



Bellows suction cup (round)

FGA bellows suction cup (1.5 folds)



Universal



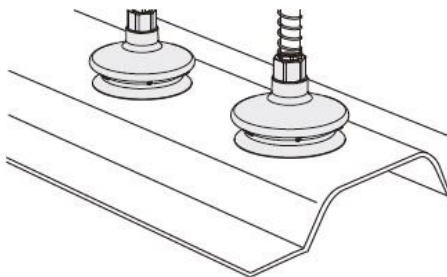
Packaging



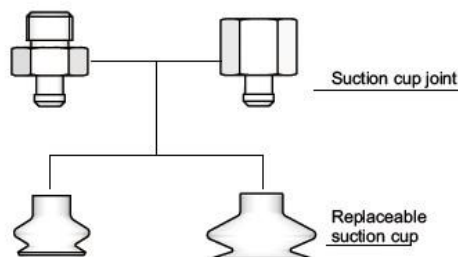
Injection molding



Application of FGA bellows suction cup



System design of FGA bellows suction cup



Introduction

- ◆ 1.5-fold bellows suction cup
- ◆ Optional special materials with high temperature resistance
- ◆ Applicable to handling high-temperature workpieces
- ◆ Joints can be reused so that costs to customers are reduced
- ◆ Applicable to workpieces of different sizes and in different shapes

Application

- ◆ Handles workpieces with uneven surfaces, such as cartons, cardboards, workpieces with curved surfaces, pipes, etc.
- ◆ High-temperature injection-molded parts, metal plates, glass, etc.
- ◆ Handles smooth wood boards, smooth steel plates, etc.

Structure

- ◆ All suction cup joints are straight joints
- ◆ The suction cup with a diameter of no less than 25 mm has a support structure in its bottom



FGA bellows suction cup (1.5 folds) purchase guide

FGA 11 N G1/8-AG

① ② ③ ④

① Product series	② Size specification	③ Material	④ Joint specification
FGA	11 - Φ 11mm 33 - Φ 33mm 14 - Φ 14mm 43 - Φ 43mm 16 - Φ 16mm 53 - Φ 53mm 20 - Φ 20mm 63 - Φ 63mm 22 - Φ 22mm 78 - Φ 78mm 25 - Φ 25mm	HT1 - High temperature resistant N - nitrile rubber S - silicone rubber	Null - Bare suction cup M5-AG - M5 male thread G1/8-AG - G1/8 male thread G1/8-IG - G1/8 female thread G1/4-AG - G1/4 male thread G1/4-IG - G1/4 female thread

Note: AG=Male thread IG=Female thread

Model specifications of FGA bellows suction cup (1.5 folds)

Model specification	M5-AG	G1/8-AG	G1/8-IG	G1/4-AG	G1/4-IG
FGA 11...	●	●	●	-	-
FGA 14...	●	●	●	-	-
FGA 16...	●	●	●	-	-
FGA 20...	●	●	●	-	-
FGA 22...	●	●	●	-	-
FGA 25...	-	●	●	-	-
FGA 33...	-	-	-	●	●
FGA 43...	-	-	-	●	●
FGA 53...	-	-	-	●	●
FGA 63...	-	-	-	●	●
FGA 78...	-	-	-	●	●

FGA bellows suction cup spare joint model specifications

Fitting Name	Model Specification		Applicable Suction Cup
	AG-Male thread	IG-Female thread	
Suction cup joint	S016 M5-AG		FGA 11 FGA 14 FGA 16 FGA 20 FGA 22
	S016 G1/8-AG	S016 G1/8-IG	FGA 11 FGA 14 FGA 16 FGA 20 FGA 22 FGA 25
	S018 G1/4-AG	S018 G1/4-IG	FGA 33 FGA 43 FGA 53 FGA 63
	S019 G1/4-AG	S019 G1/4-IG	FGA 78

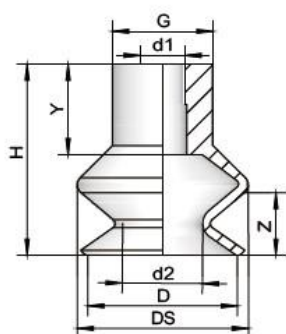


Technical parameters of FGA bellows suction cup (1.5 folds)

