

VACUUM TECHNOLOGY-I
General vacuum



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VMECA™
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Specializing in
Vacuum products since 1991

VMECA headquarter / R&D center



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INNOVATIVE IN VACUUM TECHNOLOGY



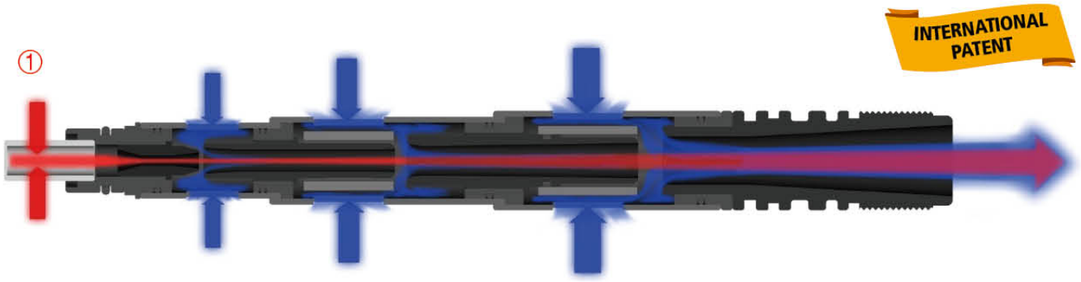
- ● **VACUUM TECHNOLOGY - Ⅰ** General vacuum
- ○ **VACUUM TECHNOLOGY - Ⅱ** Automobile vacuum
- ○ **VACUUM TECHNOLOGY - Ⅲ** Magic Gripper
- ○ **VACUUM TECHNOLOGY - Ⅳ** Vacuum conveyor

※ **VACUUM TECHNOLOGY - Ⅱ, Ⅲ and Ⅳ are required to contact VMECA.**

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VMECA vacuum principle



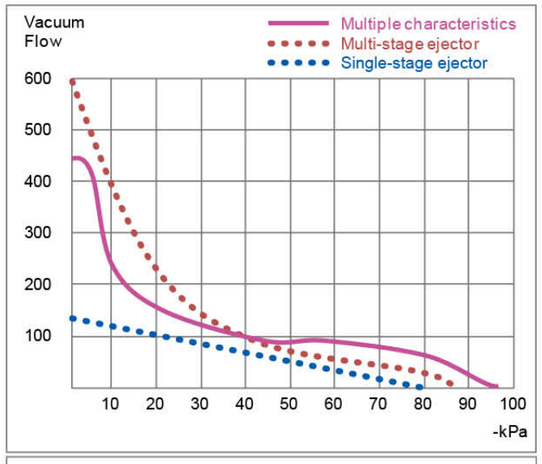
Vacuum is created with an air-jet system when ①compressed air (1.7 ~ 6bar) passes at high speed
through the pump nozzles.

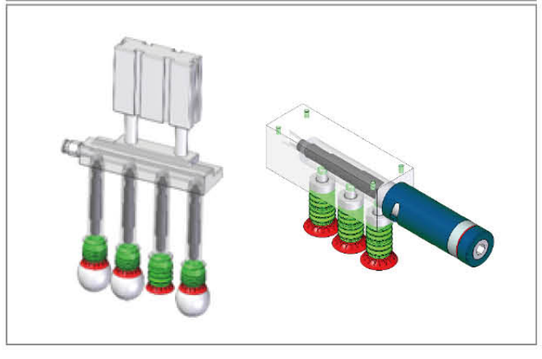
VMECA vacuum cartridge is a new and innovative Multistage vacuum pump.
- It is extremely compact in size and very light weight.
- It is “engineering and design friendly” making it easy to create a vacuum pump and system for a specific application or machine.

The VMECA vacuum cartridge provides a high vacuum flow rate (3times higher) and an extremely quick response
time (about 1.5times faster) compared to typical and conventional ejectors.

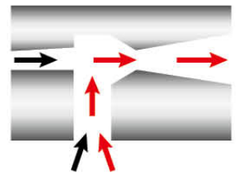
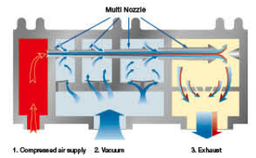
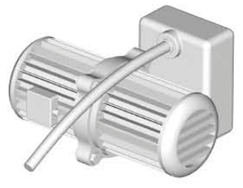
The VMECA vacuum cartridge operates using compressed air at a pressure of 1.7 ~ 6bar and maintains vacuum despite fluctuations and drops in air pressure.

The VMECA vacuum cartridge design allows the pump to be located near or at the point of use reducing system volume, increasing speed and reducing
cycle time. Reduced system volume means fewer connections, fewer potential leaks, and less air to evacuate allowing for an incrementally smaller pump using less compressed air.





VMECA vacuum principle

Specification			Advantages	Disadvantages
	Compressed air driven pumps	Single stage	· Low-priced · Compact size and light weight · No heat emission	· Low vacuum flow · High energy consumption · Weak from dust
		Multi stage	· Good efficiency · Low air consumption · High vacuum flow · Compact size and light weight · No heat emission	
		Multi stage VMECA Cartridge	· Excellent efficiency · Low air consumption · Reliable in fluctuation or drop of compressed-air pressure · Compact size and light weight · No heat emission · Low noise level · Easy to clean and maintenance · Strong in chemical environment · Long life span	
	Electronic motor pumps	Rotary vane pump	· High vacuum or high flow	· Frequent service required · High cost for maintenance · Heat emission · Big size and heavy weight · High noise level · Weak from dust and chemical environment

VMECA vacuum principle

1. Pressure conversion table

	Pa(N/m2)	bar	Kg/cm2	Torr	psi(lbf/in2)	kPa	inHg
1 Pa	1	0.00001	10.1972x10X10-5	75.0062X10-3	0.145038X10-3	0.001	0.3X10-3
1 kPa	1000	0.1	10.1972X10-3	7.50062	0.145038	1	0.3
1 bar	100000	1	1.01972	750.062	14.5038	100	30
1 kg/cm²	98066.5	0.980665	1	735.559	14.2233	98.0665	29.42
1 Torr	133.322	1.33322X10-3	1.35951X10-3	1	19.3368X10-3	0.133322	0.04
1 Psi	6894.76	68.9476XX10-3	70.3069X10-3	51.7149	1	6.89476	2.07

1 Torr = 1mmHg(0 °C) 1mm column of water = 9.81 Pa

2. Vacuum comparison table (Pressure below atmospheric)

	mbar	kPa	-kPa	%vacuum	Torr	-mmHg	-inHg
Values at sea level	1013	101.3	0	0	760	0	0
	913	913.3	10	9.9	685	75	3
	813	81.3	20	19.7	610	150	6
	713	71.3	30	29.6	535	225	9
	613	61.3	40	39.5	460	300	12
	513	51.3	50	49.3	385	375	15
	413	41..3	60	59.2	310	450	18
	313	31.3	70	69.1	235	525	21
	213	21.3	80	79	160	600	24
	113	11.3	90	89	85	675	27
Absolute vacuum	0	0	101.3	100	0	760	30

3. Pressure comparison table (Pressure above atmospheric)

kPa	bar	psi(lbf/in2)	At(kg/cm2)
1013	10.13	146.9	10.3
1000	10	145	10.2
900	9	130.5	9.2
800	8	116	8.2
700	7	101.5	7.1
600	6	87	6.1
500	5	72.5	5.1
400	4	58	4.1
300	3	43.5	3.1
200	2	29	2
100	1	14.5	1
0	0	0	0

VMECA vacuum principle

4. Flow rate comparison tables

Flow : Volume per unit of time
Quantity designations : Q,q(Q)=V/t(volume/time)
SI-unit : cubic meters per second (m3/s)
Common multiple units : liter/min, liter/s, liter/h

	m3/s	m3/h	l / min	l / s	ft3 / min(scfm)
1m3/s	1	3600	60000	1000	2118.9
1m3/h	0.28X10-3	1	16.6667	0.2778	0.5885
1 l/min	16.67X10-6	3.6	60	1	2.1189
1 l/s	1X10-3	3.6	60	1	2.1189
1 ft3/min	0.472X10-3	1.6992	28.32	0.4720	1

Flow comparison table

l / s	m3/min	m3/h	scfm	l / min
1	0.06	3.60	2.12	60
2	0.12	7.20	4.24	120
3	0.18	10.80	6.36	180
4	0.24	14.40	8.47	240
5	0.30	18.00	10.59	300
6	0.36	21.60	12.71	360
7	0.42	25.20	14.83	420
8	0.48	28.80	16.95	480
9	0.54	32.40	19.07	540
10	0.60	36.00	21.19	600
11	0.66	39.60	23.30	660
12	0.72	43.20	25.42	720
13	0.78	46.80	27.54	780
14	0.84	50.40	29.66	840
15	0.90	54.00	31.78	900
16	0.96	57.60	33.90	960
17	1.02	61.20	36.02	1020
18	1.08	64.80	38.13	1080
19	1.14	68.40	40.25	1140
20	1.20	72.00	42.37	1200
25	1.50	90.00	52.97	1500
30	1.80	108.00	63.56	1800
35	2.10	126.00	74.15	2100
40	2.40	144.00	84.74	2400
45	2.70	162.00	95.34	2700
50	3.00	180.00	105.93	3000

VMECA vacuum principle

ISO THREAD:
Cylindrical metric thread: designated with the letter M. Example M5.
Cylindrical inch thread (also called Unified thread): designated with the letter UNF Example 10-32UNF.

DRY SEAL THREAD (AMERICAN SYSTEM OF PIPE THREADS):
The dry seal system consists of cylindrical and conical pipe-threads. The threads have a 60° profile angle and are scaled without packing or seal rings (Please note that when these are used in other combination of thread systems, that “sealing” is not applicable). The dimensions are given in inches and VMECA’s catalogue uses the letters NPT and NPSF:

Conical thread is designated NPT. Example: 1/8”NPT
Cylindrical thread is designated with the letters NPSF. Example : 1/8” NPSF

BSP THREAD (BRITISH SYSTEM OF PIPE THREADS):
The threads have 55° profile angle and are dimensioned in inches.
Cylindrical thread is designated with the letter G. Example: G1/8”.

COMPATIBILTIY OF DIFFERENT THREAD SYSTEMS:
Please note that some thread size in different thread systems not always fit. See below table.

	M5 male	M5 female	G1/8” male	G1/8” female	G1/4” male	G1/4” female	G3/8” male	G3/8” female	G1/2” male	G1/2” female	G3/4” male	G3/4” female	G1” male	G1” female	G2” male
10-32UNF fem. Or male	+	+++													
1/8"NPSF female			+++												
1/8"NPT fem. or male			-	+											
1/4"NPSF Female					+										
1/4"NPT fem. or male					-	-									
3/8"NPSF fem.							-								
3/8"NPT fem. or male							-	-							
1/2"NPSF Female									+						
1/2"NPT fem. Or male									-	+++					
3/4"NPSF Female											+				
3/4"NPT fem. Or male											-	+++			
1"NPT fem. or male													-	-	
2"NPT fem. or male															-

Vacuum equipment / Common precautions

Selection & Design

Warning

- **Safe designs should be developed, which accounts for the possibility of accidents resulting from a drop in vacuum pressure due to power failure or trouble with the air supply, etc.**
  If vacuum pressure drops and there is a loss of vacuum pad adsorption force, work places being carried may fall, causing human injury or damage to machinery, Safety measures should be implemented such as the installation of drop prevention guides.

- **Follow vacuum specifications for vacuum switching valves and vacuum breakers.**
  If valves are installed in vacuum piping which do not follow vacuum specifications, vacuum leakage will occur, be certain to use vacuum specification valves.

- **Select vacuum pumps which have a suitable suction flow rate. <When there is a vacuum leak from the work piece or the piping>**
  If the vacuum pump suction flow rate is too low, this will cause poor adsorption.
  <When piping is long or large diameter>
  The adsorption response time will increase due to the increased volume of the piping. Select vacuum pumps with a suitable suction flow rate by referring to their technical data.

- **If the suction flow rate is too high, setting of vacuum switches will become difficult.**
  In the case of adsorbing a small work piece of only a few millimeters, if an vacuum pump is selected which has a high suction flow rate, the pressure difference when adsorbing and releasing the work piece is small, and sometimes setting of the vacuum switch becomes difficult. Therefore, an appropriate vacuum pump should be selected.

- **When two or more pads are piped to one vacuum pump, if one pad releases its work piece, the other pads will also release.**
  When one pad is removed from its work piece, there is a drop in vacuum pressure which causes the other pads to release their work pieces also.

- **Use piping with an adequate effective sectional area.**
  Select piping for the vacuum side which has an adequate effective sectional area, so that the vacuum pumps maximum suction flow rate can be accommodated by the piping. Also, make sure that there are no unnecessary restrictions or leaks, etc., along the course of the piping. The piping on the air supply side must be designed so that if corresponds to each vacuum pumps air consumption. The effective sectional area of tubing, fittings and valves, etc., should be sufficiently large, and the pressure drop reaching the vacuum pump should be kept to a minimum. Furthermore, design of the air supply should be performed while taking into consideration the vacuum pump maximum air consumption and the air consumption of other pneumatic circuits.

Caution

- **For information on related items, such as directional control equipment and drive equipment, refer to the caution sections in each respective catalog.**

Mounting

Warning

- **Do not obstruct the exhaust port of the Vacuum pump.**
  If the exhaust port is obstructed when mounted, a vacuum will not be generated.

Piping

Caution

- **Avoid disorganized piping.**
  Piping which is direct and of the shortest possible length should be used for both the vacuum and supply sides, and disorganized piping should be avoided. Unnecessary length increases the piping volume, and thus increases the response time.

- **Use piping with a large effective sectional area on the exhaust side of the vacuum pump.**
  If the exhaust piping is restrictive, there will be a decline in the vacuum pump’s performance.

- **Make sure that there are no crushed areas in the piping due to damage or bending.**

Operating Environment

Warning

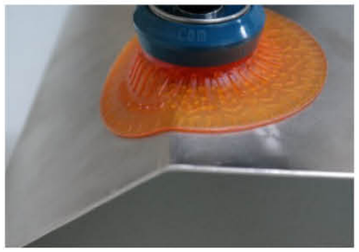
- **Do not operate in atmospheres of corrosive gases, chemicals, sea water, water or steam.**
- **Do not operate in explosive areas.**
- **Do not operate in locations where vibration or impact occurs.**
- **Confirm the specifications for each series.**
- **In locations which receive direct sunlight, provide a protective cover, etc.**
- **In locations near heat sources, protect against radiated heat. In locations where there is contact with spatter from water, oil or solder, etc., implement suitable protective measures.**
- **In cases where the vacuum unit is surrounded by other equipment, etc., or the unit is energized for an extended time, implement measures to exhaust excess heat, so that temperatures remain within the range of the vacuum unit’s specifications.**

Operating Environment

Warning

- **Clean suction filters on a regular basis. (Refer to specifications.)**
  The performance of vacuum pumps will deteriorate due to clogging in filters. Large flow filters should be used, especially in dusty locations.

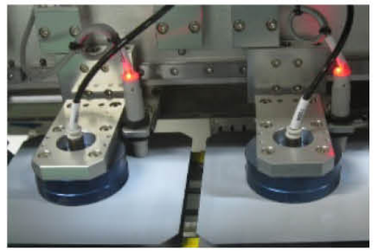
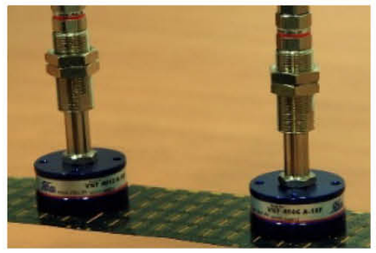
Applications






Automobile

VMECA already has supplied high quality vacuum products for all automobile sessions such as press, body, assembly and plastic injection line according to the application and it has contributed much more beneficial production line by increasing productivity, but reducing downtime. It means the customer can save the cost for labor and energy consumption - Air saving technology is one of the key to save energy.

Semicon – Solar

VMECA special product for semincon / solar industries guarantee safety during handling your product in the gentle and precise way. It can make the process faster as well as more reliable.

Packaging

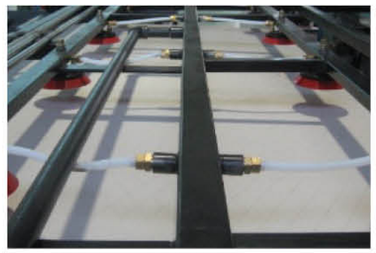
Following the trends which has been getting faster and faster in operation, VMECA vacuum products can provide the best solution for all lines in packaging industry. Also our patented technology offers to increase productivity, but make the maintenance much less than other competitors.

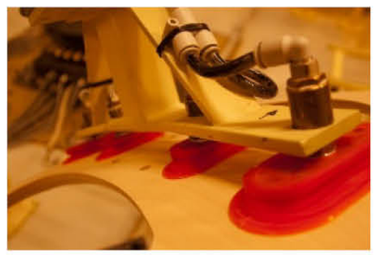





Wooden

VMECA vacuum pumps which has auto-filter cleaning system can provide the ideal solution to customers who has problem from dust like wooden sheet. Suction cups which has high quality and long-life time can shorten the downtime.








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SUCTION CUPS

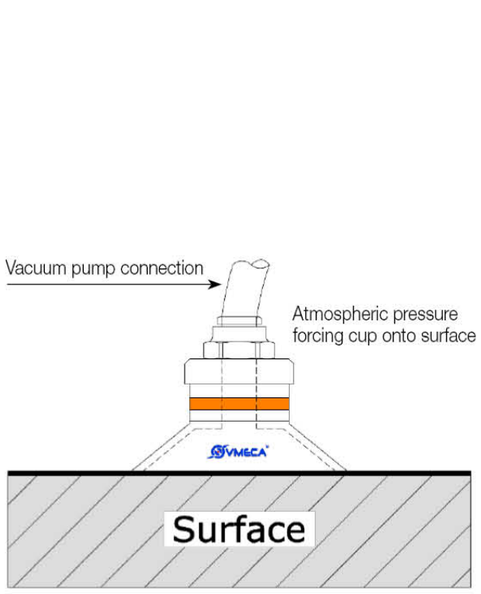
The principle of suction cup

Material handling with suction cup is very simple and reliable with low cost. It is therefore a worth solution before considering more complicated handling techniques.
Suction cups can lift and hold objects from a few grams up to several kg.

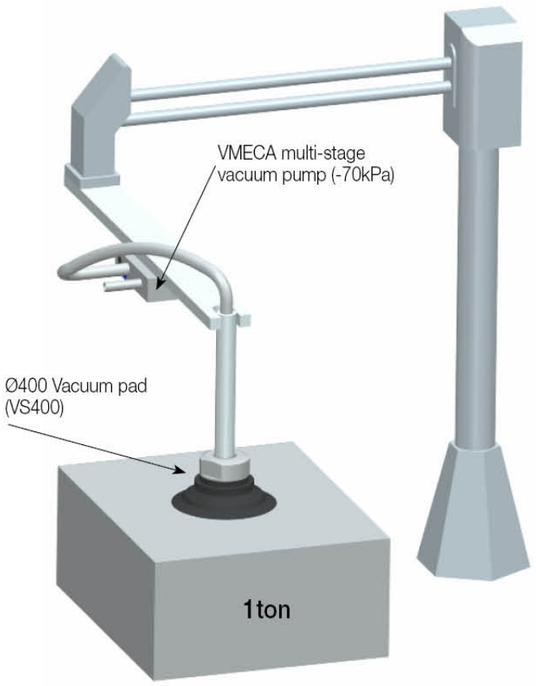
Features

- ✓ Easy installation
- ✓ Low service requirement
- ✓ Low price
- ✓ Does not damage the goods
- ✓ Fast attachment and detachment

Why does a suction cup suck onto the surface it is placed on? It is quite simple and is all to do with atmospheric pressure. Atmospheric pressure can generally be defined as the weight of the air above us on earth. When a lower pressure is created (vacuum) than atmospheric pressure (1 bar), forces are produced; these forces are required to enable suction cups to work. As a vacuum is drawn through the cup, the atmospheric pressure outside the cup is greater than that inside the cup, thus creating a holding force between the cup and the surface, the larger the cup and deeper the vacuum then the greater the holding force.



How a suction cup works

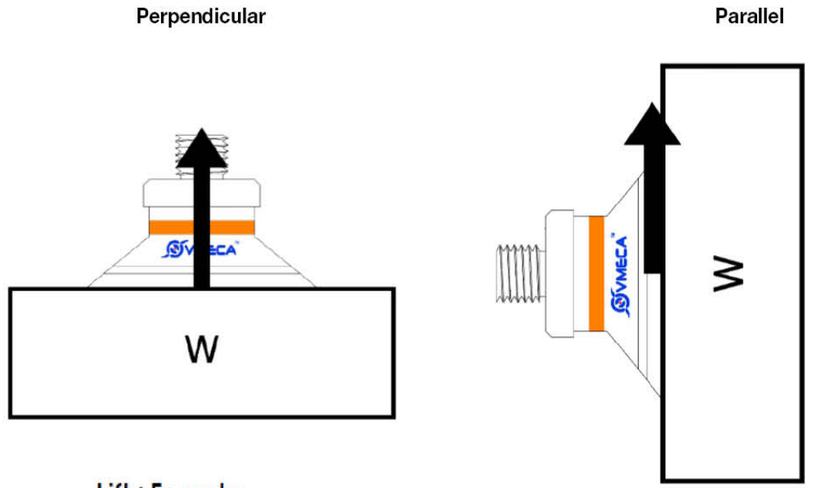


Weights that can be lifted with suction cup

How to select suction cup

$$D = 113 \times \sqrt{\frac{m \times n}{U \times s}}$$

D: Suction cup diameter (mm)
m: Mass to life (kg)
u: Vacuum level (-kPa)
n: Safety factor
s: The number of suction cup



Lift : Formula

W : Lifting force (N)
P : Vacuum level (-kPa)
S : Size of suction cup (cm^2)
n : Safety factor { Perpendicular : insert 2 or 3
Parallel : 3 insert or 4

$$W = P \times S \times 0.1 \times \frac{1}{n}$$

Index



Magic suction cup Page 12

· Configurable suction cup
· Diameter range: Ø15 ~ 85
· Material selection: NBR, Silicone, Urethane, Polyurethane



VB series Page 14

· Single-bellow suction cup
· Diameter range: Ø5 ~ 150
· Material selection: NBR, Silicone, Conductive silicone, Urethane, Polyurethane



VB-M Series (Direct fitting bellows) Page 50

· Single-bellow suction cup for direct fitting
· Diameter range: Ø20 ~ 50
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VBL series Page 60

· Long multi-bellow suction cup
· Diameter range: Ø15 ~ 50
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VBU series Page 60

· Bellows & Universal suction cup
· Diameter range: Ø35 ~ 55
· Material selection: NBR, Silicone, Polyurethane



VBX series Page 65

· Bellows & Cross groove suction cup
· Diameter range: Ø35 ~ 55
· Material selection: Polyurethane



BL5040 Page 65

· Dual lip structure suction cup
· Diameter range: Ø50
· Material selection: NBR, Silicone



VOBL series Page 14

· Long multi bellows & Oval suction cup
· Diameter range: Ø35x90
· Material selection: NBR, Silicone, Conductive silicone

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VOU series Page 65

· Oval-Universal suction cup
· Diameter range: Ø4x10 ~ Ø20x60
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VU series Page 50

· Universal suction cup
· Diameter range: Ø1.5 ~ 80
· Material selection: NBR, Silicone, Conductive silicone, Urethane



FF series Page 65

· Mark free and flat suction cup
· Diameter range: Ø10 ~ 30
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VD series Page 14

· Deep suction cup
· Diameter range: Ø30 ~ 90
· Material selection: NBR, Silicone, Conductive silicone, Urethane, Polyurethane



VFC series Page 14

· Flat-curved suction cup
· Diameter range: Ø50 ~ 100
· Material selection: NBR, Silicone, Conductive silicone, Urethane, Polyurethane



FCF series Page 50

· Flat-curve suction cup
· Diameter range: Ø30 ~ 125
· Material selection: NBR, Silicone, Polyurethane



VDF series Page 60

· Deep-flat suction cup
· Diameter range: Ø25 ~ 100
· Material selection: Polyurethane



VBF series Page 65

· Bellows-flat suction cup
· Diameter range: Ø25 ~ 100
· Material selection: NBR, Silicone, Polyurethane

SUCTION CUPS

Index



VOBF series

Page 50

· Oval flat bellow suction cup
· Diameter range: Ø30x60 ~ Ø55x100
· Material selection: Polyurethane



VOC series

Page 50

· Oval-Curved suction cup
· Diameter range: Ø11x23 ~ Ø60x180
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VF series

Page 14

· Flat suction cup
· Diameter range: Ø15 ~ 300
· Material selection: NBR, Silicone, Conductive silicone, Urethane, Polyurethane



LF series

Page 50

· Dual lip structure to increase safety caused by lip worn and torn
· Diameter range: Ø150 ~ 300
· Material selection: NBR, Silicone, Conductive silicone, Urethane



VS series

Page 60

· Sponge suction cup
· Diameter range: Ø35 ~ 400
· Material selection: EPDM



KPS series

Page 50

· Customized suction cup
· Diameter range: Ø13 ~ 68
· Material selection: NBR, Silicone, Conductive silicone, Urethane



Level compensator

Page 14

· Compensate different in levels (heights)
· Provides a degree of shock absorption



Ball joint

Page 50

· Reliable and precise pick up position for a degree of angular compliance



Fitting connector

Page 60

· Available for various thread size options according to vertical or horizontal type



Fitting

Page 65

· Various thread fitting available
· Integrated pad fitting options: mesh-filter, efficiency valve and button valve

