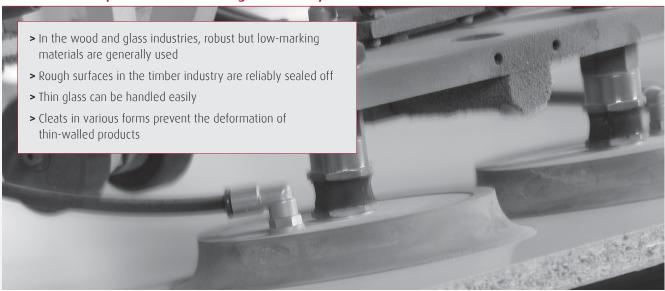


#### FIPA vacuum cups for the wood and glass industry





#### Flat vacuum cups for textured surfaces - Series SFU-R

- > Optimum sealing of rough and uneven surfaces due to very fine sealing lip
- > Enhanced safety due to two-fold, internal safety sealing lip
- > Wear resistant materials
- > Interlocking, snap-in retaining plate provides for quick and inexpensive replacement of the sealing lip
- > For more information, see page 183



#### Patented flat vacuum cups for porous products – Series SFU-RT

- > Separation of porous plate materials by simultaneous suction and selective blowing
- > Enhanced safety due to double, internal safety sealing lip
- > Interlocking, snap-in retaining plate provides for quick and inexpensive replacement of the sealing lip
- > For more information, see page 184



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

- > Leak-free gripping of many problematic product surfaces thanks to extremely flexible, thinly tapered sealing lip
- > Enhanced safety due to vulcanized carrier plate
- > Significantly better suction force compared to round vacuum cups of the same width
- > For more information, see page 185



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

- > Stable and robust construction
- > Enhanced safety due to vulcanized carrier plate (available in steel and aluminum)
- > Available in: NBR (low-marking) and NR (wear resistant)
- > Significantly better suction force compared to round vacuum cups of the same width
- > For more information, see page 186



#### Flat vacuum suction plates with fine lips – Series SFPL-F

- > Gentle handling of sensitive products thanks to long, flexible sealing lip
- > Enhanced safety due to vulcanized steel carrier plate
- > Thread-free carrier plate enables attachment of individual connections
- > Low-marking material, NBR, gray
- > For more information, see page 188

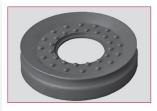
# Industries | Wood & Glass at a glance





#### Bellows vacuum suction plates, Softgrip – Series SBPL-SG

- > Very gentle handling of sensitive products through highly flexible bellows cladding
- > Combines the flexibility of bellows vacuum cups with the stability of flat vacuum suction plates
- > Bellow provides good compensation for small differences
- > Central support block with safety sealing lip ensures a firm grip
- > Interlocking, snap-in special carrier plate increases the strength of the connection to the vacuum gripper and allows the gripper to be replaced quickly and cost-effectively
- > Drilled carrier plate allows the attachment of individual screw threads
- > For more information, see page 190



#### Short-stroke vacuum cups SFK-G

- > Flat vacuum cups with a minimal stroke for flat, sensitive surfaces
- > Cleats help prevent warping of the product and increase lateral stability
- > Available in: NBR, SI and FKM
- > Connection via an interlocking, snap-in aluminum plate enables quick, cost-effective and tool-free replacement
- > Particularly suitable for use in clamping elements
- > For more information, see page 191



#### Temperature-resistant felt coated vacuum cups – Series SX-F

- > Extremely low marking thanks to special felt coating
- > Highest temperature resistance (FKM for short-term exposure to 350 °C; special Silicone with vapor-deposited Silicone barrier made of aluminum for short-term exposure to 550 °C)
- > Connection up to Ø 70 mm by means of plug nipple, from Ø 90 mm firmly screwed
- > For more information, see page 192



#### Vacuum suction plates with TPU sealing lip – Series SP-PLT

- > Handling of heavy loads with smooth, even surfaces (e.g. metal, glass, stone and so-called white goods)
- > Very long service life thanks to low-wear material
- > Almost mark-free
- > Good oil-, hydrolysis- and ozone-resistance
- > More information from page 86



#### FIPA surface grippers

- > Wide range of standard products as well as rapid implementation of customized solutions
- > Finely graded series for the handling of dense or porous work materials
- > Intelligent valve technology allows unoccupied suction openings to be sealed, thereby saving energy
- > Contamination-proof design ensures high availability and process safety
- > Suitable for fast cycle times
- > Fast and non-destructive exchange of vacuum mats ensures high productivity with minimal setup time
- > More information from page 106

The vacuum cups listed here represent a specialized

selection for this application.

