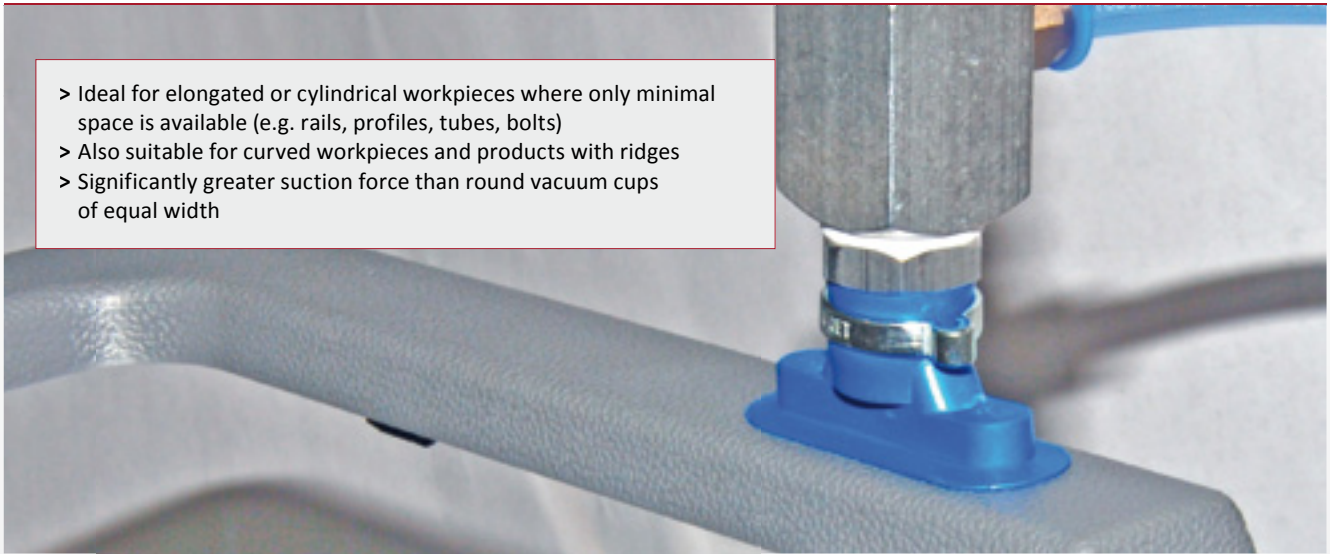




## FIPA Oval vacuum cups SO

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



### Oval vacuum cups, flat, universal - SO-FU

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

> See page 141



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

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

> See page 144



### High temperature-resistant HNBR oval cups - SKH-O

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

> See page 146



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

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

> See page 148



## FIPA Oval vacuum cups SO

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

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

> See page 149

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

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

> See page 150

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

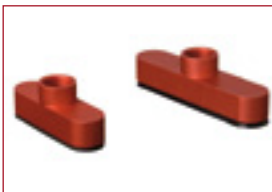
- > Very slim design in a number of graduations
- > Antistatic version also available
- > Interlocking clip-in fittings ensure torsional rigidity and security against rotation
- > Cost-effective replacement of worn seals
- > Dimensions: 10x4 - 30x8 mm

