

Suction cups



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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 & 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.



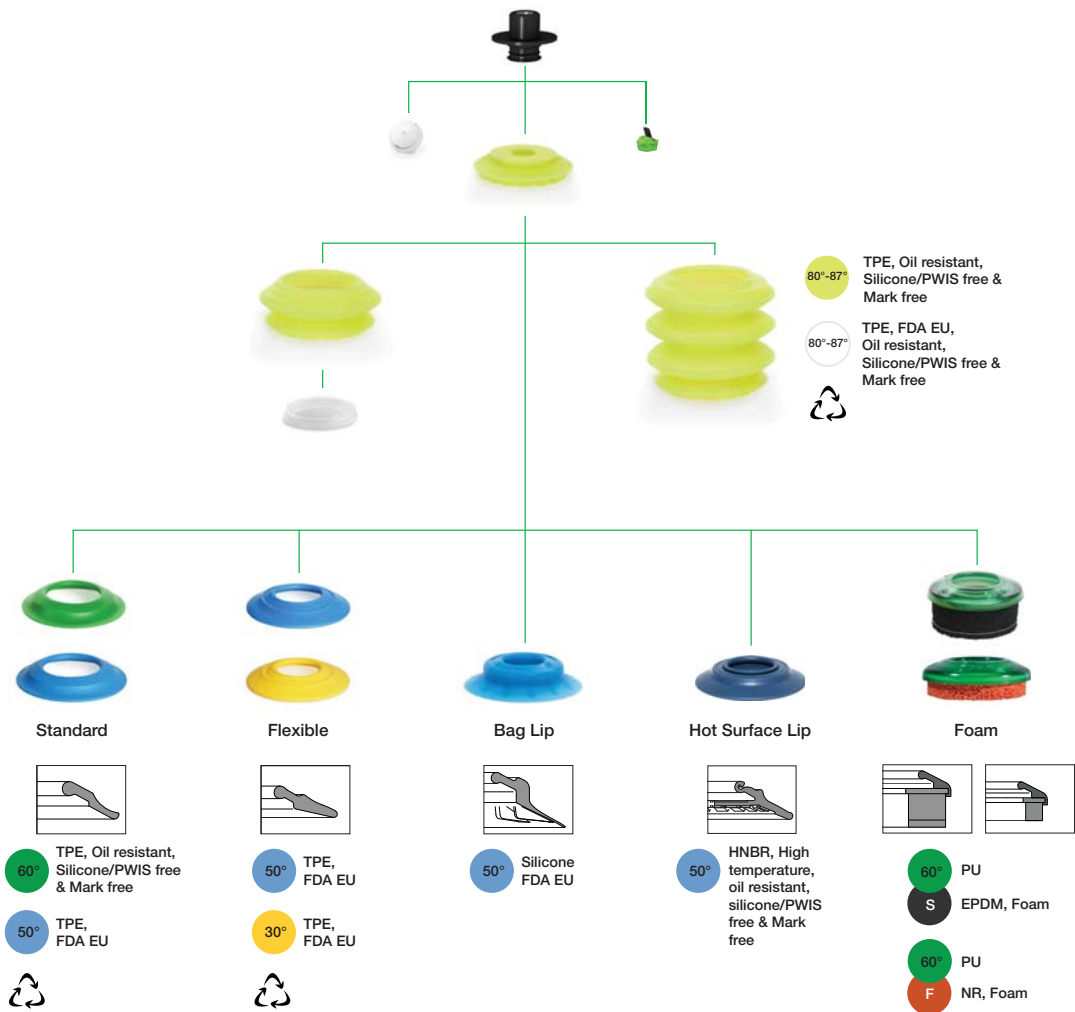
Bellows

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.



Specifications subject to change without notice.

Product Group						
piGRIP®	Lip		Bellows or Flat Cup		Support	
G	Dimension & Type	Material & Durometer		B1 1 bellows	S1 Support type 1	
	S25 Ø 25 mm Standard lip	T60 T50	TPE 60° Shore A TPE 50° Shore A	B3 3 bellows		
	S35 Ø 35 mm Standard lip				B6 6 bellows (3+3)	
	S50 Ø 50 mm Standard lip				F No bellows	
	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					

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"		
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: 0.81/0.21 scfm
14	piSAVE sense 04/60, C/M*-flow: 1.12/0.36 scfm
15	piSAVE sense 05/60, C/M*-flow: 1.55/0.57 scfm
16	piSAVE sense 03/60, C/M*-flow: 0.81/0.21 scfm & filter disc
17	piSAVE sense 04/60, C/M*-flow: 1.12/0.36 scfm & filter disc
18	piSAVE sense 05/60, C/M*-flow: 1.55/0.57 scfm & filter disc

*C/M = Closing/Minimum



FDA EU approved option includes material certificate

FDA	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, lbf, at vacuum level		Lifting force parallel to the surface, lbf, at vacuum level		Outer diameter in	Min. curve radius at 18 -inHg in	Max vertical movement in	Volume in ³
	12 -inHg	18 -inHg	12 -inHg	18 -inHg				
S25T50	2.56	3.82	1.28	1.91	0.98	0.98	0.08	0.05
S25T60	2.63	4.02	1.33	2.02	0.98	0.98	0.07	0.05
S35T50	5.40	7.76	2.70	3.87	1.38	1.57	0.11	0.09
S35T60	5.62	8.09	2.81	4.05	1.38	1.57	0.10	0.09
S50T50	11.2	16.1	5.62	8.07	1.97	2.95	0.16	0.24
S50T60	11.7	16.5	5.87	8.27	1.97	2.95	0.15	0.24
S70T50	22.7	32.7	11.4	16.4	2.76	3.15	0.22	0.67
S70T60	23.3	33.3	11.6	16.6	2.76	3.15	0.20	0.67
FX28T30	3.03	4.25	1.51	2.14	1.10	0.98	0.11	0.03
FX28T50	3.35	4.79	1.66	2.41	1.10	0.98	0.10	0.03
FX39T30	6.02	8.39	3.01	4.20	1.54	1.57	0.15	0.08
FX39T50	6.50	9.22	3.26	4.61	1.54	1.57	0.15	0.08
FX55T30	12.2	16.9	6.09	8.43	2.17	2.95	0.21	0.24
FX55T50	12.7	18.2	6.36	9.10	2.17	2.95	0.21	0.24
FX77T30	24.1	33.8	12.0	16.9	3.03	3.54	0.30	0.65
FX77T50	25.2	35.7	12.6	17.9	3.03	3.54	0.29	0.65
FLI25F	0.49	0.85	0.25	0.43	1.00	*	0.15	0.05
FLI25S	*	*	*	*	1.00	*	0.20	0.03
FLI35F	1.30	2.47	0.65	1.24	1.40	*	0.15	0.10
FLI35S	*	*	*	*	1.40	*	0.28	0.05
FLI50F	2.25	3.60	1.12	1.80	2.01	*	0.22	0.32
FLI50S	*	*	*	*	2.01	*	0.64	0.31
FLI70F	7.19	13.5	3.60	6.74	2.80	*	0.22	0.93
FLI70S	*	*	*	*	2.80	*	0.65	1.18
HS29HN50	3.57	5.24	3.03	4.45	1.14	0.71	0.09	0.05
HS39HN50	6.65	9.49	5.67	8.07	1.61	0.98	0.11	0.13
HS58HN50	14.8	21.2	12.6	18.1	2.32	1.50	0.19	0.43
HS79HN50	28.1	40.0	23.9	34.0	3.15	2.01	0.25	1.06

* Dependent on application.

