



News 2017

# Vacuum Automation

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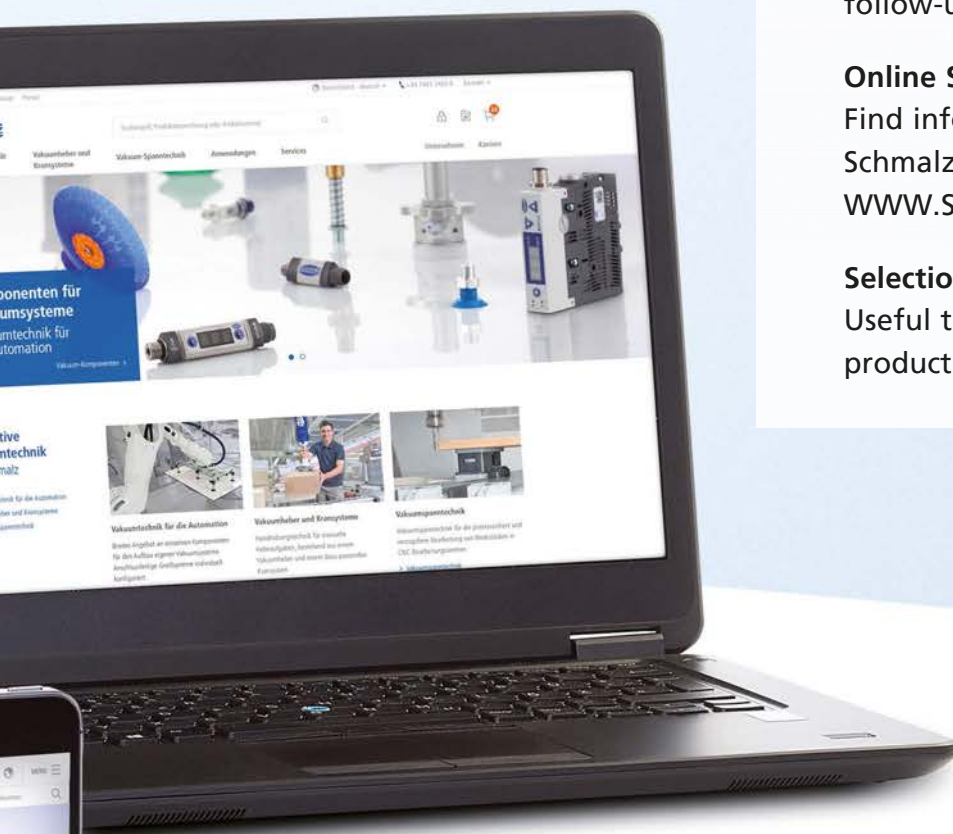
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# Content Overview

## Suction Cups for the Packaging Industry

Page



### Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

- Diameter: 6 to 25 mm



PACKAGING

Round bellows suction cup with 1.5 and 2.5 folds, made of highly durable silicone.

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### Bellows Suction Cups FGA of Metal-Detectable Silicone SI-MD

- Diameter on request



PACKAGING

Round suction cup made of metal-detectable silicone for use in the food industry.

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## Special Grippers



### Needle Grippers SNG-V-S

- Needle diameter: 0.8 or 1.2 mm
- No. of needles: 6
- Needle stroke: 5 mm



COMPOSITE

Needle gripper with crossed needles in extra narrow shape for suction-resistant materials, e.g. composite textiles.

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### Magnetic Grippers SGM-HT/-HP\*

- Diameter: 20 to 50 mm
- Holding force: 28 N to 560 N



METAL

Special gripper with permanent magnet for safely handling of ferromagnetic workpieces, e.g. perforated plates.

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\*The magnetic gripper SGM-HT/-HP is not available in the Netherlands.

## Vacuum Gripping Systems



### Vacuum Area Grippers FXP/ FMP with Protective Layer SU

- Dimensions: 442 x 130 mm to 1,432 x 130 mm
- Sealing element: foam



PLASTICS



METAL



GLASS

Universal gripper for handling workpieces regardless of size, shape, material or surface.

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## Vacuum Clamping Systems



### Suction Cup Balance SSCB

- Gripper area: 60 mm
- Individually lockable positioning pins



COMPOSITE



METAL



GLASS

Suction Cup Balance for automatic gripping and clamping, especially uneven 3D freeform surfaces in production.

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# Content Overview

	<b>Vacuum Blocks VCBL-GL</b>		28
<ul style="list-style-type: none"> <li>• For Bando Kiko* machines</li> </ul>		Vacuum block for smooth tables for grinding glass workpieces.	
	<b>Contoured Vacuum Blocks VCBL-GL</b>		31
<ul style="list-style-type: none"> <li>• For Bando Kiko* machines</li> </ul>		Contoured vacuum block for smooth tables for glass workpiece edge work.	
<p>*Bando Kiko is a registered trademark. The products listed here were developed by J. Schmalz GmbH to fit machines by this manufacturer.</p>			
<h2>Mounting Elements</h2>			
	<b>Spring Plungers FSTE-HDB</b>		34
<ul style="list-style-type: none"> <li>• Connection: G1/8" to G1/2"</li> <li>• Stroke: 15 to 80 mm</li> <li>• Integrated vacuum duct</li> </ul>		Spring plunger with damping spring and special slide bearings for height compensation and low-impact workpiece handling.	
	<b>Spring Plungers FSTIm</b>		37
<ul style="list-style-type: none"> <li>• Modular suction cup connection</li> <li>• Stroke: 5 to 20 mm</li> <li>• Internal damping spring</li> </ul>		Compact spring plunger with internal damping spring for handling fragile workpieces, especially in the electronics industry.	
<h2>Vacuum Generators</h2>			
	<b>Compact Terminals SCTMi</b>		42
<ul style="list-style-type: none"> <li>• Compact vacuum terminal</li> <li>• Up to 16 block-mounted compact ejectors</li> </ul>		Compact terminals for establishing individually controlled and monitored vacuum circuits in automated production environments.	
	<b>Basic Ejectors SBP-HV/HF</b>		48
<ul style="list-style-type: none"> <li>• Suction rate up to 309 l/min</li> <li>• For airtight or porous workpieces</li> </ul>		Efficient basic ejector with econozzle technology for installation directly on the suction cup.	
	<b>Vacuum Blowers SB</b>		54
<ul style="list-style-type: none"> <li>• Suction rate: 75 to 1,250 m³/h</li> <li>• Max. vacuum 40 %</li> </ul>		Vacuum blower for handling extremely porous workpieces with maximum flow rate.	

# Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

Suction area (Ø) from 6 mm to 25 mm



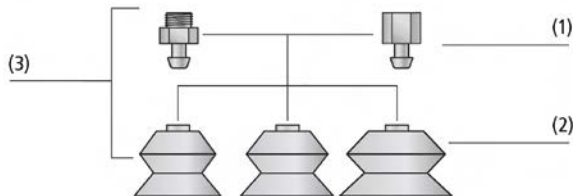
## Suitable for Industry Specific Applications



Bellows suction cups FGA (1.5 folds) and FG (2.5 folds) of SI-HD

### Applications

- Round bellows suction cup with 1.5 folds or 2.5 folds with height adjustment and damping effect for handling fragile workpieces
- Use in processes requiring extremely robust silicone suction cups
- Handling highly abrasive workpieces, e.g. packaging, cylindrical glass containers (ampules, vials), etc.
- Use in food-safe processes at temperatures up to 180° C



### Design

- Extradurable suction cups FGA (2) and FG made of special material SI-HD
- Insertable thanks to connection nipple (SA-NIP)
- Suction cup and nipple (1) interchangeable within same product family (3)

System design for bellows suction cups FGA (1.5 folds) and FG (2.5 folds) of SI-HD



Bellows suction cups FGA (1.5 folds) for handling cookies

### Our Highlights...

- Round suction cups made of special material SI-HD
- Flexible sealing lip
- Highly stiff top fold

### Your Benefits...

- Wearproof silicone suction cup for heavy loads and reliable handling of highly abrasive materials; temperatureresistant from -30° C to 180° C; food-safe
- Highly adaptable to curved surfaces or uneven workpieces
- Good stability against lateral forces at high acceleration speeds

# Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

Suction area (Ø) from 6 mm to 25 mm

## Ordering Code Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

<b>FGA</b>	-	<b>6</b>	-	<b>SI-HD</b>	-	<b>N004</b>
1		2		3		4

**1 – Abbreviated designation**

Code	Version
FGA	1.5 folds
FG	2.5 folds

**2 – Suction area**

Code	Diameter in mm
6...25	Ø 6 to 25
7...25	Ø 7 to 25

**3 – Material**

Code	Material
SI-HD	SI-HD (silicone)

**4 – Connection**

Code	Connection
N004	N004
N016	N016

Note on ordering: The bellows suction cup FGA (1.5 folds) and FG (2.5 folds) comes in the diameter ordered.  
Available accessories: Connection nipple

## Ordering Data Bellows Suction Cups FGA (1.5 Folds) of SI-HD

Type	Part no.
FGA 6 SI-HD N004	10.01.06.03442
FGA 11 SI-HD N016	10.01.06.02976
FGA 14 SI-HD N016	10.01.06.03143
FGA 16 SI-HD N016	10.01.06.02459
FGA 22 SI-HD N016	10.01.06.03419
FGA 25 SI-HD N016	10.01.06.03245

## Ordering Data Connection Nipple Bellows Suction Cups FGA (1.5 Folds) of SI-HD

Type	Part no.	For suction cup type
SA-NIP N004 G1/8-AG DN200	10.01.01.03528	FGA 6
SA-NIP N004 G1/8-IG DN200	10.01.01.03520	FGA 6
SA-NIP N004 M5-AG DN200	10.01.01.03526	FGA 6
SA-NIP N004 M5-IG DN200	10.01.01.03518	FGA 6
SA-NIP N016 G1/8-AG DN350	10.01.06.05735	FGA 11...25
SA-NIP N016 G1/8-IG DN350	10.01.06.05731	FGA 11...25
SA-NIP N016 M5-AG DN250	10.01.06.00123	FGA 11...25

# Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

Suction area (Ø) from 6 mm to 25 mm



## Ordering Data Bellows Suction Cups FG (2.5 Folds) of SI-HD

Type	Part no.
FG 7 SI-HD N016	10.01.06.03901
FG 9 SI-HD N016	10.01.06.03148
FG 25 SI-HD N016	10.01.06.03246



## Ordering Data Connection Nipple Bellows Suction Cups FG (2.5 Folds) of SI-HD

Type	Part no.	For suction cup type
SA-NIP N016 G1/8-AG DN350	10.01.06.05735	FG 7...25
SA-NIP N016 G1/8-IG DN350	10.01.06.05731	FG 7...25
SA-NIP N016 M5-AG DN250	10.01.06.00123	FG 7...25



## Technical Data Bellows Suction Cups FGA (1.5 Folds) of SI-HD

Type	Suction force [N]*	Pull-off force [N]	Volume [cm <sup>3</sup> ]	Shore hardness [ShA]	Min. curve radius [mm] (convex)	Recommended inner hose Ø [mm]**	Nipple family
FGA 6	0.40	1.4	0.11	65 ± 5	2	4	N004
FGA 11	0.95	3.8	0.23	65 ± 5	10	4	N016
FGA 14	1.20	5.0	0.42	65 ± 5	13	4	N016
FGA 16	2.30	6.7	0.75	65 ± 5	20	4	N016
FGA 22	5.70	15.2	1.40	65 ± 5	25	4	N016
FGA 25	5.30	17.3	3.15	65 ± 5	20	4	N016

\*Suction force specifications are theoretical values for a -0.6 bar vacuum on dry, flat and even workpiece surfaces – they do not include safety factors.

\*\*The recommended hose diameter is based on a hose length of approx. 2 m



## Technical Data Bellows Suction Cups FG (2.5 Folds) of SI-HD

Type	Suction force [N]*	Pull-off force [N]	Volume [cm <sup>3</sup> ]	Shore hardness [ShA]	Min. curve radius [mm] (convex)	Recommended inner hose Ø [mm]**	Nipple family
FG 7	0.1	0.9	0.16	65 ± 5	3	4	N016
FG 9	0.7	2.3	0.15	65 ± 5	10	4	N016
FG 25	4.5	19.0	5.40	65 ± 5	30	4	N016

\*Suction force specifications are theoretical values for a -0.6 bar vacuum on dry, flat and even workpiece surfaces – they do not include safety factors.

\*\*The recommended hose diameter is based on a hose length of approx. 2 m

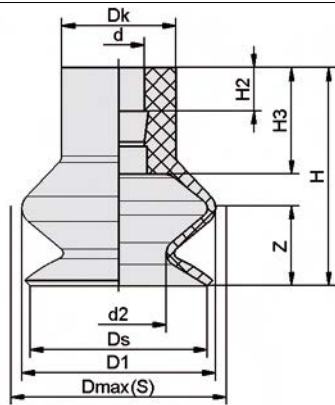




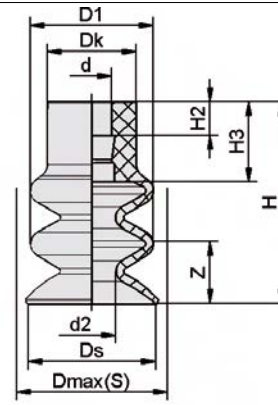
# Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD

Suction area ( $\emptyset$ ) from 6 mm to 25 mm

## Design Data Bellows Suction Cups FGA (1.5 Folds) and FG (2.5 Folds) of SI-HD



FGA 6 to 25



FG 7 to 25

## Design Data Bellows Suction Cups FGA (1.5 folds) of SI-HD

Type	Dimensions in mm*										
	d	d2	D1	Dk	Dmax(S)**	Ds	H	H2	H3	Z (stroke)	
FGA 6	3.7	3.3	7.5	7.2	8.0	5.7	9.0	2.0	3.2	2	
FGA 11	4.5	5.1	12.0	10.0	13.0	10.4	16.0	3.8	9.3	4	
FGA 14	4.5	5.0	13.7	10.0	14.5	12.5	15.5	3.8	8.5	5	
FGA 16	4.5	8.4	17.0	10.0	18.5	15.6	19.2	3.8	9.4	7	
FGA 22	4.5	11.7	24.2	10.0	25.0	21.5	19.0	3.8	9.1	6	
FGA 25	4.5	9.9	25.0	10.0	26.5	22.5	23.0	3.8	8.9	9	

\*Acceptable dimensional tolerances for elastomer parts concerning DIN ISO 3302-1 M3

\*\*External dimension of the suction cup when it is pressed against the workpiece by the vacuum

## Design Data Bellows Suction Cups FG (2.5 folds) of SI-HD

Type	Dimensions in mm*										
	d	d2	D1	Dk	Dmax(S)**	Ds	H	H2	H3	Z (stroke)	
FG 7	4.5	1.8	6.5	9.0	9.0	6.5	14.0	3.8	6.5	3	
FG 9	4.5	4.1	8.9	9.0	9.5	9.0	15.0	3.8	8.2	3	
FG 25	4.5	10.0	25.0	10.0	26.0	23.0	34.0	3.8	9.0	18	

\*Acceptable dimensional tolerances for elastomer parts concerning DIN ISO 3302-1 M3

\*\*External dimension of the suction cup when it is pressed against the workpiece by the vacuum



# Bellows Suction Cups FGA of Metal-Detectable Silicone SI-MD

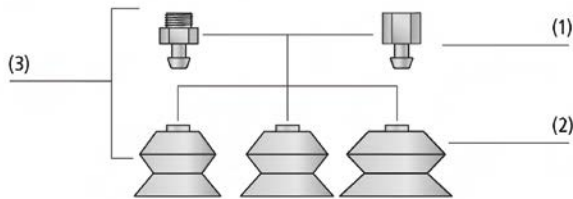
On request suction area (Ø)



## Suitable for Industry Specific Applications



Bellow suction cups FGA of metal-detectable silicone SI-MD



System design for bellow suction cups FGA of metal-detectable silicone SI-MD



Bellow suction cups FGA of metal-detectable silicone SI-MD for handling cookies

## Applications

- Special new material for use in processes utilizing metal detectors or cameras, e.g. the food industry
- Handling food products such as bread, pizza or baked goods on discharge conveyors
- Handling at temperatures up to 180° C
- Use in food industry processes requiring metal-detectable suction cups

## Design

- Extrudable suction cup (2) made of special material SI-MD
- Insertable thanks to connection nipple (SA-NIP)
- Suction cup and nipple (1) interchangeable within same product family (3)

## Our Highlights...

- Suction cup made of special metal-detectable material SI-MD
- Special material silicone (pastel blue)

## Your Benefits...

- Reliable handling in the food industry
- Food-safe according to FDA and BfR regulations; temperatureresistant from -30° C to 180° C; visibly distinguishable

## Additional Purchase notes

- The suction cup is distinguished by a bluish hue that is common in the food industry.
- This suction cup family is only available as required.

# Needle Grippers SNG-V-S

Needle stroke 5 mm



## Suitable for Industry Specific Applications

### Applications

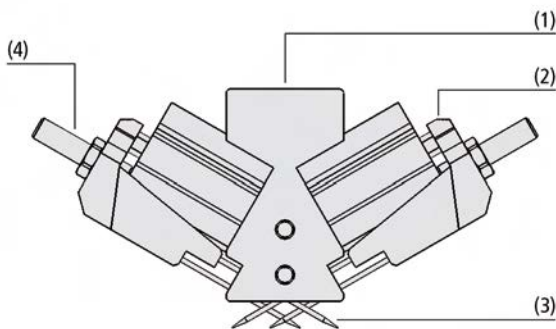
- Needle gripper for handling non-rigid or porous components
- Narrow shape for handling delicate workpieces
- Ultra-light version for lightweight, suction-resistant materials e.g. composite textile, fleece, filter material, insulating and foam materials, and much more



Needle grippers SNG-V-S

### Design

- 15-mm-wide durable aluminum body (1)
- 6 crossed needles (3) with 0.8 or 1.2 mm diameter and 30° insertion angle
- Central compressed air connection (for extending and for retracting the needles) for double-acting pneumatic cylinders (2)
- Continuously adjustable 0 to 5 mm stroke (4)
- Optional side and top mounting with holder system HTS



System design needle grippers SNG-V-S



Needle grippers SNG-V-S for handling fiber composite material

### Our Highlights...

- Crossed needles
- Minimized effective area
- Double-acting pneumatic cylinder
- Variable needle stroke

### Your Benefits...

- Powerful holding forces, even with very unstable workpieces
- Can handle small workpieces
- Shorter cycle times
- Adaptable to various workpiece shapes

# Needle Grippers SNG-V-S

Needle stroke 5 mm



## Ordering Code Needle Grippers SNG-V-S

<b>SNG-V</b>	-	<b>6</b>	-	<b>0.8</b>	-	<b>V-S</b>	-	<b>5</b>
1		2		3		4		5

### 1 – Abbreviated designation

Code	Version
SNG-V	Crossed needles SNG-V

### 2 – Number of needles

Code	Number
6	6

### 3 – Needle diameter

Code	Diameter in mm
0.8...1.2	0.8 or 1.2

### 4 – Product addition

Code	Type
V	Variable needle stroke
S	Narrow shape

### 5 – Needle stroke

Code	Stroke in mm
5	5

Note on ordering: The needle gripper SNG-V-S is delivered ready to connect.

