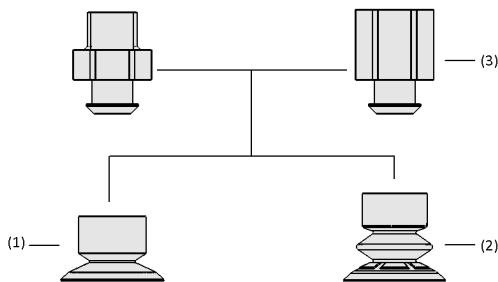


Suction Cups SFF / SFB1

Suction area (\varnothing) from 10 mm to 40 mm



Suction Cups SFF / SFB1



System Design Suction Cups SFF / SFB1



Suction cups SFF / SFB1 when handling coffee capsules

Suitability for Industry Specific Applications

Applications

- Round suction cup for gentle handling of sensitive materials and fragile workpieces
- Use as flat suction cup SFF with flat workpieces such as packaging made of paper, display glass and wafers
- Use as bellows suction cup SFB1 (1.5 folds) for uneven workpieces such as capsules, blister packs and filled bags
- Use in the production of battery components (pouch cells)

Design

- Suction cup with thin and flexible sealing lip consisting of flat suction cup SFF (1) or bellows suction cup SFB1 with 1.5 folds (2) and Schmalz connection element SC (3)
- Inner support surface with honeycomb structure and very good vacuum distribution
- Suction area (\varnothing) from 10 mm to 40 mm

Product Highlights

- Flexible, thin sealing lip and stabilizing support surface for particularly unstable workpieces
- Safe component handling thanks to very good vacuum distribution
- Large selection of materials for a wide range of requirements (food safe, chemically resistant, temperature resistant)

Suction Cups SFF / SFB1

Suction area (Ø) from 10 mm to 40 mm

Designation Code Suction Cups SFF / SFB1

SFF	-	40	-	HT1-60	-	G1/4-AG
1		2		3		4

1 – Abbreviated designation

Code	Version
SFF	Flat
SFB1	1.5 folds

2 – Suction area

Code	Diameter in mm
10...60	ø 10 to 60

3 – Material and Shore hardness

Code	Material
EPDM-45	Ethylene propylene rubber
HT1-60	High temperature material
NBR-ESD-55	Nitrile rubber
SI-55	Silicone

4 – Connection

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

The suction cup SFF / SFB1 (elastomer part + connection nipple) is supplied assembled.

Available spare parts: suction cup SFF / SFB1, connection nipple SC

Suction Cups SFF / SFB1

Suction area (Ø) from 10 mm to 40 mm

Ordering Data Suction Cups SFF / SFB1

Type			Suction cup material with ShA: *			
			EPDM-45	HT1-60	NBR-ESD-55	SI-55
SFF	10	M5-AG	10.01.01.14260	10.01.01.14272	10.01.01.14671	10.01.01.14248
SFF	15	M5-AG	10.01.01.14261	10.01.01.14273	10.01.01.14536	10.01.01.14249
SFF	15	G1/8-AG	10.01.01.14262	10.01.01.14274	10.01.01.14537	10.01.01.14250
SFF	15	G1/8-IG	10.01.01.14263	10.01.01.14275	10.01.01.14538	10.01.01.14251
SFF	20	G1/8-AG	10.01.01.14264	10.01.01.14276	10.01.01.14672	10.01.01.14252
SFF	20	G1/8-IG	10.01.01.14265	10.01.01.14277	10.01.01.14673	10.01.01.14253
SFF	20	G1/4-AG	-	-	-	10.01.01.14621
SFF	25	G1/8-AG	10.01.01.14266	10.01.01.14278	10.01.01.14674	10.01.01.14254
SFF	25	G1/8-IG	10.01.01.14267	10.01.01.14279	10.01.01.14675	10.01.01.14255
SFF	30	G1/4-AG	10.01.01.14268	10.01.01.14280	10.01.01.14676	10.01.01.14256
SFF	30	G1/4-IG	10.01.01.14269	10.01.01.14281	10.01.01.14677	10.01.01.14257
SFF	40	G1/4-AG	10.01.01.14270	10.01.01.14282	10.01.01.14678	10.01.01.14258
SFF	40	G1/4-IG	10.01.01.14271	10.01.01.14283	10.01.01.14679	10.01.01.14259
SFF	60	G1/4-IG	10.01.01.15574	10.01.01.15578	-	10.01.01.15576
SFF	60	G1/4-AG	10.01.01.15573	10.01.01.15577	-	10.01.01.15575