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-X25	Ø26	2.93	●	●		●	●			0.80	1.79	2.44	-	-	-
B1.5/20-X30	Ø32	4.53	●	●		●	●			1.08	2.13	2.62	-	-	-
B1.5/40-X45	Ø46	17.8	●	●		●	●			2.14	3.57	5.00	-	-	-
B1.5/40-X55	Ø54.5	23.05	●	●		●	●			2.60	5.27	5.92	-	-	-
B1.5/60-X65	Ø65	43	●	●		●	●			4.80	11.50	15.90	-	-	-
B1.5/60-X75	Ø75	62.5	●	●		●	●			5.60	12.30	17.90	-	-	-
B2.5/20-X25	Ø26	5.04	●	●		●	●			0.80	1.79	2.44	-	-	-
B2.5/20-X30	Ø32	6.64	●	●		●	●			1.08	2.13	2.62	-	-	-
B2.5/40-X45	Ø46	25.2	●	●		●	●			2.14	3.57	5.00	-	-	-
B2.5/40-X55	Ø54.5	32.4	●	●		●	●			2.60	5.27	5.92	-	-	-
B2.5/60-X65	Ø65	63.8	●	●		●	●			4.80	11.50	15.90	-	-	-
B2.5/60-X75	Ø75	83.3	●	●		●	●			5.60	12.30	17.90	-	-	-
B4.0/20-X25	Ø26	4.77	●	●		●	●			0.80	1.79	2.44	-	-	-
B4.0/20-X30	Ø32	6.37	●	●		●	●			1.08	2.13	2.62	-	-	-
B4.0/40-X45	Ø46	31	●	●		●	●			2.14	3.57	5.00	-	-	-
B4.0/40-X55	Ø54.5	38.2	●	●		●	●			2.60	5.27	5.92	-	-	-
B5.0/20-X25	Ø26	5.93	●	●		●	●			0.80	1.79	2.44	-	-	-
B5.0/20-X30	Ø32	7.53	●	●		●	●			1.08	2.13	2.62	-	-	-
B5.0/40-X45	Ø46	37.8	●	●		●	●			2.14	3.57	5.00	-	-	-
B5.0/40-X55	Ø54.5	45.0	●	●		●	●			2.60	5.27	5.92	-	-	-
B5.0/60-X65	Ø65	104.8	●	●		●	●			4.80	11.50	15.90	-	-	-
B5.0/60-X75	Ø75	124.3	●	●		●	●			5.60	12.30	17.90	-	-	-
B6.0/20-X25	Ø26	8.02	●	●		●	●			0.80	1.79	2.44	-	-	-
B6.0/20-X30	Ø32	9.62	●	●		●	●			1.08	2.13	2.62	-	-	-
B6.0/40-X45	Ø46	45.1	●	●		●	●			2.14	3.57	5.00	-	-	-
B6.0/40-X55	Ø54.5	52.3	●	●		●	●			2.60	5.27	5.92	-	-	-
B6.0/60-X65	Ø65	126.6	●	●		●	●			4.80	11.50	15.90	-	-	-
B6.0/60-X75	Ø75	146.1	●	●		●	●			5.60	12.30	17.90	-	-	-
B1.5/20-U25	Ø26	1.83	●	●		●	●			0.83	2.20	3.06	-	-	-
B1.5/20-U30	Ø33	2.63	●	●		●	●			1.22	2.45	3.06	-	-	-
B1.5/40-U45	Ø47	12.1	●	●		●	●			2.55	5.66	9.18	-	-	-
B1.5/40-U55	Ø55	17	●	●		●	●			3.78	7.09	9.56	-	-	-
B1.5/60-U65	Ø65	28.8	●	●		●	●			5.30	13.30	19.40	-	-	-
B1.5/60-U75	Ø75	40.4	●	●		●	●			6.60	15.00	20.50	-	-	-
B2.5/20-U25	Ø26	3.94	●	●		●	●			0.83	2.20	3.06	-	-	-
B2.5/20-U30	Ø33	4.74	●	●		●	●			1.22	2.45	3.06	-	-	-
B2.5/40-U45	Ø47	19.5	●	●		●	●			2.55	5.66	9.18	-	-	-
B2.5/40-U55	Ø55	24.4	●	●		●	●			3.78	7.09	9.56	-	-	-
B2.5/60-U65	Ø65	49.6	●	●		●	●			5.30	13.30	19.40	-	-	-
B2.5/60-U75	Ø75	61.2	●	●		●	●			6.60	15.00	20.50	-	-	-
B4.0/20-U25	Ø26	3.67	●	●		●	●			0.83	2.20	3.06	-	-	-
B4.0/20-U30	Ø33	4.47	●	●		●	●			1.22	2.45	3.06	-	-	-
B4.0/40-U45	Ø47	25.3	●	●		●	●			2.55	5.66	9.18	-	-	-
B4.0/40-U55	Ø55	30.2	●	●		●	●			3.78	7.09	9.56	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
B5.0/20-U25	Ø26	4.83	●	●		●	●			0.83	2.20	3.06	-	-	-
B5.0/20-U30	Ø33	5.63	●	●		●	●			1.22	2.45	3.06	-	-	-
B5.0/40-U45	Ø47	32.1	●	●		●	●			2.55	5.66	9.18	-	-	-
B5.0/40-U55	Ø55	37	●	●		●	●			3.78	7.09	9.56	-	-	-
B5.0/60-U65	Ø65	49.6	●	●		●	●			5.30	13.30	19.40	-	-	-
B5.0/60-U75	Ø75	61.2	●	●		●	●			6.60	15.00	20.50	-	-	-
B6.0/20-U25	Ø26	6.92	●	●		●	●			0.83	2.20	3.06	-	-	-
B6.0/20-U30	Ø33	7.72	●	●		●	●			1.22	2.45	3.06	-	-	-
B6.0/40-U45	Ø47	39.4	●	●		●	●			2.55	5.66	9.18	-	-	-
B6.0/40-U55	Ø55	44.3	●	●		●	●			3.78	7.09	9.56	-	-	-
B6.0/60-U65	Ø65	126.6	●	●		●	●			5.30	13.30	19.40	-	-	-
B6.0/60-U75	Ø75	146.1	●	●		●	●			6.60	15.00	20.50	-	-	-
B1.5/20-F25	Ø26	1.53					●			1.4	2.9	3.7	-	-	-
B1.5/20-F30	Ø33	2.03					●			1.9	3.8	4.3	-	-	-
B1.5/40-F45	Ø47	10.9					●			3.4	8	9.3	-	-	-
B1.5/40-F55	Ø55	11.7					●			4.4	9.9	11.9	-	-	-
B2.5/20-F25	Ø26	3.64					●			1.4	2.9	3.7	-	-	-
B2.5/20-F30	Ø33	4.14					●			1.9	3.8	4.3	-	-	-
B2.5/40-F45	Ø47	18.3					●			3.4	8	9.3	-	-	-
B2.5/40-F55	Ø55	19.1					●			4.4	9.9	11.9	-	-	-
B4.0/20-F25	Ø26	3.37					●			1.4	2.9	3.7	-	-	-
B4.0/20-F30	Ø33	3.87					●			1.9	3.8	4.3	-	-	-
B4.0/40-F45	Ø47	24.1					●			3.4	8	9.3	-	-	-
B4.0/40-F55	Ø55	24.9					●			4.4	9.9	11.9	-	-	-
B5.0/20-F25	Ø26	4.53					●			1.4	2.9	3.7	-	-	-
B5.0/20-F30	Ø33	5.03					●			1.9	3.8	4.3	-	-	-
B5.0/40-F45	Ø47	30.9					●			3.4	8	9.3	-	-	-
B5.0/40-F55	Ø55	31.7					●			4.4	9.9	11.9	-	-	-
B6.0/20-F25	Ø26	6.62					●			1.4	2.9	3.7	-	-	-
B6.0/20-F30	Ø33	7.12					●			1.9	3.8	4.3	-	-	-
B6.0/40-F45	Ø47	38.2					●			3.4	8	9.3	-	-	-
B6.0/40-F55	Ø55	39.0					●			4.4	9.9	11.9	-	-	-
B1.5/20-P15	Ø15.5	1.43	●	●		●				0.30	0.50	0.60	-	-	-
B1.5/20-P17	Ø17	1.53	●	●		●				0.35	0.60	0.74	-	-	-
B1.5/20-P20	Ø20	1.83	●	●		●				0.40	0.80	0.90	-	-	-
B1.5/20-P27	Ø27	2.73	●	●		●				0.80	1.79	2.44	-	-	-
B1.5/20-P32	Ø34	4.13	●	●		●				1.08	2.13	2.62	-	-	-
B1.5/40-P48	Ø48	14.4	●	●		●				2.14	3.57	5.00	-	-	-
B1.5/40-P60	Ø60	21.5	●	●		●				2.60	5.27	5.92	-	-	-
B1.5/60-P72		36.2											-	-	-
B1.5/60-P85		41.5											-	-	-
B2.5/20-P15	Ø15.5	3.54	●	●		●				0.30	0.50	0.60	-	-	-
B2.5/20-P17	Ø17	3.64	●	●		●				0.35	0.60	0.74	-	-	-
B2.5/20-P20	Ø20	3.94	●	●		●				0.40	0.80	0.90	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
B2.5/20-P27	Ø27	4.84	●	●		●				0.80	1.79	2.44	-	-	-
B2.5/20-P32	Ø34	6.24	●	●		●				1.08	2.13	2.62	-	-	-
B2.5/40-P48	Ø48	21.8	●	●		●				2.14	3.57	5.00	-	-	-
B2.5/40-P60	Ø60	28.9	●	●		●				2.60	5.27	5.92	-	-	-
B2.5/60-P72		38.7											-	-	-
B2.5/60-P85		44.1											-	-	-
B4.0/20-P15	Ø15.5	3.27	●	●		●				0.30	0.50	0.60	-	-	-
B4.0/20-P17	Ø17	3.37	●	●		●				0.35	0.60	0.74	-	-	-
B4.0/20-P20	Ø20	3.67	●	●		●				0.40	0.80	0.90	-	-	-
B4.0/20-P27	Ø27	4.57	●	●		●				0.80	1.79	2.44	-	-	-
B4.0/20-P32	Ø34	5.97	●	●		●				1.08	2.13	2.62	-	-	-
B4.0/40-P48	Ø48	21.8	●	●		●				2.14	3.57	5.00	-	-	-
B4.0/40-P60	Ø60	28.9	●	●		●				2.60	5.27	5.92	-	-	-
B4.0/60-P72	Please contact VMECA for dimensions and technical data.														
B4.0/60-P85	Please contact VMECA for dimensions and technical data.														
B5.0/20-P15	Ø15.5	4.43	●	●		●				0.30	0.50	0.60	-	-	-
B5.0/20-P17	Ø17	4.53	●	●		●				0.35	0.60	0.74	-	-	-
B5.0/20-P20	Ø20	4.83	●	●		●				0.40	0.80	0.90	-	-	-
B5.0/20-P27	Ø27	5.73	●	●		●				0.80	1.79	2.44	-	-	-
B5.0/20-P32	Ø34	7.13	●	●		●				1.08	2.13	2.62	-	-	-
B5.0/40-P48	Ø48	34.4	●	●		●				2.14	3.57	5.00	-	-	-
B5.0/40-P60	Ø60	41.5	●	●		●				2.60	5.27	5.92	-	-	-
B5.0/40-P72		56.5											-	-	-
B5.0/40-P85		61.7											-	-	-
B6.0/20-P15	Ø15.5	6.52	●	●		●				0.30	0.50	0.60	-	-	-
B6.0/20-P17	Ø17	6.62	●	●		●				0.35	0.60	0.74	-	-	-
B6.0/20-P20	Ø20	6.92	●	●		●				0.40	0.80	0.90	-	-	-
B6.0/20-P27	Ø27	7.82	●	●		●				0.80	1.79	2.44	-	-	-
B6.0/20-P32	Ø34	9.22	●	●		●				1.08	2.13	2.62	-	-	-
B6.0/40-P48	Ø48	41.4	●	●		●				2.14	3.57	5.00	-	-	-
B6.0/40-P60	Ø60	48.5	●	●		●				2.60	5.27	5.92	-	-	-
B6.0/40-P72		58.9											-	-	-
B6.0/40-P85		61.7											-	-	-
B1.5/40-DD4030	Ø41/Ø30	17.36	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
B2.5/40-DD4030	Ø41/Ø30	24.76	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
B4.0/40-DD4030	Ø41/Ø30	30.56	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
B5.0/40-DD4030	Ø41/Ø30	37.36	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
B1.5/20-MBU17	Ø17	1.92	●	●		●				0.39	0.57	0.67	-	-	-
B1.5/20-MBU23	Ø23	2.49	●	●		●				0.52	0.79	0.91	-	-	-
B1.5/20-MBU27	Ø27	3.10	●	●		●				0.55	0.94	1.05	-	-	-
B2.5/20-MBU17	Ø17	4.03	●	●		●				0.39	0.57	0.67	-	-	-
B2.5/20-MBU23	Ø23	4.60	●	●		●				0.52	0.79	0.91	-	-	-
B2.5/20-MBU27	Ø27	5.21	●	●		●				0.55	0.94	1.05	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
B4.0/20-MBU17	Ø17	3.76	●	●		●				0.39	0.57	0.67	-	-	-
B4.0/20-MBU23	Ø23	4.33	●	●		●				0.52	0.79	0.91	-	-	-
B4.0/20-MBU27	Ø27	4.94	●	●		●				0.55	0.94	1.05	-	-	-
B5.0/20-MBU17	Ø17	4.92	●	●		●				0.39	0.57	0.67	-	-	-
B5.0/20-MBU23	Ø23	5.49	●	●		●				0.52	0.79	0.91	-	-	-
B5.0/20-MBU27	Ø27	6.10	●	●		●				0.55	0.94	1.05	-	-	-
B6.0/20-MBU17	Ø17	7.01	●	●		●				0.39	0.57	0.67	-	-	-
B6.0/20-MBU23	Ø23	7.58	●	●		●				0.52	0.79	0.91	-	-	-
B6.0/20-MBU27	Ø27	8.19	●	●		●				0.55	0.94	1.05	-	-	-
B1.5/20-MD22	Ø22	2.67	●	●		●				0.71	1.61	2.20	-	-	-
B2.5/20-MD22	Ø22	4.78	●	●		●				0.71	1.61	2.20	-	-	-
B4.0/20-MD22	Ø22	4.51	●	●		●				0.71	1.61	2.20	-	-	-
B5.0/20-MD22	Ø22	5.67	●	●		●				0.71	1.61	2.20	-	-	-
B6.0/20-MD22	Ø22	7.76	●	●		●				0.71	1.61	2.20	-	-	-
B1.5/20-S30	Ø30	3.35						●		0.94	2.53	3.30	-	-	-
B1.5/40-S50	Ø50	13.75						●		1.74	4.36	6.12	-	-	-
B1.5/60-S60	Ø61	34.17						●		2.87	7.30	10.34	-	-	-
B2.5/20-S30	Ø30	5.48						●		0.94	2.53	3.30	-	-	-
B2.5/40-S50	Ø50	21.02						●		1.74	4.36	6.12	-	-	-
B2.5/60-S60	Ø61	54.93						●		2.87	7.30	10.34	-	-	-
B4.0/20-S30	Ø30	5.22						●		0.94	2.53	3.30	-	-	-
B4.0/40-S50	Ø50	26.87						●		1.74	4.36	6.12	-	-	-
B5.0/20-S30	Ø30	6.37						●		0.94	2.53	3.30	-	-	-
B5.0/40-S50	Ø50	33.75						●		1.74	4.36	6.12	-	-	-
B5.0/60-S60	Ø61	95.93						●		2.87	7.30	10.34	-	-	-
B6.0/20-S30	Ø30	8.46						●		0.94	2.53	3.30	-	-	-
B6.0/40-S50	Ø50	41.09						●		1.74	4.36	6.12	-	-	-
B6.0/60-S60	Ø61	117.76						●		2.87	7.30	10.34	-	-	-
B1.5/40-MU45	Ø45	9.93	●	●		●				0.66	1.34	1.79	-	-	-
B1.5/40-MU55	Ø55	12.19	●	●		●				1.34	2.81	3.37	-	-	-
B1.5/60-MU65	Ø65	26.90	●	●		●				2.24	4.37	5.50	-	-	-
B1.5/60-MU75	Ø75	31.98	●	●		●				3.93	8.18	10.32	-	-	-
B1.5/60-MU80	Please contact VMECA for dimensions and technical data.														
B2.5/40-MU45	Ø45	17.33	●	●		●				1	3.9	5.5	-	-	-
B2.5/40-MU55	Ø55	19.58	●	●		●				2.1	5.4	6.8	-	-	-
B2.5/60-MU65	Ø65	47.70	●	●		●				2.8	7.6	11.4	-	-	-
B2.5/60-MU75	Ø75	52.78	●	●		●				4.6	9.3	13	-	-	-
B2.5/60-MU80	Please contact VMECA for dimensions and technical data.														
B4.0/40-MU45	Ø45	23.13	●	●		●				0.66	1.34	1.79	-	-	-
B4.0/40-MU55	Ø55	25.38	●	●		●				1.34	2.81	3.37	-	-	-
B5.0/40-MU45	Ø45	29.93	●	●		●				1	3.9	5.5	-	-	-
B5.0/40-MU55	Ø55	32.18	●	●		●				2.1	5.4	6.8	-	-	-
B5.0/60-MU65	Ø65	88.70	●	●		●				2.8	7.6	11.4	-	-	-
B5.0/60-MU75	Ø75	93.78	●	●		●				4.6	9.3	13	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
B5.0/60-MU80	Please contact VMECA for dimensions and technical data.														
B6.0/40-MU45	Ø45	37.23	●	●		●				1	3.9	5.5	-	-	-
B6.0/40-MU55	Ø55	39.48	●	●		●				2.1	5.4	6.8	-	-	-
B6.0/60-MU65	Ø65	110.50	●	●		●				2.8	7.6	11.4	-	-	-
B6.0/60-MU75	Ø75	115.58	●	●		●				4.6	9.3	13	-	-	-
B6.0/60-MU80	Please contact VMECA for dimensions and technical data.														
B1.5/40-MF45	Ø45	9.63	●	●		●				1.3	4.1	5.9	-	-	-
B1.5/40-MF55	Ø55	12.19	●	●		●				2.3	5.8	7.2	-	-	-
B1.5/60-MF65	Ø65	26.40	●	●		●				3.1	8.2	11.9	-	-	-
B1.5/60-MF75	Ø75	31.58	●	●		●				4.9	10.2	13.5	-	-	-
B1.5/60-MF80	Please contact VMECA for dimensions and technical data.														
B2.5/40-MF45	Ø45	21.02	●	●		●				1.3	4.1	5.9	-	-	-
B2.5/40-MF55	Ø55	54.93	●	●		●				2.3	5.8	7.2	-	-	-
B2.5/60-MF65	Ø65	5.22	●	●		●				3.1	8.2	11.9	-	-	-
B2.5/60-MF75	Ø75	115.58	●	●		●				4.9	10.2	13.5	-	-	-
B2.5/60-MF80	Please contact VMECA for dimensions and technical data.														
B4.0/40-MF45	Ø50	33.75	●	●		●				0.67	1.62	2.12	-	-	-
B4.0/40-MF55	Ø61	95.93	●	●		●				1.34	2.81	3.48	-	-	-
B5.0/40-MF45	Ø45	8.46	●	●		●				1.3	4.1	5.9	-	-	-
B5.0/40-MF55	Ø55	41.09	●	●		●				2.3	5.8	7.2	-	-	-
B5.0/60-MF65	Ø65	117.76								3.1	8.2	11.9	-	-	-
B5.0/60-MF75	Ø75	115.58	●	●		●				4.9	10.2	13.5	-	-	-
B5.0/60-MF80	Please contact VMECA for dimensions and technical data.														
B6.0/40-MF45	Ø45	26.90	●	●		●				1.3	4.1	5.9	-	-	-
B6.0/40-MF55	Ø55	26.90	●	●		●				2.3	5.8	7.2	-	-	-
B6.0/60-MF65	Ø65	31.98	●	●		●				3.1	8.2	11.9	-	-	-
B6.0/60-MF75	Ø75	115.58	●	●		●				4.9	10.2	13.5	-	-	-
B6.0/60-MF80	Please contact VMECA for dimensions and technical data.														
EB1.5/20-X25	Ø26	3.7	●	●		●	●			0.80	1.79	2.44	-	-	-
EB1.5/20-X30	Ø32	5.3	●	●		●	●			1.08	2.13	2.62	-	-	-
EB1.5/40-X45	Ø46	19.6	●	●		●	●			2.14	3.57	5.00	-	-	-
EB1.5/40-X55	Ø54.5	26.8	●	●		●	●			2.60	5.27	5.92	-	-	-
EB4.0/20-X25	Ø26	5.5	●	●		●	●			0.80	1.79	2.44	-	-	-
EB4.0/20-X30	Ø32	7.1	●	●		●	●			1.08	2.13	2.62	-	-	-
EB4.0/40-X45	Ø46	32.8	●	●		●	●			2.14	3.57	5.00	-	-	-
EB4.0/40-X55	Ø54.5	40	●	●		●	●			2.60	5.27	5.92	-	-	-
EB5.0/20-X25	Ø26	6.7	●	●		●	●			0.80	1.79	2.44	-	-	-
EB5.0/20-X30	Ø32	8.3	●	●		●	●			1.08	2.13	2.62	-	-	-
EB5.0/40-X45	Ø46	39.6	●	●		●	●			2.14	3.57	5.00	-	-	-
EB5.0/40-X55	Ø54.5	46.8	●	●		●	●			2.60	5.27	5.92	-	-	-
EB1.5/20-U25	Ø26	2.6	●	●		●	●			0.83	2.20	3.06	-	-	-
EB1.5/20-U30	Ø33	3.4	●	●		●	●			1.22	2.45	3.06	-	-	-
EB1.5/40-U45	Ø47	13.9	●	●		●	●			2.55	5.66	9.18	-	-	-
EB1.5/40-U55	Ø55	18.8	●	●		●	●			3.78	7.09	9.56	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
EB4.0/20-U25	Ø26	4.4	●	●		●	●			0.83	2.20	3.06	-	-	-
EB4.0/20-U30	Ø33	5.2	●	●		●	●			1.22	2.45	3.06	-	-	-
EB4.0/40-U45	Ø47	27.1	●	●		●	●			2.55	5.66	9.18	-	-	-
EB4.0/40-U55	Ø55	32	●	●		●	●			3.78	7.09	9.56	-	-	-
EB5.0/20-U25	Ø26	5.6	●	●		●	●			0.83	2.20	3.06	-	-	-
EB5.0/20-U30	Ø33	6.4	●	●		●	●			1.22	2.45	3.06	-	-	-
EB5.0/40-U45	Ø47	33.9	●	●		●	●			2.55	5.66	9.18	-	-	-
EB5.0/40-U55	Ø55	38.8	●	●		●	●			3.78	7.09	9.56	-	-	-
EB1.5/20-F25	Ø26	2.3					●			1.4	2.9	3.7	-	-	-
EB1.5/20-F30	Ø33	2.8					●			1.9	3.8	4.3	-	-	-
EB1.5/40-F45	Ø47	12.7					●			3.4	8	9.3	-	-	-
EB1.5/40-F55	Ø55	13.5					●			4.4	9.9	11.9	-	-	-
EB4.0/20-F25	Ø26	4.1					●			1.4	2.9	3.7	-	-	-
EB4.0/20-F30	Ø33	4.6					●			1.9	3.8	4.3	-	-	-
EB4.0/40-F45	Ø47	25.9					●			3.4	8	9.3	-	-	-
EB4.0/40-F55	Ø55	26.7					●			4.4	9.9	11.9	-	-	-
EB5.0/20-F25	Ø26	5.3					●			1.4	2.9	3.7	-	-	-
EB5.0/20-F30	Ø33	5.8					●			1.9	3.8	4.3	-	-	-
EB5.0/40-F45	Ø47	32.7					●			3.4	8	9.3	-	-	-
EB5.0/40-F55	Ø55	33.5					●			4.4	9.9	11.9	-	-	-
EB1.5/20-P15	Ø15.5	2.2	●	●		●				0.30	0.50	0.60	-	-	-
EB1.5/20-P17	Ø17	2.3	●	●		●				0.35	0.60	0.74	-	-	-
EB1.5/20-P20	Ø20	2.6	●	●		●				0.40	0.80	0.90	-	-	-
EB1.5/20-P27	Ø27	3.5	●	●		●				0.80	1.79	2.44	-	-	-
EB1.5/20-P32	Ø34	4.9	●	●		●				1.08	2.13	2.62	-	-	-
EB1.5/40-P48	Ø48	16.1	●	●		●				2.14	3.57	5.00	-	-	-
EB1.5/40-P60	Ø60	23.2	●	●		●				2.60	5.27	5.92	-	-	-
EB4.0/20-P15	Ø15.5	4.0	●	●		●				0.30	0.50	0.60	-	-	-
EB4.0/20-P17	Ø17	4.1	●	●		●				0.35	0.60	0.74	-	-	-
EB4.0/20-P20	Ø20	4.4	●	●		●				0.40	0.80	0.90	-	-	-
EB4.0/20-P27	Ø27	5.3	●	●		●				0.80	1.79	2.44	-	-	-
EB4.0/20-P32	Ø34	6.7	●	●		●				1.08	2.13	2.62	-	-	-
EB4.0/40-P48	Ø48	29.4	●	●		●				2.14	3.57	5.00	-	-	-
EB4.0/40-P60	Ø60	36.5	●	●		●				2.60	5.27	5.92	-	-	-
EB5.0/20-P15	Ø15.5	5.19	●	●		●				0.30	0.50	0.60	-	-	-
EB5.0/20-P17	Ø17	5.29	●	●		●				0.35	0.60	0.74	-	-	-
EB5.0/20-P20	Ø20	5.59	●	●		●				0.40	0.80	0.90	-	-	-
EB5.0/20-P27	Ø27	6.49	●	●		●				0.80	1.79	2.44	-	-	-
EB5.0/20-P32	Ø34	7.89	●	●		●				1.08	2.13	2.62	-	-	-
EB5.0/40-P48	Ø48	36.2	●	●		●				2.14	3.57	5.00	-	-	-
EB5.0/40-P60	Ø60	43.3	●	●		●				2.60	5.27	5.92	-	-	-
EB1.5/40-DD4030	Ø41/Ø30	18.36	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
EB4.0/40-DD4030	Ø41/Ø30	31.90	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-
EB5.0/40-DD4030	Ø41/Ø30	38.38	●	●		●				1.07 / 1.84	2.1 / 3.8	2.76 / 4.79	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-MBU17	Ø17	2.72	●	●		●				0.39	0.57	0.67	-	-	-
EB1.5/20-MBU23	Ø23	3.29	●	●		●				0.52	0.79	0.91	-	-	-
EB1.5/20-MBU27	Ø27	3.9	●	●		●				0.55	0.94	1.05	-	-	-
EB4.0/20-MBU17	Ø17	4.56	●	●		●				0.39	0.57	0.67	-	-	-
EB4.0/20-MBU23	Ø23	5.13	●	●		●				0.52	0.79	0.91	-	-	-
EB4.0/20-MBU27	Ø27	5.74	●	●		●				0.55	0.94	1.05	-	-	-
EB5.0/20-MBU17	Ø17	5.72	●	●		●				0.39	0.57	0.67	-	-	-
EB5.0/20-MBU23	Ø23	6.29	●	●		●				0.52	0.79	0.91	-	-	-
EB5.0/20-MBU27	Ø27	6.9	●	●		●				0.55	0.94	1.05	-	-	-
EB1.5/20-MD22	Ø22	3.47	●	●		●				0.71	1.61	2.20	-	-	-
EB4.0/20-MD22	Ø22	5.58	●	●		●				0.71	1.61	2.20	-	-	-
EB5.0/20-MD22	Ø22	5.31	●	●		●				0.71	1.61	2.20	-	-	-
EB1.5/20-S30	Ø30	4.15						●		0.94	2.53	3.30	-	-	-
EB1.5/40-S50	Ø50	15.55						●		1.74	4.36	6.12	-	-	-
EB4.0/20-S30	Ø30	6.02						●		0.94	2.53	3.30	-	-	-
EB4.0/40-S50	Ø50	28.67						●		1.74	4.36	6.12	-	-	-
EB5.0/20-S30	Ø30	7.17						●		0.94	2.53	3.30	-	-	-
EB5.0/40-S50	Ø50	35.55						●		1.74	4.36	6.12	-	-	-
EB1.5/40-MU45	Ø45	12.93	●	●		●				0.66	1.34	1.79	-	-	-
EB1.5/40-MU55	Ø55	15.19	●	●		●				1.34	2.81	3.37	-	-	-
EB4.0/40-MU45	Ø45	26.13	●	●		●				0.66	1.34	1.79	-	-	-
EB4.0/40-MU55	Ø55	28.39	●	●		●				1.34	2.81	3.37	-	-	-
EB5.0/40-MU45	Ø45	32.93	●	●		●				0.66	1.34	1.79	-	-	-
EB5.0/40-MU55	Ø55	35.19	●	●		●				1.34	2.81	3.37	-	-	-
EB1.5/40-MF45	Ø45	45.1	●	●		●				2.14	3.57	5.00	-	-	-
EB1.5/40-MF55	Ø55	52.3	●	●		●				2.60	5.27	5.92	-	-	-
EB4.0/40-MF45	Ø45	126.6	●	●		●				4.80	11.50	15.90	-	-	-
EB4.0/40-MF55	Ø55	146.1	●	●		●				5.60	12.30	17.90	-	-	-
EB5.0/40-MF45	Ø45	1.83	●	●		●				0.83	2.20	3.06	-	-	-
EB5.0/40-MF55	Ø55	2.63	●	●		●				1.22	2.45	3.06	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VB5	Ø5.5	0.05	●	●	●					0.03	0.08	0.10	-	-	-
VB6X	Ø7	0.09	●	●	●					0.05	0.11	0.14	-	-	-
VB8	Ø8.8	0.15	●	●	●					0.08	0.16	0.25	-	-	-
VB10	Ø11	0.48	●	●	●	●				0.15	0.34	0.50	-	-	-
VB12	Ø12	0.59	●	●	●	●				0.20	0.41	0.62	-	-	-
VB15	Ø15.5	1.10	●	●	●	●	●			0.29	0.60	0.90	-	-	-
VB17	Ø18.5	1.50	●	●	●	●				0.40	0.80	1.00	-	-	-
VB20	Ø22	2.70	●	●	●	●	●			0.60	1.00	1.42	-	-	-
VB30	Ø34	10.00	●	●	●	●	●			1.22	2.24	2.42	-	-	-
VB40	Ø43	15.00	●	●	●	●	●			2.24	3.97	5.00	-	-	-
VB50	Ø53	32.00	●	●	●	●	●			3.36	6.63	8.36	-	-	-
VB75	Ø78	110.00	●	●	●	●	●			7.65	17.04	23.06	-	-	-
VB75B	Ø78	110.00	●	●	●	●				7.65	17.04	23.06	-	-	-
VB110	Ø115	310.00	●	●	●	●				13.97	35.00	47.04	-	-	-
VB110B	Ø115	310.00	●	●	●	●				13.97	35.00	47.04	-	-	-
VB150	Ø155	650.00	●	●	●	●				30.00	70.00	90.10	-	-	-
VB20M	Ø22	2.70					●			0.70	1.20	1.60	-	-	-
VB30M	Ø34	10.00	●	●	●	●				1.50	2.60	3.90	-	-	-
VB50M	Ø53	32.00	●	●	●	●				3.20	7.90	10.50	-	-	-
VBL15	Ø15.5	1.95	●	●	●					0.30	0.60	-	-	-	-
VBL20	Ø20	4.00	●	●	●					0.40	0.90	-	-	-	-
VBL30	Ø30	13.00	●	●	●					0.90	2.20	-	-	-	-
VBL35M	Ø35	21.00	●	●	●	●				1.20	3.30	-	-	-	-
VBL40	Ø40	27.00	●	●	●	●				1.40	3.60	-	-	-	-
VBL40B	Ø42	26.00	●	●	●	●	●			1.90	4.30	-	-	-	-
VBL50	Ø50	55.00	●	●	●	●				2.50	6.00	-	-	-	-
VBU35	Ø35.4	6.20	●	●			●			2.26	4.28	5.75	-	-	-
VBU45	Ø45.5	12.50	●	●			●			4.08	7.30	10.00	-	-	-
VBU55	Ø55.6	28.00	●	●			●			7.50	9.80	12.05	-	-	-
VBX35	Ø35	5.80					●			2.63	4.38	6.95	-	-	-
VBX45	Ø45.8	13.00					●			6.40	8.80	10.50	-	-	-
VBX55	Ø55.8	29.50					●			7.60	10.10	12.20	-	-	-
BL5040	Ø51	32.30	●	●						1.90	3.98	5.25	-	-	-
VOBL35x90	35x88	43.00	●	●	●					2.90	5.00	-	-	-	-
VOU4x10	4x10	0.064	●	●	●	●				0.19	0.30	0.35	-	-	-
VOU4x20	4x20	0.094	●	●	●	●				0.24	0.48	0.60	-	-	-
VOU6x10	6x10	0.081	●	●	●	●				0.21	0.39	0.49	-	-	-
VOU6x20	6x20	0.137	●	●	●	●				0.31	0.64	0.80	-	-	-
VOU8x20	8x20	0.170	●	●	●	●				0.38	0.83	1.21	-	-	-
VOU8x30	8x30	0.250	●	●	●	●				0.52	1.21	1.66	-	-	-
VOU10x30	10x30	0.394	●	●	●	●				0.62	1.42	2.05	-	-	-
VOU15x45	15x45	1.584	●	●	●	●				1.06	2.88	4.22	-	-	-
VOU20x60	20x60	3.532	●	●	●	●				1.93	5.10	7.65	-	-	-
VU1.5X	Ø1.9	0.0015	●	●	●					0.0008	0.003	0.004	-	-	-
VU2	Ø2.6	0.0025	●	●	●					0.003	0.01	0.015	-	-	-

SUCTION CUPS

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU2X	Ø2.2	0.0025	●	●	●					0.003	0.01	0.015	-	-	-
VU3	Ø3.8	0.005	●	●	●					0.009	0.04	0.06	-	-	-
VU3K	Ø3.5	0.018	●	●	●					0.014	0.06	0.09	-	-	-
VU4	Ø5	0.03	●	●	●					0.02	0.09	0.13	0.02	0.08	0.10
VU4K	Ø4.6	0.03	●	●	●					0.02	0.09	0.13	0.02	0.08	0.10
VU6	Ø7	0. 05	●	●	●					0.05	0.17	0.25	0.03	0.15	0.20
VU8	Ø9	0.10	●	●	●					0.10	0.29	0.39	0.10	0.29	0.34
VU10	Ø11	0.18	●	●	●	●				0.15	0.44	0.70	0.15	0.44	0.50
VU15	Ø16	0.50	●	●	●	●				0.35	0.85	1.12	0.35	0.55	0.60
VU20	Ø22	1.00	●	●	●	●				0.60	1.22	1.63	0.60	0.89	1.00
VU25	Ø27	1.50	●	●	●	●				0.91	1.98	2.50	0.70	0.95	1.05
VU30	Ø32	2.00	●	●	●	●				1.22	2.55	3.06	0.79	1.00	1.12
VU30-X	Ø30	1.80	●	●	●	●				0.65	1.48	1.78	-	-	-
VU40	Ø42	5.50	●	●	●	●				2.04	3.97	5.00	1.42	2.24	2.80
VU50	Ø53	12.00	●	●	●	●				3.57	7.44	9.38	2.04	3.77	4.48
VU80	Ø80	32.00	●	●	●	●				7.77	19.80	25.21	4.53	12.70	16.94
FF10	Ø10	0.01	●	●	●	●				0.18	0.38	0.55	-	-	-
FF15	Ø15	0.04	●	●	●	●				0.35	0.9	1.20	-	-	-
FF20	Ø20	0.07	●	●	●	●				0.54	1.35	1.6	-	-	-
FF25	Ø25	0.11	●	●	●	●				0.86	1.40	1.60	-	-	-
FF30	Ø30	0.17	●	●	●	●				1.15	1.50	1.60	-	-	-
FF15X	Ø15	0.12	●	●	●	●				0.35	0.36	0.50	-	-	-
FF20X	Ø20	0.12	●	●	●	●				0.35	0.36	0.50	-	-	-
VD30	Ø30	4.50	●	●	●	●	●			1.22	2.55	3.06	0.73	1.53	1.83
VD40	Ø40	7.00	●	●	●	●	●			2.04	3.97	5.00	1.22	2.38	3.00
VD50	Ø50	13.50	●	●	●	●	●			3.57	7.44	9.38	2.14	4.46	5.62
VD60	Ø60	22.00	●	●	●	●	●			5.50	14.00	18.50	3.30	8.40	11.10
VD70	Ø72	38.00					●			7.15	18.80	24.90	4.20	11.60	16.20
VD85	Ø85	60.00	●	●	●	●				10.00	28.00	39.00	6.00	16.80	23.40
VD85X	Ø88	68.00	●	●	●	●				10.00	28.00	39.00	6.00	16.80	23.40
VD90F	Ø89.5	56.00					●			9.25	24.36	32.17	7.97	14.42	18.15
VFC50	Ø50	10.00	●	●	●	●	●			2.85	6.94	10.20	2.61	6.34	8.20
VFC60	Ø60	20.00	●	●	●	●	●			4.55	11.57	15.30	3.05	7.92	10.70
VFC60x1	Ø60	20.00	●	●	●	●				4.55	11.57	15.30	3.05	7.92	10.70
VFC75	Ø75	30.00	●	●	●	●	●			7.65	19.38	25.51	6.19	15.46	20.90
VFC75x1	Ø75	30.00	●	●	●	●				7.65	19.38	25.51	6.19	15.46	20.90
VFC75x2	Ø75	30.00	●	●	●	●				7.65	19.38	25.51	6.19	15.46	20.90
VFC90	Ø90	60.00					●			9.80	24.82	32.65	9.52	21.59	27.89
VFC100	Ø100	80.00	●	●	●	●	●			12.75	35.71	46.93	12.24	23.97	28.57
FCF30	Ø32	2.00	●	●			●			2.00	4.60	6.40	0.80	2.00	2.90
FCF40	Ø42	4.40	●	●			●			2.90	6.90	9.90	2.10	5.00	7.20
FCF50	Ø52	8.00	●	●			●			4.20	10.80	15.40	3.70	6.70	8.90
FCF60	Ø62	14.60	●	●			●			5.60	15.20	22.30	5.50	13.30	16.70
FCF70	Ø72	20.70	●	●			●			7.60	19.60	28.20	6.30	15.80	20.10
FCF80	Ø82.5	36.00	●	●			●			10.30	25.90	34.40	6.70	17.70	23.80

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF100	Ø104	58.00	●	●			●			14.70	37.10	50.60	13.60	35.40	43.70
FCF125	Ø128	115.00	●	●			●			19.40	44.50	57.90	19.10	42.50	64.90
VDF25	Ø26	1.50					●			1.40	3.00	4.10	0.70	1.90	2.90
VDF30	Ø32.2	2.70					●			1.80	4.40	5.70	1.00	2.80	3.80
VDF40	Ø42.5	7.00					●			2.70	6.20	8.30	2.40	4.70	7.10
VDF50	Ø53	14.00					●			4.10	10.10	14.00	3.50	9.20	18.50
VDF60	Ø63	24.00					●			5.60	13.70	19.00	4.30	13.80	24.50
VDF80	Ø83	50.50					●			8.60	21.20	29.30	7.20	18.50	27.00
VDF100	Ø103.7	94.00					●			12.60	30.80	41.70	12.30	28.20	39.60
VBF25	Ø26.5	2.00	●	●			●			1.10	3.20	3.80	0.61	1.37	1.89
VBF30	Ø32	4.40	●	●			●			1.77	6.26	9.48	0.86	3.09	7.75
VBF40	Ø42	8.00	●	●			●			2.50	9.66	12.80	1.18	6.50	11.30
VBF50	Ø51.5	14.60	●	●			●			4.18	13.20	16.28	2.09	9.60	14.70
VBF60	Ø62.8	20.70	●	●			●			8.94	16.26	18.54	6.84	12.84	16.92
VBF80	Ø83	36.00	●	●			●			11.92	21.68	24.72	9.12	17.12	22.56
VBF100	Ø102	58.00	●	●			●			14.90	27.10	30.90	11.40	21.40	28.20
VOBF30x60	32x62	11.00					●			2.7	7.6	11.2	2.8	7.8	14.5
VOBF40x80	42x82	22.50					●			4.8	12.8	18.2	5.3	15.6	22.9
VOBF55x110	57x112	66.50					●			8.8	22.3	33.0	13.3	29.1	44.0
VOC11x23	12.5x24	2.00	●	●						0.61	1.30	1.60	0.60	1.20	1.50
VOC35x90	37x94	4.40	●	●	●	●				5.00	13.40	17.40	4.00	10.72	13.92
VOC35x110	37x114	8.00	●	●	●	●				6.25	16.70	21.70	5.00	13.36	17.36
VOC60x140	61x140	14.60	●	●	●	●				13.40	38.00	53.00	10.72	30.40	42.40
VOC60x180	61x180	20.70	●	●	●	●				19.10	54.20	75.70	15.28	43.36	60.56
VF15	Ø16.5	0.037	●	●	●	●				0.35	0.86	1.12	0.35	0.66	0.76
VF20	Ø22	1.00	●	●	●	●				0.61	1.47	1.93	0.51	0.81	0.86
VF25	Ø27	1.10	●	●	●	●				0.91	1.98	2.55	0.81	0.91	1.02
VF30	Ø32	2.00	●	●	●	●	●			1.22	2.55	3.16	1.12	1.63	2.04
VF40	Ø42	4.80	●	●	●	●	●			2.04	4.08	5.10	1.53	2.55	3.06
VF50	Ø53	10.00	●	●	●	●	●			3.67	7.55	9.79	2.44	4.08	5.10
VF50x2	Ø53	10.00	●	●	●	●	●			3.67	7.55	9.79	2.44	4.08	5.10
VF75	Ø77	20.00	●	●	●	●	●			8.16	20.40	27.55	6.12	11.22	14.28
VF90	Ø92	50.00					●			10.20	27.83	37.41	8.84	15.98	19.72
VF110	Ø112	70.00	●	●	●	●				14.28	42.58	57.14	14.28	25.51	30.61
VF150	Ø152	160.00	●	●	●	●				30.61	86.73	112.24	25.51	61.22	81.63
VF200	Ø200	460.00	●	●	●	●				76.53	193.87	275.51	38.30	96.90	137.50
VF300	Ø304	460.00	●	●	●	●				76.53	193.87	275.51	38.30	96.90	137.50
LF150	Ø153	145.00	●	●	●	●				34.00 / 53.00	51.00 / 79.00	80.00 / 115.00	39.00	43.00	68.00
LF200	Ø204	275.00	●	●	●	●				78.00 / 150.00	115.00 / 154.00	176.00 / 224.00	65.00	98.00	149.00
LF250	Ø250	435.00	●	●	●	●				134.00 / 167.00	199.00 / 251.00	293.00 / 361.00	114.00	168.00	260.00
LF300	Ø304	666.00	●	●	●	●				219.00 / 267.00	327.00 / 384.00	472.00 / 556.00	187.00	278.00	402.00
VS30x80	28x80.5	43.00						●		2.70	9.10	14.00	-	-	-
VS35	Ø43	6.00						●		2.04	5.10	7.14	-	-	-
VS60	Ø67.5	20.00						●		6.12	15.30	22.44	-	-	-

Technical data

Model	Diameter (mm)	Volume (cm3)	Material							Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			N	S	CS	U	PU	E	V	- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VS100	Ø108	55.00						●		18.36	45.90	67.34	-	-	-
VS150	Ø157.5	125.00						●		38.00	97.00	138.00	-	-	-
VS200	Ø215	543.00						●		76.53	193.87	275.51	-	-	-
VS300	Ø315	1285.00						●		163.26	438.77	653.06	-	-	-
VS400	Ø415	2288.00						●		326.00	876.00	1300.00	-	-	-
KPS-1	Ø34	14.50	●	●	●	●				1.22	2.24	2.75	-	-	-
KPS-2	Ø28	2.00	●	●	●	●				0.70	1.53	1.83	-	-	-
KPS-3	Ø13	0.50	●	●	●	●				0.35	0.85	1.12	-	-	-
KPS-4	Ø16	1.00	●	●	●	●				0.60	1.22	1.63	-	-	-
KPS-5	Ø29	2.00	●	●	●	●				0.70	1.53	1.83	-	-	-
KPS-5-15	Ø15	1.10	●	●	●	●				0.40	1.11	1.23	-	-	-
KPS-6	Ø30	2.00	●	●	●	●				0.80	1.70	2.05	-	-	-
KPS-7	Ø68	20.00	●	●	●	●				5.50	14.00	18.50	-	-	-
KPS-8	Ø22.5	20.00		●						5.50	14.00	18.50	-	-	-
KPS-9	Ø40	8.00	●	●	●	●				1.55	2.80	5.10	-	-	-

Material

Overview

Material Description	Abbreviation	N	A	V	S
	Material name	NBR (Nitrile-Butadiene Rubber)	Mark Free	Viton	Silicone
	Color	Black or Blue	Black	Dark Brown	Red
Resistance	Wear resistance	★★★★	★★★★	★★★★	★★
	Oil	★★★★	★★★★	★★★★	★
	Weather / Ozone	★★★	★★★	★★★	★★★★
	Alcohol	★★★★	★★★★	★★★★	★★★★
	Acid	★	★	★★★	★★
Food Grade approved by FDA					
Temperature (℃)	Contact for short time (Less than 30sec)	-30 ~ +120	-20 ~ +110	-40 ~ +400	-70 ~ +220
	Contact for long time	-20 ~ +110	-10 ~ +100	-40 ~ +250	-70 ~ +200
Other Characteristic	Target Industry	- Packaging - Automobile - Wood - Metal sheet	- Semiconductor - Display / Glass	- Automobile - Chemical	- Packaging - Food

★ Poor ★★ Fair ★★★ Good ★★★★ Excellent

Material of Suction cups

WS	HS	PU	U	CS	E
White Silicone	High temp. Silicone	Polyurethane	Urethane	Conductive (Anti static)	EPDM
White	Blue	Orange	Dark Grey or Dark Green	Black	Black
★★	★★	★★★★	★★★★	★★★★	★★★
★	★	★★★★	★★★★	★★★★	★
★★★★	★★★★	★★★★	★★★★	★★★	★★★★
★★★★	★★★★	★★★★	★★★★	★★★	★★★★
★★	★★	★	★	★	★★★
O					
-70 ~ +220	-70 ~ +280	0 ~ +70	0 ~ +70	-70 ~ +220	0 ~ +130
-70 ~ +200	-70 ~ +260	0 ~ +60	0 ~ +70	-45 ~ +90	0 ~ +130
- Packaging - Food - Semiconductor	- Packaging - Food	- Packaging - Automobile	- Packaging - Automobile	- Semiconductor - Packaging	- Semiconductor - Solar


HERSHEY'S
Premier White Chips
WHITE CHIP FRUIT TART



VMECA™ www.vmeca.com

Bellows



Model	Description	
	Top bellows	Middle bellows
B 1.5	1.5 folds	-
B 2.5	2.5 folds	-
B 4.0	1.5 folds	2.5 folds
B 5.0	1.5 folds	3.5 folds
B 6.0	2.5 folds	3.5 folds
EB 1.5	1.5 folds	-
EB 4.0	1.5 folds	2.5 folds
EB 5.0	1.5 folds	3.5 folds

Bellows size



Model	Description
20	For sealing lip 15Ø ~ 32
40	For sealing lip 45Ø ~ 60
60	For sealing lip 65Ø ~ 75

Suction lip



Suction lip	Model Diameter	Material	Description
X	25 30 45 55 65 75	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
U	25 30 45 55 65 75	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
P	15 17 20 27 32 48 60 72 85	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
F	25 30 45 55	PU	Polyurethane
DD	4030	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
MBU	17 23 27	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
MD	22	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
S	30 50 60	NE	Insert NBR, Lip EPDM
		SE	Insert Silicone 50° hardness, Lip EPDM
		WSE	Insert White silicone 50° hardness, Lip EPDM
MU	45 55 65 75 80	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°
MF	45 55 65 75 80	N6	NBR (Nitrile), Hardness 60°
		S3	Silicone, Hardness 30°
		S5	Silicone, Hardness 50°
		W3	White Silicone, Hardness 30°
		W5	White Silicone, Hardness 50°
		W3(FDA)	White Silicone, Hardness 30° (FDA)
		W5(FDA)	White Silicone, Hardness 50° (FDA)
		U6	Urethane, Hardness 60°

Suction Stopper



Model Suction Stopper	Description
A	For “X” suction lip
B	For “X”, “U” and “F” suction lip
C	For “X”, “U” and “F” suction lip
D	For “X”, “U”, “F”, “P”, “DD”, “MBU” and “MD” suction lip
F	For “S” suction lip
G	For “MU” and “MF” suction lip

Filter

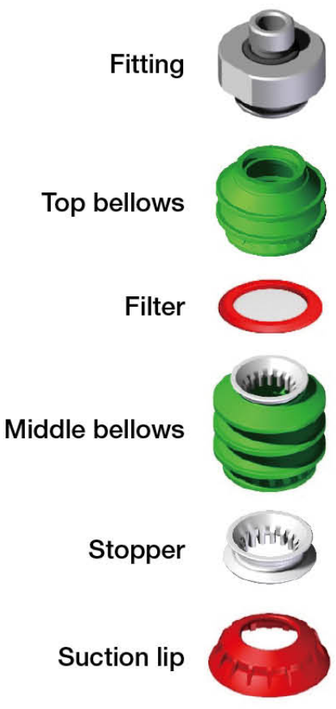


Model Filter	Description
Blank	No filter
F2	Mesh disk filter (200mesh)

