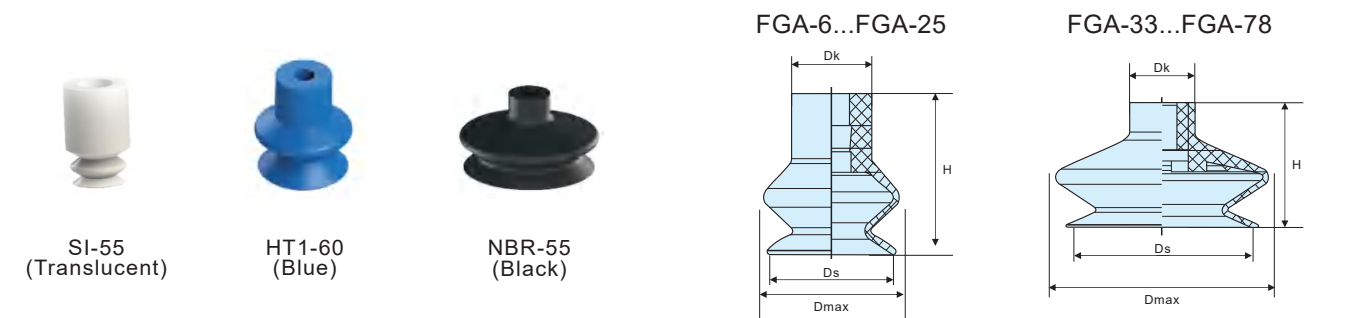


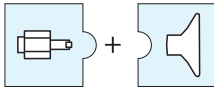
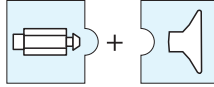
Vacuum Cups FGA Series(Bellows type/2 layers)



Model	Suction force (N) ⁽¹⁾	Pull-off force (N) ⁽¹⁾⁽²⁾	Recommended Vacuum Tubes Inner Diameter(mm)	Dk (mm)	Dmax(S) (mm)	Ds (mm)	H (mm)	NBR-55 (Black)	SI-55 (Translucent)	HT1-60 (Blue)	Weight
FGA-6-...	0.4	1.4	4	7	8.0	5.7	9.0	1.Y12937	1.Y12949	1.Y12951	1g
FGA-11-...	0.95	3.8	4	10	13.0	10.4	16.0	1.Y12938	1.Y12288	1.Y12298	1g
FGA-14-...	1.2	5.0	4	10	14.5	12.5	15.5	1.Y12939	1.Y12289	1.Y12299	1g
FGA-16-...	2.3	6.7	4	10	18.5	15.6	19.2	1.Y12940	1.Y12290	1.Y12300	1g
FGA-20-...	4.7	10.7	4	10	21.0	18.1	15.2	1.Y12941	1.Y12291	1.Y12301	2g
FGA-22-...	5.7	15.2	4	10	25.0	21.5	19.0	1.Y12942	1.Y12292	1.Y12302	2g
FGA-25-...	5.3	17.3	4	10	26.5	22.5	23.0	1.Y12943	1.Y12293	1.Y12303	3g
FGA-33-...	13.6	39.6	6	18	38.0	30.0	27.0	1.Y12944	1.Y12294	1.Y12304	7g
FGA-43-...	22.8	64.5	6	18	47.5	38.0	27.6	1.Y12945	1.Y12295	1.Y12305	11g
FGA-53-...	51.3	95.0	6	18	60.0	50.0	34.0	1.Y12946	1.Y12296	1.Y12306	19g
FGA-63-...	85.0	135.0	6	18	68.0	60.0	34.0	1.Y12947	1.Y12297	1.Y12307	24g
FGA-78-...	137.4	218.0	6	25	84.5	74.0	47.0	1.Y12948	1.Y12950	1.Y12952	56g

(1) The suction specified above is the theoretical value when the vacuum degree is -0.6bar. For smooth and dry workpieces, the safety factor is not included.

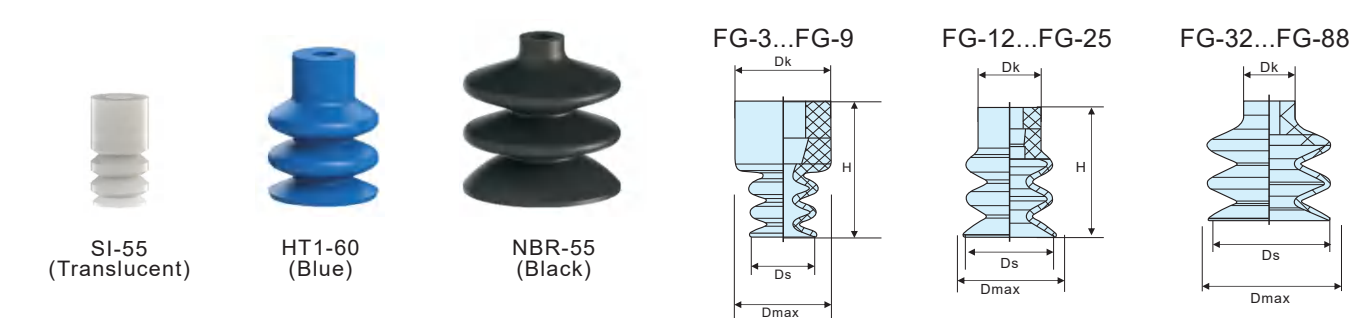
(2) The pull-off force of the vacuum cup made of natural rubber is reduced by about 40%.