Available spare parts: Needle holder

Available accessories: Mounting plate



## Ordering Data Needle Grippers SNG-V-S

Type	Part no.
SNG-V 6 0.8 V-S-5	10.01.29.00555
SNG-V 6 1.2 V-S-5	10.01.29.00539



## Ordering Data Spare Parts Needle Grippers SNG-V-S

Type	Needle module
SNG-V 6 0.8 V-S-5	10.01.29.00546
SNG-V 6 1.2 V-S-5	10.01.29.00556



## Ordering Data Accessories Needle Grippers SNG-V-S

Type	Mounting plate
HTS-A2 AP SNG	10.01.29.00402
HTS-A3 AP SNG	10.01.29.00322
BEF-PL 38x15x11.5 G1/4-IG SNG	10.01.29.00403
STV-W M5-AG 6	10.08.02.00296

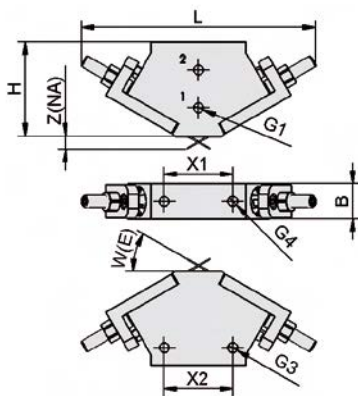
# Needle Grippers SNG-V-S

Needle stroke 5 mm

## Technical Data Needle Grippers SNG-V-S

Type	Number of needles	Needle diameter [mm]	Mounting	Stroke [mm]	Operating pressure [mm]	Operating temperature [°C]	Installation position	Weight [g]
SNG-V 6 0.8 V-S-5	6	0.8	2 x M5	0...5	3...6	5...60	Any	85
SNG-V 6 1.2 V-S-5	6	1.2	2 x M5	0...5	3...6	5...60	Any	85

## Design Data Needle Grippers SNG-V-S



SNG-V-S

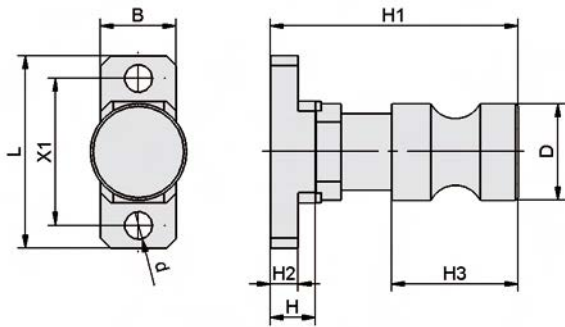
Type	Dimensions in mm									
	B	G1	G3	G4	H	L	W(E)	X1	X2	Z (NA)
SNG-V 6 0.8 V-S-5	15	M5-F	2xM5	M5-F	39.8	115	30	29	29	5
SNG-V 6 1.2 V-S-5	15	M5-F	2xM5	M5-F	39.8	115	30	29	29	5

# Needle Grippers SNG-V-S

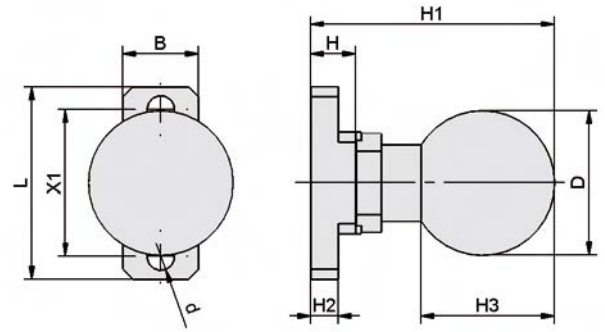
Needle stroke 5 mm



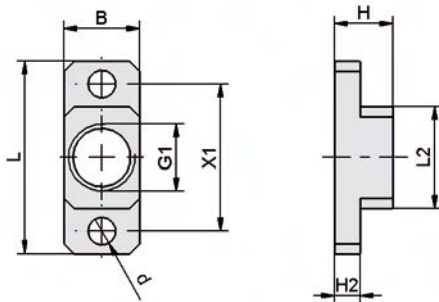
## Design Data Accessories Needle Grippers SNG-V-S



HTS-A2 AP SNG



HTS-A3 AP SNG



BEF-PL 38x15x11.5 G1/4-IG SNG

Type	Dimensions in mm										
	B	d	D	G1	H	H1	H2	H3	L	L2	X1
HTS-A2 AP SNG	15	5.5	19.0	-	8.9	49.0	5.5	25.0	38	-	29
HTS-A3 AP SNG	15	5.5	28.5	-	8.9	48.3	5.5	26.4	38	-	29
BEF-PL 38x15x11.5 G1/4-IG SNG	15	5.5	-	G1/4"-F	11.5	-	5.0	-	38	20	29

# Magnetic Grippers SGM-HT/-HP\*

Suction area (Ø) from 20 mm to 50 mm



Suitable for Industry Specific Applications



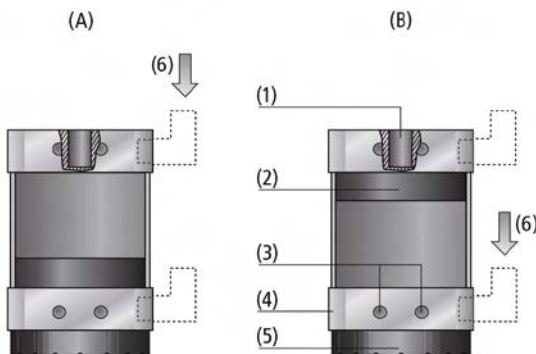
Magnetic grippers SGM-HT/-HP

## Applications

- Magnetic gripper with powerful holding forces for handling, e.g., perforated plates, workpieces with complex laser-cut patterns, sheet metal containing drill holes and apertures
- Handling ferromagnetic workpieces
- HT version without friction ring for high-temperature applications (with friction ring HT2) and HP version for higher holding forces

## Design

- Durable aluminium housing (4) with permanent magnet (2)
- Friction ring (5) for high lateral forces in dynamic processes
- Bistable version: Magnet position (6) "Grip" (A) or "Release" (B) retained in event of power failure
- Mounting thread for holder (3) on head end (1) and on two gripper sides
- Optional mounting with holder system HTS
- Optional retaining elements facilitate handling of round or uneven workpieces



System design magnetic grippers SGM-HT/-HP



Magnetic gripper SGM-HP handling sheet metal

## Our Highlights...

- Secure handling with permanent magnet
- Compact and lightweight shape
- Easily replaceable friction ring
- Low compressed air level needed for control
- Piston monitoring via proximity switch

## Your Benefits...

- No power supply unit required
- Minimal space required, lightweight
- Absorbs high lateral forces
- Reliable operation even with fluctuating compressed air supply
- Hall effect sensor to detect piston position

\*The magnetic gripper SGM-HT/-HP is not available in the Netherlands.

# Magnetic Grippers SGM-HT/-HP

Suction area (Ø) from 20 mm to 50 mm



## Ordering Code Magnetic Grippers SGM-HT/-HP

<b>SGM</b>	-	<b>HP</b>	-	<b>40</b>	-	<b>G1/4-IG</b>
1		2		3		4

### 1 – Abbreviated designation

Code	Version
SGM	SGM

### 2 – Product range supplement

Code	Type
HP	High-Performance
HT	High-Temperature

### 3 – Diameter

Code	Diameter in mm
20...50	20 to 50

### 4 – Connection

Code	Mechanical connection
G1/4-IG	G1/4-IG (IG = female (F))
G1/8-IG	G1/4-IG (IG = female (F))

Note on ordering: The magnetic gripper SGM-HT/-HP comes assembled. The product consists of:

- Gripper SGM-HP with friction ring PU
- Gripper SGM-HT with steel gripping surface for robust applications  
or with optional friction ring HT2 for high-temperature applications

Available spare parts: friction ring PU for SGM-HP, friction ring HT2 for SGM-HT

Available accessories: proximity switch, holder system, retaining element



## Ordering Data Magnetic Grippers SGM-HT/-HP

Type*	Part no.
SGM-HP 20 G1/8-IG	10.01.17.00424
SGM-HP 30 G1/8-IG	10.01.17.00316
SGM-HP 40 G1/4-IG	10.01.17.00304
SGM-HP 50 G1/4-IG	10.01.17.00282
SGM-HT-HP 30 G1/8-IG	10.01.17.00397
SGM-HT-HP 40 G1/4-IG	10.01.17.00403
SGM-HT-HP 50 G1/4-IG	10.01.17.00402

\*Note: See "Plug-in screw unions" in section "Filters and connection" for matching plug-in screw unions.



## Ordering Data Spare Parts Magnetic Grippers SGM-HT/-HP

Type	Friction ring
SGM-HP 20 G1/8-IG	10.01.17.00418
SGM-HP 30 G1/8-IG	10.01.17.00385
SGM-HP 40 G1/4-IG	10.01.17.00373
SGM-HT-HP 30 G1/8-IG	-
SGM-HT-HP 40 G1/4-IG	-
SGM-HT-HP 50 G1/4-IG	-



# Magnetic Grippers SGM-HT/-HP

Suction area (Ø) from 20 mm to 50 mm



## Ordering Data Accessories Magnetic Grippers SGM-HT/-HP

Type	HTS-A2 holder system*	HTS-A3 holder system*
SGM-HP 20 G1/8-IG	10.01.17.00414	10.01.17.00413
SGM-HP 30 G1/8-IG	10.01.17.00416	10.01.17.00378
SGM-HP 40 G1/4-IG	10.01.17.00416	10.01.17.00378
SGM-HP 50 G1/4-IG	10.01.17.00417	10.01.17.00383
SGM-HT-HP 30 G1/8-IG	10.01.17.00416	10.01.17.00378
SGM-HT-HP 40 G1/4-IG	10.01.17.00416	10.01.17.00378
SGM-HT-HP 50 G1/4-IG	10.01.17.00417	10.01.17.00383

\*Mounting screws included in delivery



## Ordering Data Accessories Magnetic Grippers SGM-HT/-HP

Type	Friction ring HT2*	Proximity switch PNP***	Proximity switch NPN***	Retaining element ADP-E...TRI**	Retaining element ADP-E...RE**
SGM-HP 20 G1/8-IG	–	10.01.17.00199	10.01.17.00215	10.01.17.00419	10.01.17.00420
SGM-HP 30 G1/8-IG	–	10.01.17.00199	10.01.17.00215	10.01.17.00421	10.01.17.00423
SGM-HP 40 G1/4-IG	–	10.01.17.00199	10.01.17.00215	10.01.17.00421	10.01.17.00423
SGM-HP 50 G1/4-IG	–	10.01.17.00199	10.01.17.00215	10.01.17.00422	10.01.17.00415
SGM-HT-HP 30 G1/8-IG	10.01.17.00410	–	–	10.01.17.00421	10.01.17.00423
SGM-HT-HP 40 G1/4-IG	10.01.17.00411	–	–	10.01.17.00421	10.01.17.00423
SGM-HT-HP 50 G1/4-IG	10.01.17.00412	–	–	10.01.17.00422	10.01.17.00415

\*The maximum workpiece temperature can be 250° C.

\*\*Mounting screws included in delivery

\*\*\*Proximity switch not suitable for high-temperature applications



## Technical Data Magnetic Grippers SGM-HT/-HP

Type	Max. holding force without friction ring [N]*	Max. holding force with friction ring [N]	Ideal sheet thickness for max. holding force [mm]	Holding force with- out friction ring and 2 mm sheet thickness [N]	Holding force with friction ring and 2 mm sheet thickness [N]	Residual holding force [N]
SGM-HP 20 G1/8-IG	28	19	1	25	16	0.3
SGM-HP 30 G1/8-IG	130	90	2	130	90	0.3
SGM-HP 40 G1/4-IG	320	235	4	290	210	0.3
SGM-HP 50 G1/4-IG	560	385	6	415	290	0.3
SGM-HT-HP 30 G1/8-IG**	120	80	2	120	80	0.3
SGM-HT-HP 40 G1/4-IG**	290	230	4	260	200	0.3
SGM-HT-HP 50 G1/4-IG**	520	330	6	370	270	0.3

\*Note: The specified holding forces are static specifications under ideal conditions (primarily depending on material and surface finish). For system designs, a safety factor (S) of 3 should be applied.

\*\*Holding forces at 20° C can be used for workpiece temperatures up to 350° C (depending on process conditions), temperature can reduce holding forces by up to 30 %.



# Magnetic Grippers SGM-HT/-HP

Suction area (Ø) from 20 mm to 50 mm

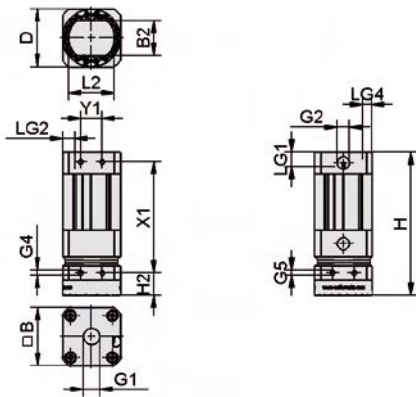
Type*	Pressure range (operating pressure) [bar]	Installation position	Mode of operation	Operating temperature [°C]	Weight [g]
SGM-HP 20 G1/8-IG	2.5 ... 6.0	Any	Bistable	5 ... 70	81
SGM-HP 30 G1/8-IG	2.5 ... 6.0	Any	Bistable	5 ... 70	215
SGM-HP 40 G1/4-IG	2.5 ... 6.0	Any	Bistable	5 ... 70	415
SGM-HP 50 G1/4-IG	2.5 ... 6.0	Any	Bistable	5 ... 70	770
SGM-HT-HP 30 G1/8-IG**	2.5 ... 6.0	Any	Bistable	5 ... 150	215
SGM-HT-HP 40 G1/4-IG**	2.5 ... 6.0	Any	Bistable	5 ... 150	415
SGM-HT-HP 50 G1/4-IG**	2.5 ... 6.0	Any	Bistable	5 ... 150	770

\*Note: The specified holding forces are static specifications under ideal conditions (primarily depending on material and surface finish). For system designs, a safety factor (S) of 3 should be applied.

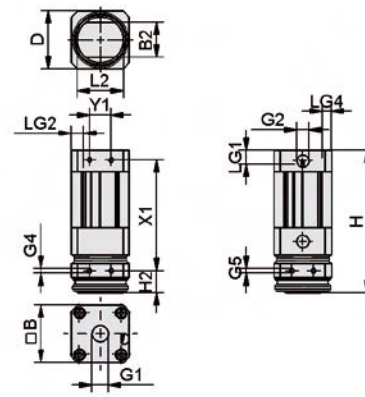
\*\*Holding forces at 20° C can be used for workpiece temperatures up to 350° C (depending on process conditions), temperature can reduce holding forces by up to 30 %.



## Design Data Magnetic Grippers SGM-HT/-HP



SGM-HP 20 to 50



SGM-HT-HP 30 to 50

Type	Dimensions in mm														
	B	B2	D	G1	G2	G4	G5	H	H2	L2	LG1	LG2	LG4	X1	Y1
SGM-HP 20 G1/8-IG*	20.0	9.1	20.0	G1/8"-F	M5-F	M3-F	M4-F	78.2	12.7	12.0	6.0	5.5	4.0	6.5	55.0
SGM-HP 30 G1/8-IG*	30.0	15.0	30.0	G1/8"-F	G1/8"-F	M4-F	M4-F	99.4	15.7	20.5	6.0	7.0	5.0	12.0	74.0
SGM-HP 40 G1/4-IG*	40.0	24.2	40.0	G1/4"-F	G1/8"-F	M4-F	M4-F	99.4	15.7	32.0	9.0	6.0	5.0	12.0	74.0
SGM-HP 50 G1/4-IG*	50.0	31.2	50.0	G1/4"-F	G1/8"-F	M5-F	M4-F	123.4	15.7	41.5	10.0	6.0	6.5	15.0	100.0
SGM-HT-HP 30 G1/8-IG**	30.0	15.0	26.9	G1/8"-F	G1/8"-F	M4-F	M4-F	99.2	15.5	20.5	6.0	7.0	5.0	12.0	74.4
SGM-HT-HP 40 G1/4-IG**	40.0	24.2	38.4	G1/4"-F	G1/8"-F	M4-F	M4-F	99.2	15.5	32.0	9.0	6.0	5.0	12.0	74.0
SGM-HT-HP 50 G1/4-IG**	50.0	31.2	48.4	G1/4"-F	G1/8"-F	M5-F	M4-F	123.2	15.5	41.5	10.0	6.0	6.5	15.0	100.0

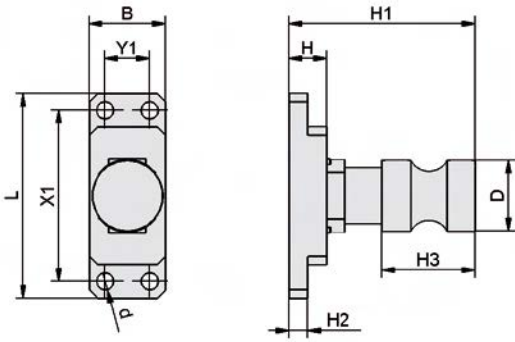
\*Gripper contact surface (round) is dimension D

\*\*Gripper contact surface without friction ring (stadium-shaped) is approx. dimension D x B2; with friction ring (round), dimension D