Fitting

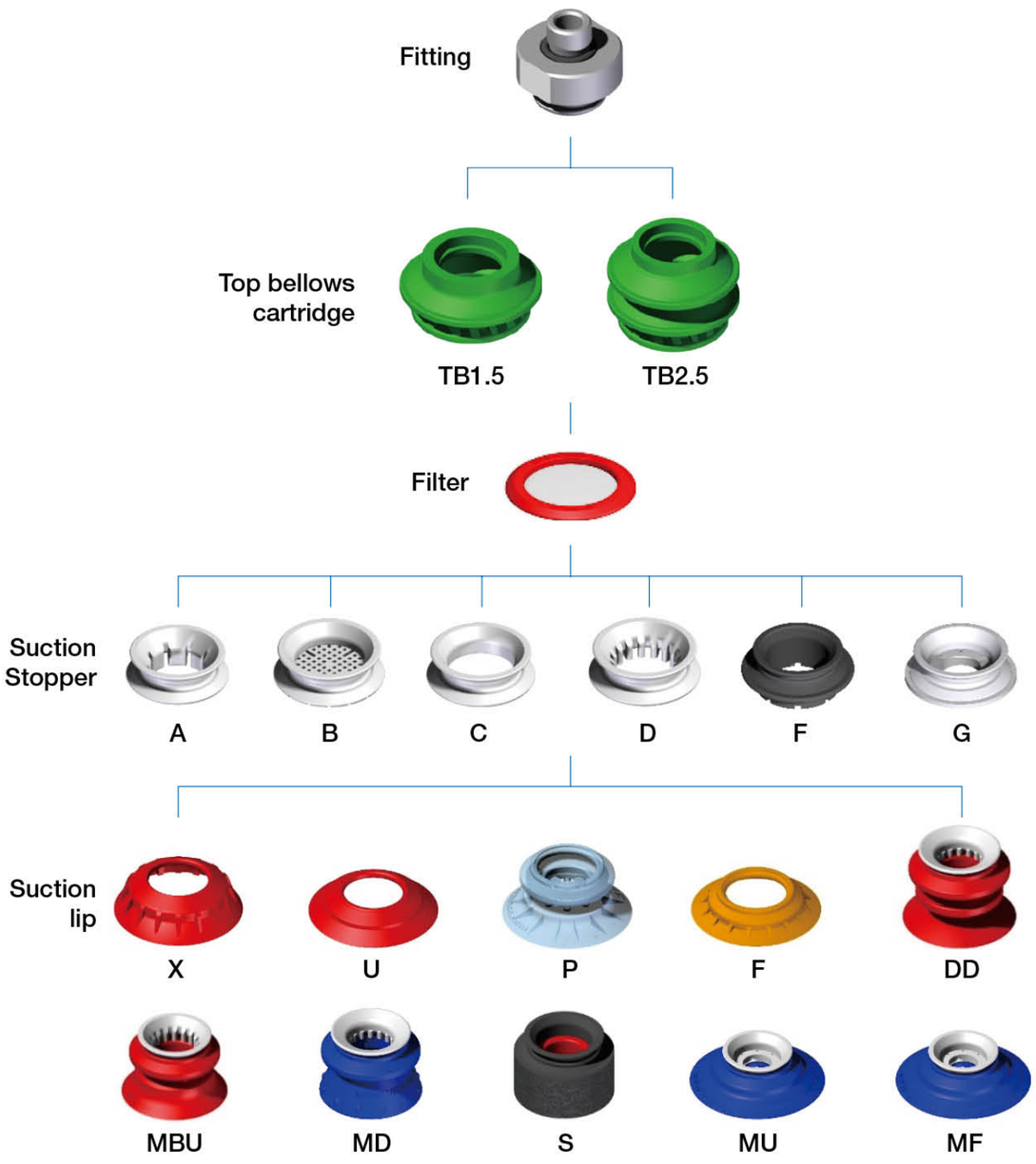


Model Fitting	Description
18M	G1/8” male fitting
18F	G1/8” female fitting
14M	G1/4” male fitting
14F	G1/4” female fitting
38M	G3/8” male fitting
38F	G3/8” female fitting: Only for 60 bellow size

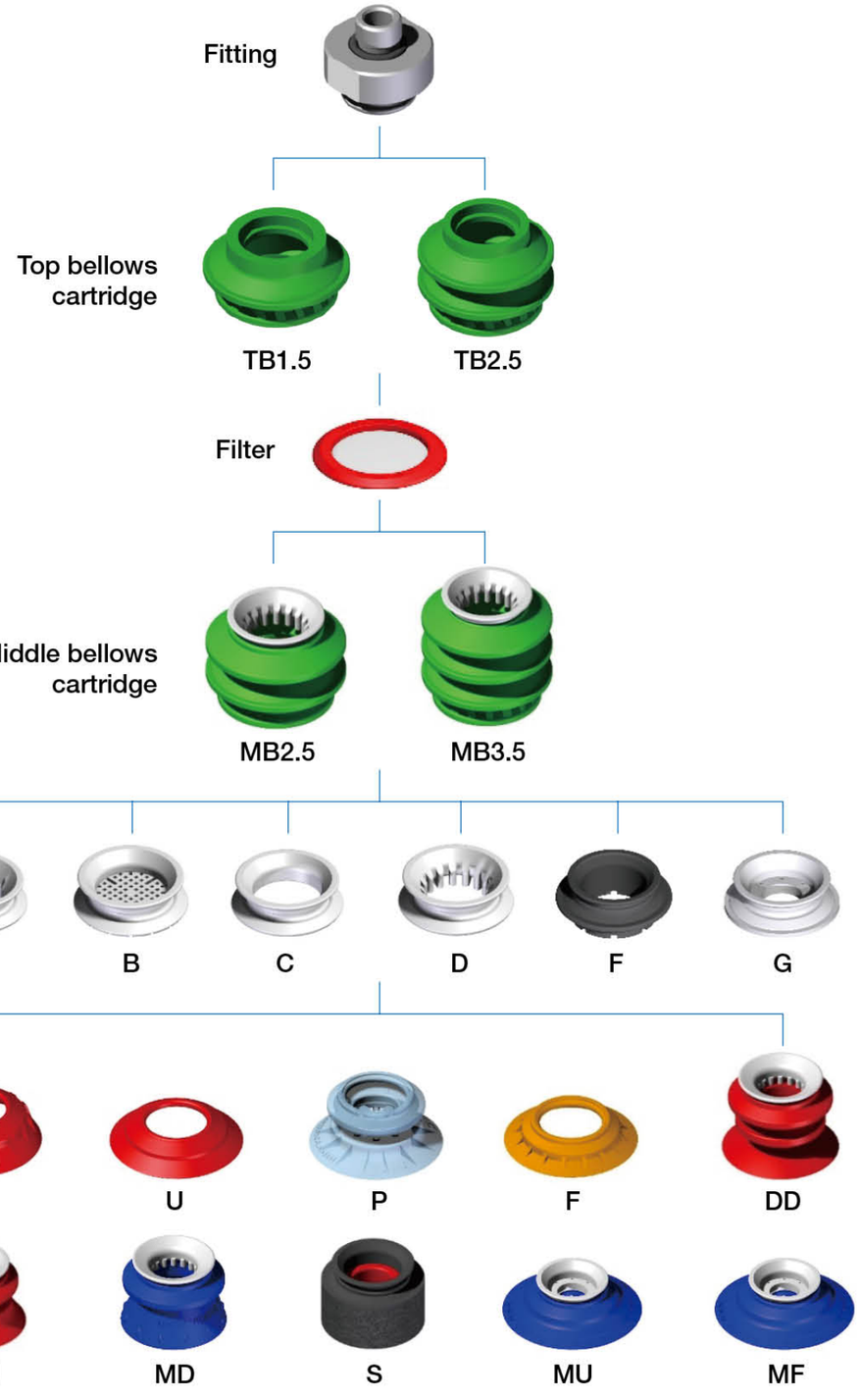


B5.0 / 40 – X55 – S5 – D – F2 – 18M

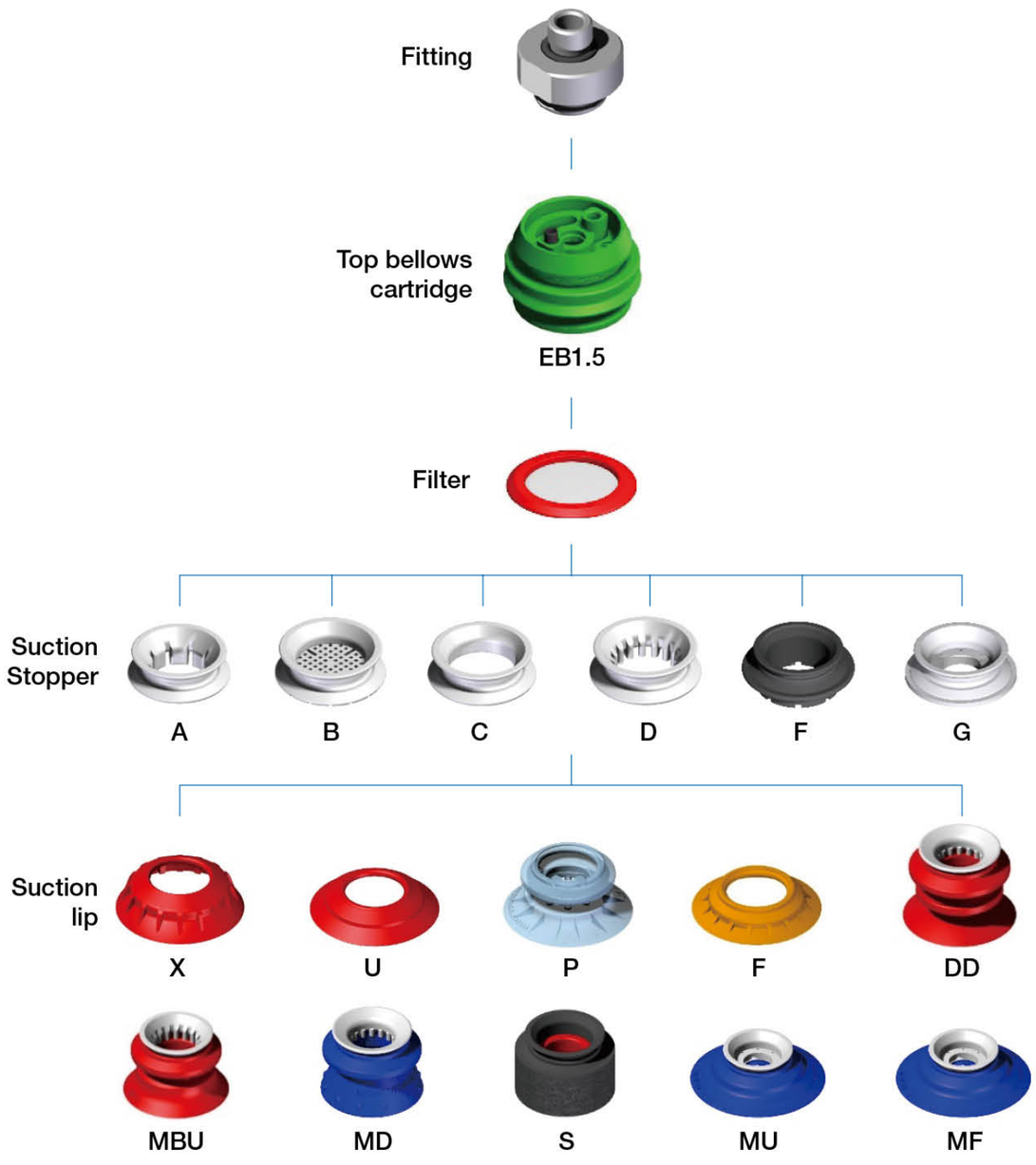
Structure – B1.5 & B2.5 series



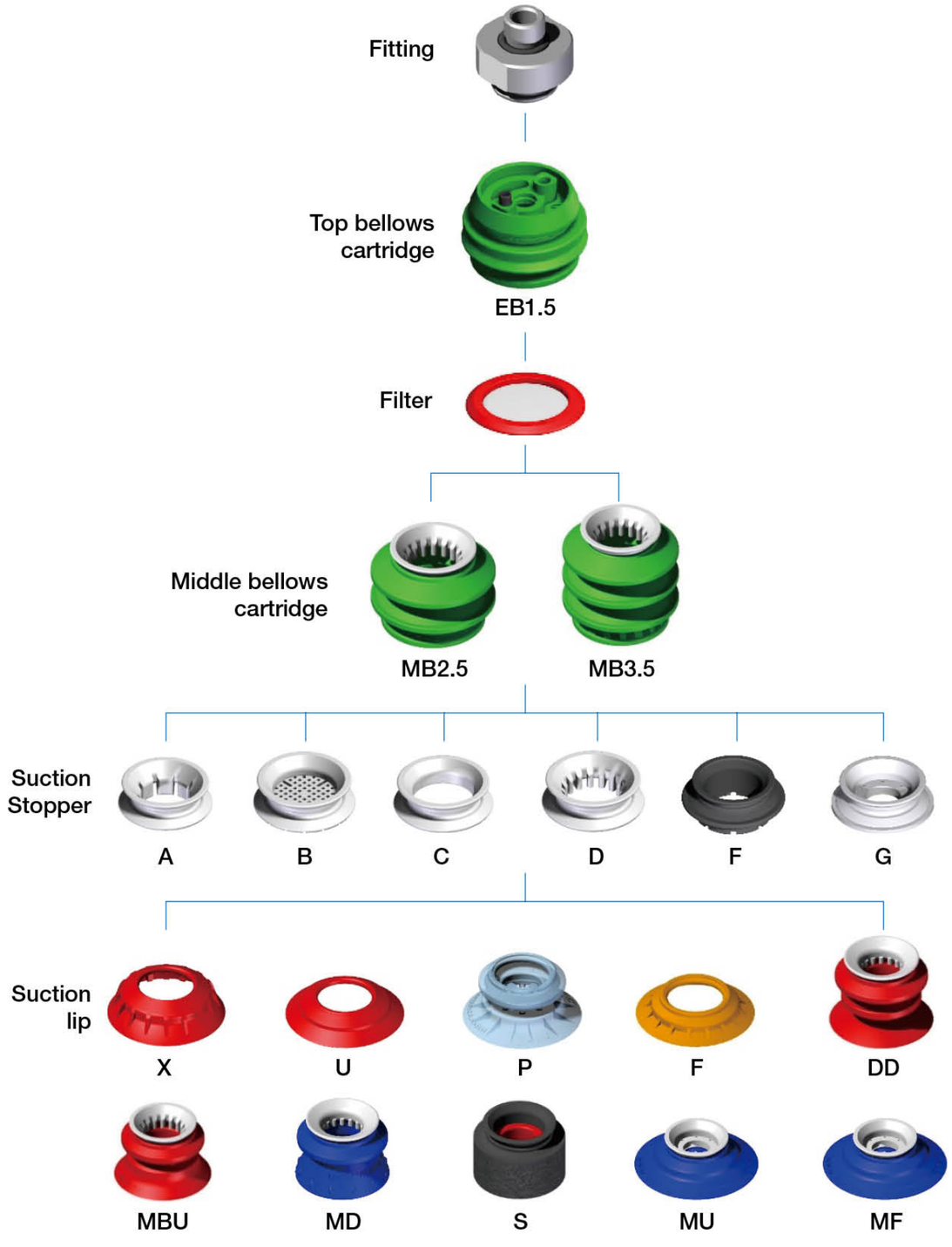
Structure – B4.0 & B5.0 & B6.0 series



Structure – EB1.5 series



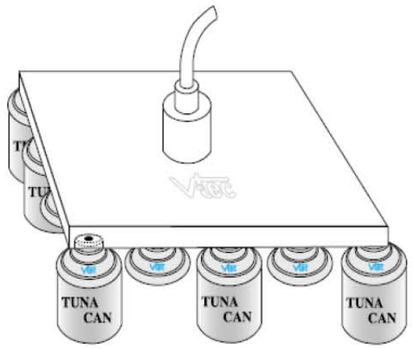
Structure – EB4.0 & EB5.0 series

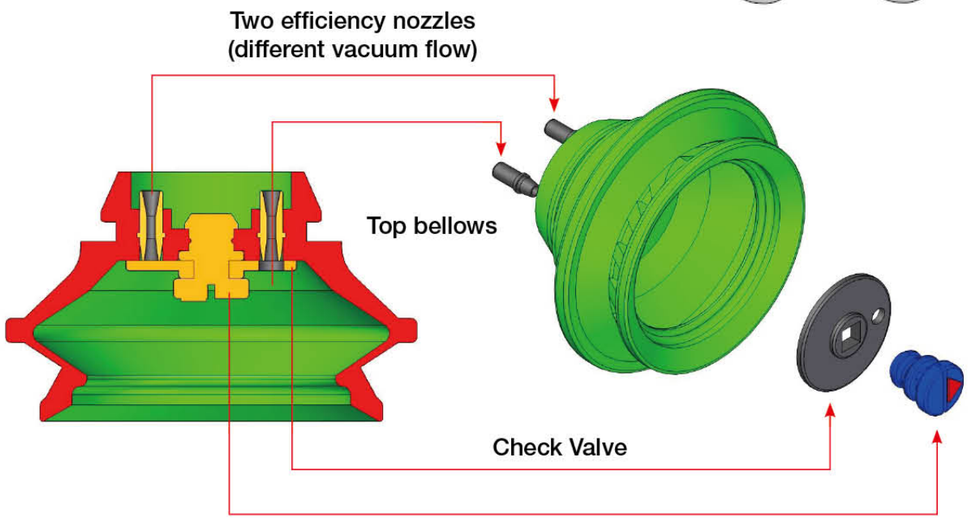


Features of Efficient valve (EB type)

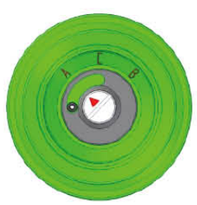
With EV Valve (EB)





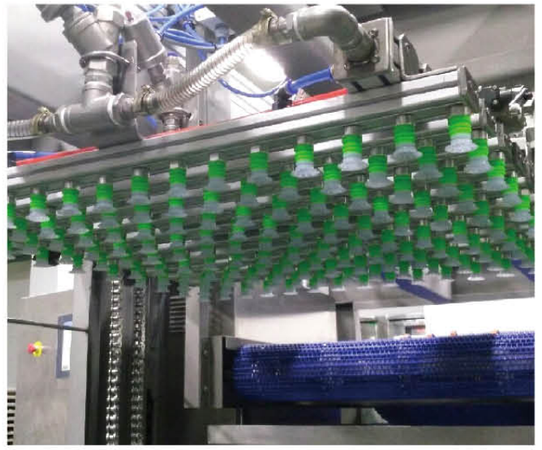


Flow adjustment

			
Hole size (0.5~1mm)	Hole size (2.3mm)	Max. Open	Close

Adjustable suction flow by different position of check valve screw module

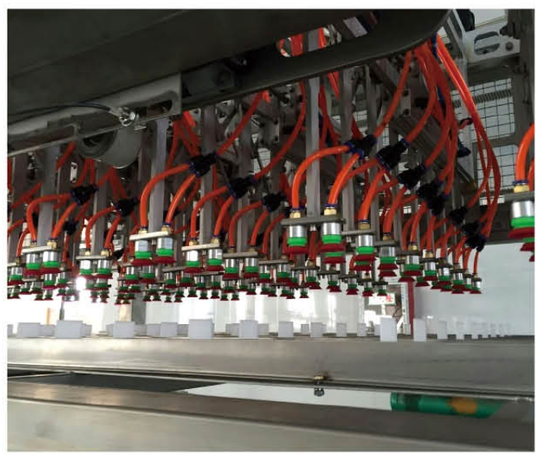
Application











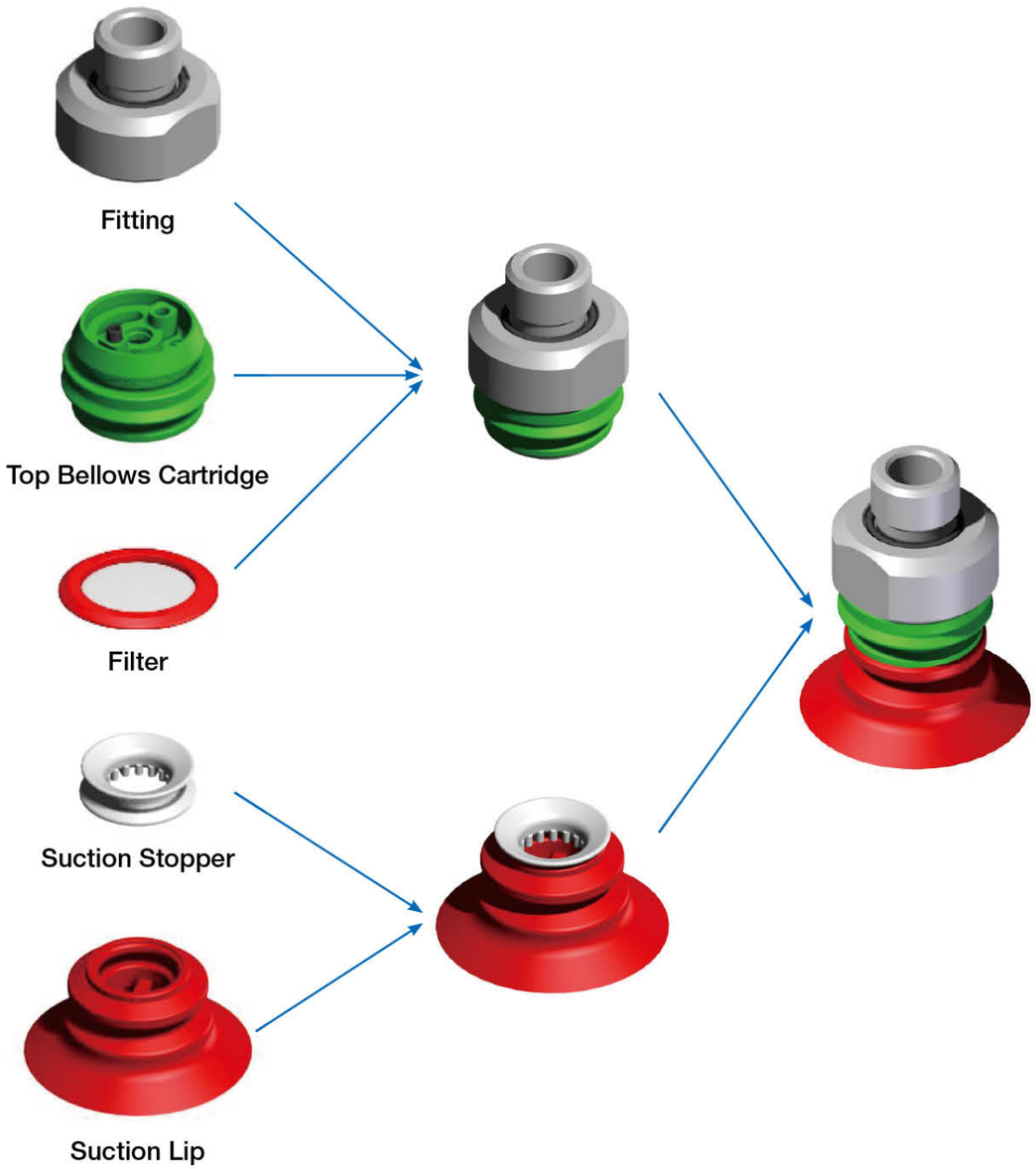


How to assemble and disassemble

Assembly sequence

1) Assemble fitting, top bellows cartridge and filter together
2) Put stopper and suction lip together
3) Connect two parts assembled each other

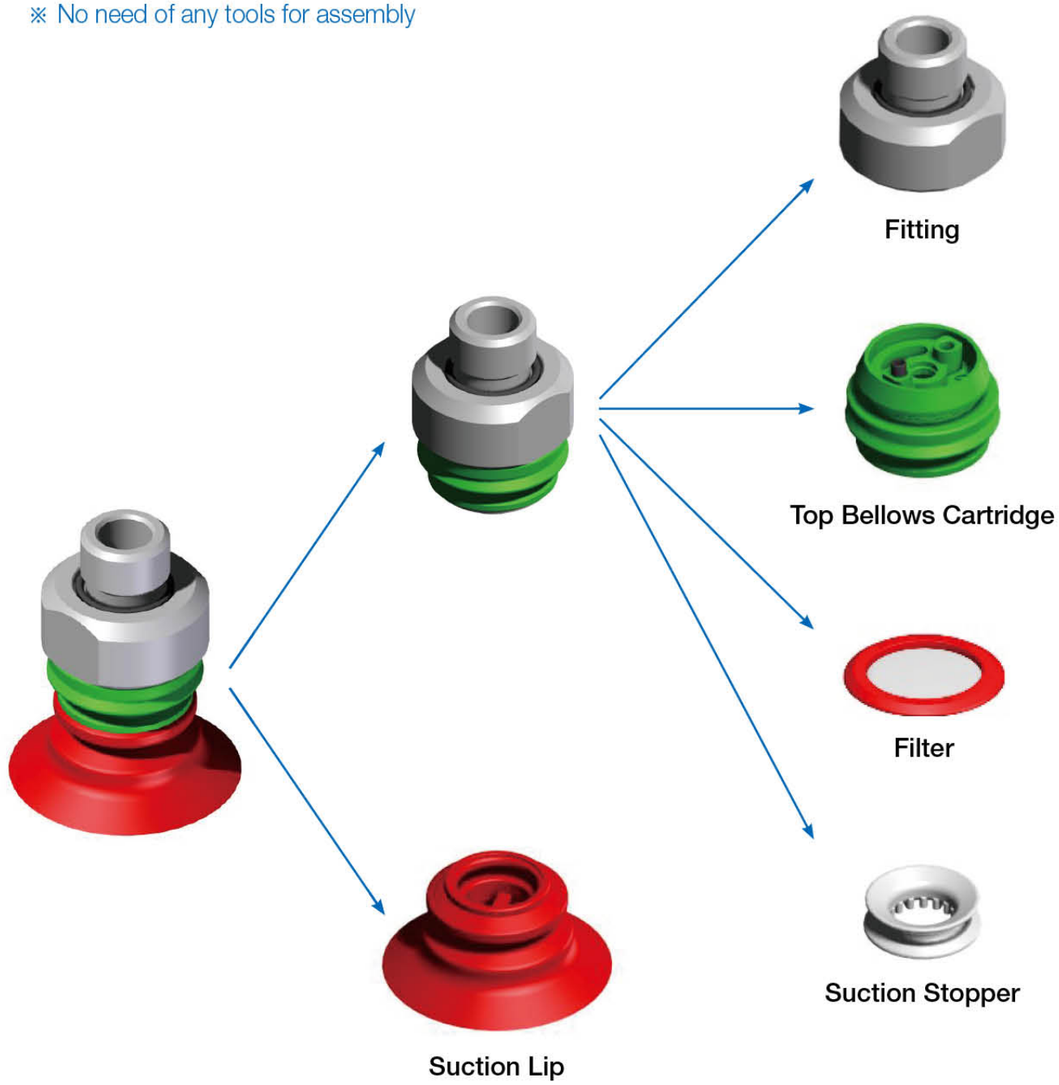
※ No need of any tools for assembly



Disassembly sequence

1) Disassemble sealing lip firstly
2) The put out fitting, bellow cartridge, filter and stopper

※ No need of any tools for assembly



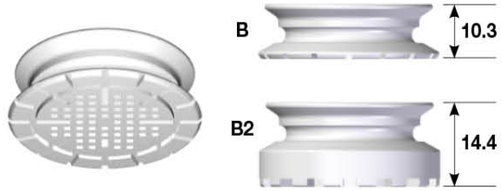
Suction Stoppers

Stopper A



- Recommended with X suction lip
- Suitable for thin and light plastic bags

Stopper B & B2



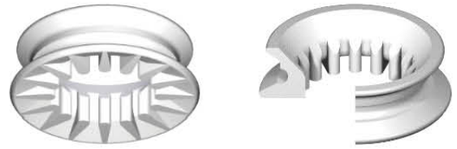
- Recommended with X, U & F suction lip
- Suitable for plastic bags, flexible objects
- Minimized mark for plastic bags

Stopper C



- Recommended with X, U & F suction lip
- Vacuum filter (PE) integrated
- No mark for film, aluminum foil, and thin sheets

Stopper D



- Recommended with X, U, F, P, MBU, DD & MD suction lip
- Use for connecting each bellows cartridge
- Suitable for flat and thin objects

Stopper F



- Recommended with S suction lip
- Sponge suction lip

Stopper G



- Recommended with MU & MF suction lip
- Stopper is not visible when used with suction lip "MU" and "MF" type

Suction lips

“X” lip



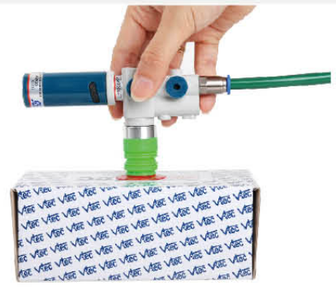
- X suction lip is excellent in handing thin, light and flexible plastic bag applications
- Ice cream bags, Aluminum foil



“U” lip



- U suction lip is excellent in handing flat and slightly curved object applications
- Carton boxes, Flat objects



”F” lip



- F suction lip is excellent in handing flat object applications
- Thin boxes, Wooden panel



“P” lip



- P suction lip is excellent for handling heavy or thick plastic bag applications
- Liquid filled plastic bags, Powder filled plastic bags



Suction lips

"DD" lip	"MBU" lip
	
· DD suction lip is excellent for irregular curved surface, rough surface, and dual lip design offers a safety factor against suction lip wear and tear.	· MBU suction lip is excellent in compensating the height difference for curved objects
	

"MD" lip	"S" lip
	
· MD suction lip is suitable for curved or uneven surface with excellent performance for rounded corners and edges	· S suction lip is excellent in handling uneven surface and porous material
	

Suction lips

"MU" lip	"MF" lip
	
· MU suction lip offers great gripping force for flat and stable surfaces · Metal sheets, Carton boxes, Glass, Veneer sheets	· MF suction lip offers great gripping force for both horizontal and vertical applications
	

X type – Without efficient valve

Features and Strengths

Excellent in handing very thin and flexible plastic bags
Various stopper & lip material options to cover a wide range of vacuum applications

Examples of use

Very thin plastic bags, Pouch bags



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-X25	2.93	0.80	1.79	2.44
B1.5/20-X30	4.53	1.08	2.13	2.62
B1.5/40-X45	17.8	2.14	3.57	5.00
B1.5/40-X55	23.05	2.60	5.27	5.92
B1.5/60-X65	43	4.80	11.50	15.90
B1.5/60-X75	62.5	5.60	12.30	17.90
B2.5/20-X25	5.04	0.80	1.79	2.44
B2.5/20-X30	6.64	1.08	2.13	2.62
B2.5/40-X45	25.2	2.14	3.57	5.00
B2.5/40-X55	32.4	2.60	5.27	5.92
B2.5/60-X65	63.8	4.80	11.50	15.90
B2.5/60-X75	83.3	5.60	12.30	17.90
B4.0/20-X25	4.77	0.80	1.79	2.44
B4.0/20-X30	6.37	1.08	2.13	2.62
B4.0/40-X45	31	2.14	3.57	5.00
B4.0/40-X55	38.2	2.60	5.27	5.92
B5.0/20-X25	5.93	0.80	1.79	2.44
B5.0/20-X30	7.53	1.08	2.13	2.62
B5.0/40-X45	37.8	2.14	3.57	5.00
B5.0/40-X55	45.0	2.60	5.27	5.92
B5.0/60-X65	104.8	4.80	11.50	15.90
B5.0/60-X75	124.3	5.60	12.30	17.90
B6.0/20-X25	8.02	0.80	1.79	2.44
B6.0/20-X30	9.62	1.08	2.13	2.62
B6.0/40-X45	45.1	2.14	3.57	5.00
B6.0/40-X55	52.3	2.60	5.27	5.92
B6.0/60-X65	126.6	4.80	11.50	15.90
B6.0/60-X75	146.1	5.60	12.30	17.90

Material Specifications

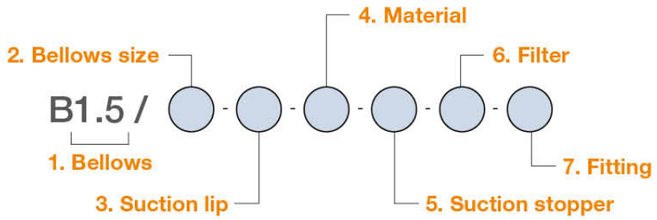
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100
PU - Polyurethane	60	Translucent Orange	0~60

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent	Excellent
Oil	Excellent	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair	Fair
Acid	Fair	Poor	Poor	Poor	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For X25 & X30	20
	40mm bellows diameter: For X45 & X55	40
	60mm bellows diameter: For X65 & X75	60

3. Suction lip	Description	Symbol
	X type lip, 25mm diameter	X25
	X type lip, 30mm diameter	X30
	X type lip, 45mm diameter	X45
	X type lip, 55mm diameter	X55
	X type lip, 65mm diameter	X65
	X type lip, 75mm diameter	X75

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
	Polyurethane: Not available for X65 & X75	PU

5. Suction stopper	Description	Symbol
	A type	A
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for X25 & X30 without efficient valve
TB1.5/40	Top bellows 1.5 folds for X45 & X55 without efficient valve
TB1.5/60	Top bellows 1.5 folds for X65 & X75 without efficient valve
TB2.5/20	Top bellows 2.5 folds for X25 & X30 without efficient valve
TB2.5/40	Top bellows 2.5 folds for X45 & X55 without efficient valve
TB2.5/60	Top bellows 2.5 folds for X65 & X75 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for X25 & X30	MB3.5/20	Middle bellows 3.5 folds for X25 & X30
MB2.5/40	Middle bellows 2.5 folds for X45 & X55	MB3.5/40	Middle bellows 3.5 folds for X45 & X55
		MB3.5/60	Middle bellows 3.5 folds for X65 & X75

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-A	Stopper A type for X25 & X30	MS40-C	Stopper C type for X45 & X55
MS20-B	Stopper B type for X25 & X30	MS40-D	Stopper D type for X45 & X55
MS20-C	Stopper C type for X25 & X30	MS60-A	Stopper A type for X65 & X75
MS20-D	Stopper D type for X25 & X30	MS60-B	Stopper B type for X65 & X75
MS40-A	Stopper A type for X45 & X55	MS60-C	Stopper C type for X65 & X75
MS40-B	Stopper B type for X45 & X55	MS60-D	Stopper D type for X65 & X75

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

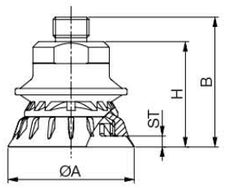
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
X25-N6	X type - 25mm diameter, NBR, 60° hardness	X25-W3(FDA)	X type - 25mm diameter, White Silicone, 30° hardness (FDA)
X30-N6	X type - 30mm diameter, NBR, 60° hardness	X30-W3(FDA)	X type - 30mm diameter, White Silicone, 30° hardness (FDA)
X45-N6	X type - 45mm diameter, NBR, 60° hardness	X45-W3(FDA)	X type - 45mm diameter, White Silicone, 30° hardness (FDA)
X55-N6	X type - 55mm diameter, NBR, 60° hardness	X55-W3(FDA)	X type - 55mm diameter, White Silicone, 30° hardness (FDA)
X65-N6	X type - 65mm diameter, NBR, 60° hardness	X65-W3(FDA)	X type - 65mm diameter, White Silicone, 30° hardness (FDA)
X75-N6	X type - 75mm diameter, NBR, 60° hardness	X75-W3(FDA)	X type - 75mm diameter, White Silicone, 30° hardness (FDA)
X25-S3	X type - 25mm diameter, Silicone, 30° hardness	X25-W5(FDA)	X type - 25mm diameter, White Silicone, 50° hardness (FDA)
X30-S3	X type - 30mm diameter, Silicone, 30° hardness	X30-W5(FDA)	X type - 30mm diameter, White Silicone, 50° hardness (FDA)
X45-S3	X type - 45mm diameter, Silicone, 30° hardness	X45-W5(FDA)	X type - 45mm diameter, White Silicone, 50° hardness (FDA)
X55-S3	X type - 55mm diameter, Silicone, 30° hardness	X55-W5(FDA)	X type - 55mm diameter, White Silicone, 50° hardness (FDA)
X65-S3	X type - 65mm diameter, Silicone, 30° hardness	X65-W5(FDA)	X type - 65mm diameter, White Silicone, 50° hardness (FDA)
X75-S3	X type - 75mm diameter, Silicone, 30° hardness	X75-W5(FDA)	X type - 75mm diameter, White Silicone, 50° hardness (FDA)
X25-S5	X type - 25mm diameter, Silicone, 50° hardness	X25-U6	X type - 25mm diameter, Urethane, 60° hardness
X30-S5	X type - 30mm diameter, Silicone, 50° hardness	X30-U6	X type - 30mm diameter, Urethane, 60° hardness
X45-S5	X type - 45mm diameter, Silicone, 50° hardness	X45-U6	X type - 45mm diameter, Urethane, 60° hardness
X55-S5	X type - 55mm diameter, Silicone, 50° hardness	X55-U6	X type - 55mm diameter, Urethane, 60° hardness
X65-S5	X type - 65mm diameter, Silicone, 50° hardness	X65-U6	X type - 65mm diameter, Urethane, 60° hardness
X75-S5	X type - 75mm diameter, Silicone, 50° hardness	X75-U6	X type - 75mm diameter, Urethane, 60° hardness
X25-W3	X type - 25mm diameter, White Silicone, 30° hardness	X25-PU	X type - 25mm diameter, Polyurethane
X30-W3	X type - 30mm diameter, White Silicone, 30° hardness	X30-PU	X type - 30mm diameter, Polyurethane
X45-W3	X type - 45mm diameter, White Silicone, 30° hardness	X45-PU	X type - 45mm diameter, Polyurethane
X55-W3	X type - 55mm diameter, White Silicone, 30° hardness	X55-PU	X type - 55mm diameter, Polyurethane
X65-W3	X type - 65mm diameter, White Silicone, 30° hardness		
X75-W3	X type - 75mm diameter, White Silicone, 30° hardness		
X25-W5	X type - 25mm diameter, White Silicone, 50° hardness		
X30-W5	X type - 30mm diameter, White Silicone, 50° hardness		
X45-W5	X type - 45mm diameter, White Silicone, 50° hardness		
X55-W5	X type - 55mm diameter, White Silicone, 50° hardness		
X65-W5	X type - 65mm diameter, White Silicone, 50° hardness		
X75-W5	X type - 75mm diameter, White Silicone, 50° hardness		