Lifting forces and general specifications – piGRIP® B1

Lip	Lifting force vertical to the surface, lbf, at vacuum level		Lifting force parallel to the surface, lbf, at vacuum level		Outer diameter in	Min. curve radius at 18 -inHg in	Max vertical movement in	Volume in ³
	12 -inHg	18 -inHg	12 -inHg	18 -inHg				
S25T50	2.56	3.82	1.28	1.91	0.98	0.47	0.20	0.13
S25T60	2.63	4.02	1.33	2.02	0.98	0.47	0.19	0.13
S35T50	5.40	7.76	2.70	3.87	1.38	0.67	0.28	0.33
S35T60	5.62	8.09	2.81	4.05	1.38	0.67	0.28	0.33
S50T50	11.2	16.1	5.62	8.07	1.97	1.18	0.40	0.96
S50T60	11.7	16.5	5.87	8.27	1.97	1.18	0.39	0.96
S70T50	22.7	32.7	11.4	16.4	2.76	1.97	0.56	2.62
S70T60	23.3	33.3	11.6	16.6	2.76	1.97	0.54	2.62
FX28T30	3.03	4.25	1.51	2.14	1.10	0.59	0.23	0.11
FX28T50	3.35	4.79	1.66	2.41	1.10	0.59	0.22	0.11
FX39T30	6.02	8.39	3.01	4.20	1.54	0.79	0.32	0.32
FX39T50	6.50	9.22	3.26	4.61	1.54	0.79	0.32	0.32
FX55T30	12.2	16.9	6.09	8.43	2.17	1.57	0.46	0.95
FX55T50	12.7	18.2	6.36	9.10	2.17	1.57	0.45	0.95
FX77T30	24.1	33.8	12.0	16.9	3.03	2.17	0.64	2.61
FX77T50	25.2	35.7	12.6	17.9	3.03	2.17	0.63	2.61
FLI25F	0.49	0.85	0.25	0.43	1.00	*	0.27	0.13
FLI25S	*	*	*	*	1.00	*	0.32	0.11
FLI35F	1.30	2.47	0.65	1.24	1.40	*	0.32	0.34
FLI35S	*	*	*	*	1.40	*	0.46	0.30
FLI50F	2.25	3.60	1.12	1.80	2.01	*	0.46	1.03
FLI50S	*	*	*	*	2.01	*	0.88	1.03
FLI70F	7.19	13.5	3.60	6.74	2.80	*	0.56	2.89
FLI70S	*	*	*	*	2.80	*	0.99	3.13
BGI25S50	1.15	1.66	0.58	0.83	0.98	0.43	0.17	0.13
BGI34S50	2.32	3.37	1.17	1.69	1.34	0.63	0.18	0.20
BGI41S50	3.62	5.28	1.82	2.65	1.61	0.75	0.22	0.48
BGI48S50	4.70	6.86	2.36	3.44	1.89	1.38	0.24	0.76
BGI63S50	8.97	13.1	4.50	6.54	2.48	1.54	0.31	1.64
BGI80S50	14.9	21.7	7.44	10.9	3.15	2.28	0.39	3.97
HS29HN50	3.57	5.24	3.03	4.45	1.14	0.59	0.21	0.13
HS39HN50	6.65	9.49	5.67	8.07	1.61	0.79	0.28	0.37
HS58HN50	14.8	21.2	12.6	18.1	2.32	1.06	0.44	1.14
HS79HN50	28.1	40.0	23.9	34.0	3.15	1.57	0.59	3.01

* Dependent on application.

Lifting forces and general specifications – piGRIP® B3

Lip	Lifting force vertical to the surface, lbf, at vacuum level		Lifting force parallel to the surface, lbf, at vacuum level		Outer diameter in	Min. curve radius at 18 -inHg in	Max vertical movement in	Volume in ³
	12 -inHg	18 -inHg	12 -inHg	18 -inHg				
S25T50	2.56	3.82	1.28	1.91	0.98	0.47	0.54	0.32
S25T60	2.63	4.02	1.33	2.02	0.98	0.47	0.53	0.32
S35T50	5.40	7.76	2.70	3.87	1.38	0.67	0.76	0.85
S35T60	5.62	8.09	2.81	4.05	1.38	0.67	0.75	0.85
S50T50	11.2	16.1	5.62	8.07	1.97	1.18	1.08	2.48
S50T60	11.7	16.5	5.87	8.27	1.97	1.18	1.07	2.48
S70T50	22.7	32.7	11.4	16.4	2.76	1.97	1.51	6.79
S70T60	23.3	33.3	11.6	16.6	2.76	1.97	1.49	6.79
FX28T30	3.03	4.25	1.51	2.14	1.10	0.59	0.57	0.30
FX28T50	3.35	4.79	1.66	2.41	1.10	0.59	0.56	0.30
FX39T30	6.02	8.39	3.01	4.20	1.54	0.79	0.80	0.85
FX39T50	6.50	9.22	3.26	4.61	1.54	0.79	0.79	0.85
FX55T30	12.2	16.9	6.09	8.43	2.17	1.57	1.13	2.47
FX55T50	12.7	18.2	6.36	9.10	2.17	1.57	1.13	2.47
FX77T30	24.1	33.8	12.0	16.9	3.03	2.17	1.59	6.77
FX77T50	25.2	35.7	12.6	17.9	3.03	2.17	1.58	6.77
FLI25F	0.49	0.85	0.25	0.43	1.00	*	0.61	0.32
FLI25S	*	*	*	*	1.00	*	0.66	0.30
FLI35F	1.30	2.47	0.65	1.24	1.40	*	0.80	0.87
FLI35S	*	*	*	*	1.40	*	0.93	0.82
FLI50F	2.25	3.60	1.12	1.80	2.01	*	1.14	2.55
FLI50S	*	*	*	*	2.01	*	1.56	2.54
FLI70F	7.19	13.5	3.60	6.74	2.80	*	1.51	7.05
FLI70S	*	*	*	*	2.80	*	1.94	7.30
BGI25S50	1.15	1.66	0.58	0.83	0.98	0.43	0.50	0.32
BGI34S50	2.32	3.37	1.17	1.69	1.34	1.18	0.53	0.45
BGI41S50	3.62	5.28	1.82	2.65	1.61	0.75	0.70	1.01
BGI48S50	4.70	6.86	2.36	3.44	1.89	1.38	0.71	1.29
BGI63S50	8.97	13.1	4.50	6.54	2.48	1.54	0.98	3.16
BGI80S50	14.9	21.7	7.44	10.9	3.15	2.28	1.34	8.14
HS29HN50	3.57	5.24	3.03	4.45	1.14	0.59	0.55	0.32
HS39HN50	6.65	9.49	5.67	8.07	1.61	0.79	0.75	0.90
HS58HN50	14.8	21.2	12.6	18.1	2.32	1.06	1.11	2.66
HS79HN50	28.1	40.0	23.9	34.0	3.15	1.57	1.54	7.18

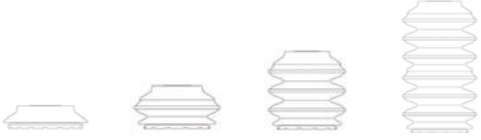
* Dependent on application.


