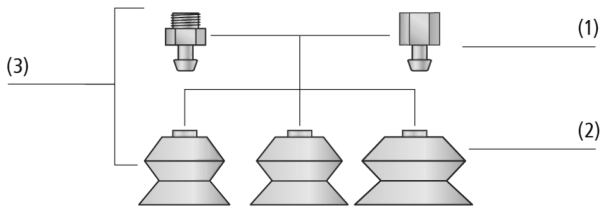


Bellows Suction Cups FSG (2.5 Folds)

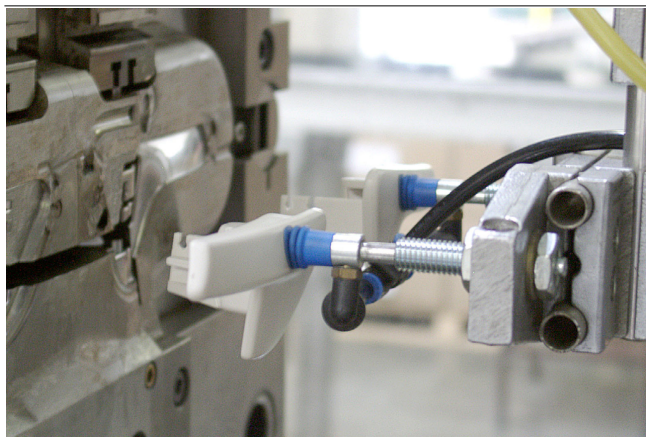
Suction area (Ø) from 3 mm to 88 mm



Bellows Suction Cups FSG (2.5 Folds)



System design Bellows Suction Cups FSG (2.5 Folds)



Bellows suction cups FSG being used for handling hot plastic parts

Suitability for industry specific applications

Application

- Round bellows suction cup with 2.5 folds for handling of extremely sensitive workpieces (optimum damping effect)
- Handling of workpieces with uneven surfaces, such as pipes (optimal adaptation to concave and convex surfaces)
- Internal support surface (from diameter 52 mm) prevents workpiece from being sucked in
- Special design of the folds permits use in systems with very short cycle times

Design

- Robust and wear-resistant suction cup FSG (3) with single sealing lip, consisting of suction cup FG (2) with 2.5 folds and connection nipple (1)
- All nipples are plugged in
- Suction cups with a diameter of 52 mm or more with supports on the bottom
- With each nipple family, the replacement cups and nipples can be combined as desired

Product highlights

- Wide range of diameters and materials for the most varied workpieces
- 2.5 folds ensure high suction force and effective damping of sensitive workpieces
- Very high suction cup stroke due to soft, flexible folds
- Soft, tapered sealing lip adapts optimally to curved surfaces
- Support surfaces on the bottom (from diameter 52 mm) prevent permanent deformation of thin-walled workpieces

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

✓ Designation code Bellows Suction Cups FSG (2.5 Folds)

FSG	–	18	–	SI-55	–	G1/8-IG
1		2		3		4

1 – Abbreviated designation

Code	Version
FSG	2.5 folds

2 – Suction area

Code	Diameter in mm
3...88	ø 3 to 88

3 – Material

Code	Material
HT1-60	High temperature material
NBR-55	Nitrile caoutchuc
NBR-AS-55	Nitrile caoutchuc
NK-45	Natural rubber
SI-55	Silicone
SI-AS-55	Silicone
SI-HD-65	Silicone
SI-MD-55	Silicone

4 – Connection

Code	Connection
M3-AG	M3-AG (AG = male (M))
M5-AG	M5-AG
M5-IG	M5-IG (IG = female (F))
G1/8-AG	G1/8-AG
G1/8-IG	G1/8-IG
G1/4-AG	G1/4-AG
G1/4-IG	G1/4-IG

Suction cup FSG (elastomer part + connection nipple) is delivered unassembled. The delivery consists of:

- Suction cup of type FG – elastomer part, available in various diameters and materials
- Connection nipple of type SA-NIP – available with various threads