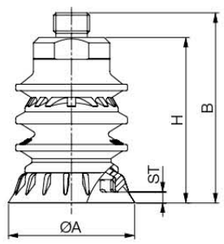
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter
350 003 1107	18F	G1/8 female for 60mm bellows diameter
350 003 1307	14M	G1/4 male for 60mm bellows diameter
350 003 1407	38M	G3/8 male for 60mm bellows diameter
350 003 1707	38F	G3/8 female for 60mm bellows diameter

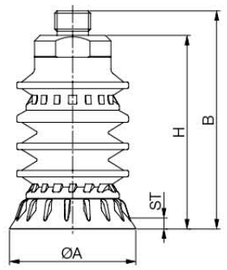
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

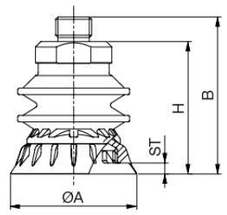
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

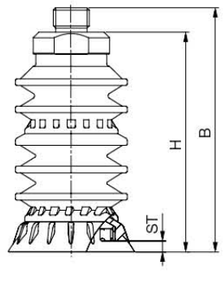
Model	Ø A	G	ST	H *	B *
B1.5/20-X25	26	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8"	2.7	25.4	34.4
B1.5/20-X30	32		3	26.8	35.8
B1.5/40-X45	46		4	38.6	47.6
B1.5/40-X55	54.5		6	41.6	50.6
B1.5/60-X65	65		6.5	50.7	59.7
B1.5/60-X75	75		7.6	55.7	64.7
B4.0/20-X25	26		2.7	36	45
B4.0/20-X30	32		3	37.5	46.5
B4.0/40-X45	46		4	60.7	69..7
B4.0/40-X55	54.5		6	63.7	72.7
B5.0/20-X25	26		2.7	41.1	50.1
B5.0/20-X30	32		3	41.9	50.9
B5.0/40-X45	46		4	70.9	79.9
B5.0/40-X55	54.5		6	72.6	81.6
B5.0/60-X65	65		6.5	97.2	106.2
B5.0/60-X75	75		7.6	102.2	111.2

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B2.5 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
B2.5/20-X25	26	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8"	2.7	33.3	42.3
B2.5/20-X30	32		3	34.9	43.9
B2.5/40-X45	46		4	48.5	57.5
B2.5/40-X55	54.5		6	51.5	60.5
B2.5/60-X65	65		6.5	65.1	74.1
B2.5/60-X75	75		7.6	70.1	79.1
B6.0/20-X25	26		2.7	49	58
B6.0/20-X30	32		3	50.5	59.5
B6.0/40-X45	46		4	80.5	89.5
B6.0/40-X55	54.5		6	83.5	92.5
B6.0/60-X65	65		6.5	111.6	120.6
B6.0/60-X75	75		7.5	116.6	125.6

* Dimension "H" and "B" is measured with 14M fitting option

X type – With efficient valve (EB type)

Features and Strengths

Excellent for very thin and light weight plastic bag in high speed operation
Integrated with adjustable efficient valve

Examples of use

Very thin plastic bags, Pouch bags



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-X25	3.7	0.80	1.79	2.44
EB1.5/20-X30	5.3	1.08	2.13	2.62
EB1.5/40-X45	19.6	2.14	3.57	5.00
EB1.5/40-X55	26.8	2.60	5.27	5.92
EB4.0/20-X25	5.5	0.80	1.79	2.44
EB4.0/20-X30	7.1	1.08	2.13	2.62
EB4.0/40-X45	32.8	2.14	3.57	5.00
EB4.0/40-X55	40	2.60	5.27	5.92
EB5.0/20-X25	6.7	0.80	1.79	2.44
EB5.0/20-X30	8.3	1.08	2.13	2.62
EB5.0/40-X45	39.6	2.14	3.57	5.00
EB5.0/40-X55	46.8	2.60	5.27	5.92

Material Specifications

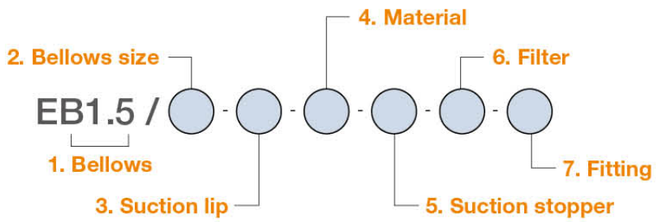
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100
PU - Polyurethane	60	Translucent Orange	0~60

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent	Excellent
Oil	Excellent	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair	Fair
Acid	Fair	Poor	Poor	Poor	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For X25 & X30	20
	40mm bellows diameter: For X45 & X55	40

3. Suction lip	Description	Symbol
	X type lip, 25mm diameter	X25
	X type lip, 30mm diameter	X30
	X type lip, 45mm diameter	X45
	X type lip, 55mm diameter	X55

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
	Polyurethane	PU

5. Suction stopper	Description	Symbol
	A type	A
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for X25 & X30 with efficient valve
EB1.5/40	Top bellows 1.5 folds for X45 & X55 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for X25 & X30	MB3.5/20	Middle bellows 3.5 folds for X25 & X30
MB2.5/40	Middle bellows 2.5 folds for X45 & X55	MB3.5/40	Middle bellows 3.5 folds for X45 & X55

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-A	Stopper A type for X25 & X30	MS40-A	Stopper A type for X45 & X55
MS20-B	Stopper B type for X25 & X30	MS40-B	Stopper B type for X45 & X55
MS20-C	Stopper C type for X25 & X30	MS40-C	Stopper C type for X45 & X55
MS20-D	Stopper D type for X25 & X30	MS40-D	Stopper D type for X45 & X55

Spare Parts – Filters

Part No.	Description	Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter	VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

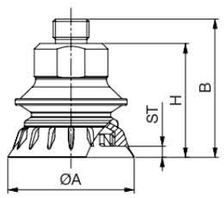
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
X25-N6	X type - 25mm diameter, NBR, 60° hardness	X25-W3(FDA)	X type - 25mm diameter, White Silicone, 30° hardness (FDA)
X30-N6	X type - 30mm diameter, NBR, 60° hardness	X30-W3(FDA)	X type - 30mm diameter, White Silicone, 30° hardness (FDA)
X45-N6	X type - 45mm diameter, NBR, 60° hardness	X45-W3(FDA)	X type - 45mm diameter, White Silicone, 30° hardness (FDA)
X55-N6	X type - 55mm diameter, NBR, 60° hardness	X55-W3(FDA)	X type - 55mm diameter, White Silicone, 30° hardness (FDA)
X25-S3	X type - 25mm diameter, Silicone, 30° hardness	X25-W5(FDA)	X type - 25mm diameter, White Silicone, 50° hardness (FDA)
X30-S3	X type - 30mm diameter, Silicone, 30° hardness	X30-W5(FDA)	X type - 30mm diameter, White Silicone, 50° hardness (FDA)
X45-S3	X type - 45mm diameter, Silicone, 30° hardness	X45-W5(FDA)	X type - 45mm diameter, White Silicone, 50° hardness (FDA)
X55-S3	X type - 55mm diameter, Silicone, 30° hardness	X55-W5(FDA)	X type - 55mm diameter, White Silicone, 50° hardness (FDA)
X25-S5	X type - 25mm diameter, Silicone, 50° hardness	X25-U6	X type - 25mm diameter, Urethane, 60° hardness
X30-S5	X type - 30mm diameter, Silicone, 50° hardness	X30-U6	X type - 30mm diameter, Urethane, 60° hardness
X45-S5	X type - 45mm diameter, Silicone, 50° hardness	X45-U6	X type - 45mm diameter, Urethane, 60° hardness
X55-S5	X type - 55mm diameter, Silicone, 50° hardness	X55-U6	X type - 55mm diameter, Urethane, 60° hardness
X25-W3	X type - 25mm diameter, White Silicone, 30° hardness	X25-PU	X type - 25mm diameter, Polyurethane
X30-W3	X type - 30mm diameter, White Silicone, 30° hardness	X30-PU	X type - 30mm diameter, Polyurethane
X45-W3	X type - 45mm diameter, White Silicone, 30° hardness	X45-PU	X type - 45mm diameter, Polyurethane
X55-W3	X type - 55mm diameter, White Silicone, 30° hardness	X55-PU	X type - 55mm diameter, Polyurethane
X25-W5	X type - 25mm diameter, White Silicone, 50° hardness		
X30-W5	X type - 30mm diameter, White Silicone, 50° hardness		
X45-W5	X type - 45mm diameter, White Silicone, 50° hardness		
X55-W5	X type - 55mm diameter, White Silicone, 50° hardness		

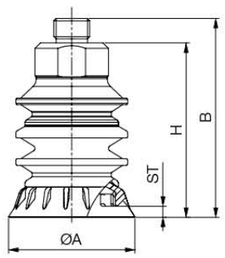
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

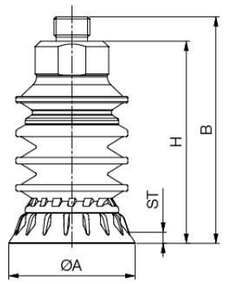
Dimensional Data



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/20-X25	26	Female thread : 1/4",1/8" Male thread : 1/4", 1/8", 3/8"	2.7	25.8	34.8
EB1.5/20-X30	32		3	27.3	36.3
EB1.5/40-X45	46		4	42	51
EB1.5/40-X55	54.5		6	44.7	53.7
EB4.0/20-X25	26		2.7	36.5	45.5
EB4.0/20-X30	32		3	38.1	47.1
EB4.0/40-X45	46		4	64.8	73.8
EB4.0/40-X55	54.5		6	67.4	76.4
EB5.0/20-X25	26		2.7	41.5	50.5
EB5.0/20-X30	32		3	43	52
EB5.0/40-X45	46		4	74.8	83.8
EB5.0/40-X55	54.5		6	80.83	86.4

* Dimension "H" and "B" is measured with 14M fitting option

U type – Without efficient valve

Features and Strengths
Suitable for flat and slightly curved surface products

Examples of use
Thin metal sheets, Carton boxes, Veneer sheets, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-U25	1.83	0.83	2.20	3.06
B1.5/20-U30	2.63	1.22	2.45	3.06
B1.5/40-U45	12.1	2.55	5.66	9.18
B1.5/40-U55	17	3.78	7.09	9.56
B1.5/60-U65	28.8	5.30	13.30	19.40
B1.5/60-U75	40.4	6.60	15.00	20.50
B2.5/20-U25	3.94	0.83	2.20	3.06
B2.5/20-U30	4.74	1.22	2.45	3.06
B2.5/40-U45	19.5	2.55	5.66	9.18
B2.5/40-U55	24.4	3.78	7.09	9.56
B2.5/60-U65	49.6	5.30	13.30	19.40
B2.5/60-U75	61.2	6.60	15.00	20.50
B4.0/20-U25	3.67	0.83	2.20	3.06
B4.0/20-U30	4.47	1.22	2.45	3.06
B4.0/40-U45	25.3	2.55	5.66	9.18
B4.0/40-U55	30.2	3.78	7.09	9.56
B5.0/20-U25	4.83	0.83	2.20	3.06
B5.0/20-U30	5.63	1.22	2.45	3.06
B5.0/40-U45	32.1	2.55	5.66	9.18
B5.0/40-U55	37	3.78	7.09	9.56
B5.0/60-U65	49.6	5.30	13.30	19.40
B5.0/60-U75	61.2	6.60	15.00	20.50
B6.0/20-U25	6.92	0.83	2.20	3.06
B6.0/20-U30	7.72	1.22	2.45	3.06
B6.0/40-U45	39.4	2.55	5.66	9.18
B6.0/40-U55	44.3	3.78	7.09	9.56
B6.0/60-U65	126.6	5.30	13.30	19.40
B6.0/60-U75	146.1	6.60	15.00	20.50

Material Specifications

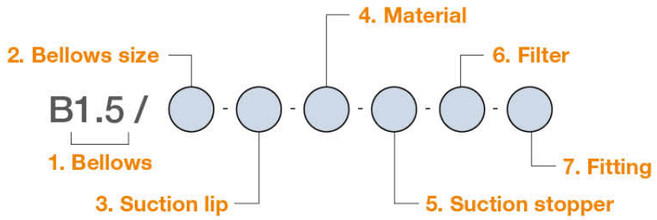
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100
PU - Polyurethane	60	Translucent Orange	0~60

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent	Excellent
Oil	Excellent	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair	Fair
Acid	Fair	Poor	Poor	Poor	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For U25 & U30	20
	40mm bellows diameter: For U45 & U55	40
	60mm bellows diameter: For U65 & U75	60

3. Suction lip	Description	Symbol
	U type lip, 25mm diameter	U25
	U type lip, 30mm diameter	U30
	U type lip, 45mm diameter	U45
	U type lip, 55mm diameter	U55
	U type lip, 65mm diameter	U65
	U type lip, 75mm diameter	U75

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
	Polyurethane: Not available for U65 & U75	PU

5. Suction stopper	Description	Symbol
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for U25 & U30 without efficient valve
TB1.5/40	Top bellows 1.5 folds for U45 & U55 without efficient valve
TB1.5/60	Top bellows 1.5 folds for U65 & U75 without efficient valve
TB2.5/20	Top bellows 2.5 folds for U25 & U30 without efficient valve
TB2.5/40	Top bellows 2.5 folds for U45 & U55 without efficient valve
TB2.5/60	Top bellows 2.5 folds for U65 & U75 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for U25 & U30	MB3.5/20	Middle bellows 3.5 folds for U25 & U30
MB2.5/40	Middle bellows 2.5 folds for U45 & U55	MB3.5/40	Middle bellows 3.5 folds for U45 & U55
		MB3.5/60	Middle bellows 3.5 folds for U65 & U75

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-B	Stopper B type for U25 & U30	MS60-B	Stopper B type for U65 & U75
MS20-C	Stopper C type for U25 & U30	MS60-C	Stopper C type for U65 & U75
MS20-D	Stopper D type for U25 & U30	MS60-D	Stopper D type for U65 & U75
MS40-B	Stopper B type for U45 & U55		
MS40-C	Stopper C type for U45 & U55		
MS40-D	Stopper D type for U45 & U55		

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

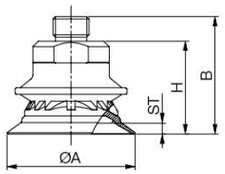
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
U25-N6	U type - 25mm diameter, NBR, 60° hardness	U25-W3(FDA)	U type - 25mm diameter, White Silicone, 30° hardness (FDA)
U30-N6	U type - 30mm diameter, NBR, 60° hardness	U30-W3(FDA)	U type - 30mm diameter, White Silicone, 30° hardness (FDA)
U45-N6	U type - 45mm diameter, NBR, 60° hardness	U45-W3(FDA)	U type - 45mm diameter, White Silicone, 30° hardness (FDA)
U55-N6	U type - 55mm diameter, NBR, 60° hardness	U55-W3(FDA)	U type - 55mm diameter, White Silicone, 30° hardness (FDA)
U65-N6	U type - 65mm diameter, NBR, 60° hardness	U65-W3(FDA)	U type - 65mm diameter, White Silicone, 30° hardness (FDA)
U75-N6	U type - 75mm diameter, NBR, 60° hardness	U75-W3(FDA)	U type - 75mm diameter, White Silicone, 30° hardness (FDA)
U25-S3	U type - 25mm diameter, Silicone, 30° hardness	U25-W5(FDA)	U type - 25mm diameter, White Silicone, 50° hardness (FDA)
U30-S3	U type - 30mm diameter, Silicone, 30° hardness	U30-W5(FDA)	U type - 30mm diameter, White Silicone, 50° hardness (FDA)
U45-S3	U type - 45mm diameter, Silicone, 30° hardness	U45-W5(FDA)	U type - 45mm diameter, White Silicone, 50° hardness (FDA)
U55-S3	U type - 55mm diameter, Silicone, 30° hardness	U55-W5(FDA)	U type - 55mm diameter, White Silicone, 50° hardness (FDA)
U65-S3	U type - 65mm diameter, Silicone, 30° hardness	U65-W5(FDA)	U type - 65mm diameter, White Silicone, 50° hardness (FDA)
U75-S3	U type - 75mm diameter, Silicone, 30° hardness	U75-W5(FDA)	U type - 75mm diameter, White Silicone, 50° hardness (FDA)
U25-S5	U type - 25mm diameter, Silicone, 50° hardness	U25-U6	U type - 25mm diameter, Urethane, 60° hardness
U30-S5	U type - 30mm diameter, Silicone, 50° hardness	U30-U6	U type - 30mm diameter, Urethane, 60° hardness
U45-S5	U type - 45mm diameter, Silicone, 50° hardness	U45-U6	U type - 45mm diameter, Urethane, 60° hardness
U55-S5	U type - 55mm diameter, Silicone, 50° hardness	U55-U6	U type - 55mm diameter, Urethane, 60° hardness
U65-S5	U type - 65mm diameter, Silicone, 50° hardness	U65-U6	U type - 65mm diameter, Urethane, 60° hardness
U75-S5	U type - 75mm diameter, Silicone, 50° hardness	U75-U6	U type - 75mm diameter, Urethane, 60° hardness
U25-W3	U type - 25mm diameter, White Silicone, 30° hardness	U25-PU	U type - 25mm diameter, Polyurethane
U30-W3	U type - 30mm diameter, White Silicone, 30° hardness	U30-PU	U type - 30mm diameter, Polyurethane
U45-W3	U type - 45mm diameter, White Silicone, 30° hardness	U45-PU	U type - 45mm diameter, Polyurethane
U55-W3	U type - 55mm diameter, White Silicone, 30° hardness	U55-PU	U type - 55mm diameter, Polyurethane
U65-W3	U type - 65mm diameter, White Silicone, 30° hardness		
U75-W3	U type - 75mm diameter, White Silicone, 30° hardness		
U25-W5	U type - 25mm diameter, White Silicone, 50° hardness		
U30-W5	U type - 30mm diameter, White Silicone, 50° hardness		
U45-W5	U type - 45mm diameter, White Silicone, 50° hardness		
U55-W5	U type - 55mm diameter, White Silicone, 50° hardness		
U65-W5	U type - 65mm diameter, White Silicone, 50° hardness		
U75-W5	U type - 75mm diameter, White Silicone, 50° hardness		

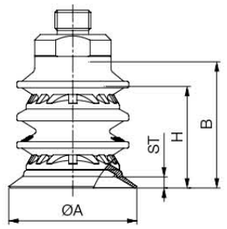
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter
350 003 1107	18F	G1/8 female for 60mm bellows diameter
350 003 1307	14M	G1/4 male for 60mm bellows diameter
350 003 1407	38M	G3/8 male for 60mm bellows diameter
350 003 1707	38F	G3/8 female for 60mm bellows diameter

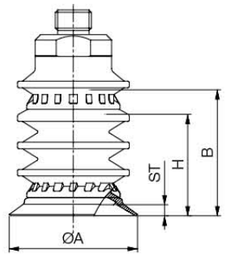
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

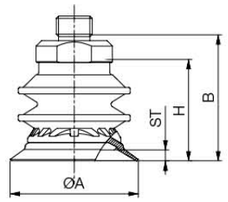
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

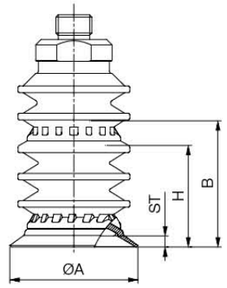
Model	Ø A	G	ST	H *	B *
B1.5/20-U25	26	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8"	2	22.9	31.9
B1.5/20-U30	33		3	23.8	32.8
B1.5/40-U45	47		4	34.1	43.1
B1.5/40-U55	55		6.8	36.9	45.9
B1.5/60-U65	65		5.6	45.4	54.4
B1.5/60-U75	75		9.3	49.1	58.1
B4.0/20-U25	26		2	33.5	42.5
B4.0/20-U30	33		3	34.5	43.5
B4.0/40-U45	47		4	56.2	65.2
B4.0/40-U55	55		6.8	59	68
B5.0/20-U25	26		2	38.5	47.5
B5.0/20-U30	33		3	39.5	48.5
B5.0/40-U45	47		4	66.4	75.4
B5.0/40-U55	55		6.8	68.9	77.9
B5.0/60-U65	65		5.6	91.9	100.9
B5.0/60-U75	75		9.3	95.6	104.6

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B6.0 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
B2.5/20-U25	26	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8"	2	30.8	39.8
B2.5/20-U30	33		3	31.8	40.8
B2.5/40-U45	47		4	44	53
B2.5/40-U55	55		6.8	46	55
B2.5/60-U65	65		5.6	59.8	68.8
B2.5/60-U75	75		9.3	63.5	72.5
B6.0/20-U25	26		2	46.5	55.5
B6.0/20-U30	33		3	47.6	56.6
B6.0/40-U45	47		4	76.5	85.5
B6.0/40-U55	55		6.8	79.3	88.3
B6.0/60-U65	65		5.6	106.3	115.3
B6.0/60-U75	75		9.3	110	119

* Dimension "H" and "B" is measured with 14M fitting option

U type – With efficient valve (EB type)

Features and Strengths
Suitable for flat and slightly curved surface products

Examples of use
Thin metal sheets, Carton boxes, Veneer sheets, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-U25	2.6	0.83	2.20	3.06
EB1.5/20-U30	3.4	1.22	2.45	3.06
EB1.5/40-U45	13.9	2.55	5.66	9.18
EB1.5/40-U55	18.8	3.78	7.09	9.56
EB4.0/20-U25	4.4	0.83	2.20	3.06
EB4.0/20-U30	5.2	1.22	2.45	3.06
EB4.0/40-U45	27.1	2.55	5.66	9.18
EB4.0/40-U55	32	3.78	7.09	9.56
EB5.0/20-U25	5.6	0.83	2.20	3.06
EB5.0/20-U30	6.4	1.22	2.45	3.06
EB5.0/40-U45	33.9	2.55	5.66	9.18
EB5.0/40-U55	38.8	3.78	7.09	9.56

Material Specifications

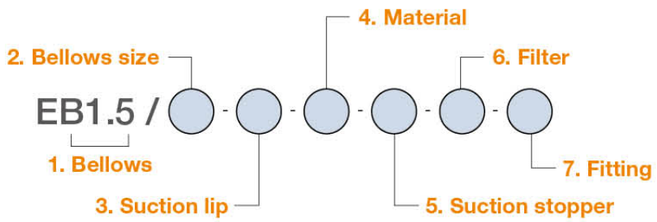
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100
PU - Polyurethane	60	Translucent Orange	0~60

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent	Excellent
Oil	Excellent	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair	Fair
Acid	Fair	Poor	Poor	Poor	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For U25 & U30	20
	40mm bellows diameter: For U45 & U55	40

3. Suction lip	Description	Symbol
	U type lip, 25mm diameter	U25
	U type lip, 30mm diameter	U30
	U type lip, 45mm diameter	U45
	U type lip, 55mm diameter	U55

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
	Polyurethane	PU

5. Suction stopper	Description	Symbol
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for U25 & U30 with efficient valve
EB1.5/40	Top bellows 1.5 folds for U45 & U55 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for U25 & U30	MB3.5/20	Middle bellows 3.5 folds for U25 & U30
MB2.5/40	Middle bellows 2.5 folds for U45 & U55	MB3.5/40	Middle bellows 3.5 folds for U45 & U55

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-B	Stopper B type for U25 & U30	MS40-B	Stopper B type for U45 & U55
MS20-C	Stopper C type for U25 & U30	MS40-C	Stopper C type for U45 & U55
MS20-D	Stopper D type for U25 & U30	MS40-D	Stopper D type for U45 & U55

Spare Parts – Filters

Part No.	Description	Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter	VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

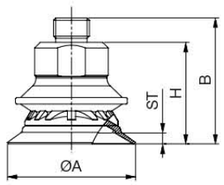
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
U25-N6	U type - 25mm diameter, NBR, 60° hardness	U25-W3(FDA)	U type - 25mm diameter, White Silicone, 30° hardness (FDA)
U30-N6	U type - 30mm diameter, NBR, 60° hardness	U30-W3(FDA)	U type - 30mm diameter, White Silicone, 30° hardness (FDA)
U45-N6	U type - 45mm diameter, NBR, 60° hardness	U45-W3(FDA)	U type - 45mm diameter, White Silicone, 30° hardness (FDA)
U55-N6	U type - 55mm diameter, NBR, 60° hardness	U55-W3(FDA)	U type - 55mm diameter, White Silicone, 30° hardness (FDA)
U25-S3	U type - 25mm diameter, Silicone, 30° hardness	U25-W5(FDA)	U type - 25mm diameter, White Silicone, 50° hardness (FDA)
U30-S3	U type - 30mm diameter, Silicone, 30° hardness	U30-W5(FDA)	U type - 30mm diameter, White Silicone, 50° hardness (FDA)
U45-S3	U type - 45mm diameter, Silicone, 30° hardness	U45-W5(FDA)	U type - 45mm diameter, White Silicone, 50° hardness (FDA)
U55-S3	U type - 55mm diameter, Silicone, 30° hardness	U55-W5(FDA)	U type - 55mm diameter, White Silicone, 50° hardness (FDA)
U25-S5	U type - 25mm diameter, Silicone, 50° hardness	U25-U6	U type - 25mm diameter, Urethane, 60° hardness
U30-S5	U type - 30mm diameter, Silicone, 50° hardness	U30-U6	U type - 30mm diameter, Urethane, 60° hardness
U45-S5	U type - 45mm diameter, Silicone, 50° hardness	U45-U6	U type - 45mm diameter, Urethane, 60° hardness
U55-S5	U type - 55mm diameter, Silicone, 50° hardness	U55-U6	U type - 55mm diameter, Urethane, 60° hardness
U25-W3	U type - 25mm diameter, White Silicone, 30° hardness	U25-PU	U type - 25mm diameter, Polyurethane
U30-W3	U type - 30mm diameter, White Silicone, 30° hardness	U30-PU	U type - 30mm diameter, Polyurethane
U45-W3	U type - 45mm diameter, White Silicone, 30° hardness	U45-PU	U type - 45mm diameter, Polyurethane
U55-W3	U type - 55mm diameter, White Silicone, 30° hardness	U55-PU	U type - 55mm diameter, Polyurethane
U25-W5	U type - 25mm diameter, White Silicone, 50° hardness		
U30-W5	U type - 30mm diameter, White Silicone, 50° hardness		
U45-W5	U type - 45mm diameter, White Silicone, 50° hardness		
U55-W5	U type - 55mm diameter, White Silicone, 50° hardness		

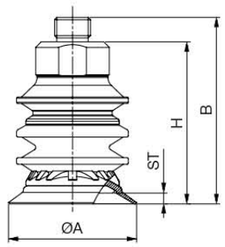
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

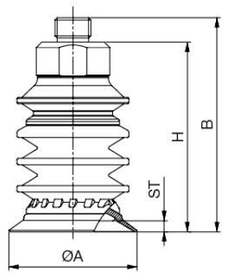
Dimensional Data



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/20-U25	26	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	2	23.3	32.3
EB1.5/20-U30	33		3	24.3	33.3
EB1.5/40-U45	47		4	37.2	46.2
EB1.5/40-U55	55		6.8	40	49
EB4.0/20-U25	26		2	34	43
EB4.0/20-U30	33		3	35	44
EB4.0/40-U45	47		4	59.9	68.9
EB4.0/40-U55	55		6.8	62.7	71.7
EB5.0/20-U25	26		2	39	48
EB5.0/20-U30	33		3	40	49
EB5.0/40-U45	47		4	69.9	78.9
EB5.0/40-U55	55		6.8	72.7	81.7

* Dimension "H" and "B" is measured with 14M fitting option

F type – Without efficient valve

Features and Strengths
Suitable for flat surface products

Examples of use
Yogurts, Thin metal sheets, Carton boxes, Veneer sheets, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-F25	1.53	1.4	2.9	3.7
B1.5/20-F30	2.03	1.9	3.8	4.3
B1.5/40-F45	10.9	3.4	8	9.3
B1.5/40-F55	11.7	4.4	9.9	11.9
B2.5/20-F25	3.64	1.4	2.9	3.7
B2.5/20-F30	4.14	1.9	3.8	4.3
B2.5/40-F45	18.3	3.4	8	9.3
B2.5/40-F55	19.1	4.4	9.9	11.9
B4.0/20-F25	3.37	1.4	2.9	3.7
B4.0/20-F30	3.87	1.9	3.8	4.3
B4.0/40-F45	24.1	3.4	8	9.3
B4.0/40-F55	24.9	4.4	9.9	11.9
B5.0/20-F25	4.53	1.4	2.9	3.7
B5.0/20-F30	5.03	1.9	3.8	4.3
B5.0/40-F45	30.9	3.4	8	9.3
B5.0/40-F55	31.7	4.4	9.9	11.9
B6.0/20-F25	6.62	1.4	2.9	3.7
B6.0/20-F30	7.12	1.9	3.8	4.3
B6.0/40-F45	38.2	3.4	8	9.3
B6.0/40-F55	39.0	4.4	9.9	11.9

Material Specifications

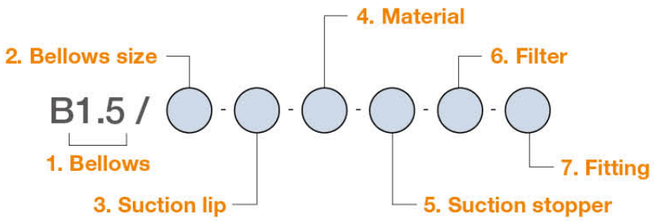
Material	Hardness Shore (°)	Color	Temperature (℃)
PU - Polyurethane	60	Translucent Orange	0~60

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For F25 & F30	20
	40mm bellows diameter: For F45 & F55	40

3. Suction lip	Description	Symbol
	F type lip, 25mm diameter	F25
	F type lip, 30mm diameter	F30
	F type lip, 45mm diameter	F45
	F type lip, 55mm diameter	F55

4. Material	Description	Symbol
	Polyurethane	PU

5. Suction stopper	Description	Symbol
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for F25 & F30 without efficient valve
TB1.5/40	Top bellows 1.5 folds for F45 & F55 without efficient valve
TB2.5/20	Top bellows 2.5 folds for F25 & F30 without efficient valve
TB2.5/40	Top bellows 2.5 folds for F45 & F55 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for F25 & F30	MB3.5/20	Middle bellows 3.5 folds for F25 & F30
MB2.5/40	Middle bellows 2.5 folds for F45 & F55	MB3.5/40	Middle bellows 3.5 folds for F45 & F55

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-B	Stopper B type for F25 & F30	MS40-B	Stopper B type for F45 & F55
MS20-C	Stopper C type for F25 & F30	MS40-C	Stopper C type for F45 & F55
MS20-D	Stopper D type for F25 & F30	MS40-D	Stopper D type for F45 & F55

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

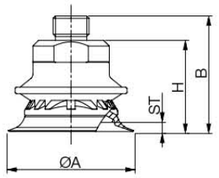
Spare Parts – Suction Lips

Part No.	Description
F25-PU	F type - 25mm diameter, Polyurethane
F30-PU	F type - 30mm diameter, Polyurethane
F45-PU	F type - 45mm diameter, Polyurethane
F55-PU	F type - 55mm diameter, Polyurethane

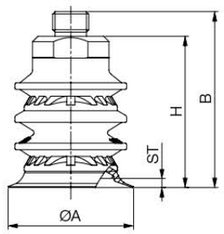
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter

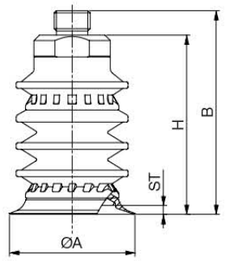
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

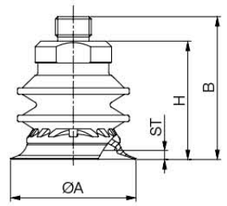
Fitting
18F
18M
14F
14M
38M

[Unit : mm]

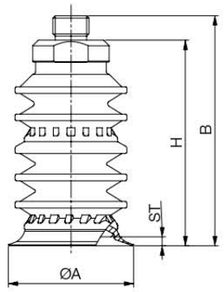
Model	Ø A	G	ST	H *	B *
B1.5/20-F25	26	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	1.5	21.3	31.3
B1.5/20-F30	33		2.2	23	32
B1.5/40-F45	47		3.3	33.4	42.4
B1.5/40-F55	55		3.3	33.4	42.4
B4.0/20-F25	26		1.5	33.8	42.8
B4.0/20-F30	33		2.2	34.5	43.5
B4.0/40-F45	47		3.3	55.4	64.4
B4.0/40-F55	55		3.3	55.4	64.4
B5.0/20-F25	26		1.5	38	47
B5.0/20-F30	33		2.2	38.7	47.7
B5.0/40-F45	47		3.3	65.3	74.3
B5.0/40-F55	55		3.3	65.3	74.3

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B6.0 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
B2.5/20-F25	26	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	1.5	30.3	39.3
B2.5/20-F30	33		2.2	31	41.03
B2.5/40-F45	47		3.3	43.3	52.3
B2.5/40-F55	55		3.3	43.3	52.3
B6.0/20-F25	26		1.5	46	55
B6.0/20-F30	33		2.2	46.7	55.7
B6.0/40-F45	47		3.3	75.3	84.3
B6.0/40-F55	55		3.3	75.3	84.3

* Dimension "H" and "B" is measured with 14M fitting option

F type – With efficient valve (EB type)

Features and Strengths
Suitable for flat and slightly curved surface products

Examples of use
Thin metal sheets, Carton boxes, Veneer sheets, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-F25	2.3	1.4	2.9	3.7
EB1.5/20-F30	2.8	1.9	3.8	4.3
EB1.5/40-F45	12.7	3.4	8	9.3
EB1.5/40-F55	13.5	4.4	9.9	11.9
EB4.0/20-F25	4.1	1.4	2.9	3.7
EB4.0/20-F30	4.6	1.9	3.8	4.3
EB4.0/40-F45	25.9	3.4	8	9.3
EB4.0/40-F55	26.7	4.4	9.9	11.9
EB5.0/20-F25	5.3	1.4	2.9	3.7
EB5.0/20-F30	5.8	1.9	3.8	4.3
EB5.0/40-F45	32.7	3.4	8	9.3
EB5.0/40-F55	33.5	4.4	9.9	11.9

※ The lifting force above does not include safety factor

Material Specifications

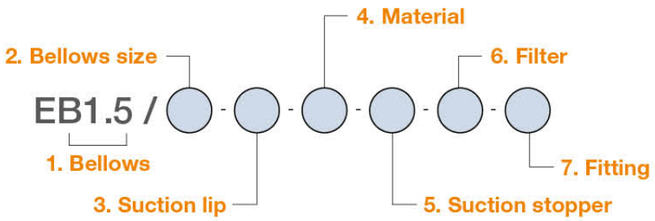
Material	Hardness Shore (°)	Color	Temperature (℃)
PU - Polyurethane	60	Translucent Orange	0~60

※ For additional material, see page 32~33

Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For F25 & F30	20
	40mm bellows diameter: For F45 & F55	40

3. Suction lip	Description	Symbol
	F type lip, 25mm diameter	F25
	F type lip, 30mm diameter	F30
	F type lip, 45mm diameter	F45
	F type lip, 55mm diameter	F55

4. Material	Description	Symbol
	Polyurethane	PU

5. Suction stopper	Description	Symbol
	B type	B
	C type	C
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for F25 & F30 with efficient valve
EB1.5/40	Top bellows 1.5 folds for F45 & F55 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for F25 & F30	MB3.5/20	Middle bellows 3.5 folds for F25 & F30
MB2.5/40	Middle bellows 2.5 folds for F45 & F55	MB3.5/40	Middle bellows 3.5 folds for F45 & F55

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-B	Stopper B type for F25 & F30	MS40-B	Stopper B type for F45 & F55
MS20-C	Stopper C type for F25 & F30	MS40-C	Stopper C type for F45 & F55
MS20-D	Stopper D type for F25 & F30	MS40-D	Stopper D type for F45 & F55

Spare Parts – Filters

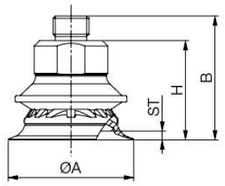
Part No.	Description
VTFE20	Filter (200mesh) for 20mm bellows diameter
VTFE40	Filter (200mesh) for 40mm bellows diameter

Spare Parts – Suction lips

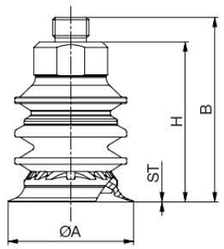
Part No.	Description
F25-PU	F type - 25mm diameter, Polyurethane
F30-PU	F type - 30mm diameter, Polyurethane
F45-PU	F type - 45mm diameter, Polyurethane
F55-PU	F type - 55mm diameter, Polyurethane

