. wear-resistance, heights) possible according to customer specifications
- > Most different vacuum cups (size, material, shape) possible according to customer requirements
- > Customer-specific lengths from 400 mm to 3,000 mm possible
- > Customer-specific, free grid division of suction cells or vacuum cups possible



# Area gripper SBX-F

## Area gripper SBX-F with sealing foam

### Area gripper SBX-F with sealing foam



#### Product notes

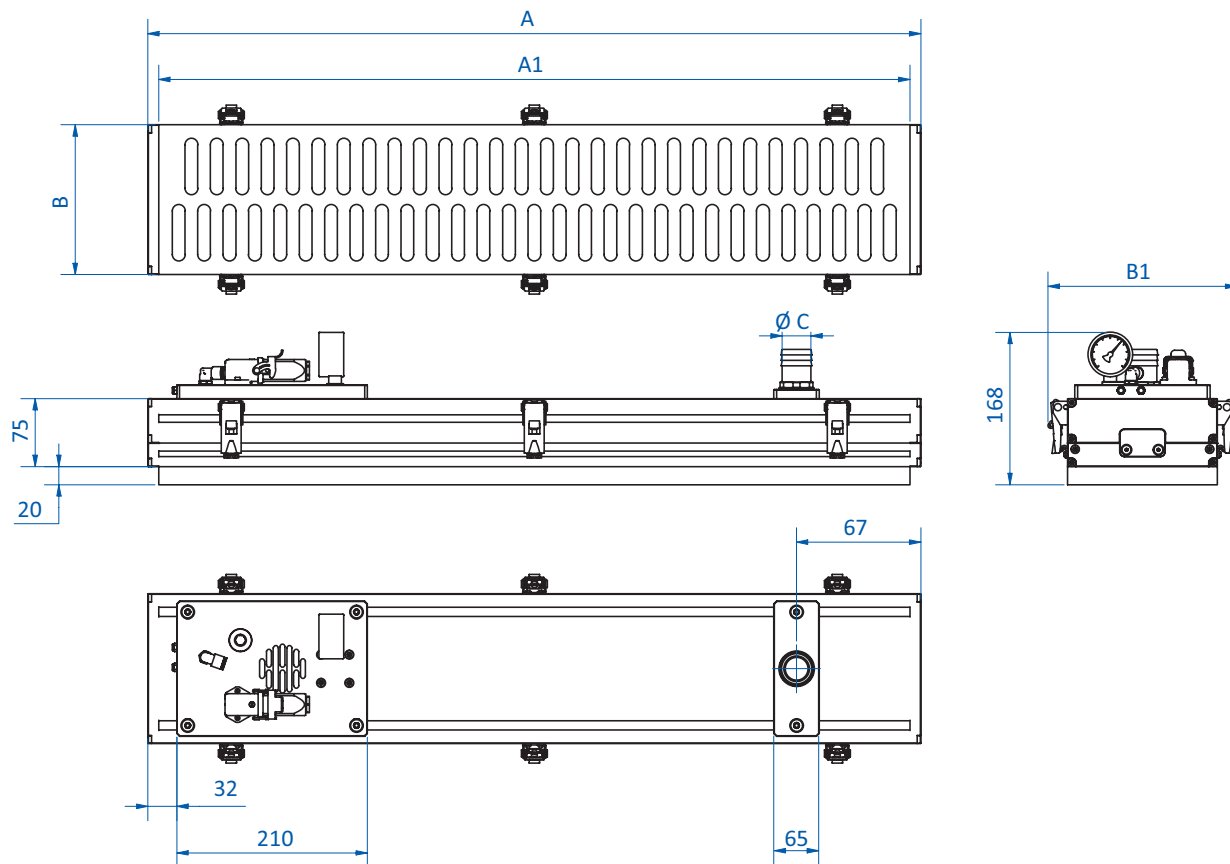
- > The area gripper for the highest demands and most difficult applications
- > For automated handling of individual products or product layers without changing grippers
- > Maximum gripping safety with the highest vacuum level and minimum coverage at the same time
- > This means that both the smallest and the largest components can be gripped safely with the same vacuum level without changing the gripper
- > Highest availability due to replacement of critical modules within seconds
- > Very short cycle times possible due to very fast suction of a workpiece
- > Particularly energy-efficient due to fully closing valves without bypass or leaks
- > Foam made of EPDM 20 mm high (standard), various other foams can be customized
- > Customer-specific lengths from 400 to 3,000 mm possible
- > Customer-specific grid division of the suction cells possible
- > With connection to external vacuum pump as standard

#### Technical data

Item no.	Total length [mm]	Width [mm]	Number of suction cells	Lifting force at -0.35 bar (-5.07 psi) [kg]	Lifting force at -0.6 bar (-8.7 psi) [kg]	Weight [kg]
SBX-F.130.436.2R28-F20	460	130	29	60	101	6
SBX-F.130.632.2R28-F20	656	130	43	90	150	9
SBX-F.130.828.2R28-F20	852	130	57	120	200	11
SBX-F.130.1248.2R28-F20	1,274	130	87	182	304	17
SBX-F.165.436.2R28-F20	460	165	29	84	145	8
SBX-F.165.632.2R28-F20	656	165	43	124	215	10
SBX-F.165.828.2R28-F20	852	165	57	165	285	13
SBX-F.165.1248.2R28-F20	1,274	165	87	252	435	18



### Dimensions



Item no.	A [mm]	A1 [mm]	B [mm]	B1 [mm]	C [mm]
SBX-F.130.436.2R28-F20	460	436	130	178	32
SBX-F.130.632.2R28-F20	656	632	130	178	32
SBX-F.130.828.2R28-F20	852	828	130	178	32
SBX-F.130.1248.2R28-F20	1,274	1,250	130	178	38
SBX-F.165.436.2R28-F20	460	436	165	208	32
SBX-F.165.632.2R28-F20	656	632	165	208	32
SBX-F.165.828.2R28-F20	852	828	165	208	32
SBX-F.165.1248.2R28-F20	1,274	1,250	165	208	38



# Area gripper SBX-F

## Area gripper SBX-F with sealing foam

### Vacuum generation with FMC multi-chamber ejectors

The area grippers of the SBX-F series are originally designed for operation with an electric vacuum pump. By combining our multi-chamber ejectors of the FMC series, an area gripper SBX-F can also be equipped with decentralized vacuum generation.

Depending on the size of the large-area gripper SBX-F and the requirements from the process, a wide variety of combinations are possible here.

The most decisive factors from the process are the evacuation time and the energy consumption.

The evacuation time is the decisive factor. It can be read in the tables below for various combinations of the SBX-F area gripper and the FMC multi-chamber ejector. The energy consumption of the selected ejector can be taken from the data sheet for the FMC series.