Available spare parts: suction cup FG, connection nipple SA-NIP

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Ordering data Bellows Suction Cups FSG (2.5 Folds)

Type			Suction cup material with ShA: *			
			HT1-60	NBR-55	NBR-CO-55	NBR-ESD-55
FSG	3	M3-AG	10.01.06.03711	10.01.06.03712	10.01.06.03714	10.01.06.04328
FSG	3	M5-AG	10.01.06.03716 	10.01.06.03717 	10.01.06.03719	10.01.06.04329
FSG	4	M5-AG	10.01.06.02968 	10.01.06.02964 	10.01.06.03073	10.01.06.04330
FSG	4	M5-IG	10.01.06.02969 	10.01.06.02965 	10.01.06.03074	10.01.06.04331
FSG	5	M5-AG	10.01.06.01235 	10.01.06.00663 	-	10.01.06.04332
FSG	5	M5-IG	10.01.06.01242 	10.01.06.00662 	-	10.01.06.04333
FSG	7	M5-AG	10.01.06.01237 	10.01.06.00021 	-	10.01.06.04336
FSG	7	G1/8-AG	10.01.06.01236 	10.01.06.00020 	-	10.01.06.04334
FSG	7	G1/8-IG	10.01.06.01243 	10.01.06.00001 	-	10.01.06.04335
FSG	9	M5-AG	10.01.06.00963 	10.01.06.00023 	-	10.01.06.04339
FSG	9	G1/8-AG	10.01.06.00962 	10.01.06.00022 	-	10.01.06.04337
FSG	9	G1/8-IG	10.01.06.00978 	10.01.06.00002 	-	10.01.06.04338
FSG	12	M5-AG	10.01.06.01255 	10.01.06.00565 	-	10.01.06.04342
FSG	12	G1/8-AG	10.01.06.01238 	10.01.06.00562 	-	10.01.06.04340
FSG	12	G1/8-IG	10.01.06.01244 	10.01.06.00559 	-	10.01.06.04341
FSG	14	M5-AG	10.01.06.00967 	10.01.06.00025 	-	10.01.06.04491
FSG	14	G1/8-AG	10.01.06.00966 	10.01.06.00024 	-	10.01.06.04489
FSG	14	G1/8-IG	10.01.06.00982 	10.01.06.00003 	-	10.01.06.04490
FSG	18	M5-AG	10.01.06.00969 	10.01.06.00027 	-	10.01.06.04494
FSG	18	G1/8-AG	10.01.06.00968 	10.01.06.00026 	-	10.01.06.04492
FSG	18	G1/8-IG	10.01.06.00984 	10.01.06.00004 	-	10.01.06.04493
FSG	20	M5-AG	10.01.06.01240 	10.01.06.00029 	-	10.01.06.04345
FSG	20	G1/8-AG	10.01.06.01239 	10.01.06.00028 	-	10.01.06.04343
FSG	20	G1/8-IG	10.01.06.01245 	10.01.06.00005 	-	10.01.06.04344
FSG	25	G1/8-AG	10.01.06.00972 	10.01.06.00334 	-	10.01.06.04495
FSG	25	G1/8-IG	10.01.06.00988 	10.01.06.00333 	-	10.01.06.04496
FSG	32	G1/4-AG	10.01.06.01241 	10.01.06.00030 	-	10.01.06.04497
FSG	32	G1/4-IG	10.01.06.01246 	10.01.06.00006 	-	10.01.06.04498
FSG	42	G1/4-AG	10.01.06.00974 	10.01.06.00031 	-	-
FSG	42	G1/4-IG	10.01.06.00990 	10.01.06.00007 	-	-
FSG	52	G1/4-AG	10.01.06.02387 	10.01.06.00582 	-	-
FSG	52	G1/4-IG	10.01.06.02388 	10.01.06.00584 	-	-
FSG	62	G1/4-AG	10.01.06.02480 	10.01.06.00032 	-	-
FSG	62	G1/4-IG	10.01.06.02481 	10.01.06.00008 	-	-
FSG	88	G1/4-AG	-	10.01.06.00033	-	-
FSG	88	G1/4-IG	-	10.01.06.00009	-	-