Other vacuum cups suitable for the wood and glass industry can be found under "Vacuum cups by size"

# Industries | Notes

Notes:



## Flat vacuum cups for textured surfaces – Series SFU-R





#### **Product Description** Advantage

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

> Leak-free gripping of many difficult product surfaces thanks to extremely flexible, thinly tapered sealing lip

- > High stability under lateral forces
- > Optimum process reliability due to additional double lip seal
- Cleats help prevent warping of the product
   Cost-effective, tool-free changing of worn seals

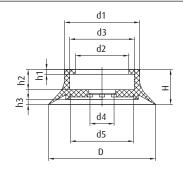
#### **Technical Data**

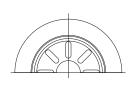
Item no.	Model / Lip dimensions		Material / color
102.040.357*	SFU-R-40	3	SI (tr), NR (br)
102.070.234*	SFU-R-70	6	NBR (gr), SBR (br), SI (tr), NR (bg), NR (br)
102.100.269*	SFU-R-100	5	SBR (br), NBR (gr), NR (br)
102.200.350*	SFU-R-200	5	NR (w)

#### Accessories

	Suitable fittings		
Item no.	G1/8-female	G1/4-female	G1/2-female
102.040.357*	270.234 (p. 478)		
102.070.234*		<b>270.179</b> (p. 478)	
102.100.269*		270.180 (p. 478)	
102.200.350*			270.335 (p. 478)

#### **Dimensions**





	Ø D [mm]	Ø d1 [mm]	Ø d2 [mm]	Ø d3 [mm]	Ø d4 [mm]	Ø d5 [mm]	H [mm]	<b>h1</b> [mm]	<b>h2</b> [mm]	h3 [mm]
Item no.										
102.040.357*	40	26	17,5	21	8	21	12,5	2,9	6	2,5
102.070.234*	70	50	33	43	14	40	30	3,5	17	5,4
102.100.269*	100	70	50	61	23	59	33	4,6	19	4,7
102.200.350*	200	168	148	158	25	158	31	5	18,5	3,2

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.

183

## Flat vacuum cups for porous products – Series SFU-RT





#### **Product Description**

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

#### **Functional principle**

Task: Access the top layer of porous materials without carrying along the lower layers.

Simultaneous intake (outer chamber) and selective blowing in a separate central chamber breaks adhesive forces between the layers.

The unwanted take-up of lower layers is prevented.

The air pressure level should be between 1 and 3 bar and is dependent on the nature of the product.

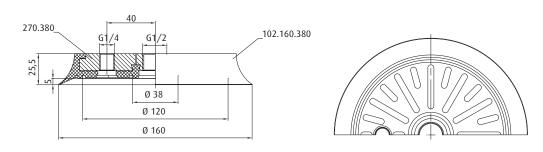
#### Ordering notes

Elastomer seal and retaining plate must be ordered separately.

#### **Technical Data**

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

#### **Dimensions**



#### Gripping force [N] at vacuum level Vacuum level 20 % Vacuum 30 % Vacuum 40 % Vacuum 50 % Vacuum 60 % Vacuum 70 % Vacuum Item no. 102.160.380.4 Gripping force [N]

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.





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



Product Description	Advantage
	> Leak-free orioning of ma

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

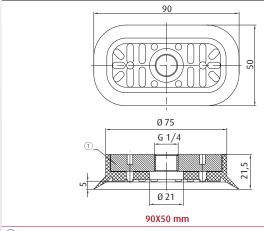
- nany difficult product surfaces thanks to extremely flexible, thinly tapered sealing lip

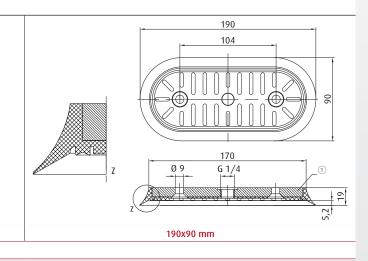
  Cleats help prevent warping of the product
- > Optimum process reliability due to vulcanized backing plate, as well as additional internal safety sealing lip (190x90)

#### **Technical Data**

Item no.	Model / Lip dimensions	Connection thread	Material / color		Weight [g]
130.90x50.113*	SOPL-R-90X50	G1/4-female	NR (bg)	5	72
9.190x90.061*	SOPL-R-190x90	G1/4-female	NR (bg)	5,5	295

#### **Dimensions**





1 = Aluminum

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.

