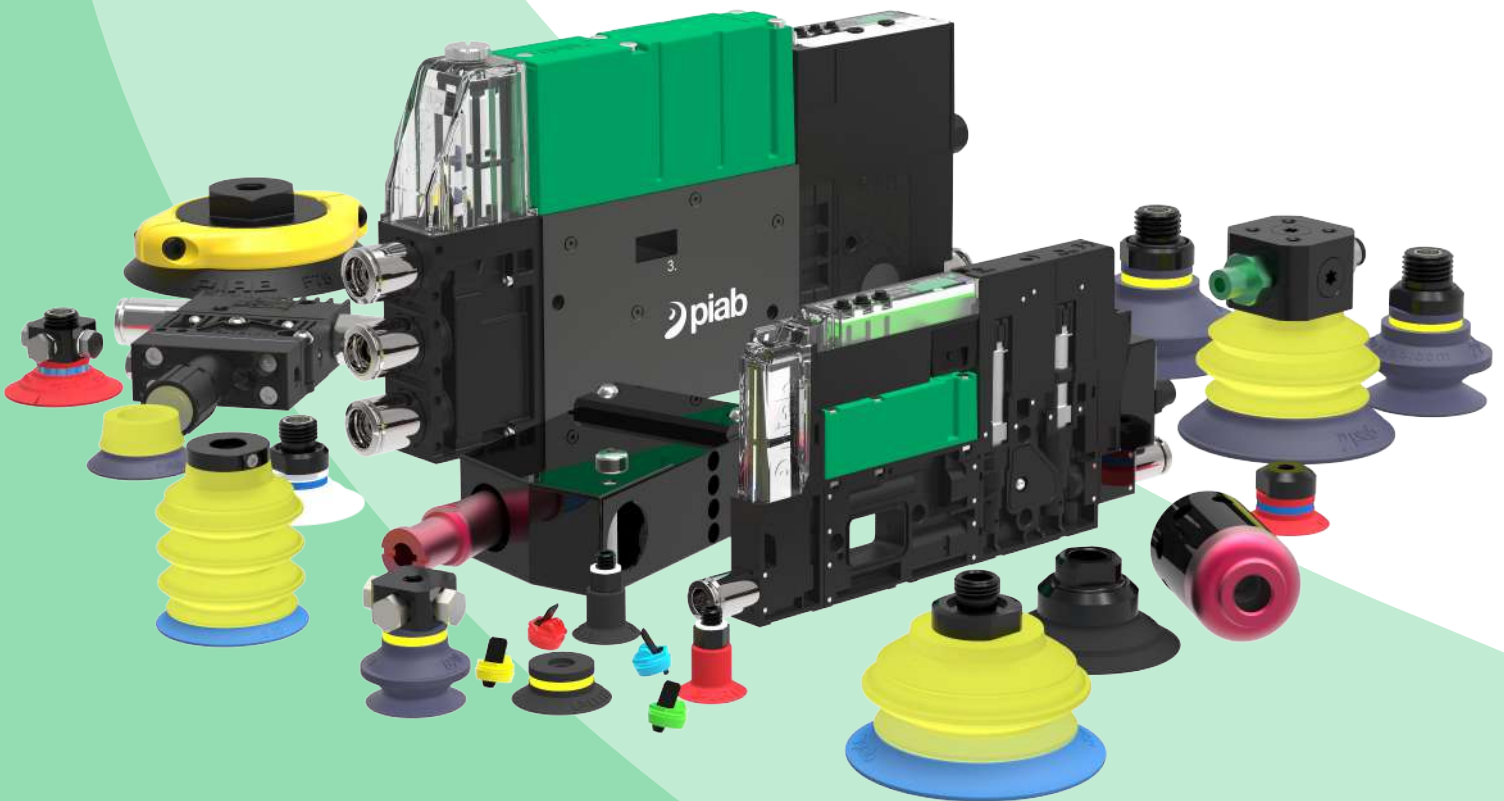




# VACUUM AUTOMATION

Improve your productivity and energy efficiency



<b>● SUCTION CUPS</b>	<b>29</b>
piGRIP*	30
Flat family (F)	48
Flat Concave family (FC)	70
Bellows family (B)	79
Multibellows family (BX/BL)	112
Deep family (D)	138
Deep family (DC)	144
Universal family (U)	147
Oval Bellows family (OB)	158
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Oval Concave family (OC)	171
Rectangular Bellows (RB)	175
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## OUR INDUSTRIES



Packaging



Food contact



Automotive



Electronics and  
semiconductive



Wood



Plastics



Glass

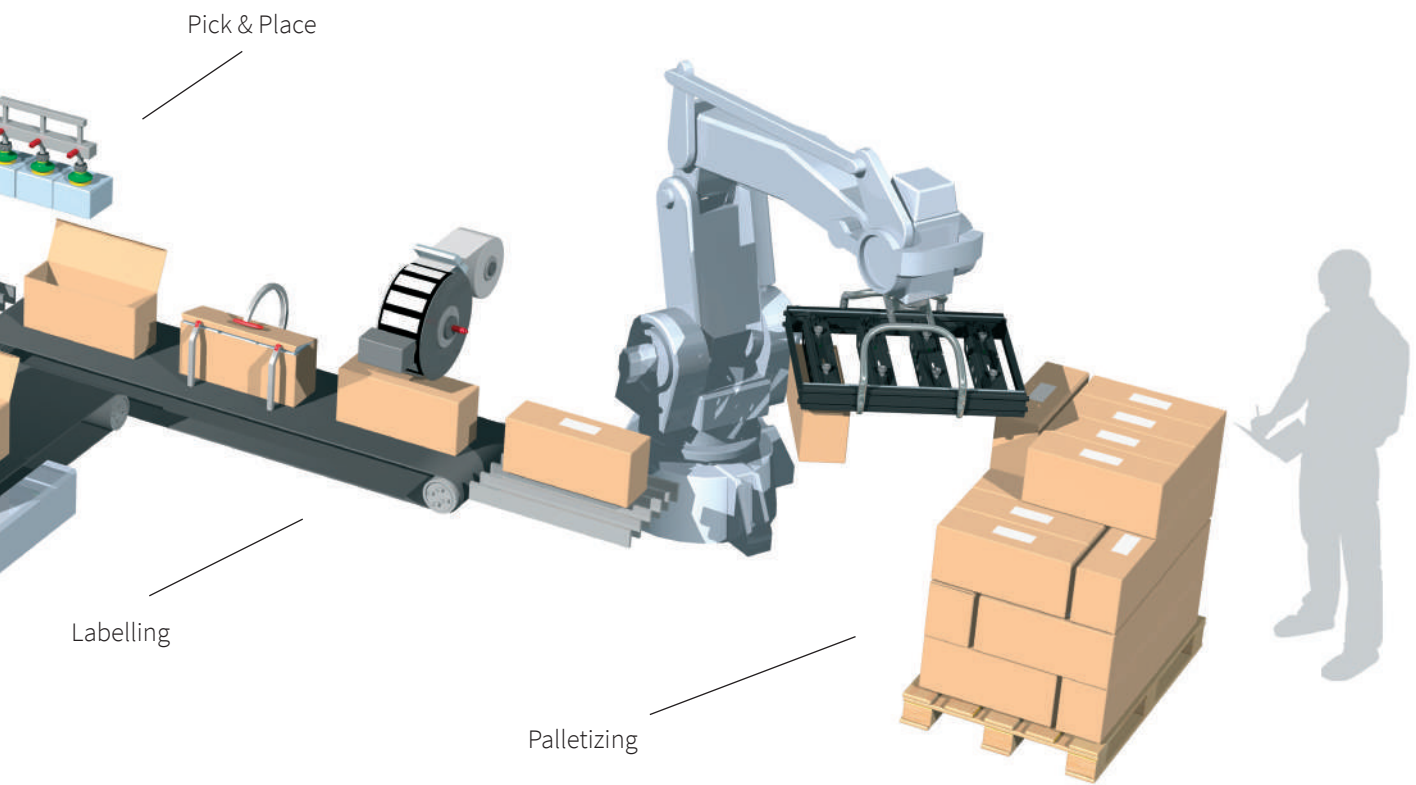


Metal sheet forming



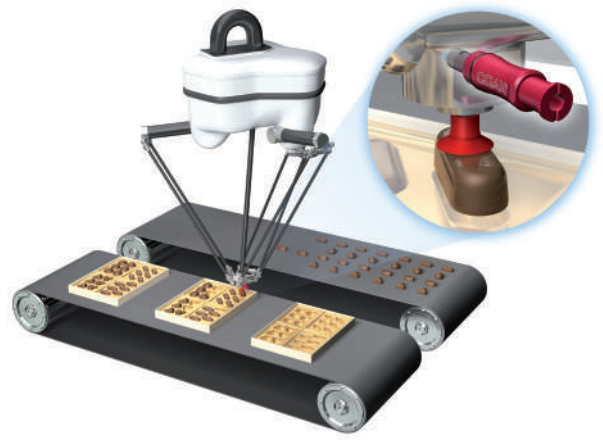
Med Tech

On the opposite side of this fold-out we present some recommended products for a variety of industries we support.





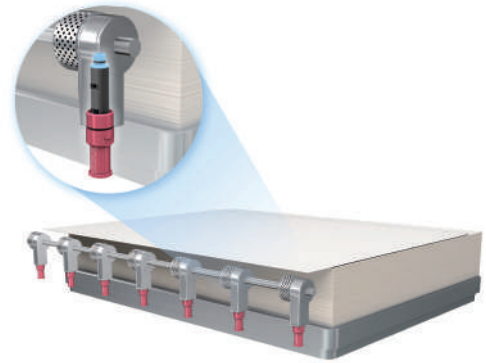
Injection molding



Pick-and-place



Vacuum molding tires



Sheet brake



Press to press transfer





# Suction cups



## SUCTION CUPS

piGRIP®	29
Flat family (F)	30
Flat Concave family (FC)	48
Bellows family (B)	70
Multibellows family (BX/BL)	79
Deep family (D)	112
Deep family (DC)	138
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Oval Concave family (OC)	167
Rectangular Bellows (RB)	171
	175



# piGRIP®

## THOUSANDS OF SUCTION CUPS READY TO IMPROVE YOUR MACHINE

The piGRIP® is a unique configurable suction cup concept with individually optimized parts for gripping, lifting and height compensation. Also a large selection of fittings makes it ready to fit new machines and easy to retrofit existing cups. The fittings available are both threaded and push on fittings.



### FITTING, VALVES & FLOW RESTRICTORS

A large selection of fittings makes piGRIP® cups ready to fit new machines and easy to retrofit existing cups. Available are both threaded and push on fittings. There is also a fitting that has an ejector integrated, the COAX® in piGRIP® for creating a decentralized pump. piSAVE® restrict and piSAVE® sense are options that are suitable for handling different sized or a variable number of objects.



### FILTERS

A low micron filter disc inside the bellows traps dust and particles increasing system reliability. A mesh filter is available in the fitting.



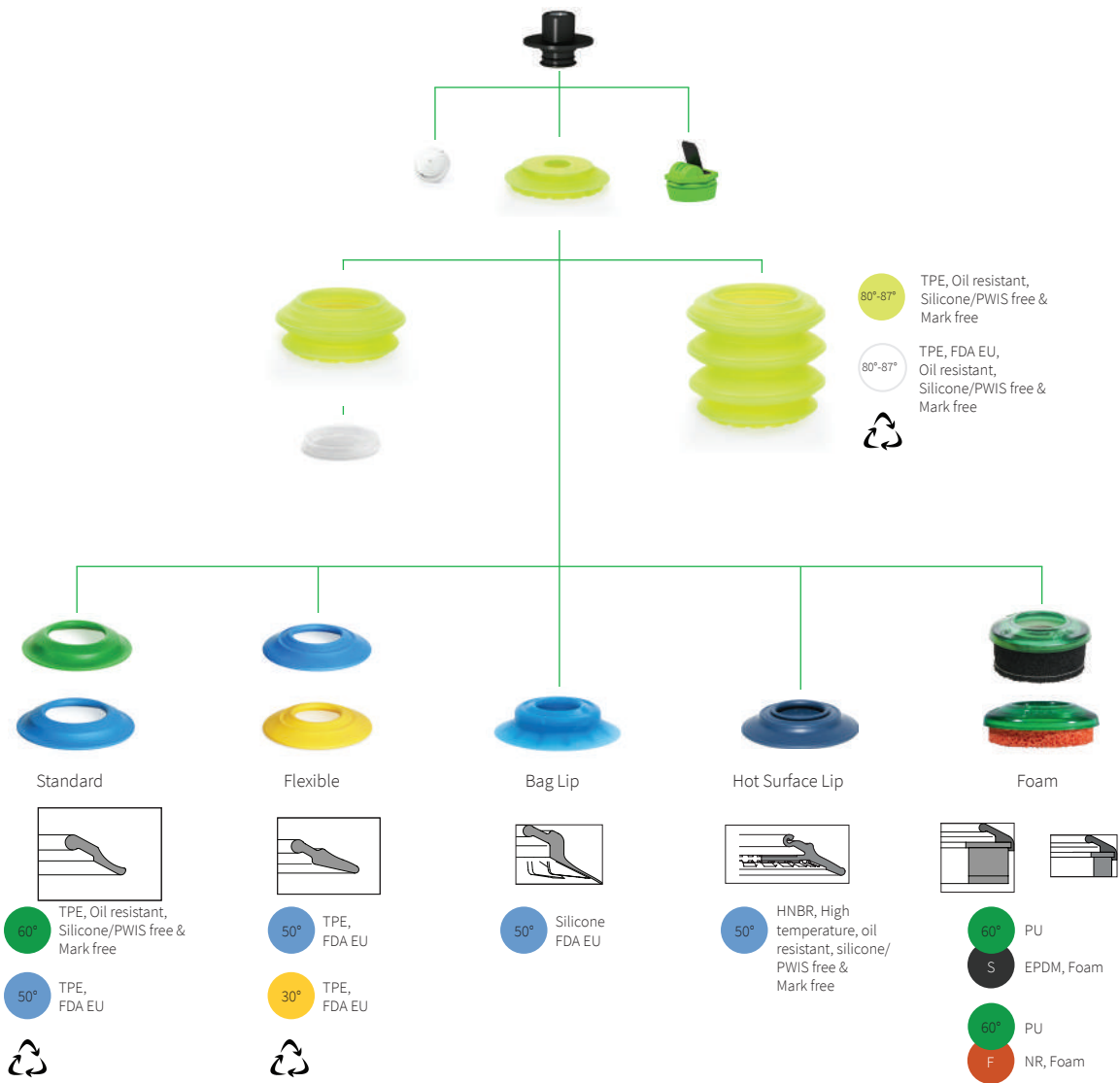
### BELLOWS

Firm and Stable 1-, 3- and 6- folded bellows allows for faster machine speeds. Thin-wall design makes them faster to compress using less force and energy. The strength of the material increases lifting capacity between 30–50% compared to similar conventional cups. FDA-approved (EU 1935/2004) material available (transparent).

### LIPS

Get an excellent grip on almost anything with the right lip for your application. Choose standard lips from 60° shore to extremely flexible, soft lips in 30° shore. Tailor-made Bag lips for handling bags and pouches. Foam lips for objects which are difficult to grip rough surfaces with traditional cups. High temperature lips are also available when so needed.





Product Group



piGRIP®

G

Lip		Material & Durometer	
Dimension & Type			
S25	Ø 25 mm Standard lip	T60 T50	TPE 60° Shore A TPE 50° Shore A
S35	Ø 35 mm Standard lip		
S50	Ø 50 mm Standard lip		
S70	Ø 70 mm Standard lip		
FX28	Ø 28 mm Flexible lip	T50 T30	TPE 50° Shore A TPE 30° Shore A
FX39	Ø 39 mm Flexible lip		
FX55	Ø 55 mm Flexible lip		
FX77	Ø 77 mm Flexible lip		
FLI25S	Ø 25 mm Foam lip	S	Foam EPDM (soft)
FLI35S	Ø 35 mm Foam lip		
FLI50S	Ø 50 mm Foam lip		
FLI70S	Ø 70 mm Foam lip		
FLI25F	Ø 25 mm Foam lip	F	Foam NR (firm)
FLI35F	Ø 35 mm Foam lip		
FLI50F	Ø 50 mm Foam lip		
FLI70F	Ø 70 mm Foam lip		
BGI25	Ø 25 mm Bag lip with retainer	S50	Silicone 50° Shore A
BGI34	Ø 34 mm Bag lip with retainer		
BGI41	Ø 41 mm Bag lip with retainer		
BGI48	Ø 48 mm Bag lip with retainer		
BGI63	Ø 63 mm Bag lip with retainer		
BGI80	Ø 80 mm Bag lip with retainer		
HS29	Ø 29 mm HS29	HN50	HNBR 50° Shore A
HS39	Ø 39 mm HS39		
HS58	Ø 58 mm HS58		
HS79	Ø 79 mm HS79		

Bellows or Flat Cup	
B1	1 bellows
B3	3 bellows
B6	6 bellows (3+3)
F	No bellows

Support	
S1	Support type 1

Several of the lips are available as spare parts.

G . S50T60 . B3 . S1 . G38M . 01 . ( )



Fitting					
Type		Size		Style	
G NT	G-Thread NPT-Thread	18	1/8"	M	Male
		14	1/4"		
		38	3/8"		
		12	1/2"		
GL NTL	G-Thread low NPT-Thread low	18	1/8"	M	Male
		14	1/4"		
		38	3/8"		
NS G	NPSF-Thread G-Thread	18	1/8"	F	Female
		14	1/4"		
		38	3/8"		
		12	1/2"		
		518	5x1/8"		
NT	NPT-Thread	14	1/4"	F	Female
		38	3/8"		
M	M-Thread	M6	M6*	M	Male
		MF8	M8x1*		
		M10	M10		
		M12	M12		
		MF14	M14x1		
		MF16	M16x1.5		
M	M-Thread	M5	M5	F	Female
		M6	M6		
		M8	M8		
		M10	M10		
		M12	M12		
		MF16	M16x1.5		
U	UNC-Thread	12	1/2"	F	Female
C	COAX® in piGRIP®	S	High flow	X	No style
		T	Extra high flow		
X	No type	X	No size	X	No style

\* Steel material. Push-on fitting sold separately.



Option	
00	No Filter
01	Filter mesh
02	Filter disc (only bellows cup)
03	piSAVE® restrict Ø 0.7
04	piSAVE® restrict Ø 1.0
05	piSAVE® restrict Ø 1.3
06	piSAVE® restrict Ø 0.7 and filter disc
07	piSAVE® restrict Ø 1.0 and filter disc
08	piSAVE® restrict Ø 1.3 and filter disc
13	piSAVE® sense 03/60, C/M*-flow: 0,38/0,10 NI/s
14	piSAVE® sense 04/60, C/M*-flow: 0,53/0,17 NI/s
15	piSAVE® sense 05/60, C/M*-flow: 0,73/0,27 NI/s
16	piSAVE® sense 03/60, C/M*-flow: 0,38/0,10 NI/s & filter disc
17	piSAVE® sense 04/60, C/M*-flow: 0,53/0,17 NI/s & filter disc
18	piSAVE® sense 05/60, C/M*-flow: 0,73/0,27 NI/s & filter disc

\* C/M = Closing/Minimum.



FDA EU approved option includes material certificate

	No*
FDA	US Food and Drug Administration

\* Leave blank for no certificate.

**LIFTING FORCES AND GENERAL SPECIFICATIONS – piGRIP® F**

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S25T50	11.4	17	5.7	8.5	25	25	2	0.8
S25T60	11.7	17.9	5.9	9	25	25	1.8	0.8
S35T50	24	34.5	12	17.2	35	40	2.8	1.4
S35T60	25	36	12.5	18	35	40	2.6	1.4
S50T50	50	71.8	25	35.9	50	75	4	4
S50T60	52.2	73.6	26.1	36.8	50	75	3.7	4
S70T50	101	145.6	50.5	72.8	70	80	5.6	11
S70T60	103.5	148	51.8	74	70	80	5.1	11
FX28T30	13.5	18.9	6.7	9.5	28	25	2.7	0.5
FX28T50	14.9	21.3	7.4	10.7	28	25	2.6	0.5
FX39T30	26.8	37.3	13.4	18.7	39	40	3.8	1.3
FX39T50	28.9	41	14.5	20.5	39	40	3.7	1.3
FX55T30	54.2	75	27.1	37.5	55	75	5.4	3.9
FX55T50	56.6	81.1	28.3	40.5	55	75	5.3	3.9
FX77T30	107	150.4	53.5	75.2	77	90	7.6	10.7
FX77T50	112	159	56	79.5	77	90	7.4	10.7
FLI25F	2.2	3.8	1.1	1.9	25.5	*	3.8	0.86
FLI25S	*	*	*	*	25.5	*	5	0.51
FLI35F	5.8	11	2.9	5.5	35.6	*	3.8	1.65

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
FLI35S	*	*	*	*	35.6	*	7.2	0.87
FLI50F	10	16	5	8	51	*	5.6	5.2
FLI50S	*	*	*	*	51	*	16.2	5.1
FLI70F	32	60	16	30	71	*	5.6	15.3
FLI70S	*	*	*	*	71	*	16.5	19.3
HS29HN50	15.9	23.3	13.5	19.8	29	18	2.3	0.9
HS39HN50	29.6	42.2	25.2	35.9	41	25	2.7	2.1
HS58HN50	65.8	94.5	55.9	80.3	59	38	4.9	7
HS79HN50	125.2	177.8	106.4	151.1	80	51	6.4	17.3

\* Dependent on application.

#### LIFTING FORCES AND GENERAL SPECIFICATIONS – piGRIP® B1

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S25T50	11.4	17	5.7	8.5	25	12	5.1	2.1
S25T60	11.7	17.9	5.9	9	25	12	4.9	2.1
S35T50	24	34.5	12	17.2	35	17	7.2	5.4
S35T60	25	36	12.5	18	35	17	7	5.4
S50T50	50	71.8	25	35.9	50	30	10.2	15.7
S50T60	52.2	73.6	26.1	36.8	50	30	9.9	15.7
S70T50	101	145.6	50.5	72.8	70	50	14.3	43

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S70T60	103.5	148	51.8	74	70	50	13.8	43
FX28T30	13.5	18.9	6.7	9.5	28	15	5.8	1.8
FX28T50	14.9	21.3	7.4	10.7	28	15	5.7	1.8
FX39T30	26.8	37.3	13.4	18.7	39	20	8.2	5.3
FX39T50	28.9	41	14.5	20.5	39	20	8.1	5.3
FX55T30	54.2	75	27.1	37.5	55	40	11.6	15.6
FX55T50	56.6	81.1	28.3	40.5	55	40	11.5	15.6
FX77T30	107	150.4	53.5	75.2	77	55	16.3	42.7
FX77T50	112	159	56	79.5	77	55	16.1	42.7
FLI25F	2.2	3.8	1.1	1.9	25.5	*	6.9	2.16
FLI25S	*	*	*	*	25.5	*	8.1	1.81
FLI35F	5.8	11	2.9	5.5	35.6	*	8.2	5.65
FLI35S	*	*	*	*	35.6	*	11.6	4.87
FLI50F	10	16	5	8	51	*	11.8	16.9
FLI50S	*	*	*	*	51	*	22.4	16.8
FLI70F	32	60	16	30	71	*	14.3	47.3
FLI70S	*	*	*	*	71	*	25.2	51.3
BGI25S50	5.1	7.4	2.6	3.7	25	11	4.2	2.2
BGI34S50	10.3	15	5.2	7.5	34	16	4.5	3.3

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
BGI41S50	16.1	23.5	8.1	11.8	41	19	5.7	7.9
BGI48S50	20.9	30.5	10.5	15.3	48	35	6.1	12.5
BGI63S50	39.9	58.2	20.0	29.1	63	39	7.8	26.9
BGI80S50	66.2	96.6	33.1	48.3	80	58	10	65.1
HS29HN50	15.9	23.3	13.5	19.8	29	15	5.4	2.2
HS39HN50	29.6	42.2	25.2	35.9	41	20	7.1	6.1
HS58HN50	65.8	94.5	55.9	80.3	59	27	11.1	18.7
HS79HN50	125.2	177.8	106.4	151.1	80	40	15.1	49.3

\* Dependent on application.

#### LIFTING FORCES AND GENERAL SPECIFICATIONS – piGRIP® B3

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S25T50	11.4	17	5.7	8.5	25	12	13.7	5.2
S25T60	11.7	17.9	5.9	9	25	12	13.5	5.2
S35T50	24	34.5	12	17.2	35	17	19.2	14
S35T60	25	36	12.5	18	35	17	19	14
S50T50	50	71.8	25	35.9	50	30	27.4	40.6
S50T60	52.2	73.6	26.1	36.8	50	30	27.1	40.6
S70T50	101	145.6	50.5	72.8	70	50	38.4	111.3
S70T60	103.5	148	51.8	74	70	50	37.9	111.3



Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
FX28T30	13.5	18.9	6.7	9.5	28	15	14.4	4.9
FX28T50	14.9	21.3	7.4	10.7	28	15	14.3	4.9
FX39T30	26.8	37.3	13.4	18.7	39	20	20.2	13.9
FX39T50	28.9	41	14.5	20.5	39	20	20.1	13.9
FX55T30	54.2	75	27.1	37.5	55	40	28.8	40.5
FX55T50	56.6	81.1	28.3	40.5	55	40	28.7	40.5
FX77T30	107	150.4	53.5	75.2	77	55	40.4	111
FX77T50	112	159	56	79.5	77	55	40.2	111
FLI25F	2.2	3.8	1.1	1.9	25.5	*	15.5	5.26
FLI25S	*	*	*	*	25.5	*	16.7	4.91
FLI35F	5.8	11	2.9	5.5	35.6	*	20.2	14.25
FLI35S	*	*	*	*	35.6	*	23.6	13.47
FLI50F	10	16	5	8	51	*	29	41.8
FLI50S	*	*	*	*	51	*	39.6	41.7
FLI70F	32	60	16	30	71	*	38.4	115.6
FLI70S	*	*	*	*	71	*	49.3	119.6
BGI25S50	5.1	7.4	2.6	3.7	25	11	12.8	5.3
BGI34S50	10.3	15	5.2	7.5	34	30	13.4	7.4
BGI41S50	16.1	23.5	8.1	11.8	41	19	17.7	16.5

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
BGI48S50	20.9	30.5	10.5	15.3	48	35	18.1	21.1
BGI63S50	39.9	58.2	20	29.1	63	39	25	51.8
BGI80S50	66.2	96.6	33.1	48.3	80	58	34.1	133.4
HS29HN50	15.9	23.3	13.5	19.8	29	15	14	5.3
HS39HN50	29.6	42.2	25.2	35.9	41	20	19.1	14.7
HS58HN50	65.8	94.5	55.9	80.3	59	27	28.3	43.6
HS79HN50	125.2	177.8	106.4	151.1	80	40	39.2	117.6

\* Dependent on application.

#### LIFTING FORCES AND GENERAL SPECIFICATIONS – piGRIP® B6

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S25T50	11.4	17	5.7	8.5	25	12	25.4	9.6
S25T60	11.7	17.9	5.9	9	25	12	25.2	9.6
S35T50	24	34.5	12	17.2	35	17	35.6	26.6
S35T60	25	36	12.5	18	35	17	35.4	26.6
S50T50	50	71.8	25	35.9	50	30	50.8	77.2
S50T60	52.2	73.6	26.1	36.8	50	30	50.5	77.2
S70T50	101	145.6	50.5	72.8	70	50	71.2	211.6
S70T60	103.5	148	51.8	74	70	50	70.7	211.6
FX28T30	13.5	18.9	6.7	9.5	28	15	26.1	9.3

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
FX28T50	14.9	21.3	7.4	10.7	28	15	26	9.3
FX39T30	26.8	37.3	13.4	18.7	39	20	36.6	26.5
FX39T50	28.9	41	14.5	20.5	39	20	36.5	26.5
FX55T30	54.2	75	27.1	37.5	55	40	52.2	77.1
FX55T50	56.6	81.1	28.3	40.5	55	40	52.1	77.1
FX77T30	107	150.4	53.5	75.2	77	55	73.2	211.3
FX77T50	112	159	56	79.5	77	55	73	211.3
FLI25F	2.2	3.8	1.1	1.9	25.5	*	27.2	9.66
FLI25S	*	*	*	*	25.5	*	28.4	9.31
FLI35F	5.8	11	2.9	5.5	35.6	*	36.6	26.85
FLI35S	*	*	*	*	35.6	*	40	26.07
FLI50F	10	16	5	8	51	*	52.4	78.4
FLI50S	*	*	*	*	51	*	63	78.3
FLI70F	32	60	16	30	71	*	71.2	215.9
FLI70S	*	*	*	*	71	*	82.1	219.9
BGI25S50	5.1	7.4	2.6	3.7	25	11	24.5	9.7
BGI34S50	10.3	15	5.2	7.5	34	30	25.1	11.8
BGI41S50	16.1	23.5	8.1	11.8	41	19	34.1	29.1
BGI48S50	20.9	30.5	10.5	15.3	48	35	34.5	33.7
BGI63S50	39.9	58.2	20	29.1	63	39	48.4	88.4

Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm <sup>3</sup>
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
BGI80S50	66.2	96.6	33.1	48.3	80	58	66.9	233.7
HS29HN50	15.9	23.3	13.5	19.8	29	15	25.7	9.7
HS39HN50	29.6	42.2	25.2	35.9	41	20	35.5	27.3
HS58HN50	65.8	94.5	55.9	80.3	59	27	51.7	80.2
HS79HN50	125.2	177.8	106.4	151.1	80	40	72	217.9

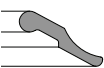

\* Dependent on application.