*Additional material specifications at beginning of the section "Vacuum Suction Cups"

Type			Suction cup material with ShA: *			
			NK-45	SI-55	SI-CO-55	SI-HD-65
FSG	3	M3-AG	-	10.01.06.03713	10.01.06.03715	-
FSG	3	M5-AG	-	10.01.06.03718 	10.01.06.03720	-
FSG	4	M5-AG	-	10.01.06.02966 	-	-
FSG	4	M5-IG	-	10.01.06.02967 	-	-
FSG	5	M5-AG	-	10.01.06.00665 	-	-
FSG	5	M5-IG	-	10.01.06.00664 	-	-
FSG	7	M5-AG	-	10.01.06.00035 	-	10.01.06.04154
FSG	7	G1/8-AG	-	10.01.06.00034 	-	10.01.06.04155
FSG	7	G1/8-IG	-	10.01.06.00010 	-	10.01.06.04156
FSG	9	M5-AG	10.01.06.00430	10.01.06.00037 	-	10.01.06.04157
FSG	9	G1/8-AG	10.01.06.00432	10.01.06.00036 	-	10.01.06.04158
FSG	9	G1/8-IG	10.01.06.00431	10.01.06.00011 	-	10.01.06.04159

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Type			Suction cup material with ShA: *			
			NK-45	SI-55	SI-CO-55	SI-HD-65
FSG	12	M5-AG	10.01.06.00567	10.01.06.00566 	-	10.01.06.04160
FSG	12	G1/8-AG	10.01.06.00564	10.01.06.00563 	-	10.01.06.04161
FSG	12	G1/8-IG	10.01.06.00561	10.01.06.00560 	-	10.01.06.04162
FSG	14	M5-AG	10.01.06.00433	10.01.06.00039 	-	10.01.06.04163
FSG	14	G1/8-AG	10.01.06.00435	10.01.06.00038 	-	10.01.06.04164
FSG	14	G1/8-IG	10.01.06.00434	10.01.06.00012 	-	10.01.06.04165
FSG	18	M5-AG	10.01.06.00436	10.01.06.00041 	-	10.01.06.04166
FSG	18	G1/8-AG	10.01.06.00438	10.01.06.00040 	-	10.01.06.04167
FSG	18	G1/8-IG	10.01.06.00437	10.01.06.00013 	-	10.01.06.04168
FSG	20	M5-AG	10.01.06.00439	10.01.06.00043 	-	10.01.06.04169
FSG	20	G1/8-AG	10.01.06.00441	10.01.06.00042 	-	10.01.06.04170
FSG	20	G1/8-IG	10.01.06.00440	10.01.06.00014 	-	10.01.06.04171
FSG	25	G1/8-AG	10.01.06.00443	10.01.06.00337 	-	10.01.06.04172
FSG	25	G1/8-IG	10.01.06.00442	10.01.06.00336 	-	10.01.06.04173
FSG	32	G1/4-AG	10.01.06.00445	10.01.06.00044 	-	-
FSG	32	G1/4-IG	10.01.06.00444	10.01.06.00015 	-	-
FSG	42	G1/4-AG	10.01.06.00447	10.01.06.00045 	-	-
FSG	42	G1/4-IG	10.01.06.00446	10.01.06.00016 	-	-
FSG	52	G1/4-AG	10.01.06.02385	10.01.06.00586 	-	-
FSG	52	G1/4-IG	10.01.06.02386	10.01.06.00587 	-	-
FSG	62	G1/4-AG	10.01.06.00449	10.01.06.00046 	-	-
FSG	62	G1/4-IG	10.01.06.00448	10.01.06.00017 	-	-
FSG	88	G1/4-AG	10.01.06.00451	10.01.06.00047	-	-
FSG	88	G1/4-IG	10.01.06.00450	10.01.06.00018	-	-

*Additional material specifications at beginning of the section "Vacuum Suction Cups"

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Ordering data Spare parts Bellows Suction Cups FSG (2.5 Folds)