Spare Parts – Fittings

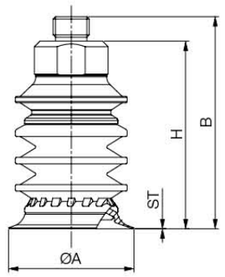
Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/20-F25	26	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	1.5	22.8	31.8
EB1.5/20-F30	33		2.2	23.5	32.5
EB1.5/40-F45	47		3.31	36.5	45.5
EB1.5/40-F55	55		3.34	36.5	45.5
EB4.0/20-F25	26		1.5	33.5	42.5
EB4.0/20-F30	33		2.2	34	43.2
EB4.0/40-F45	47		3.31	59.1	68.1
EB4.0/40-F55	55		3.34	59.2	68.2
EB5.0/20-F25	26		1.5	38.5	47.5
EB5.0/20-F30	33		2.2	39.2	48.2
EB5.0/40-F45	47		3.31	69.1	78.1
EB5.0/40-F55	55		3.34	69.2	78.2

* Dimension "H" and "B" is measured with 14M fitting option

P type – Without efficient valve

Features and Strengths
Excellent for thin plastic bags

Examples of use
Thin plastic bags



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-P15	1.43	0.30	0.50	0.60
B1.5/20-P17	1.53	0.35	0.60	0.74
B1.5/20-P20	1.83	0.40	0.80	0.90
B1.5/20-P27	2.73	0.80	1.79	2.44
B1.5/20-P32	4.13	1.08	2.13	2.62
B1.5/40-P48	14.4	2.14	3.57	5.00
B1.5/40-P60	21.5	2.60	5.27	5.92
B1.5/60-P72	Please contact VMECA for lifting force.			
B1.5/60-P85				
B2.5/20-P15	3.54	0.30	0.50	0.60
B2.5/20-P17	3.64	0.35	0.60	0.74
B2.5/20-P20	3.94	0.40	0.80	0.90
B2.5/20-P27	4.84	0.80	1.79	2.44
B2.5/20-P32	6.24	1.08	2.13	2.62
B2.5/40-P48	21.8	2.14	3.57	5.00
B2.5/40-P60	28.9	2.60	5.27	5.92
B2.5/60-P72	Please contact VMECA for lifting force.			
B2.5/60-P85				
B4.0/20-P15	3.27	0.30	0.50	0.60
B4.0/20-P17	3.37	0.35	0.60	0.74
B4.0/20-P20	3.67	0.40	0.80	0.90
B4.0/20-P27	4.57	0.80	1.79	2.44
B4.0/20-P32	5.97	1.08	2.13	2.62
B4.0/40-P48	21.8	2.14	3.57	5.00
B4.0/40-P60	28.9	2.60	5.27	5.92
B4.5/60-P72	Please contact VMECA for lifting force.			
B4.5/60-P85				
B5.0/20-P15	4.43	0.30	0.50	0.60
B5.0/20-P17	4.53	0.35	0.60	0.74
B5.0/20-P20	4.83	0.40	0.80	0.90
B5.0/20-P27	5.73	0.80	1.79	2.44
B5.0/20-P32	7.13	1.08	2.13	2.62
B5.0/40-P48	34.4	2.14	3.57	5.00
B5.0/40-P60	41.5	2.60	5.27	5.92
B5.0/60-P72	Please contact VMECA for lifting force.			
B5.0/60-P85				
B6.0/20-P15	6.52	0.30	0.50	0.60
B6.0/20-P17	6.62	0.35	0.60	0.74
B6.0/20-P20	6.92	0.40	0.80	0.90
B6.0/20-P27	7.82	0.80	1.79	2.44
B6.0/20-P32	9.22	1.08	2.13	2.62
B6.0/40-P48	41.4	2.14	3.57	5.00
B6.0/40-P60	48.5	2.60	5.27	5.92
B6.0/60-P72	Please contact VMECA for lifting force.			
B6.0/60-P85				

Material Specifications

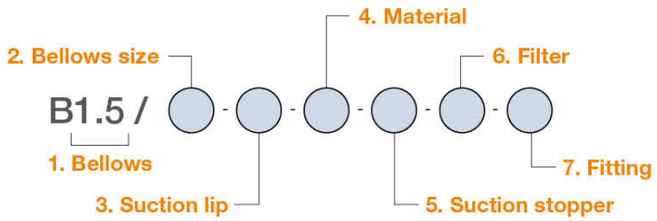
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For P15, P17, P20, P27 & P32	20
	40mm bellows diameter: For P48 & P60	40
	60mm bellows diameter: For P72 & P85	60

3. Suction lip	Description	Symbol
	P type lip, 15mm diameter	P15
	P type lip, 17mm diameter	P17
	P type lip, 20mm diameter	P20
	P type lip, 27mm diameter	P27
	P type lip, 32mm diameter	P32
	P type lip, 48mm diameter	P48
	P type lip, 60mm diameter	P60
	P type lip, 72mm diameter	P72
	P type lip, 85mm diameter	P85

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for P15, P17, P20, P27 & P32 without efficient valve
TB1.5/40	Top bellows 1.5 folds for P48 & P60 without efficient valve
TB1.5/60	Top bellows 1.5 folds for P72 & P85 without efficient valve
TB2.5/20	Top bellows 2.5 folds for P15, P17, P20, P27 & P32 without efficient valve
TB2.5/40	Top bellows 2.5 folds for P48 & P60 without efficient valve
TB2.5/60	Top bellows 2.5 folds for P72 & P85 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for P15, P17, P20, P27 & P32	MB3.5/20	Middle bellows 3.5 folds for P15, P17, P20, P27 & P32
MB2.5/40	Middle bellows 2.5 folds for P48 & P60	MB3.5/40	Middle bellows 3.5 folds for P48 & P60
		MB3.5/60	Middle bellows 3.5 folds for P72 & P85

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-D	Stopper D type for P15, P17, P20, P27 & P32	MS60-D	Stopper D type for P72 & P85
MS40-D	Stopper D type for P48 & P60		

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

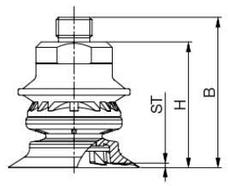
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
P15-N6	P type - 15mm diameter, NBR, 60° hardness	P15-W5	P type - 15mm diameter, White Silicone, 50° hardness
P17-N6	P type - 17mm diameter, NBR, 60° hardness	P17-W5	P type - 17mm diameter, White Silicone, 50° hardness
P20-N6	P type - 20mm diameter, NBR, 60° hardness	P20-W5	P type - 20mm diameter, White Silicone, 50° hardness
P27-N6	P type - 27mm diameter, NBR, 60° hardness	P27-W5	P type - 27mm diameter, White Silicone, 50° hardness
P32-N6	P type - 32mm diameter, NBR, 60° hardness	P32-W5	P type - 32mm diameter, White Silicone, 50° hardness
P48-N6	P type - 48mm diameter, NBR, 60° hardness	P48-W5	P type - 48mm diameter, White Silicone, 50° hardness
P60-N6	P type - 60mm diameter, NBR, 60° hardness	P60-W5	P type - 60mm diameter, White Silicone, 50° hardness
P72-N6	P type - 72mm diameter, NBR, 60° hardness	P72-W5	P type - 72mm diameter, White Silicone, 50° hardness
P85-N6	P type - 85mm diameter, NBR, 60° hardness	P85-W5	P type - 85mm diameter, White Silicone, 50° hardness
P15-S3	P type - 15mm diameter, Silicone, 30° hardness	P15-W3(FDA)	P type - 15mm diameter, White Silicone, 30° hardness (FDA)
P17-S3	P type - 17mm diameter, Silicone, 30° hardness	P17-W3(FDA)	P type - 17mm diameter, White Silicone, 30° hardness (FDA)
P20-S3	P type - 20mm diameter, Silicone, 30° hardness	P20-W3(FDA)	P type - 20mm diameter, White Silicone, 30° hardness (FDA)
P27-S3	P type - 27mm diameter, Silicone, 30° hardness	P27-W3(FDA)	P type - 27mm diameter, White Silicone, 30° hardness (FDA)
P32-S3	P type - 32mm diameter, Silicone, 30° hardness	P32-W3(FDA)	P type - 32mm diameter, White Silicone, 30° hardness (FDA)
P48-S3	P type - 48mm diameter, Silicone, 30° hardness	P48-W3(FDA)	P type - 48mm diameter, White Silicone, 30° hardness (FDA)
P60-S3	P type - 60mm diameter, Silicone, 30° hardness	P60-W3(FDA)	P type - 60mm diameter, White Silicone, 30° hardness (FDA)
P72-S3	P type - 72mm diameter, Silicone, 30° hardness	P72-W3(FDA)	P type - 72mm diameter, White Silicone, 30° hardness (FDA)
P85-S3	P type - 85mm diameter, Silicone, 30° hardness	P85-W3(FDA)	P type - 85mm diameter, White Silicone, 30° hardness (FDA)
P15-S5	P type - 15mm diameter, Silicone, 50° hardness	P15-W5(FDA)	P type - 15mm diameter, White Silicone, 50° hardness (FDA)
P17-S5	P type - 17mm diameter, Silicone, 50° hardness	P17-W5(FDA)	P type - 17mm diameter, White Silicone, 50° hardness (FDA)
P20-S5	P type - 20mm diameter, Silicone, 50° hardness	P20-W5(FDA)	P type - 20mm diameter, White Silicone, 50° hardness (FDA)
P27-S5	P type - 27mm diameter, Silicone, 50° hardness	P27-W5(FDA)	P type - 27mm diameter, White Silicone, 50° hardness (FDA)
P32-S5	P type - 32mm diameter, Silicone, 50° hardness	P32-W5(FDA)	P type - 32mm diameter, White Silicone, 50° hardness (FDA)
P48-S5	P type - 48mm diameter, Silicone, 50° hardness	P48-W5(FDA)	P type - 48mm diameter, White Silicone, 50° hardness (FDA)
P60-S5	P type - 60mm diameter, Silicone, 50° hardness	P60-W5(FDA)	P type - 60mm diameter, White Silicone, 50° hardness (FDA)
P72-S5	P type - 72mm diameter, Silicone, 50° hardness	P72-W5(FDA)	P type - 72mm diameter, White Silicone, 50° hardness (FDA)
P85-S5	P type - 85mm diameter, Silicone, 50° hardness	P85-W5(FDA)	P type - 85mm diameter, White Silicone, 50° hardness (FDA)
P15-W3	P type - 15mm diameter, White Silicone, 30° hardness	P15-U6	P type - 15mm diameter, Urethane, 60° hardness
P17-W3	P type - 17mm diameter, White Silicone, 30° hardness	P17-U6	P type - 17mm diameter, Urethane, 60° hardness
P20-W3	P type - 20mm diameter, White Silicone, 30° hardness	P20-U6	P type - 20mm diameter, Urethane, 60° hardness
P27-W3	P type - 27mm diameter, White Silicone, 30° hardness	P27-U6	P type - 27mm diameter, Urethane, 60° hardness
P32-W3	P type - 32mm diameter, White Silicone, 30° hardness	P32-U6	P type - 32mm diameter, Urethane, 60° hardness
P48-W3	P type - 48mm diameter, White Silicone, 30° hardness	P48-U6	P type - 48mm diameter, Urethane, 60° hardness
P60-W3	P type - 60mm diameter, White Silicone, 30° hardness	P60-U6	P type - 60mm diameter, Urethane, 60° hardness
P72-W3	P type - 72mm diameter, White Silicone, 30° hardness	P72-U6	P type - 72mm diameter, Urethane, 60° hardness
P85-W3	P type - 85mm diameter, White Silicone, 30° hardness	P85-U6	P type - 85mm diameter, Urethane, 60° hardness

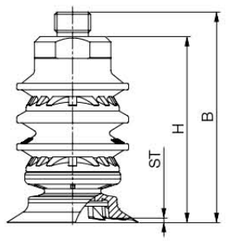
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	Fitting, G1/8 female for 20mm bellows diameter
350 003 1501	14F	Fitting, G1/4 female for 20mm bellows diameter
350 003 1201	18M	Fitting, G1/8 male for 20mm bellows diameter
350 003 1301	14M	Fitting, G1/4 male for 20mm bellows diameter
350 003 1401	38M	Fitting, G3/8 male for 20mm bellows diameter
350 003 1102	18F	Fitting, G1/8 female for 40mm bellows diameter
350 003 1502	14F	Fitting, G1/4 female for 40mm bellows diameter
350 003 1202	18M	Fitting, G1/8 male for 40mm bellows diameter
350 003 1302	14M	Fitting, G1/4 male for 40mm bellows diameter
350 003 1402	38M	Fitting, G3/8 male for 40mm bellows diameter
350 003 1107	18F	Fitting, G1/8 female for 60mm bellows diameter
350 003 1307	14M	Fitting, G1/4 male for 60mm bellows diameter
350 003 1407	38M	Fitting, G3/8 male for 60mm bellows diameter
350 003 1707	38F	Fitting, G3/8 female for 60mm bellows diameter

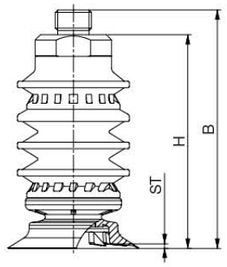
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

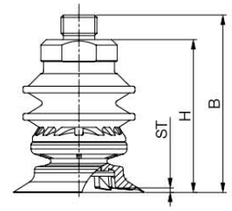
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

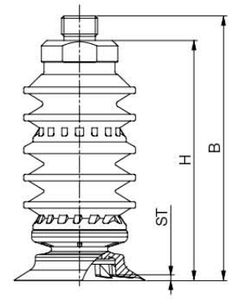
Model	Ø A	G	ST	H *	B *
B 1.5/20 – P15	15.5	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	0.8	28.1	37.1
B 1.5/20 – P17	17		0.9	28.5	37.5
B 1.5/20 – P20	20		0.9	29.4	38.4
B 1.5/20 – P27	27		1.4	30.4	39.4
B 1.5/20 – P32	34		1.5	32.8	41.8
B 4.0/20 – P15	15.5		0.8	38.9	47.9
B 4.0/20 – P17	17		0.9	39.3	48.3
B 4.0/20 – P20	20		0.9	40.2	49.2
B 4.0/20 – P27	27		1.4	41.2	50.2
B 4.0/20 – P32	34		1.5	43.6	52.6
B 5.0/20 – P15	15.5		0.8	43.9	52.9
B 5.0/20 – P17	17		0.9	44.3	53.3
B 5.0/20 – P20	20		0.9	45.2	54.2
B 5.0/20 – P27	27		1.4	46.2	55.2
B 5.0/20 – P32	34		1.5	48.6	57.6
B 1.5/40 – P48	48		1.7	46.0	55.0
B 1.5/40 – P60	60		2.8	49.0	58.0
B 4.0/40 – P48	48		1.7	68.4	77.4
B 4.0/40 – P60	60		2.8	71.4	80.4
B 5.0/40 – P48	48		1.7	78.3	87.3
B 5.0/40 – P60	60		2.8	81.3	90.3
B 1.5/60 – P72	Please contact VMECA for dimensions.				
B 1.5/60 – P85					
B 4.0/60 – P72					
B 4.0/60 – P85					
B 5.0/60 – P72					
B 5.0/60 – P85					

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B6.0 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
B 2.5/20 – P15	15.5	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	0.8	36.1	45.1
B 2.5/20 – P17	17		0.9	36.5	45.5
B 2.5/20 – P20	20		0.9	37.4	46.4
B 2.5/20 – P27	27		1.4	38.4	47.4
B 2.5/20 – P32	34		1.5	40.8	49.8
B 6.0/20 – P15	15.5		0.8	51.9	60.9
B 6.0/20 – P17	17		0.9	52.3	61.3
B 6.0/20 – P20	20		0.9	53.2	62.2
B 6.0/20 – P27	27		1.4	54.2	63.2
B 6.0/20 – P32	34		1.5	56.6	65.6
B 2.5/40 – P48	48		1.7	56.0	65.0
B 2.5/40 – P60	60		2.8	59.0	68.0
B 6.0/40 – P48	48		1.7	88.3	97.3
B 6.0/40 – P60	60		2.8	91.3	100.3
B 2.5/60 – P72	Please contact VMECA for dimensions.				
B 2.5/60 – P85					
B 6.0/60 – P72					
B 6.0/60 – P85					

* Dimension "H" and "B" is measured with 14M fitting option

P type – With efficient valve (EB type)

Features and Strengths
Excellent for thin plastic bags

Examples of use
Thin plastic bags



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-P15	2.2	0.30	0.50	0.60
EB1.5/20-P17	2.3	0.35	0.60	0.74
EB1.5/20-P20	2.6	0.40	0.80	0.90
EB1.5/20-P27	3.5	0.80	1.79	2.44
EB1.5/20-P32	4.9	1.08	2.13	2.62
EB1.5/40-P48	16.1	2.14	3.57	5.00
EB1.5/40-P60	23.2	2.60	5.27	5.92
EB4.0/20-P15	4.0	0.30	0.50	0.60
EB4.0/20-P17	4.1	0.35	0.60	0.74
EB4.0/20-P20	4.4	0.40	0.80	0.90
EB4.0/20-P27	5.3	0.80	1.79	2.44
EB4.0/20-P32	6.7	1.08	2.13	2.62
EB4.0/40-P48	29.4	2.14	3.57	5.00
EB4.0/40-P60	36.5	2.60	5.27	5.92
EB5.0/20-P15	5.19	0.30	0.50	0.60
EB5.0/20-P17	5.29	0.35	0.60	0.74
EB5.0/20-P20	5.59	0.40	0.80	0.90
EB5.0/20-P27	6.49	0.80	1.79	2.44
EB5.0/20-P32	7.89	1.08	2.13	2.62
EB5.0/40-P48	36.2	2.14	3.57	5.00
EB5.0/40-P60	43.3	2.60	5.27	5.92

Material Specifications

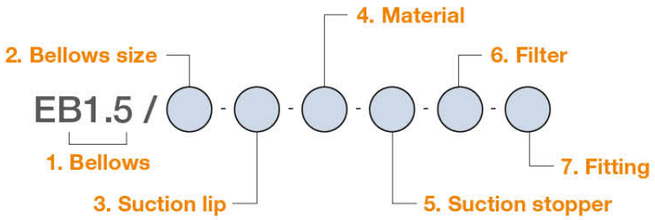
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For P15, P17, P20, P27 & P32	20
	40mm bellows diameter: For P48 & P60	40

3. Suction lip	Description	Symbol
	P type lip, 15mm diameter	P15
	P type lip, 17mm diameter	P17
	P type lip, 20mm diameter	P20
	P type lip, 27mm diameter	P27
	P type lip, 32mm diameter	P32
	P type lip, 48mm diameter	P48
	P type lip, 60mm diameter	P60

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for P15, P17, P20, P27 & P32 with efficient valve
EB1.5/40	Top bellows 1.5 folds for P48 & P60 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for P15, P17, P20, P27 & P32	MB3.5/20	Middle bellows 3.5 folds for P15, P17, P20, P27 & P32
MB2.5/40	Middle bellows 2.5 folds for P48 & P60	MB3.5/40	Middle bellows 3.5 folds for P48 & P60

Spare Parts – Suction Stoppers

Part No.	Description	Part No.	Description
MS20-D	Stopper D type for P15, P17, P20, P27 & P32	MS40-D	Stopper D type for P48 & P60

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

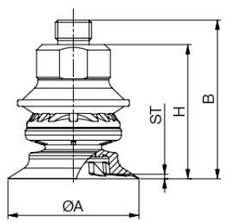
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
P15-N6	P type - 15mm diameter, NBR, 60° hardness	P15-W5	P type - 15mm diameter, White Silicone, 50° hardness
P17-N6	P type - 17mm diameter, NBR, 60° hardness	P17-W5	P type - 17mm diameter, White Silicone, 50° hardness
P20-N6	P type - 20mm diameter, NBR, 60° hardness	P20-W5	P type - 20mm diameter, White Silicone, 50° hardness
P27-N6	P type - 27mm diameter, NBR, 60° hardness	P27-W5	P type - 27mm diameter, White Silicone, 50° hardness
P32-N6	P type - 32mm diameter, NBR, 60° hardness	P32-W5	P type - 32mm diameter, White Silicone, 50° hardness
P48-N6	P type - 48mm diameter, NBR, 60° hardness	P48-W5	P type - 48mm diameter, White Silicone, 50° hardness
P60-N6	P type - 60mm diameter, NBR, 60° hardness	P60-W5	P type - 60mm diameter, White Silicone, 50° hardness
P15-S3	P type - 15mm diameter, Silicone, 30° hardness	P15-W3(FDA)	P type - 15mm diameter, White Silicone, 30° hardness (FDA)
P17-S3	P type - 17mm diameter, Silicone, 30° hardness	P17-W3(FDA)	P type - 17mm diameter, White Silicone, 30° hardness (FDA)
P20-S3	P type - 20mm diameter, Silicone, 30° hardness	P20-W3(FDA)	P type - 20mm diameter, White Silicone, 30° hardness (FDA)
P27-S3	P type - 27mm diameter, Silicone, 30° hardness	P27-W3(FDA)	P type - 27mm diameter, White Silicone, 30° hardness (FDA)
P32-S3	P type - 32mm diameter, Silicone, 30° hardness	P32-W3(FDA)	P type - 32mm diameter, White Silicone, 30° hardness (FDA)
P48-S3	P type - 48mm diameter, Silicone, 30° hardness	P48-W3(FDA)	P type - 48mm diameter, White Silicone, 30° hardness (FDA)
P60-S3	P type - 60mm diameter, Silicone, 30° hardness	P60-W3(FDA)	P type - 60mm diameter, White Silicone, 30° hardness (FDA)
P15-S5	P type - 15mm diameter, Silicone, 50° hardness	P15-W5(FDA)	P type - 15mm diameter, White Silicone, 50° hardness (FDA)
P17-S5	P type - 17mm diameter, Silicone, 50° hardness	P17-W5(FDA)	P type - 17mm diameter, White Silicone, 50° hardness (FDA)
P20-S5	P type - 20mm diameter, Silicone, 50° hardness	P20-W5(FDA)	P type - 20mm diameter, White Silicone, 50° hardness (FDA)
P27-S5	P type - 27mm diameter, Silicone, 50° hardness	P27-W5(FDA)	P type - 27mm diameter, White Silicone, 50° hardness (FDA)
P32-S5	P type - 32mm diameter, Silicone, 50° hardness	P32-W5(FDA)	P type - 32mm diameter, White Silicone, 50° hardness (FDA)
P48-S5	P type - 48mm diameter, Silicone, 50° hardness	P48-W5(FDA)	P type - 48mm diameter, White Silicone, 50° hardness (FDA)
P60-S5	P type - 60mm diameter, Silicone, 50° hardness	P60-W5(FDA)	P type - 60mm diameter, White Silicone, 50° hardness (FDA)
P15-W3	P type - 15mm diameter, White Silicone, 30° hardness	P15-U6	P type - 15mm diameter, Urethane, 60° hardness
P17-W3	P type - 17mm diameter, White Silicone, 30° hardness	P17-U6	P type - 17mm diameter, Urethane, 60° hardness
P20-W3	P type - 20mm diameter, White Silicone, 30° hardness	P20-U6	P type - 20mm diameter, Urethane, 60° hardness
P27-W3	P type - 27mm diameter, White Silicone, 30° hardness	P27-U6	P type - 27mm diameter, Urethane, 60° hardness
P32-W3	P type - 32mm diameter, White Silicone, 30° hardness	P32-U6	P type - 32mm diameter, Urethane, 60° hardness
P48-W3	P type - 48mm diameter, White Silicone, 30° hardness	P48-U6	P type - 48mm diameter, Urethane, 60° hardness
P60-W3	P type - 60mm diameter, White Silicone, 30° hardness	P60-U6	P type - 60mm diameter, Urethane, 60° hardness

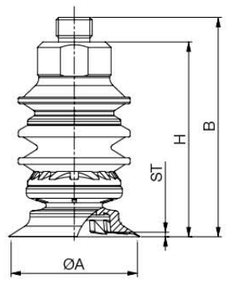
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

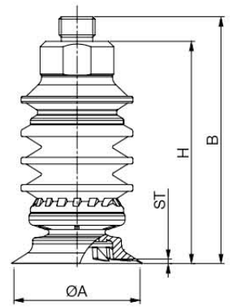
Dimensional Data



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB 1.5/20 – P15	15.5	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	0.8	28.6	37.6
EB 1.5/20 – P17	17		0.9	29	38
EB 1.5/20 – P20	20		0.9	29.9	38.9
EB 1.5/20 – P27	27		1.4	30.9	39.9
EB 1.5/20 – P32	34		1.5	33.3	42.3
EB 4.0/20 – P15	15.5		0.8	39.4	48.4
EB 4.0/20 – P17	17		0.9	39.8	48.8
EB 4.0/20 – P20	20		0.9	40.7	49.7
EB 4.0/20 –P27	27		1.4	41.7	50.7
EB 4.0/20 – P32	34		1.5	44.1	53.1
EB 5.0/20 – P15	15.5		0.8	44.4	53.4
EB 5.0/20 – P17	17		0.9	44.8	53.8
EB 5.0/20 – P20	20		0.9	45.7	54.7
EB 5.0/20 – P27	27		1.4	46.7	55.7
EB 5.0/20 – P32	34		1.5	49.1	58.1
EB 1.5/40 – P48	48		1.7	49.1	58.1
EB 1.5/40 – P60	60		2.8	52.1	61.1
EB 4.0/40 – P48	48		1.7	71.5	80.5
EB 4.0/40 – P60	60		2.8	74.5	83.5
EB 5.0/40 – P48	48		1.7	81.5	90.5
EB 5.0/40 – P60	60		2.8	84.5	93.5

* Dimension "H" and "B" is measured with 14M fitting option

DD type – Without efficient valve

Features and Strengths

Excellent for irregular curved surface and rough surface
Dual lip structure to increase safety caused by lip worn and torn

Examples of use

Food (Fruits), Eggs, Plastic products, Plastic bags



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular (Inner / Outer lip)		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/40-DD4030	17.36	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
B2.5/40-DD4030	24.76	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
B4.0/40-DD4030	30.56	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
B5.0/40-DD4030	37.36	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
B6.0/40-DD4030	44.66	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79

Material Specifications

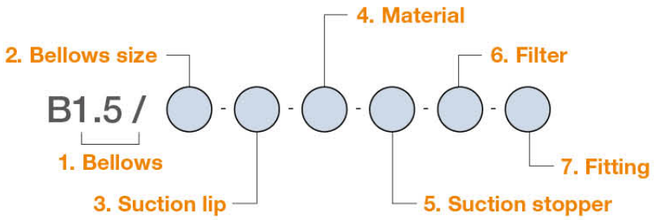
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	40mm bellows diameter	40

3. Suction lip	Description	Symbol
	DD type lip, inner lip 30mm diameter, outer lip 41mm diameter	DD4030

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
TB1.5/40	Top bellows 1.5 folds for DD4030 without efficient valve
TB2.5/40	Top bellows 2.5 folds for DD4030 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for DD4030	MB3.5/40	Middle bellows 3.5 folds for DD4030

Spare Parts – Suction Stoppers

Part No.	Description
MS40-D	Stopper D type for DD4030

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

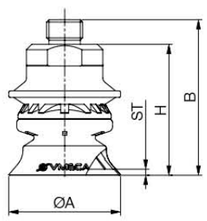
Spare Parts – Suction Lips

Part No.	Description
DD4030-N6	DD type - inner lip 30mm diameter, outer lip 41mm diameter, NBR, 60° hardness
DD4030-S3	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Silicone, 30° hardness
DD4030-S5	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Silicone, 50° hardness
DD4030-W3	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 30° hardness
DD4030-W5	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 50° hardness
DD4030-W3(FDA)	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 30° hardness (FDA)
DD4030-W5 (FDA)	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 50° hardness (FDA)
DD4030-U6	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Urethane, 60° hardness

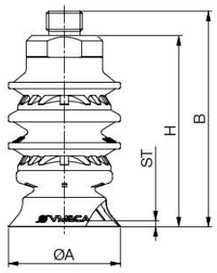
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1102	18F	Fitting, G1/8 female for 40mm bellows diameter
350 003 1502	14F	Fitting, G1/4 female for 40mm bellows diameter
350 003 1202	18M	Fitting, G1/8 male for 40mm bellows diameter
350 003 1302	14M	Fitting, G1/4 male for 40mm bellows diameter
350 003 1402	38M	Fitting, G3/8 male for 40mm bellows diameter

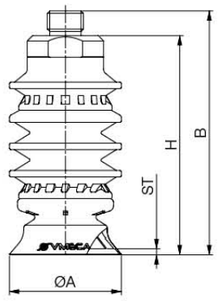
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

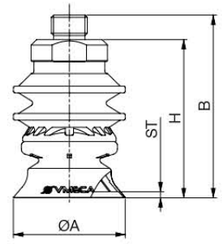
Fitting
18F
18M
14F
14M
38M

[Unit : mm]

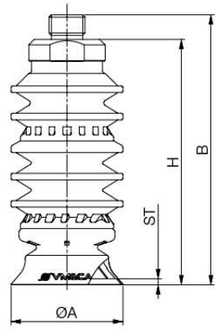
Model	A	A'	G	H *	B *
B1.5/40-DD4030	41	30	Female thread : 1/4",1/8" Male thread : 1/4", 1/8", 3/8"	47.9	56.9
B4.0/40-DD4030	41	30		70.3	79.3
B5.0/40-DD4030	41	30		80.2	89.2

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B6.0 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	A	A'	G	H *	B *
B2.5/40-DD4030	41	30	Female thread : 1/4",1/8" Male thread : 1/4", 1/8", 3/8"	57.9	66.9
B6.0/40-DD4030	41	30		90.2	99.2

* Dimension "H" and "B" is measured with 14M fitting option

DD type – With efficient valve (EB type)

Features and Strengths

Excellent for irregular curved surface and rough surface
Dual lip structure to increase safety caused by lip worn and torn

Examples of use

Food (Fruits), Eggs, Plastic products, Plastic bags



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular (Inner / Outer lip)		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/40-DD4030	18.36	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
EB4.0/40-DD4030	31.90	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79
EB5.0/40-DD4030	38.38	1.07 / 1.84	2.1 / 3.8	2.76 / 4.79

Material Specifications

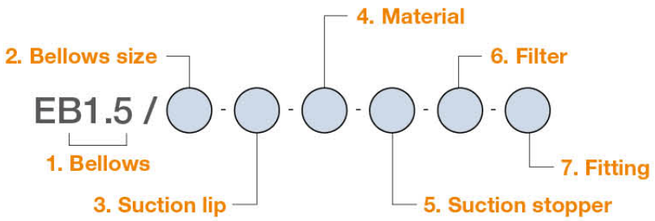
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	40mm bellows diameter	40

3. Suction lip	Description	Symbol
	DD type lip, inner lip 30mm diameter, outer lip 41mm diameter	DD4030

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/40	Top bellows 1.5 folds for DD4030 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for DD4030	MB3.5/40	Middle bellows 3.5 folds for DD4030

Spare Parts – Suction Stoppers

Part No.	Description
MS40-D	Stopper D type for DD4030

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

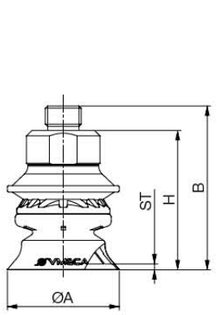
Spare Parts – Suction Lips

Part No.	Description
DD4030-N6	DD type - inner lip 30mm diameter, outer lip 41mm diameter, NBR, 60° hardness
DD4030-S3	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Silicone, 30° hardness
DD4030-S5	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Silicone, 50° hardness
DD4030-W3	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 30° hardness
DD4030-W5	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 50° hardness
DD4030-W3(FDA)	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 30° hardness (FDA)
DD4030-W5 (FDA)	DD type - inner lip 30mm diameter, outer lip 41mm diameter, White Silicone, 50° hardness (FDA)
DD4030-U6	DD type - inner lip 30mm diameter, outer lip 41mm diameter, Urethane, 60° hardness

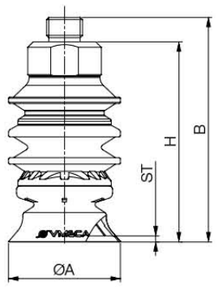
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1102	18F	EB type, G1/8 female for 40mm bellow diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellow diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellow diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellow diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellow diameter

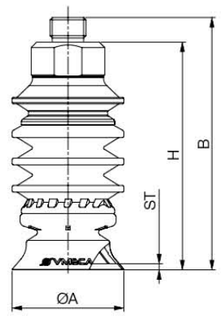
Dimensional Data



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	A	A'	G	H *	B *
EB1.5/40-DD4030	41	30	Female thread : 1/4",1/8" Male thread : 1/4", 1/8", 3/8"	51.0	60.0
EB4.0/40-DD4030	41	30		73.4	82.4
EB5.0/40-DD4030	41	30		83.4	92.4

* Dimension "H" and "B" is measured with 14M fitting option

MBU type – Without efficient valve

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products

Examples of use

Concaved surface, Plastic bag, Metal sheets, Plywood, Carton box



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-MBU17	1.92	0.39	0.57	0.67
B1.5/20-MBU23	2.49	0.52	0.79	0.91
B1.5/20-MBU27	3.10	0.55	0.94	1.05
B2.5/20-MBU17	4.03	0.39	0.57	0.67
B2.5/20-MBU23	4.60	0.52	0.79	0.91
B2.5/20-MBU27	5.21	0.55	0.94	1.05
B4.0/20-MBU17	3.76	0.39	0.57	0.67
B4.0/20-MBU23	4.33	0.52	0.79	0.91
B4.0/20-MBU27	4.94	0.55	0.94	1.05
B5.0/20-MBU17	4.92	0.39	0.57	0.67
B5.0/20-MBU23	5.49	0.52	0.79	0.91
B5.0/20-MBU27	6.10	0.55	0.94	1.05
B6.0/20-MBU17	7.01	0.39	0.57	0.67
B6.0/20-MBU23	7.58	0.52	0.79	0.91
B6.0/20-MBU27	8.19	0.55	0.94	1.05

Material Specifications

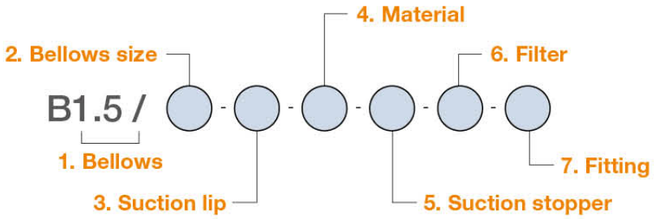
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter	20

3. Suction lip	Description	Symbol
	MBU type lip, 17mm diameter	MBU17
	MBU type lip, 23mm diameter	MBU23
	MBU type lip, 27mm diameter	MBU27

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for MBU17, MBU23 & MBU27 without efficient valve
TB2.5/20	Top bellows 2.5 folds for MBU17, MBU23 & MBU27 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for MBU17, MBU23 & MBU27	MB3.5/20	Middle bellows 3.5 folds for MBU17, MBU23 & MBU27

Spare Parts – Suction Stoppers

Part No.	Description
MS20-D	Stopper D type for MBU17, MBU23 & MBU27

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter

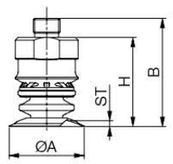
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MBU17-N6	MBU type - 17mm diameter, NBR, 60° hardness	MBU17-W5	MBU type - 17mm diameter, White Silicone, 50° hardness
MBU23-N6	MBU type - 23mm diameter, NBR, 60° hardness	MBU23-W5	MBU type - 23mm diameter, White Silicone, 50° hardness
MBU27-N6	MBU type - 27mm diameter, NBR, 60° hardness	MBU27-W5	MBU type - 27mm diameter, White Silicone, 50° hardness
MBU17-S3	MBU type - 17mm diameter, Silicone, 30° hardness	MBU17-W3(FDA)	MBU type - 17mm diameter, White Silicone, 30° hardness (FDA)
MBU23-S3	MBU type - 23mm diameter, Silicone, 30° hardness	MBU23-W3 (FDA)	MBU type - 23mm diameter, White Silicone, 30° hardness (FDA)
MBU27-S3	MBU type - 27mm diameter, Silicone, 30° hardness	MBU27-W3 (FDA)	MBU type - 27mm diameter, White Silicone, 30° hardness (FDA)
MBU17-S5	MBU type - 17mm diameter, Silicone, 50° hardness	MBU17-W5 (FDA)	MBU type - 17mm diameter, White Silicone, 50° hardness (FDA)
MBU23-S5	MBU type - 23mm diameter, Silicone, 50° hardness	MBU23-W5 (FDA)	MBU type - 23mm diameter, White Silicone, 50° hardness (FDA)
MBU27-S5	MBU type - 27mm diameter, Silicone, 50° hardness	MBU27-W5 (FDA)	MBU type - 27mm diameter, White Silicone, 50° hardness (FDA)
MBU17-W3	MBU type - 17mm diameter, White Silicone, 30° hardness	MBU17-U6	MBU type - 17mm diameter, Urethane, 60° hardness
MBU23-W3	MBU type - 23mm diameter, White Silicone, 30° hardness	MBU23-U6	MBU type - 23mm diameter, Urethane, 60° hardness
MBU27-W3	MBU type - 27mm diameter, White Silicone, 30° hardness	MBU27-U6	MBU type - 27mm diameter, Urethane, 60° hardness

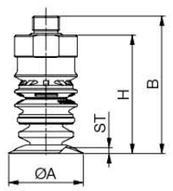
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter

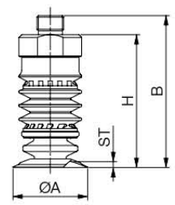
Dimensional Data



[B1.5 / 20 series]



[B4.0 / 20 series]



[B5.0 / 20 series]

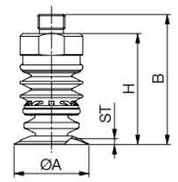
Fitting
18F
18M
14F
14M
38M

[Unit : mm]