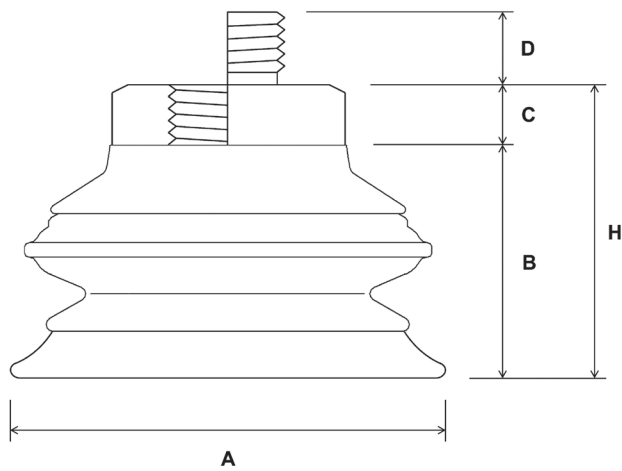
## SUCTION CUP DIMENSIONS, mm



Lip type & size		Dim. A	Dim. B			
			F (Flat)	B-1 (1 Bellows)	B-3 (3 Bellows)	B-6 (3+3 Bellows)
	S25	25	10.9	18.7	29.8	48.7
	S35	35	12.4	23.3	38.8	65.2
	S50	50	14.7	30.3	52.4	90.1
	S70	70	17.8	39.6	70.6	123.4
	FX28	28	11.4	19.2	30.3	49.2
	FX39	38	13.1	24.0	39.5	65.9
	FX55	55	15.7	31.3	53.4	91.1
	FX77	77	19.2	41	72	124.8
	FLI25S	25	17.5	25.3	36.4	55.3
	FLI35S	35	21.5	32.4	47.9	74.3
	FLI50S	50	32.1	47.7	69.8	107.5
	FLI70S	70	34.1	55.9	86.9	139.7
	FLI25F	25	16	23.8	34.9	53.8
	FLI35F	35	17	27.9	43.4	69.8
	FLI50F	50	21.1	36.7	58.8	96.5
	FLI70F	70	23.1	44.9	75.9	128.7







Lip type & size	Dim. A	Dim. B				
		F (Flat)	B-1 (1 Bellows)	B-3 (3 Bellows)	B-6 (3+3 Bellows)	
	BGI25	25	—	22.7	33.8	52.7
	BGI34	34	—	24.8	35.9	54.8
	BGI41	41	—	29.5	45.0	71.4
	BGI48	48	—	30.9	46.4	72.8
	BGI63	63	—	39.9	62.0	99.7
	BGI80	80	—	49.4	80.4	133.2
	HS29	29	13.4	14.2	25.3	44.2
	HS39	39	15.6	19.5	35	61.4
	HS58	58	19.5	27.5	50.2	87.9
	HS79	79	24.3	39.1	70.1	122.9




**BUILD HEIGHT**  
 $B + C = H$   
 Ex.  $18.7 + 5 = 23.7$

## FITTING DIMENSIONS, mm

Type	Code	Dim. C	Dim. D	Description	Recommended fitting size for best performance*			
					S25 FX28 FLI25 BGI25 BGI34 HS29	S35 FX39 FLI35 BGI41 BGI48 HS39	S50 FX55 FLI50 BGI63 HS58	S70 FX77 FLI70 HS79 BGI80
	G18M	5	6	Fitting G1/8" male	●	●	●	
	G14M	6	9	Fitting G1/4" male	●	●	●	●
	G38M	6	10	Fitting G3/8" male		●	●	●
	G12M	6	10	Fitting G1/2" male			●	●
	GL18M	1.5	6	Fitting G1/8" low male	●	●	●	
	GL14M	1.5	9	Fitting G1/4" low male	●	●	●	●
	GL38M	1.5	10	Fitting G3/8" low male		●	●	●
	NT18M	5	7	Fitting 1/8" NPT male	●	●	●	
	NT14M	6	11	Fitting 1/4" NPT male	●	●	●	●
	NT38M	6	11.5	Fitting 3/8" NPT male		●	●	●
	NT12M	6	15	Fitting 1/2" NPT male			●	●
	NTL18M	1.5	7	Fitting 1/8" NPT low male	●	●	●	
	NTL14M	1.5	11	Fitting 1/4" NPT low male	●	●	●	●
	NTL38M	1.5	11.5	Fitting 3/8" NPT low male		●	●	●



Type	Code	Dim. C	Dim. D	Description	Recommended fitting size for best performance*			
					S25 FX28 FLI25 BGI25 BGI34 HS29	S35 FX39 FLI35 BGI41 BGI48 HS39	S50 FX55 FLI50 BGI63 HS58	S70 FX77 FLI70 HS79 BGI80
	MM6M	5	6	Fitting M6 male	●	●		
	MMF8M	5	6	Fitting M8 x 1 male	●	●	●	
	MM10M	6	10	Fitting M10 male	●	●	●	
	MM12M	6	10	Fitting M12 male	●	●	●	
	MMF14M	6	12	Fitting M14 x 1 male	●	●	●	●
	MMF16M	6	12	Fitting M16 x 1.5 male		●	●	●
	G14F	10	—	Fitting G1/4" fem	●	●	●	
	G38F	13	—	Fitting G3/8" fem		●	●	●
	G12F	14	—	Fitting G1/2" fem			●	●
	NS18F**	7	—	Fitting 1/8" NPSF fem	●	●	●	
	NS14F	10	—	Fitting 1/4" NPSF fem	●	●	●	●
	NS38F	13	—	Fitting 3/8" NPSF fem		●	●	●
	NS12F	14	—	Fitting 1/2" NPSF fem			●	●
	NS518F**	18	—	Fitting 5x1/8" NPSF fem	●	●	●	
		NT14F	12	—	Fitting 1/4" NPT fem	●	●	●
NT38F		13	—	Fitting 3/8" NPT fem		●	●	●

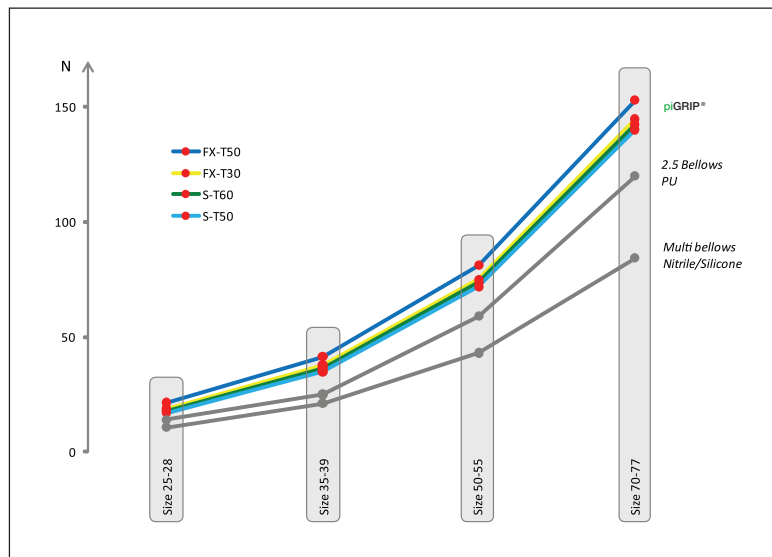
Type	Code	Dim. C	Dim. D	Description	Recommended fitting size for best performance*			
					S25 FX28 FLI25 BGI25 BGI34 HS29	S35 FX39 FLI35 BGI41 BGI48 HS39	S50 FX55 FLI50 BGI63 HS58	S70 FX77 FLI70 HS79 BGI80
	U12F	12	—	Fitting 1/2" UNC fem			●	●
	MM5F	6	—	Fitting M5 fem	●	●		
	MM6F	6	—	Fitting M6 fem	●	●		
	MM8F	7	—	Fitting M8 fem	●	●	●	
	MM10F	7	—	Fitting M10 fem	●	●	●	
	MM12F	12	—	Fitting M12 fem	●	●	●	
	MMF16F	13	—	Fitting M16 × 1.5 fem		●	●	●

\* No flow restriction or excessive volume to evacuate, which will deteriorate the performance of the vacuum system. \*\* Fitting code G18F and G518F are automatically changed to NS18F and NS518F due to identical threads.

Go to suction cup selection guide on [piab.com](http://piab.com) to configure your suction cup.

**piGRIP® MATERIAL DATA**

Up to 50% improved lifting force with piGRIP®. Use fewer cups or smaller sizes. See suction cup selection guide on [piab.com](https://www.piab.com) for specified performance data



Proven function and lifting capacity within specified area of operation.

**MATERIAL SPECIFICATIONS**

Material	Hardness, Shore A °	Item(s)	Colour	Temp. range, °C	Special qualities
TPE	80–87	Support S1	Lime/Transparent	-20–60/100*	FDA EU**, silicone/PWIS free, mark free, oil resistant
TPE	87	Bellows	Lime/Transparent	-20–60/100*	FDA EU**, silicone/PWIS free, mark free, oil resistant
TPE	60	Standard Lip (S) T60	Green	-20–60/120*	Silicone/PWIS free, mark free, oil resistant
TPE	50	Standard Lip (S) T50	Blue	-40–60/120*	FDA EU
TPE	50	Flexible Lip (FX) T50	Blue	-40–60/120*	FDA EU
TPE	30	Flexible Lip (FX) T30	Yellow	-40–60/100*	FDA EU
EPDM	—	Foam Lip (FLI-S)	Green/Black	-20–80	Ultra soft cellular rubber
NR	—	Foam Lip (FLI-F)	Green/Orange	-20–80	Firm natural rubber
Silicone	50	Bag Lip (BGI)	Blue	-40–200	FDA EU
HNBR	50	Hot Surface Lip (HS)	Blue	-30–120/150*	PWIS free, mark free
PU	60	Foam Lip holder	Green	10–50	

\* Max Temperature short term contact, <10 sec and 50% intermittence, ambient temperature 15–30 °C, mechanical properties will start to degrade. \*\* FDA EU approved option in transparent material.

## Flat family (F)



There is a variety of cups in this family to suit a number of different flat surfaces, e.g. cardboard, glass and metal sheets. The cleats stop deformation by preventing suction of the object into the cup. The suction cup has good stability and very little movement. Also suitable when the lifting force is parallel to the surface as the cleats increase friction. There is also a variety in materials from mark-free to high temperature applications and FDA compliant material (FDA 21 CFR 177.2600) that meets EU's regulation EU 1935/2004.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
F15	3.5	8.5	11	3.5	6.5	7.5
F20	6	14.5	19	5	8	8.5
F25	9	19.5	25	8	9	10
F30-2	12	25	31	11	16	20
F40-2	20	40	50	15	25	30
F50-2	36	74	96	24	40	50
F75	80	200	270	60	110	140
F110	140	420	560	140	250	300
F150	300	850	1100	250	600	800
F26 FDA	11	25	31	9	21	26
F33 FDA	16	38	49	13.5	32.5	41.5

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
F75P	70/82*	193/231*	273/330*	44/47*	176/113*	308/169*
F110P	167/191*	432/498*	591/705*	149/297*	441/523*	617/664*
F15MF	4	8	12	4.5	9	14.5
F20MF	3.6	14.5	22	8	14.5	21
F25MF	6.3	24.5	65.5	9	24.5	36.3
F30MF	11	34.5	48	13.6	28	42
F40MF	18	57	83	16	49	57
F50MF	24.5	92	141	31	82	107
XLF150	330/520**	500/770**	780/1130**	281	425	663
XLF200	760/1030**	1130/1510**	1720/2200**	646	961	1462
XLF250	1310/1640**	1950/2460**	2870/3540**	1114	1658	2440
XLF300	2150/2620**	3200/3760**	4630/5450**	1828	2720	3936

\* PU30°/PU60° / PU60°, \*\*Inner/Outer lip.

## GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
F15	15.7	11	13	1	0.37
F20	22	8	18	1.5	1
F25	27	9	22	1.5	1.1
F30-2	32	10.4	25	2	2
F40-2	42	13	52	2.5	4.8
F50-2	53	17.5	55	3	10






	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
F75	77	13	150	3	20
F110	112	20	250	4	70
F150	152	26.4	500	6	160
F26 FDA	26	23.5	25	1.5	1.6
F33 FDA	33	23.5	35	1.5	2.1
F75P	77	13	150	2	19
F110P	115	20	250	4	60
F15MF	16.5	11	17	1	0.37
F20MF	22	8	18	2	1
F25MF	27	9	23	1.5	1.1
F30MF	32	10	44	1.5	2
F40MF	42	13	60	2	4.8
F50MF	53	17.5	95	2	10
XLF150	153	27	500	8	145
XLF200	204	27	800	8	275
XLF250	250	27	1300	8	435
XLF300	304	27	1900	8	666








**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material								MSF
F15	Chloroprene, CR	●				●		●	●
F15	Silicone, SIL	●	●						
F15	Silicone FDA EU, SIL FDA	●	●						
F20	Chloroprene, CR	●				●		●	●
F20	Silicone, SIL	●	●						
F20	Silicone FDA EU, SIL FDA	●	●						
F25	Chloroprene, CR	●				●		●	●
F25	Silicone, SIL	●	●						
F25	Silicone FDA EU, SIL FDA	●	●						
F30-2	Chloroprene, CR	●				●		●	●
F30-2	Silicone, SIL	●	●						
F30-2	Silicone FDA EU, SIL FDA	●	●						
F40-2	Nitrile-PVC, NPV	●				●		●	●
F40-2	Silicone, SIL	●	●						
F40-2	Silicone FDA EU, SIL FDA	●	●						
F50-2	HNBR	●					●	●	
F50-2	Nitrile-PVC, NPV	●				●		●	●
F50-2	Silicone, SIL	●	●						
F50-2	Silicone FDA EU, SIL FDA	●	●						



Cup	Material								MSF
F75	HNBR	●					●	●	
F75	Nitrile-PVC, NPV	●				●		●	●
F75	Silicone, SIL	●	●						
F75	Silicone FDA EU, SIL FDA	●	●						
F110	HNBR	●					●	●	
F110	Nitrile-PVC, NPV	●				●		●	●
F110	Silicone, SIL	●	●						
F110	Silicone FDA EU, SIL FDA	●	●						
F150	Nitrile-PVC, NPV	●				●		●	●
F150	Silicone, SIL	●	●						
F150	Silicone FDA EU, SIL FDA	●	●						
F26 FDA	Silicone FDA EU, SIL FDA	●	●						
F33 FDA	Silicone FDA EU, SIL FDA	●	●						
F75P	PU30°/PU60°	●		●					
F75P	PU60°	●		●	●	●		●	●
F110P	PU30°/PU60°	●		●					
F110P	PU60°	●		●	●	●		●	●
F15MF	Thermoplastic Polyurethane, TPE-U				●			●	
F20MF	Thermoplastic Polyurethane, TPE-U				●			●	
F25MF	Thermoplastic Polyurethane, TPE-U				●			●	

Cup	Material								MSF
F30MF	Thermoplastic Polyurethane, TPE-U				●			●	
F40MF	Thermoplastic Polyurethane, TPE-U				●			●	
F50MF	Thermoplastic Polyurethane, TPE-U				●			●	
XLF150	Nitrile-PVC, NPV	●				●		●	●
XLF200	Nitrile-PVC, NPV	●				●		●	●
XLF250	Nitrile-PVC, NPV	●				●		●	●
XLF300	Nitrile-PVC, NPV	●				●		●	●

### MATERIAL RESISTANCE

For more material information go to page 23.

### APPLICATIONS

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Dry sheet metal	Bag opening/ thin paper – slip sheets/ film	FDA EU-standard compliant	Glass handling	High/low temp cup (plastic)	Mark free	Plastic injection molded parts
F15	●		●				
F20	●		●				
F25	●		●				
F30-2	●		●				
F40-2	●		●				
F50-2	●		●	●	●	●	●
F75	●		●	●	●	●	●
F110	●		●	●	●	●	●
F150	●		●				

	Dry sheet metal	Bag opening/ thin paper – slip sheets/ film	FDA EU-standard compliant	Glass handling	High/low temp cup (plastic)	Mark free	Plastic injection molded parts
F26 FDA		●	●				
F33 FDA		●	●				
F75P	●					●	
F110P	●					●	
F15MF						●	
F20MF						●	
F25MF						●	
F30MF						●	
F40MF						●	
F50MF						●	
XLF150	●			●		●	
XLF200	●			●		●	
XLF250	●			●		●	
XLF300	●			●		●	

### FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup F15 Chloroprene	3150125
Suction cup F15 Chloroprene, M5 male	3150014
Suction cup F15 Silicone	3150125S
Suction cup F15 Silicone FCM	0200263
Suction cup F15 Silicone FCM, M5 male	9909623
Suction cup F15 Silicone, M5 male	3150014S
Suction cup F20 Chloroprene	0101129
Suction cup F20 Chloroprene, G1/8" male/M5 female, PA	0110950
Suction cup F20 Chloroprene, M5 female	0101259
Suction cup F20 Chloroprene, G1/8" male, with mesh filter	0101260
Suction cup F20 Chloroprene, 1/8" NPT male, with mesh filter	0101261
Suction cup F20 Chloroprene, G1/8" male/M5 female	0101262
Suction cup F20 Chloroprene, 5xM5 female	0101263
Suction cup F20 Chloroprene, G1/8" male/M5 female, with mesh filter	0101264
Suction cup F20 Chloroprene, M5 female, with dual flow control valve	0101265
Suction cup F20 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101266
Suction cup F20 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101268
Suction cup F20 Silicone	0101130
Suction cup F20 Silicone, 1/8" NPT male, with dual flow control valve	0101278
Suction cup F20 Silicone, M5 female	0101270
Suction cup F20 Silicone, G1/8" male, with mesh filter	0101271

Description	Item no.
Suction cup F20 Silicone, 1/8" NPT male, with mesh filter	0101272
Suction cup F20 Silicone, G1/8" male/M5 female	0101273
Suction cup F20 Silicone, 5xM5 female	0101274
Suction cup F20 Silicone, G1/8" male/M5 female, with mesh filter	0101275
Suction cup F20 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101277
Suction cup F20 Silicone, G1/8" male/M5 female, PA	0110334
Suction cup F20MF Thermoelastic polyurethane	0101139
Suction cup F20MF Thermoelastic polyurethane, M5 female	0101281
Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101282
Suction cup F20MF Thermoelastic polyurethane, 1/8" NPT male with mesh filter	0101283
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 female	0101284
Suction cup F20MF Thermoelastic polyurethane, 5xM5 female	0101285
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 female, with mesh filter	0101286
Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve	0101288
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 fem., with dual flow control valve	0101290
Suction cup F20MF Thermoelastic polyurethane, 5xM5 female, with dual flow control valve	0101291
Suction cup F25 Chloroprene, G1/8" male/M5 female, PA	0109842
Suction cup F25 Silicone FCM	0200439
Suction cup F25 Silicone, M5 female	0101303
Suction cup F25 Silicone, G1/8" male, with mesh filter	0101304
Suction cup F25 Silicone, 1/8" NPT male, with mesh filter	0101305

Description	Item no.
Suction cup F25 Silicone, G1/8" male/M5 female	0101306
Suction cup F25 Silicone, 5xM5 female	0101307
Suction cup F25 Silicone, G1/8" male/M5 female, with mesh filter	0101308
Suction cup F25 Silicone, 1/8" NPT male, with dual flow control valve	0101311
Suction cup F25 Silicone, G1/8" male/M5 female, with dual flow control valve	0101312
Suction cup F25 Silicone, G1/8" male/M5 female, PA	0110335
Suction cup F25 Silicone FCM, G1/8" male, with mesh filter	9909625
Suction cup F25 Silicone FCM, 1/8" NPT male, with mesh filter	9909667
Suction cup F25 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909711
Suction cup F25MF Thermoelastic polyurethane	0101140
Suction cup F25MF Thermoelastic polyurethane, M5 female	0101314
Suction cup F25MF Thermoelastic polyurethane, M5 female, with dual flow control valve	0101320
Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101315
Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve	0101321
Suction cup F25MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter	0101319
Suction cup F25MF Thermoelastic polyurethane, 5xM5 female	0101318
Suction cup F75 HNBR, 1/8" NPSF female, with mesh filter	0108184
Suction cup F75 HNBR, 3/8" NPSF female, with mesh filter	0108186
Suction cup F75 HNBR, G1/2" female, with mesh filter	0108187
Suction cup F75 HNBR, G3/8" female, with mesh filter	0108185
Suction cup F75 Nitrile-PVC	3150131P

Description	Item no.
Suction cup F75 Nitrile-PVC, 3/8" NPSF female, with mesh filter	0101875
Suction cup F75 Nitrile-PVC, G1/2" female, with cone valve	0101879
Suction cup F75 Nitrile-PVC, G1/2" female, with mesh filter	0101876
Suction cup F75 Nitrile-PVC, G3/8" female, with cone valve	0101877
Suction cup F75 Nitrile-PVC, G3/8" female, with mesh filter	0101874
Suction cup F75 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101873
Suction cup F75 Silicone	3150131S
Suction cup F75 Silicone FCM	0200264
Suction cup F75 Silicone FCM, G3/8" female, with mesh filter	0200497
Suction cup F75 Silicone, 1/8" NPSF female, with mesh filter	0101866
Suction cup F75 Silicone, 3/8" NPSF female, with mesh filter	0101868
Suction cup F75 Silicone, G1/2" female, with cone valve	0101872
Suction cup F75 Silicone, G1/2" female, with mesh filter	0101869
Suction cup F75 Silicone, G3/8" female, with cone valve	0101870
Suction cup F75 Silicone, G3/8" female, with mesh filter	0101867
Suction cup F75P Polyurethane 30/60	0104724
Suction cup F75P Polyurethane 30/60, 1/8" NPSF female, with mesh filter	0106349
Suction cup F75P Polyurethane 30/60, 3/8" NPSF female	0108800
Suction cup F75P Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0106351
Suction cup F75P Polyurethane 30/60, for tread insert	0106829
Suction cup F75P Polyurethane 30/60, G1/2" female, with mesh filter	0106352

Description	Item no.
Suction cup F75P Polyurethane 30/60, G3/8" female, with cone valve	0129928
Suction cup F75P Polyurethane 30/60, G3/8" female, with mesh filter	0106350
Suction cup F75P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0106830
Suction cup F75P Polyurethane 60	0111584
Suction cup F75P Polyurethane 60, 1/8" NPSF female, with mesh filter	0111585
Suction cup F75P Polyurethane 60, 3/8" NPSF female	0108801
Suction cup F75P Polyurethane 60, 3/8" NPSF female, with mesh filter	0111587
Suction cup F75P Polyurethane 60, for tread insert	0107320
Suction cup F75P Polyurethane 60, G1/2" female, with mesh filter	0111588
Suction cup F75P Polyurethane 60, G3/8" female, with cone valve	0129929
Suction cup F75P Polyurethane 60, G3/8" female, with mesh filter	0111586
Suction cup F75P Polyurethane 60, thread insert G3/8" male, with mesh filter	0107321
Suction cup F110 HNBR	3150132T
Suction cup F110 HNBR, 3/8" NPSF female, with mesh filter	0108189
Suction cup F110 HNBR, G1/2" female, with mesh filter	0108190
Suction cup F110 HNBR, G3/8" female, with mesh filter	0108188
Suction cup F110 Nitrile-PVC	3150132P
Suction cup F110 Nitrile-PVC, 3/8" NPSF female, with mesh filter	0101916
Suction cup F110 Nitrile-PVC, G1/2" female, with cone valve	0101921
Suction cup F110 Nitrile-PVC, G1/2" female, with mesh filter	0101917
Suction cup F110 Nitrile-PVC, G3/8" female, with mesh filter	0101915



Description	Item no.
Suction cup F110 Silicone	3150132S
Suction cup F110 Silicone FCM	0200302
Suction cup F110 Silicone FCM, G1/2" female, with mesh filter	0200504
Suction cup F110 Silicone, 3/8" NPSF female, with mesh filter	0101909
Suction cup F110 Silicone, G1/2" female, with cone valve	0101914
Suction cup F110 Silicone, G1/2" female, with mesh filter	0101910
Suction cup F110 Silicone, G3/8" female, with mesh filter	0101908
Suction cup F110P Polyurethane 30/60	0104725
Suction cup F110P Polyurethane 30/60, 3/8" NPSF female	0108802
Suction cup F110P Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0106354
Suction cup F110P Polyurethane 30/60, for thread insert	0106796
Suction cup F110P Polyurethane 30/60, G1/2" female, with cone valve	0129927
Suction cup F110P Polyurethane 30/60, G1/2" female, with mesh filter	0106355
Suction cup F110P Polyurethane 30/60, G3/8" female, with mesh filter	0106353
Suction cup F110P Polyurethane 30/60, thread insert G3/8" with mesh filter	0106798
Suction cup F110P Polyurethane 60	0111593
Suction cup F110P Polyurethane 60, 3/8" NPSF female	0108803
Suction cup F110P Polyurethane 60, 3/8" NPSF female, with mesh filter	0111596
Suction cup F110P Polyurethane 60, for thread insert	0107322
Suction cup F110P Polyurethane 60, G1/2" female, with cone valve	0129930
Suction cup F110P Polyurethane 60, G1/2" female, with mesh filter	0111597

Description	Item no.
Suction cup F110P Polyurethane 60, G3/8" female, with mesh filter	0111595
Suction cup F110P Polyurethane 60, thread insert G3/8", with mesh filter	0107323
Suction cup F150 Nitrile-PVC	3150133P
Suction cup F150 Nitrile-PVC, G1/2" female, with cone valve	0101941
Suction cup F150 Nitrile-PVC, G1/2" female, with mesh filter	0101938
Suction cup F150 Nitrile-PVC, G3/4" female, with mesh filter	0101939
Suction cup F150 Silicone	3150133S
Suction cup F150 Silicone FCM	0200265
Suction cup F150 Silicone FCM, G1/2" female, with mesh filter	0200507
Suction cup F150 Silicone, G1/2" female, with cone valve	0101937
Suction cup F150 Silicone, G1/2" female, with mesh filter	0101934
Suction cup F150 Silicone, G3/4" female, with mesh filter	0101935
Suction cup F26 Silicone FCM	0201216
Suction cup F26 Silicone FCM, G1/4" male	9914238
Suction cup F26 Silicone FCM, 1/8" NPSF female	9914251
Suction cup F33 Silicone FCM	0200328
Suction cup F33 Silicone FCM, G1/4" male	9914237
Suction cup F33 Silicone FCM, 1/8" NPSF female	9914252
Suction cup F30-2 Chloroprene	0101133
Suction cup F30-2 Chloroprene, 5xM5 female	0101329
Suction cup F30-2 Chloroprene, for fitting with cone valve	3150239

Description	Item no.
Suction cup F30-2 Chloroprene, G1/8" male, with mesh filter	0101326
Suction cup F30-2 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101332
Suction cup F30-2 Chloroprene, G1/8" male/M5 female PA	0109846
Suction cup F30-2 Chloroprene, G1/8" male/M5 female, with cone valve	3250039
Suction cup F30-2 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101334
Suction cup F30-2 Chloroprene, G1/8" male/M5 female, with mesh filter	0101330
Suction cup F30-2 Chloroprene, M5 female	0101325
Suction cup F30-2 Chloroprene, M5 female, with dual flow control valve	0101331
Suction cup F30-2 Silicone	0101134
Suction cup F30-2 Silicone FCM	0200418
Suction cup F30-2 Silicone FCM, G1/8" male, with mesh filter	9909626
Suction cup F30-2 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909627
Suction cup F30-2 Silicone, 5xM5 female	0101345
Suction cup F30-2 Silicone, G1/8" male, with mesh filter	0101342
Suction cup F30-2 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101348
Suction cup F30-2 Silicone, G1/8" male/M5 female, with cone valve	3250039S
Suction cup F30-2 Silicone, G1/8" male/M5 female, with dual flow control valve	0101350
Suction cup F30-2 Silicone, G1/8" male/M5 female, with mesh filter	0101346
Suction cup F30-2 Silicone, M5 female	0101341
Suction cup F30-2 Silicone, G1/8" male/M5 female PA	0110344
Suction cup F40-2 Nitrile-PVC	0101135

Description	Item no.
Suction cup F40-2 Nitrile-PVC, 1/8" NPSF female	0101566
Suction cup F40-2 Nitrile-PVC, 1/8" NPSF female PA	0109847
Suction cup F40-2 Nitrile-PVC, 1/8" NPSF female, with cone valve	3150050P
Suction cup F40-2 Nitrile-PVC, 1/8" NPSF female, with dual flow control valve	0101573
Suction cup F40-2 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101572
Suction cup F40-2 Nitrile-PVC, 5x1/8" NPSF female	0101571
Suction cup F40-2 Nitrile-PVC, G1/4" male, with mesh filter	0101567
Suction cup F40-2 Nitrile-PVC, G1/4" male, with mesh filter and dual flow control valve	0101574
Suction cup F40-2 Nitrile-PVC, G3/8" male, with mesh filter	0101569
Suction cup F40-2 Nitrile-PVC, G3/8" male, with mesh filter and dual flow control valve	0101576
Suction cup F40-2 Silicone	0101136
Suction cup F40-2 Silicone FCM	0200437
Suction cup F40-2 Silicone FCM, 1/4" NPT male, with mesh filter	9909669
Suction cup F40-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909629
Suction cup F40-2 Silicone FCM, G1/4" male, with mesh filter	9909628
Suction cup F40-2 Silicone, 1/8" NPSF female PA	0110345
Suction cup F40-2 Silicone, 1/8" NPSF female, with cone valve	3150050S
Suction cup F40-2 Silicone, 1/8" NPSF female, with mesh filter...	0101553
Suction cup F40-2 Silicone, 5x1/8" NPSF female	0101552
Suction cup F40-2 Silicone, G1/4" male, with mesh filter	0101548
Suction cup F40-2 Silicone, G3/8" male, with mesh filter	0101550

Description	Item no.
Suction cup F40-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101554
Suction cup F50-2 HNBR	0108166
Suction cup F50-2 HNBR, 1/8" NPSF female	0108181
Suction cup F50-2 HNBR, G1/4" male, with mesh filter	0108182
Suction cup F50-2 HNBR, G3/8" male, with mesh filter	0108183
Suction cup F50-2 Nitrile-PVC	0101137
Suction cup F50-2 Nitrile-PVC, 1/8" NPSF female, PA	0110952
Suction cup F50-2 Nitrile-PVC, 1/8" NPSF female, with cone valve	3150051P
Suction cup F50-2 Nitrile-PVC, 1/8" NPSF female, with dual flow control valve	0101773
Suction cup F50-2 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101772
Suction cup F50-2 Nitrile-PVC, 5x1/8" NPSF female	0101771
Suction cup F50-2 Nitrile-PVC, 5x1/8" NPSF female, with dual flow control valve	0101778
Suction cup F50-2 Nitrile-PVC, for fitting with cone valve	3150241P
Suction cup F50-2 Nitrile-PVC, G1/4" male, with mesh filter	0101767
Suction cup F50-2 Nitrile-PVC, G1/4" male, with mesh filter and dual flow control valve	9909458
Suction cup F50-2 Nitrile-PVC, G3/8" male, with mesh filter	0101769
Suction cup F50-2 Nitrile-PVC, G3/8" male, with mesh filter and dual flow control valve	0101776
Suction cup F50-2 Silicone	0101138
Suction cup F50-2 Silicone FCM	0200438
Suction cup F50-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909631
Suction cup F50-2 Silicone FCM, G1/4" male, with mesh filter	9909630