Type	Suction cup material with ShA: *							
	HT1-60	NBR-55	NBR-CO-55	NBR-ESD-55	NK-45	SI-55	SI-CO-55	SI-HD-65
FG 3	10.01.06.03639	10.01.06.03704	10.01.06.03706	10.01.06.04137	-	10.01.06.03705	10.01.06.03707	-
FG 4	10.01.06.02930	10.01.06.02962	10.01.06.03067	10.01.06.04138	-	10.01.06.02963	10.01.06.03277	-
FG 5	10.01.06.01250	10.01.06.00640	10.01.06.00641	10.01.06.04215	-	10.01.06.00642	10.01.06.00643	-
FG 7	10.01.06.01251	10.01.06.00050	-	10.01.06.04139	-	10.01.06.00055	10.01.06.00508	10.01.06.03901
FG 9	10.01.06.00878	10.01.06.00051	10.01.06.03259	10.01.06.04259	10.01.06.00452	10.01.06.00056	10.01.06.03260	10.01.06.03148
FG 12	10.01.06.01252	10.01.06.00557	-	10.01.06.04260	10.01.06.00558	10.01.06.00549	10.01.06.03360	10.01.06.04141
FG 14	10.01.06.00880	10.01.06.00052	-	10.01.06.04457	10.01.06.00453	10.01.06.00057	10.01.06.03394	10.01.06.04055
FG 18	10.01.06.00881	10.01.06.00053	10.01.06.03400	10.01.06.04458	10.01.06.00454	10.01.06.00058	-	10.01.06.04148
FG 20	10.01.06.01253	10.01.06.00054	-	10.01.06.04235	10.01.06.00455	10.01.06.00059	-	10.01.06.04149
FG 25	10.01.06.00883	10.01.06.00335	-	10.01.06.04459	10.01.06.00456	10.01.06.00338	-	10.01.06.03246
FG 32	10.01.06.01254	10.01.06.00140	-	10.01.06.04460	10.01.06.00457	10.01.06.00144	-	-
FG 42	10.01.06.00885	10.01.06.00141	-	-	10.01.06.00458	10.01.06.00145	-	-
FG 52	10.01.06.02365	10.01.06.00583	-	-	10.01.06.02382	10.01.06.00585	-	-
FG 62	10.01.06.02475	10.01.06.00142	-	-	10.01.06.00459	10.01.06.00146	-	-
FG 88	-	10.01.06.00143	-	-	10.01.06.00460	10.01.06.00147	-	-

*Additional material specifications at beginning of the section "Vacuum Suction Cups"

Type	Spare parts			Part no.
FSG 3	M3-AG	Suction cup connection nipple	SA-NIP N055 M3-AG DN100	10.01.01.00313
FSG 3	M5-AG	Suction cup connection nipple	SA-NIP N055 M5-AG DN100	10.01.01.13084
FSG 4	M5-AG	Suction cup connection nipple	SA-NIP N017 M5-AG DN200	10.01.06.00314
FSG 5	M5-AG	Suction cup connection nipple	SA-NIP N017 M5-AG DN200	10.01.06.00314
FSG 7	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 7	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 9	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 9	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 12	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 12	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 14	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 14	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 18	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 18	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 20	M5-AG	Suction cup connection nipple	SA-NIP N016 M5-AG DN250	10.01.06.00123
FSG 20	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 25	G1/8-AG	Suction cup connection nipple	SA-NIP N016 G1/8-AG DN350	10.01.06.05735
FSG 32	G1/4-AG	Suction cup connection nipple	SA-NIP N018 G1/4-AG DN440	10.01.06.01065
FSG 42	G1/4-AG	Suction cup connection nipple	SA-NIP N018 G1/4-AG DN440	10.01.06.01065
FSG 62	G1/4-AG	Suction cup connection nipple	SA-NIP N018 G1/4-AG DN440	10.01.06.01065
FSG 88	G1/4-AG	Suction cup connection nipple	SA-NIP N019 G1/4-AG DN820	10.01.06.01959