> See page 152

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

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

> See page 154

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

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

> See page 157

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

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

> See page 158

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

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

> See page 160





### Oval vacuum cups, flat, universal - SO-FU



#### Product Description

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


#### Advantage

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

#### Ordering notes:

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


#### Technical data

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

#### Accessories

##### Clamp

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

Continued on the next page 

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



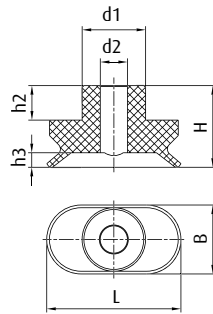
# Series | Oval vacuum cups SO

Oval vacuum cups, flat, universal - SO-FU

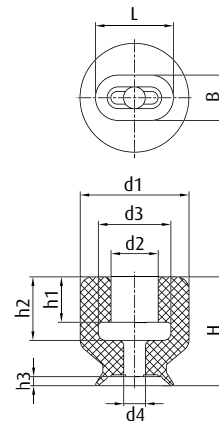
## Accessories

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

## Dimensions



Drawing A

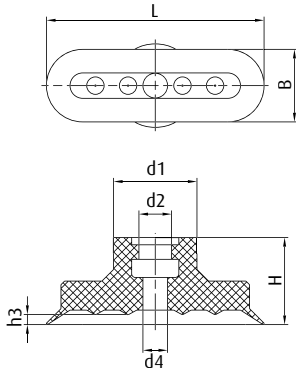


Drawing B

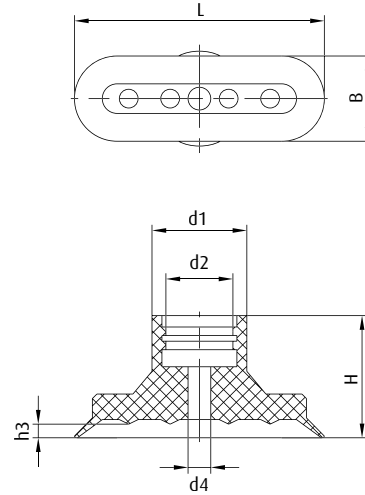
\* When ordering please add the appropriate material code to item no. You will find it in the foldout.  
Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing C



Drawing D

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

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



## Series | Oval vacuum cups SO

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

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

UP TO 160 °C & MINIMUM MARKING



#### Product Description

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


#### Advantage

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

#### Ordering notes:

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

#### Technical data


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

#### Accessories

##### Clamp

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

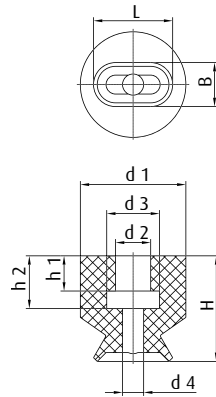
#### Accessories

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

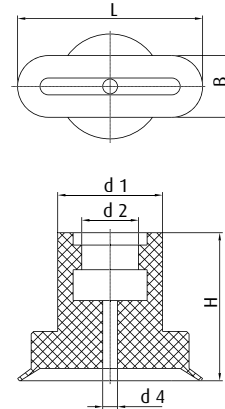
\* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



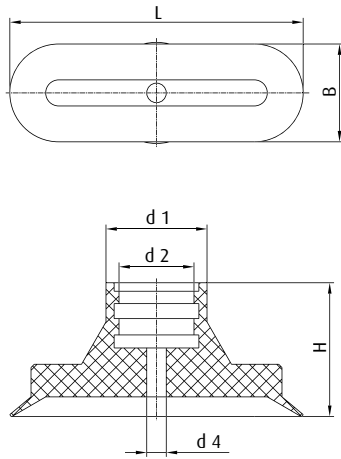
Dimensions



Drawing A



Drawing B



Drawing C

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

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





# Series | Oval vacuum cups SO

High temperature-resistant HNBR oval cups - SKH-O

## High temperature-resistant HNBR oval cups - SKH-O

UP TO 160 °C & MINIMUM MARKING



### Product Description

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


### Advantage

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

### Ordering notes:

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

### Technical data


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

### Accessories

#### Clamp

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

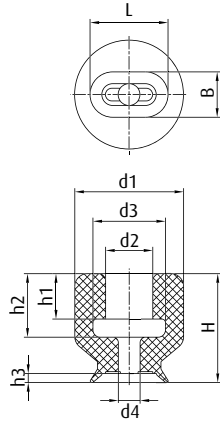
### Accessories

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

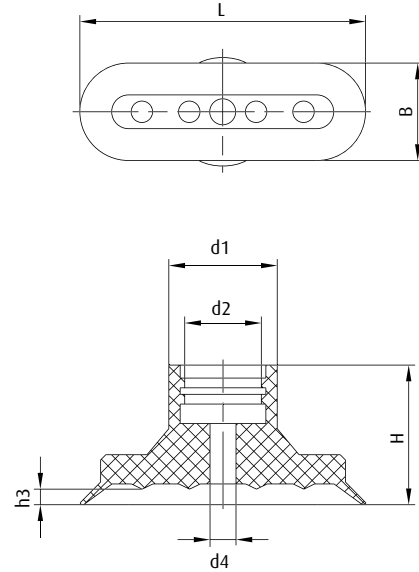
\* When ordering please add the appropriate material code to item no. You will find it in the foldout. Average holding forces for vacuum cups you will find on page 760