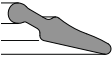




Lifting forces and general specifications – piGRIP® B6

Lip	Lifting force vertical to the surface, lbf, at vacuum level		Lifting force parallel to the surface, lbf, at vacuum level		Outer diameter in	Min. curve radius at 18 -inHg in	Max vertical movement in	Volume in ³
	12 -inHg	18 -inHg	12 -inHg	18 -inHg				
S25T50	2.56	3.82	1.28	1.91	0.98	0.47	1.00	0.59
S25T60	2.63	4.02	1.33	2.02	0.98	0.47	0.99	0.59
S35T50	5.40	7.76	2.70	3.87	1.38	0.67	1.40	1.62
S35T60	5.62	8.09	2.81	4.05	1.38	0.67	1.39	1.62
S50T50	11.2	16.1	5.62	8.07	1.97	1.18	2.00	4.71
S50T60	11.7	16.5	5.87	8.27	1.97	1.18	1.99	4.71
S70T50	22.7	32.7	11.4	16.4	2.76	1.97	2.80	12.9
S70T60	23.3	33.3	11.6	16.6	2.76	1.97	2.78	12.9
FX28T30	3.03	4.25	1.51	2.14	1.10	0.59	1.03	0.57
FX28T50	3.35	4.79	1.66	2.41	1.10	0.59	1.02	0.57
FX39T30	6.02	8.39	3.01	4.20	1.54	0.79	1.44	1.62
FX39T50	6.50	9.22	3.26	4.61	1.54	0.79	1.44	1.62
FX55T30	12.2	16.9	6.09	8.43	2.17	1.57	2.06	4.70
FX55T50	12.7	18.2	6.36	9.10	2.17	1.57	2.05	4.70
FX77T30	24.1	33.8	12.0	16.9	3.03	2.17	2.88	12.9
FX77T50	25.2	35.7	12.6	17.9	3.03	2.17	2.87	12.9
FLI25F	0.49	0.85	0.25	0.43	1.00	*	1.07	0.59
FLI25S	*	*	*	*	1.00	*	1.12	0.57
FLI35F	1.30	2.47	0.65	1.24	1.40	*	1.44	1.64
FLI35S	*	*	*	*	1.40	*	1.57	1.59
FLI50F	2.25	3.60	1.12	1.80	2.01	*	2.06	4.78
FLI50S	*	*	*	*	2.01	*	2.48	4.78
FLI70F	7.19	13.5	3.60	6.74	2.80	*	2.80	13.2
FLI70S	*	*	*	*	2.80	*	3.23	13.4
BGI25S50	1.15	1.66	0.58	0.83	0.98	0.43	0.96	0.59
BGI34S50	2.32	3.37	1.17	1.69	1.34	1.18	0.99	0.72
BGI41S50	3.62	5.28	1.82	2.65	1.61	0.75	1.34	1.78
BGI48S50	4.70	6.86	2.36	3.44	1.89	1.38	1.36	2.06
BGI63S50	8.97	13.1	4.50	6.54	2.48	1.54	1.91	5.39
BGI80S50	14.9	21.7	7.44	10.9	3.15	2.28	2.63	14.3
HS29HN50	3.57	5.24	3.03	4.45	1.14	0.59	1.01	0.59
HS39HN50	6.65	9.49	5.67	8.07	1.61	0.79	1.40	1.67
HS58HN50	14.8	21.2	12.6	18.1	2.32	1.06	2.04	4.89
HS79HN50	28.1	40.0	23.9	34.0	3.15	1.57	2.83	13.3

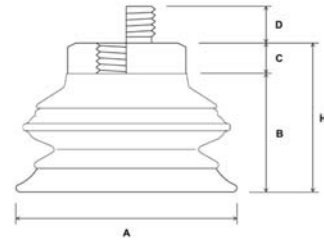
* Dependent on application.

Suction cup dimensions, in



Lip type & size	Dim. A	Dim. B				
		F (Flat)	B-1 (1 Bellows)	B-3 (3 Bellows)	B-6 (3+3 Bellows)	
	S25	0.98	0.43	0.74	1.17	1.92
	S35	1.38	0.49	0.92	1.53	2.57
	S50	1.97	0.58	1.19	2.06	3.55
	S70	2.76	0.70	1.56	2.78	4.86
	FX28	1.10	0.45	0.76	1.19	1.94
	FX39	1.50	0.52	0.94	1.56	2.59
	FX55	2.17	0.62	1.23	2.10	3.59
	FX77	3.03	0.76	1.61	2.83	4.91
	FLI25S	0.98	0.69	1.00	1.43	2.18
	FLI35S	1.38	0.85	1.28	1.89	2.93
	FLI50S	1.97	1.26	1.88	2.75	4.23
	FLI70S	2.76	1.34	2.20	3.42	5.50
	FLI25F	0.98	0.63	0.94	1.37	2.12
	FLI35F	1.38	0.67	1.10	1.71	2.75
	FLI50F	1.97	0.83	1.44	2.31	3.80
	FLI70F	2.76	0.91	1.77	2.99	5.07
	BGI25	0.98	—	0.89	1.33	2.07
	BGI34	1.34	—	0.98	1.41	2.16
	BGI41	1.61	—	1.16	1.77	2.81
	BGI48	1.89	—	1.22	1.83	2.87
	BGI63	2.48	—	1.57	2.44	3.93
	BGI80	3.15	—	1.94	3.17	5.24
	HS29	1.14	0.53	0.56	1.00	1.74
	HS39	1.54	0.61	0.77	1.38	2.42
	HS58	2.28	0.77	1.08	1.98	3.46
	HS79	3.11	0.96	1.54	2.76	4.84



Build height:








$$B + C = H$$

Ex. 0.74 + 0.20 = 0.94

Fitting dimensions, in

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	0.20	0.24	Fitting G1/8" male	●	●	●	
	G14M	0.24	0.35	Fitting G1/4" male	●	●	●	●
	G38M	0.24	0.39	Fitting G3/8" male		●	●	●
	G12M	0.24	0.39	Fitting G1/2" male			●	●
	GL18M	0.06	0.24	Fitting G1/8" low male	●	●	●	
	GL14M	0.06	0.35	Fitting G1/4" low male	●	●	●	●
	GL38M	0.06	0.39	Fitting G3/8" low male		●	●	●
	NT18M	0.20	0.28	Fitting 1/8" NPT male	●	●	●	
	NT14M	0.24	0.43	Fitting 1/4" NPT male	●	●	●	●
	NT38M	0.24	0.45	Fitting 3/8" NPT male		●	●	●
	NT12M	0.24	0.59	Fitting 1/2" NPT male			●	●
	NTL18M	0.06	0.28	Fitting 1/8" NPT low male	●	●	●	
	NTL14M	0.06	0.43	Fitting 1/4" NPT low male	●	●	●	●
	NTL38M	0.06	0.45	Fitting 3/8" NPT low male		●	●	●
	MM6M	0.20	0.24	Fitting M6 male	●	●		
	MMF8M	0.20	0.24	Fitting M8 x 1 male	●	●	●	
	MM10M	0.24	0.39	Fitting M10 male	●	●	●	
	MM12M	0.24	0.39	Fitting M12 male	●	●	●	
	MMF14M	0.24	0.47	Fitting M14 x 1 male	●	●	●	●
	MMF16M	0.24	0.47	Fitting M16 x 1.5 male		●	●	●

Specifications subject to change without notice.