### SBX-F.130 Area gripper

Length [mm]	Evacuation time to max. vacuum level 80 % [sec]						Evacuation time to max. vacuum level 92 % [sec]					
	FMC-25-L	FMC-50-L	FMC-75-L	FMC-100-L	FMC-125-L	FMC-150-L	FMC-25-H	FMC-50-H	FMC-75-H	FMC-100-H	FMC-125-H	FMC-150-H
500	3.9	3.1	2.5	1.3	1.0	0.8	13.0	8.1	4.9	3.3	4.1	2.8
600	4.7	3.7	3.0	1.6	1.2	1.0	15.6	9.8	5.9	3.9	4.9	3.3
700	5.5	4.3	3.5	1.8	1.5	1.1	18.2	11.4	6.8	4.6	5.7	3.9
800	6.2	4.9	4.1	2.1	1.7	1.3	20.8	13.0	7.8	5.2	6.5	4.4
900	7.0	5.6	4.6	2.3	1.9	1.5	23.4	14.6	8.8	5.9	7.3	5.0
1000	7.8	6.2	5.1	2.6	2.1	1.6	26.0	16.3	9.8	6.5	8.1	5.5
1100	8.6	6.8	5.6	2.9	2.3	1.8	28.6	17.9	10.7	7.2	8.9	6.1
1200	9.4	7.4	6.1	3.1	2.5	2.0	31.2	19.5	11.7	7.8	9.8	6.6
1300	10.1	8.0	6.6	3.4	2.7	2.1	33.8	21.1	12.7	8.5	10.6	7.2
1400	10.9	8.6	7.1	3.6	2.9	2.3	36.4	22.8	13.7	9.1	11.4	7.7
1500	11.7	9.3	7.6	3.9	3.1	2.4	39.0	24.4	14.6	9.8	12.2	8.3
1600	12.5	9.9	8.1	4.2	3.3	2.6	41.6	26.0	15.6	10.4	13.0	8.8
1700	13.3	10.5	8.6	4.4	3.5	2.8	44.2	27.6	16.6	11.1	13.8	9.4
1800	14.0	11.1	9.1	4.7	3.7	2.9	46.8	29.3	17.6	11.7	14.6	9.9
1900	14.8	11.7	9.6	4.9	4.0	3.1	49.4	30.9	18.5	12.4	15.4	10.5
2000	15.6	12.4	10.1	5.2	4.2	3.3	52.0	32.5	19.5	13.0	16.3	11.1
2100	16.4	13.0	10.6	5.5	4.4	3.4	54.6	34.1	20.5	13.7	17.1	11.6
2200	17.2	13.6	11.2	5.7	4.6	3.6	57.2	35.8	21.5	14.3	17.9	12.2
2300	17.9	14.2	11.7	6.0	4.8	3.7	59.8	37.4	22.4	15.0	18.7	12.7
2400	18.7	14.8	12.2	6.2	5.0	3.9	62.4	39.0	23.4	15.6	19.5	13.3
2500	19.5	15.4	12.7	6.5	5.2	4.1	65.0	40.6	24.4	16.3	20.3	13.8
2600	20.3	16.1	13.2	6.8	5.4	4.2	67.6	42.3	25.4	16.9	21.1	14.4
2700	21.1	16.7	13.7	7.0	5.6	4.4	70.2	43.9	26.3	17.6	21.9	14.9
2800	21.8	17.3	14.2	7.3	5.8	4.6	72.8	45.5	27.3	18.2	22.8	15.5
2900	22.6	17.9	14.7	7.5	6.0	4.7	75.4	47.1	28.3	18.9	23.6	16.0
3000	23.4	18.5	15.2	7.8	6.2	4.9	78.0	48.8	29.3	19.5	24.4	16.6

### SBX-F.165 Area gripper

Length [mm]	Evacuation time to max. vacuum level 80 % [sec]						Evacuation time to max. vacuum level 92 % [sec]					
	FMC-25-L	FMC-50-L	FMC-75-L	FMC-100-L	FMC-125-L	FMC-150-L	FMC-25-H	FMC-50-H	FMC-75-H	FMC-100-H	FMC-125-H	FMC-150-H
500	4.95	3.9	3.2	1.7	1.3	1.0	16.5	10.3	6.2	4.1	5.2	3.5
600	5.94	4.7	3.9	2.0	1.6	1.2	19.8	12.4	7.4	5.0	6.2	4.2
700	6.93	5.5	4.5	2.3	1.8	1.4	23.1	14.4	8.7	5.8	7.2	4.9
800	7.92	6.3	5.1	2.6	2.1	1.7	26.4	16.5	9.9	6.6	8.3	5.6
900	8.91	7.1	5.8	3.0	2.4	1.9	29.7	18.6	11.1	7.4	9.3	6.3
1000	9.9	7.8	6.4	3.3	2.6	2.1	33.0	20.6	12.4	8.3	10.3	7.0
1100	10.89	8.6	7.1	3.6	2.9	2.3	36.3	22.7	13.6	9.1	11.3	7.7
1200	11.88	9.4	7.7	4.0	3.2	2.5	39.6	24.8	14.9	9.9	12.4	8.4
1300	12.87	10.2	8.4	4.3	3.4	2.7	42.9	26.8	16.1	10.7	13.4	9.1
1400	13.86	11.0	9.0	4.6	3.7	2.9	46.2	28.9	17.3	11.6	14.4	9.8
1500	14.85	11.8	9.7	5.0	4.0	3.1	49.5	30.9	18.6	12.4	15.5	10.5
1600	15.84	12.5	10.3	5.3	4.2	3.3	52.8	33.0	19.8	13.2	16.5	11.2
1700	16.83	13.3	10.9	5.6	4.5	3.5	56.1	35.1	21.0	14.0	17.5	11.9
1800	17.82	14.1	11.6	5.9	4.8	3.7	59.4	37.1	22.3	14.9	18.6	12.6
1900	18.81	14.9	12.2	6.3	5.0	3.9	62.7	39.2	23.5	15.7	19.6	13.3
2000	19.8	15.7	12.9	6.6	5.3	4.1	66.0	41.3	24.8	16.5	20.6	14.0
2100	20.79	16.5	13.5	6.9	5.5	4.3	69.3	43.3	26.0	17.3	21.7	14.7
2200	21.78	17.2	14.2	7.3	5.8	4.5	72.6	45.4	27.2	18.2	22.7	15.4
2300	22.77	18.0	14.8	7.6	6.1	4.7	75.9	47.4	28.5	19.0	23.7	16.1
2400	23.76	18.8	15.4	7.9	6.3	5.0	79.2	49.5	29.7	19.8	24.8	16.8
2500	24.75	19.6	16.1	8.3	6.6	5.2	82.5	51.6	30.9	20.6	25.8	17.5
2600	25.74	20.4	16.7	8.6	6.9	5.4	85.8	53.6	32.2	21.5	26.8	18.2
2700	26.73	21.2	17.4	8.9	7.1	5.6	89.1	55.7	33.4	22.3	27.8	18.9
2800	27.72	21.9	18.0	9.2	7.4	5.8	92.4	57.8	34.7	23.1	28.9	19.6
2900	28.71	22.7	18.7	9.6	7.7	6.0	95.7	59.8	35.9	23.9	29.9	20.3
3000	29.7	23.5	19.3	9.9	7.9	6.2	99.0	61.9	37.1	24.8	30.9	21.0