Description	Item no.
Suction cup F50-2 Silicone, 1/8" NPSF female, PA	0110346
Suction cup F50-2 Silicone, 1/8" NPSF female, with cone valve	3150051S
Suction cup F50-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101754
Suction cup F50-2 Silicone, 1/8" NPSF female, with mesh filter	0101753
Suction cup F50-2 Silicone, 5x1/8" NPSF female	0101752
Suction cup F50-2 Silicone, for fitting with cone valve	3150241S
Suction cup F50-2 Silicone, G1/4" male, with mesh filter	0101748
Suction cup F50-2 Silicone, G3/8" male, with mesh filter	0101750
Suction cup F75P Polyurethane 30/60	0104724
Suction cup F75P Polyurethane 30/60, 1/8" NPSF female, with mesh filter	0106349
Suction cup F75P Polyurethane 30/60, 3/8" NPSF female	0108800
Suction cup F75P Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0106351
Suction cup F75P Polyurethane 30/60, for tread insert	0106829
Suction cup F75P Polyurethane 30/60, G1/2" female, with mesh filter	0106352
Suction cup F75P Polyurethane 30/60, G3/8" female, with cone valve	0129928
Suction cup F75P Polyurethane 30/60, G3/8" female, with mesh filter	0106350
Suction cup F75P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0106830
Suction cup F75P Polyurethane 60	0111584
Suction cup F75P Polyurethane 60, 1/8" NPSF female, with mesh filter	0111585
Suction cup F75P Polyurethane 60, 3/8" NPSF female	0108801
Suction cup F75P Polyurethane 60, 3/8" NPSF female, with mesh filter	0111587

Description	Item no.
Suction cup F75P Polyurethane 60, for tread insert	0107320
Suction cup F75P Polyurethane 60, G1/2" female, with mesh filter	0111588
Suction cup F75P Polyurethane 60, G3/8" female, with cone valve	0129929
Suction cup F75P Polyurethane 60, G3/8" female, with mesh filter	0111586
Suction cup F75P Polyurethane 60, thread insert G3/8" male, with mesh filter	0107321
Suction cup F110P Polyurethane 30/60	0104725
Suction cup F110P Polyurethane 30/60, 3/8" NPSF female	0108802
Suction cup F110P Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0106354
Suction cup F110P Polyurethane 30/60, for thread insert	0106796
Suction cup F110P Polyurethane 30/60, G1/2" female, with cone valve	0129927
Suction cup F110P Polyurethane 30/60, G1/2" female, with mesh filter	0106355
Suction cup F110P Polyurethane 30/60, G3/8" female, with mesh filter	0106353
Suction cup F110P Polyurethane 30/60, thread insert G3/8" with mesh filter	0106798
Suction cup F110P Polyurethane 60	0111593
Suction cup F110P Polyurethane 60, 3/8" NPSF female	0108803
Suction cup F110P Polyurethane 60, 3/8" NPSF female, with mesh filter	0111596
Suction cup F110P Polyurethane 60, for thread insert	0107322
Suction cup F110P Polyurethane 60, G1/2" female, with cone valve	0129930
Suction cup F110P Polyurethane 60, G1/2" female, with mesh filter	0111597
Suction cup F110P Polyurethane 60, G3/8" female, with mesh filter	0111595
Suction cup F110P Polyurethane 60, thread insert G3/8", with mesh filter	0107323

Description	Item no.
Suction cup F15MF Thermoelastic polyurethane	3150269
Suction cup F15MF Thermoelastic polyurethane, M5 male	3250074
Suction cup F20MF Thermoelastic polyurethane	0101139
Suction cup F20MF Thermoelastic polyurethane, M5 female	0101281
Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101282
Suction cup F20MF Thermoelastic polyurethane, 1/8" NPT male with mesh filter	0101283
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 female	0101284
Suction cup F20MF Thermoelastic polyurethane, 5xM5 female	0101285
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 female, with mesh filter	0101286
Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve	0101288
Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 fem., with dual flow control valve	0101290
Suction cup F20MF Thermoelastic polyurethane, 5xM5 female, with dual flow control valve	0101291
Suction cup F25MF Thermoelastic polyurethane	0101140
Suction cup F25MF Thermoelastic polyurethane, M5 female	0101314
Suction cup F25MF Thermoelastic polyurethane, M5 female, with dual flow control valve	0101320
Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101315
Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve	0101321
Suction cup F25MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter	0101319
Suction cup F25MF Thermoelastic polyurethane, 5xM5 female	0101318
Suction cup F30MF Thermoelastic polyurethane	0101141
Suction cup F30MF Thermoelastic polyurethane, 5xM5 female	0101361



Description	Item no.
Suction cup F30MF Thermoelastic polyurethane, 5xM5 female, with dual flow control valve	0101367
Suction cup F30MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101358
Suction cup F30MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve	0101364
Suction cup F30MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter	0101362
Suction cup F30MF Thermoelastic polyurethane, M5 female	0101357
Suction cup F30MF Thermoelastic polyurethane, M5 female, with dual flow control valve	0101363
Suction cup F40MF Thermoelastic polyurethane	0101142
Suction cup F40MF Thermoelastic polyurethane	0101142
Suction cup F40MF Thermoelastic polyurethane, 1/8" NPSF female, with dual flow control valve	0101592
Suction cup F40MF Thermoelastic polyurethane, 5x1/8" NPSF female	0101590
Suction cup F40MF Thermoelastic polyurethane, G1/4" male, with mesh filter	0101586
Suction cup F40MF Thermoelastic polyurethane, G1/4" male, with mesh filter and dual flow control valve	0101593
Suction cup F40MF Thermoelastic polyurethane, G3/8" male, with mesh filter	0101588
Suction cup F40MF Thermoelastic polyurethane, G3/8" male, with mesh filter and dual flow control valve	0101595
Suction cup F40MF Thermoelastic polyurethane, 1/8" NPSF female	0101591
Suction cup F50MF Thermoelastic polyurethane	0101143
Suction cup F50MF Thermoelastic polyurethane, G1/4" male, with mesh filter	0101786
Suction cup F50MF Thermoelastic polyurethane, G1/4" male, with mesh filter and dual flow control valve	0101793
Suction cup F50MF Thermoelastic polyurethane, G3/8" male, with mesh filter	0101788
Suction cup F50MF Thermoelastic polyurethane, 1/8" NPSF female, with mesh filter	0101791
XLF150 Extra Large Flat cup, G1/2" female	0127131

Description	Item no.
XLF200 Extra Large Flat cup, G1/2" female	0127132
XLF250 Extra Large Flat cup, G1/2" female	0127133
XLF300 Extra Large Flat cup, G1/2" female	0127134

## Flat Concave family (FC)



The friction cups in flat concave shape and in the material DURAFLEX® suction cups have been developed to meet the strict demands of the automotive industry and designed for flat and curved surfaces. A typical application is the feeding of sheet metal into a press tool. The FCF-P design is especially suitable for oily surfaces, slightly domed and flat surfaces, e.g., such as those encountered when handling metal sheets in press lines. The suction cups have support cleats that prevent thin objects from being disfigured.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
FC20P	4.5	12	16	4.5	9	12
FC25P	8	20	27	9	12	18
FC35P	11/11*	36/34*	51/49*	27/27*	51/41*	62/51*
FC50P	28/28**	77/77**	103/104**	49/52**	82/93**	100/111**
FC75P	73/73**	157/168**	215/225**	107/93**	200/225**	230/255**
FC100P	137/152**	284/328**	377/446**	176/112**	318/264**	420/382**
FC150P	274/284**	647/716**	922/932**	343/215**	765/568**	902/863**
FCF25P	—	19/19***	28/29***	—	7/5***	10/7.2***
FCF35P	—	42/34***	58/50***	—	30/26***	42/32***
FCF50P	—	78/72***	106/101***	—	77/52***	105/70***
FCF75P	—	171/163***	236/228***	—	166/104***	211/139***

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
FCF100P	—	347/236***	490/298***	—	337/139***	484/205***
FCF125P	—	475/405***	650/442***	—	445/194***	602/236***

\* PU50°/PU60°, \*\* PU40°/PU60°, \*\*\* Dry metal sheet/Oily metal sheet.






## GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
FC20P	21.8	9.4	25	1.9	1
FC25P	28.5	11	45	4	3
FC35P	35	15	32	5.5	5
FC50P	50	33.5	53	5	10
FC75P	75	24	78	6.5	30
FC100P	100	27	110	10.2	80
FC150P	150	40.5	165	14.2	250
FCF25P	25	28	27	—	5.5
FCF35P	35	29–47.8*	40	2	5
FCF50P	50	31–49.9*	50	3	10
FCF75P	75	31–41*	100	4	30
FCF100P	100	36–45*	150	6	70
FCF125P	126	42–51.2*	150	8	100

\* Height range includes fittings.

**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material						MSF
FC20P	PU50°	●	●	●	●	●	●
FC25P	PU50°	●	●	●	●	●	●
FC35P	PU50°	●	●	●	●	●	●
FC50P	PU40°	●	●	●	●	●	●
FC50P	PU60°	●	●	●	●	●	●
FC75P	PU40°	●	●	●	●	●	●
FC75P	PU60°	●	●	●	●	●	●
FC100P	PU40°	●	●	●	●	●	●
FC100P	PU60°	●	●	●	●	●	●
FC150P	PU40°	●	●	●	●	●	●
FC150P	PU60°	●	●	●	●	●	●
FCF25P	PU55°/PU60°		●				●
FCF35P	PU55°/PU60°		●				●
FCF50P	PU55°/PU60°		●				●
FCF75P	PU55°/PU60°		●				●
FCF100P	PU55°/PU60°		●				●
FCF125P	PU55°/PU60°		●				●

**MATERIAL RESISTANCE**

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Oily sheet metal	Dry sheet metal	Mark free
FC20P		●	●
FC25P		●	●
FC35P		●	●
FC50P		●	●
FC75P		●	●
FC100P		●	●
FC150P		●	●
FCF25P	●		
FCF35P	●		
FCF50P	●		
FCF75P	●		
FCF100P	●		
FCF125P	●		

**FITTINGS**

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup FC20P Polyurethane 50	0106016
Suction cup FC20P Polyurethane 50, G1/8" male / M5 female, with mesh filter	0106718
Suction cup FC20P Polyurethane 50, G1/8" male, with mesh filter	0106722
Suction cup FC20P Polyurethane 50, M5 female	0106717

Description	Item no.
Suction cup FC25P Polyurethane 50	0104803
Suction cup FC25P Polyurethane 50, G1/8" male / M5 female, with mesh filter	0106720
Suction cup FC25P Polyurethane 50, G1/8" male, with mesh filter	0106721
Suction cup FC25P Polyurethane 50, M5 female	0106719
Suction cup FC35P Polyurethane 50	0103290
Suction cup FC35P Polyurethane 50, 1/8" NPSF female, with dual flow control valve	0103709
Suction cup FC35P Polyurethane 50, 1/8" NPSF female, with mesh filter	0103705
Suction cup FC35P Polyurethane 50, G1/4" male, with mesh filter	0103711
Suction cup FC35P Polyurethane 50, G1/4" male, with mesh filter and dual flow control valve	0103713
Suction cup FC35P Polyurethane 50, G3/8" male, with mesh filter	0103719
Suction cup FC35P Polyurethane 60	0103291
Suction cup FC35P Polyurethane 60, 1/8" NPSF female, with mesh filter	0103706
Suction cup FC35P Polyurethane 60, 5x1/8" NPSF female	0103728
Suction cup FC35P Polyurethane 60, G1/4" male, with mesh filter	0103712
Suction cup FC35P Polyurethane 60, G3/8" male, with mesh filter	0103720
Suction cup FC35P Polyurethane 60, G3/8" male, with mesh filter and dual flow control valve	0103722
Suction cup FC50P Polyurethane 40, G3/8" male - 1/8" NPSF female	0103289
Suction cup FC50P Polyurethane 60, G3/8" male - 1/8" NPSF female	0103293
Suction cup FC75P Polyurethane 40, 3/8" NPSF female	0108796
Suction cup FC75P Polyurethane 40, for tread insert	0106948
Suction cup FC75P Polyurethane 40, G3/8" male - 1/8" NPSF female	0103294

Description	Item no.
Suction cup FC75P Polyurethane 40, thread insert G3/8" with mesh filter	0106959
Suction cup FC75P Polyurethane 60, 3/8" NPSF female	0108797
Suction cup FC75P Polyurethane 60, for tread insert	0107302
Suction cup FC75P Polyurethane 60, G3/8" male - 1/8" NPSF female	0103296
Suction cup FC75P Polyurethane 60, thread insert G3/8" with mesh filter	0107303
Suction cup FC100P Polyurethane 40	0103297
Suction cup FC100P Polyurethane 40, 1/8" NPSF female, with mesh filter	0103731
Suction cup FC100P Polyurethane 40, 3/8" NPSF female	0108798
Suction cup FC100P Polyurethane 40, 3/8" NPSF female, with mesh filter	0103737
Suction cup FC100P Polyurethane 40, for tread insert	0106835
Suction cup FC100P Polyurethane 40, G1/2" female, with mesh filter	0103740
Suction cup FC100P Polyurethane 40, thread insert G3/8" male, with mesh filter	0106836
Suction cup FC100P Polyurethane 60	0103299
Suction cup FC100P Polyurethane 60, 1/8" NPSF female, with mesh filter	0103733
Suction cup FC100P Polyurethane 60, 1/8" NPSF female, with mesh filter	0103734
Suction cup FC100P Polyurethane 60, 3/8" NPSF female	0108799
Suction cup FC100P Polyurethane 60, 3/8" NPSF female, with mesh filter	0103739
Suction cup FC100P Polyurethane 60, for tread insert	0107304
Suction cup FC100P Polyurethane 60, G1/2" female, with mesh filter	0103742
Suction cup FC100P Polyurethane 60, G3/8" female, with mesh filter	0103736
Suction cup FC100P Polyurethane 60, thread insert G3/8" male, with mesh filter	0107305



Description	Item no.
Suction cup FC150P Polyurethane 40	0101946
Suction cup FC150P Polyurethane 40, 3/8" NPSF female, with mesh filter	0103749
Suction cup FC150P Polyurethane 40, G1/2" female, with mesh filter	0103755
Suction cup FC150P Polyurethane 40, G3/8" female, with mesh filter	0103743
Suction cup FC150P Polyurethane 60	0103301
Suction cup FC150P Polyurethane 60, 3/8" NPSF female, with mesh filter	0103751
Suction cup FC150P Polyurethane 60, G1/2" female, with mesh filter	0103757
Suction cup FC150P Polyurethane 60, G3/8" female, with mesh filter	0103745
Suction cup FCF25P Polyurethane 55/60, 3/8" NPT female	0206916
Suction cup FCF25P Polyurethane 55/60, G1/4" female	0206919
Suction cup FCF25P Polyurethane 55/60, G3/8" female	0206909
Suction cup FCF25P Polyurethane 55/60, G3/8" female plastic	0206895
Suction cup FCF25P Polyurethane 55/60, G3/8" male, 1/8" NPSF female	0201827
Suction cup FCF25P Polyurethane 55/60, T-slot	0206926
Suction cup FCF35P Polyurethane 55/60, 3/8" NPT female	0122282
Suction cup FCF35P Polyurethane 55/60, G1/4" female	0206921
Suction cup FCF35P Polyurethane 55/60, G3/8" female	0118981
Suction cup FCF35P Polyurethane 55/60, G3/8" female plastic	0206893
Suction cup FCF35P Polyurethane 55/60, G3/8" female, 17 mm thread	0200652
Suction cup FCF35P Polyurethane 55/60, G3/8" male, with mesh filter	0119913
Suction cup FCF35P Polyurethane 55/60, M10x1.5 male	0121431

Description	Item no.
Suction cup FCF35P Polyurethane 55/60, T-slot, with mesh filter	0206927
Suction cup FCF50P Polyurethane 55/60, 3/8" NPT female	0122283
Suction cup FCF50P Polyurethane 55/60, G1/4" female	0206936
Suction cup FCF50P Polyurethane 55/60, G3/8" female	0118986
Suction cup FCF50P Polyurethane 55/60, G3/8" female plastic	0206606
Suction cup FCF50P Polyurethane 55/60, G3/8" female, 17 mm thread	0200685
Suction cup FCF50P Polyurethane 55/60, G3/8" male, with mesh filter	0118985
Suction cup FCF50P Polyurethane 55/60, M10x1.5 male	0121432
Suction cup FCF50P Polyurethane 55/60, T-slot, with mesh filter	0206929
Suction cup FCF75P Polyurethane 55/60, 3/8" NPT female	0122284
Suction cup FCF75P Polyurethane 55/60, G1/4" female	0206937
Suction cup FCF75P Polyurethane 55/60, G3/8" female	0118429
Suction cup FCF75P Polyurethane 55/60, G3/8" female, 17 mm thread	0200687
Suction cup FCF75P Polyurethane 55/60, G3/8" female, plastic thread	0124718
Suction cup FCF75P Polyurethane 55/60, G3/8" male, with mesh filter	0118423
Suction cup FCF75P Polyurethane 55/60, M10x1.5 male	0121433
Suction cup FCF75P Polyurethane 55/60, T-slot, with mesh filter	0206930
Suction cup FCF100P Polyurethane 55/60 G3/8" male, with mesh filter	0118430
Suction cup FCF100P Polyurethane 55/60, 3/8" NPT female	0122285
Suction cup FCF100P Polyurethane 55/60, G1/4" female	0206938
Suction cup FCF100P Polyurethane 55/60, G3/8" female	0118432

Description	Item no.
Suction cup FCF100P Polyurethane 55/60, G3/8" female, 17 mm thread	0200690
Suction cup FCF100P Polyurethane 55/60, M10x1.5 male	0121385
Suction cup FCF100P Polyurethane 55/60, T-slot, with mesh filter	0206931
Suction cup FCF125P Polyurethane 55/60, 3/8" NPT female	0122286
Suction cup FCF125P Polyurethane 55/60, G1/4" female	0206939
Suction cup FCF125P Polyurethane 55/60, G3/8" female	0118437
Suction cup FCF125P Polyurethane 55/60, G3/8" female, 17 mm thread	0200693
Suction cup FCF125P Polyurethane 55/60, G3/8" female, plastic thread	0124787
Suction cup FCF125P Polyurethane 55/60, G3/8" male, with mesh filter	0118435
Suction cup FCF125P Polyurethane 55/60, M10x1.5 male	0121435
Suction cup FCF125P Polyurethane 55/60, T-slot, with mesh filter	0206932

## Bellows family (B)



The bellows family is suitable for height differences and slightly uneven or curved surfaces. Several short bellows cups in one lifting device can handle objects with height differences and varying shapes. The bellows also provide a slight lifting movement to separate thin items. This family is available, among other material in FDA compliant material, or the durable DURAFLEX® as Mark Free or even for oily surfaces.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
B5	0.3	0.8	1	—	—	—
B8	0.8	1.6	2.5	—	—	—
B10-2	1.5	3.4	4.9	—	—	—
B15-2	2.9	5.9	8.9	—	—	—
B20	5.9	9.8	14	—	—	—
B30	12	22	27	—	—	—
B30-2	12	22	27	—	—	—
B40	22	39	49	—	—	—
B50	33	65	82	—	—	—
B50-2	33	65	82	—	—	—
B75	74	167	226	—	—	—

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
B75-2	74	167	226	—	—	—
B110	137	343	461	—	—	—
B110-2	137	343	461	—	—	—
B150	294	686	883	—	—	—
B75P	61/83*	149/196*	202/255*	44/121*	96/229*	114/298*
B10XP	3.1/2.6*	4.6/3.8*	4.5/5.5*	1/1*	2.5/2*	4/4*
B15XP	6/5*	10/9*	12/121*	2.5/2.5*	5/5*	9/8*
B20XP	8.7/7.8*	19.7/15*	23/20*	7/3.5*	11/7*	15/10*
B25XP	12/9.7*	27/19*	30/22*	10/8*	13/12*	18/15*
B35XP	19/17*	48/39*	66/50*	17/15*	33/30*	50/40*
B52XP	42.5/36*	109/84*	150/102*	39/30*	70/60*	90/85*
B75XP	86/75*	222/176*	307/228*	80/60*	200/150*	230/180*
B110XP	200/190*	440/380*	500/470*	190/170*	380/350*	460/430*
B15MF	4	8	12	4.5	7	10
B20MF	4.5	15.5	21	6.3	11	19
B30MF	12	40	54.5	14.5	32	41
B40MF	18	57	72	13.6	40	47
B50MF	30	93	136	23	63	97
BF80P	73/98**	157/225**	196/294**	54/68**	88/127**	117/166**
BF110P	128/161*	229/334*	225/293*	106/123*	210/231*	246/305*

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
BFF30P	—	24/23***	27/30***	—	11/5.5***	13.5/7.8***
BFF40P	—	43/45***	56/60***	—	60/35***	81/45***
BFF60P	—	77/82***	112/106***	—	90/76***	122/93***
BFF80P	—	176/174***	236/207***	—	201/110***	240/160***
BFF110P	—	279/284***	377/345***	—	298/235***	346/253***
BFF80TP	—	176/174	236/207	—	201/110	240/160
BFF110TP	—	279/284	377/345	—	298/235	346/253
BFFT50P	—	104/105	145/146	—	61/122	85/155
BFFT70P	—	172/165	220/211	—	176/110	245/148
BFFT90P	—	184/184	228/230	—	273/171	364/232

\* PU30°/PU60° / PU60°, \*\* PU30°/PU50° / PU60°, \*\*\* Dry metal sheet/Oily metal sheet.

## GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
B5	5.6	9.2	1.5	1.5	0.05
B8	8.8	11.9	1.9	3.5	0.15
B10-2	11	16.4	4	4.5	0.48
B15-2	15.7	19.8	5	6.5	1.1
B20	22	19	10	10	2.7
B30	34	26	15	15	10
B30-2	34	26.2	15	15	10
B40	43	28	20	12	15








	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
B50	53	35.3	30	19	32
B50-2	53	35.4	30	19	32
B75	78	37.3	40	24	110
B75-2	78	37	40	24	110
B110	115	54.3	60	35	310
B110-2	115	54.3	60	35	310
B150	155	71.3	75	45	650
B75P	79	37.3	90	20	110
B10XP	11	13.9	4/6**	3	0.19
B15XP	16	14.8	5.5/10**	3.4	0.4
B20XP	21	10.4	5.5/9**	4.6	1.04
B25XP	26	13.5	11/9**	5.5	1.63
B35XP	37	18.6	17.5/16**	9.5	4.4
B52XP	53	27	29/25**	11.2	13.3
B75XP	77.5	34.3	60/50**	16	42.8
B110XP	113.7	48.5	90/80**	23.4	123
B15MF	16	19.5	11	2	1.1
B20MF	23	19	11	8	3.7
B30MF	34	26	16.5	12	10
B40MF	43	28	22	11	15
B50MF	57	35	26	13	32

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
BF80P	84	44	50	15	40
BF110P	115	53	55/70*	24	110
BFF30P	30	30	15	5	5
BFF40P	45	32–51.5***	23	7	10
BFF60P	61	36–55.3***	35	10	20
BFF80P	85	46–55.8***	50	14	50
BFF110P	115	53–72.5***	95	21	110
BFF80TP	85.3	38.5–56***	50	14	—
BFF110TP	115	53–72.5***	95	21	—
BFFT50P	53	29.2–46.7***	85	11	14.8
BFFT70P	73	31.7–44.7***	95	14	36.4
BFFT90P	93	41–60.5	130	21	83.6








\* PU30° / PU30°/PU60°, \*\* PU30°/PU60° / PU60°, \*\*\* Height range includes fittings.



### AVAILABLE MATERIALS AND INDUSTRIES








An explanation of the industry icons is available on the cover fold out.








Cup	Material								MSF
B5	Chloroprene, CR	●				●		●	●
B5	Conductive silicone, CSIL				●				
B5	HNBR	●					●	●	
B5	Semi-conductive EPDM				●				
B5	Silicone, SIL	●	●						
B5	Silicone FDA EU, SIL FDA	●	●						



Cup	Material								MSF
B8	Chloroprene, CR	●				●		●	●
B8	Conductive silicone, CSIL				●				
B8	HNBR	●					●	●	
B8	Silicone, SIL	●	●						
B8	Silicone FDA EU, SIL FDA	●	●						
B10-2	Chloroprene, CR	●				●		●	●
B10-2	HNBR	●					●	●	
B10-2	Silicone, SIL	●	●						
B10-2	Silicone FDA EU, SIL FDA	●	●						
B15-2	Chloroprene, CR	●				●		●	●
B15-2	HNBR	●					●	●	
B15-2	Silicone, SIL	●	●						
B15-2	Silicone FDA EU, SIL FDA	●	●						
B20	HNBR	●					●	●	
B20	Silicone FDA EU, SIL FDA	●	●						
B30-2	HNBR	●					●	●	
B30-2	Silicone FDA EU, SIL FDA	●	●						
B40	HNBR	●					●	●	
B40	Silicone FDA EU, SIL FDA	●	●						
B50	HNBR	●					●	●	

Cup	Material								MSF
B50	Silicone FDA EU, SIL FDA	●	●						
B50-2	Silicone FDA EU, SIL FDA	●	●						
B75	HNBR	●					●	●	
B75	Nitrile-PVC, NPV	●				●		●	●
B75	Silicone, SIL	●	●						
B75	Silicone FDA EU, SIL FDA	●	●						
B75-2	Nitrile-PVC, NPV	●				●		●	●
B75-2	Silicone, SIL	●	●						
B75-2	Silicone FDA EU, SIL FDA	●	●						
B110	HNBR	●					●	●	
B110	Nitrile-PVC, NPV	●				●		●	●
B110	Silicone, SIL	●	●						
B110	Silicone FDA EU, SIL FDA	●	●						
B110-2	Nitrile-PVC, NPV	●				●		●	●
B110-2	Silicone, SIL	●	●						
B110-2	Silicone FDA EU, SIL FDA	●	●						
B150	Nitrile-PVC, NPV	●				●		●	●
B150	Silicone, SIL	●	●						
B150	Silicone FDA EU, SIL FDA	●	●						
B75P	PU30°/PU60°	●		●					

Cup	Material								MSF
B75P	PU60°	●		●	●	●		●	●
B10XP	PU30°/PU60°	●		●					
B10XP	PU60°	●		●	●	●		●	●
B15XP	PU30°/PU60°	●		●					
B15XP	PU60°	●		●	●	●		●	●
B20XP	PU30°/PU60°	●		●					
B20XP	PU60°	●		●	●	●		●	●
B25XP	PU30°/PU60°	●		●					
B25XP	PU60°	●		●	●	●		●	●
B35XP	PU30°/PU60°	●		●					
B35XP	PU60°	●		●	●	●		●	●
B52XP	PU30°/PU60°	●		●					
B52XP	PU60°	●		●	●	●		●	●
B75XP	PU30°/PU60°	●		●					
B75XP	PU60°	●		●	●	●		●	●
B110XP	PU30°/PU60°	●		●					
B110XP	PU60°	●		●	●	●		●	●
B15MF	TPE-U				●			●	
B20MF	TPE-U				●			●	
B30MF	TPE-U				●			●	

Cup	Material								MSF
B40MF	TPE-U				●			●	
B50MF	TPE-U				●			●	
BF80P	PU30°/PU50°	●		●	●	●		●	●
BF80P	PU60°	●		●	●	●		●	●
BF110P	PU30°/PU60°	●		●	●	●		●	●
BF110P	PU60°	●		●	●	●		●	●
BFF30P	PU55°/PU560°			●					●
BFF40P	PU55°/PU560°			●					●
BFF60P	PU55°/PU560°			●					●
BFF80P	PU55°/PU560°			●					●
BFF110P	PU55°/PU560°			●					●
BFF80TP	PU55°/60°/30°			●					●
BFF110TP	PU55°/60°/30°			●					●
BFFT50P	PU60°/60°/30°			●					●
BFFT70P	PU60°/60°/30°			●					●
BFFT90P	PU60°/60°/30°			●					●

### MATERIAL RESISTANCE

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Oily sheet metal	Dry sheet metal	Corrugated / cardboard	FDA EU-standard compliant	Glass handling	Electronic / semi-conductor	High/low temp cup (plastic)	Mark Free	Plastic injection molded parts
B5		●		●	●	●	●	●	●
B8		●		●	●	●	●	●	●
B20		●		●	●		●	●	●
B30		●							●
B40		●		●	●		●	●	●
B50		●		●	●		●	●	●
B75		●		●	●		●	●	●
B110		●		●				●	
B150		●		●					●
B10-2		●		●	●		●	●	●
B15-2		●		●	●		●	●	●
B30-2		●		●	●		●	●	●
B50-2		●		●					●
B75-2		●		●					●
B110-2		●		●					●
B10XP		●	●		●				●
B15XP		●	●		●				●
B20XP		●	●		●				●

	Oily sheet metal	Dry sheet metal	Corrugated / cardboard	FDA EU-standard compliant	Glass handling	Electronic / semi-conductor	High/low temp cup (plastic)	Mark Free	Plastic injection molded parts
B25XP		●	●		●				●
B35XP		●	●		●				●
B52XP		●	●		●				●
B75XP		●	●		●				●
B110XP		●	●		●				●
B75P		●						●	●
B15MF								●	
B20MF								●	
B30MF								●	
B40MF								●	
B50MF								●	
BF80P		●			●			●	
BF110P		●			●			●	
BFF30P	●								
BFF40P	●								
BFF60P	●								
BFF80P	●								
BFF110P	●								
BFF80TP	●	●						●	

	Oily sheet metal	Dry sheet metal	Corrugated / cardboard	FDA EU-standard compliant	Glass handling	Electronic / semi-conductor	High/low temp cup (plastic)	Mark Free	Plastic injection molded parts
BFF110TP	●	●						●	
BFFT50P	●	●						●	
BFFT70P	●	●						●	
BFFT90P	●	●						●	

### FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

### ORDERING INFORMATION

Description	Item no.
Suction cup B5 Chloroprene	3150286
Suction cup B5 Chloroprene, M5 male	3250082
Suction cup B5 Conductive silicone	3150286SC
Suction cup B5 Conductive silicone, M5 male	3250082SC
Suction cup B5 HNBR	0200893
Suction cup B5 HNBR, M5 male	9912093
Suction cup B5 Semi-conductive EPDM	0129949
Suction cup B5 Semi-conductive EPDM, M5 male	9912097
Suction cup B5 Silicone	3150286S
Suction cup B5 Silicone FCM	0200277
Suction cup B5 Silicone FCM, M5 male	9909604
Suction cup B5 Silicone, M5 male	3250082S

Description	Item no.
Suction cup B8 Chloroprene	3150287
Suction cup B8 Chloroprene, M5 male	3250083
Suction cup B8 Conductive silicone	3150287SC
Suction cup B8 Conductive silicone, M5 male	3250083SC
Suction cup B8 HNBR	0200894
Suction cup B8 HNBR, M5 male	9912094
Suction cup B8 Silicone	3150287S
Suction cup B8 Silicone FCM	0200278
Suction cup B8 Silicone FCM, M5 male	9909605
Suction cup B8 Silicone, M5 male	3250083S
Suction cup B20 Chloroprene	0101101
Suction cup B20 Chloroprene, 1/8" NPT male, with mesh filter	0101162
Suction cup B20 Chloroprene, 5×M5 female	0101164
Suction cup B20 Chloroprene, G1/8" male, with mesh filter	0101161
Suction cup B20 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101167
Suction cup B20 Chloroprene, G1/8" male/M5 female, PA	0110949
Suction cup B20 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101169
Suction cup B20 Chloroprene, G1/8" male/M5 female, with mesh filter	0101165
Suction cup B20 Chloroprene, M5 female	0101160
Suction cup B20 Chloroprene, M5 female, with dual flow control valve	0101166
Suction cup B20 HNBR	0128712



Description	Item no.
Suction cup B20 HNBR, 5×M5 female	9906887
Suction cup B20 HNBR, G1/8" male, with mesh filter	9906877
Suction cup B20 HNBR, G1/8" male, with mesh filter and dual flow control valve	9906878
Suction cup B20 HNBR, G1/8" male/M5 female, with dual flow control valve	9906881
Suction cup B20 HNBR, G1/8" male/M5 female, with mesh filter	9906880
Suction cup B20 HNBR, M5 female	9906875
Suction cup B20 HNBR, M5 female, with dual flow control valve	9906876
Suction cup B20 Silicone	0101102
Suction cup B20 Silicone FCM	0200405
Suction cup B20 Silicone FCM, G1/8" male, with mesh filter	9909608
Suction cup B20 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909700
Suction cup B20 Silicone, 5×M5 female	0101175
Suction cup B20 Silicone, 5×M5 female, with dual flow control valve	0101181
Suction cup B20 Silicone, G1/8" male, with mesh filter	0101172
Suction cup B20 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101178
Suction cup B20 Silicone, G1/8" male/M5 female, PA	0110336
Suction cup B20 Silicone, G1/8" male/M5 female, with dual flow control valve	0101180
Suction cup B20 Silicone, G1/8" male/M5 female, with mesh filter	0101176
Suction cup B20 Silicone, M5 female	0101171
Suction cup B20 Silicone, M5 female, with dual flow control valve	0101177
Suction cup B40 Chloroprene	0101105

Description	Item no.
Suction cup B40 Chloroprene, 1/8" NPSF female, PA	0109843
Suction cup B40 Chloroprene, 1/8" NPSF female, with dual flow control valve	0101463
Suction cup B40 Chloroprene, 1/8" NPSF female, with mesh filter	0101462
Suction cup B40 Chloroprene, 5×1/8" NPSF female	0101461
Suction cup B40 Chloroprene, G1/4" male, with mesh filter	0101457
Suction cup B40 Chloroprene, G1/4" male, with mesh filter and dual flow control valve	0101464
Suction cup B40 Chloroprene, G3/8" male, with mesh filter	0101459
Suction cup B40 Chloroprene, G3/8" male, with mesh filter and dual flow control valve	0101466
Suction cup B40 HNBR	0108081
Suction cup B40 HNBR, 1/8" NPSF female, with mesh filter	0108082
Suction cup B40 HNBR, G1/4" male, with mesh filter	0108169
Suction cup B40 HNBR, G3/8" male, with mesh filter	0108170
Suction cup B40 Silicone	0101106
Suction cup B40 Silicone FCM	0200408
Suction cup B40 Silicone FCM, 1/8" NPSF female, with mesh filter	9909613
Suction cup B40 Silicone FCM, G1/4" male, with mesh filter	9909611
Suction cup B40 Silicone, 1/8" NPSF female PA	0110337
Suction cup B40 Silicone, 1/8" NPSF female, with dual flow control valve	0101476
Suction cup B40 Silicone, 1/8" NPSF female, with mesh filter	0101475
Suction cup B40 Silicone, 5×1/8" NPSF female	0101474
Suction cup B40 Silicone, G1/4" male, with mesh filter	0101470

Description	Item no.
Suction cup B40 Silicone, G1/4" male, with mesh filter and dual flow control valve	0101477
Suction cup B40 Silicone, G3/8" male, with mesh filter	0101472
Suction cup B50 HNBR	0108165
Suction cup B50 HNBR, 1/8" NPSF female, with mesh filter	0108171
Suction cup B50 HNBR, G1/4" male, with mesh filter	0108172
Suction cup B50 HNBR, G3/8" male, with mesh filter	0108173
Suction cup B50 Nitrile-PVC	0101107
Suction cup B50 Nitrile-PVC, 1/8" NPSF female, PA	0111063
Suction cup B50 Nitrile-PVC, 1/8" NPSF female, with dual flow control valve	0101650
Suction cup B50 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101649
Suction cup B50 Nitrile-PVC, 5x1/8" NPSF female	0101648
Suction cup B50 Nitrile-PVC, G1/4" male, with mesh filter	0101644
Suction cup B50 Nitrile-PVC, G1/4" male, with mesh filter and dual flow control valve	0101651
Suction cup B50 Nitrile-PVC, G3/8" male, with mesh filter	0101646
Suction cup B50 Nitrile-PVC, G3/8" male, with mesh filter and dual flow control valve	0101653
Suction cup B50 Silicone	0101108
Suction cup B50 Silicone FCM	0200409
Suction cup B50 Silicone FCM, 1/8" NPSF female, with mesh filter	9909709
Suction cup B50 Silicone FCM, G1/4" male, with mesh filter	9909614
Suction cup B50 Silicone, 1/8" NPSF female, with dual flow control valve	0101637
Suction cup B50 Silicone, 1/8" NPSF female, with mesh filter	0101636

Description	Item no.
Suction cup B50 Silicone, 5×1/8" NPSF female	0101635
Suction cup B50 Silicone, G1/4" male, with mesh filter	0101631
Suction cup B50 Silicone, G1/4" male, with mesh filter and dual flow control valve	0101638
Suction cup B50 Silicone, G3/8" male, with mesh filter	0101633
Suction cup B50 Silicone, G3/8" male, with mesh filter and dual flow control valve	0101640
Suction cup B75 HNBR	3150107T
Suction cup B75 HNBR, 1/8" NPSF female, with mesh filter	0108174
Suction cup B75 HNBR, 3/8" NPSF female, with mesh filter	0108176
Suction cup B75 HNBR, G1/2" female, with mesh filter	0108177
Suction cup B75 HNBR, G3/8" female, with mesh filter	0108175
Suction cup B75 Nitrile-PVC	3150107P
Suction cup B75 Nitrile-PVC, 3/8" NPSF female, with mesh filter	0101856
Suction cup B75 Nitrile-PVC, G1/2" female, with mesh filter	0101857
Suction cup B75 Nitrile-PVC, G3/8" female, with mesh filter	0101855
Suction cup B75 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101854
Suction cup B75P Polyurethane 30/60	0104723
Suction cup B75P Polyurethane 30/60, 1/8" NPSF female, with mesh filter	0106345
Suction cup B75P Polyurethane 30/60, 3/8" NPSF female	0108790
Suction cup B75P Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0106347
Suction cup B75P Polyurethane 30/60, for thread insert	0106832
Suction cup B75P Polyurethane 30/60, G1/2" female, with mesh filter	0106348

Description	Item no.
Suction cup B75P Polyurethane 30/60, G3/8" female, with mesh filter	0106346
Suction cup B75P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0106833
Suction cup B75P Polyurethane 60	0111594
Suction cup B75P Polyurethane 60, 1/8" NPSF female, with mesh filter	0111600
Suction cup B75P Polyurethane 60, 3/8" NPSF female	0108791
Suction cup B75P Polyurethane 60, 3/8" NPSF female, with mesh filter	0111602
Suction cup B75P Polyurethane 60, for thread insert	0107318
Suction cup B75P Polyurethane 60, G1/2" female, with mesh filter	0111603
Suction cup B75P Polyurethane 60, G3/8" female, with mesh filter	0111601
Suction cup B75P Polyurethane 60, thread insert G3/8" male with mesh filter	0107319
Suction cup B75 Silicone	3150107S
Suction cup B75 Silicone FCM	0200245
Suction cup B75 Silicone FCM, G3/8" female, with mesh filter	0200546
Suction cup B75 Silicone, 1/8" NPSF female, with mesh filter	0101850
Suction cup B75 Silicone, 3/8" NPSF female, with mesh filter	0101852
Suction cup B75 Silicone, G1/2" female, with mesh filter	0101853
Suction cup B75 Silicone, G3/8" female, with mesh filter	0101851
Suction cup B110 HNBR	3150108T
Suction cup B110 HNBR, 3/8" NPSF female, with mesh filter	0108179
Suction cup B110 HNBR, G1/2" female, with mesh filter	0108180
Suction cup B110 HNBR, G3/8" female, with mesh filter	0108178

Description	Item no.
Suction cup B110 Nitrile-PVC	3150035P
Suction cup B110 Nitrile-PVC	3150108P
Suction cup B110 Nitrile-PVC, 3/8" NPSF female, with mesh filter	0101891
Suction cup B110 Nitrile-PVC, G1/2" female, with mesh filter	0101892
Suction cup B110 Nitrile-PVC, G3/8" female, with mesh filter	0101890
Suction cup B110 Silicone	3150035S
Suction cup B110 Silicone	3150108S
Suction cup B110 Silicone FCM	0200246
Suction cup B110 Silicone FCM, G1/2" female, with mesh filter	0200551
Suction cup B110 Silicone, 3/8" NPSF female, with mesh filter	0101885
Suction cup B110 Silicone, G1/2" female, with mesh filter	0101886
Suction cup B110 Silicone, G3/8" female, with mesh filter	0101884
Suction cup B150 Nitrile-PVC	3150036P
Suction cup B150 Nitrile-PVC	3150109P
Suction cup B150 Nitrile-PVC, G1/2" female, with mesh filter	0101931
Suction cup B150 Nitrile-PVC, G3/4" female, with mesh filter	0101932
Suction cup B150 Silicone	3150036S
Suction cup B150 Silicone	3150109S
Suction cup B150 Silicone FCM	0200247
Suction cup B150 Silicone FCM, G1/2" female, with mesh filter	0200552
Suction cup B150 Silicone, G1/2" female, with mesh filter	0101928

Description	Item no.
Suction cup B150 Silicone, G3/4" female, with mesh filter	0101929
Suction cup B10-2 Chloroprene	3150101
Suction cup B10-2 Chloroprene, M5 male	3150023
Suction cup B10-2 HNBR	0128692
Suction cup B10-2 HNBR, M5 male	9906865
Suction cup B10-2 Silicone	3150101S
Suction cup B10-2 Silicone FCM	0200241
Suction cup B10-2 Silicone FCM, M5 male	9909606
Suction cup B10-2 Silicone, M5 male	3150023S
Suction cup B15-2 Chloroprene	3150230
Suction cup B15-2 Chloroprene, M5 male	3250037
Suction cup B15-2 HNBR	0128693
Suction cup B15-2 HNBR, M5 male	9906866
Suction cup B15-2 Silicone	3150230S
Suction cup B15-2 Silicone FCM	0200271
Suction cup B15-2 Silicone FCM, M5 male	9909607
Suction cup B15-2 Silicone, M5 male	3250037S
Suction cup B30-2 Chloroprene	0101103
Suction cup B30-2 Chloroprene, 1/8" NPSF female, PA	0109845
Suction cup B30-2 Chloroprene, 1/8" NPSF female, with dual flow control valve	0101424
Suction cup B30-2 Chloroprene, 1/8" NPSF female, with mesh filter	0101423

Description	Item no.
Suction cup B30-2 Chloroprene, 5×1/8" NPSF female	0101422
Suction cup B30-2 Chloroprene, G1/4" male, with mesh filter	0101418
Suction cup B30-2 Chloroprene, G1/4" male, with mesh filter dual flow control valve	0101425
Suction cup B30-2 Chloroprene, G3/8" male, with mesh filter and dual flow control valve	0101427
Suction cup B30-2 Chloroprene, G3/8" male, with mesh filter	0101420
Suction cup B30-2 HNBR	0108077
Suction cup B30-2 HNBR, 1/8" NPSF female, with mesh filter	0108078
Suction cup B30-2 HNBR, G1/4" male, with mesh filter	0108167
Suction cup B30-2 HNBR, G3/8" male, with mesh filter	0108168
Suction cup B30-2 Silicone	0101104
Suction cup B30-2 Silicone FCM	0200407
Suction cup B30-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909610
Suction cup B30-2 Silicone FCM, G1/4" male, with mesh filter	9909609
Suction cup B30-2 Silicone, 1/8" NPSF female, PA	0110343
Suction cup B30-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101437
Suction cup B30-2 Silicone, 1/8" NPSF female, with mesh filter	0101436
Suction cup B30-2 Silicone, 5×1/8" NPSF female	0101435
Suction cup B30-2 Silicone, 5×1/8" NPSF female, with dual flow control valve	0101442
Suction cup B30-2 Silicone, G1/4" male, with mesh filter	0101431
Suction cup B30-2 Silicone, G1/4" male, with mesh filter and dual flow control valve	0101438
Suction cup B30-2 Silicone, G3/8" male, with mesh filter	0101433



Description	Item no.
Suction cup B30-2 Silicone, G3/8" male, with mesh filter and dual flow control valve	0101440
Suction cup B50-2 Nitrile-PVC with filter	0101109
Suction cup B50-2 Nitrile-PVC with filter, 1/8" NPSF female, PA	0110957
Suction cup B50-2 Nitrile-PVC with filter, 1/8" NPSF female, with dual flow control valve	0101676
Suction cup B50-2 Nitrile-PVC with filter, 1/8" NPSF female, with mesh filter	0101675
Suction cup B50-2 Nitrile-PVC with filter, 5×1/8" NPSF female	0101674
Suction cup B50-2 Nitrile-PVC with filter, G1/4" male, with dual flow control valve and mesh filter	0101677
Suction cup B50-2 Nitrile-PVC with filter, G1/4" male, with mesh filter	0101670
Suction cup B50-2 Nitrile-PVC with filter, G3/8" male, with mesh filter	0101672
Suction cup B50-2 Silicone FCM with filter	0200484
Suction cup B50-2 Silicone FCM with filter, 1/8" NPSF female, with mesh filter	9909619
Suction cup B50-2 Silicone FCM with filter, G1/4" male, with mesh filter	9909618
Suction cup B50-2 Silicone with filter	0101110
Suction cup B50-2 Silicone with filter, 1/8" NPSF female, PA	0110347
Suction cup B50-2 Silicone with filter, 1/8" NPSF female, with dual flow control valve	0101663
Suction cup B50-2 Silicone with filter, 1/8" NPSF female, with mesh filter	0101662
Suction cup B50-2 Silicone with filter, 5×1/8" NPSF female	0101661
Suction cup B50-2 Silicone with filter, G1/4" male, with mesh filter	0101657
Suction cup B50-2 Silicone with filter, G3/8" male, with mesh filter	0101659
Suction cup B75-2 Nitrile-PVC with filter	0101942
Suction cup B75-2 Nitrile-PVC with filter, 3/8" NPSF female, with mesh filter	0101864

Description	Item no.
Suction cup B75-2 Nitrile-PVC with filter, G1/2" female, with mesh filter	0101865
Suction cup B75-2 Nitrile-PVC with filter, G3/8" female, with mesh filter	0101863
Suction cup B75-2 Nitrile-PVC with filter, 1/8" NPSF female, with mesh filter	0101862
Suction cup B75-2 Silicone FCM with filter	0200485
Suction cup B75-2 Silicone FCM with filter, G3/8" female, with mesh filter	0200531
Suction cup B75-2 Silicone with filter	0101943
Suction cup B75-2 Silicone with filter, 1/8" NPSF female, with mesh filter	0101858
Suction cup B75-2 Silicone with filter, 3/8" NPSF female, with mesh filter	0101860
Suction cup B75-2 Silicone with filter, G3/8" female, with mesh filter	0101859
Suction cup B75-2 Silicone, G1/2" female, with mesh filter	0101861
Suction cup B110-2 Nitrile-PVC with filter	0101944
Suction cup B110-2 Nitrile-PVC with filter, 3/8" NPSF female, with mesh filter	0101903
Suction cup B110-2 Nitrile-PVC with filter, G1/2" female, with mesh filter	0101904
Suction cup B110-2 Nitrile-PVC with filter, G3/8" female, with mesh filter	0101902
Suction cup B110-2 Silicone FCM with filter	0200486
Suction cup B110-2 Silicone FCM with filter, G1/2" female, with mesh filter	0200536
Suction cup B110-2 Silicone with filter	0101945
Suction cup B110-2 Silicone with filter, 3/8" NPSF female, with mesh filter	0101897
Suction cup B110-2 Silicone with filter, G1/2" female, with mesh filter	0101898
Suction cup B110-2 Silicone with filter, G3/8" female, with mesh filter	0101896
Suction cup B10XP Polyurethane 30/60	0204978

Description	Item no.
Suction cup B10XP Polyurethane 30/60, M5 male	0204977
Suction cup B10XP Polyurethane 60	0205169
Suction cup B10XP Polyurethane 60, M5 male	0205168
Suction cup B15XP Polyurethane 30/60	0204992
Suction cup B15XP Polyurethane 30/60, M5 male	0204991
Suction cup B15XP Polyurethane 60	0205172
Suction cup B15XP Polyurethane 60, M5 male	0205171
Suction cup B20XP Polyurethane 30/60	0204994
Suction cup B20XP Polyurethane 30/60, 1/8" NPT male with mesh filter	0205047
Suction cup B20XP Polyurethane 30/60, 5xM5 female	0205049
Suction cup B20XP Polyurethane 30/60, G1/8" male / M5 female, with mesh filter	0205048
Suction cup B20XP Polyurethane 30/60, G1/8" male with mesh filter	0205046
Suction cup B20XP Polyurethane 30/60, M5 female	0204993
Suction cup B20XP Polyurethane 60	0205176
Suction cup B20XP Polyurethane 60, 1/8" NPT male with mesh filter	0205180
Suction cup B20XP Polyurethane 60, 5xM5 female	0205183
Suction cup B20XP Polyurethane 60, G1/8" male / M5 female, with mesh filter	0205181
Suction cup B20XP Polyurethane 60, G1/8" male, with mesh filter	0205179
Suction cup B20XP Polyurethane 60, M5 female	0205175
Suction cup B25XP Polyurethane 30/60	0204998
Suction cup B25XP Polyurethane 30/60, 1/8" NPT male with mesh filter	0205095

Description	Item no.
Suction cup B25XP Polyurethane 30/60, G1/8" male / M5 female with mesh filter	0205097
Suction cup B25XP Polyurethane 30/60, G1/8" male / M5 female with mesh filter	0205096
Suction cup B25XP Polyurethane 30/60, G1/8" male with mesh filter	0205050
Suction cup B25XP Polyurethane 30/60, M5 female	0204997
Suction cup B25XP Polyurethane 60	0205185
Suction cup B25XP Polyurethane 60, 1/8" NPT male with mesh filter	0205188
Suction cup B25XP Polyurethane 60, 5×M5 female	0205189
Suction cup B25XP Polyurethane 60, G1/8" male / M5 female with mesh filter	0205190
Suction cup B25XP Polyurethane 60, G1/8" male, with mesh filter	0205187
Suction cup B25XP Polyurethane 60, M5 female	0205184
Suction cup B35XP Polyurethane 30/60	0205002
Suction cup B35XP Polyurethane 30/60, 1/4" NPT male with mesh filter	0205106
Suction cup B35XP Polyurethane 30/60, 1/8" NPSF female, with mesh filter	0205098
Suction cup B35XP Polyurethane 30/60, 3/8" NPT male with mesh filter	0205108
Suction cup B35XP Polyurethane 30/60, G1/8" male with mesh filter	0205100
Suction cup B35XP Polyurethane 30/60, G3/8" male with mesh filter	0205107
Suction cup B35XP Polyurethane 30/60, G1/4" male with mesh filter	0205105
Suction cup B35XP Polyurethane 60	0205192
Suction cup B35XP Polyurethane 60, 1/4" NPT male with mesh filter	0205196
Suction cup B35XP Polyurethane 60, 1/8" NPSF female, with mesh filter	0205191
Suction cup B35XP Polyurethane 60, 3/8" NPT male with mesh filter	0205198

Description	Item no.
Suction cup B35XP Polyurethane 60, G1/4" male with mesh filter	0205195
Suction cup B35XP Polyurethane 60, G1/8" male with mesh filter	0205194
Suction cup B35XP Polyurethane 60, G3/8" male with mesh filter	0205197
Suction cup B52XP Polyurethane 30/60	0205007
Suction cup B52XP Polyurethane 30/60, 1/4" NPT male with mesh filter	0205131
Suction cup B52XP Polyurethane 30/60, 1/8" NPSF female, with mesh filter	0205110
Suction cup B52XP Polyurethane 30/60, 3/8" NPT male with mesh filter	0205133
Suction cup B52XP Polyurethane 30/60, 5x1/8" NPSF female	0205134
Suction cup B52XP Polyurethane 30/60, G1/4" male with mesh filter	0205130
Suction cup B52XP Polyurethane 30/60, G1/8" male with mesh filter	0205129
Suction cup B52XP Polyurethane 30/60, G3/8" male with mesh filter	0205132
Suction cup B52XP Polyurethane 60	0205200
Suction cup B52XP Polyurethane 60, 1/4" NPT male with mesh filter	0205204
Suction cup B52XP Polyurethane 60, 1/8" NPSF female, with mesh filter	0205199
Suction cup B52XP Polyurethane 60, 3/8" NPT male with mesh filter	0205206
Suction cup B52XP Polyurethane 60, 5x1/8" NPSF female	0205207
Suction cup B52XP Polyurethane 60, G1/4" male with mesh filter	0205203
Suction cup B52XP Polyurethane 60, G1/8" male with mesh filter	0205202
Suction cup B52XP Polyurethane 60, G3/8" male with mesh filter	0205205
Suction cup B75XP Polyurethane 30/60 , G3/8" male / 1/8" NPSF female	0205010
Suction cup B75XP Polyurethane 30/60 ,thread insert G1/4" male	0205161

Description	Item no.
Suction cup B75XP Polyurethane 30/60 ,thread insert G1/8" male	0205156
Suction cup B75XP Polyurethane 30/60 ,thread insert G3/8" male	0205162
Suction cup B75XP Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0205868
Suction cup B75XP Polyurethane 30/60, for thread insert	0205157
Suction cup B75XP Polyurethane 60 , G3/8" male / 1/8" NPSF female	0205214
Suction cup B75XP Polyurethane 60 ,thread insert G1/4" male	0205212
Suction cup B75XP Polyurethane 60 ,thread insert G3/8" male	0205213
Suction cup B75XP Polyurethane 60 thread insert G1/8" male	0205208
Suction cup B75XP Polyurethane 60, 3/8" NPSF female, with mesh filter	0205883
Suction cup B75XP Polyurethane 60, for thread insert	0205209
Suction cup B110XP Polyurethane 30/60	0205021
Suction cup B110XP Polyurethane 30/60 ,thread insert G3/8" male	0205019
Suction cup B110XP Polyurethane 30/60, 3/8" NPSF female, with mesh filter	0205884
Suction cup B110XP Polyurethane 60	0205220
Suction cup B110XP Polyurethane 60 ,thread insert G3/8" male	0205219
Suction cup B110XP Polyurethane 60, 3/8" NPSF female, with mesh filter	0205885
Suction cup B15MF Thermoelastic polyurethane	3150264
Suction cup B15MF Thermoelastic polyurethane, M5 male	3250069
Suction cup B20MF Thermoelastic polyurethane	0101111
Suction cup B20MF Thermoelastic polyurethane, 5×M5 female	0101186
Suction cup B20MF Thermoelastic polyurethane, 5×M5 female, with dual flow control valve	0101192

Description	Item no.
Suction cup B20MF Thermoelastic polyurethane, G1/8" male, with dual flow control valve and mesh filter	0101189
Suction cup B20MF Thermoelastic polyurethane, G1/8" male, with mesh filter	0101183
Suction cup B20MF Thermoelastic polyurethane, G1/8" male/M5 fem., with dual flow control valve	0101191
Suction cup B20MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter	0101187
Suction cup B20MF Thermoelastic polyurethane, M5 female	0101182
Suction cup B20MF Thermoelastic polyurethane, M5 female, with dual flow control valve	0101188
Suction cup B30MF Thermoelastic polyurethane	0101112
Suction cup B30MF Thermoelastic polyurethane, 1/8" NPSF female, with dual flow control valve	0101450
Suction cup B30MF Thermoelastic polyurethane, 1/8" NPSF female, with mesh filter	0101449
Suction cup B30MF Thermoelastic polyurethane, 5×1/8" NPSF female	0101448
Suction cup B30MF Thermoelastic polyurethane, G1/4" male, with mesh filter	0101444
Suction cup B30MF Thermoelastic polyurethane, G3/8" male, with mesh filter	0101446
Suction cup B40MF Thermoelastic polyurethane	0101113
Suction cup B40MF Thermoelastic polyurethane, 1/8" NPSF female, with dual flow control valve	0101489
Suction cup B40MF Thermoelastic polyurethane, 1/8" NPSF female, with mesh filter	0101488
Suction cup B40MF Thermoelastic polyurethane, 5×1/8" NPSF female	0101487
Suction cup B40MF Thermoelastic polyurethane, G1/4" male, with mesh filter	0101483
Suction cup B40MF Thermoelastic polyurethane, G1/4" male, with mesh filter and dual flow control valve	0101490
Suction cup B40MF Thermoelastic polyurethane, G3/8" male, with mesh filter	0101485
Suction cup B40MF Thermoelastic polyurethane, G3/8" male, with mesh filter and dual flow control valve	0101492
Suction cup B50MF Thermoelastic polyurethane	0101114

Description	Item no.
Suction cup B50MF Thermoelastic polyurethane, 1/8" NPSF female, with dual flow control valve	0101689
Suction cup B50MF Thermoelastic polyurethane, 1/8" NPSF female, with mesh filter	0101688
Suction cup B50MF Thermoelastic polyurethane, 5×1/8" NPSF female	0101687
Suction cup B50MF Thermoelastic polyurethane, G1/4" male, with dual flow control valve and mesh filter	0101690
Suction cup B50MF Thermoelastic polyurethane, G1/4" male, with mesh filter	0101683
Suction cup B50MF Thermoelastic polyurethane, G3/8" male, with mesh filter	0101685
Suction cup BF80P Polyurethane 30/50, G3/8" female	0102370
Suction cup BF80P Polyurethane 30/50, 3/8" NPSF female	0102371
Suction cup BF80P Polyurethane 60, G3/8" female	0103307
Suction cup BF80P Polyurethane 60, 3/8" NPSF female	0103309
Suction cup BF80P Polyurethane 30/50, G3/8" male	0106985
Suction cup BF80P Polyurethane 30/50, G3/8" male with mesh filter	0107326
Suction cup BF80P Polyurethane 60, G3/8" male with mesh filter	0107327
Suction cup BF80P Polyurethane 60, G3/8" male	0107476
Suction cup BF110P Polyurethane 30/60 with O-ring	0110289
Suction cup BF110P Polyurethane 30/60, 3/8" NPSF female	0110291
Suction cup BF110P Polyurethane 30/60, thread insert G3/8" male with mesh filter	0110290
Suction cup BF110P Polyurethane 60, 3/8" NPSF female	0110288
Suction cup BF110P Polyurethane 60, thread insert G3/8" male with mesh filter	0110287
Suction cup BF110P Polyurethane 60, with O-ring	0110286
Suction cup BFF30P Polyurethane 55/60, 3/8" NPT female	0206915



Description	Item no.
Suction cup BFF30P Polyurethane 55/60, G1/4" female	0206918
Suction cup BFF30P Polyurethane 55/60, G3/8" female	0206908
Suction cup BFF30P Polyurethane 55/60, G3/8" female plastic	0206599
Suction cup BFF30P Polyurethane 55/60, G3/8" male, 1/8" NPSF female	0201821
Suction cup BFF30P Polyurethane 55/60, T-slot	0206924
Suction cup BFF40P Polyurethane 55/60, 3/8" NPT female	0122278
Suction cup BFF40P Polyurethane 55/60, G1/4" female	0206940
Suction cup BFF40P Polyurethane 55/60, G3/8" female	0118992
Suction cup BFF40P Polyurethane 55/60, G3/8" female, 17 mm thread	0200697
Suction cup BFF40P Polyurethane 55/60, G3/8" female, plastic thread	0205617
Suction cup BFF40P Polyurethane 55/60, G3/8" male, with mesh filter	0118991
Suction cup BFF40P Polyurethane 55/60, M10×1.5 male	0121427
Suction cup BFF40P Polyurethane 55/60, T-slot, with mesh filter	0206925
Suction cup BFF60P Polyurethane 55/60, 3/8" NPT female	0122279
Suction cup BFF60P Polyurethane 55/60, G1/4" female	0206941
Suction cup BFF60P Polyurethane 55/60, G3/8" female	0118995
Suction cup BFF60P Polyurethane 55/60, G3/8" female, 17 mm thread	0200699
Suction cup BFF60P Polyurethane 55/60, G3/8" female, plastic thread	0124742
Suction cup BFF60P Polyurethane 55/60, G3/8" male, with mesh filter	0118994
Suction cup BFF60P Polyurethane 55/60, M10×1.5 male	0121428
Suction cup BFF60P Polyurethane 55/60, T-slot, with mesh filter	0206933