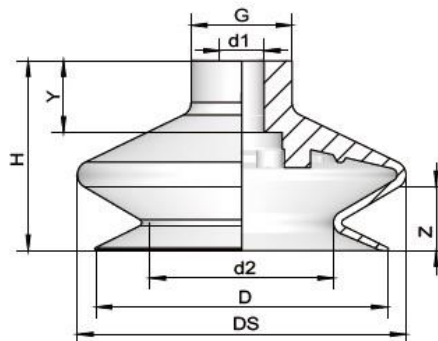
Model	Suction force N	Detaching force N	Internal Volume cm ³	Minimum radius of curvature of workpiece mm (convex)	Joint series
FGA 11...	0,95	3,8	0,225	10	S016
FGA 14...	1,20	5,0	0,420	13	S016
FGA 16...	2,30	6,7	0,750	20	S016
FGA 20...	4,70	10,7	1,150	30	S016
FGA 22...	5,70	15,2	1,400	25	S016
FGA 25...	5,30	17,3	3,150	20	S016
FGA 33...	13,60	39,6	4,750	40	S018
FGA 43...	22,80	64,5	9,250	60	S018
FGA 53...	51,30	95,0	26,250	75	S018
FGA 63...	85,00	135,0	39,000	75	S018
FGA 78...	137,40	218,0	76,000	70	S019

Spare FGA suction cup pad design parameters

FGA 11 to 25



FGA 33 to 78



Model	Size (mm)							
	D	DS	d1	d2	H	Y	Z	G
FGA 11	10.4	12.0	4.5	5.1	16.0	9.3	4	10
FGA 14	12.8	13.7	4.5	5.0	15.5	8.5	5	10
FGA 16	15.6	17.0	4.5	8.4	19.2	9.3	7	10
FGA 20	18.1	19.9	4.5	11.0	15.2	8.7	5	10
FGA 22	21.5	24.2	4.5	11.7	19.0	9.1	6	10
FGA 25	22.5	25.0	4.5	9.9	23.0	8.9	9	10
FGA 33	30.0	36.0	8.0	17.0	27.0	14.0	9	18
FGA 43	38.0	45.9	8.0	21.9	27.6	17.1	10	18
FGA 53	50.0	58.6	8.0	33.0	34.0	19.0	12	18
FGA 63	60.0	67.0	8.0	44.5	34.0	18.8	14	18
FGA 78	74.0	83.0	11.8	54.0	47.0	31.4	14	25

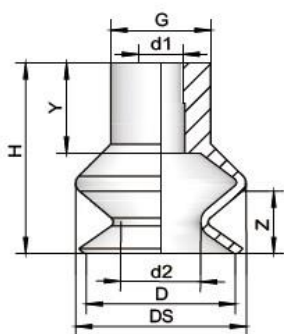


Technical parameters of FGA bellows suction cup (1.5 folds)

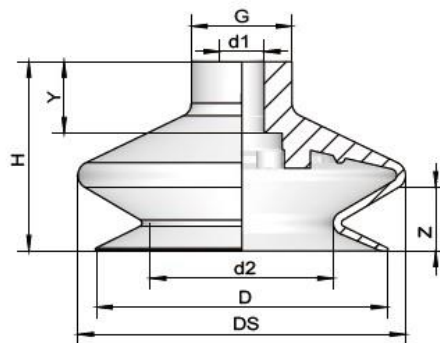
Model	Suction force N	Detaching force N	Internal Volume cm ³	Minimum radius of curvature of workpiece mm (convex)	Joint series
FGA 11...	0.95	3.8	0.225	10	S016
FGA 14...	1.20	5.0	0.420	13	S016
FGA 16...	2.30	6.7	0.750	20	S016
FGA 20...	4.70	10.7	1.150	30	S016
FGA 22...	5.70	15.2	1.400	25	S016
FGA 25...	5.30	17.3	3.150	20	S016
FGA 33...	13.60	39.6	4.750	40	S018
FGA 43...	22.80	64.5	9.250	60	S018
FGA 53...	51.30	95.0	26.250	75	S018
FGA 63...	85.00	135.0	39.000	75	S018
FGA 78...	137.40	218.0	76.000	70	S019

