PIAB SUCTION CUPS
piGRIP/F/FC/B/BL/U...

piGRIP®

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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

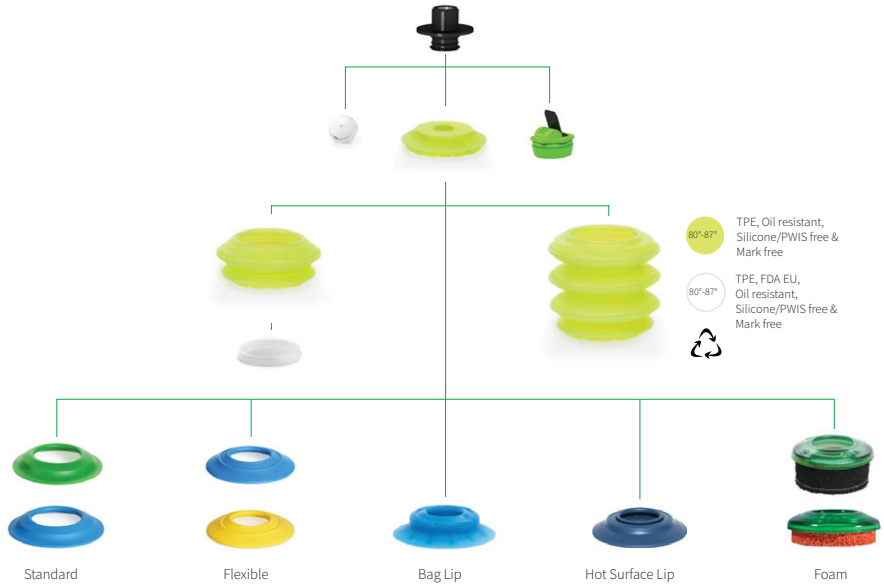
A low micron filter disc inside the bellows traps dust and particles increasing system reliability. A mesh filter is available in the fitting.

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.



(2021/04)

Bellows family (B)

Flat Concave family (FC)

Deep family (D)

Multibellows family (BX/BL)

Flat family (F)

Deep family (DC)

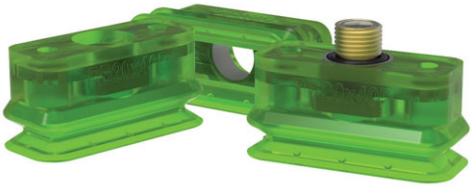
Universal family (U)

Oval Bellows family (OB)

Oval Flat family (OF)

Oval Concave family (OC)

Rectangular Bellows (RB)



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Lifting forces & technical data

Suction cups B

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
B5	0.3	0.8	1.0	—	—	—	0.05	1.5	1.5
B8	0.8	1.6	2.5	—	—	—	0.15	1.9	3.5
B10-2	1.5	3.4	4.9	—	—	—	0.48	4.0	4.5
B15-2	2.9	5.9	8.9	—	—	—	1.1	5.0	6.5
B20	5.9	9.8	14	—	—	—	2.7	10	10
B30-2	12	22	27	—	—	—	10	15	15
B40	22	39	49	—	—	—	15	20	12
B50/B50-2	33	65	82	—	—	—	32	30	19
B75/B75-2	74	167	226	—	—	—	110	40	24
B110/B110-2	137	343	461	—	—	—	310	60	35
B150	294	686	883	—	—	—	650	75	45

Suction cups B DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
B75, PU30°/60°	61	149	202	44	96	114	110	90	20
B75, PU60°	83	196	255	121	229	298	110	90	20

Suction cups BF DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
BF80P, PU30°/50°	73	157	196	54	88	117	40	132	16
BF80P, PU60°	98	225	294	68	127	166	40	132	16
BF110P, PU30°/60°	128	229	225	106	210	246	110	55	24
BF110P, PU60°	161	334	293	123	231	305	110	70	24

Suction cups BFF DURAFLEX®

	Material to be handled	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Volume	Min. curve radius
		60 -kPa	90 -kPa	60 -kPa	90 -kPa	cm³	mm
BFF40P	Oily steel plate	45 (43*)	60 (56*)	35 (60*)	45 (81*)	10	23
BFF60P	Oily steel plate	82 (77*)	106 (112*)	76 (90*)	93 (122*)	20	35
BFF80P	Oily steel plate	174 (176*)	207 (236*)	110 (201*)	160 (240*)	50	50
BFF110P	Oily steel plate	284 (279*)	345 (377*)	235 (298*)	253 (346*)	110	95

