

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.



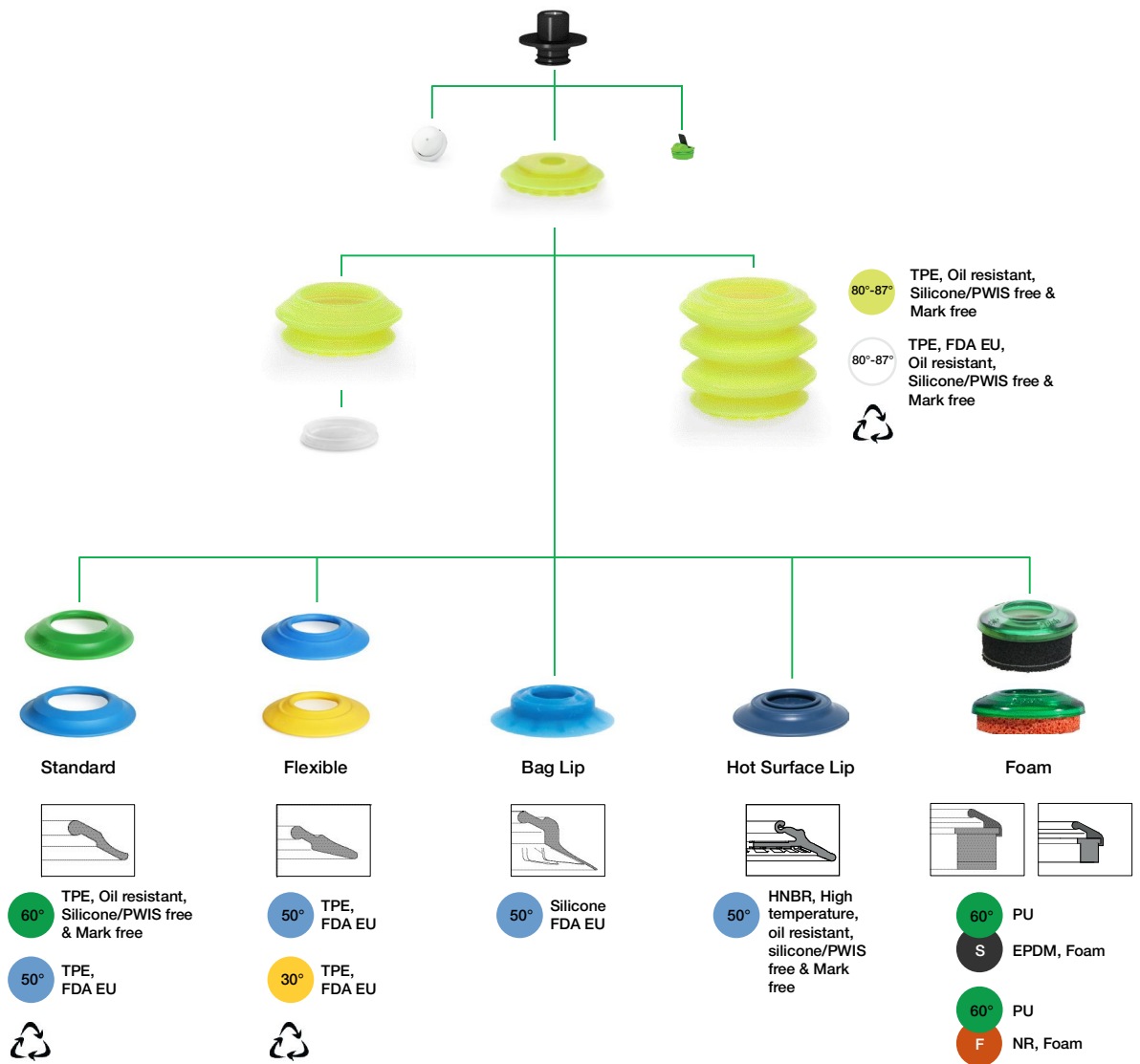
Bellows

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.



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		

Lips are available as spare parts.



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



Support	
S1	Support type 1

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



FDA EU approved option includes material certificate

FDA	No*
	US Food and Drug Administration

* Leave blank for no certificate.

Fitting

Option

		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	X	No size	X	No style

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.

* Steel material. Push-on fitting sold separately.