Type	Spare parts			Part no.
FSG 4	M5-IG	Suction cup connection nipple	SA-NIP N017 M5-IG DN200	10.01.06.00313
FSG 5	M5-IG	Suction cup connection nipple	SA-NIP N017 M5-IG DN200	10.01.06.00313
FSG 7	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 9	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 12	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 14	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 18	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 20	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 25	G1/8-IG	Suction cup connection nipple	SA-NIP N016 G1/8-IG DN350	10.01.06.05731
FSG 32	G1/4-IG	Suction cup connection nipple	SA-NIP N018 G1/4-IG DN440	10.01.06.01066

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Type	Spare parts				Part no.
FSG	42	G1/4-IG	Suction cup connection nipple	SA-NIP N018 G1/4-IG DN440	10.01.06.01066
FSG	52	G1/4-IG	Suction cup connection nipple	SA-NIP N018 G1/4-IG DN440	10.01.06.01066
FSG	62	G1/4-IG	Suction cup connection nipple	SA-NIP N018 G1/4-IG DN440	10.01.06.01066
FSG	88	G1/4-IG	Suction cup connection nipple	SA-NIP N019 G1/4-IG DN820	10.01.06.01960

Technical data Bellows Suction Cups FSG (2.5 Folds)

Type		Suction force (-600 mbar) [N]*	Pull-off force [N]**	Volume [cm³]	Workpiece radius min. (convex) [mm]	Hose inner diameter (recom.) d [mm]***	Nipple family
FSG	3	0.2	0.4	0.022	4	2	N 055
FSG	4	0.3	0.6	0.053	4	2	N 017
FSG	5	0.4	0.8	0.033	8	2	N 017
FSG	7	0.2	0.9	0.043	8	4	N 016
FSG	9	0.8	2.3	0.150	10	4	N 016
FSG	12	1.2	3.5	0.600	13	4	N 016
FSG	14	1.4	5.7	0.975	15	4	N 016
FSG	18	3.1	8.5	1.350	20	4	N 016
FSG	20	5.2	12.1	2.298	30	4	N 016
FSG	25	4.8	19.0	5.400	30	4	N 016
FSG	32	12.1	36.9	10.000	35	6	N 018
FSG	42	15.0	44.0	19.786	75	6	N 018
FSG	52	28.6	96.0	37.587	75	6	N 018
FSG	62	41.1	137.0	72.500	75	6	N 018
FSG	88	40.5	286.0	143.668	100	9	N 019

*The specified suction forces are theoretical values at a vacuum of -0.6 bar and with a smooth, dry workpiece surface - they do not include a safety factor

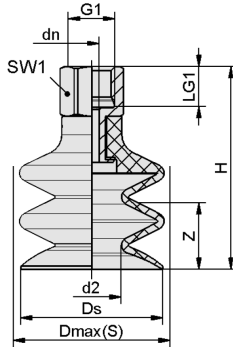
**The pull-off force of the versions made of natural rubber is reduced by about 40 %

***The recommended hose diameter is based on a hose length of approx. 2 m

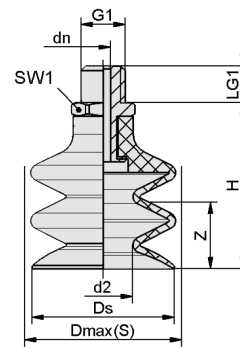
Bellows Suction Cups FSG (2.5 Folds)

Suction area ($\emptyset$) from 3 mm to 88 mm

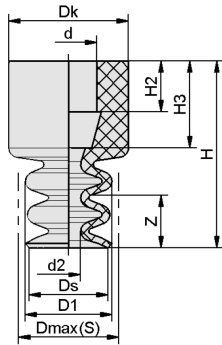
Design data Bellows Suction Cups FSG (2.5 Folds)