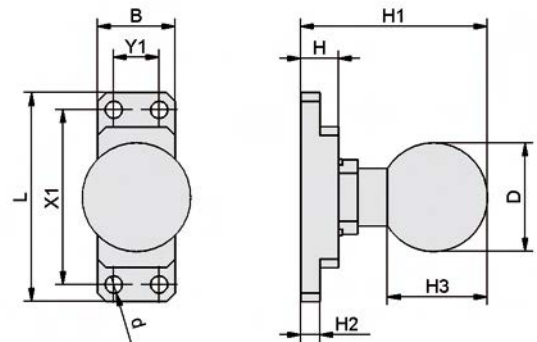
# Magnetic Grippers SGM-HT/-HP

Suction area (Ø) from 20 mm to 50 mm

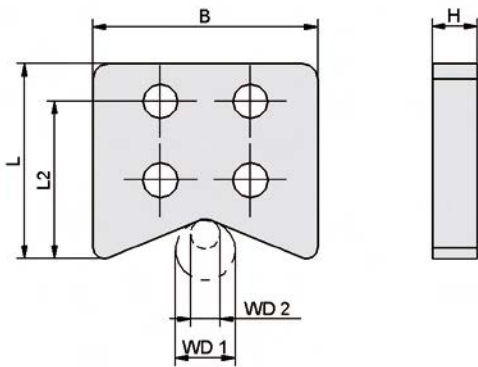
Design Data Accessories Magnetic Grippers SGM-HT/-HP



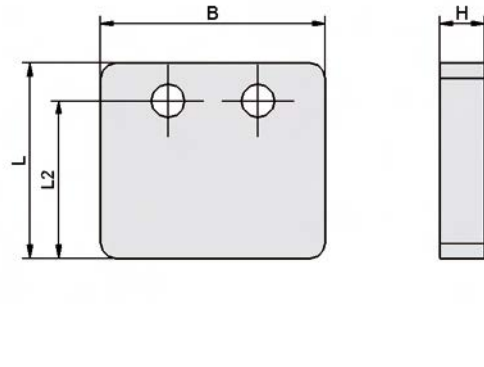
HTS-A2



HTS-A3



ADP-E...TRI



ADP-E...RE

Type	Dimensions in mm												
	B	d	D	H	H1	H2	H3	L	L2	WD 1	WD 2	X1	Y1
HTS-A2 AP SGM 20*	15.0	3.4	19.0	9.9	50.0	5.2	25.0	63.0	-	-	-	55.0	6.5
HTS-A2 AP SGM 40**	26.0	4.6	19.0	9.9	50.0	5.2	25.0	86.0	-	-	-	74.0	12.0
HTS-A2 AP SGM 50***	30.0	5.5	19.0	9.9	50.0	5.2	25.0	110.0	-	-	-	100.0	15.0
HTS-A3 AP SGM 20*	15.0	3.4	28.5	9.9	49.3	5.2	26.4	63.0	-	-	-	55.0	6.5
HTS-A3 AP SGM 40**	26.0	4.6	28.5	9.9	49.3	5.2	26.4	86.0	-	-	-	74.0	12.0
HTS-A3 AP SGM 50***	30.0	5.5	28.5	9.9	49.3	5.2	26.4	110.0	-	-	-	100.0	15.0
ADP-E 20 TRI*	15.0	-	-	4.0	-	-	-	19.5	15.5	10.0	3.0	-	-
ADP-E 30/40 TRI**	30.0	-	-	6.0	-	-	-	26.0	21.0	20.0	10.0	-	-
ADP-E 50 TRI***	40.0	-	-	6.0	-	-	-	26.0	21.0	30.0	20.0	-	-
ADP-E UNI 20 RE*	15.0	-	-	4.0	-	-	-	23.0	19.0	-	-	-	-
ADP-E UNI 30/40 RE**	30.0	-	-	6.0	-	-	-	30.0	25.0	-	-	-	-
ADP-E UNI 50 RE***	40.0	-	-	6.0	-	-	-	30.0	25.0	-	-	-	-

\*Suitable for SGM-HP 20

\*\*Suitable for SGM...30 and SGM...40

\*\*\*Suitable for SGM...50

# Vacuum Area Grippers FXP/FMP with Protective Layer SU

Suction area (LxB) from 442 x 130 mm to 1,432 x 130 mm



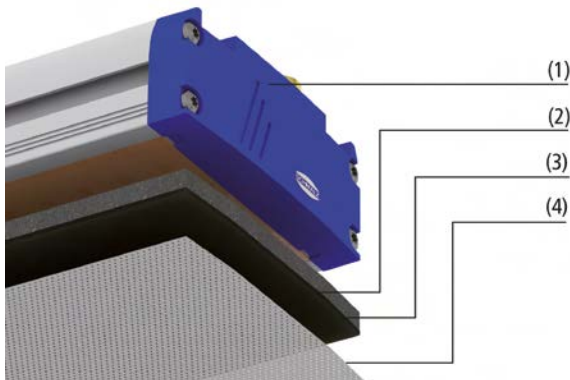
## Suitable for Industry Specific Applications



Vacuum area grippers FMP with protective layer SU

### Applications

- Handling thin and flexible display glass along the entire assembly line
- Handling glass with very delicate coating
- Use in manufacturing low-emissivity glass for buildings and vehicles
- Handling other delicate workpiece surfaces, e.g. coated or polished surfaces
- Use in cleanroom applications (e.g. display manufacturing)



System design vacuum area grippers FXP/FMP with protective layer SU

### Design

- Main body (1) with integrated vacuum duct and valve technology, available in various lengths
- Flexible foam base layer (2) compensates for height variations in the workpiece
- Silicone-free, removable adhesive bond (3) allows soiled protective covers to be easily replaced
- Replaceable separating layer made of special mesh (4) for handling delicate workpieces without leaving marks



Vacuum area gripper FXP with protective layer SU for handling glass

### Our Highlights...

- Integrated valve technology
- Soft and adaptable sealing foam with individual suction cells
- No relative movement on the workpiece surface
- Suction area of gripper covered with special mesh layer
- Mesh layer with quick-change adhesive film

### Your Benefits...

- Flexible system for various workpieces
- Gentle handling with minimal surface pressure
- No risk of scratching delicate glass surfaces
- No workpiece surface contamination
- Easily replaceable spare parts save costs

# Vacuum Area Grippers FXP/FMP with Protective Layer SU

Suction area (L x B) from 442 x 130 mm to 1,432 x 130 mm

## Ordering Code Vacuum Area Grippers with Protective Layer SU

<b>FXP</b> 1	–	<b>S</b> 2	–	<b>SW</b> 3	–	<b>442</b> 4	–	<b>5R</b> 5
<b>18</b> 6	–	<b>N10</b> 7	–	<b>SU</b> 8				

### 1 – Abbreviated designation

Code	Version
FXP	Integrated vacuum generator
FMP	External vacuum generator

### 2 – Control valve

Code	Type
S	Integrated control valves
-	No control valves

### 3 – Valve technology

Code	Type
SW	Flow restrictor
SVK	Check valve

### 4 – Gripper length

Code	Length in mm
442	442
640	640
838	838
1234	1,234
1432	1,432

### 5 – Suction rows

Code	Number
5R	5 suction rows

### 6 – Hole spacing

Code	Spacing in mm
18	18

### 7 – Foam base

Code	Height in mm
N10	10

### 8 – Protective layer

Code	Type
SU	Protective layer

Note on ordering: The vacuum area gripper with protective layer SU is delivery ready to connect.

Available accessories: [www.schmalz.com/fxp-fmp](http://www.schmalz.com/fxp-fmp) or catalog Vacuum Components 2016/2017 on page 378.

## Ordering Data Vacuum Area Grippers with Protective Layer SU

Type	Part no.
FMP-SW 442 5R18 N10SU	10.01.38.02967
FMP-SW 640 5R18 N10SU	10.01.38.02968
FMP-SW 838 5R18 N10SU	10.01.38.02969
FMP-SW 1234 5R18 N10SU	10.01.38.02970
FMP-SW 1432 5R18 N10SU	10.01.38.02971
FMP-SVK 442 5R18 N10SU	10.01.38.02972
FMP-SVK 640 5R18 N10SU	10.01.38.02973
FMP-SVK 838 5R18 N10SU	10.01.38.02974
FMP-SVK 1234 5R18 N10SU	10.01.38.02975
FMP-SVK 1432 5R18 N10SU	10.01.38.02976
FXP-SW 442 5R18 N10SU	10.01.38.02947
FXP-SW 640 5R18 N10SU	10.01.38.02948
FXP-SW 838 5R18 N10SU	10.01.38.02949
FXP-SW 1234 5R18 N10SU	10.01.38.02950
FXP-SW 1432 5R18 N10SU	10.01.38.02951
FXP-SVK 442 5R18 N10SU	10.01.38.02952
FXP-SVK 640 5R18 N10SU	10.01.38.02953
FXP-SVK 838 5R18 N10SU	10.01.38.02954
FXP-SVK 1234 5R18 N10SU	10.01.38.02955
FXP-SVK 1432 5R18 N10SU	10.01.38.02956
FXP-S-SW 442 5R18 N10SU	10.01.38.02957
FXP-S-SW 640 5R18 N10SU	10.01.38.02958
FXP-S-SW 838 5R18 N10SU	10.01.38.02959

## Vacuum Area Grippers FXP/FMP with Protective Layer SU

Suction area (LxB) from 442 x 130 mm to 1,432 x 130 mm

Type	Part no.
FXP-S-SW 1234 5R18 N10SU	10.01.38.02960
FXP-S-SW 1432 5R18 N10SU	10.01.38.02961
FXP-S-SVK 442 5R18 N10SU	10.01.38.02962
FXP-S-SVK 640 5R18 N10SU	10.01.38.02963
FXP-S-SVK 838 5R18 N10SU	10.01.38.02964
FXP-S-SVK 1234 5R18 N10SU	10.01.38.02965
FXP-S-SVK 1432 5R18 N10SU	10.01.38.02966



### Ordering Data Spare Parts Foam Base with Protective Layer SU

Type	Part no.
DI-PL 442 5R18 N10SU	10.01.38.02863
DI-PL 640 5R18 N10SU	10.01.38.02864
DI-PL 838 5R18 N10SU	10.01.38.02865
DI-PL 1234 5R18 N10SU	10.01.38.02866
DI-PL 1432 5R18 N10SU	10.01.38.02867



### Ordering Data Spare Parts Protective Layer SU

Type	Part no.
DI-PL-442X131SU	10.01.38.02858
DI-PL-640X131SU	10.01.38.02859
DI-PL-838X131SU	10.01.38.02860
DI-PL-1234X131SU	10.01.38.02861
DI-PL-1432X131SU	10.01.38.02862



### Technical Data Vacuum Area Grippers with Protective Layer SU

Type	Number of suction cells	Air consumption* [l/min]	Max. suction volume [l/min]	Max. evacuation level [%]	Suction force** [N]	Weight [kg]
FXP-S-SVK 442 5R18	110	250	1,050	55	430	2.2
FXP-S-SVK 640 5R18	165	375	1,350	55	630	3.0
FXP-S-SVK 838 5R18	220	500	1,600	55	840	3.8
FXP-S-SVK 1234 5R18	330	857	2,900	55	1,270	5.3
FXP-S-SVK 1432 5R18	385	1,000	3,180	55	1,470	5.9
FXP-S-SW 442 5R18	110	250	1,050	55	340	2.1
FXP-S-SW 640 5R18	165	375	1,350	55	510	2.9
FXP-S-SW 838 5R18	220	500	1,600	55	670	3.7
FXP-S-SW 1234 5R18	330	857	2,900	55	1,010	5.2
FXP-S-SW 1432 5R18	385	1,000	3,180	55	1,180	5.8

Sound level: 74 dB(A)

\*Specifications in standard l/min of acceptable operating pressure (flow pressure measured directly at ejector inlet): 5...7 bar. Ideal compressed air flow pressure: 5.8 bar

\*\*At a vacuum of -0.25 bar and with the gripper fully covered by a workpiece typical for the application. The suction forces are references for general designs. Suction tests with the original workpiece are always recommended for designing specific systems.



# Vacuum Area Grippers FXP/FMP with Protective Layer SU

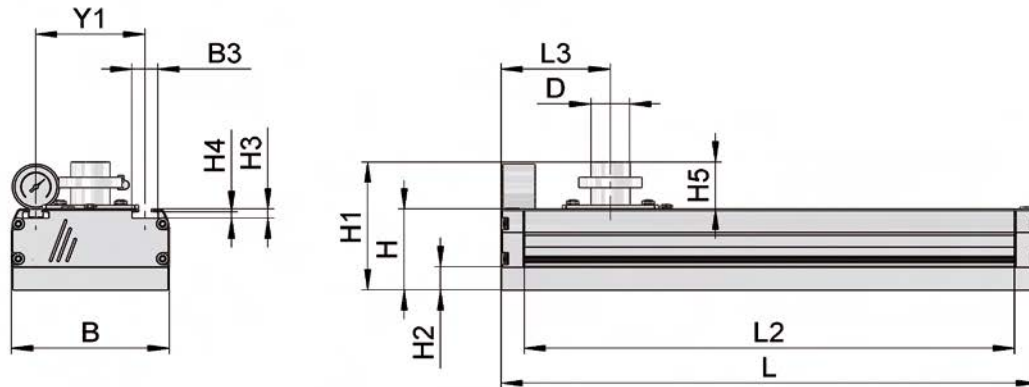
Suction area (L x B) from 442 x 130 mm to 1,432 x 130 mm

Type	Number of suction cells	Required suction volume* [l/min]	Suction force** [N]	Weight [kg]
FMP-SVK 442 5R18	110	300	430	2.1
FMP-SVK 640 5R18	165	450	630	2.9
FMP-SVK 838 5R18	220	600	840	3.7
FMP-SVK 1234 5R18	330	900	1,270	5.1
FMP-SVK 1432 5R18	385	1,050	1,470	5.7
FMP-SW 442 5R18	110	300	340	2.0
FMP-SW 640 5R18	165	450	510	2.8
FMP-SW 838 5R18	220	600	670	3.6
FMP-SW 1234 5R18	330	900	1,010	5.0
FMP-SW 1432 5R18	385	1,050	1,180	5.6

\*The external vacuum generator used must supply at least the specified suction volume (at the vacuum connection piece of the FMP) at a vacuum of -0.25 bar, but not more than 135 % of the specified suction volume.

\*\*At a vacuum of -0.25 bar and with the gripper fully covered by a workpiece typical for the application. The suction forces are references for general designs. Suction tests with the original workpiece are always recommended for designing specific systems.

## Design Data Vacuum Area Grippers with Protective Layer SU



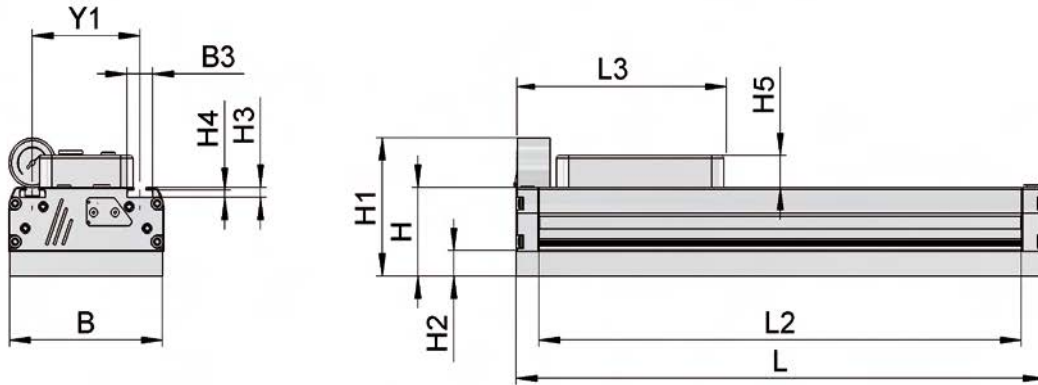
Vacuum area grippers FMP with protective layer SU

Type	Dimensions in mm												
	B	B3	D	H	H1	H2	H3	H4	H5	L	L2	L3	Y1
FMP-SW 442 5R18 N10SU	130	21.6	32	60	101	10	7.7	5.5	41	442	402	90	90
FMP-SW 640 5R18 N10SU	130	21.6	32	60	101	10	7.7	5.5	41	640	600	90	90
FMP-SW 838 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	838	798	90	90
FMP-SW 1234 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	1,234	1,194	90	90
FMP-SW 1432 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	1,432	1,392	90	90
FMP-SVK 442 5R18 N10SU	130	21.6	32	60	101	10	7.7	5.5	41	442	402	90	90
FMP-SVK 640 5R18 N10SU	130	21.6	32	60	101	10	7.7	5.5	41	640	600	90	90
FMP-SVK 838 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	838	798	90	90
FMP-SVK 1234 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	1,234	1,194	90	90
FMP-SVK 1432 5R18 N10SU	130	21.6	60	60	101	10	7.7	5.5	41	1,432	1,392	90	90



# Vacuum Area Grippers FXP/FMP with Protective Layer SU

Suction area (L x B) from 442 x 130 mm to 1,432 x 130 mm



Vacuum area grippers FXP with protective layer SU

Type	Dimensions in mm											
	B	B3	H	H1	H2	H3	H4	H5	L	L2	L3	Y1
FXP-SW 442 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	442	402	154	90
FXP-SW 640 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	640	600	154	90
FXP-SW 838 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	838	798	154	90
FXP-SW 1234 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,234	1,194	154	90
FXP-SW 1432 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,432	1,392	154	90
FXP-SVK 442 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	442	402	154	90
FXP-SVK 640 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	640	600	154	90
FXP-SVK 838 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	838	798	154	90
FXP-SVK 1234 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,234	1,194	154	90
FXP-SVK 1432 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,432	1,392	154	90
FXP-S-SW 442 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	442	402	154	90
FXP-S-SW 640 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	640	600	154	90
FXP-S-SW 838 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	838	798	154	90
FXP-S-SW 1234 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,234	1,194	154	90
FXP-S-SW 1432 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,432	1,392	154	90
FXP-S-SVK 442 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	442	402	154	90
FXP-S-SVK 640 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	640	600	154	90
FXP-S-SVK 838 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	838	798	154	90
FXP-S-SVK 1234 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,234	1,194	154	90
FXP-S-SVK 1432 5R18 N10SU	130	21.6	60	99	10	7.7	5.5	28	1,432	1,392	154	90

Note: Two ejectors/silencer box covers are used for the 1,234 mm and 1,432 mm lengths. Type FXP requires a 12/9 mm compressed air hose.