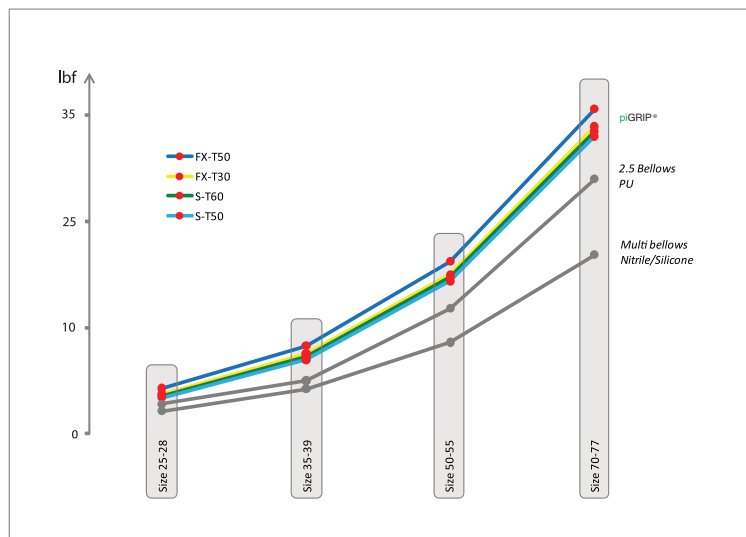
					Recommended fitting size for best performance*			
					S25	S35	S50	S70
					FX28	FX39	FX55	FX77
					FLI25	FLI35	FLI50	FLI70
					BGI25	BGI41	BGI63	HS79
					BGI34	BGI48	BGI63	HS79
					HS29	HS39	HS58	BGI80
Type	Code	Dim. C	Dim. D	Description				
	G14F	0.39	—	Fitting G1/4" fem	●	●	●	
	G38F	0.51	—	Fitting G3/8" fem		●	●	●
	G12F	0.55	—	Fitting G1/2" fem			●	●
	NS18F**	0.28	—	Fitting 1/8" NPSF fem	●	●	●	
	NS14F	0.39	—	Fitting 1/4" NPSF fem	●	●	●	●
	NS38F	0.51	—	Fitting 3/8" NPSF fem		●	●	●
	NS12F	0.55	—	Fitting 1/2" NPSF fem			●	●
	NS518F**	0.71	—	Fitting 5x1/8" NPSF fem	●	●	●	
	NT14F	0.47	—	Fitting 1/4" NPT fem	●	●	●	●
	NT38F	0.51	—	Fitting 3/8" NPT fem		●	●	●
	U12F	0.47	—	Fitting 1/2" UNC fem			●	●
	MM5F	0.24	—	Fitting M5 fem	●	●		
	MM6F	0.24	—	Fitting M6 fem	●	●		
	MM8F	0.28	—	Fitting M8 fem	●	●	●	
	MM10F	0.28	—	Fitting M10 fem	●	●	●	
	MM12F	0.47	—	Fitting M12 fem	●	●	●	
	MM16F	0.51	—	Fitting M16 x 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 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 for specified performance data



Proven function and lifting capacity within specified area of operation.

Material Specifications

Material	Hardness, Shore A °	Item(s)	Color	Temp. range, °F	Special qualities
TPE	80-87	Support S1	Lime/Transparent	-4-140/212*	FDA EU**, silicone/PWIS free, mark free, oil resistant
TPE	87	Bellows	Lime/Transparent	-4-140/212*	FDA EU**, silicone/PWIS free, mark free, oil resistant
TPE	60	Standard Lip (S) T60	Green	-4-140/248*	Silicone/PWIS free, mark free, oil resistant
TPE	50	Standard Lip (S) T50	Blue	-4-140/248*	FDA EU
TPE	50	Flexible Lip (FX) T50	Blue	-4-140/248*	FDA EU
TPE	30	Flexible Lip (FX) T30	Yellow	-4-140/212*	FDA EU
EPDM	—	Foam Lip (FLI-S)	Green/Black	-4-176	Ultra soft cellular rubber
NR	—	Foam Lip (FLI-F)	Green/Orange	-4-176	Firm natural rubber
Silicone	50	Bag Lip (BGI)	Blue	-4-392	FDA EU
HNBR	50	Hot Surface Lip (HS)	Blue	-22-248/302*	PWIS free, mark free
PU	60	Foam Lip holder	Green	50-122	

* Max Temperature short term contact, <10 sec and 50% intermittence, ambient temperature 59-86 °F, mechanical properties will start to degrade. ** FDA EU approved option in transparent material.

Specifications subject to change without notice.



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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
F15	0.79	1.91	2.47	0.79	1.46	1.69
F20	1.35	3.26	4.27	1.12	1.80	1.91
F25	2.02	4.38	5.62	1.80	2.02	2.25
F30-2	2.70	5.62	6.97	2.47	3.60	4.50
F40-2	4.50	8.99	11.2	3.37	5.62	6.74
F50-2	8.09	16.6	21.6	5.40	8.99	11.2
F75	18.0	45.0	60.7	13.5	24.7	31.5
F110	31.5	94.4	125.9	31.5	56.2	67.4
F150	67.4	191.1	247.3	56.2	134.9	179.8
F26 FDA	2.47	5.62	6.97	2.02	4.72	5.85
F33 FDA	3.60	8.54	11.0	3.03	7.31	9.33
F75P	15.7/18.4*	43.4/51.9*	61.4/74.2*	9.89/10.6*	39.6/25.4*	69.2/38.0*
F110P	37.5/42.9*	97.1/112.0*	132.9/158.5*	33.5/66.8*	99.1/117.6*	138.7/149.3*
F15MF	0.90	1.80	2.70	1.01	2.02	3.26
F20MF	0.81	3.26	4.95	1.80	3.26	4.72
F30MF	2.47	7.76	10.8	3.06	6.29	9.44
F40MF	4.05	12.8	18.7	3.60	11.0	12.8
F50MF	5.51	20.7	31.7	6.97	18.4	24.1
XLF150	74.2/116.9**	112.4/173.1**	175.4/254.0**	63.2	95.5	149.0
XLF200	170.9/231.6**	254.0/339.5**	386.7/494.6**	145.2	216.0	328.7
XLF250	294.5/368.7**	438.4/553.0**	645.2/795.8**	250.4	372.7	548.5
XLF300	483.3/589.0**	719.4/845.3**	1040.9/1225.2**	411.0	611.5	884.8

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

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
F15	0.62	0.43	0.51	0.04	0.02
F20	0.87	0.31	0.71	0.06	0.06
F25	1.06	0.35	0.87	0.06	0.07
F30-2	1.26	0.41	0.98	0.08	0.12
F40-2	1.65	0.51	2.05	0.10	0.29
F50-2	2.09	0.69	2.17	0.12	0.61
F75	3.03	0.51	5.91	0.12	1.22
F110	4.41	0.79	9.84	0.16	4.27
F150	5.98	1.04	19.7	0.24	9.76
F26 FDA	1.02	0.93	0.98	0.06	0.10
F33 FDA	1.30	0.93	1.38	0.06	0.13
F75P	3.03	0.51	5.91	0.08	1.16
F110P	4.53	0.79	9.84	0.16	3.66
F15MF	0.65	0.43	0.67	0.04	0.02
F20MF	0.87	0.31	0.71	0.08	0.06
F30MF	1.26	0.39	1.73	0.06	0.12
F40MF	1.65	0.51	2.36	0.08	0.29
F50MF	2.09	0.69	3.74	0.08	0.61
XLF150	6.02	1.06	19.7	0.31	8.85
XLF200	8.03	1.06	31.5	0.31	16.8
XLF250	9.84	1.06	51.2	0.31	26.5
XLF300	12.0	1.06	74.8	0.31	40.6