Description	Item no.
Suction cup BFF80P Polyurethane 55/60 G1/4" female with mesh filter	0207259
Suction cup BFF80P Polyurethane 55/60 G1/4" male with mesh filter	0209104
Suction cup BFF80P Polyurethane 55/60 G3/8" female plastic thread	0207256
Suction cup BFF80P Polyurethane 55/60 G3/8" female with mesh filter	0207255
Suction cup BFF80P Polyurethane 55/60 G3/8" female with mesh filter, 17 mm thread	0207261
Suction cup BFF80P Polyurethane 55/60 G3/8" male, 1/8" NPSF female, with mesh filter	0207257
Suction cup BFF80P Polyurethane 55/60 M10×1,5 male with mesh filter	0207260
Suction cup BFF80P Polyurethane 55/60 T-slot with mesh filter	0207258
Suction cup BFF80P Polyurethane 55/60. 3/8" NPT female with mesh filter	0206882
Suction cup BFF110P Polyurethane 55/60 G1/4" female with mesh filter	0207215
Suction cup BFF110P Polyurethane 55/60 G1/4" male with mesh filter	0209103
Suction cup BFF110P Polyurethane 55/60 G3/8" female plastic thread	0207212
Suction cup BFF110P Polyurethane 55/60 G3/8" female with mesh filter	0207211
Suction cup BFF110P Polyurethane 55/60 G3/8" female with mesh filter, 17 mm thread	0207217
Suction cup BFF110P Polyurethane 55/60 G3/8" male, 1/8" NPSF female, with mesh filter	0207213
Suction cup BFF110P Polyurethane 55/60 M10×1,5 male with mesh filter	0207216
Suction cup BFF110P Polyurethane 55/60 T-slot with mesh filter	0207214
Suction cup BFF110P Polyurethane 55/60. 3/8" NPT female with mesh filter	0206881
Suction cup BFF80TP Polyurethane 55/60/30 G1/4" female with mesh filter	0206694
Suction cup BFF80TP Polyurethane 55/60/30 G1/4" male with mesh filter	0209101
Suction cup BFF80TP Polyurethane 55/60/30 G3/8" female plastic thread	0206691

Description	Item no.
Suction cup BFF80TP Polyurethane 55/60/30 G3/8" female with mesh filter	0206690
Suction cup BFF80TP Polyurethane 55/60/30 G3/8" female with mesh filter, 17 mm thread	0207263
Suction cup BFF80TP Polyurethane 55/60/30 G3/8" male, 1/8" NPSF female, with mesh filter	0206692
Suction cup BFF80TP Polyurethane 55/60/30 M10×1,5 male with mesh filter	0207262
Suction cup BFF80TP Polyurethane 55/60/30 T-slot with mesh filter	0206693
Suction cup BFF80TP Polyurethane 55/60/30. 3/8" NPT female with mesh filter	0206689
Suction cup BFF110TP Polyurethane 55/60/30 G1/4" female with mesh filter	0206700
Suction cup BFF110TP Polyurethane 55/60/30 G1/4" male with mesh filter	0209102
Suction cup BFF110TP Polyurethane 55/60/30 G3/8" female plastic thread	0206697
Suction cup BFF110TP Polyurethane 55/60/30 G3/8" female with mesh filter	0206696
Suction cup BFF110TP Polyurethane 55/60/30 G3/8" female with mesh filter, 17 mm thread	0207204
Suction cup BFF110TP Polyurethane 55/60/30 G3/8" male, 1/8" NPSF female, with mesh filter	0206698
Suction cup BFF110TP Polyurethane 55/60/30 M10×1,5 male with mesh filter	0207202
Suction cup BFF110TP Polyurethane 55/60/30 T-slot with mesh filter	0206699
Suction cup BFF110TP Polyurethane 55/60/30. 3/8" NPT female with mesh filter	0206695
Suction cup BFFT50P Polyurethane 60/60/30 G1/4" male with mesh filter	0207698
Suction cup BFFT50P Polyurethane 60/60/30 G3/8" female with mesh filter, 17 mm thread	0209190
Suction cup BFFT50P Polyurethane 60/60/30 M10×1,5 male with mesh filter	0207666
Suction cup BFFT50P Polyurethane 60/60/30, 3/8" NPT female, with mesh filter	0206519
Suction cup BFFT50P Polyurethane 60/60/30, G1/4" female, with mesh filter	0206791
Suction cup BFFT50P Polyurethane 60/60/30, G3/8" female plastic	0206523

Description	Item no.
Suction cup BFFT50P Polyurethane 60/60/30, G3/8" female, with mesh filter	0206522
Suction cup BFFT50P Polyurethane 60/60/30, G3/8" male, 1/8" NPSF female, with mesh filter	0206521
Suction cup BFFT50P Polyurethane 60/60/30, T-slot, with mesh filter	0206524
Suction cup BFFT70P Polyurethane 60/60/30 G1/4" male with mesh filter	0207699
Suction cup BFFT70P Polyurethane 60/60/30 G3/8" female with mesh filter 17 mm thread	0209191
Suction cup BFFT70P Polyurethane 60/60/30 M10×1,5 male with mesh filter	0207667
Suction cup BFFT70P Polyurethane 60/60/30, 3/8" NPT female, with mesh filter	0206525
Suction cup BFFT70P Polyurethane 60/60/30, G1/4" female, with mesh filter	0206792
Suction cup BFFT70P Polyurethane 60/60/30, G3/8" female plastic	0206528
Suction cup BFFT70P Polyurethane 60/60/30, G3/8" female, with mesh filter	0206527
Suction cup BFFT70P Polyurethane 60/60/30, G3/8" male, 1/8" NPSF female, with mesh filter	0206526
Suction cup BFFT70P Polyurethane 60/60/30, T-slot, with mesh filter	0206529
Suction cup BFFT90P Polyurethane 60/60/30 G1/4" male with mesh filter	0207700
Suction cup BFFT90P Polyurethane 60/60/30 G3/8" female with mesh filter, 17 mm thread	0209192
Suction cup BFFT90P Polyurethane 60/60/30 M10×1,5 male with mesh filter	0207669
Suction cup BFFT90P Polyurethane 60/60/30, 3/8" NPT female, with mesh filter	0206530
Suction cup BFFT90P Polyurethane 60/60/30, G1/4" female, with mesh filter	0206793
Suction cup BFFT90P Polyurethane 60/60/30, G3/8" female plastic	0206533
Suction cup BFFT90P Polyurethane 60/60/30, G3/8" female, with mesh filter	0206532
Suction cup BFFT90P Polyurethane 60/60/30, G3/8" male, 1/8" NPSF female, with mesh filter	0206531
Suction cup BFFT90P Polyurethane 60/60/30, T-slot, with mesh filter	0206534

## Multibellows family (BX/BL)



This family is designed for height differences, slightly curved planes and uneven surfaces. Applications such as bag handling, cardboard, high temperature or if the need is specifically to touch a food item as they are also available in material that complies with the FDA (FDA 21 CFR 177.2600) and meets EU's regulation EU 1935/2004.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level					Lifting force parallel to the surface, N, at vacuum level				
	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa
BX10P	—	1	—	2.3	3.7	—	—	—	—	—
BX15P	—	2/3 <sup>A</sup>	—	4/5 <sup>A</sup>	4.5/6 <sup>A</sup>	—	—	—	—	—
BX20P	—	4.5/4.8 <sup>A</sup>	—	7/7 <sup>A</sup>	9.5/11 <sup>A</sup>	—	—	—	—	—
BX25P	—	8/9 <sup>A</sup>	—	13/14 <sup>A</sup>	17/18 <sup>A</sup>	—	5/7 <sup>A</sup>	—	10/11 <sup>A</sup>	12/14 <sup>A</sup>
BX35P	—	12/15 <sup>A</sup>	—	20/25 <sup>A</sup>	28/30 <sup>A</sup>	—	11/14 <sup>A</sup>	—	19/23 <sup>A</sup>	26/28 <sup>A</sup>
BX52P	—	32/35 <sup>A</sup>	—	56/59 <sup>A</sup>	75/80 <sup>A</sup>	—	25/27 <sup>A</sup>	—	44/49 <sup>A</sup>	54/56 <sup>A</sup>
BX75P	—	62/70 <sup>A</sup>	—	110/120 <sup>A</sup>	141/166 <sup>A</sup>	—	39/50 <sup>A</sup>	—	83/114 <sup>A</sup>	116/150 <sup>A</sup>
BX110P	—	158/181 <sup>A</sup>	—	306/365 <sup>A</sup>	346/424 <sup>A</sup>	—	140/158 <sup>A</sup>	—	230/244 <sup>A</sup>	260/293 <sup>A</sup>
BXF60P	—	—	—	88/82 <sup>D</sup>	122/115 <sup>D</sup>	—	—	—	47/43 <sup>D</sup>	50/46 <sup>D</sup>
BXF75P	—	—	—	115/117 <sup>D</sup>	154/153 <sup>D</sup>	—	—	—	73/71 <sup>D</sup>	79/76 <sup>D</sup>
BXF90P	—	—	—	169/168 <sup>D</sup>	231/225 <sup>D</sup>	—	—	—	84/92 <sup>D</sup>	92/103 <sup>D</sup>
BXF105P	—	—	—	217/238 <sup>D</sup>	282/314 <sup>D</sup>	—	—	—	105/125 <sup>D</sup>	114/129 <sup>D</sup>

	Lifting force vertical to the surface, N, at vacuum level					Lifting force parallel to the surface, N, at vacuum level				
	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa
BL20-2	—	0.32/3.2 <sup>B</sup>	—	0.62/6.2 <sup>B</sup>	—	—	—	—	—	—
BL30-2	—	0.64/6.4 <sup>B</sup>	—	1.6/16 <sup>B</sup>	—	—	—	—	—	—
BL40-2	—	1.1/11 <sup>B</sup>	—	2.2/22 <sup>B</sup>	—	—	—	—	—	—
BL50-2	—	1.7/17 <sup>B</sup>	—	4.3/43 <sup>B</sup>	—	—	—	—	—	—
BL30-3P	—	10	—	22	28	—	9	—	10	16
BL40-3P	—	20	—	43	55	—	13	—	24	36
BL50-3P	—	24	—	60	75	—	22	—	49	60
BL30-4	—	8 <sup>C</sup>	—	—	—	—	—	—	—	—
BL40-4	—	10	—	15	22	—	9	—	16	26
BL50-4	—	8	—	25	—	—	—	—	—	—
BL30-5	—	8	—	9	—	—	—	—	—	—
BL40-5	—	13	—	15	—	—	—	—	—	—
BL50-5	—	8	—	25	—	—	—	—	—	—
B-BL30-2	4.4	7.4	12.3	—	—	3	4.4	8.3	—	—
B-BL40-2	8.4	15.3	25.7	—	—	4.2	9	19.4	—	—
B-BL60-2	10.6	23.7	43.1	—	—	11.9	21.4	47.9	—	—
F-BX10	0.5	0.9	1.5	—	—	1.2	1.3	1.4	—	—
F-BX15	1.3	2.7	4.3	—	—	1.5	2.8	3.6	—	—
F-BX20	1.3	2.7	4.3	—	—	1.5	2.8	3.6	—	—
F-BX25	3.9	6.9	8	—	—	2.9	4.6	7.3	—	—
F-BX35	7.6	12.9	14.2	—	—	7.5	9.1	10.3	—	—

<sup>A</sup> PU30°/PU60° / PU60°, <sup>B</sup> With reinforcement ring, <sup>C</sup> The suction cup is not intended for deeper vacuum levels than 20 -kPa, <sup>D</sup> Dry metal sheet/Oily metal sheet.

## GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
BX10P	11	16.5	4/6*	4.5	0.56
BX15P	16	18.5	5.5/6*	5.5	0.92
BX20P	21	15.2	10/8.5*	7.5	1.16
BX25P	26	19	6/8*	8.5	3
BX35P	37	26.8	10	14	10
BX52P	53	39	32	19	30
BX75P	77.5	51.7	23	26	80
BX110P	113.7	74	55	39	230
BXF60P	60	52.6–72.1**	70	31.7	80
BXF75P	75	66.5–85.8**	110	40.1	105
BXF90P	90	75.9–88.9**	160	46.2	180
BXF105P	105	89.1–108.6**	230	55.5	284
BL20-2	20	22.9	4	13	4
BL30-2	30	32.5	8	20	10
BL40-2	40	42.4	11	33	27
BL50-2	50	53	13	34	53
BL30-3P	30	35.5	6	14	14
BL40-3P	40	42.4	13	21	27
BL50-3P	48	53	16	26	54
BL30-4	30.5	16.5	20	19	4.1


	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
BL40-4	40.1	39.8	15	18	15
BL50-4	50.3	53	30	22	35
BL30-5	30.5	36.5	17	11	8.55
BL40-5	40	40	22	20	14
BL50-5	50	53	30	18	26
B-BL30-2	30	28	10.8	16.8	11
B-BL40-2	42.5	38	15.8	27.9	29.1
B-BL60-2	60	52.6	18.7	43	82.1
F-BX10	10.5	19	3.6	6.8	0.33
F-BX15	16	24	5.5	9.8	1.13
F-BX20	21	30	5.5	9.8	2.9
F-BX25	26	37	9	15.5	5.1
F-BX35	36	37	13.3	20.2	13.6

\* PU30°/PU60° / PU60°. \*\* Height range includes fittings.



**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material								MSF
BX10P	PU30°/PU60°	●		●					
BX10P	PU60°	●		●	●	●		●	●
BX15P	PU30°/PU60°	●		●					
BX15P	PU60°	●		●	●	●		●	●
BX20P	PU30°/PU60°	●		●					
BX20P	PU60°	●		●	●	●		●	●
BX25P	PU30°/PU60°	●		●					
BX25P	PU60°	●		●	●	●		●	●
BX35P	PU30°/PU60°	●		●					
BX35P	PU60°	●		●	●	●		●	●
BX52P	PU30°/PU60°	●		●					
BX52P	PU60°	●		●	●	●		●	●
BX75P	PU30°/PU60°	●		●					
BX75P	PU60°	●		●	●	●		●	●
BX110P	PU30°/PU60°	●		●					
BX110P	PU60°	●		●	●	●		●	●
BXF60P	PU60°			●					●
BXF75P	PU60°			●					●
BXF90P	PU60°			●					●

Cup	Material								MSF
BXF105P	PU60°			●					●
BL20-2	Chloroprene, CR	●				●		●	●
BL20-2	HNBR	●					●	●	
BL20-2	Silicone, SIL	●	●						
BL20-2	Silicone FDA EU, SIL FDA	●	●						
BL30-2	Chloroprene, CR	●				●		●	●
BL30-2	Silicone, SIL	●	●						
BL30-2	Silicone FDA EU, SIL FDA	●	●						
BL40-2	Chloroprene, CR	●				●		●	●
BL40-2	Silicone, SIL	●	●						
BL40-2	Silicone FDA EU, SIL FDA	●	●						
BL50-2	Chloroprene, CR	●				●		●	●
BL50-2	Silicone, SIL	●	●						
BL50-2	Silicone FDA EU, SIL FDA	●	●						
BL30-3P	PU30°/PU70°	●		●					
BL40-3P	PU30°/PU70°	●		●					
BL50-3P	PU30°/PU70°	●		●					
BL30-4	Silicone, SIL	●	●						
BL30-4	Silicone FDA EU, SIL FDA	●	●						
BL40-4	Silicone, SIL	●	●						

Cup	Material								MSF
BL40-4	Silicone FDA EU, SIL FDA	●	●						
BL50-4	Silicone, SIL	●	●						
BL50-4	Silicone FDA EU, SIL FDA	●	●						
BL30-5	Silicone, SIL	●	●						
BL30-5	Silicone FDA EU, SIL FDA	●	●						
BL40-5	Silicone, SIL	●	●						
BL40-5	Silicone FDA EU, SIL FDA	●	●						
BL50-5	Silicone, SIL	●	●						
BL50-5	Silicone FDA EU, SIL FDA	●	●						
B-BL30-2	Silicone FDA EU detectable, SIL FDA DET	●	●						
B-BL40-2	Silicone FDA EU detectable, SIL FDA DET	●	●						
B-BL60-2	Silicone FDA EU detectable, SIL FDA DET	●	●						
F-BX10	Silicone FDA EU detectable, SIL FDA DET	●	●						
F-BX15	Silicone FDA EU detectable, SIL FDA DET	●	●						
F-BX20	Silicone FDA EU detectable, SIL FDA DET	●	●						
F-BX25	Silicone FDA EU detectable, SIL FDA DET	●	●						
F-BX35	Silicone FDA EU detectable, SIL FDA DET	●	●						

**MATERIAL RESISTANCE**

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](https://www.piab.com).

	Dry sheet metal	Bag handling	Corrugated / cardboard	Food contact materials (FDA & EU), non-detectable	Food contact materials (FDA & EU), detectable	Mark Free	Oily sheet metal	Plastic injection molded parts
BX10P	●		●			●		●
BX15P	●		●			●		●
BX20P	●		●			●		●
BX25P	●		●			●		●
BX35P	●		●			●		●
BX52P	●		●			●		●
BX75P	●		●			●		●
BX110P	●		●			●		●
BXF60P							●	
BXF75P							●	
BXF90P							●	
BXF105P							●	
BL20-2		●		●		●		
BL30-2		●		●				
BL40-2		●		●				
BL50-2		●		●				
BL30-3P		●						
BL40-3P		●						

	Dry sheet metal	Bag handling	Corrugated / cardboard	Food contact materials (FDA & EU), non-detectable	Food contact materials (FDA & EU), detectable	Mark Free	Oily sheet metal	Plastic injection molded parts
BL50-3P		●						
BL30-4		●		●				
BL40-4		●		●				
BL50-4		●		●				
BL30-5		●		●				
BL40-5		●		●				
BL50-5		●		●				
B-BL30-2					●			
B-BL40-2					●			
B-BL60-2					●			
F-BX10					●			
F-BX15					●			
F-BX20					●			
F-BX25					●			
F-BX35					●			

### FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup BX10P Polyurethane 30/60	0118329
Suction cup BX10P Polyurethane 30/60, M5 male	0122869
Suction cup BX10P Polyurethane 60	0122966
Suction cup BX10P Polyurethane 60, M5 male	0122967
Suction cup BX15P Polyurethane 30/60	0118505
Suction cup BX15P Polyurethane 30/60, M5 male	0124344
Suction cup BX15P Polyurethane 60	0124237
Suction cup BX15P Polyurethane 60, M5 male	0124345
Suction cup BX20P Polyurethane 30/60	0118507
Suction cup BX20P Polyurethane 30/60, 5xM5 female	0125107
Suction cup BX20P Polyurethane 30/60, G1/8" male	0125108
Suction cup BX20P Polyurethane 30/60, G1/8" male / M5 female	0125105
Suction cup BX20P Polyurethane 30/60, G1/8" male / M5 female, with dual flow control valve	0125106
Suction cup BX20P Polyurethane 30/60, M5 female	0125104
Suction cup BX20P Polyurethane 60	0124249
Suction cup BX20P Polyurethane 60, 5xM5 female	0125111
Suction cup BX20P Polyurethane 60, G1/8" male	0125112
Suction cup BX20P Polyurethane 60, G1/8" male / M5 female	0125110
Suction cup BX20P Polyurethane 60, M5 female	0125109
Suction cup BX25P Polyurethane 30/60	0109006
Suction cup BX25P Polyurethane 30/60 with filter, 5xM5 female	0109405

Description	Item no.
Suction cup BX25P Polyurethane 30/60 with filter, G1/8" male / M5 female	0109402
Suction cup BX25P Polyurethane 30/60 with filter, G1/8" male / M5 female, with dual flow control valve	0109403
Suction cup BX25P Polyurethane 30/60 with filter, G1/8" male with mesh filter	0114131
Suction cup BX25P Polyurethane 30/60 with filter, M5 female	0109404
Suction cup BX25P Polyurethane 30/60, with filter	0109312
Suction cup BX25P Polyurethane 60	0108240
Suction cup BX25P Polyurethane 60 with filter, 5xM5 female	0109401
Suction cup BX25P Polyurethane 60 with filter, G1/8" male	0114149
Suction cup BX25P Polyurethane 60 with filter, G1/8" male / M5 female	0109398
Suction cup BX25P Polyurethane 60 with filter, M5 female	0109400
Suction cup BX25P Polyurethane 60, with filter	0109397
Suction cup BX35P, Polyurethane 30/60	0106292
Suction cup BX35P Polyurethane 30/60 with filter, 1/4" NPT male, with dual flow control valve	9909193
Suction cup BX35P Polyurethane 30/60 with filter, 1/4" NPT male, with mesh filter	0107563
Suction cup BX35P Polyurethane 30/60 with filter, 1/8" NPSF female	0106604
Suction cup BX35P Polyurethane 30/60 with filter, 1/8" NPSF female, with dual flow control valve	0106605
Suction cup BX35P Polyurethane 30/60 with filter, 3/8" NPT male, with dual flow control valve	9909194
Suction cup BX35P Polyurethane 30/60 with filter, 3/8" NPT male, with mesh filter	9906975
Suction cup BX35P Polyurethane 30/60 with filter, G1/4" male, with mesh filter	0114449
Suction cup BX35P Polyurethane 30/60 with filter, G1/8" male, with mesh filter	9912151
Suction cup BX35P Polyurethane 30/60 with filter, G3/8" male, mesh filter, dual flow control valve	0107378

Description	Item no.
Suction cup BX35P Polyurethane 30/60 with filter, G3/8" male, with mesh filter	0107377
Suction cup BX35P Polyurethane 30/60, with filter	0106619
Suction cup BX35P, Polyurethane 60	0107477
Suction cup BX35P Polyurethane 60 with filter, 1/4" NPT male, with dual flow control valve	9909190
Suction cup BX35P Polyurethane 60 with filter, 1/4" NPT male, with mesh filter	0107567
Suction cup BX35P Polyurethane 60 with filter, 1/8" NPSF female	0107561
Suction cup BX35P Polyurethane 60 with filter, 1/8" NPSF female, with dual flow control valve	0107562
Suction cup BX35P Polyurethane 60 with filter, 3/8" NPT male, with dual flow control valve	9909191
Suction cup BX35P Polyurethane 60 with filter, 3/8" NPT male, with mesh filter	9909187
Suction cup BX35P Polyurethane 60 with filter, G1/8" male, with mesh filter	9912152
Suction cup BX35P Polyurethane 60 with filter, G3/8" male, with mesh filter	0107379
Suction cup BX35P Polyurethane 60 with filter, G3/8" male, with mesh filter and dual flow control valve	0107380
Suction cup BX35P Polyurethane 60, with filter	0107376
Suction cup BX52P Polyurethane 30/60	0104529
Suction cup BX52P Polyurethane 30/60 with filter, 1/4" NPT male, with dual flow control valve	9908595
Suction cup BX52P Polyurethane 30/60 with filter, 1/4" NPT male, with mesh filter	0106047
Suction cup BX52P Polyurethane 30/60 with filter, 1/8" NPSF female	0104727
Suction cup BX52P Polyurethane 30/60 with filter, 1/8" NPSF female, with mesh filter	0106044
Suction cup BX52P Polyurethane 30/60 with filter, 1/8" NPSF female, with dual flow control valve	0106019
Suction cup BX52P Polyurethane 30/60 with filter, 3/8" NPT male, with dual flow control valve	9908596
Suction cup BX52P Polyurethane 30/60 with filter, 3/8" NPT male, with mesh filter	0107515



Description	Item no.
Suction cup BX52P Polyurethane 30/60 with filter, 5x1/8" NPSF female	0106046
Suction cup BX52P Polyurethane 30/60 with filter, 5x1/8" NPSF female, with dual flow control valve	0106742
Suction cup BX52P Polyurethane 30/60 with filter, G1/4" male, with dual flow control valve	0106739
Suction cup BX52P Polyurethane 30/60 with filter, G1/4" male, with mesh filter	0106045
Suction cup BX52P Polyurethane 30/60 with filter, G1/8" male, with mesh filter	9912153
Suction cup BX52P Polyurethane 30/60 with filter, G3/8" male, with dual flow control valve	0106741
Suction cup BX52P Polyurethane 30/60 with filter, G3/8" male, with mesh filter	0106740
Suction cup BX52P Polyurethane 30/60, with filter	0104729
Suction cup BX52P Polyurethane 60	0107381
Suction cup BX52P Polyurethane 60 with filter, 1/4" NPT male, with dual flow control valve	9908593
Suction cup BX52P Polyurethane 60 with filter, 1/4" NPT male, with mesh filter	0107391
Suction cup BX52P Polyurethane 60 with filter, 1/8" NPSF female	0107383
Suction cup BX52P Polyurethane 60 with filter, 1/8" NPSF female, with mesh filter	0107382
Suction cup BX52P Polyurethane 60 with filter, 3/8" NPT male, with dual flow control valve	9908594
Suction cup BX52P Polyurethane 60 with filter, 3/8" NPT male, with mesh filter	0107516
Suction cup BX52P Polyurethane 60 with filter, 5x1/8" NPSF female	0107389
Suction cup BX52P Polyurethane 60 with filter, 5x1/8" NPSF female, with dual flow control valve	0107390
Suction cup BX52P Polyurethane 60 with filter, G1/4" male, with dual flow control valve	0107386
Suction cup BX52P Polyurethane 60 with filter, G1/4" male, with mesh filter	0107385
Suction cup BX52P Polyurethane 60 with filter, G1/8" male, with mesh filter	9912154
Suction cup BX52P Polyurethane 60 with filter, G3/8" male, with dual flow control valve	0107388

Description	Item no.
Suction cup BX52P Polyurethane 60 with filter, G3/8" male, with mesh filter	0107387
Suction cup BX52P Polyurethane 60, with filter	0108039
Suction cup BX75P Polyurethane 30/60 with filter, 3/8" NPSF female	0108794
Suction cup BX75P Polyurethane 30/60 with filter, for thread insert	0107145
Suction cup BX75P Polyurethane 30/60 with filter, G3/8" male / 1/8" NPSF female	0106606
Suction cup BX75P Polyurethane 30/60 with filter, thread insert G1/4" male	0201073
Suction cup BX75P Polyurethane 30/60 with filter, thread insert G1/8" male	0201082
Suction cup BX75P Polyurethane 30/60 with filter, thread insert G3/8" male	0107151
Suction cup BX75P Polyurethane 30/60, G3/8" male / 1/8" NPSF female	0106293
Suction cup BX75P Polyurethane 60 with filter, 3/8" NPSF female	0108795
Suction cup BX75P Polyurethane 60 with filter, for thread insert	0107150
Suction cup BX75P Polyurethane 60 with filter, thread insert G1/4" male	0201074
Suction cup BX75P Polyurethane 60 with filter, thread insert G1/8" male	0201083
Suction cup BX75P Polyurethane 60 with filter, thread insert G3/8" male	0107149
Suction cup BX110P Polyurethane 30/60	0107093
Suction cup BX110P Polyurethane 30/60 with filter, 3/8" NPSF female	0108403
Suction cup BX110P Polyurethane 30/60 with filter, thread insert G3/8" male	0108273
Suction cup BX110P Polyurethane 30/60, with filter	0108164
Suction cup BX110P Polyurethane 60 with filter, 3/8" NPSF female	0108404
Suction cup BX110P Polyurethane 60 with filter, thread insert G3/8" male	0108341
Suction cup BX110P Polyurethane 60, with filter	0108340

Description	Item no.
Suction cup BXF60P Polyurethane 60, 3/8" NPT female with mesh filter	0207750
Suction cup BXF60P Polyurethane 60, G1/4" female with mesh filter	0207751
Suction cup BXF60P Polyurethane 60, G1/4" male with mesh filter	0207752
Suction cup BXF60P Polyurethane 60, G3/8" female plastic thread	0207530
Suction cup BXF60P Polyurethane 60, G3/8" female with mesh filter	0207748
Suction cup BXF60P Polyurethane 60, G3/8" female with mesh filter, 17 mm thread	0209305
Suction cup BXF60P Polyurethane 60, G3/8" male with mesh filter	0207749
Suction cup BXF60P Polyurethane 60, M10×1,5 male with mesh filter	0207753
Suction cup BXF60P Polyurethane 60, T-slot with mesh filter	0207747
Suction cup BXF75P Polyurethane 60, 3/8" NPT female with mesh filter	0209311
Suction cup BXF75P Polyurethane 60, G1/4" female with mesh filter	0209312
Suction cup BXF75P Polyurethane 60, G1/4" male with mesh filter	0209313
Suction cup BXF75P Polyurethane 60, G3/8" female plastic thread	0209307
Suction cup BXF75P Polyurethane 60, G3/8" female with mesh filter	0209308
Suction cup BXF75P Polyurethane 60, G3/8" female with mesh filter, 17 mm thread	0209309
Suction cup BXF75P Polyurethane 60, G3/8" male with mesh filter	0209310
Suction cup BXF75P Polyurethane 60, M10×1,5 male with mesh filter	0209314
Suction cup BXF75P Polyurethane 60, T-slot with mesh filter	0209315
Suction cup BXF90P Polyurethane 60, 3/8" NPT female with mesh filter	0207743
Suction cup BXF90P Polyurethane 60, G1/4" female with mesh filter	0207744
Suction cup BXF90P Polyurethane 60, G1/4" male with mesh filter	0207745

Description	Item no.
Suction cup BXF90P Polyurethane 60, G3/8" female plastic thread	0207531
Suction cup BXF90P Polyurethane 60, G3/8" female with mesh filter	0207741
Suction cup BXF90P Polyurethane 60, G3/8" female with mesh filter, 17 mm thread	0209356
Suction cup BXF90P Polyurethane 60, G3/8" male with mesh filter	0207742
Suction cup BXF90P Polyurethane 60, M10×1,5 male with mesh filter	0207746
Suction cup BXF90P Polyurethane 60, T-slot with mesh filter	0207740
Suction cup BXF105P Polyurethane 60, 3/8" NPT female with mesh filter	0209427
Suction cup BXF105P Polyurethane 60, G1/4" female with mesh filter	0209428
Suction cup BXF105P Polyurethane 60, G1/4" male with mesh filter	0209429
Suction cup BXF105P Polyurethane 60, G3/8" female plastic thread	0209378
Suction cup BXF105P Polyurethane 60, G3/8" female with mesh filter	0209424
Suction cup BXF105P Polyurethane 60, G3/8" female with mesh filter, 17 mm thread	0209425
Suction cup BXF105P Polyurethane 60, G3/8" male with mesh filter	0209426
Suction cup BXF105P Polyurethane 60, M10×1,5 male with mesh filter	0209430
Suction cup BXF105P Polyurethane 60, T-slot with mesh filter	0209431
Suction cup BL20-2 Chloroprene	0101115
Suction cup BL20-2 Chloroprene, 5xM5 female	0101197
Suction cup BL20-2 Chloroprene, G1/8" male, with mesh filter	0101194
Suction cup BL20-2 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101200
Suction cup BL20-2 Chloroprene, G1/8" male/M5 female, PA	0109844
Suction cup BL20-2 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101202