Spare FGA suction cup pad design parameters

FGA 11 to 25



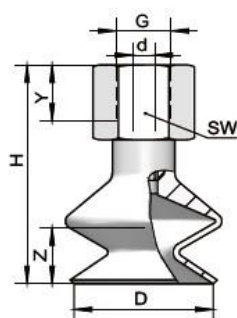
FGA 33 to 78



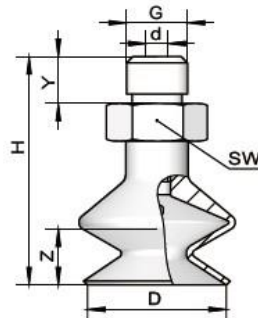
Model	Size (mm)							
	D	DS	d1	d2	H	Y	Z	G
FGA 11	10.4	12.0	4.5	5.1	16.0	9.3	4	10
FGA 14	12.8	13.7	4.5	5.0	15.5	8.5	5	10
FGA 16	15.6	17.0	4.5	8.4	19.2	9.3	7	10
FGA 20	18.1	19.9	4.5	11.0	15.2	8.7	5	10
FGA 22	21.5	24.2	4.5	11.7	19.0	9.1	6	10
FGA 25	22.5	25.0	4.5	9.9	23.0	8.9	9	10
FGA 33	30.0	36.0	8.0	17.0	27.0	14.0	9	18
FGA 43	38.0	45.9	8.0	21.9	27.6	17.1	10	18
FGA 53	50.0	58.6	8.0	33.0	34.0	19.0	12	18
FGA 63	60.0	67.0	8.0	44.5	34.0	18.8	14	18
FGA 78	74.0	83.0	11.8	54.0	47.0	31.4	14	25

 Spare FGA suction cup pad design parameters

FGA 11 to 78 IG



FGA 11 to 78 AG



Model	Size (mm)						
	D	d	H	Y	Z	SW	G
FGA 11 G1/8-IG	10.4	3.5	28	8.0	4	14	G1/8-IG
FGA 11 G1/8-AG	10.4	3.5	29.5	7.5	4	14	G1/8-AG
FGA 11 M5-AG	10.4	2.5	26.0	5	4	7	M5-AG
FGA 14 G1/8-IG	12.8	3.5	27.5	8.0	5	14	G1/8-IG
FGA 14 G1/8-AG	12.8	3.5	29.0	7.5	5	14	G1/8-AG
FGA 14 M5-AG	12.8	2.5	25.5	5	5	7	M5-AG
FGA16 G1/8-IG	15.6	3.5	31.2	8.0	7	14	G1/8-IG
FGA16 G1/8-AG	15.6	3.5	32.7	7.5	7	14	G1/8-AG
FGA16 M5-AG	15.6	2.5	29.2	5	7	7	M5-AG
FGA 20 G1/8-IG	18.1	3.5	27.2	8.0	5	14	G1/8-IG
FGA 20 G1/8-AG	18.1	3.5	28.7	7.5	5	14	G1/8-AG
FGA 20 M5-AG	18.1	2.5	25.2	5	5	7	M5-AG
FGA 22 G1/8-IG	21.5	3.5	31.0	8.0	6	14	G1/8-IG
FGA 22 G1/8-AG	21.5	3.5	32.5	7.5	6	14	G1/8-AG
FGA 22 M5-AG	21.5	2.5	29.0	5	6	7	M5-AG
FGA 25 G1/8-IG	22.5	3.5	35.0	8.0	9	14	G1/8-IG
FGA 25 G1/8-AG	22.5	3.5	36.5	7.5	9	14	G1/8-AG
FGA 33 G1/4-IG	30.0	4.4	42.0	12.0	9	17	G1/4-IG
FGA 33 G1/4-AG	30.0	4.4	42.0	11.0	9	17	G1/4-AG
FGA 43 G1/4-IG	38.0	4.4	42.6	12.0	10	17	G1/4-IG
FGA 43 G1/4-AG	38.0	4.4	42.6	11.0	10	17	G1/4-AG
FGA 53 G1/4-IG	50.0	4.4	49.0	12.0	12	17	G1/4-IG
FGA 53 G1/4-AG	50.0	4.4	49.0	11.0	12	17	G1/4-AG
FGA 63 G1/4-IG	60.0	4.4	49.0	12.0	14	17	G1/4-IG
FGA 63 G1/4-AG	60.0	4.4	49.0	11.0	14	17	G1/4-AG
FGA 78 G1/4-IG	74.0	8.2	62.0	12.0	14	21	G1/4-IG
FGA 78 G1/4-AG	74.0	8.2	64.0	11.0	14	21	G1/4-AG