Available materials

	Chloroprene, CR	HNBR	Nitrile-PVC, NPV	PU30°/PU60°	PU60°	Silicone, SIL	Silicone FDA EU, SIL FDA	Thermoplastic Polyurethane, TPE-U
F15	●					●	●	
F20	●					●	●	
F25	●					●	●	
F75		●	●			●	●	
F110		●	●			●	●	
F150			●			●	●	
F26 FDA							●	
F33 FDA							●	
F30-2	●					●	●	
F40-2			●			●	●	
F50-2		●	●			●	●	
F75P				●	●			
F110P				●	●			

Specifications subject to change without notice.

	Chloroprene, CR	HNBR	Nitrile-PVC, NPV	PU30°/PU60°	PU60°	Silicone, SIL	Silicone FDA EU, SIL FDA	Thermoplastic Polyurethane, TPE-U
F15MF								●
F20MF								●
F30MF								●
F40MF								●
F50MF								●
XLF150			●					
XLF200			●					
XLF250			●					
XLF300			●					

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.

	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	●		●				
F75	●		●	●	●	●	●
F110	●		●	●	●	●	●
F150	●		●				
F26 FDA		●	●				
F33 FDA		●	●				
F30-2	●		●				
F40-2	●		●				
F50-2	●		●	●	●	●	●
F75P	●					●	
F110P	●					●	
F15MF						●	
F20MF						●	
F30MF						●	
F40MF						●	
F50MF						●	
XLF150	●			●		●	



	Dry sheet metal	Bag opening/ thin paper – slip sheets/ film	FDA EU- standard com- pliant	Glass handling	High/low temp cup (plastic)	Mark free	Plastic injec- tion molded parts
XLF200	●			●		●	
XLF250	●			●		●	
XLF300	●			●		●	

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

Ordering information

For a complete list of available cups and combinations with further information visit piab.com. On our webpage you will also be able to find dimensional drawings, CAD-drawings and much more. Register to receive full access to all resources available.

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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
FC20P	1.01	2.70	3.60	1.01	2.02	2.70
FC25P	1.80	4.50	6.07	2.02	2.70	4.05
FC35P	2.47/2.47*	8.09/7.64*	11.5/11.0*	6.07/6.07*	11.5/9.22*	13.9/11.5*
FC50P	6.29/6.29**	17.3/17.3**	23.2/23.4**	11.0/11.7**	18.4/20.9**	22.5/25.0**
FC75P	16.4/16.4**	35.3/37.8**	48.3/50.6**	24.1/20.9**	45.0/50.6**	51.7/57.3**
FC100P	30.8/34.2**	63.8/73.7**	84.8/100.3**	39.6/25.2**	71.5/59.3**	94.4/85.9**
FC150P	61.6/63.8**	145.5/161.0**	207.3/209.5**	77.1/48.3**	172.0/127.7**	202.8/194.0**
FCF25P	—	4.27/4.27***	6.29/6.52***	—	1.57/1.12***	2.25/1.62***
FCF35P	—	9.44/7.64***	13.0/11.2***	—	6.74/5.85***	9.44/7.19***
FCF50P	—	17.5/16.2***	23.8/22.7***	—	17.3/11.7***	23.6/15.7***
FCF75P	—	38.4/36.6***	53.1/51.3***	—	37.3/23.4***	47.4/31.2***
FCF100P	—	78.0/53.1***	110.2/67.0***	—	75.8/31.2***	108.8/46.1***
FCF125P	—	106.8/91.0***	146.1/99.4***	—	100.0/43.6***	135.3/53.1***

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

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
FC20P	0.86	0.37	0.98	0.07	0.06
FC25P	1.12	0.43	1.77	0.16	0.18
FC35P	1.38	0.59	1.26	0.22	0.31
FC50P	1.97	1.32	2.09	0.20	0.61

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
FC75P	2.95	0.94	3.07	0.26	1.83
FC100P	3.94	1.06	4.33	0.40	4.88
FC150P	5.91	1.59	6.50	0.56	15.26
FCF25P	0.98	1.10	1.06	–	0.34
FCF35P	1.38	1.14–1.88*	1.57	0.08	0.31
FCF50P	1.97	1.22–1.96*	1.97	0.12	0.61
FCF75P	2.95	1.22–1.61*	3.94	0.16	1.83
FCF100P	3.94	1.42–1.77*	5.91	0.24	4.27
FCF125P	4.96	1.65–2.02*	5.91	0.31	6.10

* Height range includes fittings.

Available materials

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

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.

	Oily sheet metal	Dry sheet metal	Mark free
FC20P		●	●
FC25P		●	●
FC35P		●	●
FC50P		●	●
FC75P		●	●

Specifications subject to change without notice.

	Oily sheet metal	Dry sheet metal	Mark free
FC100P		●	●
FC150P		●	●
FCF25P	●		
FCF35P	●		
FCF50P	●		
FCF75P	●		
FCF100P	●		
FCF125P	●		

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

Ordering information

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
B5	0.07	0.18	0.22	—	—	—
B8	0.18	0.36	0.56	—	—	—
B10-2	0.34	0.76	1.10	—	—	—
B15-2	0.65	1.33	2.00	—	—	—
B20	1.33	2.20	3.15	—	—	—
B30	2.70	4.95	6.07	—	—	—
B30-2	2.70	4.95	6.07	—	—	—
B40	4.95	8.77	11.02	—	—	—
B50	7.42	14.6	18.4	—	—	—
B50-2	7.42	14.6	18.4	—	—	—
B75	16.6	37.5	50.8	—	—	—
B75-2	16.6	37.5	50.8	—	—	—
B110	30.8	77.1	103.6	—	—	—
B110-2	30.8	77.1	103.6	—	—	—
B150	66.1	154.2	198.5	—	—	—
B75P	13.7/18.7*	33.5/44.1*	45.4/57.3*	9.89/27.2*	21.6/51.5*	25.6/67.0*
B10XP	0.58/0.70*	0.85/1.03*	1.01/1.24*	0.22/0.22*	0.45/0.56*	0.56/0.67*
B15XP	1.12/1.35*	2.02/2.02*	2.47/2.70*	0.56/0.56*	1.12/1.12*	1.80/2.02*
B20XP	1.75/1.96*	3.37/4.43*	4.50/5.17*	0.79/1.57*	1.57/2.47*	2.25/3.37*
B25XP	2.18/2.70*	4.27/6.07*	4.95/6.74*	1.80/2.25*	2.70/2.92*	3.37/4.05*
B35XP	3.82/4.27*	8.77/10.8*	11.2/14.8*	3.37/3.82*	6.74/7.42*	8.99/11.2*
B52XP	8.09/9.55*	18.9/24.5*	22.9/33.7*	6.74/8.77*	13.5/15.7*	19.1/20.2
B75XP	16.9/19.3*	39.6/49.9*	51.3/69.0*	13.5/18.0*	33.7/45.0*	40.5/51.7*
B110XP	42.7/45.0*	85.4/98.9*	105.7/112.4*	38.2/42.7*	78.7/85.4*	96.7/103.4*

Specifications subject to change without notice.