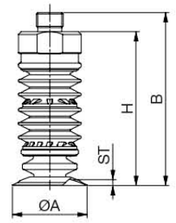
Model	Ø A	G	ST	H*	B *
B1.5/20-MBU17	17	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	2.1	33.0	42.0
B1.5/20-MBU23	23		2.3	33.0	42.0
B1.5/20-MBU27	27		2.7	33.0	42.0
B4.0/20-MBU17	17		2.1	43.8	52.8
B4.0/20-MBU23	23		2.3	43.8	52.8
B4.0/20-MBU27	27		2.7	43.8	52.8
B5.0/20-MBU17	17		2.1	48.8	57.8
B5.0/20-MBU23	23		2.3	48.8	57.8
B5.0/20-MBU27	27		2.7	48.8	57.8

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 series]



[B6.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
B2.5/20-MBU17	17	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	2.1	41.0	50.0
B2.5/20-MBU23	23		2.3	41.0	50.0
B2.5/20-MBU27	27		2.7	41.0	50.0
B6.0/20-MBU17	17		2.1	56.8	65.8
B6.0/20-MBU23	23		2.3	56.8	65.8
B6.0/20-MBU27	27		2.7	56.8	65.8

* Dimension "H" and "B" is measured with 14M fitting option

MBU type – With efficient valve (EB type)

Features and Strengths
Widely cover for increased degree of height compensation
Excellent for curved products

Examples of use
Concaved surface, Plastic bag, Metal sheets, Plywood, Carton box



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-MBU17	2.72	0.39	0.57	0.67
EB1.5/20-MBU23	3.29	0.52	0.79	0.91
EB1.5/20-MBU27	3.9	0.55	0.94	1.05
EB4.0/20-MBU17	4.56	0.39	0.57	0.67
EB4.0/20-MBU23	5.13	0.52	0.79	0.91
EB4.0/20-MBU27	5.74	0.55	0.94	1.05
EB5.0/20-MBU17	5.72	0.39	0.57	0.67
EB5.0/20-MBU23	6.29	0.52	0.79	0.91
EB5.0/20-MBU27	6.9	0.55	0.94	1.05

Material Specifications

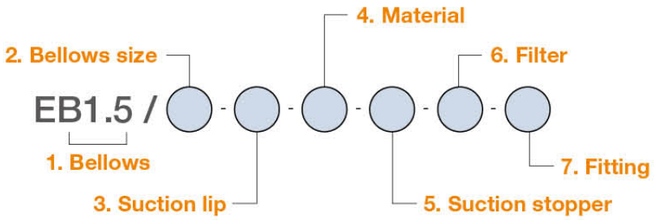
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter	20

3. Suction lip	Description	Symbol
	MBU type lip, 17mm diameter	MBU17
	MBU type lip, 23mm diameter	MBU23
	MBU type lip, 27mm diameter	MBU27

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for MBU17, MBU23 & MBU27 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for MBU17, MBU23 & MBU27	MB3.5/20	Middle bellows 3.5 folds for MBU17, MBU23 & MBU27

Spare Parts – Suction Stoppers

Part No.	Description
MS20-D	Stopper D type for MBU17, MBU23 & MBU27

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter

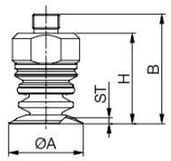
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MBU17-N6	MBU type - 17mm diameter, NBR, 60° hardness	MBU17-W5	MBU type - 17mm diameter, White Silicone, 50° hardness
MBU23-N6	MBU type - 23mm diameter, NBR, 60° hardness	MBU23-W5	MBU type - 23mm diameter, White Silicone, 50° hardness
MBU27-N6	MBU type - 27mm diameter, NBR, 60° hardness	MBU27-W5	MBU type - 27mm diameter, White Silicone, 50° hardness
MBU17-S3	MBU type - 17mm diameter, Silicone, 30° hardness	MBU17-W3(FDA)	MBU type - 17mm diameter, White Silicone, 30° hardness (FDA)
MBU23-S3	MBU type - 23mm diameter, Silicone, 30° hardness	MBU23-W3 (FDA)	MBU type - 23mm diameter, White Silicone, 30° hardness (FDA)
MBU27-S3	MBU type - 27mm diameter, Silicone, 30° hardness	MBU27-W3 (FDA)	MBU type - 27mm diameter, White Silicone, 30° hardness (FDA)
MBU17-S5	MBU type - 17mm diameter, Silicone, 50° hardness	MBU17-W5 (FDA)	MBU type - 17mm diameter, White Silicone, 50° hardness (FDA)
MBU23-S5	MBU type - 23mm diameter, Silicone, 50° hardness	MBU23-W5 (FDA)	MBU type - 23mm diameter, White Silicone, 50° hardness (FDA)
MBU27-S5	MBU type - 27mm diameter, Silicone, 50° hardness	MBU27-W5 (FDA)	MBU type - 27mm diameter, White Silicone, 50° hardness (FDA)
MBU17-W3	MBU type - 17mm diameter, White Silicone, 30° hardness	MBU17-U6	MBU type - 17mm diameter, Urethane, 60° hardness
MBU23-W3	MBU type - 23mm diameter, White Silicone, 30° hardness	MBU23-U6	MBU type - 23mm diameter, Urethane, 60° hardness
MBU27-W3	MBU type - 27mm diameter, White Silicone, 30° hardness	MBU27-U6	MBU type - 27mm diameter, Urethane, 60° hardness

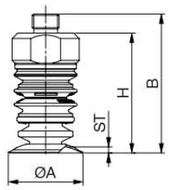
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter

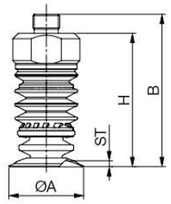
Dimensional Data



[EB1.5 / 20 series]



[EB4.0 / 20 series]



[EB5.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
B1.5/20-MBU17	17	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	2.1	33.5	42.5
B1.5/20-MBU23	23		2.3	33.5	42.5
B1.5/20-MBU27	27		2.7	33.5	42.5
B4.0/20-MBU17	17		2.1	44.3	53.3
B4.0/20-MBU23	23		2.3	44.3	53.3
B4.0/20-MBU27	27		2.7	44.3	53.3
B5.0/20-MBU17	17		2.1	49.3	58.3
B5.0/20-MBU23	23		2.3	49.3	58.3
B5.0/20-MBU27	27		2.7	49.3	58.3

* Dimension "H" and "B" is measured with 14M fitting option

MD type – Without efficient valve

Features and Strengths
Suitable for curved or irregular surface
Excellent performance for round corners and edges

Examples of use
Automobile roofs and doors, Metal sheets, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-MD22	3.29	0.71	1.61	2.20
B2.5/20-MD22	3.57	0.71	1.61	2.20
B4.0/20-MD22	4.49	0.71	1.61	2.20
B5.0/20-MD22	4.78	0.71	1.61	2.20
B6.0/20-MD22	5.26	0.71	1.61	2.20

Material Specifications

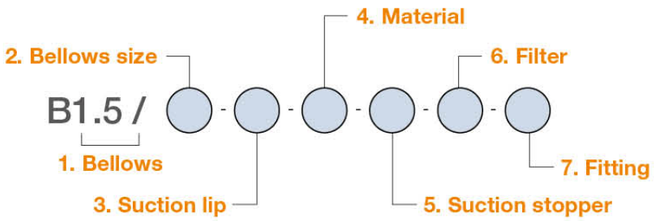
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter	20

3. Suction lip	Description	Symbol
	MD type lip, 22mm diameter	MD22

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for MD22 without efficient valve
TB2.5/20	Top bellows 2.5 folds for MD22 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for MD22	MB3.5/20	Middle bellows 3.5 folds for MD22

Spare Parts – Suction Stoppers

Part No.	Description
MS20-D	Stopper D type for MD22

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter

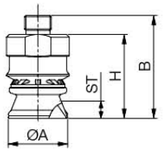
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MD22-N6	MD type - 22mm diameter, NBR, 60° hardness	MD22-W3(FDA)	MD type - 22mm diameter, White Silicone, 30° hardness (FDA)
MD22-S3	MD type - 22mm diameter, Silicone, 30° hardness	MD22-W5(FDA)	MD type - 22mm diameter, White Silicone, 50° hardness (FDA)
MD22-S5	MD type - 22mm diameter, Silicone, 50° hardness	MD22-U6	MD type - 22mm diameter, Urethane, 60° hardness
MD22-W3	MD type - 22mm diameter, White Silicone, 30° hardness		
MD22-W5	MD type - 22mm diameter, White Silicone, 50° hardness		

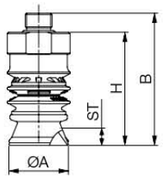
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter

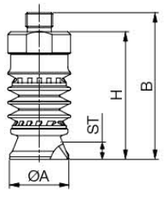
Dimensional Data



[B1.5 / 20 series]



[B4.0 / 20 series]



[B5.0 / 20 series]

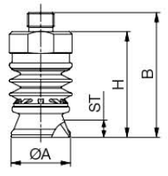
Fitting
18F
18M
14F
14M
38M

[Unit : mm]

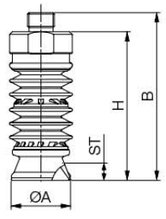
Model	Ø A	G	ST	H*	B *
B1.5/20-MD22	22	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	6.1	31.1	40.1
B4.0/20-MD22	22		6.1	41.9	50.9
B5.0/20-MD22	22		6.1	46.9	55.9

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 series]



[B6.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	ØA	G	ST	H*	B *
B2.5/20-MD22	22	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	6.1	39.1	48.1
B6.0/20-MD22	22		6.1	54.9	63.9

* Dimension "H" and "B" is measured with 14M fitting option

MD type – With efficient valve (EB type)

Features and Strengths
Suitable for curved or irregular surface
Excellent performance for round corners and edges

Examples of use
Automobile roofs and doors, Metal sheets, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-MD22	3.42	0.71	1.61	2.20
EB4.0/20-MD22	4.82	0.71	1.61	2.20
EB5.0/20-MD22	5.11	0.71	1.61	2.20

Material Specifications

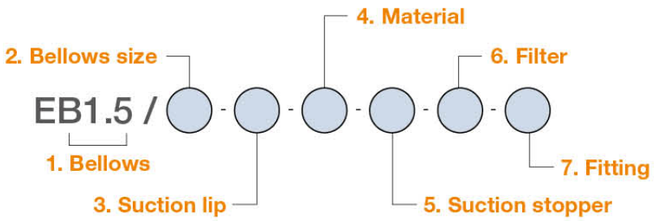
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter	20

3. Suction lip	Description	Symbol
	MD type lip, 22mm diameter	MD22

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	D type	D

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for MD22 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for MD22	MB3.5/20	Middle bellows 3.5 folds for MD22

Spare Parts – Suction Stoppers

Part No.	Description
MS20-D	Stopper D type for MD22

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter

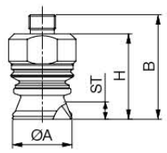
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MD22-N6	MD type - 22mm diameter, NBR, 60° hardness	MD22-W3(FDA)	MD type - 22mm diameter, White Silicone, 30° hardness (FDA)
MD22-S3	MD type - 22mm diameter, Silicone, 30° hardness	MD22-W5(FDA)	MD type - 22mm diameter, White Silicone, 50° hardness (FDA)
MD22-S5	MD type - 22mm diameter, Silicone, 50° hardness	MD22-U6	MD type - 22mm diameter, Urethane, 60° hardness
MD22-W3	MD type - 22mm diameter, White Silicone, 30° hardness		
MD22-W5	MD type - 22mm diameter, White Silicone, 50° hardness		

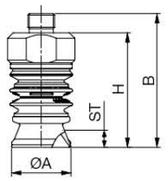
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter

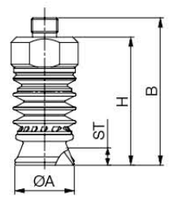
Dimensional Data



[EB1.5 / 20 series]



[EB4.0 / 20 series]



[EB5.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
EB1.5/20-MD22	22	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	6.1	31.6	40.6
EB4.0/20-MD22	22		6.1	42.4	51.4
EB5.0/20-MD22	22		6.1	47.4	56.4

* Dimension "H" and "B" is measured with 14M fitting option

S type – Without efficient valve

Features and Strengths
Excellent performance for rough and uneven surface

Examples of use
Uneven surface products, Bricks, Marbles, Metal sheets, Wood



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/20-S30	3.35	0.94	2.53	3.30
B1.5/40-S50	13.75	1.74	4.36	6.12
B1.5/60-S60	34.17	2.87	7.30	10.34
B2.5/20-S30	5.48	0.94	2.53	3.30
B2.5/40-S50	21.02	1.74	4.36	6.12
B2.5/60-S60	54.93	2.87	7.30	10.34
B4.0/20-S30	5.22	0.94	2.53	3.30
B4.0/40-S50	26.87	1.74	4.36	6.12
B5.0/20-S30	6.37	0.94	2.53	3.30
B5.0/40-S50	33.75	1.74	4.36	6.12
B5.0/60-S60	95.93	2.87	7.30	10.34
B6.0/20-S30	8.46	0.94	2.53	3.30
B6.0/40-S50	41.09	1.74	4.36	6.12
B6.0/60-S60	117.76	2.87	7.30	10.34

Material Specifications

Sponge Lip

Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	15	Black	-0 ~ 120

Insert Pad

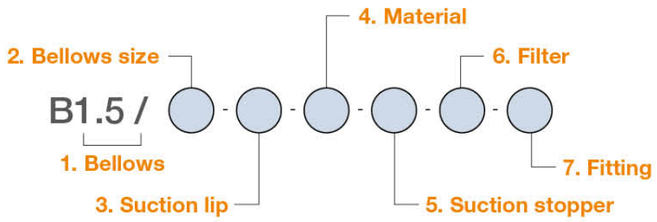
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Black	-20 ~ 110
S5 - Silicone	50	Red	-70 ~ 200
W5 - White Silicone	50	Translucent White	-70 ~ 200

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone
Wear Resistance	Excellent	Good	Good
Oil	Excellent	Poor	Poor
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Good
Acid	Fair	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For S30	20
	40mm bellows diameter: For S50	40
	60mm bellows diameter: For S60	60

3. Suction lip	Description	Symbol
	S type lip, 30mm diameter	S30
	S type lip, 50mm diameter	S50
	S type lip, 60mm diameter	S60

4. Material (Insert pad)	Description	Symbol
	Insert pad NBR (Nitrile), sponge lip EPDM	NE
	Insert pad Silicone 50° hardness, sponge lip EPDM	SE
	Insert pad White Silicone 50° hardness, sponge lip EPDM	WSE

5. Suction stopper	Description	Symbol
	F type: : Only for S type	F

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/20	Top bellows 1.5 folds for S30 without efficient valve
TB1.5/40	Top bellows 1.5 folds for S50 without efficient valve
TB1.5/60	Top bellows 1.5 folds for S60 without efficient valve
TB2.5/20	Top bellows 2.5 folds for S30 without efficient valve
TB2.5/40	Top bellows 2.5 folds for S50 without efficient valve
TB2.5/60	Top bellows 2.5 folds for S60 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for S30	MB3.5/20	Middle bellows 3.5 folds for S30
MB2.5/40	Middle bellows 2.5 folds for S50	MB3.5/40	Middle bellows 3.5 folds for S50
		MB3.5/60	Middle bellows 3.5 folds for S60

Spare Parts – Suction Stoppers

Part No.	Description
MS20-F	Stopper F type for S30
MS40-F	Stopper F type for S50
MS60-F	Stopper F type for S60

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
S3020-E	S type - 30mm diameter, EPDM	S6040-E	S type - 60mm diameter, EPDM
S5030-E	S type - 50mm diameter, EPDM		

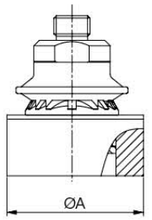
Spare Parts – Insert Pads

Part No.	Description	Part No.	Description
S30-IN	S type – Insert pad , NBR for S30	S30-IWS	S type – Insert pad , White Silicone, 50° hardness for S30
S50-IN	S type – Insert pad , NBR for S50	S50-IWS	S type – Insert pad , White Silicone, 50° hardness for S50
S60-IN	S type – Insert pad , NBR for S60	S60-IWS	S type – Insert pad , White Silicone, 50° hardness for S60
S30-IS	S type – Insert pad , Silicone, 50° hardness for S30		
S50-IS	S type – Insert pad , Silicone, 50° hardness for S50		
S60-IS	S type – Insert pad , Silicone, 50° hardness for S60		

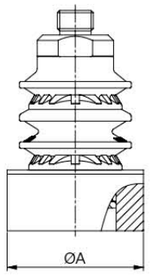
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1101	18F	G1/8 female for 20mm bellows diameter
350 003 1501	14F	G1/4 female for 20mm bellows diameter
350 003 1201	18M	G1/8 male for 20mm bellows diameter
350 003 1301	14M	G1/4 male for 20mm bellows diameter
350 003 1401	38M	G3/8 male for 20mm bellows diameter
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter
350 003 1107	18F	G1/8 female for 60mm bellows diameter
350 003 1307	14M	G1/4 male for 60mm bellows diameter
350 003 1407	38M	G3/8 male for 60mm bellows diameter
350 003 1707	38F	G3/8 female for 60mm bellows diameter

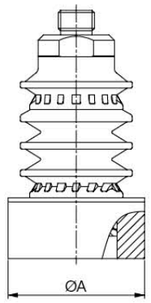
Dimensional Data



[B1.5 / 20 & 40 & 60 series]



[B4.0 / 20 & 40 & 60 series]



[B5.0 / 20 & 40 & 60 series]

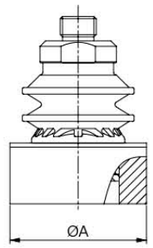
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

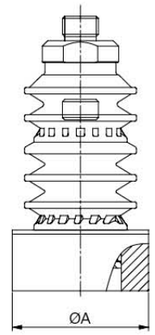
Model	Ø A	Ø A'	G	ST	H*	B *
B1.5/20-S30	30	20	Female thread : 1/4",1/8", 3/8" Male thread : 1/4", 1/8", 3/8"	4.5	32.5	41.5
B1.5/40-S50	50	30		7.5	48.3	57.3
B1.5/60-S60	61	37		11.5	64	73
B4.0/20-S30	30	20		4.5	43.2	52.2
B4.0/40-S50	50	30		7.5	70.7	79.7
B5.0/20-S30	30	20		4.5	49.8	58.8
B5.0/40-S50	50	30		7.5	78.3	87.3
B5.0/60-S60	61	37		11.5	110.6	119.6

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 20 & 40 & 60 series]



[B6.0 / 20 & 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	Ø A'	G	ST	H*	B *
B2.5/20-S30	30	20	Female thread : 1/4",1/8", 3/8" Male thread : 1/4", 1/8", 3/8"	4.5	40.5	49.5
B2.5/40-S50	50	30		7.5	58.2	67.2
B2.5/60-S60	61	37		11.5	78.4	87.4
B6.0/20-S30	30	20		4.5	56.2	65.2
B6.0/40-S50	50	30		7.5	90.4	99.4
B6.0/60-S60	61	37		11.5	125	134

* Dimension "H" and "B" is measured with 14M fitting option

S type – With efficient valve (EB type)

Features and Strengths
Excellent performance for rough and uneven surface

Examples of use
Uneven surface products, Bricks, Marbles, Metal sheets, Wood



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/20-S30	4.15	0.94	2.53	3.30
EB1.5/40-S50	15.55	1.74	4.36	6.12
EB4.0/20-S30	6.02	0.94	2.53	3.30
EB4.0/40-S50	28.67	1.74	4.36	6.12
EB5.0/20-S30	7.17	0.94	2.53	3.30
EB5.0/40-S50	35.55	1.74	4.36	6.12

Material Specifications

Sponge Lip

Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	15	Black	-0 ~ 120

Insert Pad

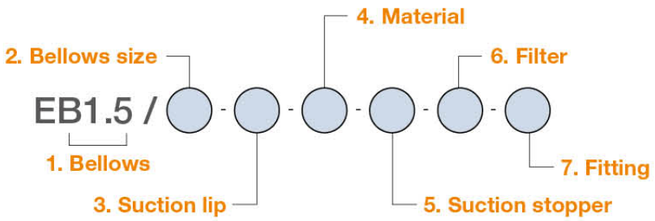
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Black	-20 ~ 110
S5 - Silicone	50	Red	-70 ~ 200
W5 - White Silicone	50	Translucent White	-70 ~ 200

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone
Wear Resistance	Excellent	Good	Good
Oil	Excellent	Poor	Poor
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Good
Acid	Fair	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	20mm bellows diameter: For S30	20
	40mm bellows diameter: For S50	40

3. Suction lip	Description	Symbol
	S type lip, 30mm diameter	S30
	S type lip, 50mm diameter	S50

4. Material (Insert pad)	Description	Symbol
	Insert pad NBR (Nitrile), sponge lip EPDM	NE
	Insert pad Silicone 50° hardness, sponge lip EPDM	SE
	Insert pad White Silicone 50° hardness, sponge lip EPDM	WSE

5. Suction stopper	Description	Symbol
	F type : Only for S type	F

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/20	Top bellows 1.5 folds for S30 with efficient valve
EB1.5/40	Top bellows 1.5 folds for S50 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/20	Middle bellows 2.5 folds for S30	MB3.5/20	Middle bellows 3.5 folds for S30
MB2.5/40	Middle bellows 2.5 folds for S50	MB3.5/40	Middle bellows 3.5 folds for S50

Spare Parts – Suction Stoppers

Part No.	Description
MS20-F	Stopper F type for S30
MS40-F	Stopper F type for S50

Spare Parts – Filters

Part No.	Description
VTFE20	Mesh disk filter (200mesh) for 20mm bellows diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

Spare Parts – Suction Lips

Part No.	Description
S3020-E	S type - 30mm diameter, EPDM
S5030-E	S type - 50mm diameter, EPDM

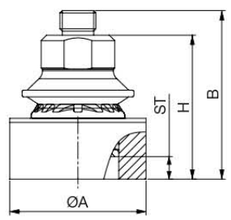
Spare Parts – Insert Pads

Part No.	Description	Part No.	Description
S30-IN	S type – Insert pad , NBR for S30	S30-IWS	S type – Insert pad , White Silicone, 50° hardness for S30
S50-IN	S type – Insert pad , NBR for S50	S50-IWS	S type – Insert pad , White Silicone, 50° hardness for S50
S30-IS	S type – Insert pad , Silicone, 50° hardness for S30		
S50-IS	S type – Insert pad , Silicone, 50° hardness for S50		

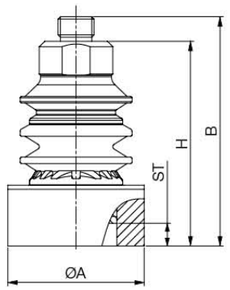
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1101	18F	EB type, G1/8 female for 20mm bellows diameter
350 006 1501	14F	EB type, G1/4 female for 20mm bellows diameter
350 006 1201	18M	EB type, G1/8 male for 20mm bellows diameter
350 006 1301	14M	EB type, G1/4 male for 20mm bellows diameter
350 006 1401	38M	EB type, G3/8 male for 20mm bellows diameter
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

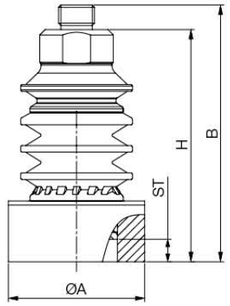
Dimensional Data



[EB1.5 / 20 & 40 series]



[EB4.0 / 20 & 40 series]



[EB5.0 / 20 & 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	Ø A'	G	ST	H*	B *
EB1.5/20-S30	30	20	Female thread : 1/4",1/8" Male thread : 1/4", 1/8", 3/8"	4.5	33	42
EB1.5/40-S50	50	30		7.5	51.3	60.3
EB4.0/20-S30	30	20		4.5	45.2	54.2
EB4.0/40-S50	50	30		7.5	73.7	82.7
EB5.0/20-S30	30	20		4.5	50.2	59.2
EB5.0/40-S50	50	30		7.5	83.5	92.5

* Dimension "H" and "B" is measured with 14M fitting option

MU type – Without efficient valve

Features and Strengths
Best gripping for flat and stable surfaces

Examples of use
Metal sheets, Carton boxes, Glass, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/40-MU45	9.93	0.66	1.34	1.79
B1.5/40-MU55	12.19	1.34	2.81	3.37
B1.5/60-MU65	26.90	2.24	4.37	5.50
B1.5/60-MU75	31.98	3.93	8.18	10.32
B1.5/60-MU80	33.66			
B2.5/40-MU45	17.33	1	3.9	5.5
B2.5/40-MU55	19.58	2.1	5.4	6.8
B2.5/60-MU65	47.70	2.8	7.6	11.4
B2.5/60-MU75	52.78	4.6	9.3	13
B2.5/60-MU80	54.46			
B4.0/40-MU45	23.13	0.66	1.34	1.79
B4.0/40-MU55	25.38	1.34	2.81	3.37
B5.0/40-MU45	29.93	0.66	1.34	1.79
B5.0/40-MU55	32.18	1.34	2.81	3.37
B5.0/60-MU65	88.70	2.24	4.37	5.50
B5.0/60-MU75	93.78	3.93	8.18	10.32
B5.0/60-MU80	95.46			
B6.0/40-MU45	37.23	0.66	1.34	1.79
B6.0/40-MU55	39.48	1.34	2.81	3.37
B6.0/60-MU65	110.50	2.24	4.37	5.50
B6.0/60-MU75	115.58	3.93	8.18	10.32
B6.0/60-MU80	117.26			

Material Specifications

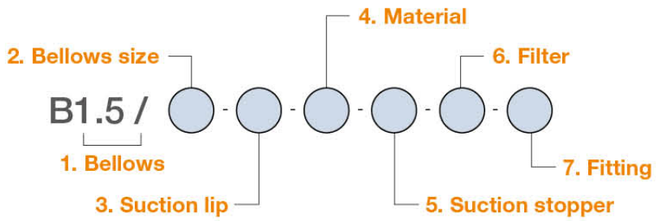
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent	Excellent
Oil	Excellent	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair	Fair
Acid	Fair	Poor	Poor	Poor	Fair

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	40mm bellows diameter: For MU45 & MU55	40
	60mm bellows diameter: For MU65 & MU75 & MU80	60

3. Suction lip	Description	Symbol
	MU type lip, 45mm diameter	MU45
	MU type lip, 55mm diameter	MU55
	MU type lip, 65mm diameter	MU65
	MU type lip, 75mm diameter	MU75
	MU type lip, 80mm diameter	MU80

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	G type	G

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/40	Top bellows 1.5 folds for MU45 & MU55 without efficient valve
TB1.5/60	Top bellows 1.5 folds for MU65 & MU75 & MU80 without efficient valve
TB2.5/40	Top bellows 2.5 folds for MU45 & MU55 without efficient valve
TB2.5/60	Top bellows 2.5 folds for MU65 & MU75 & MU80 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for MU45 & MU55	MB3.5/40	Middle bellows 3.5 folds for MU45 & MU55
		MB3.5/60	Middle bellows 3.5 folds for MU65 & MU75 & MU80

Spare Parts – Suction Stoppers

Part No.	Description
MS40-G	Stopper G type for MU45 & MU55
MS60-G	Stopper G type for MU65 & MU75 & MU80

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

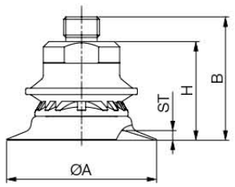
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MU45-N6	MU type - 45mm diameter, NBR, 60° hardness	MU45-W5	MU type - 45mm diameter, White Silicone, 50° hardness
MU55-N6	MU type - 55mm diameter, NBR, 60° hardness	MU55-W5	MU type - 55mm diameter, White Silicone, 50° hardness
MU65-N6	MU type - 65mm diameter, NBR, 60° hardness	MU65-W5	MU type - 65mm diameter, White Silicone, 50° hardness
MU75-N6	MU type - 75mm diameter, NBR, 60° hardness	MU75-W5	MU type - 75mm diameter, White Silicone, 50° hardness
MU80-N6	MU type - 80mm diameter, NBR, 60° hardness	MU80-W5	MU type - 80mm diameter, White Silicone, 50° hardness
MU45-S3	MU type - 45mm diameter, Silicone, 30° hardness	MU45-W3(FDA)	MU type - 45mm diameter, White Silicone, 30° hardness (FDA)
MU55-S3	MU type - 55mm diameter, Silicone, 30° hardness	MU55-W3(FDA)	MU type - 55mm diameter, White Silicone, 30° hardness (FDA)
MU65-S3	MU type - 65mm diameter, Silicone, 30° hardness	MU65-W3(FDA)	MU type - 65mm diameter, White Silicone, 30° hardness (FDA)
MU75-S3	MU type - 75mm diameter, Silicone, 30° hardness	MU75-W3(FDA)	MU type - 75mm diameter, White Silicone, 30° hardness (FDA)
MU80-S3	MU type - 80mm diameter, Silicone, 30° hardness	MU80-W3(FDA)	MU type - 80mm diameter, White Silicone, 30° hardness (FDA)
MU45-S5	MU type - 45mm diameter, Silicone, 50° hardness	MU45-W5(FDA)	MU type - 45mm diameter, White Silicone, 50° hardness (FDA)
MU55-S5	MU type - 55mm diameter, Silicone, 50° hardness	MU55-W5(FDA)	MU type - 55mm diameter, White Silicone, 50° hardness (FDA)
MU65-S5	MU type - 65mm diameter, Silicone, 50° hardness	MU65-W5(FDA)	MU type - 65mm diameter, White Silicone, 50° hardness (FDA)
MU75-S5	MU type - 75mm diameter, Silicone, 50° hardness	MU75-W5(FDA)	MU type - 75mm diameter, White Silicone, 50° hardness (FDA)
MU80-S5	MU type - 80mm diameter, Silicone, 50° hardness	MU80-W5(FDA)	MU type - 80mm diameter, White Silicone, 50° hardness (FDA)
MU45-W3	MU type - 45mm diameter, White Silicone, 30° hardness	MU45-U6	MU type - 45mm diameter, Urethane, 60° hardness
MU55-W3	MU type - 55mm diameter, White Silicone, 30° hardness	MU55-U6	MU type - 55mm diameter, Urethane, 60° hardness
MU65-W3	MU type - 65mm diameter, White Silicone, 30° hardness	MU65-U6	MU type - 65mm diameter, Urethane, 60° hardness
MU75-W3	MU type - 75mm diameter, White Silicone, 30° hardness	MU75-U6	MU type - 75mm diameter, Urethane, 60° hardness
MU80-W3	MU type - 80mm diameter, White Silicone, 30° hardness	MU80-U6	MU type - 80mm diameter, Urethane, 60° hardness

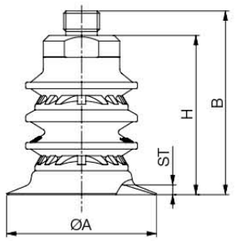
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter
350 003 1107	18F	G1/8 female for 60mm bellows diameter
350 003 1307	14M	G1/4 male for 60mm bellows diameter
350 003 1407	38M	G3/8 male for 60mm bellows diameter
350 003 1707	38F	G3/8 female for 60mm bellows diameter

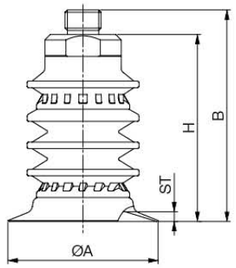
Dimensional Data



[B1.5 / 40 & 60 series]



[B4.0 / 40 & 60 series]



[B5.0 / 40 & 60 series]

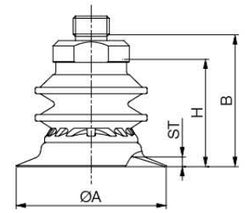
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

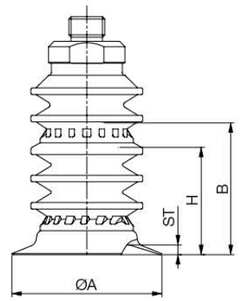
Model	Ø A	G	ST	H*	B *
B1.5/40-MU45	45	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8	3.1	35.9	44.9
B1.5/40-MU55	55		3.5	36.3	45.3
B1.5/60-MU65	65		3.7	47.1	56.1
B1.5/60-MU75	75		4.7	48.1	57.1
B1.5/60-MU80	80		5	49	58
B4.0/40-MU45	45		3.1	58.3	67.3
B4.0/40-MU55	55		3.5	58.7	67.7
B5.0/40-MU45	45		3.1	68.2	77.2
B5.0/40-MU55	55		3.5	68.6	77.6
B5.0/60-MU65	65		3.7	93.7	102.7
B5.0/60-MU75	75		4.7	94.7	103.7
B5.0/60-MU80	80		5	95.6	104.6

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 40 & 60 series]



[B2.5 / 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
B2.5/40-MU45	45	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8	3.1	45.9	54.9
B2.5/40-MU55	55		3.5	46.3	55.3
B2.5/60-MU65	65		3.7	61.6	70.6
B2.5/60-MU75	75		4.7	62.6	71.6
B2.5/60-MU80	80		5	63.5	72.5
B6.0/40-MU45	45		3.1	78.2	87.2
B6.0/40-MU55	55		3.5	78.6	87.6
B6.0/60-MU65	65		3.7	108.1	117.1
B6.0/60-MU75	75		4.7	109.1	118.1
B6.0/60-MU80	80		5	110	119

* Dimension "H" and "B" is measured with 14M fitting option

MU type – With efficient valve (EB type)

Features and Strengths
Best gripping for flat and stable surfaces

Examples of use
Metal sheets, Carton boxes, Glass, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/40-MU45	12.93	0.66	1.34	1.79
EB1.5/40-MU55	15.19	1.34	2.81	3.37
EB4.0/40-MU45	26.13	0.66	1.34	1.79
EB4.0/40-MU55	28.39	1.34	2.81	3.37
EB5.0/40-MU45	32.93	0.66	1.34	1.79
EB5.0/40-MU55	35.19	1.34	2.81	3.37

Material Specifications

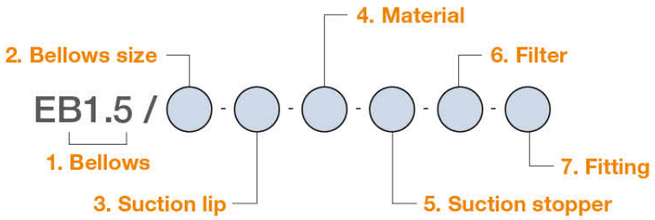
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR (Nitrile)	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	40mm bellows diameter: For MU45 & MU55	40

3. Suction lip	Description	Symbol
	MU type lip, 45mm diameter	MU45
	MU type lip, 55mm diameter	MU55

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	G type	G

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/40	Top bellows 1.5 folds for MU45 & MU55 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for MU45 & MU55	MB3.5/40	Middle bellows 3.5 folds for MU45 & MU55

Spare Parts – Suction Stoppers

Part No.	Description
MS40-G	Stopper G type for MU45 & MU55

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

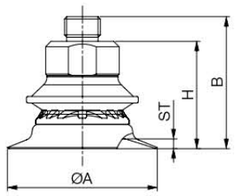
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MU45-N6	MU type - 45mm diameter, NBR, 60° hardness	MU45-W5	MU type - 45mm diameter, White Silicone, 50° hardness
MU55-N6	MU type - 55mm diameter, NBR, 60° hardness	MU55-W5	MU type - 55mm diameter, White Silicone, 50° hardness
MU45-S3	MU type - 45mm diameter, Silicone, 30° hardness	MU45-W3(FDA)	MU type - 45mm diameter, White Silicone, 30° hardness (FDA)
MU55-S3	MU type - 55mm diameter, Silicone, 30° hardness	MU55-W3(FDA)	MU type - 55mm diameter, White Silicone, 30° hardness (FDA)
MU45-S5	MU type - 45mm diameter, Silicone, 50° hardness	MU45-W5(FDA)	MU type - 45mm diameter, White Silicone, 50° hardness (FDA)
MU55-S5	MU type - 55mm diameter, Silicone, 50° hardness	MU55-W5(FDA)	MU type - 55mm diameter, White Silicone, 50° hardness (FDA)
MU45-W3	MU type - 45mm diameter, White Silicone, 30° hardness	MU45-U6	MU type - 45mm diameter, Urethane, 60° hardness
MU55-W3	MU type - 55mm diameter, White Silicone, 30° hardness	MU55-U6	MU type - 55mm diameter, Urethane, 60° hardness

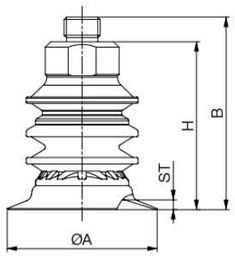
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

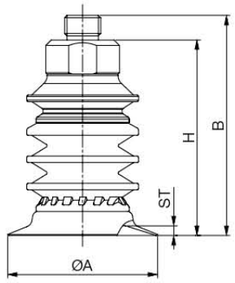
Dimensional Data



[EB1.5 / 40 & 60 series]



[EB4.0 / 40 & 60 series]



[EB5.0 / 40 & 60 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/40-MF45	45	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	1.8	35.9	44.9
EB1.5/40-MF55	55		1.8	36.3	45.3
EB4.0/40-MF45	45		1.8	58.3	67.3
EB4.0/40-MF55	55		1.8	58.7	67.7
EB5.0/40-MF45	45		1.8	68.2	77.2
EB5.0/40-MF55	55		1.8	68.6	77.6

* Dimension "H" and "B" is measured with 14M fitting option

MF type – Without efficient valve

Features and Strengths

Excellent lifting force for both horizontal and vertical application
Good register and enhancing the adhesion to the surface by the feed inside