*Values valid for steel sheet with surface finish Ra 1 and 2-3g/m² of press oil. * Dry metal sheet.*

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Suction cups BL

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
BL20-2	0.32/3.2*	0.62/6.2*	—	—	—	—	4.0	4.0	13
BL30-2	0.64/6.4*	1.6/16*	—	—	—	—	13	8	20
BL30-4	8.0	—	—	—	—	—	4.1	20	19
BL30-5	8	9	—	—	—	—	8.55	17	11
BL40-2	1.1/11*	2.2/22*	—	—	—	—	27	15	33
BL40-4	10	15	22	9**	16**	26**	15	15	18
BL40-5	13	15	—	—	—	—	14	22	20
BL50-2	1.7/17*	4.3/43*	—	—	—	—	55	15	34
BL50-4	8	25	—	—	—	—	35	30	22
BL50-5	8	25	—	—	—	—	26	30	18
B-BL40-2***	1.1/11*	2.2/22*	—	—	—	—	27	15	33

**Lifting force with reinforcement rings. **The suction cup is not intended for handling shear lifts. ***Detectable material. The valuesaregiven as a dimensioning guide to be used when, e.g., the acceleration/retardation causes shear forces.*

Suction cups BL DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
BL30-3P, PU30°/70°	10	22	28	9*	10*	16*	14	6	14
BL40-3P, PU30°/70°	20	43	55	13*	24*	36*	27	13	21
BL50-3P, PU30°/70°	24	60	75	22*	49*	60*	54	16	26

**The suction cup is not intended for handling shear lifts. The values are given as a dimensioning guide to be used when, e.g., theacceleration/ retardation causes shear forces.*

Suction cups B-MF

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
B15MF	4.0	8.0	12	4.5	7.0	10	1.1	11	2.0
B20MF	4.5	15.5	21	6.3	11	19	2.7	11	8.0

Suction cups BX DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
BX10P, PU60°	1.0	2.3	3.7	—	—	—	0.56	6.0	4.5
BX10P, PU30°/60°	1.0	2.3	3.7	—	—	—	0.56	4.0	4.5
BX15P, PU60°	2.0	6.0	6.0	—	—	—	0.92	6.0	5.5
BX15P, PU30°/60°	2.0	4.0	4.5	—	—	—	0.92	5.5	5.5
BX20P, PU60°	4.5	7.0	9.5	—	—	—	1.16	10	6.5
BX20P, PU30°/60°	4.8	7.0	11	—	—	—	1.16	8.5	6.5
BX25P, PU30°/60°	8.0	13	18	5.0*	10*	12*	3.0	6.0	8.5
BX25P, PU60°	9.0	14	18	7.0*	11*	15*	3.0	8.0	8.5
BX35P, PU30°/60°	12	20	28	14*	27*	34*	10	10	14
BX35P, PU60°	15	25	30	22*	30*	36*	10	10	14
BX52P, PU30°/60°	39	73	78	25*	44*	54*	24	32	19
BX52P, PU60°	37	59	80	27*	49*	56*	24	32	19
BX75P, PU30°/60°	62	110	141	39*	83*	116*	80	23	26
BX75P, PU60°	80	120	166	78*	114*	150*	80	23	26
BX110P, PU30°/60°	158	306	346	83*	258*	260*	230	55	39
BX110P, PU60°	181	426	424	158*	244*	239*	230	55	39

**The suction cup is not intended for handling shear lifts. The values are given as a dimensioning guide to be used when, e.g., theacceleration/ retardation causes shear forces.*

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Suction cups D

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
D15-2	2.9	7.8	11	—	—	—	0.9	6.0	3.0
D20-2	5.9	15	18	—	—	—	2.5	8.0	4.5
D30-2	14	26	31	—	—	—	5.0	13	5.0
D50	36	78	98	—	—	—	15	25	10

Suction cups DF DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
DF80P, PU60°	70	195	270	75	145	195	48	60	14

Suction cups F

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
F15	3.5	8.5	11	3.5	6.5	7.5	0.37	13	1.0
F20	6.0	14.5	19	5.0	8.0	8.5	1.0	18	1.5
F25	9.0	19.5	25	8.0	9.0	10	1.1	22	1.5
F30-2	12	25	31	11	16	20	2.0	25	2.0
F40-2	20	40	50	15	25	30	4.8	52	2.5
F50-2	36	74	96	24	40	50	10	55	3.0
F75	80	200	270	60	110	140	20	150	3.0
F110	140	420	560	140	250	300	70	250	4.0
F150	300	850	1100	250	600	800	160	500	6.0