# Suction Cup Balance SSCB

Gripper area (Ø) 60 mm



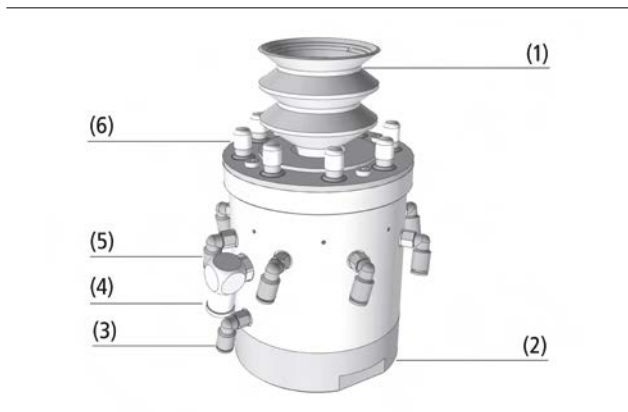
Suitable for Industry Specific Applications



Suction Cup Balance SSCB

## Applications

- Suction Cup Balance SSCB for automated, precise gripping and clamping of various workpieces in a production line
- Ideal for securely gripping and clamping uneven 3D free-form surfaces
- Mirrored gripping and clamping available
- Driveless adjusting with no mechanical stops or positioning aids



## Design

- Flexible bellows suction cup (1) for adapting perfectly to the workpiece
- Aluminum main body (2)
- Compressed air supply (3) for spring force
- Vacuum supply (4) for suction cup
- Compressed air supply (5) for releasing positioning pins
- Positioning pins (6) with padded tips that are gentle on the workpiece

System design Suction Cup Balance SSCB



Automated gripping and clamping with the Suction Cup Balance SSCB

## Our Highlights...

- End effector for precise workpiece positioning
- Softwarecontrolled 3D free-form surface mapping using 2D reference surfaces
- Individually lockable, unpressurized positioning pins
- Special supporting material on workpiece contact surfaces

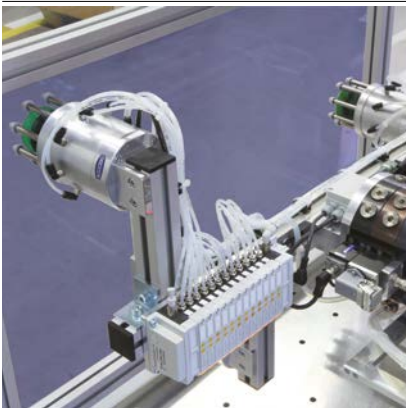
## Your Benefits...

- Flexible gripping and clamping system design possibilities
- Automated set-up process for gripping and clamping systems
- Gripping and clamping systems automatically adjust to workpiece contours
- Reliable and precise fixation of complex parts

# Suction Cup Balance SSCB

Gripper area (Ø) 60 mm

## Automated Cycle in Just a Few Steps



1. Suction spider moves into position against a 2D reference surface. The workpiece contour specifies the zero position here.



2. The positioning pins are locked at the zero position.



3. The positioning pins gradually move into the positions determined by the shape of the workpiece and lock in place.



4. The gripper moves into position over the identically designed clamping system.



5. The gripper precisely sets up the clamping system via cup-to-cup pressure.



6. The set-up gripper and clamping system is ready for the production line after just a few steps. The workpiece can be placed and fixed.

# Suction Cup Balance SSCB

Gripper area (Ø) 60 mm

## Ordering Code Suction Cup Balance SSCB

<b>SSCB</b>	-	<b>60 x 171</b>	-	<b>VU1 30-M6-IG FSG</b>	-	<b>EP</b>
1		2		3		4

### 1 – Abbreviated designation

Code	Version
SSCB	SSCB

### 2 – Positioning pins

Code	Dimensions in mm
60	60 - diameter
171	171 - height

### 3 – Suction cup

Code	Type
VU1 30-M6-IG FSG	VU1 30-M6-IG FSG

### 4 – Locking positioning pin

Code	Type
EP	Individually locking pins
ZP	Simultaneously locking pins

Note on ordering: The Suction Cup Balance SSCB comes assembled. The delivery consists of:

- Suction cup consisting of aluminum body, positioning pins and suction cups VU1 30-M6-IG FSG in diameter 60 mm
- Available spare parts: suction cup, cap

## Ordering Data Suction Cup Balance SSCB

Type	Part no.
SSCB 60 x 171 VU1 30-M6-IG FSG-EP	10.01.15.00850
SSCB 60 x 171 VU1 30-M6-IG FSG-ZP	10.01.15.00922

## Ordering Data Spare Parts Suction Cup Balance SSCB

Type	Suction cup	Cap
SSCB 60 x 171 VU1 30-M6-IG FSG...	10.01.15.00953	10.01.15.00918

## Technical Data Suction Cup Balance SSCB

Type	Suction force [N]*	Pull-off force [N]*	Operating force [N]*	Positioning pin pressure		Max. normal positioning pin force [N]	Vacuum connection (outer/inner)**	Compressed air connection (outer/inner)**
				Clamping clamp [bar]	Compressed air spring [bar]			
SSCB 60 x 171 VU1 30-M6-IG FSG-EP	61.0	100	50	Min. 6	Max. 2	400	1 x 8/6	9 x 4/2
SSCB 60 x 171 VU1 30-M6-IG FSG-ZP	61.0	100	50	Min. 6	Max. 2	100	1 x 8/6	2 x 4/2

\*Specifications are theoretical values at a -0.6 bar vacuum on dry, flat and even workpiece surfaces – they do not include safety factors.

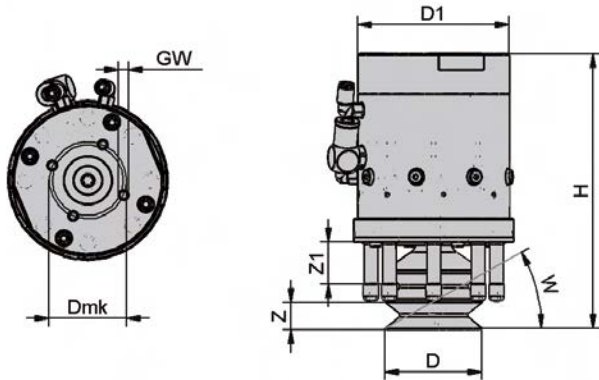
\*\*The recommended hose diameter is based on a hose length of approx. 2 m

# Suction Cup Balance SSCB

Gripper area (Ø) 60 mm



## Design Data Suction Cup Balance SSCB



SSCB 60 x 171 VU1 30-M6-IG FSG...

Type	Dimensions in mm								
	D	D1	H	Z	Z1 max	W max	GW	Dmk	
SSCB 60 x 171 VU1 30-M6-IG FSG-EP*	60	94	171	30	46	30°	4x M6	48	
SSCB 60 x 171 VU1 30-M6-IG FSG-ZP*	60	94	171	30	46	30°	4x M6	48	

\*Technical data and design data are max. values, actual values depend on application probably. We recommend that before handling, you would better to test every kind of workpiece. This is the only way to guarantee a safe handling process.

# Vacuum Blocks VCBL-GL

For Bando Kiko\* Machines



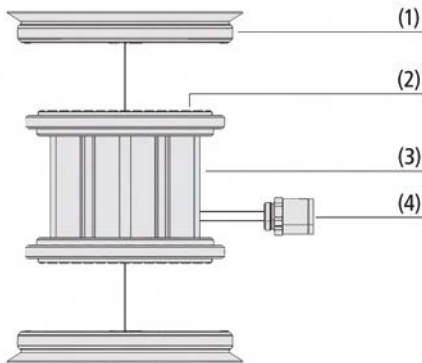
## Suitable for Industry Specific Applications



Vacuum blocks VCBL-GL

## Applications

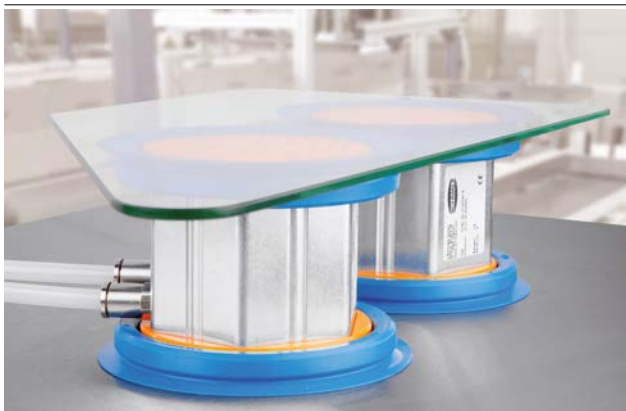
- Vacuum block VCBL-GL for grinding glass workpieces on Bando Kiko smooth table machines
- Grinding glass for buildings, designs and vehicles
- Two-circuit vacuum system with two hose connections for machine table positioning and workpiece fixation



## Design

- Sealing ring (1) is made of material leaving few marks
- Friction surface (2) is made of durable material
- Durable aluminum housing (3)
- Plug-in screw union accessories (4) for vacuum system hose connection

System design vacuum blocks VCBL-GL



Vacuum blocks VCBL-GL clamping glass plates

## Our Highlights...

- High lateral force absorption through durable friction pad
- Replaceable sealing ring made of material HT1 leaving few marks and friction plate Elastodur
- $\pm 0.05$  mm height tolerance
- Low sealing lip return force

## Your Benefits...

- Extreme holding forces on dry or wet glass
- Mark-free workpiece surfaces
- High precision and dimensional accuracy
- No workpiece deformation

\*Bando Kiko is a registered trademark. The products listed here were developed by J. Schmalz GmbH to fit machines by this manufacturer.

# Vacuum Blocks VCBL-GL

For Bando Kiko Machines



## Ordering Code Vacuum Blocks VCBL-GL

VCBL-GL	-	D120	-	81.5
1		2		3

### 1 – Abbreviated designation

Code	Version
VCBL-GL	VCBL-GL

### 2 – Diameter

Code	Diameter in mm
D120	120

### 3 – Height

Code	Height in mm
81.5	81.5
93.5	93.5

Note on ordering: The vacuum block VCBL-GL is delivered ready to connect.  
 Available spare parts: sealing ring  
 Available accessories: hose, valve, plug-in screw union



## Ordering Data Vacuum Blocks VCBL-GL

Type	Part no.
VCBL-GL D 120 x 81.5	10.01.18.00233
VCBL-GL D 120 x 93.5	10.01.18.00587



## Ordering Data Spare Parts Vacuum Blocks VCBL-GL

Type	Description	Part no.
DR 120/88.5 x 16.5	Sealing ring HT1	10.01.18.00249



## Ordering Data Accessories Vacuum Blocks VCBL-GL

Type	Description	Part no.
VSL-8-6 PU	Vacuum hose diameter: 8 mm (outer), 6 mm (inner)	10.07.09.00003
ZUB-VCBL-GL	Angled / adjustable plug-in screw union + extension set	10.01.18.00493
ZUB-VCBL-GL	Manual 3/2-way multiway valve	10.01.18.00492



## Technical Data Vacuum Blocks VCBL-GL

Type	Suction force [N]*	Outer hose diameter [mm]
VCBL-GL D 120 x 81.5	675	8
VCBL-GL D 120 x 93.5	675	8

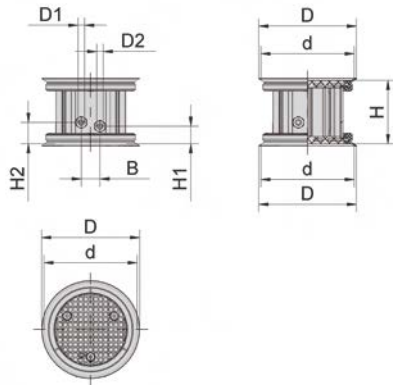
\*Specifications are theoretical values at a -0.6 bar vacuum on dry, flat and even workpiece surfaces – they do not include safety factors.



# Vacuum Blocks VCBL-GL

For Bando Kiko Machines

## Design Data Vacuum Blocks VCBL-GL



VCBL-GL...

Type	Dimensions in mm						H	H1	H2
	B	d*	D**	D1	D2				
VCBL-GL D 120 x 81.5	24	120	126	8	8	81.5	22.5	27.5	
VCBL-GL D 120 x 93.5	24	120	126	8	8	93.5	22.5	27.5	

\*Nominal sealing ring diameter

\*\*Sealing ring pretensioned on vacuum block

# Contoured Vacuum Blocks VCBL-GL

For Bando Kiko\* Machines



## Suitable for Industry Specific Applications



Contoured vacuum blocks VCBL-GL

### Applications

- Contoured vacuum blocks VCBL-GL for smooth table machines (e.g. Bando Kiko) for workpiece edge work when manufacturing automobile glass
- Grinding edges of small side windows (e.g. vents or quarters) for which standard suction cups have insufficient suction area
- Top suction plate shape is adapted to workpiece for max. friction

### Design Contoured Vacuum Blocks VCBL-GL

Base plate variant	Square	Rectangular	Other shapes
Dimensions	L x B [mm]	L x B [mm]	A [cm <sup>2</sup> ]
Design: S	200 x 200 mm	200 x 200 mm	< 200 cm <sup>2</sup>
Design: M	300 x 300 mm	300 x 300 mm	< 300 cm <sup>2</sup>
Design: L	400 x 400 mm	400 x 400 mm	< 800 cm <sup>2</sup>
Block height [mm]	81.5 mm	81.5 mm	81.5 mm



Contoured vacuum block VCBL-GL with square base plate and triangular suction plate clamping automobile glass

### Our Highlights...

- Suction plate customized to workpiece
- Special friction material and high lateral force absorption
- Contoured vacuum blocks with low height tolerance
- Replaceable sealing gasket
- Version with turning function available

### Your Benefits...

- Max. available clamping area utilization
- High precision with high output
- Ultra-precise machining
- Improved service life due to replacement without replacing suction cups
- Left and right side window machining

\*Bando Kiko is a registered trademark. The products listed here were developed by J. Schmalz GmbH to fit machines by this manufacturer.



# Contoured Vacuum Blocks VCBL-GL

For Bando Kiko Machines

## Order Process from Workpiece to Contoured Vacuum Blocks VCBL-BL

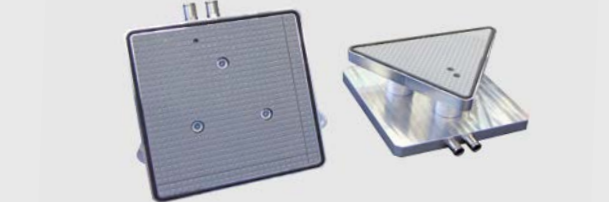


Step	Description	Example (Colors in the drawing correspond to the colors in the text)
1.	Analysis of workpiece drawing • The workpiece area is determined	
2.	Determination of clearance (C) requiring for machining • Remaining area after subtracting area (C) from the workpiece area is the potential suction area of the workpiece plate	
3.	Selection of base plate* • By shape: Comparable to workpiece shape  • Independent of workpiece shape (L x B) Base plate area > workpiece area	

\* Exception: For suction cups with turning function, base plate shape equals workpiece plate shape

# Contoured Vacuum Blocks VCBL-GL

For Bando Kiko Machines

## Possible Contoured Vacuum Blocks VCBL-GL Shapes

Type	Base plate	Version	Dimensions
Square	 <p>Square base plate VCBL-GL</p>	S	200 x 200 mm
		M	300 x 300 mm
		L	400 x 400 mm
Rectangular	 <p>Rectangular base plate VCBL-GL</p>	S	200 x 200 mm
		M	300 x 300 mm
		L	400 x 400 mm
Other shapes (triangular, turning suction cup)	 <p>Triangular base plate VCBL-GL</p>	S	< 200 cm <sup>2</sup>
		M	< 300 cm <sup>2</sup>
		L	< 800 cm <sup>2</sup>



## Ordering Data Spare Parts Contoured Vacuum Blocks VCBL-GL

Type	Description	Unit	Part no.
DI-PROF 4 x 6 MOS CR HR	Sealing profile	m	10.07.04.00130

## Design Requirements Contoured Vacuum Blocks VCBL-GL

A DXF file of the workpiece with the following specifications is required for design:

- Unit of measure - millimeters [mm] or inches [in]
- Scale (1:X)
- Exact dimensions of the workpiece to be clamped



# Spring Plungers FSTE-HDB

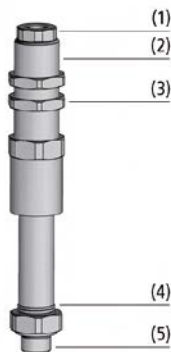
Stroke from 15 mm to 80 mm



## Suitable for Industry Specific Applications



Spring plungers FSTE-HDB



System design spring plungers FSTE-HDB



Spring plunger FSTE-HDB handling sheet metals

## Applications

- Spring plunger with special plain bearings and damping spring for handling workpieces with height differences (e.g. curved sheet metal parts)
- Handling very delicate workpieces (e.g. glass plates, etc.) with no additional control technology required; ensures that workpieces are set down gently
- Highly dynamic handling tasks with short cycle times
- Extraresponsive, rotation-proof design for reliable functions

## Design

- Spring plunger with high-strength stainless-steel plunger rod, guide sleeve (2) with integrated bearing bushing and lower damping spring (4)
- Plunger rod with integrated vacuum feed, connection thread (1) always female
- Ball bearing-mounted anti-rotation guard between plunger rod and sliding sleeve
- Suction cup (5) connection thread always male
- Male thread with two lock nuts (3) for mounting

## Our Highlights...

- Spring plunger with high-quality plain bearings
- Extraresponsive, rotation-proof design
- Block protector for damping spring
- Wide hex bolt for suction cup mounting

## Your Benefits...

- Maintenancefree with a extralong service life; suitable for short cycle times
- Can support oval suction cups; also for demanding applications
- Gentle on the spring for long service life
- Easy press-on suction cup replacement, gentle on anti-rotation guard

# Spring Plungers FSTE-HDB

Stroke from 15 mm to 80 mm

## Ordering Code Spring Plungers FSTE-HDB

<b>FSTE-HDB</b>	–	<b>G1/4-AG</b>	<b>25</b>	<b>VG-AB</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>

### 1 – Abbreviated designation

Code	Type
FSTE	FSTE
HDB	Heavy duty Ball (ball bearing-mounted anti-rotation guard)

### 2 – Suction cup connection

Code	Type
G1/8-AG	G1/8-AG (AG = male (M))
G1/4-AG	G1/4-AG (AG = male (M))
G3/8-AG	G3/8-AG (AG = male (M))
G1/2-AG	G1/2-AG (AG = male (M))

### 3 – Plunger stroke

Code	Stroke in mm
15...80	15 to 80

### 4 – Product range supplement

Code	Type
VG	with anti-rotation guard
AB	Anti-block

Note on ordering: Spring plunger FSTE-HDB is delivered ready to connect.