	Lifting force vertical to the surface, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
B15MF	0.90	1.80	2.70	1.01	1.57	2.25
B20MF	1.01	3.48	4.72	1.42	2.47	4.27
B30MF	2.70	8.99	12.3	3.26	7.19	9.22
B40MF	4.05	12.81	16.2	3.06	8.99	10.6
B50MF	6.74	20.91	30.6	5.17	14.2	21.8
BF80P	16.4/22.0**	35.3/50.6**	44.1/66.1**	12.1/15.3**	19.8/28.6**	26.3/37.3**
BF110P	28.8/36.2*	51.5/75.1*	50.6/65.9*	23.8/27.7*	47.2/51.9*	55.3/68.6*
BFF30P	—	5.40/5.17***	6.07/6.74***	—	2.47/1.24***	3.03/1.75***
BFF40P	—	9.67/10.1***	12.6/13.5***	—	13.5/7.87***	18.2/10.1***
BFF60P	—	17.3/18.4***	25.2/23.8***	—	20.2/17.1***	27.4/20.9***
BFF80P	—	39.6/39.1***	53.1/46.5***	—	45.2/24.7***	54.0/36.0***
BFF110P	—	62.7/63.8***	84.8/77.6***	—	67.0/52.8***	77.8/56.9***

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

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
B5	0.22	0.36	0.06	0.06	0.003
B8	0.35	0.47	0.07	0.14	0.01
B10-2	0.43	0.65	0.16	0.18	0.03
B15-2	0.62	0.78	0.20	0.26	0.07
B20	0.87	0.75	0.39	0.39	0.16
B30	1.34	1.02	0.59	0.59	0.61
B30-2	1.34	1.03	0.59	0.59	0.61
B40	1.69	1.10	0.79	0.47	0.92
B50	2.09	1.39	1.18	0.75	1.95
B50-2	2.09	1.39	1.18	0.75	1.95
B75	3.07	1.47	1.57	0.94	6.71
B75-2	3.07	1.46	1.57	0.94	6.71
B110	4.53	2.14	2.36	1.38	18.92
B110-2	4.53	2.14	2.36	1.38	18.92
B150	6.10	2.81	2.95	1.77	39.67
B75P	3.11	1.47	3.54	0.79	6.71
B10XP	0.43	0.55	0.16/0.24**	0.12	0.01
B15XP	0.63	0.58	0.22/0.39**	0.13	0.02
B20XP	0.83	0.41	0.22/0.35**	0.18	0.06
B25XP	1.02	0.53	0.43/0.35**	0.22	0.10
B35XP	1.46	0.73	0.69/0.63**	0.37	0.27
B52XP	2.09	1.06	1.14/0.98**	0.44	0.81
B75XP	3.05	1.35	2.36/1.97**	0.63	2.61
B110XP	4.48	1.91	3.54/3.15**	0.92	7.51
B15MF	0.63	0.77	0.43	0.08	0.07

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
B20MF	0.91	0.75	0.43	0.31	0.23
B30MF	1.34	1.02	0.65	0.47	0.61
B40MF	1.69	1.10	0.87	0.43	0.92
B50MF	2.24	1.38	1.02	0.51	1.95
BF80P	3.31	1.73	1.97	0.59	2.44
BF110P	4.53	2.09	2.17/2.76*	0.94	6.71
BFF30P	1.18	1.18	0.59	0.20	0.31
BFF40P	1.77	1.26–2.03***	0.91	0.28	0.61
BFF60P	2.40	1.42–2.18***	1.38	0.39	1.22
BFF80P	3.35	1.81–2.20***	1.97	0.55	3.05
BFF110P	4.53	2.09–2.85***	3.74	0.83	6.71

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

Available materials

	Chloroprene, CR	Conductive silicone, CSIL	HNBR	Nitrile-PVC, NPV	PU30°/PU50°	PU30°/PU60°	PU55°/PU60°	PU60°	Semi-conductive EPDM	Silicone, SIL	Silicone FDA EU, SIL FDA	TPE-U
B5	●	●	●						●	●	●	
B8	●	●	●							●	●	
B20			●								●	
B40			●								●	
B50			●								●	
B75			●	●						●	●	
B110			●	●						●	●	
B150				●						●	●	
B10-2	●		●							●	●	
B15-2	●		●							●	●	
B30-2			●								●	
B50-2											●	
B75-2				●						●	●	
B110-2				●						●	●	
B75P						●		●				
B10XP						●		●				
B15XP						●		●				
B20XP						●		●				
B25XP						●		●				
B35XP						●		●				
B52XP						●		●				
B75XP						●		●				

Specifications subject to change without notice.

	Chloroprene, CR	Conductive silicone, CSIL	HNBR	Nitrile-PVC, NPV	PU30°/PU50°	PU30°/PU60°	PU55°/PU60°	PU60°	Semi-conductive EPDM	Silicone, SIL	Silicone FDA EU, SIL FDA	TPE-U
B110XP						●		●				
B15MF												●
B20MF												●
B30MF												●
B40MF												●
B50MF												●
BF80P					●			●				
BF110P						●		●				
BFF30P							●					
BFF40P							●					
BFF60P							●					
BFF80P							●					
BFF110P							●					

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.

	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		●		●	●		●	●	●



	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
B50-2		●		●					●
B75-2		●		●					●
B110-2		●		●					●
B10XP		●	●		●				●
B15XP		●	●		●				●
B20XP		●	●		●				●
B25XP		●	●		●				●
B35XP		●	●		●				●
B52XP		●	●		●				●
B75XP		●	●		●				●
B110XP		●	●		●				●
B75P		●						●	●
B15MF								●	
B20MF								●	
B30MF								●	
B40MF								●	
B50MF								●	
BF80P		●			●			●	
BF110P		●			●			●	
BFF30P	●								
BFF40P	●								
BFF60P	●								
BFF80P	●								
BFF110P	●								