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 ³
	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
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 ³
	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
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
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 ³
	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
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
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

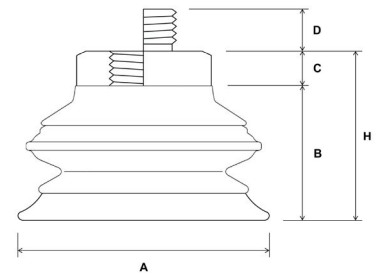
Lip	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Outer diameter mm	Min. curve radius at 60 -kPa mm	Max vertical movement mm	Volume cm ³
	40 -kPa	60 -kPa	40 -kPa	60 -kPa				
S25T50	11.4	17	5.7	8.5	25	12	25.4	9.6
S25T60	11.7	17.9	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
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
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
	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





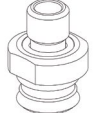
Build height:








$$B + C = H$$

Ex. 18.7 + 5 = 23.7

Fitting dimensions, mm

					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				
	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		●	●	●
	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		●	●	●

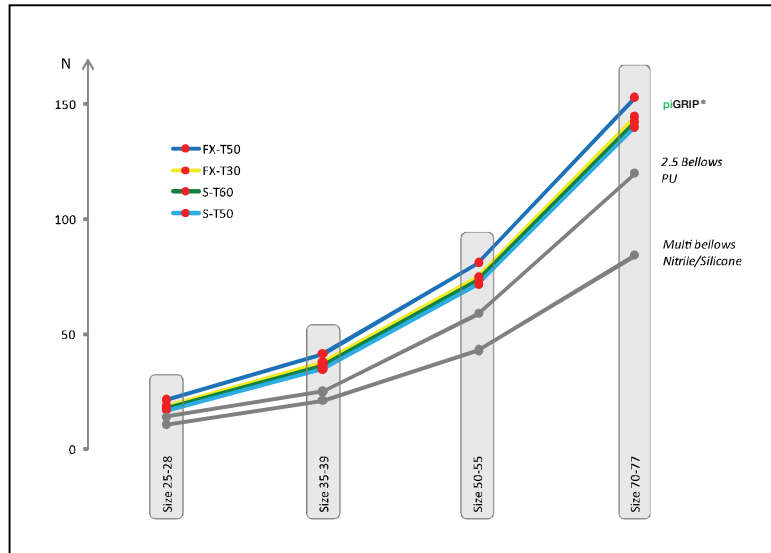
					Recommended fitting size for best performance*			
Type	Code	Dim. C	Dim. D	Description	S25 FX28 FLI25 BGI25 BGI34 HS29	S35 FX39 FLI35 BGI41 BGI48 HS39	S50 FX55 FLI50 BGI63 HS58	S70 FX77 FLI70 HS79 BGI80
	G14F	10	—	Fitting G1/4" fem	●	●	●	
	G38F	13	—	Fitting G3/8" fem		●	●	●
	G12F	14	—	Fitting G1/2" fem			●	●
	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		●	●	●
	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 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)	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 (BGL)	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
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

	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
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 ³
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
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

	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							●	

	Chloroprene, CR	HNBR	Nitrile-PVC, NPV	PU30°/PU60°	PU60°	Silicone, SIL	Silicone FDA EU, SIL FDA	Thermoplastic Polyurethane, TPE-U
F33 FDA							●	
F30-2	●					●	●	
F40-2			●			●	●	
F50-2		●	●			●	●	
F75P				●	●			
F110P				●	●			
F15MF								●
F20MF								●
F25MF								●
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 injec- tion molded parts
F15	●		●				
F20	●		●				
F25	●		●				
F75	●		●	●	●	●	●
F110	●		●	●	●	●	●
F150	●		●				
F26 FDA		●	●				
F33 FDA		●	●				
F30-2	●		●				
F40-2	●		●				
F50-2	●		●	●	●	●	●
F75P	●					●	
F110P	●					●	
F15MF						●	

	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
F20MF						●	
F25MF						●	
F30MF						●	
F40MF						●	
F50MF						●	
XLF150	●			●		●	
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

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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***
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 ³
FC20P	21.8	9.4	25	1.9	1
FC25P	28.5	11	45	4	3
FC35P	35	15	32	5.5	5

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
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

	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		●	●
FC100P		●	●

	Oily sheet metal	Dry sheet metal	Mark free
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.