# Area gripper SBX-F

Area gripper SBX-F with vacuum cups diameter 43 mm

Area gripper SBX-F with vacuum cups diameter 43 mm



## Product notes

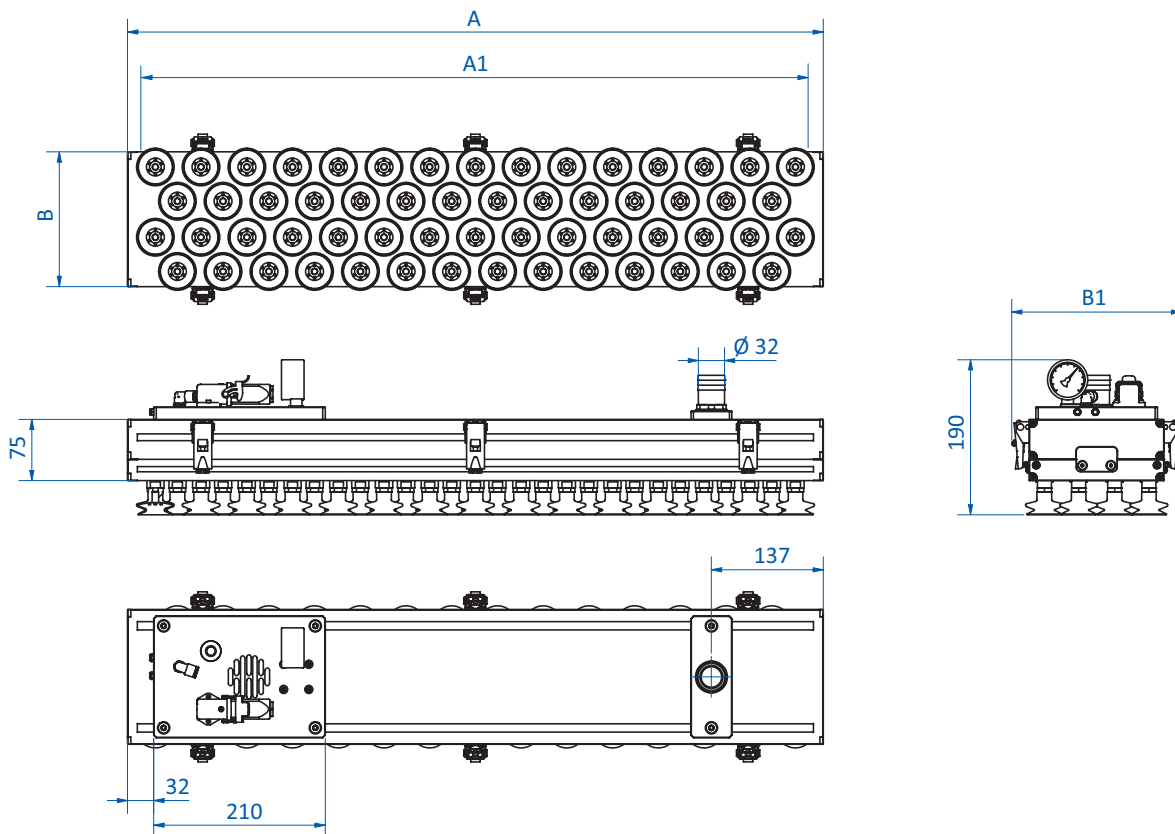
- > The area gripper for the highest demands and most difficult applications
- > For automated handling of individual products or product layers without changing grippers
- > Maximum gripping safety with the highest vacuum level and minimum coverage at the same time
- > This means that both the smallest and the largest components can be gripped safely with the same vacuum level without changing the gripper
- > Highest availability due to replacement of critical modules within seconds
- > Very short cycle times possible due to very fast suction of a workpiece
- > Particularly energy-efficient due to fully closing valves without bypass or leaks
- > Vacuum cups with  $\varnothing$  43 mm made of NR as standard, various other vacuum cups can be supplied to customer needs
- > Customer-specific lengths from 400 to 3,000 mm possible
- > Customized grid arrangement of the vacuum cups possible
- > With connection to external vacuum pump as standard

## Technical data

Item no.	Total length [mm]	Width [mm]	Number of vacuum cups	Lifting force at -0.35 bar (-5.07 psi) [kg]	Lifting force at -0.6 bar (-8.7 psi) [kg]	Weight [kg]
<b>SBX-F.130.436.3R56-VC43</b>	460	130	23	31	53	6.6
<b>SBX-F.130.632.3R56-VC43</b>	656	130	33	44	76	9.9
<b>SBX-F.130.828.3R56-VC43</b>	852	130	44	60	102	12.2
<b>SBX-F.130.1248.3R56-VC43</b>	1,274	130	66	89	153	18.8
<b>SBX-F.165.436.4R56-VC43</b>	460	165	30	40	69	8.8
<b>SBX-F.165.632.4R56-VC43</b>	656	165	44	59	102	11.2
<b>SBX-F.165.828.4R56-VC43</b>	852	165	58	81	139	14.6
<b>SBX-F.165.1248.4R56-VC43</b>	1,274	165	88	119	204	20.4



### Dimensions



Item no.	A [mm]	A1 [mm]	B [mm]	B1 [mm]
<b>SBX-F.130.436.3R56-VC43</b>	460	436	130	178
<b>SBX-F.130.632.3R56-VC43</b>	656	632	130	178
<b>SBX-F.130.828.3R56-VC43</b>	852	828	130	178
<b>SBX-F.130.1248.3R56-VC43</b>	1,274	1,250	130	178
<b>SBX-F.165.436.4R56-VC43</b>	460	436	165	208
<b>SBX-F.165.632.4R56-VC43</b>	656	632	165	208
<b>SBX-F.165.828.4R56-VC43</b>	852	828	165	208
<b>SBX-F.165.1248.4R56-VC43</b>	1,274	1,250	165	208

# Area gripper SBX-F

Area gripper SBX-F with vacuum cups diameter 43 mm

## Vacuum generation with FMC multi-chamber ejectors

The area grippers of the SBX-F series are originally designed for operation with an electric vacuum pump. By combining our multi-chamber ejectors of the FMC series, an area gripper SBX-F can also be equipped with decentralized vacuum generation.

Depending on the size of the large-area gripper SBX-F and the requirements from the process, a wide variety of combinations are possible here.

The most decisive factors from the process are the evacuation time and the energy consumption.

The evacuation time is the decisive factor. It can be read in the tables below for various combinations of the SBX-F area gripper and the FMC multi-chamber ejector. The energy consumption of the selected ejector can be taken from the data sheet for the FMC series.