Description	Item no.
Suction cup BL20-2 Chloroprene, G1/8" male/M5 female, with mesh filter	0101198
Suction cup BL20-2 Chloroprene, M5 female	0101193
Suction cup BL20-2 HNBR	0201132
Suction cup BL20-2 HNBR, 5xM5 female	9914282
Suction cup BL20-2 HNBR, 5xM5 female, with dual flow control valve	9914283
Suction cup BL20-2 HNBR, G1/8" male, with mesh filter	9914278
Suction cup BL20-2 HNBR, G1/8" male, with mesh filter and dual flow control valve	9914279
Suction cup BL20-2 HNBR, G1/8" male/M5 female, PA	9914284
Suction cup BL20-2 HNBR, G1/8" male/M5 female, with dual flow control valve	9914281
Suction cup BL20-2 HNBR, G1/8" male/M5 female, with mesh filter	9914280
Suction cup BL20-2 HNBR, M5 female	9914276
Suction cup BL20-2 HNBR, M5 female, with dual flow control valve	9914277
Suction cup BL20-2 Silicone	0101116
Suction cup BL20-2 Silicone FCM	0200412
Suction cup BL20-2 Silicone FCM, G1/8" male, with mesh filter	9909637
Suction cup BL20-2 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909716
Suction cup BL20-2 Silicone, 5xM5 female	0101208
Suction cup BL20-2 Silicone, G1/8" male, with mesh filter	0101205
Suction cup BL20-2 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101211
Suction cup BL20-2 Silicone, G1/8" male/M5 female, PA	0110339
Suction cup BL20-2 Silicone, G1/8" male/M5 female, with mesh filter	0101209

Description	Item no.
Suction cup BL20-2 Silicone, M5 female	0101204
Suction cup BL20-2 Silicone, M5 female, with dual flow control valve	0101210
Suction cup BL30-2 Chloroprene	0101117
Suction cup BL30-2 Chloroprene, 1/8" NPSF female, PA	0110951
Suction cup BL30-2 Chloroprene, 1/8" NPSF female, with dual flow control valve	0101502
Suction cup BL30-2 Chloroprene, 1/8" NPSF female, with mesh filter	0101501
Suction cup BL30-2 Chloroprene, G1/4" male, with mesh filter	0101496
Suction cup BL30-2 Chloroprene, G1/4" male, with mesh filter and dual flow control valve	0101503
Suction cup BL30-2 Chloroprene, G3/8" male, with mesh filter	0101498
Suction cup BL30-2 Silicone	0101118
Suction cup BL30-2 Silicone FCM	0200411
Suction cup BL30-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909641
Suction cup BL30-2 Silicone FCM, G1/4" male, with mesh filter	9909639
Suction cup BL30-2 Silicone, 1/8" NPSF female, PA	0110340
Suction cup BL30-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101515
Suction cup BL30-2 Silicone, 1/8" NPSF female, with mesh filter	0101514
Suction cup BL30-2 Silicone, 5x1/8" NPSF female	0101513
Suction cup BL30-2 Silicone, G1/4" male, with mesh filter	0101509
Suction cup BL30-2 Silicone, G1/4" male, with mesh filter and dual flow control valve	0101516
Suction cup BL30-2 Silicone, G3/8" male, with mesh filter	0101511
Suction cup BL40-2 Chloroprene	0101119

Description	Item no.
Suction cup BL40-2 Chloroprene, 1/8" NPSF female, PA	0110946
Suction cup BL40-2 Chloroprene, 5x1/8" NPSF female	0101526
Suction cup BL40-2 Chloroprene, 5x1/8" NPSF female, with dual flow control valve	0101533
Suction cup BL40-2 Chloroprene, G1/4" male, with mesh filter	0101522
Suction cup BL40-2 Chloroprene, G1/4" male, with mesh filter and dual flow control valve	0101529
Suction cup BL40-2 Chloroprene, G3/8" male, with mesh filter	0101524
Suction cup BL40-2 Silicone	0101120
Suction cup BL40-2 Silicone FCM	0200415
Suction cup BL40-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909643
Suction cup BL40-2 Silicone FCM, G1/4" male, with mesh filter	9909642
Suction cup BL40-2 Silicone, 1/8" NPSF female, PA	0110341
Suction cup BL40-2 Silicone, 1/8" NPSF female, with mesh filter	0101540
Suction cup BL40-2 Silicone, 5x1/8" NPSF female	0101539
Suction cup BL40-2 Silicone, G1/4" male, with mesh filter	0101535
Suction cup BL40-2 Silicone, G1/4" male, with mesh filter and dual flow control valve	0101542
Suction cup BL40-2 Silicone, G3/8" male, with mesh filter	0101537
Suction cup BL40-2 Chloroprene, 1/8" NPSF female, with mesh filter	0101527
Suction cup BL50-2 Chloroprene	0101121
Suction cup BL50-2 Chloroprene, 1/8" NPSF female, PA	0110958
Suction cup BL50-2 Chloroprene, 1/8" NPSF female, with dual flow control valve	0101702
Suction cup BL50-2 Chloroprene, 1/8" NPSF female, with mesh filter	0101701

Description	Item no.
Suction cup BL50-2 Chloroprene, 5x1/8" NPSF female	0101700
Suction cup BL50-2 Chloroprene, G1/4" male, with mesh filter	0101696
Suction cup BL50-2 Chloroprene, G1/4" male, with mesh filter and dual flow control valve	0101703
Suction cup BL50-2 Chloroprene, G3/8" male, with mesh filter	0101698
Suction cup BL50-2 Chloroprene, G3/8" male, with mesh filter and dual flow control valve	0101705
Suction cup BL50-2 Silicone	0101122
Suction cup BL50-2 Silicone FCM	0200416
Suction cup BL50-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909644
Suction cup BL50-2 Silicone FCM, G1/4" male, with mesh filter	9909616
Suction cup BL50-2 Silicone, 1/8" NPSF female, PA	0110342
Suction cup BL50-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101715
Suction cup BL50-2 Silicone, 1/8" NPSF female, with mesh filter	0101714
Suction cup BL50-2 Silicone, G1/4" male, with mesh filter	0101709
Suction cup BL50-2 Silicone, G3/8" male, with mesh filter	0101711
Suction cup BL30-3P Polyurethane 30/70	0110545
Suction cup BL30-3P Polyurethane 30/70, G3/8" male	0113743
Suction cup BL30-3P Polyurethane 30/70, 3/8" NPT male	0113744
Suction cup BL40-3P Polyurethane 30/70	0112667
Suction cup BL40-3P Polyurethane 30/70, 3/8" NPT male	0112693
Suction cup BL40-3P Polyurethane 30/70, G3/8" male	0111791
Suction cup BL50-3P Polyurethane 30/70	0112641



Description	Item no.
Suction cup BL50-3P Polyurethane 30/70, G1/2" male	0113745
Suction cup BL50-3P Polyurethane 30/70, 1/2" NPT male	0113746
Suction cup BL30-4 Silicone	0116971
Suction cup BL30-4 Silicone, G1/4" male	0118369
Suction cup BL30-4 Silicone, 1/4" NPT male	0118371
Suction cup BL30-4 Silicone FCM	0200436
Suction cup BL30-4 Silicone FCM, G1/4" male	9909645
Suction cup BL30-4 Silicone FCM, 1/4" NPT male	9909646
Suction cup BL40-4 Silicone	0114848
Suction cup BL40-4 Silicone, G3/8" male	0116993
Suction cup BL40-4 Silicone, 3/8" NPT male	0116996
Suction cup BL40-4 Silicone FCM	0200337
Suction cup BL40-4 Silicone FCM, G3/8" male	9909647
Suction cup BL40-4 Silicone FCM, 3/8" NPT male	9909648
Suction cup BL50-4 Silicone, G1/2" male	0120543
Suction cup BL50-4 Silicone, 1/2" NPT male	0120544
Suction cup BL50-4 Silicone FCM	0200238
Suction cup BL50-4 Silicone FCM, G1/2" male	9909649
Suction cup BL50-4 Silicone FCM, 1/2" NPT male	9909650
Suction cup BL30-5 Silicone	0121519
Suction cup BL30-5 Silicone FCM	0200239

Description	Item no.
Suction cup BL30-5 Silicone FCM, 1/4" NPT male	9909652
Suction cup BL30-5 Silicone FCM, G1/4" male	9909651
Suction cup BL30-5 Silicone, 1/4" NPT male	0124669
Suction cup BL30-5 Silicone, 1/4" NPT male	0124516
Suction cup BL30-5 Silicone, G1/4" male	0124515
Suction cup BL40-5 Silicone	0117611
Suction cup BL40-5 Silicone, G3/8" male	0120576
Suction cup BL40-5 Silicone, 3/8" NPT male	0120577
Suction cup BL40-5 Silicone FCM	0200237
Suction cup BL40-5 Silicone FCM, G3/8" male	9909653
Suction cup BL40-5 Silicone FCM, 3/8" NPT male	9909654
Suction cup BL50-5 Silicone	0121520
Suction cup BL50-5 Silicone FCM	0200240
Suction cup BL50-5 Silicone FCM, 1/2" NPT male	9909656
Suction cup BL50-5 Silicone FCM, G1/2" male	9909655
Suction cup BL50-5 Silicone, 1/2" NPT male	0122962
Suction cup BL50-5 Silicone, G1/2" male	0122961
Suction cup B-BL30-2 Silicone, detectable, FCM	0206373
Suction cup B-BL30-2 Silicone, 1/2" NPT male composite detectable, FCM	0207098
Suction cup B-BL30-2 Silicone, 1/2" NPT male SS detectable, FCM	0207095
Suction cup B-BL30-2 Silicone, 3/8" NPT male composite detectable, FCM	0207099

Description	Item no.
Suction cup B-BL30-2 Silicone, 3/8" NPT male SS detectable, FCM	0207094
Suction cup B-BL30-2 Silicone, G1/2" male composite detectable, FCM	0207096
Suction cup B-BL30-2 Silicone, G1/2" male SS detectable, FCM	0207093
Suction cup B-BL30-2 Silicone, G3/8" male composite detectable, FCM	0207097
Suction cup B-BL30-2 Silicone, G3/8" male SS detectable, FCM	0207092
Suction cup B-BL30-2 Silicone, with retainer clip, detectable FCM	0207100
Suction cup B-BL40-2 Silicone, detectable, FCM	0202850
Suction cup B-BL40-2 Silicone, 1/2" NPT male composite detectable, FCM	0207108
Suction cup B-BL40-2 Silicone, 1/2" NPT male SS detectable, FCM	0207104
Suction cup B-BL40-2 Silicone, 3/8" NPT male composite detectable, FCM	0207107
Suction cup B-BL40-2 Silicone, 3/8" NPT male SS detectable, FCM	0207103
Suction cup B-BL40-2 Silicone, G1/2" male composite detectable, FCM	0207106
Suction cup B-BL40-2 Silicone, G1/2" male SS detectable, FCM	0207102
Suction cup B-BL40-2 Silicone, G3/8" male composite detectable, FCM	0207105
Suction cup B-BL40-2 Silicone, G3/8" male SS detectable, FCM	0207101
Suction cup B-BL40-2 Silicone, with retainer clip, detectable, FCM	0207109
Suction cup B-BL60-2 Silicone, detectable, FCM	0206374
Suction cup B-BL60-2 Silicone, 1/2" NPT male composite detectable, FCM	0207118
Suction cup B-BL60-2 Silicone, 1/2" NPT male SS detectable, FCM	0207113
Suction cup B-BL60-2 Silicone, 3/8" NPT male composite detectable, FCM	0207117
Suction cup B-BL60-2 Silicone, 3/8" NPT male SS detectable, FCM	0207112

Description	Item no.
Suction cup B-BL60-2 Silicone, G1/2" male SS detectable, FCM	0207111
Suction cup B-BL60-2 Silicone, G1/2" male, composite detectable, FCM	0207115
Suction cup B-BL60-2 Silicone, G3/8" male SS detectable, FCM	0207110
Suction cup B-BL60-2 Silicone, G3/8" male, composite detectable, FCM	0207114
Suction cup B-BL60-2 Silicone, with retainer clip, detectable, FCM	0207119
Suction cup F-BX10 Silicone detectable, FCM	0206202
Suction cup F-BX10 Silicone 1/8" NPT male composite, detectable, FCM	0207054
Suction cup F-BX10 Silicone 1/8" NPT male SS, detectable, FCM	0207051
Suction cup F-BX10 Silicone G1/8" male composite, detectable, FCM	0207053
Suction cup F-BX10 Silicone G1/8" male SS, detectable, FCM	0207050
Suction cup F-BX10 Silicone M5 male composite, detectable, FCM	0207052
Suction cup F-BX10 Silicone M5 male SS, detectable, FCM	0207049
Suction cup F-BX15 Silicone detectable, FCM	0206203
Suction cup F-BX15 Silicone 1/4" NPT male composite, detectable, FCM	0207062
Suction cup F-BX15 Silicone 1/4" NPT male SS, detectable, FCM	0207058
Suction cup F-BX15 Silicone 1/8" NPT male composite, detectable, FCM	0207061
Suction cup F-BX15 Silicone 1/8" NPT male SS, detectable, FCM	0207057
Suction cup F-BX15 Silicone G1/4" male composite, detectable, FCM	0207060
Suction cup F-BX15 Silicone G1/4" male SS, detectable, FCM	0207056
Suction cup F-BX15 Silicone G1/8" male composite, detectable, FCM	0207059
Suction cup F-BX15 Silicone G1/8" male SS, detectable, FCM	0207055

Description	Item no.
Suction cup F-BX20 Silicone detectable, FCM	0206204
Suction cup F-BX20 Silicone 1/4" NPT male composite, detectable, FCM	0207070
Suction cup F-BX20 Silicone 1/4" NPT male SS, detectable, FCM	0207066
Suction cup F-BX20 Silicone 1/8" NPT male composite, detectable, FCM	0207069
Suction cup F-BX20 Silicone 1/8" NPT male SS, detectable, FCM	0207065
Suction cup F-BX20 Silicone G1/4" male composite, detectable, FCM	0207068
Suction cup F-BX20 Silicone G1/4" male SS, detectable, FCM	0207064
Suction cup F-BX20 Silicone G1/8" male composite, detectable, FCM	0207067
Suction cup F-BX20 Silicone G1/8" male SS, detectable, FCM	0207063
Suction cup F-BX25 Silicone detectable, FCM	0206205
Suction cup F-BX25 Silicone 1/4" NPT male composite, detectable, FCM	0207077
Suction cup F-BX25 Silicone 1/4" NPT male SS, detectable, FCM	0207073
Suction cup F-BX25 Silicone 3/8" NPT male composite, detectable, FCM	0207078
Suction cup F-BX25 Silicone 3/8" NPT male SS, detectable, FCM	0207074
Suction cup F-BX25 Silicone G1/4" male composite, detectable, FCM	0207075
Suction cup F-BX25 Silicone G1/4" male SS, detectable, FCM	0207071
Suction cup F-BX25 Silicone G3/8" male composite, detectable, FCM	0207076
Suction cup F-BX25 Silicone G3/8" male SS, detectable, FCM	0207072
Suction cup F-BX35 Silicone detectable, FCM	0206206
Suction cup F-BX35 Silicone 1/4" NPT male composite, detectable, FCM	0207085
Suction cup F-BX35 Silicone 1/4" NPT male SS, detectable, FCM	0207081

Description	Item no.
Suction cup F-BX35 Silicone 3/8" NPT male composite, detectable, FCM	0207086
Suction cup F-BX35 Silicone 3/8" NPT male SS, detectable, FCM	0207082
Suction cup F-BX35 Silicone G1/4" male composite, detectable, FCM	0207083
Suction cup F-BX35 Silicone G1/4" male SS, detectable, FCM	0207079
Suction cup F-BX35 Silicone G3/8" male composite, detectable, FCM	0207084
Suction cup F-BX35 Silicone G3/8" male SS, detectable, FCM	0207080

## Deep family (D)



This family is designed for curved and irregular surfaces. Can lift even over corners and edges. This product is also available in material that is compliant by FDA (FDA 21 CFR 177.2600) and meets EU's regulation EU 1935/2004.

### LIFTING FORCES





	Lifting force vertical to the surface, N, at vacuum level					Lifting force parallell to the surface, N, at vacuum level				
	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa
D15-2	—	2.9	—	7.8	11	—	—	—	—	—
D20-2	—	5.9	—	15	18	—	—	—	—	—
D30-2	—	14	—	26	31	—	—	—	—	—
D50	—	36	—	78	98	—	—	—	—	—
P-D27	3.2	5.5	8.1	—	—	7.6	13.5	21.4	—	—
P-D36	4.5	8.6	19	—	—	12.2	16.8	28.3	—	—

**GENERAL SPECIFICATIONS**





	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
D15-2	16	16.6	6	3	0.9
D20-2	22	13.2	8	4.5	2.5
D30-2	32	19.2	13	5	5
D50	53	31.5	25	10	15
P-D27	26.9	31.5	28	–	6.6
P-D36	35.8	41.3	37	–	16.2

**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material					MSF
D15-2	Chloroprene, CR	●		●	●	●
D15-2	Silicone, SIL	●	●			
D15-2	Silicone FDA EU, SIL FDA	●	●			
D20-2	Chloroprene, CR	●		●	●	●
D20-2	Silicone, SIL	●	●			
D20-2	Silicone FDA EU, SIL FDA	●	●			
D30-2	Chloroprene, CR	●		●	●	●
D30-2	Silicone, SIL	●	●			
D30-2	Silicone FDA EU, SIL FDA	●	●			
D50	Chloroprene, CR	●		●	●	●
D50	Silicone, SIL	●	●			
D50	Silicone FDA EU, SIL FDA	●	●			



Cup	Material					MSF
P-D27	Silicone (SIL detectable FCM)	●	●			
P-D36	Silicone (SIL detectable FCM)	●	●			

### MATERIAL RESISTANCE

For more material information go to page 23.

### APPLICATIONS

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](https://piab.com).

	Dry sheet metal	FDA EU-standard compliant	Plastic injection molded parts
D15-2	●	●	●
D20-2	●	●	●
D30-2	●	●	●
D50	●	●	●
P-D27		●	
P-D36		●	

### FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](https://piab.com).

### ORDERING INFORMATION

Description	Item no.
Suction cup D15-2 Chloroprene, M5 male	3150010
Suction cup D15-2 Silicone	3150135S
Suction cup D15-2 Silicone FCM	0200266
Suction cup D15-2 Silicone FCM, M5 male	9909674
Suction cup D15-2 Silicone, M5 male	3150010S
Suction cup D15-2 Silicone	3150135S
Suction cup D20-2 Chloroprene	0101123

Description	Item no.
Suction cup D20-2 Chloroprene, G1/8" male, with mesh filter	0101216
Suction cup D20-2 Chloroprene, G1/8" male/M5 female, with mesh filter	0101220
Suction cup D20-2 Chloroprene, M5 female	0101215
Suction cup D20-2 Silicone	0101124
Suction cup D20-2 Silicone FCM	0200444
Suction cup D20-2 Silicone FCM, G1/8" male, with mesh filter	9909712
Suction cup D20-2 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909713
Suction cup D20-2 Silicone, G1/8" male, with mesh filter	0101227
Suction cup D20-2 Silicone, G1/8" male/M5 female, PA	0110331
Suction cup D20-2 Silicone, G1/8" male/M5 female, with mesh filter	0101231
Suction cup D20-2 Silicone, M5 female	0101226
Suction cup D20-2 Silicone, M5 female, with dual flow control valve	0101232
Suction cup D30-2 Chloroprene	0101125
Suction cup D30-2 Chloroprene, G1/8" male, with mesh filter	0101238
Suction cup D30-2 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101244
Suction cup D30-2 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101246
Suction cup D30-2 Chloroprene, G1/8" male/M5 female, with mesh filter	0101242
Suction cup D30-2 Chloroprene, M5 female	0101237
Suction cup D30-2 Silicone	0101126
Suction cup D30-2 Silicone FCM	0200446
Suction cup D30-2 Silicone FCM, G1/8" male, with mesh filter	9909714

Description	Item no.
Suction cup D30-2 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909715
Suction cup D30-2 Silicone, 5xM5 female	0101252
Suction cup D30-2 Silicone, G1/8" male, with mesh filter	0101249
Suction cup D30-2 Silicone, G1/8" male/M5 female, with mesh filter	0101253
Suction cup D30-2 Silicone, M5 female	0101248
Suction cup D30-2 Silicone, G1/8" male/M5 female, PA	0110332
Suction cup D50 Chloroprene	0101127
Suction cup D50 Chloroprene, 1/8" NPSF female, PA	0109841
Suction cup D50 Chloroprene, 1/8" NPSF female, with mesh filter	0101727
Suction cup D50 Chloroprene, G1/4" male, with mesh filter	0101722
Suction cup D50 Chloroprene, G3/8" male, with mesh filter	0101724
Suction cup D50 Silicone	0101128
Suction cup D50 Silicone FCM	0200445
Suction cup D50 Silicone FCM, 1/8" NPSF female, with mesh filter	9909676
Suction cup D50 Silicone FCM, G1/4" male, with mesh filter	9909675
Suction cup D50 Silicone, 1/4" NPT male, with mesh filter	0101736
Suction cup D50 Silicone, 1/8" NPSF female, with mesh filter	0101740
Suction cup D50 Silicone, G1/4" male, with mesh filter	0101735
Suction cup D50 Silicone, G3/8" male, with mesh filter	0101737
Suction cup P-D27 Silicone detectable, FCM	0206371
Suction cup P-D27 Silicone 1/4" NPT male composite, detectable, FCM	0207027

Description	Item no.
Suction cup P-D27 Silicone 1/4" NPT male SS, detectable, FCM	0207023
Suction cup P-D27 Silicone 1/8" NPT male composite, detectable, FCM	0207028
Suction cup P-D27 Silicone 1/8" NPT male SS, detectable, FCM	0207024
Suction cup P-D27 Silicone G1/4" male composite, detectable, FCM	0207025
Suction cup P-D27 Silicone G1/4" male SS, detectable, FCM	0207021
Suction cup P-D27 Silicone G1/8" male composite, detectable, FCM	0207026
Suction cup P-D27 Silicone G1/8" male SS, detectable, FCM	0207022
Suction cup P-D36 Silicone detectable, FCM	0206372
Suction cup P-D36 Silicone 1/4" NPT male composite, detectable, FCM	0207035
Suction cup P-D36 Silicone 1/4" NPT male SS, detectable, FCM	0207031
Suction cup P-D36 Silicone 3/8" NPT male composite, detectable, FCM	0207036
Suction cup P-D36 Silicone 3/8" NPT male SS, detectable, FCM	0207032
Suction cup P-D36 Silicone G1/4" male composite, detectable, FCM	0207033
Suction cup P-D36 Silicone G1/4" male SS, detectable, FCM	0207029
Suction cup P-D36 Silicone G3/8" male SS, detectable, FCM	0207030
Suction cup P-D36 Silicone G3/8" male composite, detectable, FCM	0207034

## Deep family (DC)



This family is designed for flat, convex or concave surfaces, e.g., such as those encountered when handling metal sheets in later stages of a press line. The suction cups have a thin design that easily follows the curved metal sheet. A special inner pattern gives maximum shear force grip even on oily/slippery surfaces. DURAFLEX® suction cups manufactured in a specially developed material that features the elasticity of rubber and wear resistance of polyurethane. The material does not leave any marks on the objects handled and has a fantastic elastic memory.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level	
	60 -kPa	90 -kPa	60 -kPa	90 -kPa
DCF65P	143/141	193/191	146/100	196/134
DCF90P	255/222	311/310	256/183	358/248
DCF110P	315/313	436/433	377/286	573/358


### GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm*	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
DCF65P	67.5	28.2– 47.7	95	9	23.9
DCF90P	92.5	34.2– 51.7	130	13	57.5
DCF110P	112.5	40.6– 59.8	153	16	110.2

\* Height range includes fittings.

### AVAILABLE MATERIALS AND INDUSTRIES

An explanation of the industry icons is available on the cover fold out.

Cup	Material		MSF
DCF65P	PU60°	●	●
DCF90P	PU60°	●	●
DCF110P	PU60°	●	●

### MATERIAL RESISTANCE

For more material information go to page 23.

### APPLICATIONS

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Dry sheet metal	Oily sheet metal	Mark Free
DCF65P	●	●	●
DCF90P	●	●	●
DCF110P	●	●	●

### FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

### ORDERING INFORMATION

Description	Item no.
Suction cup DCF65P Polyurethane 60 G1/4" male with mesh filter	0207678
Suction cup DCF65P Polyurethane 60 G3/8" female with mesh filter, 17 mm thread	0209185
Suction cup DCF65P Polyurethane 60 M10x1,5 male with mesh filter	0207654
Suction cup DCF65P Polyurethane 60, 3/8" NPT female, with mesh filter	0206535
Suction cup DCF65P Polyurethane 60, G1/4" female, with mesh filter	0206794
Suction cup DCF65P Polyurethane 60, G3/8" female plastic	0206538
Suction cup DCF65P Polyurethane 60, G3/8" female, with mesh filter	0206537
Suction cup DCF65P Polyurethane 60, G3/8" male, 1/8" NPSF female, with mesh filter	0206536

Description	Item no.
Suction cup DCF65P Polyurethane 60, T-slot, with mesh filter	0206539
Suction cup DCF90P Polyurethane 60 G1/4" male with mesh filter	0207679
Suction cup DCF90P Polyurethane 60 G3/8" female with mesh filter, 17 mm thread	0209186
Suction cup DCF90P Polyurethane 60 M10x1,5 male with mesh filter	0207655
Suction cup DCF90P Polyurethane 60, 3/8" NPT female, with mesh filter	0206540
Suction cup DCF90P Polyurethane 60, G1/4" female, with mesh filter	0206795
Suction cup DCF90P Polyurethane 60, G3/8" female plastic	0206543
Suction cup DCF90P Polyurethane 60, G3/8" female, with mesh filter	0206542
Suction cup DCF90P Polyurethane 60, G3/8" male, 1/8" NPSF female, with mesh filter	0206541
Suction cup DCF90P Polyurethane 60, T-slot, with mesh filter	0206544
Suction cup DCF110P Polyurethane 60 G1/4" male with mesh filter	0207680
Suction cup DCF110P Polyurethane 60 G3/8" female with mesh filter, 17 mm thread	0209187
Suction cup DCF110P Polyurethane 60 M10x1,5 male with mesh filter	0207660
Suction cup DCF110P Polyurethane 60, 3/8" NPT female, with mesh filter	0206545
Suction cup DCF110P Polyurethane 60, G1/4" female, with mesh filter	0206796
Suction cup DCF110P Polyurethane 60, G3/8" female plastic	0206548
Suction cup DCF110P Polyurethane 60, G3/8" female, with mesh filter	0206547
Suction cup DCF110P Polyurethane 60, G3/8" male, 1/8" NPSF female, with mesh filter	0206546
Suction cup DCF110P Polyurethane 60, T-slot, with mesh filter	0206549

# Universal family (U)



This family is designed for flat or slightly curved surfaces. They are available in a number of different materials such as DURAFLEX®, silicone and also a material that is compliant by FDA (FDA 21 CFR 177.2600) and meets EU's regulation EU 1935/2004.

## LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
U2	0.03	0.1	0.15	—	—	—
U3	0.09	0.42	0.65	—	—	—
U4	0.2	0.9	1.3	0.2	0.8	1
U6	0.5	1.7	2.5	0.5	1.5	2
U8	1	2.9	3.9	1	2.9	3.4
U10	1.5	4.4	6.9	1.5	4.4	4.9
U15	3.5	8.4	11	3.5	5.4	5.9
U20	5.9	12	16	5.9	8.8	9.8
U30	12	25	30	7.8	9.8	11
U40-2	20	39	49	14	22	27
U50-2	35	73	92	20	37	44



	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
U15-3	3.5	8.4	11	3.5	5.4	5.9
U20-2P	3/3/3*	10.5/11.5/14*	14/15/21*	1.5/1.5/3*	3/3/6*	6/6/8*

\* PU40° / PU50° / PU60°.







#### GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
U2	2.6	3.5	4	0.1	0.003
U3	3.8	4.5	5	0.15	0.005
U4	5	6.1	3	0.2	0.03
U6	7	7	5	0.3	0.05
U8	9	7	6	0.5	0.1
U10	11	10.5	8	0.5	0.18
U15	16.5	11.5	8	1.5	0.5
U20	22	8	13	2.5	1
U30	32	9.5	20	3.5	2
U40-2	41	13	30	4.5	5.5
U50-2	51.4	17.5	35	6	12
U15-3	16.5	11.5	8	1.5	0.5
U20-2P	8.7	14	9/9/12*	5	0.7

\* PU40° / PU50° / PU60°.