## Ordering Data Spring Plungers FSTE-HDB

Type	Plunger stroke in mm*			
	15	25	45	80
FSTE-HDB G1/8-AG	10.01.02.01437	10.01.02.01438	10.01.02.01439	–
FSTE-HDB G1/4-AG	–	10.01.02.01427	10.01.02.01382	10.01.02.01377
FSTE-HDB G3/8-AG	–	10.01.02.01436	10.01.02.01422	10.01.02.01423
FSTE-HDB G1/2-AG	–	10.01.02.01440	–	10.01.02.01441

\* Recommendation: Avoid max. plunger stroke during continuous operation to extend service life

## Technical Data Spring Plungers FSTE-HDB

Type	Spring rate [N/mm]	Spring pretension [N]	Spring force [N]*	Vertical load [N]**	Horizontal load [N]***	Weight [g]	Operating tem- perature [°C]
FSTE-HDB G1/8-AG 15 VG-AB	0.211	3.76	5.42	3,700	385	130	0...80
FSTE-HDB G1/8-AG 25 VG-AB	0.143	3.72	5.51	3,700	283	137	0...80
FSTE-HDB G1/8-AG 45 VG-AB	0.097	3.59	5.77	3,700	173	149	0...80
FSTE-HDB G1/4-AG 25 VG-AB	0.711	3.00	12.00	2,400	747	235	0...80
FSTE-HDB G1/4-AG 45 VG-AB	0.453	3.50	13.70	2,400	466	253	0...80
FSTE-HDB G1/4-AG 80 VG-AB	0.417	12.40	29.00	2,400	340	298	0...80
FSTE-HDB G3/8-AG 25 VG-AB	0.711	3.00	12.00	2,400	747	240	0...80
FSTE-HDB G3/8-AG 45 VG-AB	0.453	3.50	13.70	2,400	466	256	0...80
FSTE-HDB G3/8-AG 80 VG-AB	0.417	12.40	29.00	2,400	340	304	0...80
FSTE-HDB G1/2-AG 25 VG-AB	3.828	4.60	52.50	4,900	1,870	590	0...80
FSTE-HDB G1/2-AG 80 VG-AB	1.072	21.50	64.50	4,900	800	725	0...80

\*Based on 50 % stroke

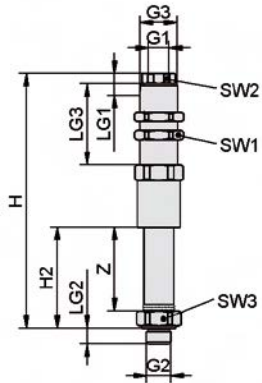
\*\*Max. static load

\*\*\*The horizontal load specification refers to the bottom edge of the plunger with spring extended. This is the max. static load and impacts spring extension and retraction when horizontal.

# Spring Plungers FSTE-HDB

Stroke from 15 mm to 80 mm

## Design Data Spring Plungers FSTE-HDB



FSTE-HDB 15 to 80

Type	Dimensions in mm												
	G1	G2	G3	H	H2	LG1	LG2	LG3	SW1	SW2	SW3	Z (stroke)	
FSTE-HDB G1/8-AG 15 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	92.5	22.5	7	8.5	34	12	22	19	15	
FSTE-HDB G1/8-AG 25 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	105.5	32.5	7	8.5	34	12	22	19	25	
FSTE-HDB G1/8-AG 45 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	130.5	52.5	7	8.5	34	12	22	19	45	
FSTE-HDB G1/4-AG 25 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	118.3	34.8	12	8.5	44	24	17	22	25	
FSTE-HDB G1/4-AG 45 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	138.3	54.8	12	8.5	44	24	17	22	45	
FSTE-HDB G1/4-AG 80 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	188.3	89.8	12	8.5	44	24	17	22	80	
FSTE-HDB G3/8-AG 25 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	118.8	35.3	12	8.0	44	24	17	22	25	
FSTE-HDB G3/8-AG 45 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	138.8	54.8	12	8.0	44	24	17	22	45	
FSTE-HDB G3/8-AG 80 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	188.8	89.8	12	8.0	44	24	17	22	80	
FSTE-HDB G1/2-AG 25 VG-AB	G3/8"-F	G1/2"-M	M30x1.5-M	136.3	36.8	16	10.5	50	36	24	32	25	
FSTE-HDB G1/2-AG 80 VG-AB	G3/8"-F	G1/2"-M	M30x1.5-M	216.3	91.8	16	10.5	50	36	24	32	80	



# Spring Plungers FSTIm

Stroke from 5 mm to 20 mm



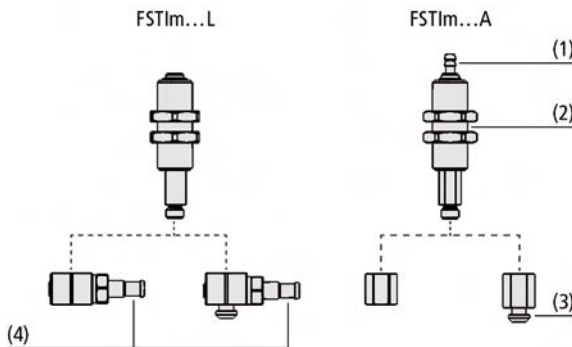
## Suitable for Industry Specific Applications



Spring plungers FSTIm

### Applications

- Compact spring plunger FSTIm with internal damping spring for handling workpieces with height differences or curves
- Handling very delicate workpieces (e.g. PCBs) with no additional control technology required; ensures that workpieces are set down gently
- Handling tasks in the electronics industry
- Suitable for cleanroom applications – max. cleanroom class ISO1 (ISO 14644-1), depending on application



System design spring plungers FSTIm

### Design

- Modular spring plunger with axial (1) or lateral (4) vacuum connection; rotation-proof version axial only
- Two lock nuts (2) for mounting
- Suction cup connection from N004 and N013 nipple family (3) or alternatively via female thread



Spring plungers FSTIm handling PCBs

### Our Highlights...

- Low spring forces
- Minimal size; weight-optimized
- Internal damping spring
- Optional second lateral vacuum feed port

### Your Benefits...

- Gentle handling process for very delicate workpieces
- Suitable for tight spaces and highly dynamic tasks
- Spring protected against dirt and mechanical stress
- Supports multiple spring plungers connected in series

# Spring Plungers FSTIm

Stroke from 5 mm to 20 mm

## Ordering Code Spring Plungers FSTIm

<b>FSTIm</b>	–	<b>M3-IG</b>	–	<b>A</b>	–	<b>5</b>	–	<b>VG</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>		<b>5</b>

**1 – Abbreviated designation**

Code	Version
FSTIm	FSTIm

**2 – Suction cup connection**

Code	Connection
M3-IG	M3-IG (IG = female (F))
M5-IG	M5-IG (IG = female (F))
N004	N004
N016	N016

**3 – Vacuum connection**

Code	Connection
A	Axial
L	Lateral

**4 – Plunger stroke**

Code	Stroke in mm
5...20	5 to 20

**5 – Product range supplement**

Code	Type
VG	with anti-rotation guard

Note on ordering: The spring plunger FSTIm comes ready to connect.

## Ordering Data Spring Plungers FSTIm

Type	Plunger stroke in mm*		
	5	10	20
FSTIm M3-IG A	10.01.02.01333	–	–
FSTIm M3-IG L	10.01.02.01334	–	–
FSTIm M3-IG A VG	10.01.02.01259	–	–
FSTIm N004 A	10.01.02.01335	10.01.02.01339	–
FSTIm N004 L	10.01.02.01336	10.01.02.01340	–
FSTIm N004 A VG	10.01.02.01275	10.01.02.01282	–
FSTIm M5-IG A	–	10.01.02.01337	10.01.02.01344
FSTIm M5-IG L	–	10.01.02.01338	10.01.02.01343
FSTIm M5-IG A VG	–	10.01.02.01247	10.01.02.01293
FSTIm N016 A	–	–	10.01.02.01342
FSTIm N016 L	–	–	10.01.02.01341
FSTIm N016 A VG	–	–	10.01.02.01285

\*Recommendation: Avoid max. plunger stroke during continuous operation to extend service life.

# Spring Plungers FSTIm

Stroke from 5 mm to 20 mm



## Ordering Data Accessories Spring Plungers FSTIm

Type	Hose*	Hose nozzle**
FSTIm M3-IG A 5 VG	10.07.09.00142	–
FSTIm M3-IG L 5	10.07.09.00142	10.08.03.00312
FSTIm N004 A 5 VG	10.07.09.00142	–
FSTIm N004 L 5	10.07.09.00142	10.08.03.00312
FSTIm M5-IG A 10 VG	10.07.09.00141	–
FSTIm M5-IG L 10	10.07.09.00141	10.08.03.00311
FSTIm N004 A 10 VG	10.07.09.00141	–
FSTIm N004 L 10	10.07.09.00141	10.08.03.00311
FSTIm M5-IG A 20 VG	10.07.09.00141	–
FSTIm M5-IG L 20	10.07.09.00141	10.08.03.00311
FSTIm N016 A 20 VG	10.07.09.00141	–
FSTIm N016 L 20	10.07.09.00141	10.08.03.00311

\*Ultra-soft hoses for gentle handling

\*\*For conversion to FSTIm...L series connection



## Technical Data Spring Plungers FSTIm

Type	Spring rate [N/mm]	Spring pretension [N]	Spring force [N]*	Vertical load [N]**	Horizontal load [N]***	Weight [g]	Operating temperature [°C]
FSTIm M3-IG A 5	0.055	0.5	0.64	15	1.5	17	0...80
FSTIm M3-IG L 5	0.055	0.5	0.64	15	1.5	20	0...80
FSTIm M3-IG A 5 VG	0.055	0.5	0.64	15	1.5	17	0...80
FSTIm N004 A 5	0.055	0.5	0.64	15	1.5	16	0...80
FSTIm N004 L 5	0.055	0.5	0.64	15	1.5	20	0...80
FSTIm N004 A 5 VG	0.055	0.5	0.64	15	1.5	16	0...80
FSTIm M5-IG A 10	0.050	0.5	0.75	15	1.5	18	0...80
FSTIm M5-IG L 10	0.050	0.5	0.75	15	1.5	22	0...80
FSTIm M5-IG A 10 VG	0.050	0.5	0.75	15	1.5	20	0...80
FSTIm N004 A 10	0.050	0.5	0.75	15	1.5	20	0...80
FSTIm N004 L 10	0.050	0.5	0.75	15	1.5	22	0...80
FSTIm N004 A 10 VG	0.050	0.5	0.75	15	1.5	18	0...80
FSTIm M5-IG A 20	0.052	0.5	1.02	15	1.5	26	0...80
FSTIm M5-IG L 20	0.052	0.5	1.02	15	1.5	28	0...80
FSTIm M5-IG A 20 VG	0.052	0.5	1.02	15	1.5	26	0...80
FSTIm N016 A 20	0.052	0.5	1.02	15	1.5	24	0...80
FSTIm N016 L 20	0.052	0.5	1.02	15	1.5	28	0...80
FSTIm N016 A 20 VG	0.052	0.5	1.02	15	1.5	24	0...80

\*Based on 50 % stroke

\*\*Max. static load

\*\*\*The horizontal load specification refers to the bottom edge of the spring plunger with spring extended. This is the max. static load and impacts spring extension and retraction when horizontal

# Spring Plungers FSTIm

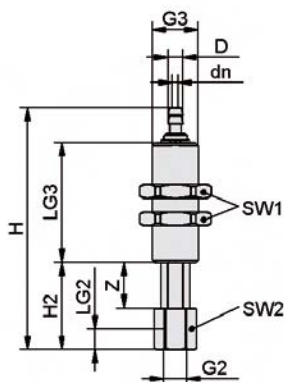
Stroke from 5 mm to 20 mm

## Technical Data Accessories Spring Plungers FSTIm

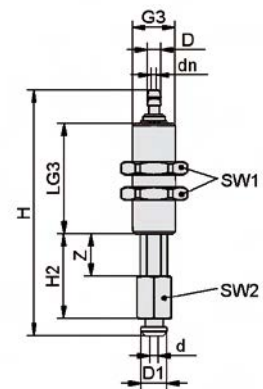
Type	Operating temperature [°C]	Min. bending radius [mm]*	Internal diameter [mm]	Outside diameter [mm]	Max. pressure [bar]
VSL 6-4 PU	-25...60	15	4.0	6	6
VSL 4-2.5 PU	-25...60	8	2.5	4	6

\*At 20° C

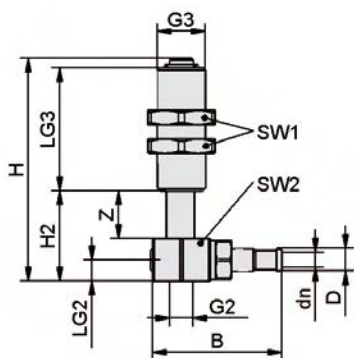
## Design Data Spring Plungers FSTIm



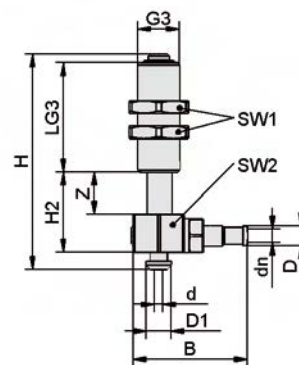
FSTIm M3/M5-IG A...VG



FSTIm N004/N016 A...VG



FSTIm M3/M5-IG L...



FSTIm N004/N016 L...

# Spring Plungers FSTIm

Stroke from 5 mm to 20 mm

Type	Dimensions in mm													
	B	d	dn	D	D1	G2	G3	H	H2	LG2	LG3	SW1	SW2	Z (stroke)
FSTIm M3-IG A 5	–	–	1.3	2.5	–	M3-F	M10x1-M	40.7	14	4.5	19	14	8	5
FSTIm M3-IG L 5	21.5	–	1.8	2.5	–	M3-F	M10x1-M	35.0	14	4.5	19	14	13	5
FSTIm M3-IG A 5 VG	–	–	1.3	2.5	–	M3-F	M10x1-M	40.7	14	4.5	19	14	8	5
FSTIm N004 A 5	–	2.0	1.3	2.5	6.0	–	M10x1-M	45.7	15	–	19	14	8	5
FSTIm N004 L 5	21.5	2.0	1.8	2.5	6.0	–	M10x1-M	39.0	14	–	19	14	13	5
FSTIm N004 A 5 VG	–	2.0	1.3	2.5	6.0	–	M10x1-M	45.7	15	–	19	14	8	5
FSTIm M5-IG A 10	–	–	2.0	4.0	–	M5-F	M10x1-M	54.7	19	4.5	26	14	8	10
FSTIm M5-IG L 10	23.2	–	2.5	4.0	–	M5-F	M10x1-M	47.0	19	4.5	26	14	13	10
FSTIm M5-IG A 10 VG	–	–	2.0	4.0	–	M5-F	M10x1-M	54.7	19	4.5	26	14	8	10
FSTIm N004 A 10	–	2.0	2.0	4.0	6.0	–	M10x1-M	59.7	20	–	26	14	8	10
FSTIm N004 L 10	23.2	2.0	2.5	4.0	6.0	–	M10x1-M	51.0	19	–	26	14	13	10
FSTIm N004 A 10 VG	–	2.0	2.0	4.0	6.0	–	M10x1-M	59.7	20	–	26	14	8	10
FSTIm M5-IG A 20	–	–	2.0	4.0	–	M5-F	M10x1-M	79.7	29	4.5	41	14	8	20
FSTIm M5-IG L 20	23.2	–	2.5	4.0	–	M5-F	M10x1-M	72.0	29	4.5	41	14	13	20
FSTIm M5-IG A 20 VG	–	–	2.0	4.0	–	M5-F	M10x1-M	79.7	29	4.5	41	14	8	20
FSTIm N016 A 20	–	2.5	2.0	4.0	6.5	–	M10x1-M	86.7	30	–	41	14	8	20
FSTIm N016 L 20	23.2	2.5	2.5	4.0	6.5	–	M10x1-M	78.0	29	–	41	14	13	20
FSTIm N016 A 20 VG	–	2.5	2.0	4.0	6.5	–	M10x1-M	86.7	30	–	41	14	8	20

# Compact Terminal SCTMi

Flexible, fully networked vacuum generation



Variety, optimization of production processes, and continuous energy and process control are the challenges of the future. In order to meet these demands, powerful, flexible and energy-efficient vacuum systems are required. The answer is our

Compact Terminal SCTMi, a compact unit of several vacuum generators for simultaneously and independently handling different parts with a single vacuum system.