## SBX-F.130 Area gripper

Length [mm]	Evacuation time to max. vacuum level 80 % [sec]						Evacuation time to max. vacuum level 92 % [sec]					
	FMC-25-L	FMC-50-L	FMC-75-L	FMC-100-L	FMC-125-L	FMC-150-L	FMC-25-H	FMC-50-H	FMC-75-H	FMC-100-H	FMC-125-H	FMC-150-H
500	3.9	3.1	2.5	1.3	1.0	0.8	13.0	8.1	4.9	3.3	4.1	2.8
600	4.7	3.7	3.0	1.6	1.2	1.0	15.6	9.8	5.9	3.9	4.9	3.3
700	5.5	4.3	3.5	1.8	1.5	1.1	18.2	11.4	6.8	4.6	5.7	3.9
800	6.2	4.9	4.1	2.1	1.7	1.3	20.8	13.0	7.8	5.2	6.5	4.4
900	7.0	5.6	4.6	2.3	1.9	1.5	23.4	14.6	8.8	5.9	7.3	5.0
1000	7.8	6.2	5.1	2.6	2.1	1.6	26.0	16.3	9.8	6.5	8.1	5.5
1100	8.6	6.8	5.6	2.9	2.3	1.8	28.6	17.9	10.7	7.2	8.9	6.1
1200	9.4	7.4	6.1	3.1	2.5	2.0	31.2	19.5	11.7	7.8	9.8	6.6
1300	10.1	8.0	6.6	3.4	2.7	2.1	33.8	21.1	12.7	8.5	10.6	7.2
1400	10.9	8.6	7.1	3.6	2.9	2.3	36.4	22.8	13.7	9.1	11.4	7.7
1500	11.7	9.3	7.6	3.9	3.1	2.4	39.0	24.4	14.6	9.8	12.2	8.3
1600	12.5	9.9	8.1	4.2	3.3	2.6	41.6	26.0	15.6	10.4	13.0	8.8
1700	13.3	10.5	8.6	4.4	3.5	2.8	44.2	27.6	16.6	11.1	13.8	9.4
1800	14.0	11.1	9.1	4.7	3.7	2.9	46.8	29.3	17.6	11.7	14.6	9.9
1900	14.8	11.7	9.6	4.9	4.0	3.1	49.4	30.9	18.5	12.4	15.4	10.5
2000	15.6	12.4	10.1	5.2	4.2	3.3	52.0	32.5	19.5	13.0	16.3	11.1
2100	16.4	13.0	10.6	5.5	4.4	3.4	54.6	34.1	20.5	13.7	17.1	11.6
2200	17.2	13.6	11.2	5.7	4.6	3.6	57.2	35.8	21.5	14.3	17.9	12.2
2300	17.9	14.2	11.7	6.0	4.8	3.7	59.8	37.4	22.4	15.0	18.7	12.7
2400	18.7	14.8	12.2	6.2	5.0	3.9	62.4	39.0	23.4	15.6	19.5	13.3
2500	19.5	15.4	12.7	6.5	5.2	4.1	65.0	40.6	24.4	16.3	20.3	13.8
2600	20.3	16.1	13.2	6.8	5.4	4.2	67.6	42.3	25.4	16.9	21.1	14.4
2700	21.1	16.7	13.7	7.0	5.6	4.4	70.2	43.9	26.3	17.6	21.9	14.9
2800	21.8	17.3	14.2	7.3	5.8	4.6	72.8	45.5	27.3	18.2	22.8	15.5
2900	22.6	17.9	14.7	7.5	6.0	4.7	75.4	47.1	28.3	18.9	23.6	16.0
3000	23.4	18.5	15.2	7.8	6.2	4.9	78.0	48.8	29.3	19.5	24.4	16.6