Examples of use

Metal sheets, Glass, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
B1.5/40-MF45	9.63	0.67	1.62	2.12
B1.5/40-MF55	12.19	1.34	2.81	3.48
B1.5/60-MF65	26.40	2.24	4.49	5.61
B1.5/60-MF75	31.58	4.04	8.31	10.70
B1.5/60-MF80	34.75			
B2.5/40-MF45	17.03	1.3	4.1	5.9
B2.5/40-MF55	19.59	2.3	5.8	7.2
B2.5/60-MF65	47.20	3.1	8.2	11.9
B2.5/60-MF75	52.38	4.9	10.2	13.5
B2.5/60-MF80	55.55			
B4.0/40-MF45	22.83	0.67	1.62	2.12
B4.0/40-MF55	25.39	1.34	2.81	3.48
B5.0/40-MF45	29.63	0.67	1.62	2.12
B5.0/40-MF55	32.19	1.34	2.81	3.48
B5.0/60-MF65	88.20	2.24	4.49	5.61
B5.0/60-MF75	93.38	4.04	8.31	10.70
B5.0/60-MF80	96.55			
B6.0/40-MF45	36.93	0.67	1.62	2.12
B6.0/40-MF55	39.49	1.34	2.81	3.48
B6.0/60-MF65	110.04	2.24	4.49	5.61
B6.0/60-MF75	115.18	4.04	8.31	10.70
B6.0/60-MF80	118.35			

Material Specifications

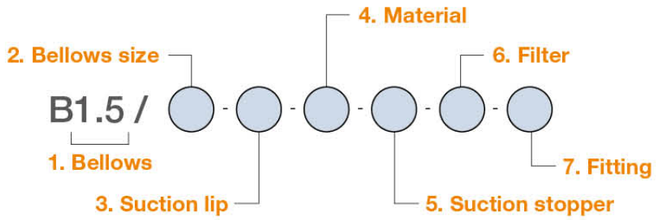
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0

2. Bellows size	Description	Symbol
	40mm bellows diameter: For MF45 & MF55	40
	60mm bellows diameter: For MF65 & MF75 & MF80	60

3. Suction lip	Description	Symbol
	MF type lip, 45mm diameter	MF45
	MF type lip, 55mm diameter	MF55
	MF type lip, 65mm diameter	MF65
	MF type lip, 75mm diameter	MF75
	MF type lip, 80mm diameter	MF80

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	G type	G

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

Part No.	Description
TB1.5/40	Top bellows 1.5 folds for MF45 & MF55 without efficient valve
TB1.5/60	Top bellows 1.5 folds for MF65 & MF75 & MF80 without efficient valve
TB2.5/40	Top bellows 2.5 folds for MF45 & MF55 without efficient valve
TB2.5/60	Top bellows 2.5 folds for MF65 & MF75 & MF80 without efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for MF45 & MF55	MB3.5/40	Middle bellows 3.5 folds for MF45 & MF55
		MB3.5/60	Middle bellows 3.5 folds for MF65 & MF75 & MF80

Spare Parts – Suction Stoppers

Part No.	Description
MS40-G	Stopper G type for MF45 & MF55
MS60-G	Stopper G type for MF65 & MF75 & MF80

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellows diameter

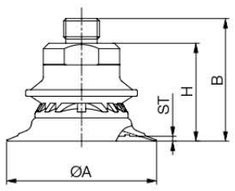
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MF45-N6	MF type - 45mm diameter, NBR, 60° hardness	MF45-W5	MF type - 45mm diameter, White Silicone, 50° hardness
MF55-N6	MF type - 55mm diameter, NBR, 60° hardness	MF55-W5	MF type - 55mm diameter, White Silicone, 50° hardness
MF65-N6	MF type - 65mm diameter, NBR, 60° hardness	MF65-W5	MF type - 65mm diameter, White Silicone, 50° hardness
MF75-N6	MF type - 75mm diameter, NBR, 60° hardness	MF75-W5	MF type - 75mm diameter, White Silicone, 50° hardness
MF80-N6	MF type - 80mm diameter, NBR, 60° hardness	MF80-W5	MF type - 80mm diameter, White Silicone, 50° hardness
MF45-S3	MF type - 45mm diameter, Silicone, 30° hardness	MF45-W3(FDA)	MF type - 45mm diameter, White Silicone, 30° hardness (FDA)
MF55-S3	MF type - 55mm diameter, Silicone, 30° hardness	MF55-W3(FDA)	MF type - 55mm diameter, White Silicone, 30° hardness (FDA)
MF65-S3	MF type - 65mm diameter, Silicone, 30° hardness	MF65-W3(FDA)	MF type - 65mm diameter, White Silicone, 30° hardness (FDA)
MF75-S3	MF type - 75mm diameter, Silicone, 30° hardness	MF75-W3(FDA)	MF type - 75mm diameter, White Silicone, 30° hardness (FDA)
MF80-S3	MF type - 80mm diameter, Silicone, 30° hardness	MF80-W3(FDA)	MF type - 80mm diameter, White Silicone, 30° hardness (FDA)
MF45-S5	MF type - 45mm diameter, Silicone, 50° hardness	MF45-W5(FDA)	MF type - 45mm diameter, White Silicone, 50° hardness (FDA)
MF55-S5	MF type - 55mm diameter, Silicone, 50° hardness	MF55-W5(FDA)	MF type - 55mm diameter, White Silicone, 50° hardness (FDA)
MF65-S5	MF type - 65mm diameter, Silicone, 50° hardness	MF65-W5(FDA)	MF type - 65mm diameter, White Silicone, 50° hardness (FDA)
MF75-S5	MF type - 75mm diameter, Silicone, 50° hardness	MF75-W5(FDA)	MF type - 75mm diameter, White Silicone, 50° hardness (FDA)
MF80-S5	MF type - 80mm diameter, Silicone, 50° hardness	MF80-W5(FDA)	MF type - 80mm diameter, White Silicone, 50° hardness (FDA)
MF45-W3	MF type - 45mm diameter, White Silicone, 30° hardness	MF45-U6	MF type - 45mm diameter, Urethane, 60° hardness
MF55-W3	MF type - 55mm diameter, White Silicone, 30° hardness	MF55-U6	MF type - 55mm diameter, Urethane, 60° hardness
MF65-W3	MF type - 65mm diameter, White Silicone, 30° hardness	MF65-U6	MF type - 65mm diameter, Urethane, 60° hardness
MF75-W3	MF type - 75mm diameter, White Silicone, 30° hardness	MF75-U6	MF type - 75mm diameter, Urethane, 60° hardness
MF80-W3	MF type - 80mm diameter, White Silicone, 30° hardness	MF80-U6	MF type - 80mm diameter, Urethane, 60° hardness

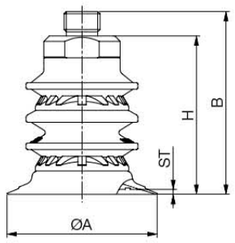
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 003 1102	18F	G1/8 female for 40mm bellows diameter
350 003 1502	14F	G1/4 female for 40mm bellows diameter
350 003 1202	18M	G1/8 male for 40mm bellows diameter
350 003 1302	14M	G1/4 male for 40mm bellows diameter
350 003 1402	38M	G3/8 male for 40mm bellows diameter
350 003 1107	18F	G1/8 female for 60mm bellows diameter
350 003 1307	14M	G1/4 male for 60mm bellows diameter
350 003 1407	38M	G3/8 male for 60mm bellows diameter
350 003 1707	38F	G3/8 female for 60mm bellows diameter

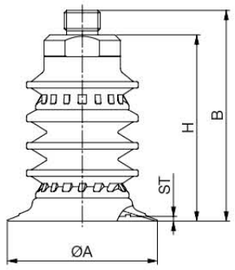
Dimensional Data



[B1.5 / 40 & 60 series]



[B4.0 / 40 & 60 series]



[B5.0 / 40 & 60 series]

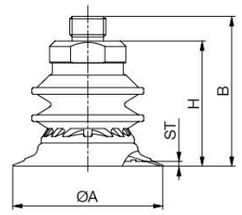
Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

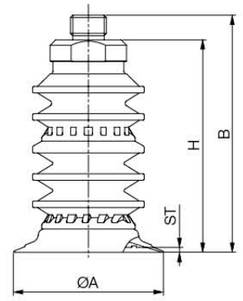
Model	Ø A	G	ST	H *	B *
B1.5/40-MF45	15.5	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8	1.8	35.9	44.9
B1.5/40-MF55	17		1.8	36.3	45.3
B1.5/60-MF65	20		2.5	47.1	56.1
B1.5/60-MF75	27		2.5	48.1	57.1
B1.5/60-MF80	80		3	49	58
B4.0/40-MF45	34		1.8	58.3	67.3
B4.0/40-MF55	15.5		1.8	58.7	67.7
B5.0/40-MF45	17		1.8	68.2	77.2
B5.0/40-MF55	20		1.8	68.6	77.6
B5.0/60-MF65	27		2.5	93.7	102.7
B5.0/60-MF75	34		2.5	94.7	103.7
B5.0/60-MF80	80		3	95.6	104.6

* Dimension "H" and "B" is measured with 14M fitting option

Dimensional Data



[B2.5 / 40 & 60 series]



[B2.5 / 40 & 60 series]

Fitting
18F
18M
14F
14M
38F
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
B2.5/40-MF45	45	Female thread : 1/8", 1/4", 3/8" Male thread : 1/8", 1/4", 3/8	1.8	45.9	54.9
B2.5/40-MF55	55		1.8	46.3	55.3
B2.5/60-MF65	65		2.5	61.6	70.6
B2.5/60-MF75	75		2.5	62.6	71.6
B2.5/60-MF80	80		3	63.5	72.5
B6.0/40-MF45	45		1.8	78.2	87.2
B6.0/40-MF55	55		1.8	78.6	87.6
B6.0/60-MF65	65		2.5	108.1	117.1
B6.0/60-MF75	75		2.5	109.1	118.1
B6.0/60-MF80	65		3	110	119

* Dimension "H" and "B" is measured with 14M fitting option

MF type – With efficient valve (EB type)

Features and Strengths
Excellent lifting force for both horizontal and vertical application
Good register and enhancing the adhesion to the surface by the feed inside

Examples of use
Metal sheets, Carton boxes, Glass, Veneer sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
EB1.5/40-MF45	12.63	0.66	1.34	1.79
EB1.5/40-MF55	15.18	1.34	2.81	3.37
EB4.0/40-MF45	25.83	0.66	1.34	1.79
EB4.0/40-MF55	28.38	1.34	2.81	3.37
EB5.0/40-MF45	32.63	0.66	1.34	1.79
EB5.0/40-MF55	35.18	1.34	2.81	3.37

Material Specifications

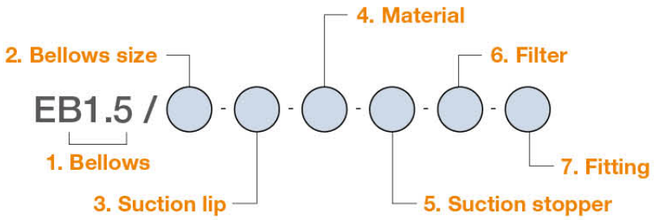
Material	Hardness Shore (°)	Color	Temperature (℃)
N6 - NBR (Nitrile)	60	Blue	-20~110
S3 - Silicone	30	Translucent White	-70~200
S5 - Silicone	50	Red	-70~200
W3 - White Silicone	30	Translucent White	-70~200
W5 - White Silicone	50	Translucent White	-70~200
W3(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60℃
** For additional materials, please contact us

Material Resistance

Description	NBR	Silicone	White Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor

Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 1.5 folds with efficient valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficient valve + Middle bellows 3.5 folds	EB5.0

2. Bellows size	Description	Symbol
	40mm bellows diameter: For MF45 & MF55	40

3. Suction lip	Description	Symbol
	MF type lip, 45mm diameter	MF45
	MF type lip, 55mm diameter	MF55

4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6

5. Suction stopper	Description	Symbol
	G type	G

6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2

7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

Part No.	Description
EB1.5/40	Top bellows 1.5 folds for MF45 & MF55 with efficient valve

Spare Parts – Middle Bellows

Part No.	Description	Part No.	Description
MB2.5/40	Middle bellows 2.5 folds for MF45 & MF55	MB3.5/40	Middle bellows 3.5 folds for MF45 & MF55

Spare Parts – Suction Stoppers

Part No.	Description
MS40-G	Stopper G type for MF45 & MF55

Spare Parts – Filters

Part No.	Description
VTFE40	Mesh disk filter (200mesh) for 40mm bellows diameter

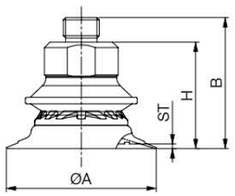
Spare Parts – Suction Lips

Part No.	Description	Part No.	Description
MF45-N6	MF type - 45mm diameter, NBR, 60° hardness	MF45-W5	MF type - 45mm diameter, White Silicone, 50° hardness
MF55-N6	MF type - 55mm diameter, NBR, 60° hardness	MF55-W5	MF type - 55mm diameter, White Silicone, 50° hardness
MF45-S3	MF type - 45mm diameter, Silicone, 30° hardness	MF45-W3(FDA)	MF type - 45mm diameter, White Silicone, 30° hardness (FDA)
MF55-S3	MF type - 55mm diameter, Silicone, 30° hardness	MF55-W3(FDA)	MF type - 55mm diameter, White Silicone, 30° hardness (FDA)
MF45-S5	MF type - 45mm diameter, Silicone, 50° hardness	MF45-W5(FDA)	MF type - 45mm diameter, White Silicone, 50° hardness (FDA)
MF55-S5	MF type - 55mm diameter, Silicone, 50° hardness	MF55-W5(FDA)	MF type - 55mm diameter, White Silicone, 50° hardness (FDA)
MF45-W3	MF type - 45mm diameter, White Silicone, 30° hardness	MF45-U6	MF type - 45mm diameter, Urethane, 60° hardness
MF55-W3	MF type - 55mm diameter, White Silicone, 30° hardness	MF55-U6	MF type - 55mm diameter, Urethane, 60° hardness

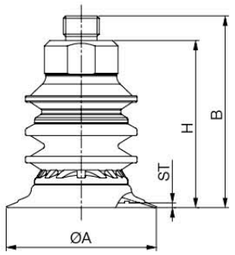
Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description
350 006 1102	18F	EB type, G1/8 female for 40mm bellows diameter
350 006 1502	14F	EB type, G1/4 female for 40mm bellows diameter
350 006 1202	18M	EB type, G1/8 male for 40mm bellows diameter
350 006 1302	14M	EB type, G1/4 male for 40mm bellows diameter
350 006 1402	38M	EB type, G3/8 male for 40mm bellows diameter

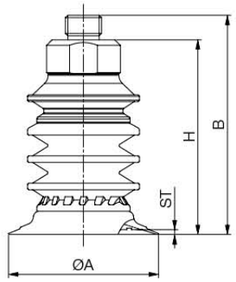
Dimensional Data



[EB1.5 / 40 & 60 series]



[EB4.0 / 40 & 60 series]



[EB5.0 / 40 & 60 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/40-MF45	45	Female thread : 1/8", 1/4" Male thread : 1/8",1/4", 3/8"	1.8	35.9	44.9
EB1.5/40-MF55	55		1.8	36.3	45.3
EB4.0/40-MF45	45		1.8	58.3	67.3
EB4.0/40-MF55	55		1.8	58.7	67.7
EB5.0/40-MF45	45		1.8	68.2	77.2
EB5.0/40-MF55	55		1.8	68.6	77.6

* Dimension "H" and "B" is measured with 14M fitting option

VB Series

Features and Strengths

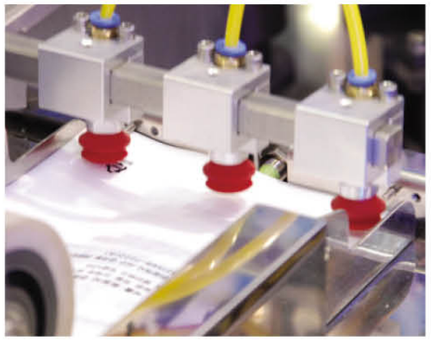
Compensating for a difference in level
Various materials for a wide range of applications

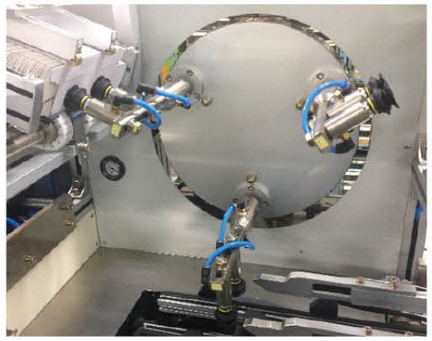
Advantages

Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks.
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece.



Application







Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Available size options

Model	Description	Model	Description
VB5	Single-bellows suction cup Ø5	VB30	Single-bellows suction cup Ø30
VB6X	Single-bellows suction cup Ø6	VB40	Single-bellows suction cup Ø40
VB8	Single-bellows suction cup Ø8	VB50	Single-bellows suction cup Ø50
VB10	Single-bellows suction cup Ø10	VB75	Single-bellows suction cup Ø75
VB12	Single-bellows suction cup Ø12	VB75B	Single-bellows suction cup Ø75
VB15	Single-bellows suction cup Ø15	VB110	Single-bellows suction cup Ø110
VB17	Single-bellows suction cup Ø17	VB110B	Single-bellows suction cup Ø110
VB20	Single-bellows suction cup Ø20	VB150	Single-bellows suction cup Ø150

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
VB5	0.05	0.03	0.08	0.10	
VB6X	0.09	0.05	0.11	0.14	
VB8	0.15	0.08	0.16	0.25	
VB10	0.48	0.15	0.34	0.50	
VB12	0.59	0.20	0.41	0.62	
VB15	1.10	0.29	0.60	0.90	
VB17	1.50	0.40	0.80	1.00	
VB20	2.70	0.60	1.00	1.42	
VB30	10.00	1.22	2.24	2.42	
VB40	15.00	2.24	3.97	5.00	
VB50	32.00	3.36	6.63	8.36	
VB75	110.00	7.65	17.04	23.06	
VB75B	110.00	7.65	17.04	23.06	
VB110	310.00	13.97	35.00	47.04	
VB110B	310.00	13.97	35.00	47.04	
VB150	650.00	30.00	70.00	90.10	

※ The lifting force above does not include safety factor

VB5



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB5	0.05	0.03	0.08	0.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

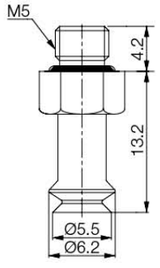
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VB5 - ○ - ○

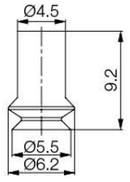
1. Suction Cup　2. Fitting

1. Suction cup	Description	Symbol
	Single-bellow suction cup, 5mm diameter, Nitrile (NBR)	VB5-N
	Single-bellow suction cup, 5mm diameter, Silicone	VB5-S
	Single-bellow suction cup, 5mm diameter, White silicone	VB5-WS
	Single-bellow suction cup, 5mm diameter, White silicone (FDA)	VB5-WS(FDA)
	Single-bellow suction cup, 5mm diameter, High temperature silicone	VB5-HS
	Single-bellow suction cup, 5mm diameter, Conductive silicone	VB5-CS
	Single-bellow suction cup, 5mm diameter, Urethane	VB5-U
	Single-bellow suction cup, 5mm diameter, Mark free	VB5-A

2. Fitting	Description	Symbol
	No fitting	Blank
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB5-N	Single-bellow suction cup, 5mm diameter, Nitrile (NBR)	0.16	Black
VB5-S	Single-bellow suction cup, 5mm diameter, Silicone	0.15	Red
VB5-WS	Single-bellow suction cup, 5mm diameter, White silicone	0.15	Translucent White
VB5-WS(FDA)	Single-bellow suction cup, 5mm diameter, White silicone(FDA)	0.15	Translucent White
VB5-HS	Single-bellow suction cup, 5mm diameter, High temperature silicone	0.15	Blue
VB5-CS	Single-bellow suction cup, 5mm diameter, Conductive silicone	0.15	Smoky Black
VB5-U	Single-bellow suction cup, 5mm diameter, Urethane	0.17	Dark Green
VB5-A	Single-bellow suction cup, 5mm diameter, Mark free	0.16	Black



[Rubber part]

[Unit : mm]

Spare Parts – Fitting

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3101	M5M	M5 male	1.84

VB6X



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB6X	0.09	0.05	0.11	0.14

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

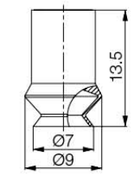
Build an Ordering No.

VB6X - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Single-bellow suction cup, 6mm diameter, Nitrile (NBR)	0.39	VB6X-N
	Single-bellow suction cup, 6mm diameter, Silicone	0.38	VB6X-S
	Single-bellow suction cup, 6mm diameter, White silicone	0.36	VB6X-WS
	Single-bellow suction cup, 6mm diameter, White silicone (FDA)	0.36	VB6X-WS(FDA)
	Single-bellow suction cup, 6mm diameter, High temperature silicone	0.36	VB6X-HS
	Single-bellow suction cup, 6mm diameter, Conductive silicone	0.39	VB6X-CS
	Single-bellow suction cup, 6mm diameter, Urethane	0.39	VB6X-U
	Single-bellow suction cup, 6mm diameter, Mark free	0.47	VB6X-A

[Unit : mm]



[Rubber part]

VB8



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB8	0.15	0.08	0.16	0.25

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

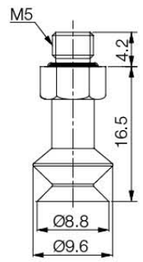
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VB8 - ○ - ○

1. Suction Cup　2. Fitting

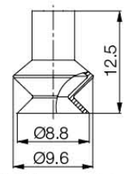
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 8mm diameter, Nitrile (NBR)	VB8-N
	Single-bellow suction cup, 8mm diameter, Silicone	VB8-S
	Single-bellow suction cup, 8mm diameter, White silicone	VB8-WS
	Single-bellow suction cup, 8mm diameter, White silicone (FDA)	VB8-WS(FDA)
	Single-bellow suction cup, 8mm diameter, High temperature silicone	VB8-HS
	Single-bellow suction cup, 8mm diameter, Conductive silicone	VB8-CS
	Single-bellow suction cup, 8mm diameter, Urethane	VB8-U
	Single-bellow suction cup, 8mm diameter, Mark free	VB8-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB8-N	Single-bellow suction cup, 8mm diameter, Nitrile (NBR)	0.37	Black
VB8-S	Single-bellow suction cup, 8mm diameter, Silicone	0.34	Red
VB8-WS	Single-bellow suction cup, 8mm diameter, White silicone	0.33	Translucent White
VB8-WS(FDA)	Single-bellow suction cup, 8mm diameter, White silicone (FDA)	0.33	Translucent White
VB8-HS	Single-bellow suction cup, 8mm diameter, High temperature silicone	0.33	Blue
VB8-CS	Single-bellow suction cup, 8mm diameter, Conductive silicone	0.28	Smoky Black
VB8-U	Single-bellow suction cup, 8mm diameter, Urethane	0.36	Dark Green
VB8-A	Single-bellow suction cup, 8mm diameter, Mark free	0.55	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3101	M5M	M5 male	1.84

VB10



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB10	0.48	0.15	0.34	0.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

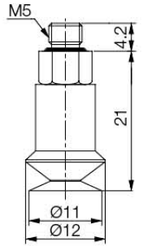
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VB10 - ○ - ○

1. Suction Cup
2. Fitting

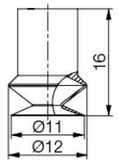
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 10mm diameter, Nitrile (NBR)	VB10-N
	Single-bellow suction cup, 10mm diameter, Silicone	VB10-S
	Single-bellow suction cup, 10mm diameter, White silicone	VB10-WS
	Single-bellow suction cup, 10mm diameter, White silicone (FDA)	VB10-WS(FDA)
	Single-bellow suction cup, 10mm diameter, High temperature silicone	VB10-HS
	Single-bellow suction cup, 10mm diameter, Conductive silicone	VB10-CS
	Single-bellow suction cup, 10mm diameter, Urethane	VB10-U
	Single-bellow suction cup, 10mm diameter, Mark free	VB10-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB10-N	Single-bellow suction cup, 10mm diameter, Nitrile (NBR)	0.92	Black
VB10-S	Single-bellow suction cup, 10mm diameter, Silicone	0.79	Red
VB10-WS	Single-bellow suction cup, 10mm diameter, White silicone	0.77	Translucent White
VB10-WS(FDA)	Single-bellow suction cup, 10mm diameter, White silicone (FDA)	0.77	Translucent White
VB10-HS	Single-bellow suction cup, 10mm diameter, High temperature silicone	0.81	Blue
VB10-CS	Single-bellow suction cup, 10mm diameter, Conductive silicone	0.88	Smoky Black
VB10-U	Single-bellow suction cup, 10mm diameter, Urethane	0.83	Dark Green
VB10-A	Single-bellow suction cup, 10mm diameter, Mark free	0.88	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VB12



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB12	0.59	0.20	0.41	0.62

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

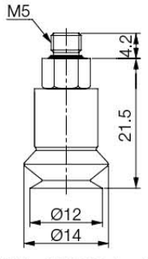
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

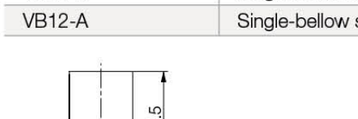
Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.



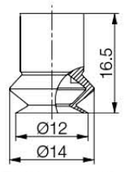
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 12mm diameter, Nitrile (NBR)	VB12-N
	Single-bellow suction cup, 12mm diameter, Silicone	VB12-S
	Single-bellow suction cup, 12mm diameter, White silicone	VB12-WS
	Single-bellow suction cup, 12mm diameter, White silicone (FDA)	VB12-WS(FDA)
	Single-bellow suction cup, 12mm diameter, High temperature silicone	VB12-HS
	Single-bellow suction cup, 12mm diameter, Conductive silicone	VB12-CS
	Single-bellow suction cup, 12mm diameter, Urethane	VB12-U
	Single-bellow suction cup, 12mm diameter, Mark free	VB12-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB12-N	Single-bellow suction cup, 12mm diameter, Nitrile (NBR)	1.31	Black
VB12-S	Single-bellow suction cup, 12mm diameter, Silicone	1.13	Red
VB12-WS	Single-bellow suction cup, 12mm diameter, White silicone	1.12	Translucent White
VB12-WS(FDA)	Single-bellow suction cup, 12mm diameter, White silicone (FDA)	1.12	Translucent White
VB12-HS	Single-bellow suction cup, 12mm diameter, High temperature silicone	1.13	Blue
VB12-CS	Single-bellow suction cup, 12mm diameter, Conductive silicone	1.13	Smoky Black
VB12-U	Single-bellow suction cup, 12mm diameter, Urethane	1.17	Dark Green
VB12-A	Single-bellow suction cup, 12mm diameter, Mark free	1.47	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VB15





Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB15	1.10	0.29	0.60	0.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

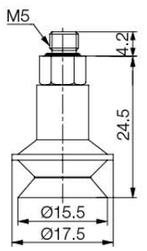
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VB15 - ○ - ○

1. Suction Cup　2. Fitting

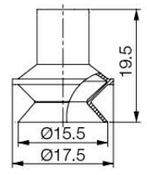
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 15mm diameter, Nitrile (NBR)	VB15-N
	Single-bellow suction cup, 15mm diameter, Silicone	VB15-S
	Single-bellow suction cup, 15mm diameter, White silicone	VB15-WS
	Single-bellow suction cup, 15mm diameter, White silicone (FDA)	VB15-WS(FDA)
	Single-bellow suction cup, 15mm diameter, High temperature silicone	VB15-HS
	Single-bellow suction cup, 15mm diameter, Conductive silicone	VB15-CS
	Single-bellow suction cup, 15mm diameter, Urethane	VB15-U
	Single-bellow suction cup, 15mm diameter, Mark free	VB15-A
	Single-bellow suction cup, 15mm diameter, Polyurethane	VB15-PU

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB15-N	Single-bellow suction cup, 15mm diameter, Nitrile (NBR)	1.42	Black
VB15-S	Single-bellow suction cup, 15mm diameter, Silicone	1.23	Red
VB15-WS	Single-bellow suction cup, 15mm diameter, White silicone	1.27	Translucent White
VB15-WS(FDA)	Single-bellow suction cup, 15mm diameter, White silicone (FDA)	1.27	Translucent White
VB15-HS	Single-bellow suction cup, 15mm diameter, High temperature silicone	1.29	Blue
VB15-CS	Single-bellow suction cup, 15mm diameter, Conductive silicone	1.39	Smoky Black
VB15-U	Single-bellow suction cup, 15mm diameter, Urethane	1.36	Dark Green
VB15-A	Single-bellow suction cup, 15mm diameter, Mark free	1.65	Black
VB15-PU	Single-bellow suction cup, 15mm diameter, Polyurethane	1.24	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VB17



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB17	1.50	0.40	0.80	1.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

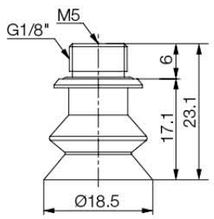
※ For additional material, see page 32~33

Material Resistance

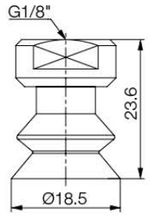
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M518MF fitting]



[With 18F fitting]

Build an Ordering No.

VB17 - ○ - ○

1. Suction Cup — 2. Fitting

1. Suction cup	Description	Symbol
	Single-bellow suction cup, 17mm diameter, Nitrile (NBR)	VB17-N
	Single-bellow suction cup, 17mm diameter, Silicone	VB17-S
	Single-bellow suction cup, 17mm diameter, White silicone	VB17-WS
	Single-bellow suction cup, 17mm diameter, White silicone (FDA)	VB17-WS(FDA)
	Single-bellow suction cup, 17mm diameter, High temperature silicone	VB17-HS
	Single-bellow suction cup, 17mm diameter, Conductive silicone	VB17-CS
	Single-bellow suction cup, 17mm diameter, Urethane	VB17-U
	Single-bellow suction cup, 17mm diameter, Mark free	VB17-A

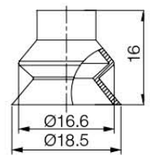
2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8Male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFB*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV

* M518MFB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB17-N	Single-bellow suction cup, 17mm diameter, Nitrile (NBR)	1.01	Black
VB17-S	Single-bellow suction cup, 17mm diameter, Silicone	0.91	Red
VB17-WS	Single-bellow suction cup, 17mm diameter, White silicone	0.94	Translucent White
VB17-WS(FDA)	Single-bellow suction cup, 17mm diameter, White silicone (FDA)	0.94	Translucent White
VB17-HS	Single-bellow suction cup, 17mm diameter, High temperature silicone	0.97	Blue
VB17-CS	Single-bellow suction cup, 17mm diameter, Conductive silicone	0.99	Smoky Black
VB17-U	Single-bellow suction cup, 17mm diameter, Urethane	0.96	Dark Green
VB17-A	Single-bellow suction cup, 17mm diameter, Mark free	1.31	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male-M5 female	1.82
350 000 5209	M518MF-F	G1/8 male-M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 male-M5 female	1.94
350 000 1209	M518MFO	G1/8 male-M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male-M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 male-M5 female, Old profile	2.87
350 000 3239	M518MFB	G1/8 male-M5 female, For silicone material	3.56
350 000 3310	18F	G1/8 female	3.20
350 000 4310	18F-F	G1/8 female, Mesh filter	3.26
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.31

VB20



Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB20	2.70	0.60	1.00	1.42

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

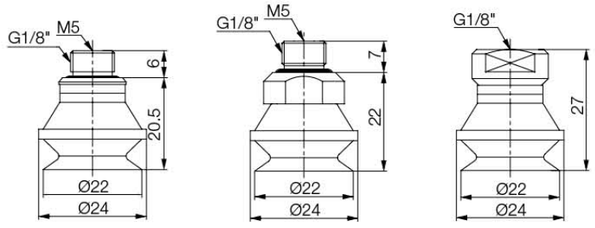
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With M518MF fitting] [With M518MFB fitting] [With 18F fitting]

Build an Ordering No.

VB20 - ○ - ○

1. Suction Cup 2. Fitting

1. Suction cup	Description	Symbol
	Single-bellow suction cup, 20mm diameter, Nitrile (NBR)	VB20-N
	Single-bellow suction cup, 20mm diameter, Silicone	VB20-S
	Single-bellow suction cup, 20mm diameter, White silicone	VB20-WS
	Single-bellow suction cup, 20mm diameter, White silicone (FDA)	VB20-WS(FDA)
	Single-bellow suction cup, 20mm diameter, High temperature silicone	VB20-HS
	Single-bellow suction cup, 20mm diameter, Conductive silicone	VB20-CS
	Single-bellow suction cup, 20mm diameter, Urethane	VB20-U
	Single-bellow suction cup, 20mm diameter, Mark free	VB20-A
	Single-bellow suction cup, 20mm diameter, Polyurethane	VB20-PU

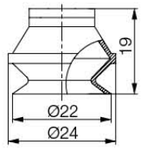
2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8Male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFB*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV

* M518MFB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB20-N	Single-bellow suction cup, 20mm diameter, Nitrile (NBR)	3.11	Black
VB20-S	Single-bellow suction cup, 20mm diameter, Silicone	2.68	Red
VB20-WS	Single-bellow suction cup, 20mm diameter, White silicone	2.58	Translucent White
VB20-WS(FDA)	Single-bellow suction cup, 20mm diameter, White silicone (FDA)	2.58	Translucent White
VB20-HS	Single-bellow suction cup, 20mm diameter, High temperature silicone	3.16	Blue
VB20-CS	Single-bellow suction cup, 20mm diameter, Conductive silicone	3.01	Smoky Black
VB20-U	Single-bellow suction cup, 20mm diameter, Urethane	2.91	Dark Green
VB20-A	Single-bellow suction cup, 20mm diameter, Mark free	3.43	Black
VB20-PU	Single-bellow suction cup, 20mm diameter, Polyurethane	2.41	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male-M5 female	1.82
350 000 5209	M518MF-F	G1/8 male-M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 male-M5 female	1.94
350 000 1209	M518MFO	G1/8 male-M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male-M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 male-M5 female, Old profile	2.87
350 000 3239	M518MFB	G1/8 male-M5 female, For silicone material	3.56
350 000 3310	18F	G1/8 female	3.20
350 000 4310	18F-F	G1/8 female, Mesh filter	3.26
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.31

VB30



Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB30	10.00	1.22	2.24	2.42

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

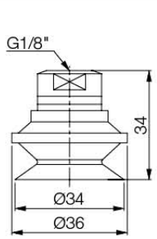
※ For additional material, see page 32~33

Material Resistance

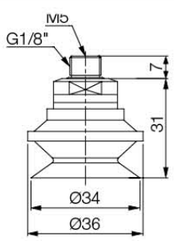
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

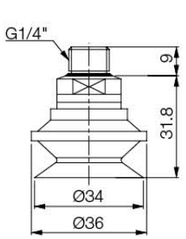
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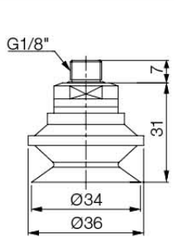
[With 18F fitting]



[With M518MF fitting]

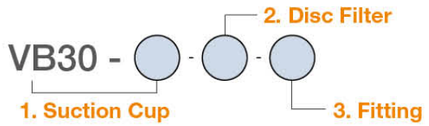


[With 14M fitting]



[With 18M fitting]

Build an Ordering No.



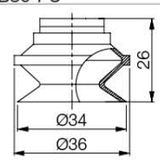
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 30mm diameter, Nitrile (NBR)	VB30-N
	Single-bellow suction cup, 30mm diameter, Silicone	VB30-S
	Single-bellow suction cup, 30mm diameter, White silicone	VB30-WS
	Single-bellow suction cup, 30mm diameter, White silicone (FDA)	VB30-WS(FDA)
	Single-bellow suction cup, 30mm diameter, High temperature silicone	VB30-HS
	Single-bellow suction cup, 30mm diameter, Conductive silicone	VB30-CS
	Single-bellow suction cup, 30mm diameter, Urethane	VB30-U
	Single-bellow suction cup, 30mm diameter, Mark free	VB30-A
	Single-bellow suction cup, 30mm diameter, Polyurethane	VB30-PU
2. Disc Filter	**Description**	**Symbol**
	No disc filter	Blank
	Disc filter, Polyethylene	F
3. Fitting	**Description**	**Symbol**
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB30-N	Single-bellow suction cup, 30mm diameter, Nitrile (NBR)	7.2	Black
VB30-S	Single-bellow suction cup, 30mm diameter, Silicone	6.59	Red
VB30-WS	Single-bellow suction cup, 30mm diameter, White silicone	6.59	Translucent White
VB30-WS(FDA)	Single-bellow suction cup, 30mm diameter, White silicone (FDA)	6.59	Translucent White
VB30-HS	Single-bellow suction cup, 30mm diameter, High temperature silicone	6.59	Blue
VB30-CS	Single-bellow suction cup, 30mm diameter, Conductive silicone	6.65	Smoky Black
VB30-U	Single-bellow suction cup, 30mm diameter, Urethane	7.2	Dark Green
VB30-A	Single-bellow suction cup, 30mm diameter, Mark free	9.17	Black
VB30-PU	Single-bellow suction cup, 30mm diameter, Polyurethane	7.49	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B30	Disc filter, Polyethylene	0.50

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	9.78
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03

VB40



Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB40	15.00	2.24	3.97	5.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

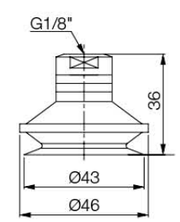
※ For additional material, see page 32~33

Material Resistance

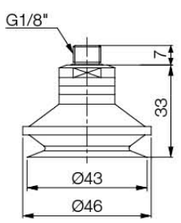
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

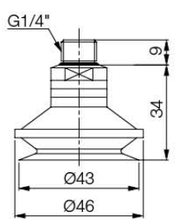
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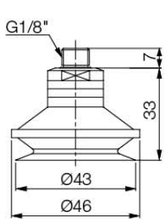
[With 18F fitting]



[With 18M fitting]

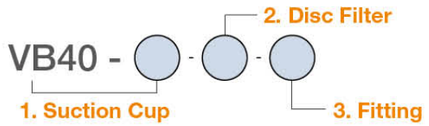


[With 14M fitting]



[With 18M fitting]

Build an Ordering No.