**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material							MSF
U2	Conductive Silicone, CSIL			●				
U3	Conductive Silicone, CSIL			●				
U4	Chloroprene, CR	●			●		●	●
U4	Silicone, SIL	●	●					
U4	Silicone, SIL FDA EU	●	●					
U6	Chloroprene, CR	●			●		●	●
U6	HNBR	●				●	●	
U6	Silicone, SIL	●	●					
U6	Silicone, SIL FDA EU	●	●					
U8	Chloroprene, CR	●			●		●	●
U8	Silicone, SIL	●	●					
U8	Silicone, SIL FDA EU	●	●					
U10	Chloroprene, CR	●			●		●	●
U10	HNBR	●				●	●	
U10	Silicone, SIL	●	●					
U10	Silicone, SIL FDA EU	●	●					
U15	Chloroprene, CR	●			●		●	●
U15	HNBR	●				●	●	
U15	Silicone, SIL	●	●					

Cup	Material							MSF
U15	Silicone, SIL FDA EU	●	●					
U20	Chloroprene, CR	●			●		●	●
U20	HNBR	●				●	●	
U20	Silicone, SIL	●	●					
U20	Silicone, SIL FDA EU	●	●					
U30	Nitrile-PVC, NPV	●			●		●	●
U30	Silicone, SIL	●	●					
U30	Silicone, SIL FDA EU	●	●					
U40-2	Nitrile-PVC, NPV	●			●		●	●
U40-2	Silicone, SIL	●	●					
U40-2	Silicone, SIL FDA EU	●	●					
U50-2	Nitrile-PVC, NPV	●			●		●	●
U50-2	Silicone, SIL	●	●					
U50-2	Silicone, SIL FDA EU	●	●					
U15-3	Silicone, SIL	●	●					
U20-2P	PU40°	●						
U20-2P	PU50°	●						
U20-2P	PU60°	●						

**MATERIAL RESISTANCE**

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Dry sheet metal	FDA EU-standard compliant	Electronic / semiconductor	Plastic injection molded parts	Mark Free	High/low temp cup (plastic)	Glass handling	Bag opening/thin paper - slip sheets/film
U2			●					
U3			●					
U4	●	●		●				
U6	●	●		●	●			
U8	●	●		●				
U10		●		●	●	●	●	
U15		●		●	●	●	●	
U20		●		●	●	●	●	
U30	●	●		●				
U40-2	●	●		●				
U50-2	●	●		●				
U15-3								●
U20-2P					●			●

**FITTINGS**

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup U2 Conductive silicone	3150284SC
Suction cup U2 Conductive silicone, M2.5 male	3250080SC
Suction cup U3 Conductive silicone	3150285SC

Description	Item no.
Suction cup U3 Conductive silicone, M2.5 male	3250081SC
Suction cup U4 Chloroprene	3150114
Suction cup U4 Chloroprene, M5 male	3150059
Suction cup U4 Silicone	3150114S
Suction cup U4 Silicone FCM	0200254
Suction cup U4 Silicone FCM, M5 male	9909632
Suction cup U4 Silicone, M5 male	3150059S
Suction cup U6 Chloroprene	3150115
Suction cup U6 Chloroprene, M5 male	3150003
Suction cup U6 HNBR	0200888
Suction cup U6 HNBR, M5 male	9914275
Suction cup U6 Silicone	3150115S
Suction cup U6 Silicone FCM	0200255
Suction cup U6 Silicone FCM, M5 male	9909633
Suction cup U6 Silicone, M5 male	3150003S
Suction cup U8 Chloroprene	3150116
Suction cup U8 Chloroprene, M5 male	3150004
Suction cup U8 Silicone	3150116S
Suction cup U8 Silicone FCM	0200256
Suction cup U8 Silicone FCM, M5 male	9909634
Suction cup U8 Silicone, M5 male	3150004S

Description	Item no.
Suction cup U10 Chloroprene	3150117
Suction cup U10 Chloroprene, M5 male	3150005
Suction cup U10 HNBR	0128689
Suction cup U10 HNBR, M5 male	9906863
Suction cup U10 Silicone	3150117S
Suction cup U10 Silicone FCM	0200257
Suction cup U10 Silicone FCM, M5 male	9909635
Suction cup U10 Silicone, M5 male	3150005S
Suction cup U15 Chloroprene	3150118
Suction cup U15 Chloroprene, M5 male	3150006
Suction cup U15 HNBR	0128690
Suction cup U15 HNBR, M5 male	9906864
Suction cup U15 Silicone	3150118S
Suction cup U15 Silicone FCM	0200258
Suction cup U15 Silicone FCM, M5 male	9909636
Suction cup U15 Silicone, M5 male	3150006S
Suction cup U20 Chloroprene, 5xM5 female	0101377
Suction cup U20 Chloroprene, G1/8" male, with mesh filter	0101374
Suction cup U20 Chloroprene, G1/8" male, with mesh filter and dual flow control valve	0101380
Suction cup U20 Chloroprene, G1/8" male/M5 female, PA	0110956
Suction cup U20 Chloroprene, G1/8" male/M5 female, with dual flow control valve	0101382

Description	Item no.
Suction cup U20 Chloroprene, G1/8" male/M5 female, with mesh filter	0101378
Suction cup U20 Chloroprene, M5 female	0101373
Suction cup U20 Chloroprene, M5 female, with dual flow control valve	0101379
Suction cup U20 HNBR	0128711
Suction cup U20 HNBR, 5xM5 female	9906890
Suction cup U20 HNBR, 5xM5 female, with dual flow control valve	9906891
Suction cup U20 HNBR, G1/8" male, with mesh filter	9906869
Suction cup U20 HNBR, G1/8" male, with mesh filter and dual flow control valve	9906870
Suction cup U20 HNBR, G1/8" male/M5 female, with dual flow control valve	9906872
Suction cup U20 HNBR, G1/8" male/M5 female, with mesh filter	9907052
Suction cup U20 HNBR, M5 female	9906867
Suction cup U20 HNBR, M5 female, with dual flow control valve	9906868
Suction cup U20 Silicone	0101145
Suction cup U20 Silicone FCM	0200440
Suction cup U20 Silicone FCM, G1/8" male, with mesh filter	9909717
Suction cup U20 Silicone FCM, G1/8" male/M5 female, with mesh filter	9909718
Suction cup U20 Silicone, 5xM5 female	0101388
Suction cup U20 Silicone, 5xM5 female, with dual flow control valve	0101394
Suction cup U20 Silicone, G1/8" male, with mesh filter	0101385
Suction cup U20 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101391
Suction cup U20 Silicone, G1/8" male/M5 female, PA	0110328

Description	Item no.
Suction cup U20 Silicone, G1/8" male/M5 female, with mesh filter	0101389
Suction cup U20 Silicone, M5 female, with dual flow control valve	0101390
Suction cup U20-2P Polyurethane 40	0119994
Suction cup U20-2P Polyurethane 40, 1/8" Male	0205721
Suction cup U20-2P Polyurethane 50	0119995
Suction cup U20-2P Polyurethane 50, 1/8" Male	0205722
Suction cup U20-2P Polyurethane 60	0119996
Suction cup U20-2P Polyurethane 60, 1/8" Male	0205723
Suction cup U30 Nitrile-PVC	0101146
Suction cup U30 Nitrile-PVC, G1/8" male / M5 female, PA	0109839
Suction cup U30 Nitrile-PVC, G1/8" male / M5 female, with dual flow control valve	0101415
Suction cup U30 Nitrile-PVC, G1/8" male / M5 female, with mesh filter	0101411
Suction cup U30 Nitrile-PVC, G1/8" male, with mesh filter	0101407
Suction cup U30 Nitrile-PVC, G1/8" male, with mesh filter and dual flow control valve	0101413
Suction cup U30 Nitrile-PVC, M5 female	0101406
Suction cup U30 Silicone	0101147
Suction cup U30 Silicone FCM	0200441
Suction cup U30 Silicone FCM, G1/8" male / M5 female, with mesh filter	9909721
Suction cup U30 Silicone FCM, G1/8" male, with mesh filter	9909720
Suction cup U30 Silicone, 5xM5 female, with mesh filter	0101399
Suction cup U30 Silicone, G1/8" male / M5 female, with mesh filter	0101400



Description	Item no.
Suction cup U30 Silicone, G1/8" male, with mesh filter	0101396
Suction cup U30 Silicone, G1/8" male, with mesh filter and dual flow control valve	0101402
Suction cup U30 Silicone, M5 female, with mesh filter	0101395
Suction cup U40-2 Nitrile-PVC	0101148
Suction cup U40-2 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101623
Suction cup U40-2 Nitrile-PVC, G1/4" male, with mesh filter	0101618
Suction cup U40-2 Nitrile-PVC, G1/4" male, with mesh filter and dual flow control valve	0101625
Suction cup U40-2 Nitrile-PVC, G3/8" male, with dual flow control valve	0101627
Suction cup U40-2 Silicone	0101149
Suction cup U40-2 Silicone FCM	0200442
Suction cup U40-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909723
Suction cup U40-2 Silicone FCM, G1/4" male, with mesh filter	9909722
Suction cup U40-2 Silicone, 1/8" NPSF female, PA	0110338
Suction cup U40-2 Silicone, 1/8" NPSF female, with mesh filter	0101610
Suction cup U40-2 Silicone, 5x1/8" NPSF female	0101609
Suction cup U40-2 Silicone, G1/4" male, with mesh filter	0101605
Suction cup U40-2 Silicone, G3/8" male, with mesh filter	0101607
Suction cup U50-2 Nitrile-PVC	0101150
Suction cup U50-2 Nitrile-PVC, 1/8" NPSF female, with mesh filter	0101823
Suction cup U50-2 Nitrile-PVC, 5x1/8" NPSF female	0101822
Suction cup U50-2 Nitrile-PVC, G1/4" male, with mesh filter	0101818

Description	Item no.
Suction cup U50-2 Nitrile-PVC, G3/8" male, with mesh filter	0101820
Suction cup U50-2 Silicone	0101151
Suction cup U50-2 Silicone FCM	0200443
Suction cup U50-2 Silicone FCM, 1/8" NPSF female, with mesh filter	9909726
Suction cup U50-2 Silicone FCM, G1/4" male, with mesh filter	9909725
Suction cup U50-2 Silicone, 1/8" NPSF female, PA	0110330
Suction cup U50-2 Silicone, 1/8" NPSF female, with dual flow control valve	0101811
Suction cup U50-2 Silicone, 1/8" NPSF female, with mesh filter	0101810
Suction cup U50-2 Silicone, G1/4" male, with mesh filter	0101805
Suction cup U50-2 Silicone, G3/8" male, with mesh filter	0101807
Suction cup U50-2 Silicone, G3/8" male, with mesh filter and dual flow control valve	0101814
Suction cup U15-3 Silicone	0114981
Suction cup U15-3 Silicone, M5 male	0117947
Suction cup U20-2P Polyurethane 40	0119994
Suction cup U20-2P Polyurethane 40, 1/8" Male	0205721
Suction cup U20-2P Polyurethane 50	0119995
Suction cup U20-2P Polyurethane 50, 1/8" Male	0205722
Suction cup U20-2P Polyurethane 60	0119996
Suction cup U20-2P Polyurethane 60, 1/8" Male	0205723

## Oval Bellows family (OB)



The oval bellows suction cups are suitable for handling of long and narrow objects and surfaces when maximum lifting force is desired. Oval bellows suction cups are specially suitable for irregular surfaces and when level compensation is desired. The oval bellows suction cup family has characteristics that are specially suited for handling of metal-sheet material.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level					Lifting force parallel to the surface, N, at vacuum level				
	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa
F-OB 10x30	1.4	2.4	5.2	—	—	1.5	2.3	4.6	—	—
F-OB 20x40	3.3	6.9	12	—	—	2.9	6	12.6	—	—
F-OB 30x60	8	17.2	31.1	—	—	8.1	13.4	27.5	—	—
OB20x60P	—	13	—	34	57	—	13	—	37	48
OB35x90P (PU30°/60°)	—	42	—	119	174	—	48	—	73	100
OB35x90P (PU60°)	—	42	—	117	185	—	32	—	85	111
OB50x140P (PU30°/60°)	—	58	—	235	366	—	110	—	260	349
OB50x140P (PU60°)	—	77	—	231	368	—	122	—	292	396
OB65x170P (PU30°/60°)	—	119	—	335	541	—	141	—	379	532
OB65x170P (PU60°)	—	130	—	310	533	—	170	—	440	600

	Lifting force vertical to the surface, N, at vacuum level					Lifting force parallel to the surface, N, at vacuum level				
	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa	10 -kPa	20 -kPa	40 -kPa	60 -kPa	90 -kPa
OBF15×35P H	—	—	—	25/19*	31/24*	—	—	—	21/5*	25/6*
OBF15×35P L	—	—	—	25/19*	31/24*	—	—	—	21/5*	25/6*
OBF15×65P	—	—	—	41/31*	52/41*	—	—	—	31/7*	35/8*
OBF30×60P	—	—	—	60/43*	80/65*	—	—	—	74/32*	99/45
OBF35×90P	—	—	—	140/108*	198/157*	—	—	—	125/105*	179/151*
OBF50×140P	—	—	—	325/246*	438/372*	—	—	—	328/271*	415/347*
OBF65×170P	—	—	—	397/403*	570/502*	—	—	—	437/538*	619/665*
OBL40×90P (PU60°)	—	44	—	105	160	—	40	—	87	121
OBL40×90P (PU70°)	—	49	—	117	178	—	45	—	97	135

\* Dry metal sheet/Oily metal sheet.

#### GENERAL SPECIFICATIONS







	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
F-OB 10x30	11×31	26.2	4	4	1
F-OB 20x40	40.8×20.8	36–41.2	9	7.6	5
F-OB 30x60	62×32	44.8–49.9	9	10.9	17.5
OB20×60P	62×23.5	23.6	7	4.5	24
OB35×90P	95.6×42.4	27.2	30	10.5	38
OB50×140P	146×59	34.5	23/26**	11.3	95
OB65×170P	177×76	41.5	38	16	175
OBF15×35P H	36×15	21.9–28.9	20	2.9	1.8
OBF15×35P L	36×15	37.7–44.8	20	2.9	1.3
OBF15×65P	66×15	21.9–28.9	20	2.9	2.6







	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
OBF30×60P	60×30	32.3–43.6	25	7	9.1
OBF35×90P	105×50	39–47.9*	30	11	36
OBF50×140P	157×67	47–55.8*	50	13	95
OBF65×170P	187×82	54–62.8*	50	15	200
OBL40×90P	92.6×45	63–73*	28	31	105

\* Height range includes fittings, \*\* PU30°/PU60° / PU60°.

### AVAILABLE MATERIALS AND INDUSTRIES

An explanation of the industry icons is available on the cover fold out.

Cup	Material							MSF
F-OB 10x30	Silicone (SIL non-detectable FCM)	●	●					
F-OB 10x30	Silicone (SIL detectable FCM)	●	●					
F-OB 20x40	Silicone (SIL non-detectable FCM)	●	●					
F-OB 20x40	Silicone (SIL detectable FCM)	●	●					
F-OB 30x60	Silicone (SIL non-detectable FCM)	●	●					
F-OB 30x60	Silicone (SIL detectable FCM)	●	●					
OB20x60P	PU60°	●		●	●	●	●	●
OB35x90P	PU30°/PU60°	●		●				
OB35x90P	PU60°	●		●	●	●	●	●
OB50x140P	PU30°/PU60°	●		●				
OB50x140P	PU60°	●		●	●	●	●	●
OB65x170P	PU30°/PU60°	●		●				
OB65x170P	PU60°	●		●	●	●	●	●

Cup	Material							MSF
OBF15×35P H	PU60°			●				●
OBF15×35P L	PU60°			●				●
OBF15×65P	PU60°			●				●
OBF30×60P	PU60°			●				●
OBF35×90P	PU55°/PU60°			●				●
OBF50x140P	PU55°/PU60°			●				●
OBF65x170P	PU55°/PU60°			●				●
OBL40x90P	PU60°	●		●	●	●	●	●
OBL40x90P	PU70°	●		●	●	●	●	●

### MATERIAL RESISTANCE

For more material information go to page 23.

### APPLICATIONS

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	FDA EU-standard compliant	Corrugated / cardboard	Glass handling	Mark Free	Oily sheet metal
F-OB 10x30	●				
F-OB 20x40	●				
F-OB 30x60	●				
OB20x60P				●	
OB35x90P		●		●	
OB50x140P		●		●	
OB65x170P		●		●	
OBF15×35P H				●	●

	FDA EU-standard compliant	Corrugated / cardboard	Glass handling	Mark Free	Oily sheet metal
OBF15×35P L				●	●
OBF15×65P				●	●
OBF30×60P				●	●
OBF35×90P				●	●
OBF50×140P				●	●
OBF65×170P				●	●
OBL40×90P			●	●	●

## FITTINGS

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

## ORDERING INFORMATION

Description	Item no.
Suction cup F-OB 10x30 Silicone, G1/8" male SS, detectable, FCM	0205912
Suction cup F-OB 10x30 Silicone, G1/8" male SS, FCM	0207044
Suction cup F-OB 20x40 Silicone, G1/4" male SS, detectable, FCM	0205915
Suction cup F-OB 20x40 Silicone, G1/4" male SS, FCM	0207045
Suction cup F-OB 20x40 Silicone, G1/8" male SS, detectable, FCM	0205918
Suction cup F-OB 20x40 Silicone, G1/8" male SS, FCM	0207046
Suction cup F-OB 30x60 Silicone, G1/4" male SS, detectable FCM	0205923
Suction cup F-OB 30x60 Silicone, G1/4" male SS, FCM	0207048
Suction cup F-OB 30x60 Silicone, G1/8" male SS, detectable, FCM	0205920
Suction cup F-OB 30x60 Silicone, G1/8" male SS, FCM	0207047
Suction cup OB20x60P Polyurethane 60, G1/8" male	0115291

Description	Item no.
Suction cup OB35x90P Polyurethane 30/60	0109913
Suction cup OB35x90P Polyurethane 30/60, 3/8" NPSF female	0109857
Suction cup OB35x90P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0109856
Suction cup OB35x90P Polyurethane 60	0109912
Suction cup OB35x90P Polyurethane 60, 3/8" NPSF female	0108672
Suction cup OB35x90P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108673
Suction cup OB50x140P Polyurethane 30/60	0109915
Suction cup OB50x140P Polyurethane 30/60, 3/8" NPSF female	0109859
Suction cup OB50x140P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0109858
Suction cup OB50x140P Polyurethane 60	0109914
Suction cup OB50x140P Polyurethane 60, 3/8" NPSF female	0108674
Suction cup OB50x140P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108675
Suction cup OB65x170P Polyurethane 30/60	0109917
Suction cup OB65x170P Polyurethane 30/60, 3/8" NPSF female	0109861
Suction cup OB65x170P Polyurethane 30/60, thread insert G3/8" male, with mesh filter	0109860
Suction cup OB65x170P Polyurethane 60	0109916
Suction cup OB65x170P Polyurethane 60, 3/8" NPSF female	0108676
Suction cup OB65x170P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108677
Suction cup OBF15x35P H Polyurethane 60, G1/4" female	0207579
Suction cup OBF15x35P H Polyurethane 60, G1/4" male	0207581
Suction cup OBF15x35P H Polyurethane 60, G3/8" female	0207577

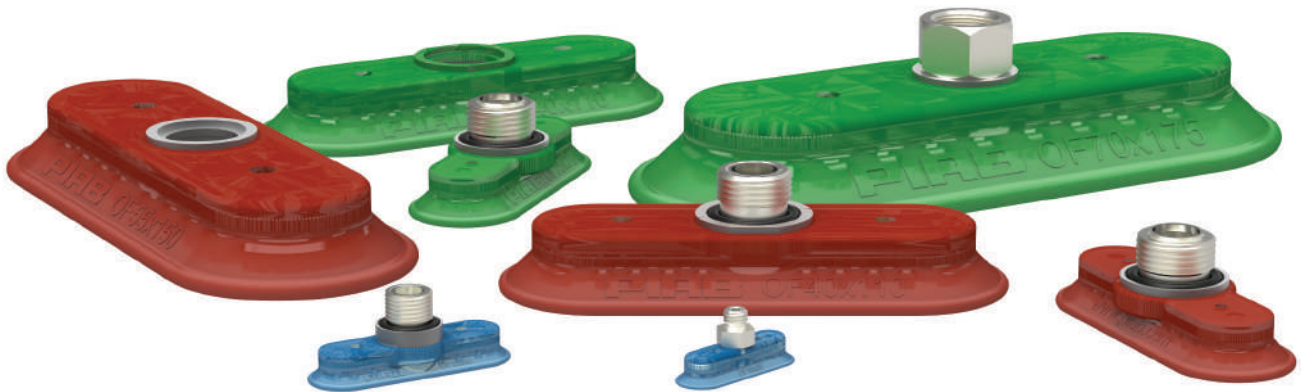


Description	Item no.
Suction cup OBF15×35P H Polyurethane 60, G3/8" female plastic	0207587
Suction cup OBF15×35P H Polyurethane 60, G3/8" male	0207585
Suction cup OBF15×35P H Polyurethane 60, G3/8" female, 17 mm thread	0209500
Suction cup OBF15×35P H Polyurethane 60, M10×1.5 male	0207583
Suction cup OBF15×35P H Polyurethane 60, NPT3/8" female	0207571
Suction cup OBF15×35P H Polyurethane 60, T-slot	0207575
Suction cup OBF15×35P L Polyurethane 60, G1/4" female	0207594
Suction cup OBF15×35P L Polyurethane 60, G1/4" male	0207595
Suction cup OBF15×35P L Polyurethane 60, G3/8" female	0207593
Suction cup OBF15×35P L Polyurethane 60, G3/8" female plastic	0207598
Suction cup OBF15×35P L Polyurethane 60, G3/8" male	0207597
Suction cup OBF15×35P L Polyurethane 60, G3/8" female, 17 mm thread	0209501
Suction cup OBF15×35P L Polyurethane 60, M10×1.5 male	0207596
Suction cup OBF15×35P L Polyurethane 60, NPT3/8" female	0207589
Suction cup OBF15×35P L Polyurethane 60, T-slot	0207592
Suction cup OBF15×65P Polyurethane 60, G1/4" female	0207607
Suction cup OBF15×65P Polyurethane 60, G1/4" male	0207609
Suction cup OBF15×65P Polyurethane 60, G3/8" female	0207605
Suction cup OBF15×65P Polyurethane 60, G3/8" female plastic	0207615
Suction cup OBF15×65P Polyurethane 60, G3/8" male	0207613
Suction cup OBF15×65P Polyurethane 60, G3/8" female, 17 mm thread	0209502

Description	Item no.
Suction cup OBF15×65P Polyurethane 60, M10×1.5 male	0207611
Suction cup OBF15×65P Polyurethane 60, NPT3/8" female	0207599
Suction cup OBF15×65P Polyurethane 60, T-slot	0207603
Suction cup OBF30×60P Polyurethane 55/60/30 G3/8" female with mesh filter, 17 mm thread	0209490
Suction cup OBF30×60P Polyurethane 60, G1/4" female	0207737
Suction cup OBF30×60P Polyurethane 60, G1/4" male	0207738
Suction cup OBF30×60P Polyurethane 60, G3/8" female	0207734
Suction cup OBF30×60P Polyurethane 60, G3/8" female plastic	0207617
Suction cup OBF30×60P Polyurethane 60, G3/8" male	0207735
Suction cup OBF30×60P Polyurethane 60, M10×1.5 male	0207739
Suction cup OBF30×60P Polyurethane 60, NPT3/8" female	0207736
Suction cup OBF30×60P Polyurethane 60, T-slot with mesh filter	0207733
Suction cup OBF35X90P Polyurethane 55/60, 3/8" NPT female	0122287
Suction cup OBF35x90P Polyurethane 55/60, G3/8" female	0119123
Suction cup OBF35x90P Polyurethane 55/60, G3/8" female, 17 mm thread	0200694
Suction cup OBF35x90P Polyurethane 55/60, G3/8" male, with mesh filter	0119121
Suction cup OBF35x90P Polyurethane 55/60, M10x1.5 male	0121436
Suction cup OBF50X140P Polyurethane 55/60, 3/8" NPT female	0122288
Suction cup OBF50x140P Polyurethane 55/60, G3/8" female	0119127
Suction cup OBF50x140P Polyurethane 55/60, G3/8" male, with mesh filter	0119125
Suction cup OBF50x140P Polyurethane 55/60, M10x1.5 male	0121437

Description	Item no.
Suction cup OBF65X170P Polyurethane 55/60, 3/8" NPT female	0122289
Suction cup OBF65x170P Polyurethane 55/60, G3/8" female	0119131
Suction cup OBF65x170P Polyurethane 55/60, G3/8" male, with mesh filter	0119129
Suction cup OBF65x170P Polyurethane 55/60, M10x1.5 male	0121438
Suction cup OBL40x90P Polyurethane 60, with 3 reinforcement plates and load support	0106697
Suction cup OBL40x90P Polyurethane 70, with 3 reinforcement plates and load support with G3/8" male, filter	0107325

## Oval Flat family (OF)



Oval suction cups are specially suitable for long and narrow objects. This program of oval suction cups has characteristics that are specially suited for handling of metal-sheet material.

### LIFTING FORCES






	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
OF10x30P	4	11	17	6	12	17
OF15x45P	9	27	41	6	20	34
OF25x70P (PU40°)	24	66	107	46	90	105
OF25x70P (PU60°)	24	77	118	42	127	161
OF40x110P (PU40°)	69	203	293	120	230	296
OF40x110P (PU60°)	74	200	303	98	228	410
OF55x150P (PU40°)	131	366	527	155	350	455
OF55x150P (PU60°)	134	376	558	128	338	477
OF70x175P (PU40°)	190	530	785	170	440	630
OF70x175P (PU60°)	180	570	860	200	555	750

**GENERAL SPECIFICATIONS**

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
OF10x30P	30.8×10.8	14.6	15	1	0.5
OF15x45P	45×15	17.15	30	1	1
OF25x70P	72.3×27.3	23	50	1.9	6
OF40x110P	113×43	17.5	77	3.1	21
OF55x150P	154×59	21	150	3	37
OF70x175P	180×75	25	130	5.7	80

**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material						MSF
OF10x30P	PU50°	●	●	●	●	●	●
OF15x45P	PU50°	●	●	●	●	●	●
OF25x70P	PU40°	●	●	●	●	●	●
OF25x70P	PU60°	●	●	●	●	●	●
OF40x110P	PU40°	●	●	●	●	●	●
OF40x110P	PU60°	●	●	●	●	●	●
OF55x150P	PU40°	●	●	●	●	●	●
OF55x150P	PU60°	●	●	●	●	●	●
OF70x175P	PU40°	●	●	●	●	●	●
OF70x175P	PU60°	●	●	●	●	●	●

**MATERIAL RESISTANCE**

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Dry sheet metal	Corrugated / cardboard	Mark Free	Plastic injection molded parts
OF10x30P			●	
OF15x45P			●	
OF25x70P	●	●	●	●
OF40x110P	●	●	●	●
OF55x150P	●	●	●	●
OF70x175P	●	●	●	●

**FITTINGS**

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup OF10x30P Polyurethane 50, M5 male	0110084
Suction cup OF15x45P Polyurethane 50, G1/8" male	0115285
Suction cup OF25x70P Polyurethane 40, G3/8" male	0115304
Suction cup OF40x110P Polyurethane 40	0109907
Suction cup OF40x110P Polyurethane 40, 3/8" NPSF female	0109851
Suction cup OF40x110P Polyurethane 40, thread insert G3/8" male, with mesh filter	0109850
Suction cup OF40x110P Polyurethane 60	0109906
Suction cup OF40x110P Polyurethane 60, 3/8" NPSF female	0108265
Suction cup OF40x110P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108263
Suction cup OF55x150P Polyurethane 40	0109909
Suction cup OF55x150P Polyurethane 40, 3/8" NPSF female	0109853

Description	Item no.
Suction cup OF55x150P Polyurethane 40, thread insert G3/8" male, with mesh filter	0109852
Suction cup OF55x150P Polyurethane 60	0109908
Suction cup OF55x150P Polyurethane 60, 3/8" NPSF female	0108036
Suction cup OF55x150P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108030
Suction cup OF70x175P Polyurethane 40	0109911
Suction cup OF70x175P Polyurethane 40, 3/8" NPSF female	0109855
Suction cup OF70x175P Polyurethane 40, thread insert G3/8" male, with mesh filter	0109854
Suction cup OF70x175P Polyurethane 60	0109910
Suction cup OF70x175P Polyurethane 60, 3/8" NPSF female	0108264
Suction cup OF70x175P Polyurethane 60, thread insert G3/8" male, with mesh filter	0108671

# Oval Concave family (OC)



Suitable for handling long oblong objects with flat or curved surfaces with thick durable lip. Some of these cups have support cleats that prevent thin objects from being disfigured.

## LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
OC60×140	132	373	520	186	373	510
OC35×90P	49/49*	117/132*	171/171*	53/68*	112/161*	147/206*
OCF20×80P	—	75/82*	111/90*	—	78/35*	112/48*
OCF30×90P	—	111/115*	157/159*	—	107/51*	160/74*
OCF40×110P	—	178/185*	245/246*	—	167/54*	232/78*

\* PU40° / PU60°.

## GENERAL SPECIFICATIONS






	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
OC60×140	138×61	30	200	7.5	52
OC35×90P	94×37	14.5	—	3	20
OCF20×80P	84×24	27–30.1*	20	3	15
OCF30×90P	92.5×32.5	26.5–29.5*	25	4	17
OCF40×110P	113×43	32.5–35.5*	42	5	34

\* Height range includes fittings.



**AVAILABLE MATERIALS AND INDUSTRIES**

An explanation of the industry icons is available on the cover fold out.