Dimensions



Drawing A



Drawing B

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

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



# Series | Oval vacuum cups SO

Universal oval vacuum cups, 2.5 folds - SO-BU

## Universal oval vacuum cups, 2.5 folds - SO-BU



### Product Description

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

### Advantage

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

### Ordering notes:

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

### Technical data

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

### Accessories

#### Clamp

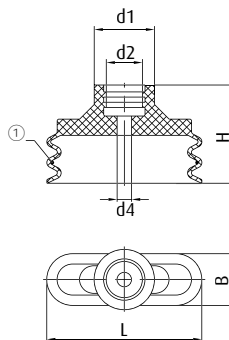
78.031 (p.476)
78.033 (p.476)
78.034 (p.476)

### Accessories

#### Suitable fittings

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

### Dimensions



① = Wire strap stiffening

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

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



### Vinyl oval bellows cups - SO-BV



#### Product Description

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

#### Advantage

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

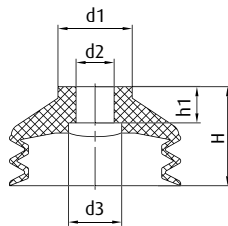
#### Technical data

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

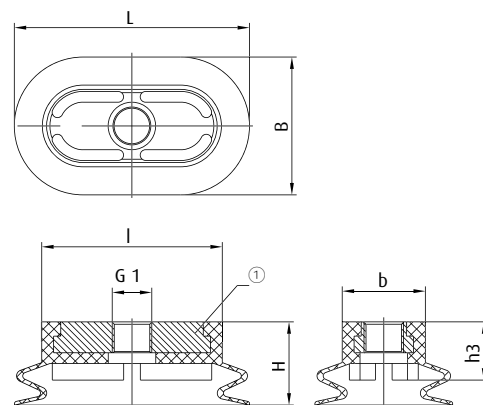
#### Accessories

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

#### Dimensions



Drawing A



Drawing B

① = Aluminium

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



# Series | Oval vacuum cups SO

Rectangular bellows vacuum cups - SV-RB

## Rectangular bellows vacuum cups - SV-RB



### Product Description

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

### Advantage

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

### Ordering notes:

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

### Technical data

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

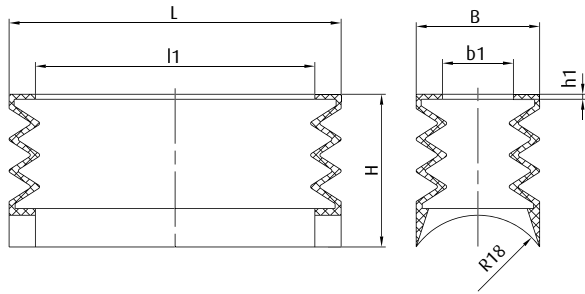
### Accessories

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

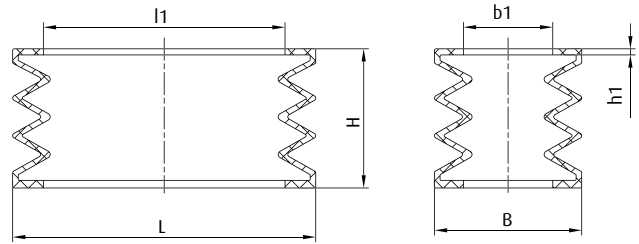
\* When ordering please add the appropriate material code to item no. You will find it in the foldout.  
Average holding forces for vacuum cups you will find on page 760



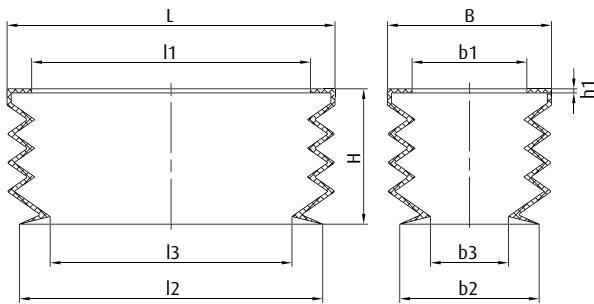
Dimensions



Drawing A



Drawing B



Drawing C

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

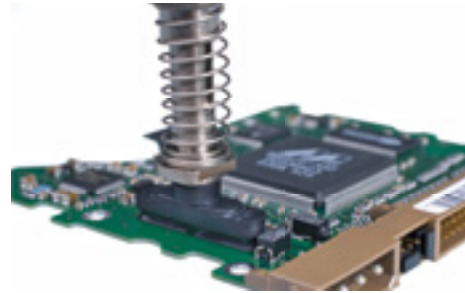
\* When ordering please add the appropriate material code to item no. You will find it in the foldout.  
Average holding forces for vacuum cups you will find on page 760