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

Type			Suction cup material with ShA: *			
			EPDM-45	HT1-60	NBR-ESD-55	SI-55
SFB1	10	M5-M	10.01.06.04392	10.01.06.04393	10.01.06.04788	10.01.06.04391
SFB1	15	M5-M	10.01.06.04395	10.01.06.04396	10.01.06.04789	10.01.06.04394
SFB1	15	G1/8"-M	10.01.06.04398	10.01.06.04399	10.01.06.04790	10.01.06.04397
SFB1	15	G1/8"-F	10.01.06.04401	10.01.06.04402	10.01.06.04791	10.01.06.04400
SFB1	20	G1/8"-M	10.01.06.04404	10.01.06.04405	10.01.06.04792	10.01.06.04403
SFB1	20	G1/8"-F	10.01.06.04407	10.01.06.04408	10.01.06.04793	10.01.06.04406
SFB1	25	G1/8"-M	10.01.06.04410	10.01.06.04411	10.01.06.04794	10.01.06.04409
SFB1	25	G1/8"-F	10.01.06.04413	10.01.06.04414	10.01.06.04795	10.01.06.04412
SFB1	30	G1/4"-M	10.01.06.04416	10.01.06.04417	10.01.06.04796	10.01.06.04415
SFB1	30	G1/4"-F	10.01.06.04419	10.01.06.04420	10.01.06.04797	10.01.06.04418
SFB1	40	G1/4"-M	10.01.06.04422	10.01.06.04423	10.01.06.04798	10.01.06.04421
SFB1	40	G1/4"-F	10.01.06.04425	10.01.06.04426	10.01.06.04799	10.01.06.04424

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

Suction Cups SFF / SFB1

Suction area (\emptyset) from 10 mm to 40 mm

Ordering Data Spare Parts Suction Cups SFF / SFB1

Type	Suction cup material with ShA: *			
	EPDM-45	HT1-60	NBR-ESD-55	SI-55
SFF 10	10.01.01.14044	10.01.01.14050	10.01.01.14328	10.01.01.13745
SFF 15	10.01.01.14045	10.01.01.14051	10.01.01.14329	10.01.01.13746
SFF 20	10.01.01.14046	10.01.01.14052	10.01.01.14631	10.01.01.13747
SFF 25	10.01.01.14047	10.01.01.14053	10.01.01.14633	10.01.01.13748
SFF 30	10.01.01.14048	10.01.01.14054	10.01.01.14635	10.01.01.13749
SFF 40	10.01.01.14049	10.01.01.14055	10.01.01.14637	10.01.01.13750
SFF 60	10.01.01.15210	10.01.01.15243	-	10.01.01.15242

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

Type	Suction cup material with ShA: *			
	EPDM-45	HT1-60	NBR-ESD-55	SI-55
SFB1 10	10.01.06.04373	10.01.06.04379	10.01.06.04595	10.01.06.04367
SFB1 15	10.01.06.04374	10.01.06.04380	10.01.06.04596	10.01.06.04368
SFB1 20	10.01.06.04375	10.01.06.04381	10.01.06.04784	10.01.06.04369
SFB1 25	10.01.06.04376	10.01.06.04382	10.01.06.04714	10.01.06.04370
SFB1 30	10.01.06.04377	10.01.06.04383	10.01.06.04716	10.01.06.04371
SFB1 40	10.01.06.04378	10.01.06.04384	10.01.06.04786	10.01.06.04372