**LEAN**

- Central compressed air and power supply for up to 16 ejectors with just one connection each
- Compact design and low weight make it suitable for a wide range of applications

**MODULAR**

- Modular design means various vacuum circuits can be installed to handle different parts with ease
- Each ejector can be selected based on nozzle size, NO, NC or nozzle type

**NETWORKED**

- Can be integrated in a wide range of field-bus systems
- Process and device parameters can be easily configured via IO-Link or NFC

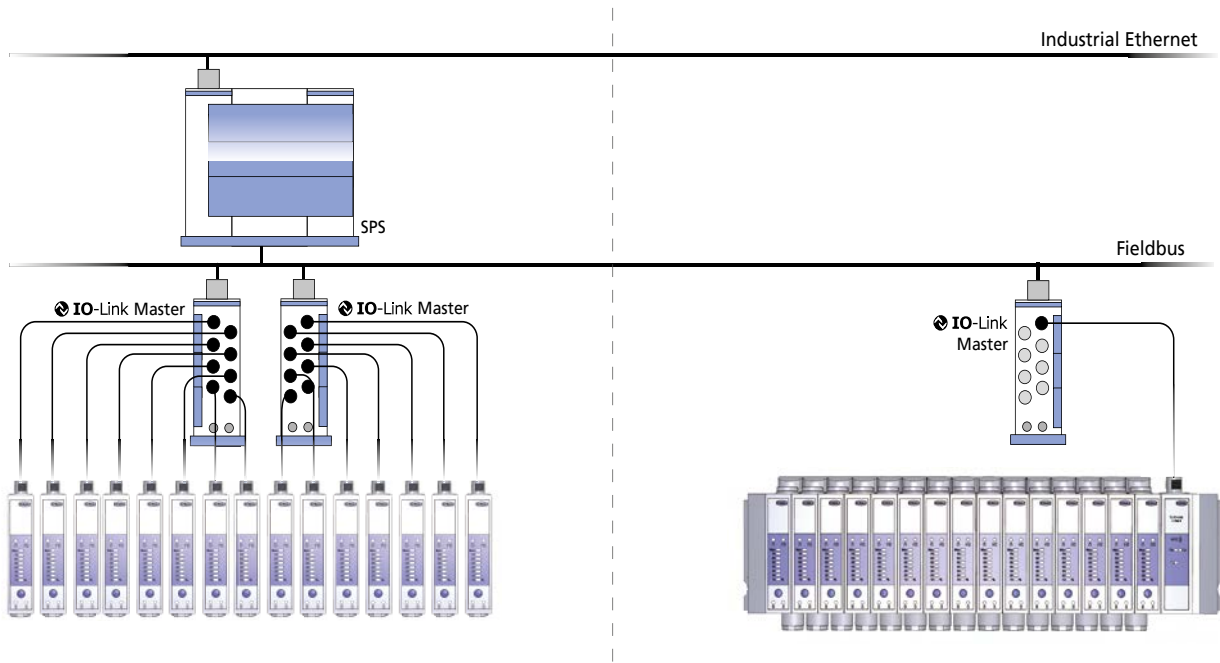
**INTELLIGENT**

- All vacuum circuits can be separately controlled
- Process transparency, energy consumption control and a variety of diagnostic functions for use in intelligent factories

# Compact Terminal SCTMi

Flexible, fully networked vacuum generation

## Simplified Integration in the Control Level

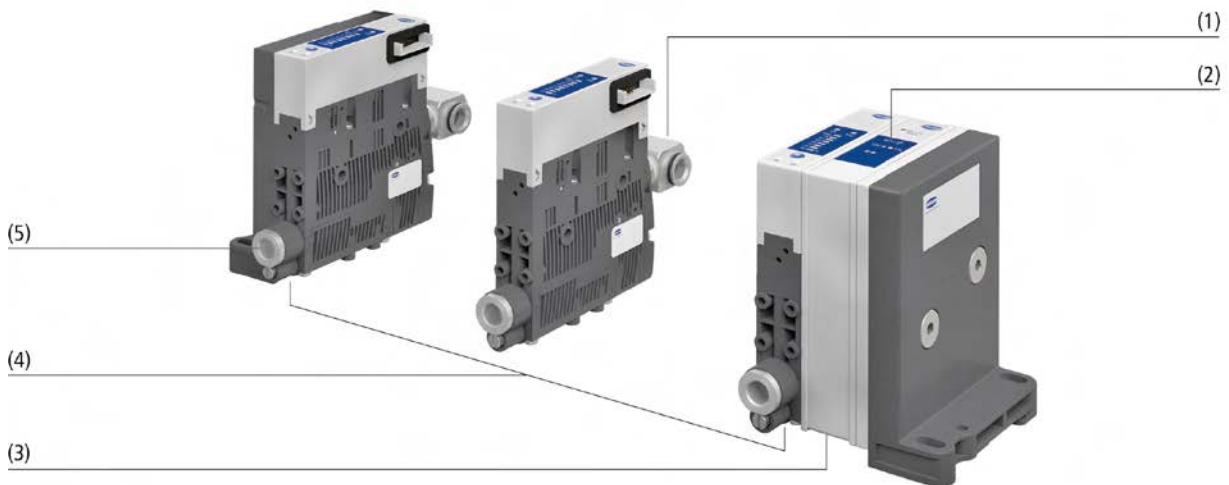


Connecting individual ejectors

Connecting the SCTMi

### Design

- Lean, central compressed air supply (1)
- NFC chip (2) for reading and writing process information
- Central power supply and IO-Link connection M12, 5-pin via the control module (3)
- Threaded vacuum connections (5)
- Compact vacuum terminal with max. 16 block-mounted compact ejectors (4)



System design Compact Terminal SCTMi

# Compact Terminal SCTMi

Configuration code – Selection and ordering aid



## SCTMi-IOL – 11112



### Main body SCTMi

Code	Type
SCTMi-IOL	SCTMi IO-Link main body

### Ejectors

Code*	Type	Part no.
1	SCPSt 07 G02 NO	10.02.02.04676
2	SCPSt 10 G02 NO	10.02.02.04681
3	SCPSt 15 G02 NO	10.02.02.04675
4	SCPSt 07 G02 NC	10.02.02.04673
5	SCPSt 10 G02 NC	10.02.02.04429
6	SCPSt 15 G02 NC	10.02.02.04678

#### Example: SCTMi-IOL01

Main body and IO-Link master element with IO-Link electrical connection using M12, 5-pin plug

#### Example: 11112200-00000000

4x ejector SCPSt 07 G02 NO (10.02.02.04676) and 2x ejector SCPSt 10 G02 NO (10.02.02.04681)



### Ordering Code Compact Ejectors SCPSt

SCPSt	–	2	–	07	–	G02	–	NC
1		2		3		4		5

#### 1 – Abbreviated designation

Code	Version
SCPSt	SCPSt

#### 2 – Nozzle technology

Code	Type
2	2-stage

#### 3 – Nozzle size

Code	Diameter in mm
07	0.7
10	1.0
15	1.5
2-07	0.7
2-09	0.9
2-15	1.4

#### 4 – Connection

Code	Connection
G02	Connection thread 2

#### 5 – Idle valve position

Code	Type
NC	Normally closed
NO	Normally open





200-00000000

- P



### Collective pneumatic connection

Code*	Type	Part no.
7	SCPSt 2-07 G02 NO	10.02.02.04677
8	SCPSt 2-09 G02 NO	10.02.02.04682
9	SCPSt 2-14 G02 NO	10.02.02.04680
A	SCPSt 2-07 G02 NC	10.02.02.04674
B	SCPSt 2-09 G02 NC	10.02.02.04683
C	SCPSt 2-14 G02 NC	10.02.02.04679

Code	Type
P	With collective pneumatic connection
X	Without collective pneumatic connection

#### Note:

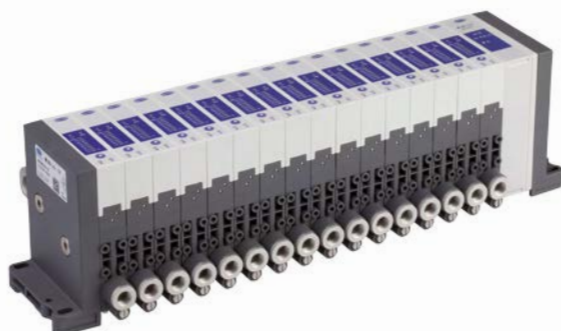
2 to 16 ejectors can be configured. A bigger inner hose diameter for air supply is required by 9 or more ejectors.

#### Example: P

Collective pneumatic connection for supplying all ejectors with one, two or three compressed air lines

\*Each digit represents an ejector position. Unassigned positions are indicated by "0".

### Sample SCTMi Configuration



SCTMi-IOL - 88BB88BB-88BB88BB - P

Main body and IO-Link master element with IO-Link connection

8x ejector SCPSt 2-09 G02 NO (10.02.02.04682) and 8x ejector SCPSt 2-09 G02 NC (10.02.02.04683)

Collective pneumatic connection

Note: Our experienced specialists will assist you in setting up and configuring your terminal. Contact details can be found on the back of the catalog.

# Compact Terminal SCTMi

Technical data

## Technical Data Compact Terminal SCTMi (Electronics)

Type	Operating temperature [°C]	Pressure range (operating pressure) [bar]	Electrical connection	Communication
SCTMi-IOL	0...50	2...6	M12, 5-pin plug	IO-Link class B

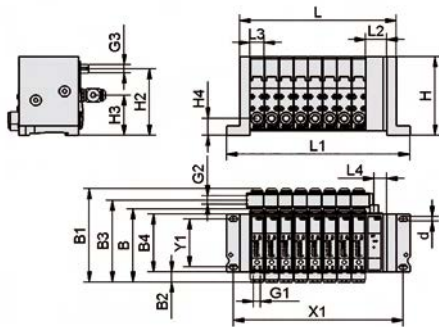
## Technical Data Compact Ejectors SCPSt

Type	Nozzle size [mm]	Degree of evacuation [%]*	Max. suction rate [m³/h]*	Max. suction rate [l/min]*	Vacuum air consumption [m³/h]*	Air consumption blow-off [m³/h]*	Sound level free* [dB(A)]**	Sound level during gripping* [dB(A)]**
SCPSt 07...	07	85	0.98	16.0	1.35	7.25	63	58
SCPSt 10...	10	85	2.21	36.0	2.85	7.25	73	60
SCPSt 15...	15	85	4.03	65.5	6.03	7.25	73	65
SCPSt 2-07...	2-07	85	2.28	37.0	1.35	7.25	63	58
SCPSt 2-09...	2-09	85	3.05	49.5	2.49	7.25	73	60
SCPSt 2-14...	2-14	85	4.40	71.5	5.04	7.25	75	65

\*At optimal operating pressure (4 bar).

\*\*No linear increase in sound level with increase in ejector disks

## Design Data Compact Terminal SCTMi



SCTMi-IOL...

Type*	Dimensions in mm																				m (g)**
	L	L1	L2	L3	L4	B	B1	B2	B3	B4	H	H2	H3	H4	d	X1	Y1	G1**	G2**	G3**	
SCTMi-IOL(2)	89.2	123.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	108	64	G1/8"-F	G1/4"-F	M12x1-M	700
SCTMi-IOL(3)	107.7	141.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	125	64	G1/8"-F	G1/4"-F	M12x1-M	910
SCTMi-IOL(4)	126.2	160.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	143	64	G1/8"-F	G1/4"-F	M12x1-M	1,120
SCTMi-IOL(5)	144.7	178.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	162	64	G1/8"-F	G1/4"-F	M12x1-M	1,330
SCTMi-IOL(6)	163.2	197.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	180	64	G1/8"-F	G1/4"-F	M12x1-M	1,540
SCTMi-IOL(7)	181.7	215.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	199	64	G1/8"-F	G1/4"-F	M12x1-M	1,750
SCTMi-IOL(8)	200.2	234.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	217	64	G1/8"-F	G1/4"-F	M12x1-M	1,960
SCTMi-IOL(9)	218.7	252.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	236	64	G1/8"-F	G1/4"-F	M12x1-M	2,170
SCTMi-IOL(10)	237.2	271.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	254	64	G1/8"-F	G1/4"-F	M12x1-M	2,380
SCTMi-IOL(11)	255.7	289.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	273	64	G1/8"-F	G1/4"-F	M12x1-M	2,590
SCTMi-IOL(12)	274.2	308.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	291	64	G1/8"-F	G1/4"-F	M12x1-M	2,800
SCTMi-IOL(13)	292.7	326.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	310	64	G1/8"-F	G1/4"-F	M12x1-M	3,010
SCTMi-IOL(14)	311.2	345.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	328	64	G1/8"-F	G1/4"-F	M12x1-M	3,220
SCTMi-IOL(15)	329.7	363.7	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	347	64	G1/8"-F	G1/4"-F	M12x1-M	3,430
SCTMi-IOL(16)	348.2	382.2	27	18.5	16	97.5	125	13.5	109	77	105	89	54	22.5	5.5	365	64	G1/8"-F	G1/4"-F	M12x1-M	3,640

\*(2...16) corresponds to the number of installed ejectors

\*\*With compressed air distributor

# Compact Terminal SCTMi

Ideal for use in the smart production of the future

## Highlights of the Compact Terminal SCTMi

The Compact Terminal SCTMi offers an enormous range of innovative, energysaving technologies and networking options for use in intelligent factories. This page introduces you to the most important features.

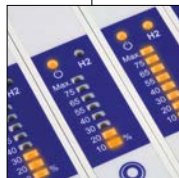
### Near-Field Communication (NFC)

- Reliable communication via an energy-neutral, point-to-point connection
- Visible data – Both statistical data (such as the serial number) and dynamic process data (such as switching points) can be read out
- Parameterization option – An app can be used to parameterize the SCTMi directly from a smartphone



### Networking in Industry 4.0 Systems

- The **IO-Link** connection means that recorded data can be viewed and used all the way up to the control level, which allows for bidirectional parameterization and diagnostics in all conventional field-bus systems
- **Condition monitoring** increases system availability by providing detailed analyses of the system's condition and early detection of faults
- **Predictive maintenance** improves the performance of gripping systems
- **Energy monitoring** optimizes the vacuum system's energy consumption



### Automatic Air Saving Function

- Switches off the suction function once a safe vacuum value has been reached until the next cycle or until the vacuum falls below the safe vacuum value
- Various configuration values and air saving settings can be programmed separately for each ejector
- Reduction of compressed air consumption by up to 80 %



### Integrated Electronic Sub-Bus System

- Electronic control can be implemented with just a single cable
- Comprehensive data communication via IO-Link and near-field communication (NFC)
- All ejectors can be separately programmed and controlled

### Eco-Nozzle Technology

- Econozzle technology provides a considerably higher suction rate with minimized compressed air consumption for energyefficient vacuum generation

# Basic Ejectors SBP-HV/HF

Suction rate up to 309 l/min



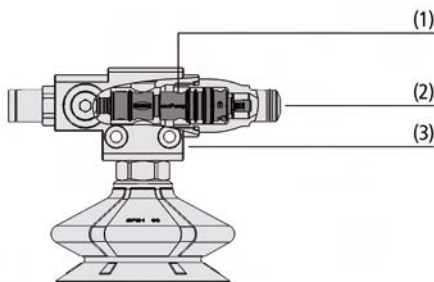
Suitable for Industry Specific Applications



Basic ejectors SBP-HV/HF

## Applications

- Basic ejectors SBP-HV/HF for universal application in vacuum systems
- Integrated ejector module for energy-efficient vacuum generation because of eco-nozzle technology



## Design

- Lightweight, compact, integrated plastic ejector module (1)
- Available in three performance classes and two variants: optimized air consumption for airtight (HV) or porous (HF) materials (3)
- Assemblies available with and without silencer (2)

System design basic ejectors SBP-HV/HF



Basic ejectors SBP-HV/HF handling cardboard boxes

## Our Highlights...

- High suction capacity with low air consumption
- Can be used for both airtight (HV) and porous (HF) workpieces
- Fast, with powerful vacuum
- Resistant to dirt

## Your Benefits...

- Energy-efficient vacuum generation
- Fast and reliable product selection for each application
- Quickly reaches working vacuum; reliable compensation for leakage
- Long service intervals and simple, tool-free cleaning

# Basic Ejectors SBP-HV/HF

Suction rate up to 309 l/min

## Ordering Code Basic Ejectors SBP-HV/HF

<b>SBP</b> 1	-	<b>HF</b> 2	-	<b>2</b> 3	-	<b>06</b> 4	-	<b>13</b> 5	-	<b>SD</b> 6
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### 1 – Abbreviated designation

Code	Version
SBP	SBP

### 2 – Variant

Code	Type
HF	High flow
HV	High vacuum

### 3 – Nozzle technology

Code	Type
2	2-stage
3	3-stage

### 4 – Nozzle size

Code	Diameter in mm
03	0.3
04	0.4
06	0.6
07	0.7
13	1.3
16	1.6

### 5 – Hole

Code	Diameter in mm
7	7
13	13
22	22

### 6 – Product addition

Code	Type
SD	Silencer

Note on ordering: The basic ejector SBP-HV/HF is delivered ready to connect.

## Ordering Data Basic Ejectors SBP-HF

Type	SBP-HF for porous workpieces Part no.
SBP HF 2 03 7	10.02.01.01715
SBP HF 2 06 13	10.02.01.01717
SBP HF 2 06 13 SD	10.02.01.01729
SBP HF 3 06 13	10.02.01.01720
SBP HF 3 06 13 SD	10.02.01.01732
SBP HF 2 13 22	10.02.01.01723
SBP HF 2 13 22 SD	10.02.01.01735
SBP HF 3 13 22	10.02.01.01726
SBP HF 3 13 22 SD	10.02.01.01738

## Ordering Data Basic Ejectors SBP-HV

Type	SBP-HV for airtight workpieces Part no.	With safety valve* Part no.
SBP HV 2 04 7	10.02.01.01716	–
SBP HV 2 07 13	10.02.01.01718	10.02.01.01719
SBP HV 2 07 13 SD	10.02.01.01730	10.02.01.01731
SBP HV 3 07 13	10.02.01.01721	10.02.01.01722
SBP HV 3 07 13 SD	10.02.01.01733	10.02.01.01734
SBP HV 2 16 22	10.02.01.01724	10.02.01.01725
SBP HV 2 16 22 SD	10.02.01.01736	10.02.01.01737
SBP HV 3 16 22	10.02.01.01727	10.02.01.01728
SBP HV 3 16 22 SD	10.02.01.01739	10.02.01.01740

\*Maintenance of the vacuum for airtight pieces using additional safety non-return valve. A active blow-off impulse is required for release.