Suction cups F DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
F75P, PU30°/60°	70	193	273	44	176	308	19	150	2.0
F75P, PU60°	82	231	330	47	113	169	19	150	2.0
F110P, PU30°/60°	167	432	591	149	441	617	60	250	4.0
F110P, PU60°	191	498	705	297	523	664	60	250	4.0

Suction cups FC DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm³	mm	mm
FC20P, PU50°	4,5	12	16	4,5	9,0	12	1,0	25	1.9
FC25P, PU50°	8,0	20	27	9,0	12	18	3,0	45	4.0
FC35P, PU50°	11	36	51	27	51	62	5,0	32	5.5
FC35P, PU60°	11	34	49	27	41	51	5,0	32	5.5
FC50P, PU40°	28	77	103	49	82	100	10	53	5.0
FC50P, PU60°	28	77	104	52	93	111	10	53	5.0
FC75P, PU40°	73	157	215	107	200	230	30	78	6.5
FC75P, PU60°	73	168	225	93	225	255	30	78	6.5
FC100P, PU40°	137	284	377	176	318	420	80	110	10.2
FC100P, PU60°	152	328	446	112	264	382	80	110	10.2
FC150P, PU40°	274	716	932	343	765	902	250	165	14.2
FC150P, PU60°	284	647	922	215	568	863	250	165	14.2

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Suction cups FCF DURAFLEX®

Material to be handled	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Volume	Min. curve radius
	60 -kPa	90 -kPa	60 -kPa	90 -kPa	cm^3	mm
FCF35P	Oily steel plate	34 (42*)	50 (58*)	26 (30*)	32 (42*)	5	40
FCF50P	Oily steel plate	72 (78*)	101 (106*)	52 (77*)	70 (105*)	10	50
FCF75P	Oily steel plate	163 (171*)	228 (236*)	104 (166*)	139 (211*)	30	100
FCF100P	Oily steel plate	236 (347*)	298 (490*)	139 (337*)	205 (484*)	70	150
FCF125P	Oily steel plate	405 (475*)	442 (650*)	194 (445*)	236 (602*)	100	150

*Values valid for steel sheet with surface finish Ra 1 and 2-3g/m^2 of press oil. * Dry metal sheet*

Suction cups F-MF

Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
F15MF	4.0	8.0	12	4.5	9.0	14.5	0.37	17	1.0
F20MF	3.6	14.5	22	8.0	14.5	21	1.0	18	2.0
F25MF	6.3	24.5	35.5	9.0	24.5	36.3	1.1	23	1.5

Suction cups OB DURAFLEX®

Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
OB20x60P, PU60°	13.0	34	57	13.0	37	48	24.0	7.0	4.5
OB35x90P, PU60°	28	91	145	56	153	215	36	20.0	8.0
OB35x90P, PU30°/60°	38	98	134	66	154	206	36	25.0	8.0
OB50x140P, PU60°	77	231	368	122	292	396	95	26	11.3
OB50x140P, PU30°/60°	58	235	366	110	260	349	95	23.0	11.3
OB65x170P, PU60°	130	310	533	170	440	600	175	38	16.0
OB65x170P, PU30°/60°	119	335	541	141	379	532	175	38	16.0

Suction cups OBF DURAFLEX®

Material to be handled	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Volume	Min. curve radius
	60 -kPa	90 -kPa	60 -kPa	90 -kPa	cm^3	mm
OBF35x90P	Oily steel plate	108 (140*)	157 (198*)	105 (125*)	151 (179*)	36	30
OBF50x140P	Oily steel plate	246 (325*)	372 (438*)	271 (328*)	347 (415*)	95	50
OBF65x170P	Oily steel plate	403 (397*)	502 (570*)	538 (437*)	665 (619*)	200	50

*Values valid for steel sheet with surface finish Ra 1 and 2-3g/m^2 of press oil. * Dry metal sheet*

Suction cups OC

Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
OC60x140	132	373	520	186	373	510	52	200	7.5

Suction cups OC DURAFLEX®

Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
OC35x90P, PU40°	49	117	171	53	112	147	20	—	3.0
OC35x90P, PU60°	49	132	171	68	161	206	20	—	3.0

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Technical modifications keep in reserve !