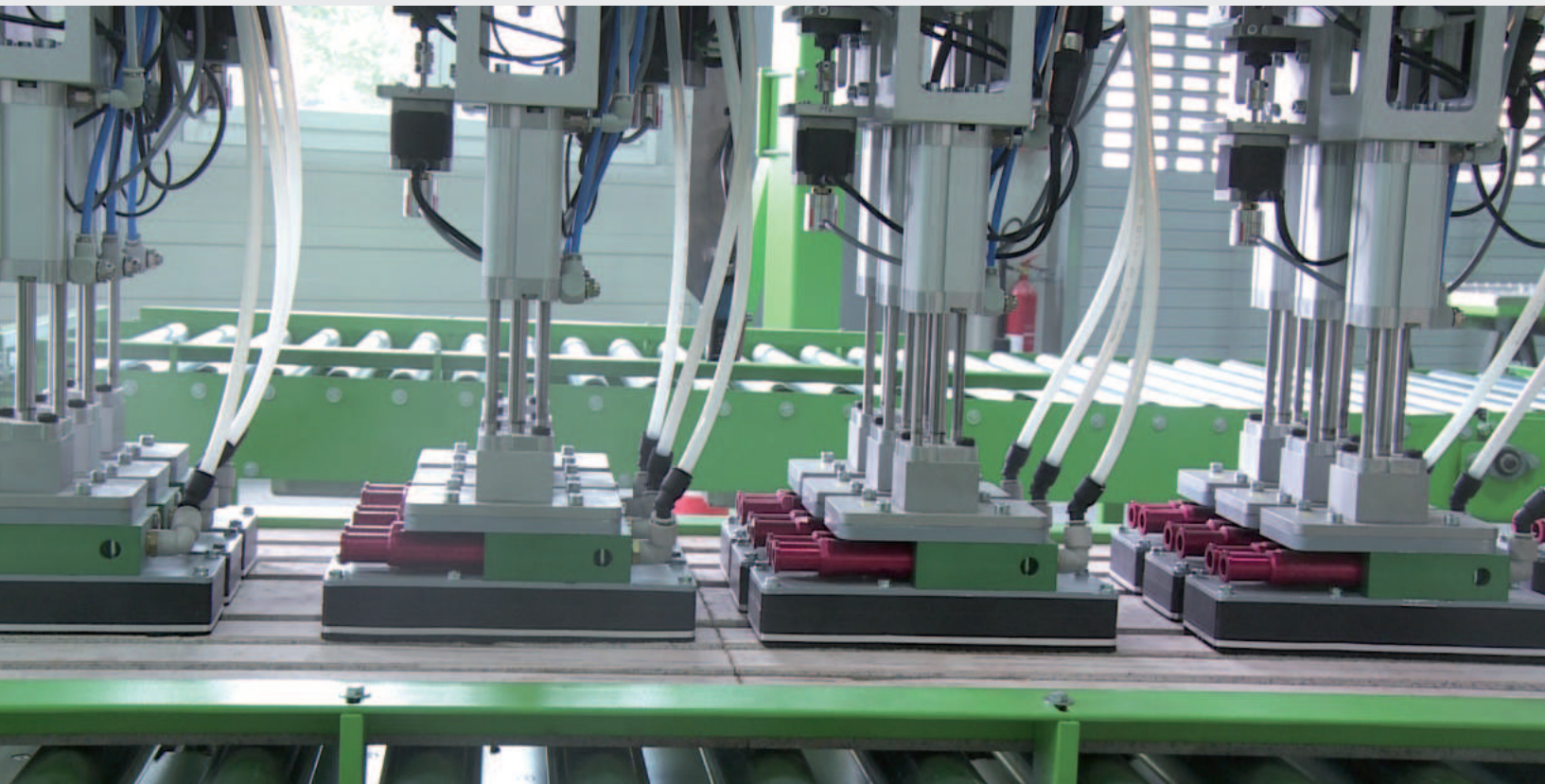
### SBX-F.165 Area gripper

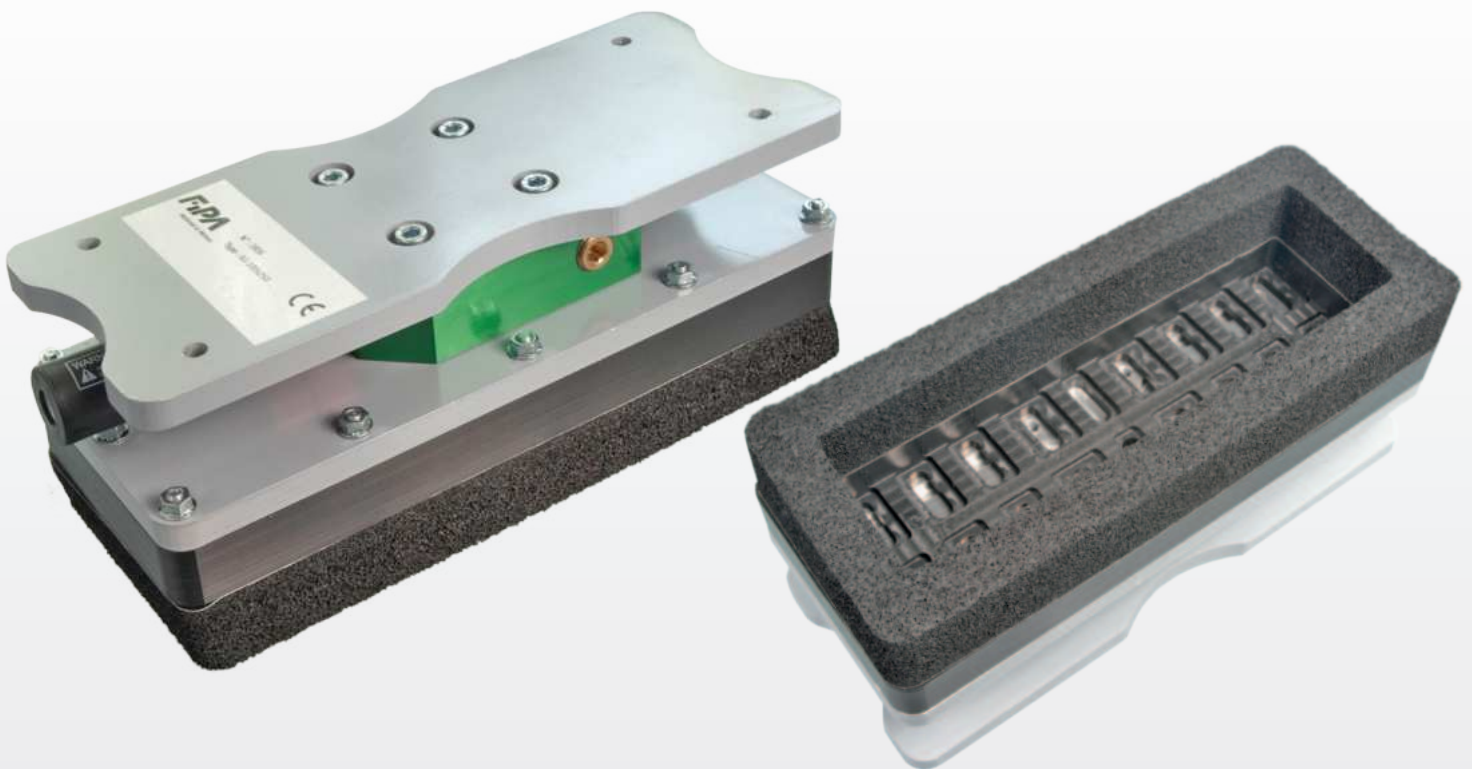
Length [mm]	Evacuation time to max. vacuum level 80 % [sec]						Evacuation time to max. vacuum level 92 % [sec]					
	FMC-25-L	FMC-50-L	FMC-75-L	FMC-100-L	FMC-125-L	FMC-150-L	FMC-25-H	FMC-50-H	FMC-75-H	FMC-100-H	FMC-125-H	FMC-150-H
500	4.95	3.9	3.2	1.7	1.3	1.0	16.5	10.3	6.2	4.1	5.2	3.5
600	5.94	4.7	3.9	2.0	1.6	1.2	19.8	12.4	7.4	5.0	6.2	4.2
700	6.93	5.5	4.5	2.3	1.8	1.4	23.1	14.4	8.7	5.8	7.2	4.9
800	7.92	6.3	5.1	2.6	2.1	1.7	26.4	16.5	9.9	6.6	8.3	5.6
900	8.91	7.1	5.8	3.0	2.4	1.9	29.7	18.6	11.1	7.4	9.3	6.3
1000	9.9	7.8	6.4	3.3	2.6	2.1	33.0	20.6	12.4	8.3	10.3	7.0
1100	10.89	8.6	7.1	3.6	2.9	2.3	36.3	22.7	13.6	9.1	11.3	7.7
1200	11.88	9.4	7.7	4.0	3.2	2.5	39.6	24.8	14.9	9.9	12.4	8.4
1300	12.87	10.2	8.4	4.3	3.4	2.7	42.9	26.8	16.1	10.7	13.4	9.1
1400	13.86	11.0	9.0	4.6	3.7	2.9	46.2	28.9	17.3	11.6	14.4	9.8
1500	14.85	11.8	9.7	5.0	4.0	3.1	49.5	30.9	18.6	12.4	15.5	10.5
1600	15.84	12.5	10.3	5.3	4.2	3.3	52.8	33.0	19.8	13.2	16.5	11.2
1700	16.83	13.3	10.9	5.6	4.5	3.5	56.1	35.1	21.0	14.0	17.5	11.9
1800	17.82	14.1	11.6	5.9	4.8	3.7	59.4	37.1	22.3	14.9	18.6	12.6
1900	18.81	14.9	12.2	6.3	5.0	3.9	62.7	39.2	23.5	15.7	19.6	13.3
2000	19.8	15.7	12.9	6.6	5.3	4.1	66.0	41.3	24.8	16.5	20.6	14.0
2100	20.79	16.5	13.5	6.9	5.5	4.3	69.3	43.3	26.0	17.3	21.7	14.7
2200	21.78	17.2	14.2	7.3	5.8	4.5	72.6	45.4	27.2	18.2	22.7	15.4
2300	22.77	18.0	14.8	7.6	6.1	4.7	75.9	47.4	28.5	19.0	23.7	16.1
2400	23.76	18.8	15.4	7.9	6.3	5.0	79.2	49.5	29.7	19.8	24.8	16.8
2500	24.75	19.6	16.1	8.3	6.6	5.2	82.5	51.6	30.9	20.6	25.8	17.5
2600	25.74	20.4	16.7	8.6	6.9	5.4	85.8	53.6	32.2	21.5	26.8	18.2
2700	26.73	21.2	17.4	8.9	7.1	5.6	89.1	55.7	33.4	22.3	27.8	18.9
2800	27.72	21.9	18.0	9.2	7.4	5.8	92.4	57.8	34.7	23.1	28.9	19.6
2900	28.71	22.7	18.7	9.6	7.7	6.0	95.7	59.8	35.9	23.9	29.9	20.3
3000	29.7	23.5	19.3	9.9	7.9	6.2	99.0	61.9	37.1	24.8	30.9	21.0