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

Ordering information

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
BX10P	0.22	0.52	0.83	—	—	—
BX15P	0.45/0.45*	0.90/1.35*	1.01/1.35*	—	—	—
BX20P	1.01/1.08*	1.57/1.57*	2.14/2.47*	—	—	—
BX25P	1.80/2.02*	2.92/3.15*	4.05/4.05*	1.12/1.57*	2.25/2.47*	2.7/3.37*
BX35P	2.70/3.37*	4.5/5.62*	6.29/6.74*	3.15/4.95*	6.07/6.74*	7.64/8.09*
BX52P	7.19/8.32*	12.6/13.3*	16.9/18.0*	6.29/6.07*	9.89/11.0*	12.1/12.6*
BX75P	13.9/18.0*	24.7/27.0*	31.7/37.3*	8.77/17.5*	18.7/25.6*	26.1/33.7*
BX110P	35.5/40.7*	68.8/95.8*	77.8/95.3*	18.7/35.5*	58/54.9*	58.5/65.9*
BL20-2	0.07/0.72**	0.14/1.39**	—	—	—	—
BL30-2	0.14/1.44**	0.36/3.60**	—	—	—	—
BL40-2	0.25/2.47**	0.49/4.95**	—	—	—	—
BL50-2	0.38/3.82**	0.97/9.67**	—	—	—	—
BL30-3P	2.25	4.95	6.29	2.02	2.25	3.60
BL40-3P	4.50	9.67	12.4	2.92	5.40	8.09
BL50-3P	5.40	13.5	16.9	4.95	11.0	13.5
BL30-4	1.80***	—	—	—	—	—
BL40-4	2.25	3.37	4.95	2.02	3.60	5.85
BL50-4	1.80	5.62	—	—	—	—
BL30-5	1.80	2.02	—	—	—	—
BL40-5	2.92	3.37	—	—	—	—
BL50-5	1.80	5.62	—	—	—	—
B-BL40-2	0.25/2.47**	0.49/4.95**	—	—	—	—
B-BL40-2 FDA, detectable	3.51	7.67	10.2	—	—	—

* PU30°/PU60° / PU60°, ** With reinforcement ring, *** The suction cup is not intended for deeper vacuum levels than 6 -inHg.

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
BX10P	0.43	0.65	0.16/0.24*	0.18	0.03
BX15P	0.63	0.73	0.22/0.24*	0.22	0.06
BX20P	0.83	0.60	0.39/0.33*	0.30	0.07
BX25P	1.02	0.75	0.24/0.31*	0.33	0.18
BX35P	1.46	1.06	0.39	0.55	0.61
BX52P	2.09	1.54	1.26	0.75	1.83
BX75P	3.05	2.04	0.91	1.02	4.88
BX110P	4.48	2.91	2.17	1.54	14.04
BL20-2	0.79	0.90	0.16	0.51	0.24
BL30-2	1.18	1.28	0.31	0.79	0.61
BL40-2	1.57	1.67	0.43	1.30	1.65
BL50-2	1.97	2.09	0.51	1.34	3.23
BL30-3P	1.18	1.40	0.24	0.55	0.85
BL40-3P	1.57	1.67	0.51	0.83	1.65
BL50-3P	1.89	2.09	0.63	1.02	3.30
BL30-4	1.20	0.65	0.79	0.75	0.25
BL40-4	1.58	1.57	0.59	0.71	0.92
BL50-4	1.98	2.09	1.18	0.87	2.14
BL30-5	1.20	1.44	0.67	0.43	0.52
BL40-5	1.57	1.57	0.87	0.79	0.85
BL50-5	1.97	2.09	1.18	0.71	1.59
B-BL40-2	1.67	1.50	0.43	1.30	1.65
B-BL40-2 FDA, detectable	1.67	1.50	0.43	0.87	1.77

* PU30°/PU60° / PU60°.

Available materials

	Chloroprene, CR	HNBR	PU30°/PU60°	PU60°	PU30°/PU70°	Silicone, SIL	Silicone FDA EU, SIL FDA	Silicone FDA EU detectable, SIL FDA DET
BX10P			●	●				
BX15P			●	●				
BX20P			●	●				
BX25P			●	●				
BX35P			●	●				
BX52P			●	●				
BX75P			●	●				
BX110P			●	●				
BL20-2	●	●				●	●	
BL30-2	●					●	●	

Specifications subject to change without notice.

	Chloroprene, CR	HNBR	PU30°/PU60°	PU60°	PU30°/PU70°	Silicone, SIL	Silicone FDA EU, SIL FDA	Silicone FDA EU detectable, SIL FDA DET
BL40-2	●					●	●	
BL50-2	●					●	●	
BL30-3P					●			
BL40-3P					●			
BL50-3P					●			
BL30-4						●	●	
BL40-4						●	●	
BL50-4						●	●	
BL30-5						●	●	
BL40-5						●	●	
BL50-5						●	●	
B-BL40-2							●	
B-BL40-2 FDA, detectable								●

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.

	Dry sheet metal	Bag handling	Corrugated / cardboard	FDA EU-standard compliant	FDA EU detectable	Mark Free	Plastic injection molded parts
BX10P	●		●			●	●
BX15P	●		●			●	●
BX20P	●		●			●	●
BX25P	●		●			●	●
BX35P	●		●			●	●
BX52P	●		●			●	●
BX75P	●		●			●	●
BX110P	●		●			●	●
BL20-2		●		●		●	
BL30-2		●		●			
BL40-2		●		●			
BL50-2		●		●			
BL30-3P		●					
BL40-3P		●					
BL50-3P		●					



	Dry sheet metal	Bag handling	Corrugated / cardboard	FDA EU-standard compliant	FDA EU detectable	Mark Free	Plastic injection molded parts
BL30-4		●		●			
BL40-4		●		●			
BL50-4		●		●			
BL30-5		●		●			
BL40-5		●		●			
BL50-5		●		●			
B-BL40-2				●			
B-BL40-2 FDA, detectable					●		

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
D15-2	0.65	1.75	2.47	—	—	—
D20-2	1.33	3.37	4.05	—	—	—
D30-2	3.15	5.85	6.97	—	—	—
D50	8.09	17.54	22.03	—	—	—

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
D15-2	0.63	0.65	0.24	0.12	0.05
D20-2	0.87	0.52	0.31	0.18	0.15
D30-2	1.26	0.76	0.51	0.20	0.31
D50	2.09	1.24	0.98	0.39	0.92

Available materials

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

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.

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

Fittings

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
U2	0.01	0.02	0.03	—	—	—
U3	0.02	0.09	0.15	—	—	—
U4	0.04	0.20	0.29	0.04	0.18	0.22
U6	0.11	0.38	0.56	0.11	0.34	0.45
U8	0.22	0.65	0.88	0.22	0.65	0.76
U10	0.34	0.99	1.55	0.34	0.99	1.10
U15	0.79	1.89	2.47	0.79	1.21	1.33
U20	1.33	2.70	3.60	1.33	1.98	2.20
U30	2.70	5.62	6.74	1.75	2.20	2.47
U40-2	4.50	8.77	11.0	3.15	4.95	6.07
U50-2	7.87	16.4	20.7	4.50	8.32	9.89
U15-3	0.79	1.89	2.47	0.79	1.21	1.33
U20-2P	0.67/0.67/0.67*	2.36/2.59/3.15*	3.15/3.37/4.72*	0.34/0.34/0.67*	0.67/0.67/1.35*	1.35/1.35/1.80*

* PU40° / PU50° / PU60°.

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
U2	0.10	0.14	0.16	0.0039	0.0002
U3	0.15	0.18	0.20	0.01	0.0003
U4	0.20	0.24	0.12	0.01	0.002
U6	0.28	0.28	0.20	0.01	0.003
U8	0.35	0.28	0.24	0.02	0.01
U10	0.43	0.41	0.31	0.02	0.01

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
U15	0.65	0.45	0.31	0.06	0.03
U20	0.87	0.31	0.51	0.10	0.06
U30	1.26	0.37	0.79	0.14	0.12
U40-2	1.61	0.51	1.18	0.18	0.34
U50-2	2.02	0.69	1.38	0.24	0.73
U15-3	0.65	0.45	0.31	0.06	0.03
U20-2P	0.34	0.55	0.04/0.35/0.47*	0.20	0.04

* PU40° / PU50° / PU60°.