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Suction cups OCF DURAFLEX®

Material to be handled	Lifting force vertical to the surface, N, at vacuum level		Lifting force parallel to the surface, N, at vacuum level		Volume	Min. curve radius
	60 -kPa	90 -kPa	60 -kPa	90 -kPa	cm^3	mm
Oily steel plate	82 (75*)	90 (111*)	35 (78*)	48 (112*)	15	20
Oily steel plate	115 (111*)	159 (157*)	51 (107*)	74 (160*)	17	25
Oily steel plate	185 (178*)	246 (245*)	54 (167*)	78 (232*)	34	42

*Values valid for steel sheet with surface finish Ra 1 and 2-3g/m^2 of press oil. * Dry metal sheet*

Suction cups OF DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
OF10x30P, PU50°	4.0	11.0	17.0	6.0	12.0	17.0	0.5	15.0	1.0
OF15x45P, PU50°	9.0	27	41	6.0	20.0	34	1.0	30	1.0
OF25x70P, PU40°	24	66	107	46	90	105	6.0	50	1.9
OF25x70P, PU60°	24	77	118	42	127	161	6.0	50	1.9
OF40x110P, PU40°	69	203	293	120	230	296	21	77	3.1
OF40x110P, PU60°	74	200	303	98	228	410	21	77	3.1
OF55x150P, PU40°	131	366	527	155	350	455	37	150	3.0
OF55x150P, PU60°	134	376	558	128	338	477	37	150	3.0
OF70x175P, PU40°	190	530	785	170	440	630	80	130	5.7
OF70x175P, PU60°	180	570	860	200	555	750	80	130	5.7

Suction cups U

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
U2	0.03	0.1	0.15	—	—	—	0.0025	4.0	0.1
U3	0.09	0.42	0.65	—	—	—	0.005	5.0	0.15
U4	0.2	0.9	1.3	0.2	0.8	1.0	0.03	3.0	0.2
U6	0.5	1.7	2.5	0.5	1.5	2.0	0.05	5.0	0.3
U8	1.0	2.9	3.9	1.0	2.9	3.4	0.1	6.0	0.5
U10	1.5	4.4	6.9	1.5	4.4	4.9	0.18	8.0	0.5
U15	3.5	8.4	11	3.5	5.4	5.9	0.5	8.0	1.5
U15-3	3.5	8.4	11	3.5	5.4	5.9	0.5	8.0	1.5
U20	5.9	12	16	5.9	8.8	9.8	1.0	13	2.5
U30	12	25	30	7.8	9.8	11	2.0	20	3.5
U40-2	20	39	49	14	22	27	5.5	30	4.5
U50-2	35	73	92	20	37	44	12	35	6.0

Suction cups U DURAFLEX®

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
U20-2P, PU40	3	10.5	14	1.5	3	6	0.7	9	5
U20-2P, PU50	3	11.5	15	1.5	3	6	0.7	9	5
U20-2P, PU60	3	14	21	3	6	8	0.7	12	5

Suction cups XLF

	Lifting force vertical to the surface, N, at vacuum level			Lifting force parallel to the surface, N, at vacuum level			Volume	Min. curve radius	Max. vertical movement
	20 -kPa	60 -kPa	90 -kPa	20 -kPa	60 -kPa	90 -kPa	cm^3	mm	mm
XLF150	330/520	500/770	780/1130	281	425	663	145	500	8
XLF200	760/1030	1130/1510	1720/2200	646	961	1462	275	800	8
XLF250	1310/1640	1950/2460	2870/3540	1114	1658	2440	435	1300	8
XLF300	2150/2620	3200/3760	4630/5450	1828	2720	3936	666	1900	8

** Inner/Outer lip*

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Suction Cup Accessories

Suction cup accessories are parts which make it easier to position the cup, add level compensation, reduce the risk for damaging parts or give a precise movement to the cup.

Applications

Level Compensators / Spring plungers

Wide range of thread connections and stroke lengths.

- Adjust differences in levels, for example on lifting devices with several suction cups.
- Allows for soft placement of cups on sensitive or thin objects.
- Available with rotational or non-rotational design (suitable for use with oval suction cups).

Height adjuster

Facilitates installation.

- Provides a height extension between the handling device and the suction cup.
- Adjustable in height.

Suction cup extensions

For handling devices used in cramped areas.

- Solid extension for mounting a suction cup.
- Several heights available

Integrated filter

For increased system reliability in industrial environment

- Available as an integrated filter disc in the bellow.
- A mesh filter is also available in the fitting.

Ball joints

Mounts on a suction cup to avoid stress

- Non-leaking design to work with vacuum system for ergonomic assist arms or other devices with high degree of safety.
- Available in loose-fit and locking versions.

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