# Handling of non-rigid goods

The TG series sack pack gripper is specially designed for handling dimensionally stable packs such as sacks, large bags and shrink-wrap packaging. In principle, other packs such as light cardboard boxes, crates and others can also be handled.





## At a glance:

- > **High reliability:** The contamination-resistant design reduces downtime due to dust-intensive products (optionally also available with connection of an external vacuum pump)
- > **Low maintenance costs:** The foam mat can be replaced quickly and easily
- > For **handling highly porous products** our range includes the side channel blowers
- > **Customer-specific customisation:** Many different handling solutions can be created by splitting the suction chambers and adjusting the chamber depth
- > **Easy integration:** The bag grippers are compatible with the FIPA modular system and can also be used with third-party systems.



Handling of dimensionally stable, bag-like containers and shrink film packaging.



Also suitable for other containers with complete coverage of the suction cell, e.g. wooden slats.

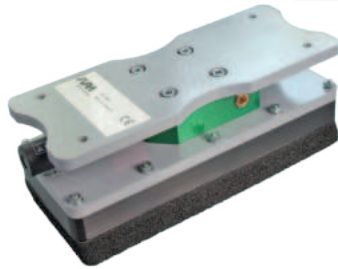
# Bag grippers

TG

## Bag grippers

Handling of non-rigid goods

**MAXIMUM DURABILITY, MINIMUM MAINTENANCE**



View of the suction chamber

### Product notes

- > Handling of limp, non-rigid objects such as bags, shrink-wraps or any product that fully covers the suction chamber
- > Also suitable for other packs with complete coverage of the suction cell
- > 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
- > Also suitable for other containers such as cardboard bottles, crates and others

### Notes

On request:

- > Splitting of suction chamber for multi-zone picking and release
- > Depth of the suction chamber can be adjusted for optimum handling of specific products (standard 40 mm)

### Ordering notes

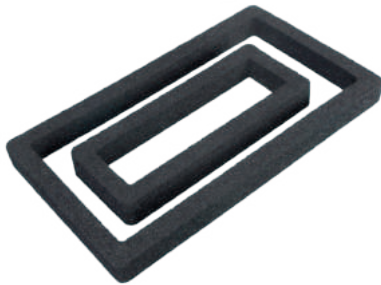
Ordering example vacuum generation

- > TG150x300: integrated via ejectors
- > TG150x300-OV: designed for external vacuum generation, e.g. via side channel blower or pump

### Technical data

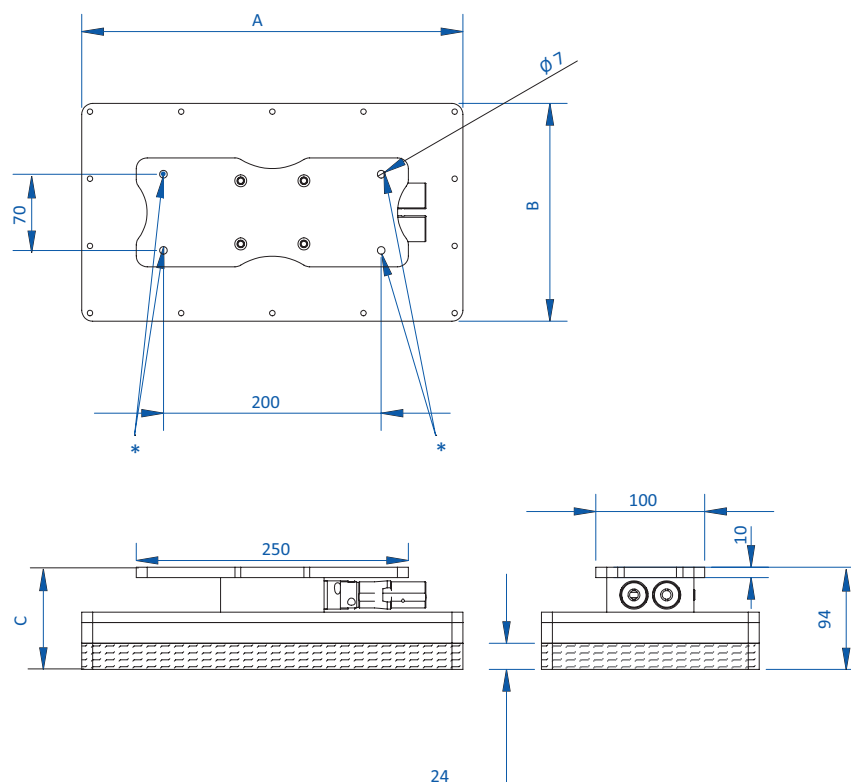
Item no.	Air consumption at 6 bar (87 psi) [Nl/min]	Suction power against atmosphere [Nl/min]	Final vacuum [%]	Max. gripping force at 60 % vacuum (-600 mbar (-17.7 inHg)) safety factor 1.5 [N]			Weight [kg]	Suitable sealing foam
				Dense products (e.g. steel)	Semi-porous products (e.g. wood)	Porous products (e.g. carton boxes)		
TG100x250	105	198	85	280	170	70	1.5	PPF100x250
TG150x300	210	396	85	500	300	125	2.5	PPF150x300
TG200x350	210	396	85	770	470	190	3.5	PPF200x350
TG250x400	210	396	85	1,100	670	270	4.7	PPF250x400
TG300x500	210	396	85	1,670	1,000	400	6.7	PPF300x500
TG400x600	210	396	85	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]
<b>TG100x250</b>	250	100	62
<b>TG150x300</b>	300	150	62
<b>TG200x350</b>	350	200	62
<b>TG250x400</b>	400	250	93
<b>TG300x500</b>	500	300	93
<b>TG400x600</b>	600	400	93



## FORMHAND – Universal gripping pad for flexibilisation of production & logistics

Production and in-house logistics are becoming increasingly complex and require efficient solutions to handle a wide variety of lifting processes. With universally applicable grippers that offer **maximum flexibility and cost-effectiveness**, your company can also hold its own in the market.