# Basic Ejectors SBP-HV/HF

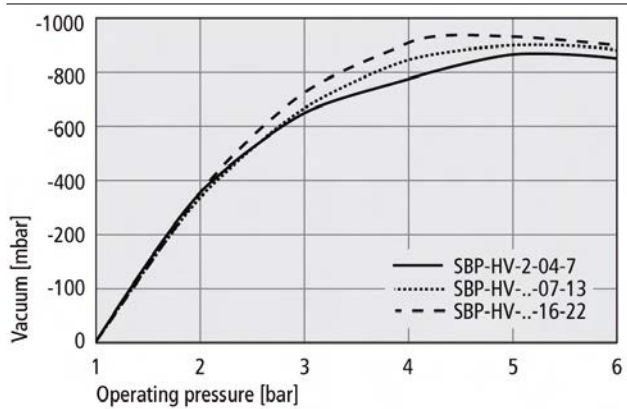
Suction rate up to 309 l/min

## Technical Data Basic Ejectors SBP-HV/HF

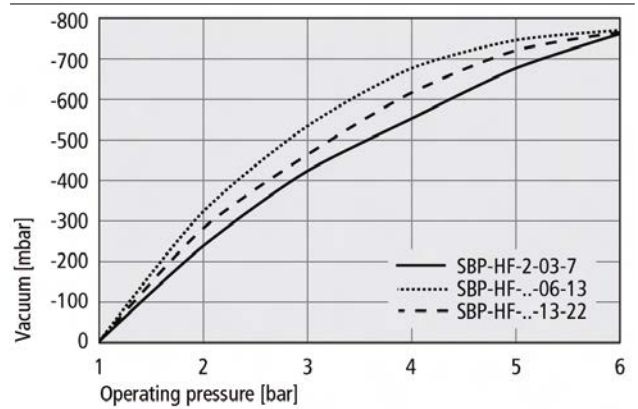
Type	Weight [g]	Operating temperature [°C]	Recommended compressed air hose inner diameter Ø [mm]	Recommended vacuum hose inner diameter Ø [mm]	Pressure range (operating pressure) [bar]	Sound level free [dB(A)]*	Sound level during gripping [dB(A)]*
SBP HV 2 04 7	28.7	0...60	2	4	2.0...6.0	63	54
SBP HV 2 07 13	84.9	0...60	4	6	2.0...6.0	70	58
SBP HV 2 07 13 SD	90.9	0...60	4	6	2.0...6.0	67	56
SBP HV 3 07 13	89.6	0...60	4	6	2.0...6.0	68	57
SBP HV 3 07 13 SD	95.6	0...60	4	6	2.0...6.0	63	55
SBP HV 2 16 22	261.6	0...60	6	12	2.0...6.0	84	75
SBP HV 2 16 22 SD	276.6	0...60	6	12	2.0...6.0	76	63
SBP HV 3 16 22	280.0	0...60	6	12	2.0...6.0	81	73
SBP HV 3 16 22 SD	295.0	0...60	6	12	2.0...6.0	69	61

\*Sound level reduced by 2...4 dB(A) by using SHC holder cap with silencer

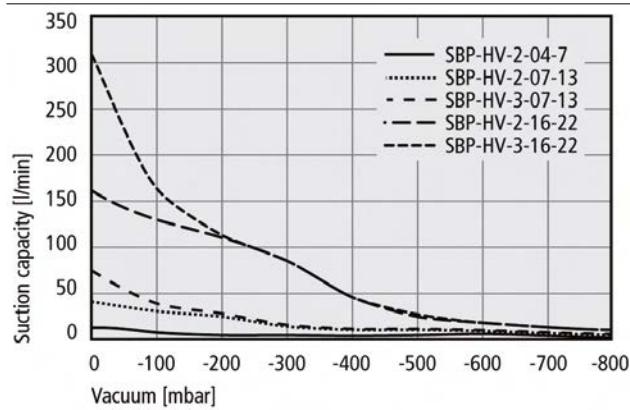
## Performance Data Basic Ejectors SBP-HV/HF



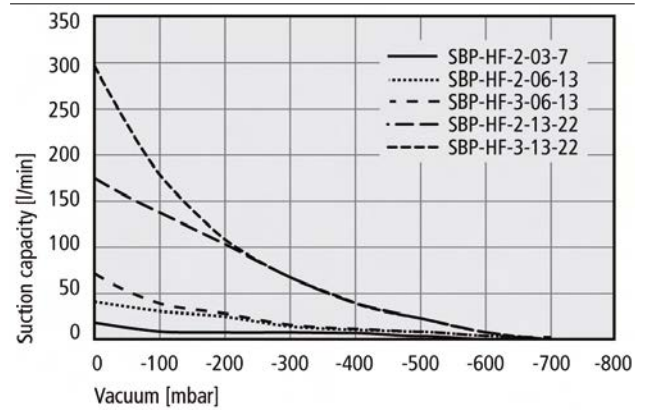
Achievable vacuum at various operating pressures (SBP-HV)



Achievable vacuum at various operating pressures (SBP-HF)



Suction rate at various degrees of evacuation (SBP-HV)

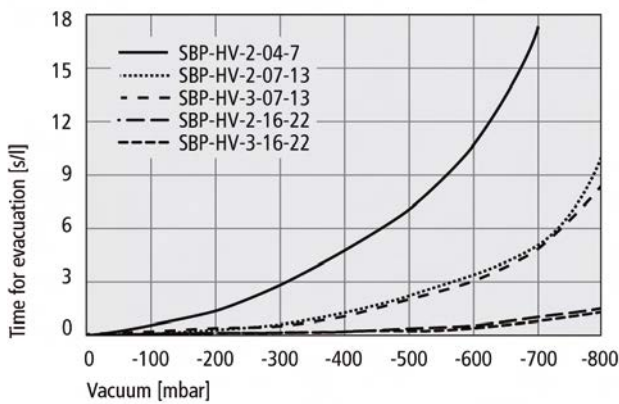


Suction rate at various degrees of evacuation (SBP-HF)

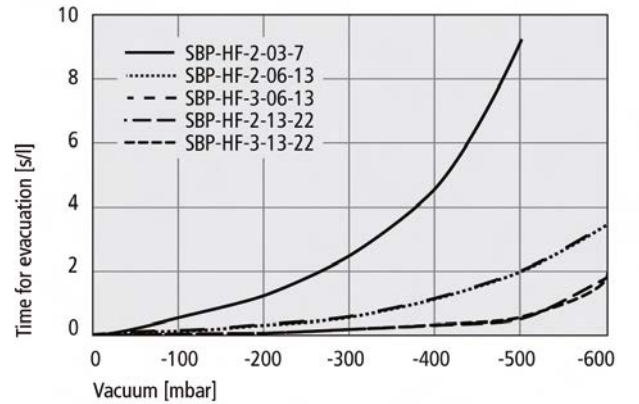


# Basic Ejectors SBP-HV/HF

Suction rate up to 309 l/min



Evacuation time for various vacuum ranges (SBP-HV)



Evacuation time for various vacuum ranges (SBP-HF)

## Suction Rate at Various Degrees of Evacuation in l/min (SBP-HF)

Type	Operating pressure [bar]	Max. vacuum [mbar]	Air consumption [l/min]	Degree of evacuation [mbar]							
				0	-100	-200	-300	-400	-500	-600	-700
SBP HF 2 03 7	3	410	4.0	12.6	5.1	3.8	2.6	0.6	-	-	-
	4	550	5.0	15.3	8.4	5.1	3.9	2.6	1.5	-	-
	5	670	6.0	16.5	10.8	6.1	4.8	3.8	2.6	1.5	-
SBP HF 2 06 13	3	530	14.7	36.9	29.4	15.5	9.2	5.2	1.2	-	-
	4	700	18.7	42.4	34.4	24.7	12.1	9.1	5.5	1.8	-
	5	750	22.8	45.9	38.4	30.6	21.6	10.6	7.7	4.4	1.7
SBP HF 3 06 13	3	530	14.7	57.4	30.4	17.0	9.2	5.2	1.2	-	-
	4	700	18.7	67.3	36.2	27.0	12.1	9.1	5.5	1.8	0.7
	5	750	22.8	74.6	45.3	32.7	21.6	10.6	7.7	4.4	1.7
SBP HF 2 13 22	3	460	58.6	158.6	122.8	76.1	48.3	21.0	-	-	-
	4	610	74.0	175.3	143.8	106.1	66.3	44.7	24.7	2.9	-
	5	720	89.5	180.7	158.6	129.0	89.1	49.4	34.9	19.3	4.9
SBP HF 3 13 22	3	460	58.6	253.7	128.2	76.1	48.3	21.0	-	-	-
	4	610	74.0	297.6	178.3	106.1	66.3	44.7	24.7	2.9	-
	5	720	89.5	325.6	187.3	129.0	89.1	49.4	34.9	19.3	4.9

## Suction Rate at Various Degrees of Evacuation in l/min (SBP-HV)

Type	Operating pressure [bar]	Max. vacuum [mbar]	Air consumption [l/min]	Degree of evacuation [mbar]							
				0	-100	-200	-300	-400	-500	-600	-700
SBP HV 2 04 7	3	640	5.2	10.8	6.2	3.5	2.8	2.3	1.8	1.3	-
	4	790	6.5	13.2	9.5	4.4	3.4	2.9	2.3	1.7	1.2
	5	860	7.8	14.8	11.3	6.9	3.3	2.8	2.1	1.5	1.1
SBP HV 2 07 13	3	630	18.6	37.8	27.5	14.5	7.9	5.4	2.7	1.1	-
	4	850	23.5	42.5	33.7	25.0	13.8	8.8	7.3	4.6	2.7
	5	900	28.5	45.5	37.6	31.2	23.1	14.0	7.6	4.9	3.1
SBP HV 3 07 13	3	630	18.6	64.6	31.3	16.6	9.3	7.2	4.3	1.2	-
	4	850	23.5	76.8	37.2	27.0	16.6	9.3	7.6	5.1	3.1
	5	900	28.5	86.8	50.6	33.6	26.6	17.0	7.3	4.6	2.7

# Basic Ejectors SBP-HV/HF

Suction rate up to 309 l/min

Type	Operating pressure [bar]	Max. vacuum [mbar]	Air consumption [l/min]	Degree of evacuation [mbar]								
				0	-100	-200	-300	-400	-500	-600	-700	
SBP HV 3 16 22	3	720	82.0	270.0	122.0	95.5	57.6	34.7	21.8	10.4	2.3	
	4	900	103.0	308.8	155.1	115.5	88.9	50.5	27.5	18.2	11.1	
	5	910	124.7	330.9	201.3	112.7	97.9	70.0	43.9	22.0	9.7	
SBP HV 3 16 22	3	720	82.0	270.0	122.0	95.5	57.6	34.7	21.8	10.4	2.3	
	4	900	103.0	308.8	155.1	115.5	88.9	50.5	27.5	18.2	11.1	
	5	910	124.7	330.9	201.3	112.7	97.9	70.0	43.9	22.0	9.7	

## Evacuation Time for Various Vacuum Ranges in s/l (SBP-HF)

Type	Operating pressure [bar]	Max. vacuum [mbar]	Air consumption [l/min]	Degree of evacuation [mbar]								
				-100	-200	-300	-400	-500	-600	-700	-800	
SBP HF 2 03 7	3	410	4.0	0.62	1.70	3.42	11.13	-	-	-	-	
	4	550	5.0	0.48	1.27	2.51	4.59	9.26	-	-	-	
	5	670	6.0	0.42	1.06	2.03	3.42	5.64	10.43	-	-	
SBP HF 2 06 13	3	530	14.7	0.14	0.36	0.88	1.74	3.96	-	-	-	
	4	700	18.7	0.10	0.27	0.55	1.18	2.01	3.47	-	-	
	5	750	22.8	0.09	0.23	0.43	0.82	1.63	2.65	4.23	-	
SBP HF 3 06 13	3	530	14.7	0.14	0.36	0.88	1.74	3.96	-	-	-	
	4	700	18.7	0.10	0.27	0.55	1.18	2.01	3.47	-	-	
	5	750	22.8	0.09	0.23	0.43	0.82	1.63	2.65	4.23	-	
SBP HF 2 13 22	3	460	58.6	0.05	0.10	0.18	0.38	-	-	-	-	
	4	610	74.0	0.04	0.08	0.14	0.23	0.42	1.84	-	-	
	5	720	89.5	0.05	0.09	0.13	0.22	0.35	0.57	1.26	-	
SBP HF 3 13 22	3	460	58.6	0.05	0.10	0.19	0.41	-	-	-	-	
	4	610	74.0	0.04	0.08	0.14	0.24	0.46	-	-	-	
	5	720	89.5	0.03	0.07	0.11	0.19	0.34	0.59	-	-	

## Evacuation Time for Various Vacuum Ranges in s/l (SBP-HV)

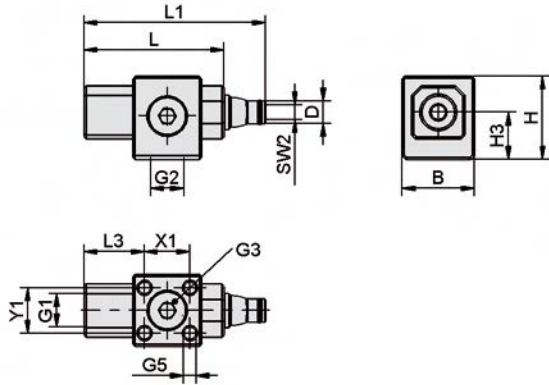
Type	Operating pressure [bar]	Max. vacuum [mbar]	Air consumption [l/min]	Degree of evacuation [mbar]								
				-100	-200	-300	-400	-500	-600	-700	-800	
SBP HV 2 04 7	3	640	5.2	0.73	1.96	3.79	6.47	10.37	18.45	-	-	
	4	790	6.5	0.53	1.34	2.79	4.71	7.16	10.68	17.73	-	
	5	860	7.8	0.54	1.10	2.34	4.42	7.28	11.30	17.79	29.10	
SBP HV 2 07 13	3	630	18.6	0.13	0.39	1.01	1.98	3.58	8.59	-	-	
	4	850	23.5	0.09	0.26	0.56	1.22	2.08	3.21	5.09	9.71	
	5	900	28.5	0.06	0.18	0.37	0.69	1.38	2.51	4.21	7.69	
SBP HV 3 07 13	3	630	18.6	0.15	0.41	1.05	1.99	3.36	6.04	-	-	
	4	850	23.5	0.11	0.28	0.53	1.11	1.94	3.01	4.71	8.47	
	5	900	28.5	0.07	0.19	0.36	0.61	1.32	2.50	4.11	7.52	
SBP HV 2 16 22	3	720	82.0	0.06	0.10	0.17	0.31	0.50	0.89	-	-	
	4	900	103.0	0.06	0.09	0.14	0.23	0.40	0.61	0.94	1.49	
	5	910	124.7	0.05	0.08	0.12	0.18	0.27	0.49	0.83	1.54	
SBP HV 3 16 22	3	720	82.0	0.04	0.09	0.16	0.29	0.48	0.83	-	-	
	4	900	103.0	0.04	0.08	0.12	0.21	0.36	0.58	0.90	1.46	
	5	910	124.7	0.04	0.07	0.11	0.17	0.27	0.48	0.81	1.51	



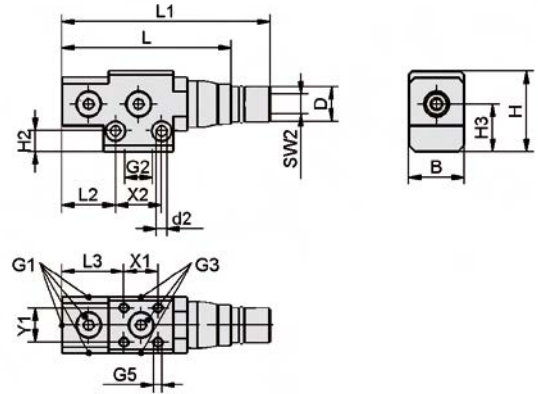
# Basic Ejectors SBP-HV/HF

Suction rate up to 309 l/min

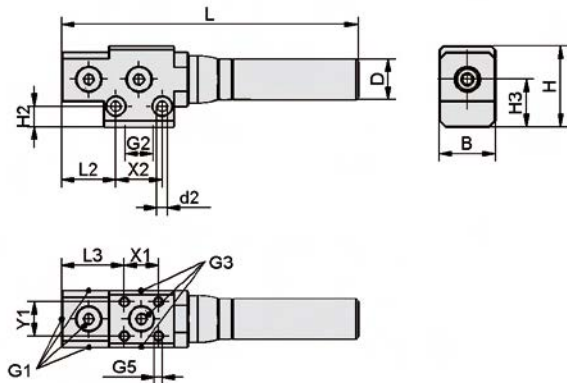
Design Data Basic Ejectors SBP-HV/HF



SBP...2...7



SBP...2/3...13/22



SBP...SD

Type	Dimensions in mm																		
	B	D	d2	G1	G2	G3	G5	H	H2	H3	L	L1	L2	L3	SW2	X1	X2	Y1	
SBP...2...7	19	9.0	-	G1/8"-F	G1/8"-F	G1/8"-F	M4-F	22	-	12.5	37.0	48.0	-	16.0	4	12	-	12	
SBP...2...13	23	14.0	4.2	G1/8"-F	G1/4"-F	G1/8"-F	M4-F	33	8.5	19.5	69.5	86.0	22.0	25.5	8	14	19	14	
SBP...2...13...SD	23	16.5	4.2	G1/8"-F	G1/4"-F	G1/8"-F	M4-F	33	8.5	19.5	121.0	-	22.0	25.5	-	14	19	14	
SBP...3...13	23	16.5	4.2	G1/8"-F	G1/4"-F	G1/8"-F	M4-F	33	8.5	19.5	88.0	105.0	22.0	25.5	8	14	19	14	
SBP...3...13...SD	23	16.5	4.2	G1/8"-F	G1/4"-F	G1/8"-F	M4-F	33	8.5	19.5	139.5	-	22.0	25.5	-	14	19	14	
SBP...2...22	35	20.0	6.4	G1/4"-F	G3/8"-F	G1/4"-F	M6-F	44	9.5	25.5	120.5	138.5	32.5	34.5	12	22	26	22	
SBP...2...22...SD	35	29.0	6.4	G1/4"-F	G3/8"-F	G1/4"-F	M6-F	44	9.5	25.5	191.0	-	32.5	34.5	-	22	26	22	
SBP...3...22	35	20.0	6.4	G1/4"-F	G3/8"-F	G1/4"-F	M6-F	44	9.5	25.5	160.5	178.3	32.5	34.5	14	22	26	22	
SBP...3...22...SD	35	29.0	6.4	G1/4"-F	G3/8"-F	G1/4"-F	M6-F	44	9.5	25.5	231.0	-	32.5	34.5	-	22	26	22	

# Vacuum Blowers SB

Suction rate from 75 m<sup>3</sup>/h to 1,250 m<sup>3</sup>/h



Suitable for Industry Specific Applications



Vacuum blowers SB

## Applications

- Vacuum blower for handling cardboard, insulating material, recycled material and other porous materials
- Enormous suction rate compensates for leaks

## Design

- Vacuum blower with high-precision die-cast aluminium housing and impeller
- Preconfigured pressure limiting valve included
- Motor in top energy efficiency class (IE3)

## Our Highlights...

- Blower with extreme suction rate
- Die-cast aluminum housing and impeller
- Broad performance range

## Your Benefits...

- Reliable handling of porous materials
- Vibration-free operation and high suction rate
- Optimized to meet customer requirements

## Ordering Code Vacuum Blowers SB

<b>SB</b> 1	-	<b>210</b> 2	-	<b>400</b> 3	-	<b>4</b> 4	-	<b>IE3-Type1</b> 5
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### 1 – Abbreviated designation

Code	Version
SB	SB

### 2 – Performance class

Code	Suction rate in m <sup>3</sup> /h
75...1250	75 to 1,250

### 3 – Max. vacuum

Code	Vacuum in mbar
-105...-400	-105 to -400

### 4 – Rated power

Code	Power in kW
0,37...13,2	0.37 to 13.20

### 5 – Motor type

Code	Type
IE1	IE1
IE3-Type1	IE3-Type1
IE3-Type2	IE3-Type2
IE3-Type3	IE3-Type3

Note on ordering: The vacuum blower SB is delivery ready to connect.  
Available assesories: silencer box, filter