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

Technical Data Suction Cups SFF / SFB1

Type		Suction force (-600 mbar) [N]*	Volume [cm ³]	Workpiece radius min. (convex) [mm]
SFF	10	2.70	0.250	8
SFF	15	6.60	0.600	13
SFF	20	11.60	0.800	20
SFF	25	18.50	1.200	25
SFF	30	26.90	1.700	30
SFF	40	48.60	4.300	45
SFF	60	108.60	-	-

*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

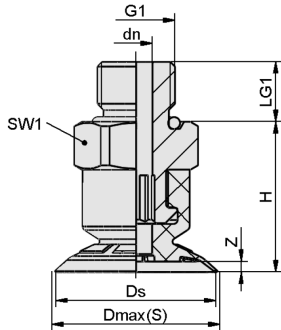
Type		Suction force (-600 mbar) [N]*	Volume [cm ³]	Workpiece radius min. (convex) [mm]
SFB1	10	0.50	0.300	10
SFB1	15	1.00	0.800	12
SFB1	20	2.10	1.200	13
SFB1	25	3.20	1.900	18
SFB1	30	4.60	2.900	20
SFB1	40	8.81	7.500	30

*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

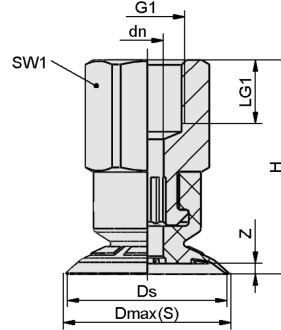
Suction Cups SFF / SFB1

Suction area (\varnothing) from 10 mm to 40 mm

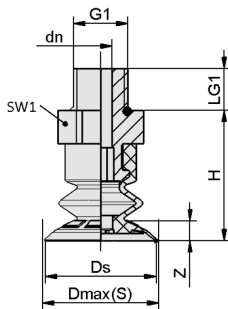
Design Data Suction Cups SFF / SFB1



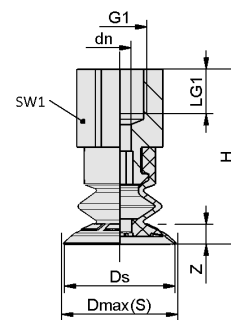
SFF 10 - 40 AG



SFF 15 - 40 IG



SFB1 10 - 40 AG



SFB1 15 - 40 IG

Suction Cups SFF / SFB1

Suction area (Ø) from 10 mm to 40 mm

Design Data Suction Cups SFF / SFB1

Type*			Dmax(S) [mm]**	dn [mm]	Ds [mm]	G1	LG1 [mm]	H [mm]	SW1 [mm]	Z (Stroke) [mm]
SFF	10	M5-AG	11.0	1.8	10.0	M5-M	5	15.4	8	1
SFF	15	M5-AG	16.0	1.8	15.0	M5-M	5	17.5	8	1
SFF	15	G1/8-AG	16.0	4.0	15.0	G1/8"-M	8	18.5	14	1
SFF	15	G1/8-IG	16.0	4.0	15.0	G1/8"-F	8	26.5	14	1
SFF	15	M5-AG	16.0	1.8	15.0	M5-M	5	17.5	10	1
SFF	20	G1/8-AG	21.0	4.0	20.0	G1/8"-M	8	18.8	14	2
SFF	20	G1/8-IG	21.0	4.0	20.0	G1/8"-F	8	26.8	14	2
SFF	20	G1/4-AG	21.0	4.0	20.0	G1/4"-M	10	18.8	17	2
SFF	25	G1/8-IG	26.5	4.0	25.0	G1/8"-F	8	27.2	14	2
SFF	25	G1/8-AG	26.5	4.0	25.0	G1/8"-M	8	19.2	14	2
SFF	30	G1/4-AG	31.5	4.0	30.0	G1/4"-M	10	19.5	17	2
SFF	30	G1/4-IG	31.5	4.0	30.0	G1/4"-F	12	30.8	17	2
SFF	40	G1/4-AG	42.0	4.0	40.0	G1/4"-M	10	26.2	17	3
SFF	40	G1/4-IG	42.0	4.0	40.0	G1/4"-F	12	36.2	17	3
SFF	60	G1/4-AG	64.0	4.0	60.0	G1/4"-M	10	36.5	22	4
SFF	60	G1/4-IG	64.0	4.0	60.0	G1/4"-F	12	46.5	22	4