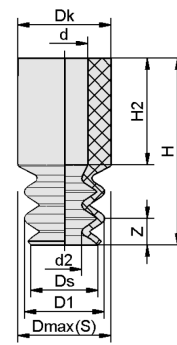
FSG IG



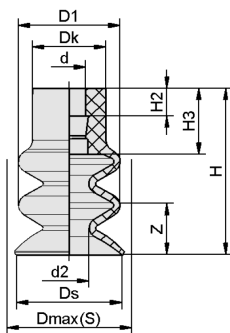
FSG AG



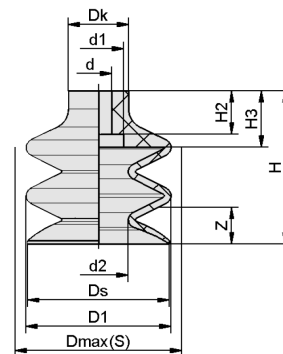
FG 3, 4, 7, 9



FG 5, 52, 62



FG 12...25



FG 32...88

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Design data Bellows Suction Cups FSG (2.5 Folds)

Type*			d2 [mm]	dn [mm]	Dmax(S) [mm]**	Ds [mm]	G1	H [mm]	LG1 [mm]	SW1 [mm]	Z (Stroke) [mm]
FSG	3	M3-AG	1.8	1.0	4.0	3.0	M3-M	8.7	3.0	5	2
FSG	3	M5-AG	1.8	1.0	4.0	3.0	M5-M	10.2	4.5	7	2
FSG	4	M5-AG	2.4	2.0	5.5	3.8	M5-M	19.0	5.0	8	2
FSG	4	M5-IG	2.4	2.0	5.5	3.8	M5-F	24.0	5.5	8	2
FSG	5	M5-AG	2.6	2.0	7.0	5.0	M5-M	19.0	5.0	8	2
FSG	5	M5-IG	2.6	2.0	7.0	5.0	M5-F	24.0	5.5	8	2
FSG	7	M5-AG	1.8	2.5	7.0	5.9	M5-M	19.0	5.0	7	3
FSG	7	G1/8-AG	1.8	3.5	7.0	5.9	G1/8"-M	20.0	7.5	14	3
FSG	7	G1/8-IG	1.8	3.5	7.0	5.9	G1/8"-F	26.0	8.5	14	3
FSG	9	M5-AG	4.1	2.5	9.5	9.0	M5-M	20.0	5.0	7	3
FSG	9	G1/8-AG	4.1	3.5	9.5	9.0	G1/8"-M	21.0	7.5	14	3
FSG	9	G1/8-IG	4.1	3.5	9.5	9.0	G1/8"-F	27.0	8.5	14	3
FSG	12	M5-AG	5.0	2.5	13.0	12.0	M5-M	26.0	5.0	7	7
FSG	12	G1/8-AG	5.0	3.5	13.0	12.0	G1/8"-M	27.0	7.5	14	7
FSG	12	G1/8-IG	5.0	3.5	13.0	12.0	G1/8"-F	33.0	8.5	14	7
FSG	14	M5-AG	5.4	2.5	15.5	14.5	M5-M	27.8	5.0	7	9
FSG	14	G1/8-AG	5.4	3.5	15.5	14.5	G1/8"-M	28.8	7.5	14	9
FSG	14	G1/8-IG	5.4	3.5	15.5	14.5	G1/8"-F	34.8	8.5	14	9
FSG	18	M5-AG	8.0	2.5	19.0	17.2	M5-M	27.6	5.0	7	9
FSG	18	G1/8-AG	8.0	3.5	19.0	17.2	G1/8"-M	28.6	7.5	14	9
FSG	18	G1/8-IG	8.0	3.5	19.0	17.2	G1/8"-F	34.6	8.5	14	9
FSG	20	M5-AG	10.5	2.5	21.0	20.0	M5-M	27.1	5.0	7	9
FSG	20	G1/8-AG	10.5	3.5	21.0	20.0	G1/8"-M	28.1	7.5	14	9
FSG	20	G1/8-IG	10.5	3.5	21.0	20.0	G1/8"-F	34.1	8.5	14	9
FSG	25	G1/8-AG	10.0	3.5	26.0	23.0	G1/8"-M	40.0	7.5	14	18
FSG	25	G1/8-IG	10.0	3.5	26.0	23.0	G1/8"-F	46.0	8.5	14	18
FSG	32	G1/4-AG	16.0	4.4	33.5	32.0	G1/4"-M	41.5	11.0	17	15
FSG	32	G1/4-IG	16.0	4.4	33.5	32.0	G1/4"-F	52.5	12.0	17	15
FSG	42	G1/4-AG	17.8	4.4	45.0	42.6	G1/4"-M	50.0	11.0	17	20
FSG	42	G1/4-IG	17.8	4.4	45.0	42.6	G1/4"-F	61.0	12.0	17	20
FSG	52	G1/4-AG	24.6	4.4	55.0	52.5	G1/4"-M	52.7	11.0	17	25
FSG	52	G1/4-IG	24.6	4.4	55.0	52.5	G1/4"-F	63.7	12.0	17	25
FSG	62	G1/4-AG	29.5	4.4	65.0	62.2	G1/4"-M	58.0	11.0	17	29
FSG	62	G1/4-IG	29.5	4.4	65.0	62.2	G1/4"-F	69.0	12.0	17	29
FSG	88	G1/4-AG	29.3	8.2	95.5	89.0	G1/4"-M	92.5	11.0	21	34
FSG	88	G1/4-IG	29.3	8.2	95.5	89.0	G1/4"-F	101.5	12.0	21	34