# Vacuum Blowers SB

Suction rate from 75 m<sup>3</sup>/h to 1,250 m<sup>3</sup>/h

## Ordering Data Vacuum Blowers SB

Type	Motor type 1	Motor type 2	Motor type 3
SB-75-105-0.37-IE1	–	10.04.01.00065	–
SB-130-125-0.75-IE3	10.04.01.00066	–	10.04.01.00067
SB-160-115-0.9-IE3	–	10.04.01.00068	–
SB-90-330-1.5-IE3	10.04.01.00087	–	10.04.01.00088
SB-110-350-1.8-IE3	–	10.04.01.00089	–
SB-180-215-1.5-IE3	10.04.01.00069	–	10.04.01.00070
SB-230-230-1.8-IE3	–	10.04.01.00071	–
SB-325-265-3-IE3	10.04.01.00072	–	10.04.01.00073
SB-390-245-3.6-IE3	–	10.04.01.00074	–
SB-210-370-3-IE3	10.04.01.00090	–	10.04.01.00091
SB-250-350-3.6-IE3	–	10.04.01.00092	–
SB-260-410-4-IE3	10.04.01.00093	–	10.04.01.00094
SB-305-400-4.8-IE3	–	10.04.01.00095	–
SB-440-260-4-IE3	10.04.01.00075	–	10.04.01.00076
SB-500-250-4.8-IE3	–	10.04.01.00077	–
SB-510-200-4-IE3	10.04.01.00078	–	10.04.01.00079
SB-610-175-4.8-IE3	–	10.04.01.00080	–
SB-370-390-5.5-IE3	10.04.01.00096	–	10.04.01.00097
SB-440-360-6.6-IE3	–	10.04.01.00098	–
SB-750-300-7.5-IE3	10.04.01.00081	–	10.04.01.00082
SB-900-280-9-IE3	–	10.04.01.00083	–
SB-520-390-11-IE3	10.04.01.00099	–	10.04.01.00100
SB-610-390-13.2-IE3	–	10.04.01.00101	–
SB-1050-290-11-IE3	10.04.01.00084	–	10.04.01.00085
SB-1250-270-13.2-IE3	–	10.04.01.00086	–

## Ordering Data Assesories Vacuum Blowers SB

Type	Silencer box	Recommended filter
SB-75-105-0.37-IE1	–	10.07.01.00008
SB-130-125-0.75-IE3	–	10.07.01.00398
SB-160-115-0.9-IE3	–	10.07.01.00398
SB-90-330-1.5-IE3	10.04.04.00234	10.07.01.00259
SB-110-350-1.8-IE3	10.04.04.00234	10.07.01.00259
SB-180-215-1.5-IE3	10.04.04.00234	10.07.01.00259
SB-230-230-1.8-IE3	10.04.04.00234	10.07.01.00259
SB-325-265-3-IE3	10.04.04.00235	10.07.01.00384
SB-390-245-3.6-IE3	10.04.04.00235	10.07.01.00384
SB-210-370-3-IE3	10.04.04.00236	10.07.01.00259
SB-250-350-3.6-IE3	10.04.04.00236	10.07.01.00259
SB-260-410-4-IE3	10.04.04.00237	10.07.01.00260
SB-305-400-4.8-IE3	10.04.04.00237	10.07.01.00260
SB-440-260-4-IE3	10.04.04.00236	10.07.01.00263
SB-500-250-4.8-IE3	10.04.04.00236	10.07.01.00399
SB-510-200-4-IE3	10.04.04.00237	10.07.01.00399
SB-610-175-4.8-IE3	10.04.04.00237	10.07.01.00399
SB-370-390-5.5-IE3	10.04.04.00238	10.07.01.00263
SB-440-360-6.6-IE3	10.04.04.00238	10.07.01.00263
SB-750-300-7.5-IE3	10.04.04.00239	10.07.01.00400

# Vacuum Blowers SB

Suction rate from 75 m<sup>3</sup>/h to 1,250 m<sup>3</sup>/h

Type	Silencer box	Recommended filter
SB-900-280-9-IE3	10.04.04.00239	10.07.01.00400
SB-520-390-11-IE3	10.04.04.00239	10.07.01.00406
SB-610-390-13.2-IE3	10.04.04.00239	10.07.01.00406
SB-1050-290-11-IE3	10.04.04.00239	10.07.01.00401
SB-1250-270-13.2-IE3	10.04.04.00239	10.07.01.00401



## Technical Data Vacuum Blowers SB

Type	Motor type 1		Motor type 2	Motor type 3
	≤ 4.8 kW	> 4.8 kW		
50 Hz w/ IE3	230 V / Y 400 V	400 V	–	200 V/Y 350 V
60 Hz w/ IE3	265 V / Y 460 V	460 V	YY 230 V / Y 460 V	220 V / Y 380–400 V
60 Hz w/o IE3	230 V / Y 400 V	400 V	YY 208 V	200 V/Y 350 V

Type	Suction rate at 50 Hz [m <sup>3</sup> /h]	Suction rate at 60 Hz [m <sup>3</sup> /h]	Max. vacuum at 50 Hz [mbar]	Max. vacuum at 60 Hz [mbar]	Protection IP
SB-75-105-0.37-IE1	75	91	-105	-80	IP 55
SB-130-125-0.75-IE3-Type1/Type3	130	160	-125	-115	IP 55
SB-160-115-0.9-IE3-Type2	–	160	–	-115	IP 55
SB-90-330-1.5-IE3-Type1/Type3	90	110	-330	-350	IP 55
SB-110-350-1.8-IE3-Type2	–	110	–	-350	IP 55
SB-180-215-1.5-IE3-Type1/Type3	180	230	-215	-230	IP 55
SB-230-230-1.8-IE3-Type2	–	230	–	-230	IP 55
SB-325-265-3-IE3-Type1/Type3	325	390	-265	-245	IP 55
SB-390-245-3.6-IE3-Type2	–	390	–	-245	IP 55
SB-210-370-3-IE3-Type1/Type3	210	250	-370	-350	IP 55
SB-250-350-3.6-IE3-Type2	–	250	–	-350	IP 55
SB-260-410-4-IE3-Type1/Type3	260	305	-410	-400	IP 55
SB-305-400-4.8-IE3-Type2	–	305	–	-400	IP 55
SB-440-260-4-IE3-Type1/Type3	440	500	-260	-250	IP 55
SB-500-250-4.8-IE3-Type2	–	500	–	-250	IP 55
SB-510-200-4-IE3-Type1/Type3	510	610	-200	-175	IP 55
SB-610-175-4.8-IE3-Type2	–	610	–	-175	IP 55
SB-370-390-5.5-IE3-Type1/Type3	370	440	-390	-360	IP 55
SB-440-360-6.6-IE3-Type2	–	440	–	-360	IP 55
SB-750-300-7.5-IE3-Type1/Type3	750	900	-300	-280	IP 55
SB-900-280-9-IE3-Type2	–	900	–	-280	IP 55
SB-520-390-11-IE3-Type1/Type3	520	610	-390	-390	IP 55
SB-610-390-13.2-IE3-Type2	–	610	–	-390	IP 55
SB-1050-290-11-IE3-Type1/Type3	1,050	1,250	-290	-270	IP 55
SB-1250-270-13.2-IE3-Type2	–	1,250	–	-270	IP 55

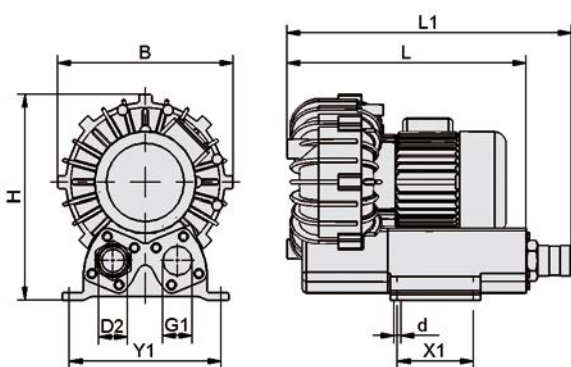
# Vacuum Blowers SB

Suction rate from 75 m<sup>3</sup>/h to 1,250 m<sup>3</sup>/h

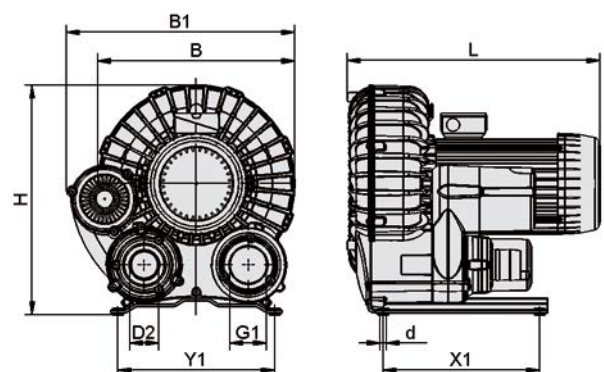
Type	Rated power at 50 Hz [kW]	Rated power at 60 Hz [kW]	Sound pressure level at 50 Hz (db[A])	Sound pressure level at 60 Hz (db[A])	Weight [kg]
SB-75-105-0.37-IE1	0.37	0.44	62.0	63.0	13.0
SB-130-125-0.75-IE3-Type1/Type3	0.75	0.90	56.8	61.7	22.0
SB-160-115-0.9-IE3-Type2	-	0.90	-	61.7	22.0
SB-90-330-1.5-IE3-Type1/Type3	1.50	1.80	63.7	68.4	28.5
SB-110-350-1.8-IE3-Type2	-	1.80	-	68.4	28.5
SB-180-215-1.5-IE3-Type1/Type3	1.50	1.80	63.9	69.2	28.5
SB-230-230-1.8-IE3-Type2	-	1.80	-	69.2	28.5
SB-325-265-3-IE3-Type1/Type3	3.00	3.60	70.1	71.0	42.5
SB-390-245-3.6-IE3-Type2	-	3.60	-	71.0	42.5
SB-210-370-3-IE3-Type1/Type3	3.00	3.60	71.1	73.0	52.5
SB-250-350-3.6-IE3-Type2	-	3.60	-	73.0	52.5
SB-260-410-4-IE3-Type1/Type3	4.00	4.80	68.9	71.7	62.5
SB-305-400-4.8-IE3-Type2	-	4.80	-	71.7	62.5
SB-440-260-4-IE3-Type1/Type3	4.00	4.80	72.5	74.4	52.0
SB-500-250-4.8-IE3-Type2	-	4.80	-	74.4	52.0
SB-510-200-4-IE3-Type1/Type3	4.00	4.80	75.5	76.7	61.5
SB-610-175-4.8-IE3-Type2	-	4.80	-	76.7	61.5
SB-370-390-5.5-IE3-Type1/Type3	5.50	6.60	70.0	74.0	89.0
SB-440-360-6.6-IE3-Type2	-	6.60	-	74.0	89.0
SB-750-300-7.5-IE3-Type1/Type3	7.50	9.00	72.0	73.0	112.0
SB-900-280-9-IE3-Type2	-	9.00	-	73.0	112.0
SB-520-390-11-IE3-Type1/Type3	11.00	13.20	74.0	78.0	125.0
SB-610-390-13.2-IE3-Type2	-	13.20	-	78.0	125.0
SB-1050-290-11-IE3-Type1/Type3	11.00	13.20	75.0	79.0	125.0
SB-1250-270-13.2-IE3-Type2	-	13.20	-	79.0	125.0



## Design Data Vacuum Blowers SB



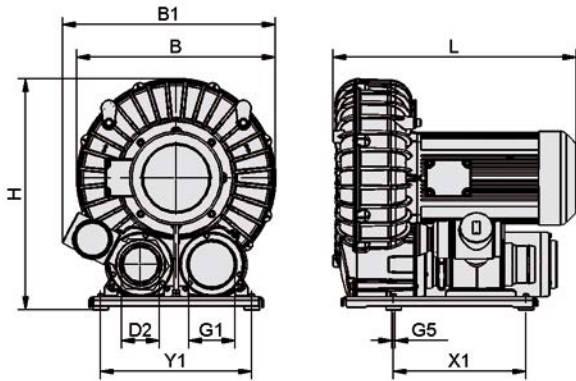
SB...0.37



SB...0.75 to SB...4.8

# Vacuum Blowers SB

Suction rate from 75 m<sup>3</sup>/h to 1,250 m<sup>3</sup>/h



SB...5.5 to SB...13.2

Type	Dimensions in mm										
	B	B1	d	D2	G1	G5	H	L	L1	X1	Y1
SB-75-105-0.37-IE1	232.0	-	9.0	38.0	G1-1/4"-F	-	271.0	316.4	376.4	100.0	200.0
SB-130-125-0.75-IE3	264.0	295.3	10.2	40.0	G1-1/2"-F	-	309.0	387.0	-	240.0	240.0
SB-160-115-0.9-IE3	264.0	295.3	10.2	40.0	G1-1/2"-F	-	309.0	387.0	-	240.0	240.0
SB-90-330-1.5-IE3	306.0	316.7	10.2	59.0	G1-1/2"-F	-	357.0	431.0	-	240.0	240.0
SB-110-350-1.8-IE3	306.0	316.7	10.2	59.0	G1-1/2"-F	-	357.0	431.0	-	240.0	240.0
SB-180-215-1.5-IE3	306.0	317.0	10.2	59.0	G1-1/2"-F	-	357.0	431.0	-	240.0	240.0
SB-230-230-1.8-IE3	306.0	317.0	10.2	59.0	G1-1/2"-F	-	357.0	431.0	-	240.0	240.0
SB-325-265-3-IE3	370.0	439.0	10.2	59.0	G2"-F	-	426.0	494.0	-	290.0	290.0
SB-390-245-3.6-IE3	370.0	439.0	10.2	59.0	G2"-F	-	426.0	494.0	-	290.0	290.0
SB-210-370-3-IE3	390.0	452.0	12.0	59.0	G2-1/2"-F	-	454.0	479.0	-	310.0	310.0
SB-250-350-3.6-IE3	390.0	452.0	12.0	59.0	G2-1/2"-F	-	454.0	479.0	-	310.0	310.0
SB-260-410-4-IE3	474.0	495.0	12.0	59.0	G2-1/2"-F	-	523.0	496.0	-	310.0	310.0
SB-305-400-4.8-IE3	474.0	495.0	12.0	59.0	G2-1/2"-F	-	523.0	496.0	-	310.0	310.0
SB-440-260-4-IE3	496.0	549.0	12.0	75.0	G2-1/2"-F	-	596.0	563.0	-	350.0	350.0
SB-500-250-4.8-IE3	390.0	452.0	12.0	75.0	G2-1/2"-F	-	454.0	502.0	-	310.0	310.0
SB-510-200-4-IE3	474.0	496.0	12.0	75.0	G2-1/2"-F	-	523.0	496.0	-	310.0	310.0
SB-610-175-4.8-IE3	474.0	496.0	12.0	75.0	G2-1/2"-F	-	523.0	496.0	-	310.0	310.0
SB-370-390-5.5-IE3	496.0	549.0	-	75.0	G4"-F	M8-F	596.0	563.0	-	350.0	400.0
SB-440-360-6.6-IE3	496.0	549.0	-	75.0	G4"-F	M8-F	596.0	563.0	-	350.0	400.0
SB-750-300-7.5-IE3	496.0	548.0	-	98.0	G4"-F	M8-F	596.0	614.0	-	350.0	400.0
SB-900-280-9-IE3	496.0	548.0	-	98.0	G4"-F	M8-F	596.0	614.0	-	350.0	400.0
SB-520-390-11-IE3	525.0	563.0	-	98.0	G4"-F	M8-F	611.0	643.0	-	350.0	400.0
SB-610-390-13.2-IE3	525.0	563.0	-	98.0	G4"-F	M8-F	611.0	643.0	-	350.0	400.0
SB-1050-290-11-IE3	525.0	563.0	-	98.0	G4"-F	M8-F	611.0	643.0	-	350.0	400.0
SB-1250-270-13.2-IE3	525.0	563.0	-	98.0	G4"-F	M8-F	611.0	643.0	-	350.0	400.0

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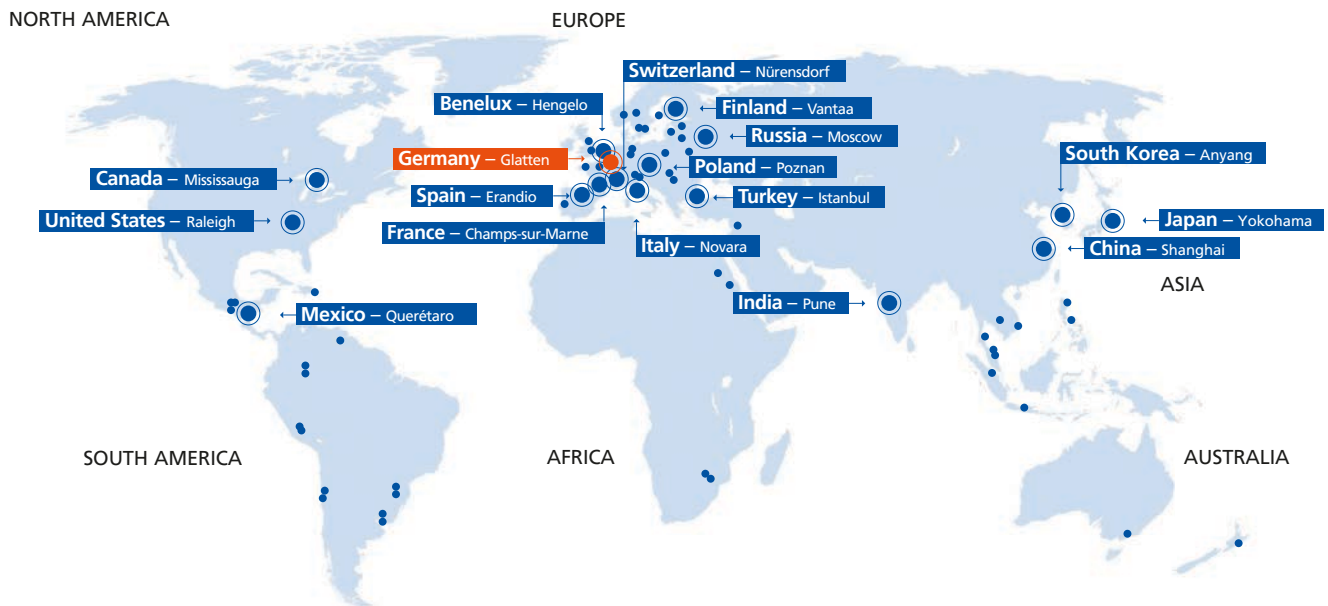
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