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



Product Description	Advantage
handling of long narrow products such as strips profiles or tramps. Dubborized	<ul> <li>&gt; High suction force on a small footprint</li> <li>&gt; Low marking</li> <li>&gt; Optimal grip due to vulcanized steel carrier plate</li> <li>&gt; Individual machines connection possible</li> </ul>

#### Ordering notes

Customized drilling patterns available on request for Series SOPL-S

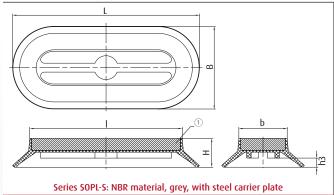
#### **Technical Data**

	Material / color		Weight [g]	Model / Lip dimensions	Support surfaces
Item no.	moterial y color		Weight [9]	moder / Eip dimensions	- sopport surfaces
Series SOPL-S: NBR r	naterial, grey, with stee	l carrier plate			
9.200x40.010*	NBR (gr)	9	140	SOPL-S-200x40	lengthwise
9.110x40.009*	NBR (gr)	9	122	SOPL-S-110x40	lengthwise
9.125x55.012*	NBR (gr)	9	320	SOPL-S-125x55	lengthwise
9.150x55.013*	NBR (gr)	7	255	SOPL-S-150x55	lengthwise
9.200x55.014*	NBR (gr)	7	538	SOPL-S-200x55	lengthwise
9.250x55.016*	NBR (gr)	8	770	SOPL-S-250x55	lengthwise
9.300x55.019*	NBR (gr)	8	902	SOPL-S-300x55	lengthwise
9.370x70.022*	NBR (gr)	10	1895	SOPL-S-370x70	lengthwise
9.200x100.015*	NBR (gr)	8	595	SOPL-S-200x100	lengthwise
9.280x100.017*	NBR (gr)	10	1880	SOPL-S-280x100	lengthwise
9.450x130.025*	NBR (gr)	6	2660	SOPL-S-450x130	crosswise
9.430x180.024*	NBR (gr)	6	3720	SOPL-S-430x180	selective
9.580x180.029*	NBR (gr)	10	3500	SOPL-S-580x180	lengthwise
Series SOPL-A: NR m	aterial, orange, with alu	ıminum carrier plate			
9.100x55.020*	NR (or)	8	65	SOPL-A-100x55	lengthwise
9.150x55.083*	NR (or)	8	114	SOPL-A-150x55	lengthwise
9.200x55.020*	NR (or)	8	159	SOPL-A-200x55	lengthwise
9.300x55.046. *	NR (or)	8	300	SOPL-A-300x55	lengthwise

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.



#### **Dimensions**

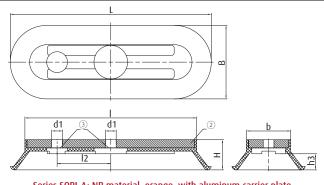


56

55

178

278



Series SOPL-A: NR material, orange, with aluminum carrier plate

3 = Sealed with rubber

22,5

22,5

9

2 = Alumini

	L [mm]	B [mm]	I [mm]	b [mm]	<b>I2</b> [mm]	Ø d1 [mm]	H [mm]	h3 [mm]
Item no.								
Series SOPL-S: NBR	material, grey, w	ith steel carrier p	late					
9.200x40.010*	195	36	176	15			19	6
9.110x40.009*	113	43	87	17			19	8,5
9.125x55.012*	126	56	103	33			19	6
9.150x55.013*	151	56	128	33			19	6
9.200x55.014*	200	55	178	33			19	6,3
9.250x55.016*	250	55	228	33			19	6
9.300x55.019*	300	55	227	33			19	6
9.370x70.022*	378	82	349	53			26	9
9.200x100.015*	190	90	161	61			22	8,5
9.280x100.017*	278	100	250	72			25	9
9.450x130.025*	449	131	420	102			20	6,5
9.430x180.024*	430	180	402	158			20	6
9.580x180.029*	579	179	570	150			25	9
Series SOPL-A: NR material, orange, with aluminum carrier plate								
9.100x55.020*	99	54	78	33	25	8	22,5	9
9.150x55.083*	150	55	128	33	40	8	22,5	9

33

33

50

100

8

9.200x55.020.\_\*

9.300x55.046.\_\*

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.