The FORMHAND technology is ingeniously simple: the freely deformable gripping pad with a gripping surface of 300 mm x 200 mm is filled with freely movable granulate and **nestles seamlessly against any surface**. As soon as a vacuum is applied to the system, it becomes firm and fixes the gripped object. This enables the FORMHAND to gently pick up objects with complex and changing geometries.

Moreover users have easy access as the gripping pad can be changed without any tooling. A quick-change adapter connects the FORMHAND to the tube lifter FIPALIFTswift. This picks up **objects without a flat surface or flexible goods**, for which conventional solutions with vacuum cups fail, up to a weight of 25 kg in a process-safe manner.

“ *Bulky package, soft fleece or unwieldy object: One size fits all.* ”



High gripping force



Easy integration



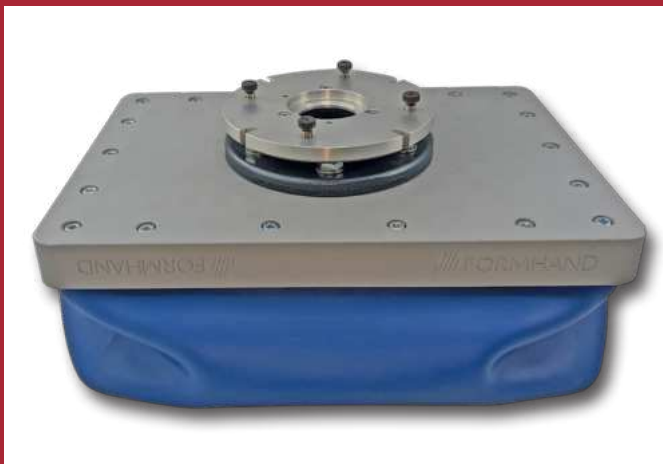
Form-flexible shape fit



Gentle gripping



Multifunctional use





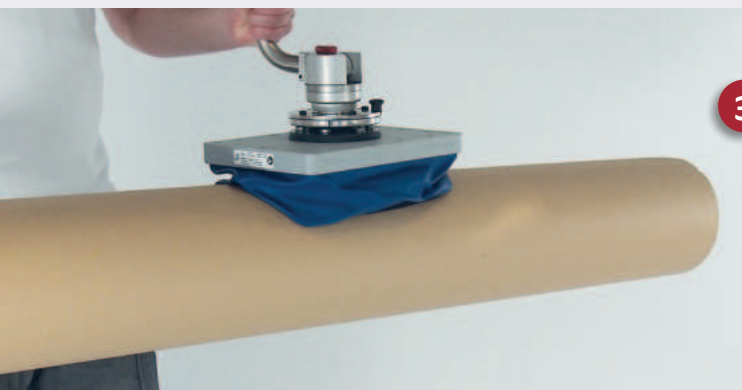
1

Curved sheets are often the greatest challenge in manual handling. FORMHAND also processes sheets with strong curvatures.



2

In baggage logistics, the FORMHAND also simplifies the handling of flexible goods without a flat surface, such as suitcases, bags and backpacks.



3

Also in the packaging sector or in the order-picking of cardboard boxes, the FORMHAND performs reliably. There are no limits to flexibility here.

## Useful addition

Our tube lifter **FIPALIFTswift** with its unique control handle design allows for effortless and efficient lifting of heavy loads. The intuitive, ergonomic and easy to use controls create a versatile and powerful solution.

In combination with the **FORMHAND gripping pad** you can lift, lower and balance loads in a wide variety of shapes with just one hand. We would be happy to put together a complete solution for you consisting of a crane, vacuum generation and tube lifter with suction foot.

Our many years of expertise in vacuum, gripping and lifting technology make it possible: FIPA offers you everything from just one single source!

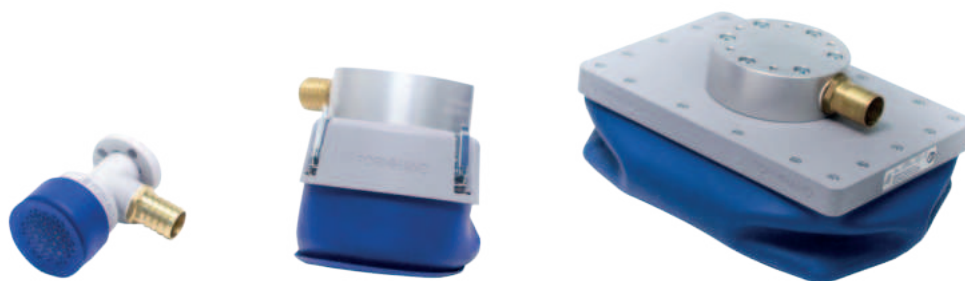




# FORMHAND

## FORMHAND for robots

### FORMHAND for robots



#### Product notes

- > Gripping pad filled with a freely movable granulate made of plastic for handling complex and changing geometries
- > The FORMHAND nestles seamlessly to the surface of the component and thus ensures a gentle grip
- > Application on classic industrial robots, but also on cobots
- > Saving of different gripping systems and set-up times due to the modular use of this universal gripper

#### Notes

- > The holding force corresponds to optimal conditions, can deviate downwards

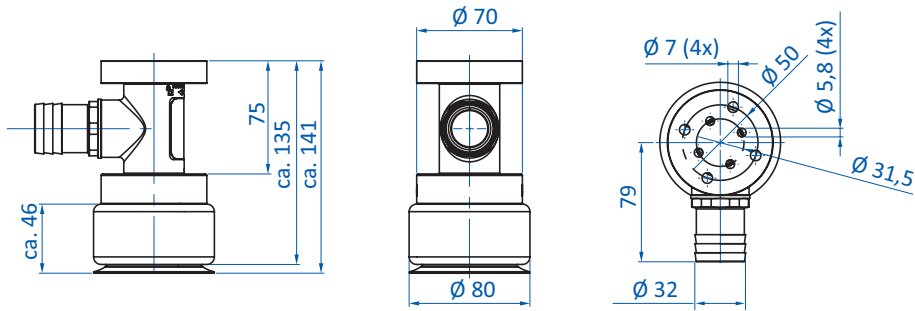
#### Technical data

Item no.	Suction area [mm]	Pipe connection [mm]	Material	Max. gripping force [N]	Weight [kg]	Ambient air temperature [°C (°F)]
FMG.FH.R80.5	Ø 80	32	PU	20	0.45	-10 - 50 (14 - 122)
FMG.FH.R150.5	Ø 154	32	PU	80	2.65	-10 - 50 (14 - 122)
FMG.FH.R150.1	Ø 154	32	NBR	80	2.65	-10 - 50 (14 - 122)
FMG.FH.E3020.5	300x200	32	PU	250	3.7	-10 - 50 (14 - 122)