Cup	Material						MSF
OC60×140	Nitrile, NBR	●			●	●	●
OC35×90P	PU40°	●	●				
OC35×90P	PU60°	●	●	●	●	●	●
OCF20×80P	PU55°/ PU60°		●				●
OCF30×90P	PU55°/ PU60°		●				●
OCF40×110P	PU55°/ PU60°		●				●

**MATERIAL RESISTANCE**

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Oily metal sheet	Dry metal sheet	Mark Free
OC60×140		●	
OC35×90P			●
OCF20×80P	●		
OCF30×90P	●		
OCF40×110P	●		

**FITTINGS**

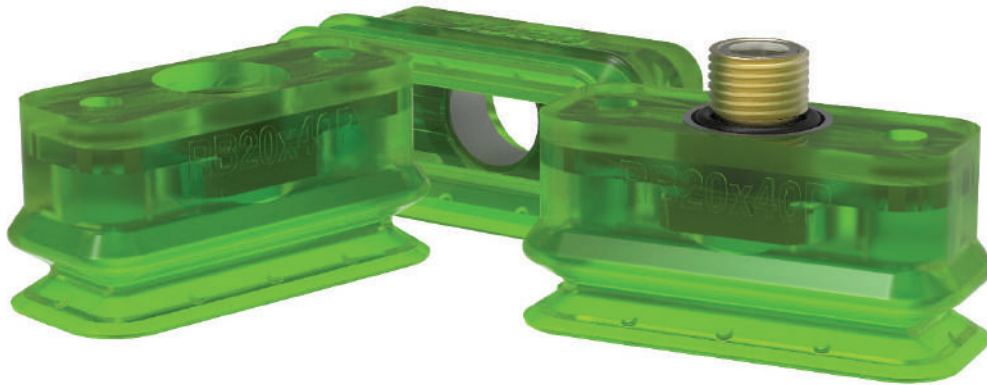
For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup OC60×140 Nitrile, G3/8" female	3350011
Suction cup OC35×90P Polyurethane 40	0115306
Suction cup OC35×90P Polyurethane 40, 3/8" NPSF female	0102375
Suction cup OC35×90P Polyurethane 40, adjustable thread insert G3/8" male with mesh filter	0115307
Suction cup OC35×90P Polyurethane 40, adjustable thread insert G3/8" male with mesh filter	0115311
Suction cup OC35×90P Polyurethane 40, G3/8" female	0102374
Suction cup OC35×90P Polyurethane 60, 3/8" NPSF female	0103303
Suction cup OC35×90P Polyurethane 60, adjustable thread insert G3/8" male with mesh filter	0115313
Suction cup OC35×90P Polyurethane 60, G3/8" female	0103305
Suction cup OCF20×50 Polyurethane 60, G1/4" female	0207730
Suction cup OCF20×50 Polyurethane 60, G1/4" male	0207731
Suction cup OCF20×50 Polyurethane 60, G3/8" female	0207727
Suction cup OCF20×50 Polyurethane 60, G3/8" female plastic	0207618
Suction cup OCF20×50 Polyurethane 60, G3/8" female, 17 mm thread	0209497
Suction cup OCF20×50 Polyurethane 60, G3/8" male	0207728
Suction cup OCF20×50 Polyurethane 60, M10×1.5 male	0207732
Suction cup OCF20×50 Polyurethane 60, NPT3/8" female	0207729
Suction cup OCF20×50 Polyurethane 60, T-slot with mesh filter	0207726
Suction cup OCF20×80P Polyurethane 55/60, 3/8" NPT female	0121859
Suction cup OCF20×80P Polyurethane 55/60, G3/8" female	0122455
Suction cup OCF20×80P Polyurethane 55/60, G3/8" male	0121847

Description	Item no.
Suction cup OCF30×90P Polyurethane 55/60, 3/8" NPT female	0122459
Suction cup OCF30×90P Polyurethane 55/60, G3/8" female	0121786
Suction cup OCF30×90P Polyurethane 55/60, G3/8" male	0122456
Suction cup OCF40×110P Polyurethane 55/60, 3/8" NPT female	0121865
Suction cup OCF40×110P Polyurethane 55/60, G3/8" female	0122860
Suction cup OCF40×110P Polyurethane 55/60, G3/8" male	0122457

## Rectangular Bellows (RB)



The rectangular suction cups are recommended for handling of long and narrow objects and surfaces when maximum lifting force and grip are desired. They are especially suitable for products in plastic flow packs, such as candy bars. The suction cup material DURAFLEX® features the elasticity of rubber and excellent wear resistance of polyurethane.

### LIFTING FORCES

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level		
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa
RB20x40P	15	26	40	21	33	57

### GENERAL SPECIFICATIONS

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm <sup>3</sup>
RB20x40P	45.3×45.3	21,5	15	6	6.1

### AVAILABLE MATERIALS AND INDUSTRIES

An explanation of the industry icons is available on the cover fold out.

Cup	Material						MSF
RB20x40P	PU60°	●	●	●	●	●	●

### MATERIAL RESISTANCE

For more material information go to page 23.

**APPLICATIONS**

Table shows typical applications for the suction cup. For more detailed information, please visit [piab.com](http://piab.com).

	Bag opening/thin paper - slip sheets/film
RB20x40P	●

**FITTINGS**

For a table of possible fittings to use go to pages 198–200, for technical information on all fittings visit [piab.com](http://piab.com).

**ORDERING INFORMATION**

Description	Item no.
Suction cup RB20x40P Female insert fitting G1/4"	0202975
Suction cup RB20x40P Swivel fitting G1/8" male	0206190





# Suction cup accessories









## **SUCTION CUP ACCESSORIES**

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# Selection guide – Accessories

Suction cup accessories	
	Mounting Elements
	Level compensators
	Ball joints
	Suction cup valves
	Fittings
	Other

## Features and benefits

The mounting element programme consists of mounting brackets, height adjusters and suction cup extensions. The parts are designed to fit together for different sizes and applications. The parts are easily mounted on several standard extruded profile systems, not just suitable for one brand of profile. All parts of the same size-category fit perfectly together and thereby create an easy-to-use, compact and flexible/adjustable mounting "assembly kit" for cups.

Adjust differences in levels, for example on lifting devices with several suction cups. There is then less demand for exact positioning of vacuum handling device. Level compensators will also provide a certain degree of shock and vibration absorption.

To avoid bending stress, a suction cup can be fitted with a ball joint.

Valves to minimize the energy consumption. Gives a flexibility on number of objects to be handled.

A variety of fittings for suction cups.

Angle adaptors, t-slot adaptors etc.

# Mounting Elements



## Mounting bracket MB

- Mounting brackets suitable for extruded profile systems.
- Level compensators and height adjusters with external thread in sizes M12, M16, M20 and M25 are ideal for clamping on the mounting brackets.
- Facilitates the installation of a suction cup and positioning in X-direction.
- Long and short versions available.



## Height adjuster HA

- Facilitates the positioning (y-direction) of a suction cup.
- Provides an adjustable height extension between a mounting bracket (MB) and a suction cup.
- Can be used with a suction cup / rod extension to further elongate the cup position.
- Key handle to avoid rotation when connecting vacuum ports.



## Suction cup extension SE

- Solid rod extension with air/vacuum channel.
- For mounting a suction cup.
- Available in several sizes.
- Can be used with a height adjuster (HA) or level compensator (LC).



## T-slot nut kit

- T-slot nut fits the most common mounting profiles on the market.
- Adapted to the Piab mounting bracket assortment.

**TECHNICAL DATA**

Description	Load, vertical, max.	Load, torque, max.	Load, horizontal, max.	Action range/ Stroke
Mounting bracket MB12S, MB16S, MB20S	200 N	7 Nm	–	–
Mounting bracket MB12L, MB16L, MB20L	200 N	7 Nm	–	–
Mounting bracket MB25S, MB25L	300 N	15 Nm	–	–
Height adjuster HA12	44 N	–	31 N	50 mm
Height adjuster HA16	87 N	–	61 N	50 mm
Height adjuster HA20	214 N	–	150 N	50 mm
Suction cup extension 50, G3/8" male x G3/8" female	700 N	–	400 N	–
Suction cup extension SE12	44 N	–	31 N	–
Suction cup extension SE16	87 N	–	61 N	–
Suction cup extension SE20	214 N	–	150 N	–

**ORDERING INFORMATION**

Description	Item no.
Mounting bracket MB12L	0200455
Mounting bracket MB12S	0200449
Mounting bracket MB16L	0200454
Mounting bracket MB16S	0200450
Mounting bracket MB20L	0200456
Mounting bracket MB20S	0200451
Mounting bracket MB25L	0200457
Mounting bracket MB25S	0200452
Height adjuster HA12	0200461

Description	Item no.
Height adjuster HA16	0200462
Height adjuster HA20	0200463
Height adjuster HA25	0121122
Suction cup extension SE12	0200458
Suction cup extension SE16	0200459
Suction cup extension SE20	0200460
T-slot nut kit for mounting bracket-6, 8, 10 mm nut	0205794

# Level Compensators



## Level compensator LC

- Adjust differences in levels, for example on lifting devices with several suction cups.
- Less demand for exact positioning of vacuum handling device.
- Provides a certain degree of shock and vibration absorption.
- Allows for soft placement of cups on sensitive or thin objects.
- Non-rotational design, suitable for use with oval suction cups.
- Wide range of thread connections and stroke lengths.



## Level compensators

- Adjust differences in levels, for example on lifting devices with several suction cups on a frame.
- A level compensator is often advantageous since it places less demand on exact vertical positioning, for example on a handling robot.
- The level compensator provides a certain degree of shock absorption.
- Level Compensator G1/2" with stiffer spring is identical to standard level compensator G1/2" except for thicker spring material. Suits e.g. robot vision systems in applications such as auto-racking.



## Level compensator LC30

- Tailor made for the Vacuum Gripper System, VGS™, but can also be used together with other Piab products.
- Developed for use with standard profile systems.
- Easy installation with the option of fine adjustments and positioning of the suction cup.
- Non-rotational for use with, for example, oval suction cups. Can easily be made rotational.
- Quiet and reliable level compensation with load protection and shock absorption.

## TECHNICAL DATA

Description	Load, vertical, max.	Spring force	Action range/ Stroke	Thread
Level compensator LC12-F0510 / LC12-M0510	–	1.9–4.1 N	10 mm	M5
Level compensator LC12-F0525 / LC12-M0525	–	2–5 N	25 mm	M5
Level compensator LC16-F1820 / LC16-M1820	–	3.6–9 N	20 mm	G1/8"
Level compensator LC16-F1835 / LC16-M1835	–	4.3–9.5 N	35 mm	G1/8"
Level compensator LC20-F1425 / LC20-M1425	–	4.1–11 N	25 mm	G1/4"
Level compensator LC20-F1450 / LC20-M1450	–	4.3–11.4 N	50 mm	G1/4"

Description	Load, vertical, max.	Spring force	Action range/ Stroke	Thread
Level compensator LC25-F3840 / LC25-M3840	–	5.6–16.5 N	40 mm	G3/8"
Level compensator LC25-F3880 / LC25-M3880	–	6–17 N	80 mm	G3/8"
Level compensator G1/2" with stiffer spring	490 N	90–150 N	15 mm	G1/2"
Level compensator M5	29.4 N	2–5 N	7 mm	M5
Level compensator G1/8"	245 N	3–9.4 N	20 mm	G1/8"
Level compensator G1/2"	490 N	24–37 N	15 mm	G1/2"
Level compensator LC30	700 N	5–42 N	30 mm	G3/8"

#### ORDERING INFORMATION

Description	Item no.
Level compensator LC12-F0510, M5 female, stroke 10	0127103
Level compensator LC12-F0525, M5 female, stroke 25	0127105
Level compensator LC12-M0510, M5 male, stroke 10	0127104
Level compensator LC12-M0525, M5 male, stroke 25	0127106
Level compensator LC16-F1820, G1/8" female, stroke 20	0124951
Level compensator LC16-F1835, G1/8" female, stroke 35	0124953
Level compensator LC16-M1820, G1/8" male, stroke 20	0124952
Level compensator LC16-M1835, G1/8" male, stroke 35	0124954
Level compensator LC20-F1425, G1/4" female, stroke 25	0124955
Level compensator LC20-F1450, G1/4" female, stroke 50	0124957
Level compensator LC20-M1425, G1/4" male, stroke 25	0124956
Level compensator LC20-M1450, G1/4" male, stroke 50	0124958

Description	Item no.
Level compensator LC25-F3840, G3/8" female, stroke 40	0124959
Level compensator LC25-F3880, G3/8" female, stroke 80	0124961
Level compensator LC25-M3840, G3/8" male, stroke 40	0124960
Level compensator LC25-M3880, G3/8" male, stroke 80	0124962
Level compensator LC30	0111552
Level compensator G1/2"	3350071
Level compensator G1/2" with stiffer spring	0114291
Level compensator G1/8"	3350069
Level compensator M5	3350068
Level compensator LC30	0111552






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Level compensator LC30 EOAT

- Easy installation with the option of fine adjustments and positioning of the suction cup.
- Conical spring means very low total height in relation to stroke. For example, that can help increase cycle speed in sheet metal press-to-press stamping applications.
- Non-rotational for use with, for example, oval suction cups. Can easily be made rotational.
- Mounting interfaces for standard flexible end-of-arm-tooling (EOAT) systems.
- Developed for use with decentralized vacuum pump/generator units such as VGS™3010 and VGS™3040 or a centralized vacuum pump/generator.
- Quiet and reliable level compensation with load protection and shock absorption.




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Level compensator – profile mount

- Compensates for differences in height.
- Provides certain degree of shock absorption.
- Fits on standard size extrusion.




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Vactivator V18

- Actuated by vacuum only.
- Automatic extension and retraction.
- Self-adjusting stroke, the piston with a suction cup returns home as soon as it seals off the object.
- Suction cup ordered separately.
- Simple solution for high picking speed.
- Easy installation.
- Designed for millions of cycles under normal industrial conditions.

**TECHNICAL DATA**

Description	Load, vertical, max.	Action range/Stroke	Thread
Level compensator LC30 EOAT	700 N	30 mm	G3/8" / 1/8"NPSF
Level compensator – profile mount	700 N	50 mm	G3/8" / 3/8" NPT
Vactivator V18/20	4.9 N	20 mm	G1/8"
Vactivator V18/40	4.9 N	40 mm	G1/8"

**ORDERING INFORMATION**

Description	Item no.
Level compensator LC30 w ball joint LH	0124213
Level compensator LC30 w lock pin 16 LH	0124215
Level compensator LC30 w lock pin 19 LH	0124214
LCS 200 profile mounted level compensator 3/8" NPT female x 3/8" NPT male	0121219
LCS 200 profile mounted level compensator G3/8" female x G3/8" female	0121220
Vactivator V18/20	0129516
Vactivator V18/40	0129517



### Kenos® level compensator – KSPH

- Adjust differences in levels, for example on lifting devices with several suction cups.



### Kenos® level compensator – KSPH, non rotating

- Adjust differences in levels, for example on lifting devices with several suction cups.

#### TECHNICAL DATA

Description	Spring constant	Spring force	Action range/ Stroke	Volume
Level compensator KSPH, G 1/8" male, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	3,4 cm <sup>3</sup>
Level compensator KSPH, G 1/8" male, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	4,52 cm <sup>3</sup>
Level compensator KSPH, G 1/8" male, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	5,64 cm <sup>3</sup>
Level compensator KSPH, G 1/8" female, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	3,7 cm <sup>3</sup>
Level compensator KSPH, G 1/8" female, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	4,82 cm <sup>3</sup>
Level compensator KSPH, G 1/8" female, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	5,94 cm <sup>3</sup>
Level compensator KSPH, G 1/4" female, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	3,8 cm <sup>3</sup>
Level compensator KSPH, G 1/4" female, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	4,92 cm <sup>3</sup>
Level compensator KSPH, G 1/4" female, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	6,04 cm <sup>3</sup>
Level compensator KSPH, G 1/4" male, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	4,18 cm <sup>3</sup>
Level compensator KSPH, G 1/4" male, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	5,6 cm <sup>3</sup>
Level compensator KSPH, G 1/4" male, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	6,72 cm <sup>3</sup>
Level compensator KSPH, G 3/8" female, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	4,48 cm <sup>3</sup>
Level compensator KSPH, G 3/8" female, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	5,6 cm <sup>3</sup>

Description	Spring constant	Spring force	Action range/ Stroke	Volume
Level compensator KSPH, G 3/8" female, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	6,72 cm <sup>3</sup>
Level compensator KSPH, G 3/8" male, stroke 25	0,7 N/mm	6,37–23,87 N	25 mm	5,59 cm <sup>3</sup>
Level compensator KSPH, G 3/8" male, stroke 50	0,46 N/mm	2,81–25,81 N	50 mm	6,76 cm <sup>3</sup>
Level compensator KSPH, G 3/8" male, stroke 75	0,26 N/mm	4,71–24,21 N	75 mm	7,88 cm <sup>3</sup>
Level compensator KSPH, G 1/2" male, stroke 25	3,83 N/mm	19,14–114,83 N	25 mm	9,5 cm <sup>3</sup>
Level compensator KSPH, G 1/2" female, stroke 25	3,83 N/mm	19,14–114,83 N	25 mm	9,5 cm <sup>3</sup>
Level compensator KSPH, G 1/2" male, stroke 50	2,23 N/mm	11,16–122,8 N	50 mm	4,52 cm <sup>3</sup>
Level compensator KSPH, G 1/2" female, stroke 50	2,23 N/mm	11,16–122,8 N	50 mm	4,82 cm <sup>3</sup>
Level compensator KSPH, G 1/2" male, stroke 75	1,41 N/mm	7,05–112,82 N	75 mm	5,64 cm <sup>3</sup>
Level compensator KSPH, G 1/2" female, stroke 75	1,41 N/mm	7,05–112,82 N	75 mm	5,94 cm <sup>3</sup>

## ORDERING INFORMATION

Description	Item no.	Item no. (non rotating)
Level compensator KSPH, G 1/8" male, stroke 25	0208900	0208901
Level compensator KSPH, G 1/8" male, stroke 50	0208902	0208903
Level compensator KSPH, G 1/8" male, stroke 75	0208904	0208905
Level compensator KSPH, G 1/8" female, stroke 25	0208906	0208907
Level compensator KSPH, G 1/8" female, stroke 50	0208908	0208909
Level compensator KSPH, G 1/8" female, stroke 75	0208910	0208911
Level compensator KSPH, G 1/4" female, stroke 25	0208912	0208913
Level compensator KSPH, G 1/4" female, stroke 50	0208914	0208915
Level compensator KSPH, G 1/4" female, stroke 75	0208916	0208917

Description	Item no.	Item no. (non rotating)
Level compensator KSPH, G 1/4" male, stroke 25	0208918	0208919
Level compensator KSPH, G 1/4" male, stroke 50	0208921	0208922
Level compensator KSPH, G 1/4" male, stroke 75	0208923	0208924
Level compensator KSPH, G 3/8" female, stroke 25	0208925	0208926
Level compensator KSPH, G 3/8" female, stroke 50	0208927	0208928
Level compensator KSPH, G 3/8" female, stroke 75	0208929	0208930
Level compensator KSPH, G 3/8" male, stroke 25	0208931	0208932
Level compensator KSPH, G 3/8" male, stroke 50	0208933	0208934
Level compensator KSPH, G 3/8" male, stroke 75	0208935	0208936
Level compensator KSPH, G 1/2" male, stroke 25	0209472	0209478
Level compensator KSPH, G 1/2" female, stroke 25	0209473	0209479
Level compensator KSPH, G 1/2" male, stroke 50	0209474	0209480
Level compensator KSPH, G 1/2" female, stroke 50	0209475	0209481
Level compensator KSPH, G 1/2" male, stroke 75	0209476	0209482
Level compensator KSPH, G 1/2" female, stroke 75	0209477	0209483

# Ball Joints



## Ball joints

- Ball joint fittings could be used when lifting sheet metal with a device using several suction cups.
- To avoid bending stress a suction cup can be fitted with a balljoint.



## Ball joint fitting

- Fitted to a suction cup to avoid bending stress.
- Non-leaking design to work with Vacuum Check Valve and Vacustat.
- Available in a loose-fit, a locking version or one with 5° movement.

### TECHNICAL DATA

Description	Load, max.	Movement, angular
Ball joint G1/8"	25 kg	±12°
Ball joint G1/2"	50 kg	±12°
Ball joint G3/4"	150 kg	±12°
Ball joint fitting G3/8"	–	±20°
Ball joint fitting G3/8", locking	–	±20°
Ball joint fitting G3/8", limited movement	–	±5°

### ORDERING INFORMATION

Description	Item no.
Ball joint G1/8"	3350065
Ball joint G1/2"	3350066
Ball joint G3/4"	3350067
Ball joint fitting G3/8"	0110635
Ball joint fitting G3/8", locking	0110636
Ball joint fitting G3/8", limited movement	0121177

# Suction Cup Valves



## piSAVE® sense

- Vacuum check valves which allows a few suction cups to miss the object(s) and still maintain enough vacuum level in the system with quick response and release times.
- The vacuum check valves shall be used in a centralized vacuum system, one for each suction cup.
- Designing with vacuum check valves will require a smaller vacuum pump and save energy.
- Suitable for handling different size or different number of leaking or sealed objects such as MDF boards, corrugated cardboards or metal sheets with a flexible handling device.
- Also suitable for objects with surface leakage around the lip of the suction cup.
- Available in four sizes with different flow performance/ characteristics to suit different degree of leakage on handled material and different size of cups.
- The smallest sizes are mainly suitable for sealed and smooth materials, such as metal and glass (02/06 for small cups and 03/60 for large cups).
- The valves are supplied separately for integration or mounted in an AI-fitting with female and male threaded connections to facilitate installation.



## piSAVE® restrict

- Vacuum flow restrictors which allows a few suction cups to miss the object(s) and still maintain enough vacuum level in the system.
- Suitable for handling different size sealed sheets/objects with the same flexible lifting device.
- The vacuum flow restrictors shall be used in a centralized vacuum system, one for each suction cup.
- Designing with flow restrictors will require a smaller vacuum pump and save energy.
- Available in three sizes with different flow performance/ characteristics to suit different size suction cups.
- The restrictors are integrated in an AI-fitting with female and male threaded connections to facilitate installation.

### TECHNICAL DATA

Description	Pump flow/cup min.	Pump flow/cup to close valve	Leakage flow, max.
piSAVE® sense 02/60 (yellow)	0.001 (@ 45 -kPa) NI/s	0.21 (@ 3 -kPa) NI/s	–
piSAVE® sense 03/60 (green)	0.06 (@ 45 -kPa) NI/s	0.37 (@ 3 -kPa) NI/s	–
piSAVE® sense 04/60 (blue)	0.15 (@ 45 -kPa) NI/s	0.55 (@ 7 -kPa) NI/s	–
piSAVE® sense 05/60 (red)	0.25 (@ 45 -kPa) NI/s	0.72 (@ 11 -kPa) NI/s	–

Description	Pump flow/cup min.	Pump flow/cup to close valve	Leakage flow, max.
piSAVE® restrict multiple port fitting 0.7	–	–	0.08 NI/s
piSAVE® restrict multiple port fitting 1.0	–	–	0.16 NI/s
piSAVE® restrict multiple port fitting 1.3	–	–	0.27 NI/s

## ORDERING INFORMATION

Description	Item no.
piSAVE® sense 02/60 (yellow), 100p, incl. Assembly tool	0202395
piSAVE® sense 02/60 (yellow), 10p, incl. Assembly tool	0202394
piSAVE® sense 03/60 (green), 100p, incl. Assembly tool	0202427
piSAVE® sense 03/60 (green), 10p, incl. Assembly tool	0202424
piSAVE® sense 04/60 (blue), 100p, incl. Assembly tool	0202428
piSAVE® sense 04/60 (blue), 10p, incl. Assembly tool	0202425
piSAVE® sense 05/60 (red), 100p, incl. Assembly tool	0202429
piSAVE® sense 05/60 (red), 10p, incl. Assembly tool	0202426
piSAVE® sense Assembly tool 16mm	0202589
piSAVE® sense Multiple port fitting 02/60 (yellow)	0202396
piSAVE® sense Multiple port fitting 03/60 (green)	0128719
piSAVE® sense Multiple port fitting 04/60 (blue)	0128731
piSAVE® sense Multiple port fitting 05/60 (red)	0128733
piSAVE® restrict multiple port fitting 0.7	0129339
piSAVE® restrict multiple port fitting 1.0	0129340
piSAVE® restrict multiple port fitting 1.3	0129341





### piSAVE® release

- Equalises pressure in the suction cups to provide fast release of the product.
- Extra fast release by accumulating and utilising the feed-air pressure as a boost.
- ON/OFF activated simultaneously with the ejector.
- No additional controls required — use a single 3/2 control valve for the ejector and piSAVE® release.



### AQR (Atmospheric Quick-Release Valve)

- Equalises pressure in vacuum gripper systems to provide fast release of product.
- Consumes no additional compressed air.
- ON/OFF activated simultaneously with the ejector.
- No additional controls required — use a single 3/2 control valve for the pump and AQR.



### Blow-off Check Valve

- Prevents vacuum from being pulled through the blow-off lines, which means faster response time and completely independent vacuum units.
- Reliable quick-release function even in larger systems with several units, due to the very low feed pressure required to break away for blow-off.
- Suitable in applications where cleaning of the suction cup filters or cooling of the object to be picked is important.

## TECHNICAL DATA

Description	Flow, atmospheric	Flow rate
piSAVE® release G1/8"	3.85 NI/s	–
piSAVE® release G1/4"	7.85 NI/s	–
Atmospheric quick-release valve – AQR	3.3 NI/s	–
Blow-off Check valve G1/8"	–	1.5–2.8 NI/s (@ 0.3-0.7 MPa)
Blow-off Check valve G1/4"	–	1.5–2.8 NI/s (@ 0.3-0.7 MPa)

**ORDERING INFORMATION**

Description	Item no.
piSAVE® release G1/4"	0119720
piSAVE® release G1/8"	0119721
Atmospheric quick-release valve – AQR.	0111236
Blow-off Check valve 1/8" NPSF female.	0115314
Blow-off Check valve G1/4" female	0117337

# Suction Cup Fittings

	M2,5 Male	M5 Male	M5 Female	5xM5 Female	M10x1,5 Male	G3/4" Female	G1/2" Female	G1/2" Male	G3/8" Female	G3/8" Male	G1/4" Female	G1/4" Male
B		5, 8, 10, 15		20		150	75, 110, 150		75, 110	30, 40, 50		30, 40, 50
BB-L								30, 40, 60		30, 40, 60		
BFF					40, 60, 80, 110				30, 40, 60, 80, 110	60, 80, 110	30, 40, 60, 80, 110	80, 110
BFFT					50, 70, 80, 90, 110				50, 70, 80, 90, 110	80, 110	50, 70, 80, 90, 110	50, 70, 80, 90, 110
BL-2				20						30, 40, 50		30, 40, 50
BL-3-P								50		30, 40		
BL-4								50		40		30
BL-5								50		40		30
B-MF		15		20						30, 40, 50		30, 40, 50
B-P							75		75	75		
BXF					60, 75, 90, 105				60, 75, 90, 105	60, 75, 90, 105	60, 75, 90, 105	60, 75, 90, 105
BX-P		10, 15		20, 25						35, 52, 75, 110		25, 35, 52, 75
B-XP				20, 25						35, 52, 75, 110		35, 52, 75
D		15		30						50		50
DCF					65, 90, 110				65, 90, 110		65, 90, 110	65, 90, 110
F				20, 25, 30		150	75, 110, 150		75, 110	40, 50, 75, 110,		26, 33, 40, 50

G1/8" Male	G1/8" M. / M5 F.	3/8" NPSF Female	1/8" NPSF Female	5x1/8" NPSF F.	3/8" NPT Female	3/8" NPT Male	1/2" NPT Male	1/4" NPT Female	1/4" NPT Male	1/8" NPT Male	G3/8" M. / 1/8" NPSF F.	T-slot
20	20	110	30, 40, 50, 75, 110	30, 40, 50		30, 40, 50	30, 40, 50	75		20		
						30, 40, 60	30, 40, 60					
					30, 40, 60, 80, 110							
			50, 70, 90		50, 70, 80, 90, 110						50, 70, 90	
20	20		30, 40, 50	30, 40, 50		30, 40, 50			30, 40, 50	20		
						30, 40	50					
						40	50		30			
						40	50		30			
20	20		30, 40, 50	30, 40, 50		40, 50			30, 40, 50	20		
		75	75									
					60, 75, 90, 105							
20, 25, 35, 52, 75	20, 25	75, 110	35, 52	52		35, 52			35, 52	20, 25		
20, 25, 35, 52, 75	20, 25	52, 75, 110,	35, 52	52		35, 52			35, 52	20, 25	75	
20,30	20, 30		50						50	20, 30		
					65, 90, 110						65, 90, 110	
20, 25, 30	20, 25, 30	75, 110	40, 50, 75	40, 50		40, 50		75	40,50	20, 25, 30		

	M2,5 Male	M5 Male	M5 Female	5xM5 Female	M10x1,5 Male	G3/4" Female	G1/2" Female	G1/2" Male	G3/8" Female	G3/8" Male	G1/4" Female	G1/4" Male
F-BX		10								25,35		15, 20, 25, 35
FC				20, 25			100, 150		100, 150	35, 75,100		35
FCF					35, 50, 75, 100, 125				25, 35, 50, 75, 100, 125	35, 50, 75, 100, 125	25, 35, 50, 75, 100, 125	
F-MF			15, 25	20, 30						40,50		40, 50
F-OB												20x40, 30x60
OB										35x90, 50x140, 65x170 35x90, 50x140, 65x170		
OBF					15x35, 15x65, 30x60, 35x90, 50x140, 65x170				15x35,15x65, 30x60, 35x90, 50x140, 65x170	15x35,15x65, 30x60, 35x90, 50x140, 65x170	15x35, 15x65, 30x60	15x35, 15x65, 30x60
OBL										40x90		
OC									60x140			
OCF					20x50				20x80, 30x90, 40x110, 20x50, 20x50	20x80, 30x90, 40x110, 20x50	20x50	20x50
OC-P									35x90, 35x90	35x90		
OF		15x45								15x45		
PD										27		27
RB											20x40	
U	2, 3	4, 6, 8, 10, 15	20, 30	20, 30						40, 50		40, 50
U-P												
XLF							150, 200, 250,300					

G1/8" Male	G1/8" M. / M5 F.	3/8" NPSF Female	1/8" NPSF Female	5x1/8" NPSF F.	3/8" NPT Female	3/8" NPT Male	1/2" NPT Male	1/4" NPT Female	1/4" NPT Male	1/8" NPT Male	G3/8" M. / 1/8" NPSF F.	T-slot
10, 15, 20						25, 35				15, 20, 25, 35		10, 15, 20
25, 25	20, 25	75, 100, 150,	20, 25, 35, 100	35		35				35		50, 75
					25, 35, 50, 75, 100, 125							
20, 30	20, 30		40, 50	40		40,50				40, 50		20, 30
10x30, 20x40, 30x60												
20x60		35x90, 50x140, 65x170 35x90, 50x140, 65x170										
					15x35, 15x65, 30x60, 35x90, 50x140, 65x170	15x35						15x35, 15x65, 30x60
					60x140							
					20x80, 30x90, 40x110, 20x50							20x50
		35x90										
15x45		15x45										
27						27				27		27
20x40												
20, 30	20, 30		40, 50	40, 50		50				40, 50		20, 30
20												

# Other



## Angle Adaptors

- Angle adaptors facilitate vacuum connections when space and headroom are limited.
- Can also be used as T-connectors.



## T-slot Adapters

- The Piab T-slot adapter enables Piab suction cups to mount to existing boom assemblies and end-of-arm tooling used in the automotive industry. The T-slot adapter threads into the Piab cup fitting and can then be mounted accordingly.
- The suction cups can be changed quickly and with great ease.
- Non-rotating feature — good when using oval suction cups.

### ORDERING INFORMATION

Description	Item no.
Angle adapter G1/2"–M8	3150054
Angle adapter G1/8"–M5	3150052
Angle adapter G1/8"–M8	3150053
T-slot adapter 3/8" NPT	0104111
T-slot adapter G1/2" male	0104112
T-slot adapter G1/8" male	0104108
T-slot adapter G3/8" female	0107942
T-slot adapter G3/8" male	0104110