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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, 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	—	—	—
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	2.6/3.1*	3.8/4.6*	4.5/5.5*	1/1*	2/2.5*	2.5/3*
B15XP	5/6*	9/10*	11/12*	2.5/2.5*	5/5*	8/9*
B20XP	7.8/8.7*	15/19.7*	20/23*	3.5/7*	7/11*	10/15*
B25XP	9.7/12*	19/27*	22/30*	8/10*	12/13*	15/18*
B35XP	17/19*	39/48*	50/66*	15/17*	30/33*	40/50*
B52XP	36/42.5*	84/109*	102/150*	30/39*	60/70*	85/90*

	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
B75XP	75/86*	176/222*	228/307*	60/80*	150/200*	180/230*
B110XP	190/200*	380/440*	470/500*	170/190*	350/380*	430/460*
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*
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***

* 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 ³
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
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

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
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
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

* 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						●		●				

	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		●		●	●		●	●	●
B50-2		●		●					●

	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
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, 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
BX10P	1	2.3	3.7	—	—	—
BX15P	2/3*	4/5*	4.5/6*	—	—	—
BX20P	4.5/4.8*	7/7*	9.5/11*	—	—	—
BX25P	8/9*	13/14*	17/18*	5/7*	10/11*	12/14*
BX35P	12/15*	20/25*	28/30*	11/14*	19/23*	26/28*
BX52P	32/35*	56/59*	75/80*	25/27*	44/49*	54/56*
BX75P	62/70*	110/120*	141/166*	39/50*	83/114*	116/150*
BX110P	158/181*	306/365*	346/424*	140/158*	230/244*	260/293*
BL20-2	0.32/3.2**	0.62/6.2**	—	—	—	—
BL30-2	0.64/6.4**	1.6/16**	—	—	—	—
BL40-2	1.1/11**	2.2/22**	—	—	—	—
BL50-2	1.7/17**	4.3/43**	—	—	—	—
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***	—	—	—	—	—
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-BL40-2	1.1/11**	2.2/22**	—	—	—	—
B-BL40-2 FDA, detectable	15.6	34.1	45.2	—	—	—

* PU30°/PU60° / PU60°, ** With reinforcement ring, *** The suction cup is not intended for deeper vacuum levels than 20 -kPa.

General specifications

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
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
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
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-BL40-2	42.5	38	11	33	27
B-BL40-2 FDA, detectable	42.5	38	11	22	29

* 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	●					●	●	
BL40-2	●					●	●	
BL50-2	●					●	●	
BL30-3P					●			

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

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

Fittings

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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, 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
D15-2	2.9	7.8	11	—	—	—
D20-2	5.9	15	18	—	—	—
D30-2	14	26	31	—	—	—
D50	36	78	98	—	—	—

General specifications

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
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

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, 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
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 ³
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

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
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

	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	●	●		●	●			

	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

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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, 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
OB20x60P	13	34	57	13	37	48
OB35x90P (PU30°/PU60°)	42	119	174	48	73	100
OB35x90P (PU60°)	42	117	185	32	85	111
OB50x140P (PU30°/PU60°)	58	235	366	110	260	349
OB50x140P (PU60°)	77	231	368	122	292	396
OB65x170P (PU30°/PU60°)	119	335	541	141	379	532
OB65x170P (PU60°)	130	310	533	170	440	600
OBF35x90P	—	140/108*	198/157*	—	125/105*	179/151*
OBF50x140P	—	325/246*	438/372*	—	328/271*	415/347*
OBF65x170P	—	397/403*	570/502*	—	437/538*	619/665*
OBL40x90P (PU60°)	44	105	160	40	87	121
OBL40x90P (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 ³
OB20x60P	62×23.5	23.6	7	4.5	24
OB35x90P	95.6×42.4	27.2	30	10.5	38
OB50x140P	146×59	34.5	23/26**	11.3	95
OB65x170P	177×76	41.5	38	16	175
OBF35x90P	105×50	39–47.9*	30	11	36

	Outer diameter, mm	Height, mm	Min. curve radius, mm	Max. vertical movement, mm	Volume, cm ³
OBF50x140P	157×67	47–55.8*	50	13	95
OBF65x170P	187×82	54–62.8*	50	15	200
OBL40x90P	92.6×45	63–73*	28	31	105

* 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

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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, 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 ³
OF10x30P	30.8x10.8	14.6	15	1	0.5
OF15x45P	45x15	17.15	30	1	1
OF25x70P	72.3x27.3	23	50	1.9	6
OF40x110P	113x43	17.5	77	3.1	21
OF55x150P	154x59	21	150	3	37
OF70x175P	180x75	25	130	5.7	80

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

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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, 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
OC60x140	132	373	520	186	373	510
OC35x90P	49/49*	117/132*	171/171*	53/68*	112/161*	147/206*
OCF20x80P	—	75/82*	111/90*	—	78/35*	112/48*
OCF30x90P	—	111/115*	157/159*	—	107/51*	160/74*
OCF40X110P	—	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 ³
OC60x140	138x61	30	200	7.5	52
OC35x90P	94x37	14.5	—	3	20
OCF20x80P	84x24	27–30.1*	20	3	15
OCF30x90P	92.5x32.5	29.5	25	4	17
OCF40X110P	113x43	32.5–35.5*	42	5	34

* 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

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