*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*			d2 [mm]	Dmax(S) [mm]**	dn [mm]	Ds [mm]	G1	LG1 [mm]	H [mm]	SW1 [mm]	Z (Stroke) [mm]
SFB1	10	M5-AG	4.2	11.0	1.8	10.0	M5-M	5	17.3	8	2.5
SFB1	10	M5-AG	-	11.0	1.8	10.0	M5-M	5	17.3	8	2.5
SFB1	15	M5-AG	4.7	16.0	1.8	15.0	M5-M	5	21.0	8	4.0
SFB1	15	G1/8-AG	4.7	16.0	4.1	15.0	G1/8"-M	8	22.0	14	4.0
SFB1	15	G1/8-IG	4.7	16.0	4.1	15.0	G1/8"-F	8	30.0	14	4.0
SFB1	15	M5-AG	-	16.0	1.8	15.0	M5-M	5	21.0	8	4.0
SFB1	15	G1/8-AG	-	16.0	4.1	15.0	G1/8"-M	8	22.0	14	4.0
SFB1	15	G1/8-IG	-	16.0	4.1	15.0	G1/8"-F	8	30.0	14	4.0
SFB1	20	G1/8-AG	6.6	21.0	4.1	20.0	G1/8"-M	8	23.5	14	5.0
SFB1	20	G1/8-IG	6.6	21.0	4.1	20.0	G1/8"-F	8	31.5	14	5.0
SFB1	20	G1/8-AG	-	21.0	4.1	20.0	G1/8"-M	8	23.5	14	5.0
SFB1	20	G1/8-IG	-	21.0	4.1	20.0	G1/8"-F	8	31.5	14	5.0
SFB1	25	G1/8-AG	8.2	26.5	4.1	25.0	G1/8"-M	8	25.2	14	6.5
SFB1	25	G1/8-IG	8.2	26.5	4.1	25.0	G1/8"-F	8	33.2	14	6.5
SFB1	25	G1/8-AG	-	26.5	4.1	25.0	G1/8"-M	8	25.2	14	6.5
SFB1	25	G1/8-IG	-	26.5	4.1	25.0	G1/8"-F	8	33.2	14	6.5
SFB1	30	G1/4-AG	9.9	31.5	4.1	30.0	G1/4"-M	10	26.4	17	8.0
SFB1	30	G1/4-IG	9.9	31.5	4.1	30.0	G1/4"-F	12	37.7	17	8.0
SFB1	30	G1/4-AG	-	31.5	4.1	30.0	G1/4"-M	10	26.4	17	8.0
SFB1	30	G1/4-IG	-	31.5	4.1	30.0	G1/4"-F	12	37.7	17	8.0
SFB1	40	G1/4-AG	13.7	42.0	4.1	40.0	G1/4"-M	10	35.7	17	10.0
SFB1	40	G1/4-IG	13.7	42.0	4.1	40.0	G1/4"-F	12	46.9	17	10.0
SFB1	40	G1/4-AG	-	42.0	4.1	40.0	G1/4"-M	10	35.7	17	10.0
SFB1	40	G1/4-IG	-	42.0	4.1	40.0	G1/4"-F	12	46.9	17	10.0

*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