## Flat vacuum suction plates with fine lips - Series SFPL-F



Product Description	Advantage
Vacuum suction plates made of low-marking NBR blend for even, sensitive surfaces. Undrilled steel carrier plate allows an individual machine connection.	Sentle product handling through thinly tapering suction lip     Large bearing surfaces prevent deformation of the product and increase the lateral stability     Optimal grip due to vulcanized steel carrier plate

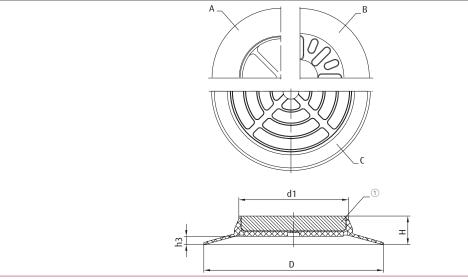
#### Ordering notes

Customized drilling patterns available on request

#### **Technical Data**

	Model / Lip dimensions		Weight [g]	Material / color
Item no.				
152.055.092*	SFPL-F-55	4	30	NBR (gr)
152.070.093*	SFPL-F-70	4	65	NBR (gr)
152.105.094*	SFPL-F-105	9	120	NBR (gr)
152.115.095*	SFPL-F-115	4	280	NBR (gr)
152.140.096*	SFPL-F-140	8	560	NBR (gr)
152.160.097*	SFPL-F-160	8	780	NBR (gr)
152.180.067*	SFPL-F-180	9	840	NBR (gr)
152.260.068*	SFPL-F-260	13	2220	NBR (gr)
152.300.098*	SFPL-F-300	7	3560	NBR (gr)

#### **Dimensions**

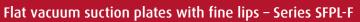


1 = Vulcanized steel carrier plate

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.



# Industries | Wood & Glass



|--|--|--|--|

	ØD [mm]	Ø d1 [mm]	H [mm]	h3 [mm]	Type of contact surface
Item no.					
152.055.092*	56	31	11,5	3,5	A
152.070.093*	72	44	11,5	3,3	A
152.105.094*	105	65	22	9	В
152.115.095*	115	80	15	4	A
152.140.096*	140	100	23	7,5	В
152.160.097*	160	121	22	8	A
152.180.067*	180	120	23	9	A
152.260.068*	269	202	26	13	A
152.300.098*	300	242	27	7	С

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.

## Bellows vacuum suction plates, Softgrip – Series SBPL-SG



#### **Product Description**

#### Advantage

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

- Very careful handling due to soft sealing lip and lightly compressing bellows
   Swinging of the product is prevented by support block and security and sealing
- > Cost-effective replacement of worn seals

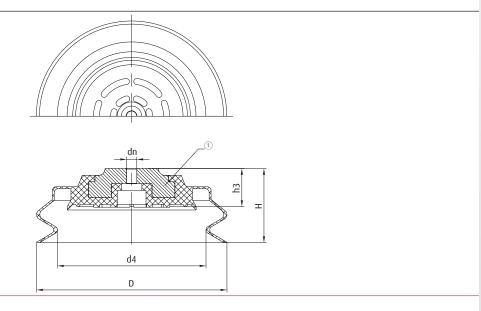
#### **Technical Data**

	Model / Lip dimensions	<b>₽</b>	Weight [g]	Material / color	Number of bellows
Item no.		= 1			
22.150.109*	SBPL-SG-150	28	353	NBR (sw)	1,5
22.210.115*	SBPL-SG-210	32	860	NBR (sw)	1,5

#### Accessories

	Suitable spare cups
Item no.	
22.150.109*	23.150.090* (p. 393)
22.210.115*	<b>23.210.009.</b> _* (p. 397)

#### **Dimensions**



1 = Aluminum

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

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.



## Flat vacuum cups with a short stroke - Series SFK-G



Product Description	Advantage
Flat vacuum cups for even surfaces with minimal stroke. Particularly suitable for clamping elements. Connection via a snap-in, interlocking aluminum plate.	> Rubberized support surfaces prevent deformation of the product and increase lateral stability. > Cost-effective replacement of worn seals

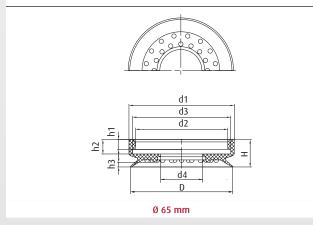
#### Technical Data

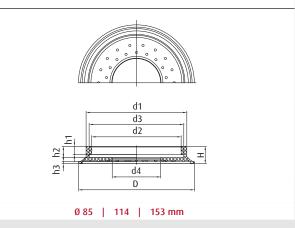
Item no.	Model / Lip dimensions		Material / color
154.065.003*	SFK-G-65	3	NBR (sw), SI (w), FKM (g)
154.085.008*	SFK-G-85	1,5	NBR (sw), SI (w), FKM (g)
154.110.014*	SFK-G-110	1,5	NBR (sw), SI (w), FKM (g)
154.150.021*	SFK-G-150	2	NBR (sw), SI (w), FKM (g)