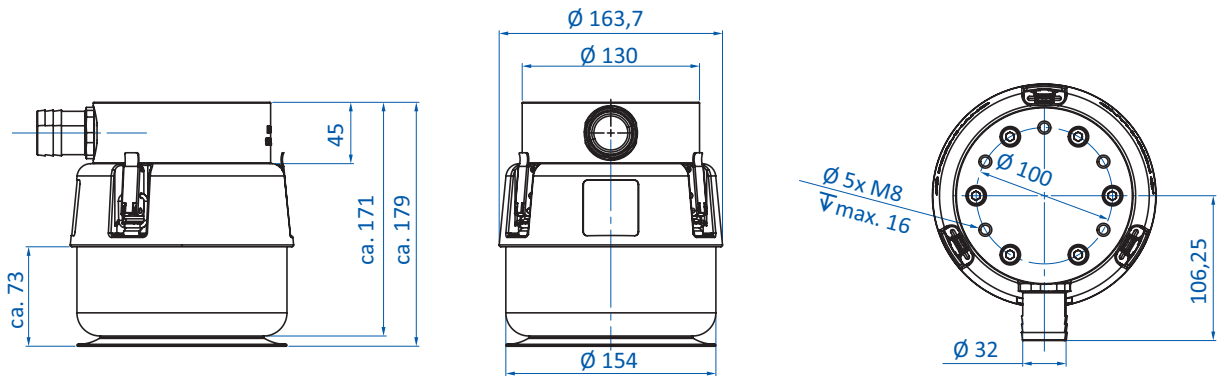
#### Application examples



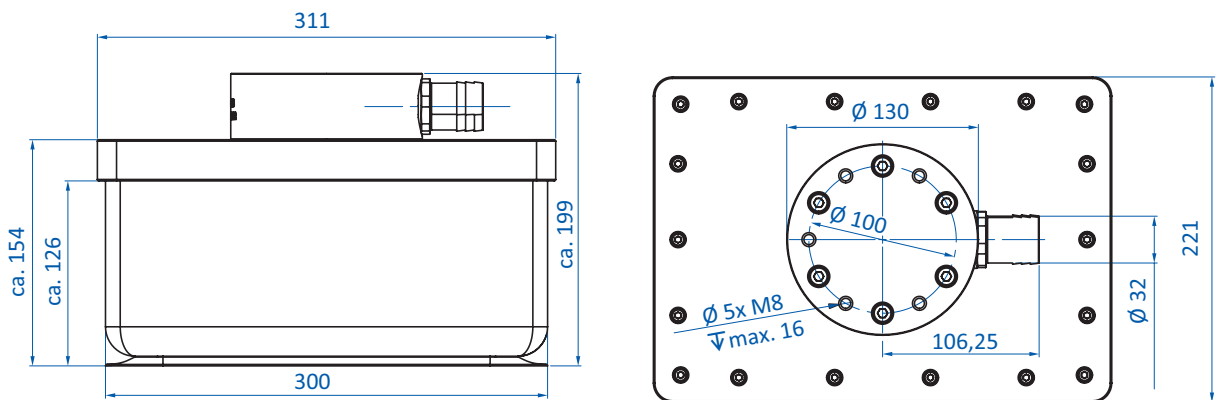
Dimensions



FMG.FH.R80.5



FMG.FH.R150.5 | FMG.FH.R150.1



FMG.FH.E3020.5

# WE MOVE FORWARD

With know-how, expertise, flexibility and professional project management we guide you to the best solution for your handling task in vacuum, gripping and lifting technology.



## Box

Efficient handling and transportation of cardboard packaging in storage and shipping areas.



## Injection molded parts

Low-marking removal of hot plastic parts, cutting of sprues.



## Sacks

Ergonomic, safe handling and picking of sacks.



## Bags/Pouches

Handling of unstable flowpacks and bags with different textures.



## Sheet metal

Fast cycling times and high process reliability for sheet metal transfer, body car handling and machine loading.



## Wood

Handling of wooden elements with different surfaces, machine loading.



## Glass/bottles

Non-marking, safe handling and assembly of panes, glass and window elements.



## Paper/foils

Precise and reliable handling without soaking in the product.



## Drums

Safe handling of heavy drums, buckets and canisters.



## Food

Flexible and FDA-compliant handling for direct contact with food.



## Pallets

Easy and safe handling of pallets for a smooth material flow.



## Electronic parts

Clean and flexible handling of very small components with maximum precision.

# AUTOMATION SOLUTIONS ACCORDING TO **YOUR** NEEDS

We are your global partner for all requirements in the industrial automation industry. Thanks to our many years of experience, reliability and flexibility, we always find the right solution to maximise your process reliability.

Production and logistics mean movement. In most industries, products are picked up, held, deposited, turned, turned over, positioned and lifted.

Vacuum technology can be used to move workpieces safely and quickly, but above all to handle them gently and without causing damage. We have a comprehensive range of innovative and high-quality products for all these applications. With our customer-specific solutions, you can optimise your production processes while supporting your employees in their daily work.

## **Are you looking for an automation approach and want to improve your processes?**

We are more than just a supplier of components. With our expertise, application know-how and professional project management, we provide the optimum solution for your handling task in vacuum, gripping and lifting technology.

## **Do you want to increase efficiency and productivity at the same time as working ergonomically?**

We work closely with our customers and therefore always find an answer - from standard solutions to customised designs of the gripper construction.

Our goal: to optimise processes in production and logistics with individual components and customised solutions.

Personal contact, fast response times and expertise are our path to successful projects. We are active for you worldwide through our large partner network.

We keep moving for **you** so that production and logistics run reliably and smoothly.

## THE EXTENSIVE **PRODUCT RANGE**

In addition to vacuum cups and vacuum components, we offer a comprehensive range of gripping and fastening elements. In our product catalogues at [www.fipa.com](http://www.fipa.com) you will find a summary of our complete range.



### Are you looking for the right vacuum cups?

In the pick and place field, all vacuum cups have the same task: lifting parts and moving them without causing damage. Different vacuum cups are used depending on the shape, size and material of the goods to be handled. We have an extensive range of flat, bellows and oval vacuum cups, as well as matching holders and spring levelers, which we present in our vacuum cups catalog.



### Do you need gripping elements?

In the catalog for End-of-Arm-Tooling you will find everything, such as sprue grippers, gripper fingers, quick-change systems and air nippers, as well as our vacuum gripping systems.



### Are you looking for the right vacuum component?

The highest level of professionalism in generating, regulating and controlling of vacuum – this is guaranteed by the various vacuum components from FIPA. In the catalog for vacuum components you will find everything from suitable vacuum generation, vacuum filters, hoses and connecting elements.



### Do you want to make lifting heavy loads easier?

Take the strain from your employees with the ideal tube lifter for your application. Our goal is to make your material flow as efficient and ergonomic as possible.



Your global partner for

# VACUUM, GRIPPING AND LIFTING TECHNOLOGY



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