# Series | Oval vacuum cups SO

Oval vacuum cups, flat - SO-E

## Oval vacuum cups, flat - SO-E



### Product Description

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

### Advantage

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

### Ordering notes:

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

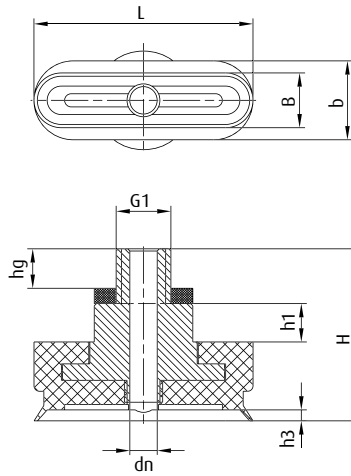
### Technical Data

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

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



## Dimensions



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

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





## Series | Oval vacuum cups SO

Oval vacuum cups for cylindrical products - SO-Z

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



#### Product Description

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

#### Advantage

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

#### Technical data

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

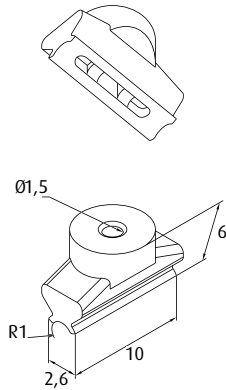
#### Accessories

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

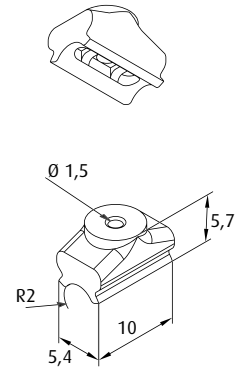
\* When ordering please add the appropriate material code to item no. You will find it in the foldout.  
Average holding forces for vacuum cups you will find on page 760



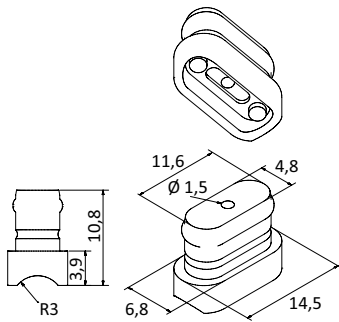
Dimensions



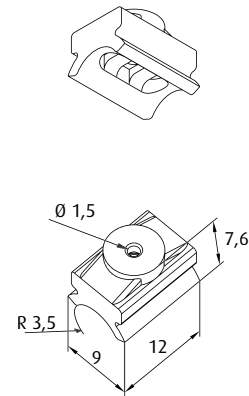
Drawing A



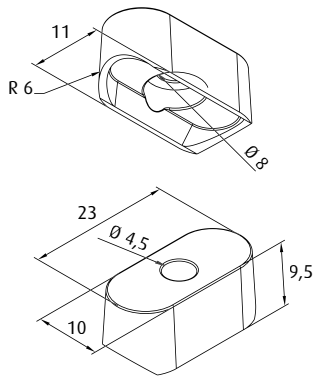
Drawing B



Drawing C



Drawing D



Drawing E

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

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





Oval vacuum cups, flat - SO-C




**Product Description**

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

**Advantage**

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

**Technical data**

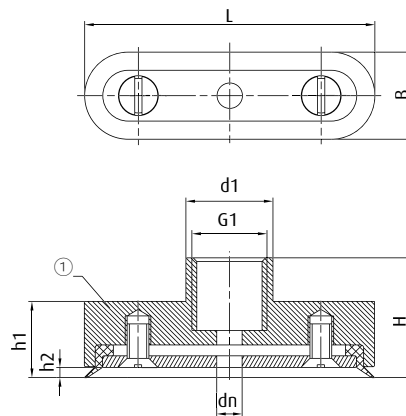
Item no.	Model / Lip dimensions	Connection thread		Material / Colour
130.30x12.057.*	SO-C-30x12	G1/8-female	1	SI (tr), NR (sw)
130.40x12.058.*	SO-C-40x12	G1/8-female	1	SI (tr), NR (sw)
130.55x12.082.*	SO-C-55x12	G1/8-female	1	NBR (sw), SI (tr), NR (sw)