*Acceptable dimensional tolerances for rubber parts concerning to DIN ISO 3302-1 E3

**External dimension of the suction cup when it is pressed against the workpiece by the vacuum

Type*		d [mm]	d2 [mm]	D1 [mm]	Dk [mm]	Dmax(S) [mm]**	Ds [mm]	H [mm]	H2 [mm]	H3 [mm]	Z (Stroke) [mm]
FG	3	1.7	1.8	3.6	3.6	4.0	3.0	6.7	2.1	2.7	1.1
FG	4	3.5	2.4	5.1	7.0	5.5	3.8	14.0	3.9	7.0	1.5
FG	5	3.5	2.6	6.0	7.0	6.5	5.0	14.0	8.0	-	2.0
FG	7	4.5	1.8	6.5	9.0	7.0	5.9	14.0	3.8	6.5	3.0
FG	9	4.5	4.1	8.9	9.0	9.5	9.0	15.0	3.8	8.2	3.0
FG	12	4.5	5.0	12.0	10.0	13.0	12.0	21.0	3.8	9.0	7.0
FG	14	4.5	5.4	13.9	10.0	15.5	14.5	22.8	3.8	9.0	9.0
FG	18	4.5	8.0	17.8	10.0	19.0	17.2	22.6	3.8	9.0	9.0
FG	20	4.5	10.5	20.0	10.0	21.0	20.0	22.1	3.8	9.0	9.0
FG	25	4.5	10.0	25.0	10.0	26.0	23.0	34.0	3.8	9.0	18.0
FG	32	8.0	16.0	32.4	18.0	33.5	32.0	37.5	13.0	17.0	15.0

Bellows Suction Cups FSG (2.5 Folds)

Suction area (Ø) from 3 mm to 88 mm

Type*		d [mm]	d2 [mm]	D1 [mm]	Dk [mm]	Dmax(S) [mm]**	Ds [mm]	H [mm]	H2 [mm]	H3 [mm]	Z (Stroke) [mm]
FG	42	8.0	17.8	43.5	18.0	45.0	42.6	46.0	13.0	17.0	20.0
FG	52	8.0	24.6	52.0	18.0	55.0	52.5	48.7	13.0	-	25.0
FG	62	8.0	29.5	62.0	18.0	65.0	62.2	54.0	13.0	-	29.0
FG	88	11.7	29.3	88.2	24.7	95.5	89.0	86.5	19.7	26.0	34.0

*Acceptable dimensional tolerances for rubber parts concerning to DIN ISO 3302-1 E3

**External dimension of the suction cup when it is pressed against the workpiece by the vacuum