Available materials

	Chloroprene, CR	Conductive Silicone, CSIL	HNBR	Nitrile-PVC, NPV	PU40°	PU50°	PU60°	Silicone, SIL	Silicone, SIL FDA EU
U2		●							
U3		●							
U4	●							●	●
U6	●		●					●	●
U8	●							●	●
U10	●		●					●	●
U15	●		●					●	●
U20	●		●					●	●
U30				●				●	●
U40-2				●				●	●
U50-2				●				●	●
U15-3								●	
U20-2P					●	●	●		

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.

	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	●	●		●	●			

Specifications subject to change without notice.

	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
U8	●	●		●				
U10		●		●	●	●	●	
U15		●		●	●	●	●	
U20		●		●	●	●	●	
U30	●	●		●				
U40-2	●	●		●				
U50-2	●	●		●				
U15-3								●
U20-2P					●			●

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

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Oval Bellows family (OB)



The oval suction cups are suitable for handling of long and narrow objects and surfaces when maximum lifting force is desired. Oval suction cups are specially suitable for irregular surfaces and when level compensation is desired. 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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
OB20x60P	2.92	7.64	12.8	2.92	8.32	10.8
OB35x90P (PU30°/PU60°)	9.44	26.8	39.1	10.8	16.4	22.5
OB35x90P (PU60°)	9.44	26.3	41.6	7.19	19.1	25.0
OB50x140P (PU30°/PU60°)	13.0	52.8	82.3	24.7	58.5	78.5
OB50x140P (PU60°)	17.3	51.9	82.7	27.4	65.6	89.0
OB65x170P (PU30°/PU60°)	26.8	75.3	121.6	31.7	85.2	119.6
OB65x170P (PU60°)	29.2	69.7	119.8	38.2	98.9	134.9
OBF35x90P	—	31.5/24.3*	44.5/35.3*	—	28.1/23.6*	40.2/33.9*
OBF50x140P	—	73.1/55.3*	98.5/83.6*	—	73.7/60.9*	93.3/78.0*
OBF65x170P	—	89.2/90.6*	128.1/112.9*	—	98.2/120.9*	139.2/149.5
OBL40x90P (PU60°)	9.89	23.6	36.0	8.99	19.6	27.2
OBL40x90P (PU70°)	11.0	26.3	40.0	10.1	21.8	30.3

* Dry metal sheet/Oily metal sheet.

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
OB20x60P	2.44x0.93	0.93	0.28	0.18	1.46
OB35x90P	3.76x1.67	1.07	1.18	0.41	2.32
OB50x140P	5.75x2.32	1.36	0.91/1.02**	0.44	5.80
OB65x170P	6.97x2.99	1.63	1.50	0.63	10.68
OBF35x90P	4.13x1.97	1.54–1.89*	1.18	0.43	2.20

Specifications subject to change without notice.

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
OBF50x140P	6.18x2.64	1.85–2.20*	1.97	0.51	5.80
OBF65x170P	7.36x3.23	2.13–2.47*	1.97	0.59	12.2
OBL40x90P	3.65x1.77	2.48–2.87*	1.10	1.22	6.41

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

Available materials

	PU30°/PU60°	PU55°/PU60°	PU60°	PU70°
OB20x60P			●	
OB35x90P	●		●	
OB50x140P	●		●	
OB65x170P	●		●	
OBF35x90P		●		
OBF50x140P		●		
OBF65x170P		●		
OBL40x90P			●	●

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.

	Oily sheet metal	Corrugated / cardboard	Glass handling	Mark Free
OB20x60P				●
OB35x90P		●		●
OB50x140P		●		●
OB65x170P		●		●
OBF35x90P	●			
OBF50x140P	●			
OBF65x170P	●			
OBL40x90P			●	●

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

Ordering information

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
OF10x30P	0.90	2.47	3.82	1.35	2.70	3.82
OF15x45P	2.02	6.07	9.22	1.35	4.50	7.64
OF25x70P (PU40°)	5.40	14.8	24.1	10.3	20.2	23.6
OF25x70P (PU60°)	5.40	17.3	26.5	9.44	28.6	36.2
OF40x110P (PU40°)	15.5	45.6	65.9	27.0	51.7	66.5
OF40x110P (PU60°)	16.6	45.0	68.1	22.0	51.3	92.2
OF55x150P (PU40°)	29.4	82.3	118.5	34.8	78.7	102.3
OF55x150P (PU60°)	30.1	84.5	125.4	28.8	76.0	107.2
OF70x175P (PU40°)	42.7	119.1	176.5	38.2	98.9	141.6
OF70x175P (PU60°)	40.5	128.1	193.3	45.0	124.8	168.6

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
OF10x30P	1.21x0.43	0.57	0.59	0.04	0.03
OF15x45P	1.77x0.59	0.68	1.18	0.04	0.06
OF25x70P	2.85x1.07	0.91	1.97	0.07	0.37
OF40x110P	4.45x1.69	0.69	3.03	0.12	1.28
OF55x150P	6.06x2.32	0.83	5.91	0.12	2.26
OF70x175P	7.09x2.95	0.98	5.12	0.22	4.88

Specifications subject to change without notice.

Available materials

	PU40°	PU50°	PU60°
OF10x30P		●	
OF15x45P		●	
OF25x70P	●		●
OF40x110P	●		●
OF55x150P	●		●
OF70x175P	●		●

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.

	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 page 80 for technical information on all fittings visit piab.com.

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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, lbf, at vacuum level			Lifting force parallel to the surface, lbf, at vacuum level		
	6 -inHg	18 -inHg	27 -inHg	6 -inHg	18 -inHg	27 -inHg
OC60x140	29.7	83.9	116.9	41.8	83.9	114.7
OC35x90P	11.0/11.0*	26.3/29.7*	38.4/38.4*	11.9/15.3*	25.2/36.2*	33.0/46.3*
OCF20x80P	–	16.9/18.4*	25.0/20.2*	–	17.5/7.87*	25.2/10.8*
OCF30x90P	–	25.0/25.9*	35.3/35.7*	–	24.1/11.5*	36.0/16.6*
OCF40x110P	–	40.0/41.6*	55.1/55.3*	–	37.5/12.1*	52.2/17.5*

* PU40° / PU60°.

General specifications

	Outer diameter, in	Height, in	Min. curve radius, in	Max. vertical movement, in	Volume, in ³
OC60x140	5.43x2.40	1.18	7.87	0.30	3.17
OC35x90P	3.70x1.46	0.57	–	0.12	1.22
OCF20x80P	3.31x0.94	1.06–1.69*	0.79	0.12	0.92
OCF30x90P	3.64x1.28	1.16	0.98	0.16	1.04
OCF40x110P	4.45x1.69	1.28–1.40*	1.65	0.20	2.07

* Height range includes fittings.

Available materials

	Nitrile, NBR	PU40°	PU55°/PU60°	PU60°
OC60x140	●			
OC35x90P		●		●
OCF20x80P			●	
OCF30X90P			●	
OCF40X110P			●	

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.

	Oily metal sheet	Dry metal sheet	Mark Free
OC60x140		●	
OC35x90P			●
OCF20x80P	●		
OCF30X90P	●		
OCF40X110P	●		

Fittings

For a table of possible fittings to use go to page 80 for technical information on all fittings visit piab.com.

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