**Accessories**

**Spare cup**

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

**Dimensions**



① = Aluminium

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

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



# Series | Oval vacuum cups SO

Oval vacuum suction plates for textured surfaces - SOPL-R

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




### Product Description

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

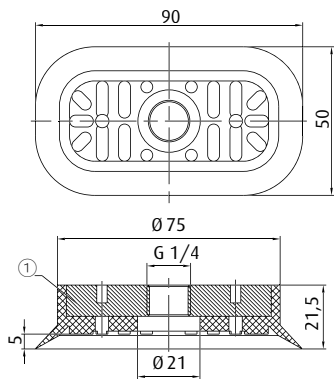
### Advantage

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

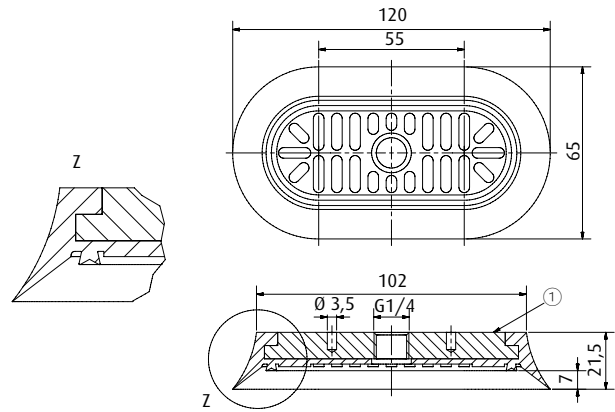
### Technical data

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

### Dimensions



**Drawing A**



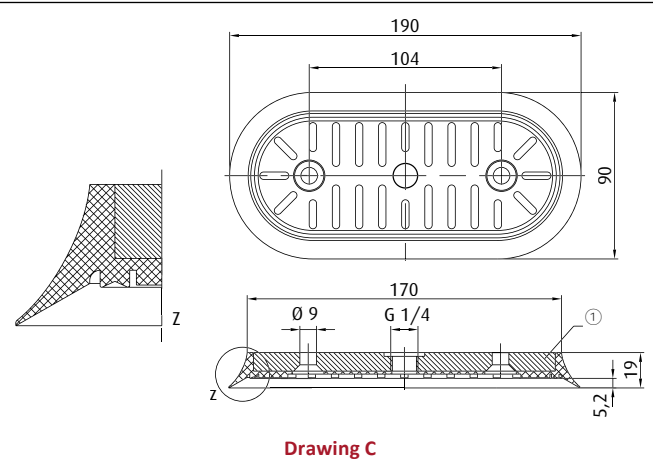
**Drawing B**

① = Aluminium

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



Dimensions



Drawing C

① = Aluminium

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

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



## Series | Oval vacuum cups SO

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

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



#### Product Description

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


#### Advantage

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

#### Ordering notes:

Customised drilling patterns available on request for Series SOPL-S

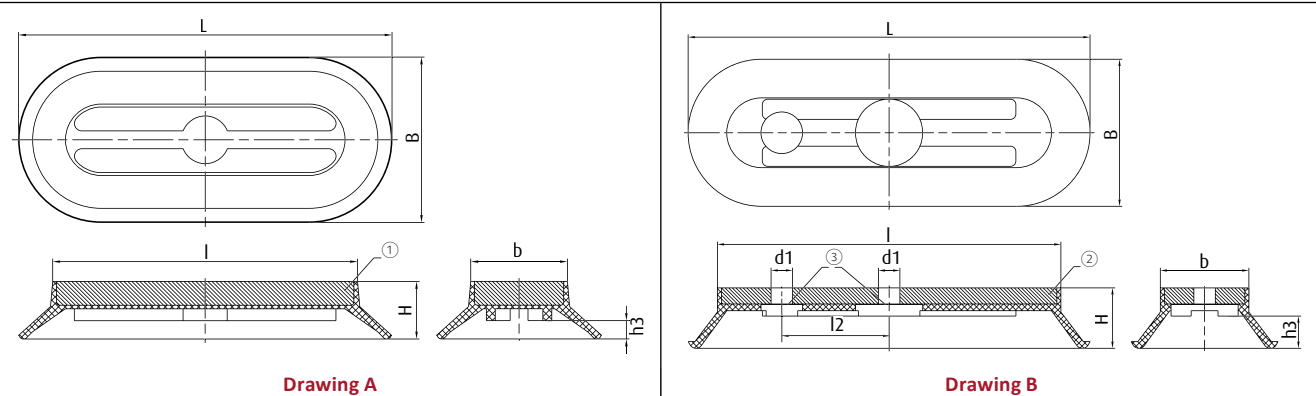
#### Technical data

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

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



Dimensions



① = Steel ② = Aluminium ③ = Sealed with rubber

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

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