Vacuum Cup Fitting		Vacuum Cups	
	Factory-cripped fitting		Hollow shaft fitting
VM21-M5		FGA-6	
VM18-M5,VM02-G18		FGA-11~FGA-25	
VM24-G18,VM42-G14		FGA-33~FGA-63	
VM41-G14		FGA-78	

Technical Parameters

Materials	Shore Hardness	A Flexibility	Abrasion resistance	UV & weather resistance	Oil resistance	Heat resistance (in °C)	
SI-55: Translucent Silicone	50	+++	-	-	-	-40 to 220	Translucent
HT1-60: Siton [®] Specialized composites (non-marking)	60	+	++	-	++	-25 to 170	Blue
NBR-55: Nitrile Nitrile rubber	60	+	+	-	++	-30 to 120	Black

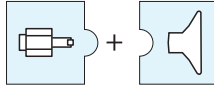
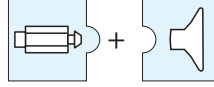
Vacuum Cups FG Series(Bellows type/3 layers)



Model	Suction force (N) ⁽¹⁾	Pull-off force (N) ⁽¹⁾⁽²⁾	Recommended Vacuum Tubes Inner Diameter(mm)	Dk (mm)	Dmax(S) (mm)	Ds (mm)	H (mm)	NBR-55 (Black)	SI-55 (Translucent)	HT1-60 (Blue)	Weight
FG-3-...	0.2	0.4	2	4	4.0	3.0	6.7	1.Y12929	1.Y12931	1.Y12934	1g
FG-4-...	0.3	0.6	2	7	7.0	3.8	14.0	1.Y12930	1.Y12932	1.Y12935	1g
FG-5-...	0.2	0.8	2	7	7.0	5.0	14.0	1.Y12308	1.Y12319	1.Y12331	1g
FG-7-...	0.1	0.9	4	9	9.0	5.9	14.0	1.Y12309	1.Y12320	1.Y12332	1g
FG-9-...	0.7	2.3	4	9	9.5	9.0	15.0	1.Y12310	1.Y12321	1.Y12333	1g
FG-12-...	0.9	3.5	4	10	13.0	12.0	21.0	1.Y12311	1.Y12322	1.Y12334	1g
FG-14-...	1.2	5.7	4	10	15.5	14.5	22.8	1.Y12312	1.Y12323	1.Y12335	2g
FG-18-...	2.3	8.5	4	10	19.0	17.2	22.6	1.Y12313	1.Y12324	1.Y12336	2g
FG-20-...	3.8	12.1	4	10	21.0	20.0	22.1	1.Y12314	1.Y12325	1.Y12337	2g
FG-25-...	4.5	19.0	4	10	26.0	23.0	34.0	1.Y12315	1.Y12326	1.Y12338	4g
FG-32-...	12.0	36.9	6	18	33.5	32.0	37.5	1.Y12284	1.Y12327	1.Y11797	10g
FG-42-...	13.6	44.0	6	18	45.0	42.6	46.0	1.Y12316	1.Y12328	1.Y12340	18g
FG-52-...	27.0	96.0	6	18	55.0	52.5	48.7	1.Y12317	1.Y12329	1.Y12341	24g
FG-62-...	39.6	137.0	6	18	65.0	62.2	54.0	1.Y12318	1.Y12330	1.Y12342	39g
FG-88-...	45.2	286.0	9	25	95.5	89.0	86.5	1.Y12928	1.Y12933	1.Y12936	166g

(1) The suction specified above is the theoretical value when the vacuum degree is -0.6bar. For smooth and dry workpieces, the safety factor is not included.

(2) The pull-off force of the vacuum cup made of natural rubber is reduced by about 40%.

Vacuum Cup Fitting		Vacuum Cups	
	Factory-cripped fitting		Hollow shaft fitting
VM14-M5		FG-3	
VM21-M5		FG-4~FG-5	
VM39-M5,VM40-G18		FG-7~FG-25	
VM24-G18		FG-32~FG-62	
VM41-G14		FG-88	

Technical Parameters

Materials	Shore Hardness	A Flexibility	Abrasion resistance	UV & weather resistance	Oil resistance	Heat resistance (in °C)	
SI-55: Translucent Silicone	50	+++	-	-	-	-40 to 220	Translucent
HT1-60: Siton [®] Specialized composites (non-marking)	60	+	++	-	++	-25 to 170	Blue
NBR-55: Nitrile Nitrile rubber	60	+	+	-	++	-30 to 120	Black