#### Accessories

	Suitable fittings								
Item no.	G1/8-female	G1/4-female	G3/8-female	G1/2-female					
154.065.003*	270.158 (p. 478)	270.264 (p. 478)	<b>270.161</b> (p. 478)	270.286 (p. 478)					
154.085.008*	<b>270.158</b> (p. 478)	270.264 (p. 478)	<b>270.161</b> (p. 478)	270.286 (p. 478)					
154.110.014*		270.224 (p. 478)	270.167 (p. 478)	<b>270.266</b> (p. 478)					
154.150.021*		<b>270.171</b> (p. 478)	270.173 (p. 478)	270.268 (p. 478)					

#### Dimensions





	ØD [mm]	Ø d1 [mm]	Ø d2 [mm]	Ø d3 [mm]	Ø d4 [mm]	H [mm]	<b>h1</b> [mm]	h2 [mm]	<b>h3</b> [mm]
Item no.									
154.065.003*	65	67	59	63	27	17,5	6,3	9	3
154.085.008*	85	68	58	62	27	17	7	10	1,2
154.110.014*	114	96	88	91	53	17	8	11	1,2
154.150.021*	153	133	118	125	64	23	11	15	3

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.

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

### Temperature-resistant, felt-coated vacuum cups – Series SX-F



#### **Product Description** Advantage

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

- > Temperature resistant up to 550 °C
- Almost mark-freeCost-effective replacement of worn seals

#### Note

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

#### **Technical Data**

Item no.	Model / Lip dimensions		Weight [g]	Max. operating temperature [°C]	Material / color	Number of bellows
26.025.009*	SX-F-25	2	6	550	SI (tr/ge)	
26.037.010*	SX-F-40	3	10	550	SI (tr/ge)	
26.070.011*	SX-F-70	7	24	550	SI (tr/ge)	
26.090.001*	SX-F-90	17	80	550 (SI), 350 (FKM)	SI (tr/ge), FKM (sw/ge)	1,5
26.120.002*	SX-F-120	18	140	350	FKM (sw/ge)	1,5
26.160.003*	SX-F-160	18	205	350	FKM (sw/ge)	1,5

#### Accessories

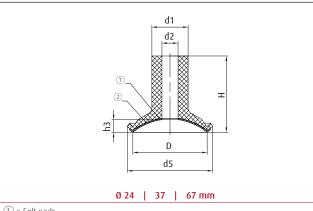
	Suitable fittings								
Item no.	G1/8-male	G1/8-female	G1/4-male	G1/4-female	G3/8-female				
26.025.009*	<b>270.132</b> (p. 455)	<b>270.114</b> (p. 460)	270.208 (p. 464)	270.178 (p. 470)					
26.037.010*	<b>270.132</b> (p. 455)	270.114 (p. 460)	270.208 (p. 464)	270.178 (p. 470)					
26.070.011*	<b>270.132</b> (p. 455)	270.114 (p. 460)	270.208 (p. 464)	270.178 (p. 470)					
26.090.001*					270.400 (p. 475)				
26.120.002*					270.402 (p. 475)				
26.160.003*					270.404 (p. 475)				

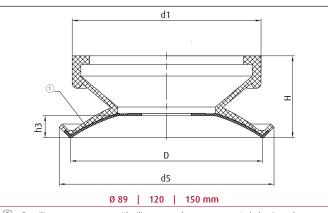
<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.





#### **Dimensions**





1 = Felt pads

2 = For silicone vacuum cups with silicone membranes: evaporated aluminum layer

	ØD [mm]	Ø d1 [mm]	Ø d2 [mm]	Ø d5 [mm]	H [mm]	h3 [mm]
Item no.						
26.025.009*	24	16	8	29	36	3,3
26.037.010*	37	18	8	42	38	6,5
26.070.011*	67	21	8	71	36	8
26.090.001*	89	87		99	38	10,5
26.120.002*	120	108		129	45	17,5
26.160.003*	150	130		161	48	16,5

<sup>\*</sup> When ordering please add the appropriate material code to the item no. You will find it in the foldout.