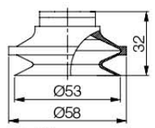
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 40mm diameter, Nitrile (NBR)	VB40-N
	Single-bellow suction cup, 40mm diameter, Silicone	VB40-S
	Single-bellow suction cup, 40mm diameter, White silicone	VB40-WS
	Single-bellow suction cup, 40mm diameter, White silicone (FDA)	VB40-WS(FDA)
	Single-bellow suction cup, 40mm diameter, High temperature silicone	VB40-HS
	Single-bellow suction cup, 40mm diameter, Conductive silicone	VB40-CS
	Single-bellow suction cup, 40mm diameter, Urethane	VB40-U
	Single-bellow suction cup, 40mm diameter, Mark free	VB40-A
	Single-bellow suction cup, 40mm diameter, Polyurethane	VB40-PU
2. Disc Filter	**Description**	**Symbol**
	No disc filter	Blank
	Disc filter, Polyethylene	F
3. Fitting	**Description**	**Symbol**
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB40-N	Single-bellow suction cup, 40mm diameter, Nitrile (NBR)	12.92	Black
VB40-S	Single-bellow suction cup, 40mm diameter, Silicone	12.13	Red
VB40-WS	Single-bellow suction cup, 40mm diameter, White silicone	12.13	Translucent White
VB40-WS(FDA)	Single-bellow suction cup, 40mm diameter, White silicone (FDA)	12.13	Translucent White
VB40-HS	Single-bellow suction cup, 40mm diameter, High temperature silicone	12.13	Blue
VB40-CS	Single-bellow suction cup, 40mm diameter, Conductive silicone	12.18	Smoky Black
VB40-U	Single-bellow suction cup, 40mm diameter, Urethane	12.92	Dark Green
VB40-A	Single-bellow suction cup, 40mm diameter, Mark free	16.38	Black
VB40-PU	Single-bellow suction cup, 40mm diameter, Polyurethane	11.12	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B40	Disc filter, Polyethylene	0.72

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	9.78
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03

VB50



Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB50	32.00	3.36	6.63	8.36

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

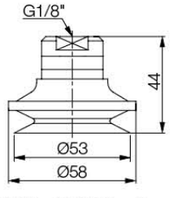
※ For additional material, see page 32~33

Material Resistance

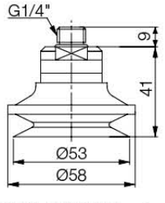
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

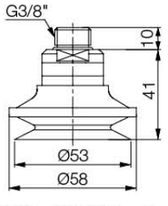
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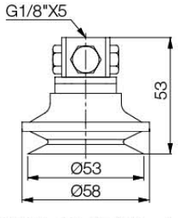
[With 18F fitting]



[With 14M fitting]

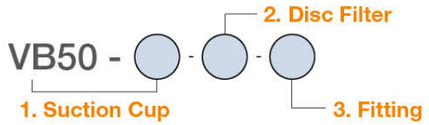


[With 38M fitting]



[With 18x5F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Single-bellow suction cup, 50mm diameter, Nitrile (NBR)	VB50-N
	Single-bellow suction cup, 50mm diameter, Silicone	VB50-S
	Single-bellow suction cup, 50mm diameter, White silicone	VB50-WS
	Single-bellow suction cup, 50mm diameter, White silicone (FDA)	VB50-WS(FDA)
	Single-bellow suction cup, 50mm diameter, High temperature silicone	VB50-HS
	Single-bellow suction cup, 50mm diameter, Conductive silicone	VB50-CS
	Single-bellow suction cup, 50mm diameter, Urethane	VB50-U
	Single-bellow suction cup, 50mm diameter, Mark free	VB50-A
	Single-bellow suction cup, 50mm diameter, Polyurethane	VB50-PU

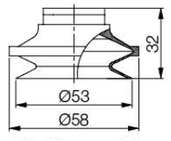
2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficient valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficiency valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficient valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficient valve, Fitting, G3/8 male	38M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB50-N	Single-bellow suction cup, 50mm diameter, Nitrile (NBR)	21.76	Black
VB50-S	Single-bellow suction cup, 50mm diameter, Silicone	20.31	Red
VB50-WS	Single-bellow suction cup, 50mm diameter, White silicone	20.31	Translucent White
VB50-WS(FDA)	Single-bellow suction cup, 50mm diameter, White silicone (FDA)	20.31	Translucent White
VB50-HS	Single-bellow suction cup, 50mm diameter, High temperature silicone	20.31	Blue
VB50-CS	Single-bellow suction cup, 50mm diameter, Conductive silicone	20.38	Smoky Black
VB50-U	Single-bellow suction cup, 50mm diameter, Urethane	21.76	Dark Green
VB50-A	Single-bellow suction cup, 50mm diameter, Mark free	26.08	Black
VB50-PU	Single-bellow suction cup, 50mm diameter, Polyurethane	22.36	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B50	Disc filter, Polyethylene	1.38

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3312	18F	G1/8 female	14.47
350 000 4312	18F-F	G1/8 female, Mesh filter	14.58
350 010 3312	18F-EV	Efficient valve, G1/8 female	15.81
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4919	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficiency valve, G1/8 female, Old profile	10.22
350 000 3405	14M	G1/4 male	14.18
350 000 3805	14M-F	G1/4 male, Mesh filter	14.42
350 010 3405	14M-EV	Efficient valve, G1/4 male	14.38
350 000 3505	38M	G3/8 male	18.14
350 000 3905	38M-F	G3/8 male, Mesh filter	17.75
350 010 3505	38M-EV	Efficient valve, G3/8 male	17.53

VB75



Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB75	110.00	7.65	17.04	23.06

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

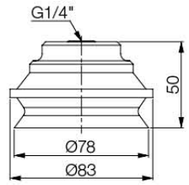
※ For additional material, see page 32~33

Material Resistance

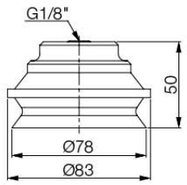
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

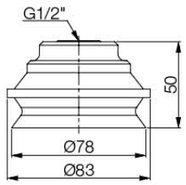
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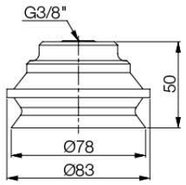
[With 14F fitting]



[With 18F fitting]

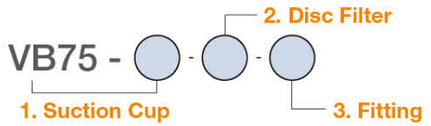


[With 12F fitting]



[With 38F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Single-bellow suction cup, 75mm diameter, Nitrile (NBR)	VB75-N
	Single-bellow suction cup, 75mm diameter, Silicone	VB75-S
	Single-bellow suction cup, 75mm diameter, White silicone	VB75-WS
	Single-bellow suction cup, 75mm diameter, White silicone (FDA)	VB75-WS(FDA)
	Single-bellow suction cup, 75mm diameter, High temperature silicone	VB75-HS
	Single-bellow suction cup, 75mm diameter, Conductive silicone	VB75-CS
	Single-bellow suction cup, 75mm diameter, Urethane	VB75-U
	Single-bellow suction cup, 75mm diameter, Mark free	VB75-A
	Single-bellow suction cup, 75mm diameter, Polyurethane	VB75-PU

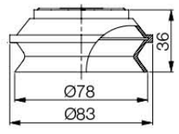
2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB75-N	Single-bellow suction cup, 75mm diameter, Nitrile (NBR)	66.17	Black
VB75-S	Single-bellow suction cup, 75mm diameter, Silicone	63.28	Red
VB75-WS	Single-bellow suction cup, 75mm diameter, White silicone	63.28	Translucent White
VB75-WS(FDA)	Single-bellow suction cup, 75mm diameter, White silicone (FDA)	63.28	Translucent White
VB75-HS	Single-bellow suction cup, 75mm diameter, High temperature silicone	63.28	Blue
VB75-CS	Single-bellow suction cup, 75mm diameter, Conductive silicone	63.37	Smoky Black
VB75-U	Single-bellow suction cup, 75mm diameter, Urethane	66.17	Dark Green
VB75-A	Single-bellow suction cup, 75mm diameter, Mark free	75.44	Black
VB75-PU	Single-bellow suction cup, 75mm diameter, Polyurethane	68.89	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B75	Disc filter, Polyethylene	4.25

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.90

VB75B





Features and Strengths

Suitable for curved surfaces products
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB75B	110.00	7.65	17.04	23.06

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

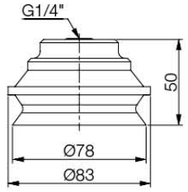
※ For additional material, see page 32~33

Material Resistance

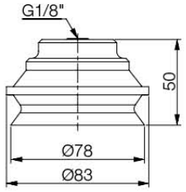
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

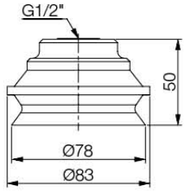
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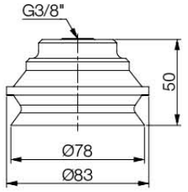
[With 14F fitting]



[With 18F fitting]



[With 12F fitting]



[With 38F fitting]

Build an Ordering No.

VB75B - ○ - ○

1. Suction Cup — 2. Fitting

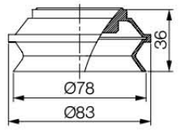
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 75mm diameter, Nitrile (NBR)	VB75B-N
	Single-bellow suction cup, 75mm diameter, Silicone	VB75B-S
	Single-bellow suction cup, 75mm diameter, White silicone	VB75B-WS
	Single-bellow suction cup, 75mm diameter, White silicone (FDA)	VB75B-WS(FDA)
	Single-bellow suction cup, 75mm diameter, High temperature silicone	VB75B-HS
	Single-bellow suction cup, 75mm diameter, Conductive silicone	VB75B-CS
	Single-bellow suction cup, 75mm diameter, Urethane	VB75B-U
	Single-bellow suction cup, 75mm diameter, Mark free	VB75B-A

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB75B-N	Single-bellow suction cup, 75mm diameter, Nitrile (NBR)	73.03	Black
VB75B-S	Single-bellow suction cup, 75mm diameter, Silicone	66.56	Red
VB75B-WS	Single-bellow suction cup, 75mm diameter, White silicone	66.46	Translucent White
VB75B-WS(FDA)	Single-bellow suction cup, 75mm diameter, White silicone (FDA)	66.46	Translucent White
VB75B-HS	Single-bellow suction cup, 75mm diameter, High temperature silicone	66.49	Blue
VB75B-CS	Single-bellow suction cup, 75mm diameter, Conductive silicone	66.58	Smoky Black
VB75B-U	Single-bellow suction cup, 75mm diameter, Urethane	77.26	Dark Green
VB75B-A	Single-bellow suction cup, 75mm diameter, Mark free	80.81	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.90

VB110



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB110	310.00	13.97	35.00	47.04

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

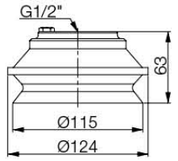
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

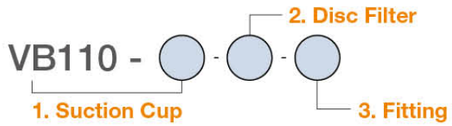
Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Single-bellow suction cup, 110mm diameter, Nitrile (NBR)	VB110-N
	Single-bellow suction cup, 110mm diameter, Silicone	VB110-S
	Single-bellow suction cup, 110mm diameter, White silicone	VB110-WS
	Single-bellow suction cup, 110mm diameter, White silicone (FDA)	VB110-WS(FDA)
	Single-bellow suction cup, 110mm diameter, High temperature silicone	VB110-HS
	Single-bellow suction cup, 110mm diameter, Conductive silicone	VB110-CS
	Single-bellow suction cup, 110mm diameter, Urethane	VB110-U
	Single-bellow suction cup, 110mm diameter, Mark free	VB110-A

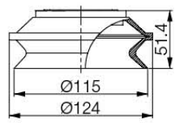
2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB110-N	Single-bellow suction cup, 110mm diameter, Nitrile (NBR)	186.15	Black
VB110-S	Single-bellow suction cup, 110mm diameter, Silicone	120.5	Red
VB110-WS	Single-bellow suction cup, 110mm diameter, White silicone	121.12	Translucent White
VB110-WS(FDA)	Single-bellow suction cup, 110mm diameter, White silicone (FDA)	121.12	Translucent White
VB110-HS	Single-bellow suction cup, 110mm diameter, High temperature silicone	121.33	Blue
VB110-CS	Single-bellow suction cup, 110mm diameter, Conductive silicone	121.28	Smoky Black
VB110-U	Single-bellow suction cup, 110mm diameter, Urethane	186.13	Dark Green
VB110-A	Single-bellow suction cup, 110mm diameter, Mark free	134.17	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B110	Disc filter, Polyethylene	10.15

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3614	12F	G1/2 female	103.70
350 000 4014	12F-F	G1/2 female, Mesh filter	104.50

VB110B



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB110B	310.00	13.97	35.00	47.04

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

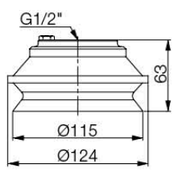
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VB110B - ○ - ○

1. Suction Cup
2. Fitting

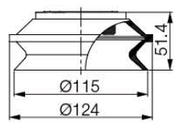
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 110mm diameter, Nitrile (NBR)	VB110B-N
	Single-bellow suction cup, 110mm diameter, Silicone	VB110B-S
	Single-bellow suction cup, 110mm diameter, White silicone	VB110B-WS
	Single-bellow suction cup, 110mm diameter, White silicone (FDA)	VB110B-WS(FDA)
	Single-bellow suction cup, 110mm diameter, High temperature silicone	VB110B-HS
	Single-bellow suction cup, 110mm diameter, Conductive silicone	VB110B-CS
	Single-bellow suction cup, 110mm diameter, Urethane	VB110B-U
	Single-bellow suction cup, 110mm diameter, Mark free	VB110B-A

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB110B-N	Single-bellow suction cup, 110mm diameter, Nitrile (NBR)	180.68	Black
VB110B-S	Single-bellow suction cup, 110mm diameter, Silicone	172.66	Red
VB110B-WS	Single-bellow suction cup, 110mm diameter, White silicone	174.87	Translucent White
VB110B-WS(FDA)	Single-bellow suction cup, 110mm diameter, White silicone (FDA)	174.87	Translucent White
VB110B-HS	Single-bellow suction cup, 110mm diameter, High temperature silicone	117.76	Blue
VB110B-CS	Single-bellow suction cup, 110mm diameter, Conductive silicone	117.71	Smoky Black
VB110B-U	Single-bellow suction cup, 110mm diameter, Urethane	180.66	Dark Green
VB110B-A	Single-bellow suction cup, 110mm diameter, Mark free	130.22	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3614	12F	G1/2 female	103.70
350 000 4014	12F-F	G1/2 female, Mesh filter	104.50

VB150



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB150	650.00	30.00	70.00	90.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

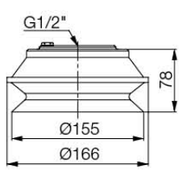
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VB150 - ○ - ○

1. Suction Cup
2. Fitting

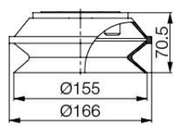
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 150mm diameter, Nitrile (NBR)	VB150-N
	Single-bellow suction cup, 150mm diameter, Silicone	VB150-S
	Single-bellow suction cup, 150mm diameter, White silicone	VB150-WS
	Single-bellow suction cup, 150mm diameter, White silicone (FDA)	VB150-WS(FDA)
	Single-bellow suction cup, 150mm diameter, High temperature silicone	VB150-HS
	Single-bellow suction cup, 150mm diameter, Conductive silicone	VB150-CS
	Single-bellow suction cup, 150mm diameter, Urethane	VB150-U
	Single-bellow suction cup, 150mm diameter, Mark free	VB150-A

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB150-N	Single-bellow suction cup, 150mm diameter, Nitrile (NBR)	460.00	Black
VB150-S	Single-bellow suction cup, 150mm diameter, Silicone	420.00	Red
VB150-WS	Single-bellow suction cup, 150mm diameter, White silicone	422.00	Translucent White
VB150-WS(FDA)	Single-bellow suction cup, 150mm diameter, White silicone (FDA)	422.00	Translucent White
VB150-HS	Single-bellow suction cup, 150mm diameter, High temperature silicone	443.00	Blue
VB150-CS	Single-bellow suction cup, 150mm diameter, Conductive silicone	440.00	Smoky Black
VB150-U	Single-bellow suction cup, 150mm diameter, Urethane	459.95	Dark Green
VB150-A	Single-bellow suction cup, 150mm diameter, Mark free	483	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3615	12F	G1/2 female	198.93
350 000 4015	12F-F	G1/2 female, Mesh filter	199.73

VB-M Series (Direct fitting bellows)



Features and Strengths

Compensating for a difference in level
Various materials for a wide range of applications

Advantages

Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks.
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece.
Fitted directly onto a piece of pipe for making installation very simple and reducing cup cost.

Application





Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
VB20M	2.70	0.70	1.20	1.60	2
VB30M	10.00	1.50	2.60	3.90	4
VB50M	32.00	3.20	7.90	10.50	6

※ The lifting force above does not include safety factor

Available size options

Model	Description
VB20M	Single-bellow suction cup Ø20
VB30M	Single-bellow suction cup Ø30
VB50M	Single-bellow suction cup Ø50

VB20M

Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB20M	2.70	0.70	1.20	1.60

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

※ For additional material, see page 32~33

Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

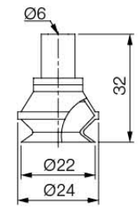
Build an Ordering No.

VB20M - ○

1. Suction Cup

[Unit : mm]

1. Suction cup	Description	Weight (g)	Symbol
	Single-bellow suction cup, 20mm diameter, Polyurethane	3.53	VB20M-PU



[Rubber part]

VB30M



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB30M	10.00	1.50	2.60	3.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Build an Ordering No.

VB30M - ○ - ○

1. Suction Cup
2. Disc Filter

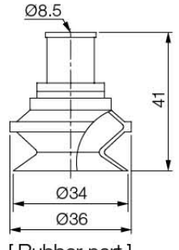
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 30mm diameter, Nitrile (NBR)	VB30M-N
	Single-bellow suction cup, 30mm diameter, Silicone	VB30M-S
	Single-bellow suction cup, 30mm diameter, White silicone	VB30M-WS
	Single-bellow suction cup, 30mm diameter, White silicone (FDA)	VB30M-WS(FDA)
	Single-bellow suction cup, 30mm diameter, High temperature silicone	VB30M-HS
	Single-bellow suction cup, 30mm diameter, Conductive silicone	VB30M-CS
	Single-bellow suction cup, 30mm diameter, Urethane	VB30M-U
	Single-bellow suction cup, 30mm diameter, Mark free	VB30M-A
	Single-bellow suction cup, 30mm diameter, Polyurethane	VB30M-PU

2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB30M-N	Single-bellow suction cup, 30mm diameter, Nitrile (NBR)	9.39	Black
VB30M-S	Single-bellow suction cup, 30mm diameter, Silicone	8.49	Red
VB30M-WS	Single-bellow suction cup, 30mm diameter, White silicone	8.69	Translucent White
VB30M-WS(FDA)	Single-bellow suction cup, 30mm diameter, White silicone (FDA)	8.69	Translucent White
VB30M-HS	Single-bellow suction cup, 30mm diameter, High temperature silicone	8.74	Blue
VB30M-CS	Single-bellow suction cup, 30mm diameter, Conductive silicone	8.75	Smoky Black
VB30M-U	Single-bellow suction cup, 30mm diameter, Urethane	9.29	Dark Green
VB30M-A	Single-bellow suction cup, 30mm diameter, Mark free	9.08	Black
VB30M-PU	Single-bellow suction cup, 30mm diameter, Polyurethane	8.81	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B30	Disc filter, Polyethylene	0.63

VB50M



Features and Strengths

Suitable for smaller objects
Compensating for a difference in level
Various materials for a wide range of applications

Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VB50M	32.00	3.20	7.90	10.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Build an Ordering No.

VB50M - ○ - ○

1. Suction Cup
2. Disc Filter

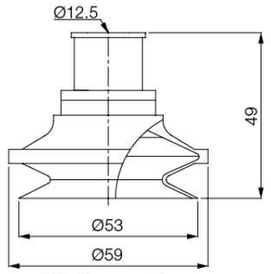
1. Suction cup	Description	Symbol
	Single-bellow suction cup, 50mm diameter, Nitrile (NBR)	VB50M-N
	Single-bellow suction cup, 50mm diameter, Silicone	VB50M-S
	Single-bellow suction cup, 50mm diameter, White silicone	VB50M-WS
	Single-bellow suction cup, 50mm diameter, White silicone (FDA)	VB50M-WS(FDA)
	Single-bellow suction cup, 50mm diameter, High temperature silicone	VB50M-HS
	Single-bellow suction cup, 50mm diameter, Conductive silicone	VB50M-CS
	Single-bellow suction cup, 50mm diameter, Urethane	VB50M-U
	Single-bellow suction cup, 50mm diameter, Mark free	VB50M-A
	Single-bellow suction cup, 50mm diameter, Polyurethane	VB50M-PU

2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VB50M-N	Single-bellow suction cup, 50mm diameter, Nitrile (NBR)	28.17	Black
VB50M-S	Single-bellow suction cup, 50mm diameter, Silicone	24.25	Red
VB50M-WS	Single-bellow suction cup, 50mm diameter, White silicone	24.03	Translucent White
VB50M-WS(FDA)	Single-bellow suction cup, 50mm diameter, White silicone (FDA)	24.03	Translucent White
VB50M-HS	Single-bellow suction cup, 50mm diameter, High temperature silicone	24.28	Blue
VB50M-CS	Single-bellow suction cup, 50mm diameter, Conductive silicone	24.30	Smoky Black
VB50M-U	Single-bellow suction cup, 50mm diameter, Urethane	27.36	Dark Green
VB50M-A	Single-bellow suction cup, 50mm diameter, Mark free	32.76	Black
VB50M-PU	Single-bellow suction cup, 50mm diameter, Polyurethane	25.57	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-B50	Disc filter, Polyethylene	1.64

VBL Series

Application
Widely cover for increased degree of height compensation
Excellent for fragile products

Advantages
Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
Can cope with an increased degree of height compensation and is particularly good for handling fragile objects
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece



Application





Examples of use
Fragile objects, General food products,
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		Page
		- 20 kPa	- 60 kPa	
VBL10	0.54	0.15	0.34	
VBL15	1.95	0.30	0.60	
VBL20	4.00	0.40	0.90	
VBL30	13.00	0.90	2.20	
VBL35M	21.00	1.20	3.30	
VBL40	27.00	1.40	3.60	
VBL40B	26.00	1.90	4.30	
VBL50	55.00	2.50	6.00	

※ The lifting force above does not include safety factor

Available size options

Model	Description	Model	Description
VBL10	Long multi-bellow suction cup Ø10	VBL35M	Long multi-bellow suction cup Ø35
VBL15	Long multi-bellow suction cup Ø15	VBL40	Long multi-bellow suction cup Ø40
VBL20	Long multi-bellow suction cup Ø20	VBL40B	Long multi-bellow suction cup Ø40
VBL30	Long multi-bellow suction cup Ø30	VBL50	Long multi-bellow suction cup Ø50

VBL10



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Metal ball, Plastic bag, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL10	0.54	0.15	0.34

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]

Build an Ordering No.

VBL10 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Long multi-bellow suction cup, 10mm diameter, Nitrile (NBR)	VBL10-N
	Long multi-bellow suction cup, 10mm diameter, Silicone	VBL10-S
	Long multi-bellow suction cup, 10mm diameter, White silicone	VBL10-WS
	Long multi-bellow suction cup, 10mm diameter, White silicone (FDA)	VBL10-WS(FDA)
	Long multi-bellow suction cup, 10mm diameter, High temperature silicone	VBL10-HS
	Long multi-bellow suction cup, 10mm diameter, Conductive silicone	VBL10-CS
	Long multi-bellow suction cup, 10mm diameter, Urethane	VBL10-U
	Long multi-bellow suction cup, 10mm diameter, Mark free	VBL10-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL10-N	Long multi-bellow suction cup, 10mm diameter, Nitrile (NBR)	0.66	Black
VBL10-S	Long multi-bellow suction cup, 10mm diameter, Silicone	0.62	Red
VBL10-WS	Long multi-bellow suction cup, 10mm diameter, White silicone	0.55	Translucent White
VBL10-WS(FDA)	Long multi-bellow suction cup, 10mm diameter, White silicone (FDA)	0.55	Translucent White
VBL10-HS	Long multi-bellow suction cup, 10mm diameter, High temperature silicone	0.58	Blue
VBL10-CS	Long multi-bellow suction cup, 10mm diameter, Conductive silicone	0.63	Smoky Black
VBL10-U	Long multi-bellow suction cup, 10mm diameter, Urethane	0.59	Dark Green
VBL10-A	Long multi-bellow suction cup, 10mm diameter, Mark free	0.63	Black

[Unit : mm]

[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VBL15



Features and Strengths
Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use
Fragile objects, General food products
Glass, Metal ball, Plastic bag, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL15	1.95	0.30	0.60

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

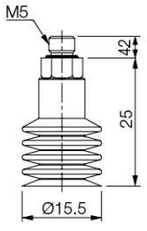
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VBL15 - ○ - ○

1. Suction Cup
2. Fitting

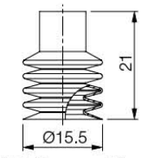
1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 15mm diameter, Nitrile (NBR)	VBL15-N
	Long multi-bellows suction cup, 15mm diameter, Silicone	VBL15-S
	Long multi-bellows suction cup, 15mm diameter, White silicone	VBL15-WS
	Long multi-bellows suction cup, 15mm diameter, White silicone (FDA)	VBL15-WS(FDA)
	Long multi-bellows suction cup, 15mm diameter, High temperature silicone	VBL15-HS
	Long multi-bellows suction cup, 15mm diameter, Conductive silicone	VBL15-CS
	Long multi-bellows suction cup, 15mm diameter, Urethane	VBL15-U
	Long multi-bellows suction cup, 15mm diameter, Mark free	VBL15-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL15-N	Long multi-bellows suction cup, 15mm diameter, Nitrile (NBR)	1.33	Black
VBL15-S	Long multi-bellows suction cup, 15mm diameter, Silicone	1.18	Red
VBL15-WS	Long multi-bellows suction cup, 15mm diameter, White silicone	1.22	Translucent White
VBL15-WS(FDA)	Long multi-bellows suction cup, 15mm diameter, White silicone (FDA)	1.22	Translucent White
VBL15-HS	Long multi-bellows suction cup, 15mm diameter, High temperature silicone	1.33	Blue
VBL15-CS	Long multi-bellows suction cup, 15mm diameter, Conductive silicone	1.36	Smoky Black
VBL15-U	Long multi-bellows suction cup, 15mm diameter, Urethane	1.24	Dark Green
VBL15-A	Long multi-bellows suction cup, 15mm diameter, Mark free	1.51	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VBL20



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL20	4.00	0.40	0.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

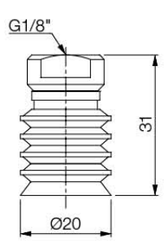
※ For additional material, see page 32~33

Material Resistance

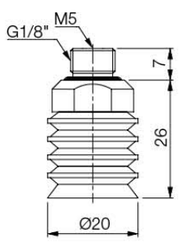
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

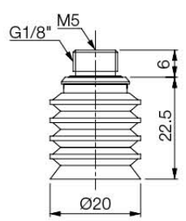
[Unit : mm]



[With 18F fitting]



[With M518MFB fitting]



[With M518MF fitting]

Build an Ordering No.

VBL20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 20mm diameter, Nitrile (NBR)	VBL20-N
	Long multi-bellows suction cup, 20mm diameter, Silicone	VBL20-S
	Long multi-bellows suction cup, 20mm diameter, White silicone	VBL20-WS
	Long multi-bellows suction cup, 20mm diameter, White silicone (FDA)	VBL20-WS(FDA)
	Long multi-bellows suction cup, 20mm diameter, High temperature silicone	VBL20-HS
	Long multi-bellows suction cup, 20mm diameter, Conductive silicone	VBL20-CS
	Long multi-bellows suction cup, 20mm diameter, Urethane	VBL20-U
	Long multi-bellows suction cup, 20mm diameter, Mark free	VBL20-A

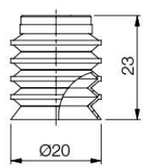
2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8 male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFB*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 Female	18F-EV

* M518MFB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL20-N	Long multi-bellows suction cup, 20mm diameter, Nitrile (NBR)	2.22	Black
VBL20-S	Long multi-bellows suction cup, 20mm diameter, Silicone	2.00	Red
VBL20-WS	Long multi-bellows suction cup, 20mm diameter, White silicone	2.00	Translucent White
VBL20-WS(FDA)	Long multi-bellows suction cup, 20mm diameter, White silicone (FDA)	2.00	Translucent White
VBL20-HS	Long multi-bellows suction cup, 20mm diameter, High temperature silicone	2.11	Blue
VBL20-CS	Long multi-bellows suction cup, 20mm diameter, Conductive silicone	2.08	Smoky Black
VBL20-U	Long multi-bellows suction cup, 20mm diameter, Urethane	1.98	Dark Green
VBL20-A	Long multi-bellows suction cup, 20mm diameter, Mark free	2.52	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 male - M5 female	1.94
350 000 1209	M518MFO	G1/8 male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male - M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 male - M5 female, Old profile	2.87
350 000 3239	M518MFB	G1/8 male - M5 female, For silicone material	3.56
350 000 3310	18F	G1/8 female	3.20
350 000 4310	18F-F	G1/8 female, Mesh filter	3.26
350 010 3310	18F-EV	Efficiency valve, G1/8 Female	3.31

VBL30



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL30	13.00	0.90	2.20

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

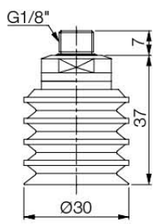
※ For additional material, see page 32~33

Material Resistance

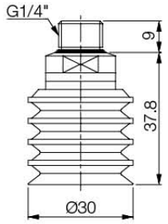
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

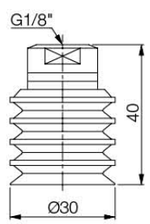
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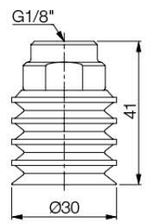
[With 18M fitting]



[With 14M fitting]

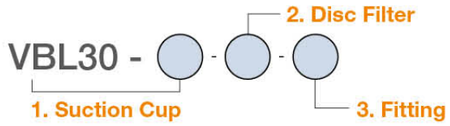


[With 18F fitting]



[With 18FB fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 30mm diameter, Nitrile (NBR)	VBL30-N
	Long multi-bellows suction cup, 30mm diameter, Silicone	VBL30-S
	Long multi-bellows suction cup, 30mm diameter, White silicone	VBL30-WS
	Long multi-bellows suction cup, 30mm diameter, White silicone (FDA)	VBL30-WS(FDA)
	Long multi-bellows suction cup, 30mm diameter, High temperature silicone	VBL30-HS
	Long multi-bellows suction cup, 30mm diameter, Conductive silicone	VBL30-CS
	Long multi-bellows suction cup, 30mm diameter, Urethane	VBL30-U
	Long multi-bellows suction cup, 30mm diameter, Mark free	VBL30-A

2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

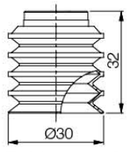
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL30-N	Long multi-bellows suction cup, 30mm diameter, Nitrile (NBR)	6.39	Black
VBL30-S	Long multi-bellows suction cup, 30mm diameter, Silicone	5.26	Red
VBL30-WS	Long multi-bellows suction cup, 30mm diameter, White silicone	5.65	Translucent White
VBL30-WS(FDA)	Long multi-bellows suction cup, 30mm diameter, White silicone (FDA)	5.65	Translucent White
VBL30-HS	Long multi-bellows suction cup, 30mm diameter, High temperature silicone	6.38	Blue
VBL30-CS	Long multi-bellows suction cup, 30mm diameter, Conductive silicone	5.44	Smoky Black
VBL30-U	Long multi-bellows suction cup, 30mm diameter, Urethane	5.96	Dark Green
VBL30-A	Long multi-bellows suction cup, 30mm diameter, Mark free	7.25	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BL30	Disc filter, Polyethylene	0.53

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	9.78
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03

VBL35M



Features and Strengths

Widely cover for increased degree of height compensation with direct fitting
Excellent for fragile products



Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL35M	21.00	1.20	3.30

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	30	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

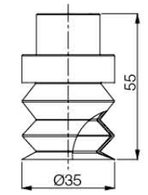
Build an Ordering No.

VBL35M - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, Nitrile (NBR)	19.34	VBL35M-N
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, Silicone	17.80	VBL35M-S
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, White silicone	17.78	VBL35M-WS
	Long multi-bellow suction cup, 35mm diameter, Pipe mount neck, White silicone 30°(FDA)	17.78	VBL35M-WS(FDA)
	Long multi-bellow suction cup, 35mm diameter, Pipe mount neck, White silicone 55°(FDA)	17.78	VBL35M-WS(FDA)
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, High temperature silicone	19.33	VBL35M-HS
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, Conductive silicone	16.78	VBL35M-CS
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, Urethane	18	VBL35M-U
	Long multi-bellows suction cup, 35mm diameter, Pipe mount neck, Mark free	21.44	VBL35M-A

[Unit : mm]



[Rubber part]

VBL40



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL40	27.00	1.40	3.60

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

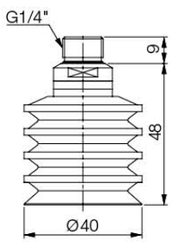
※ For additional material, see page 32~33

Material Resistance

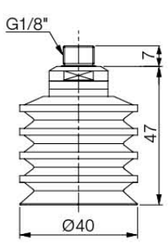
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

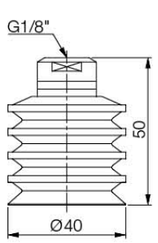
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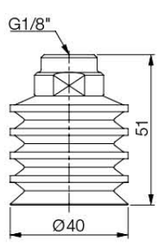
[With 14M fitting]



[With 18M fitting]

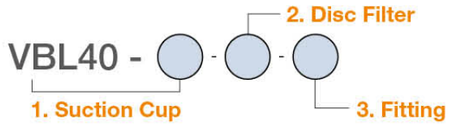


[With 18F fitting]



[With 18FB fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 40mm diameter, Nitrile (NBR)	VBL40-N
	Long multi-bellows suction cup, 40mm diameter, Silicone	VBL40-S
	Long multi-bellows suction cup, 40mm diameter, White silicone	VBL40-WS
	Long multi-bellows suction cup, 40mm diameter, White silicone (FDA)	VBL40-WS(FDA)
	Long multi-bellows suction cup, 40mm diameter, High temperature silicone	VBL40-HS
	Long multi-bellows suction cup, 40mm diameter, Conductive silicone	VBL40-CS
	Long multi-bellows suction cup, 40mm diameter, Urethane	VBL40-U
	Long multi-bellows suction cup, 40mm diameter, Mark free	VBL40-A

2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

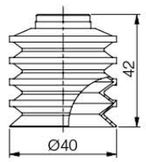
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL40-N	Long multi-bellows suction cup, 40mm diameter, Nitrile (NBR)	12.08	Black
VBL40-S	Long multi-bellows suction cup, 40mm diameter, Silicone	11.42	Red
VBL40-WS	Long multi-bellows suction cup, 40mm diameter, White silicone	11.31	Translucent White
VBL40-WS(FDA)	Long multi-bellows suction cup, 40mm diameter, White silicone (FDA)	11.31	Translucent White
VBL40-HS	Long multi-bellows suction cup, 40mm diameter, High temperature silicone	11.38	Blue
VBL40-CS	Long multi-bellows suction cup, 40mm diameter, Conductive silicone	11.39	Smoky Black
VBL40-U	Long multi-bellows suction cup, 40mm diameter, Urethane	12.99	Dark Green
VBL40-A	Long multi-bellows suction cup, 40mm diameter, Mark free	13.09	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BL40	Disc filter, Polyethylene	0.87

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	9.78
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03

VBL40B



Features and Strengths

Widely cover for increased degree of height compensation with direct fitting
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL40B	26.00	1.90	4.30

※ The lifting force above does not include safety factor

Material Specifications

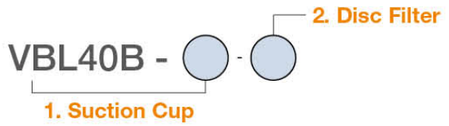
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	30	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Build an Ordering No.



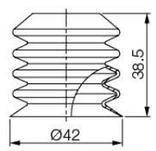
1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 40mm diameter, Nitrile (NBR)	VBL40B-N
	Long multi-bellows suction cup, 40mm diameter, Silicone	VBL40B-S
	Long multi-bellows suction cup, 40mm diameter, White silicone	VBL40B-WS
	Long multi-bellow suction cup, 40mm diameter, White silicone 30° (FDA)	VBL40-WS(FDA)
	Long multi-bellow suction cup, 40mm diameter, White silicone 55° (FDA)	VBL40-WS(FDA)
	Long multi-bellows suction cup, 40mm diameter, High temperature silicone	VBL40B-HS
	Long multi-bellows suction cup, 40mm diameter, Conductive silicone	VBL40B-CS
	Long multi-bellows suction cup, 40mm diameter, Urethane	VBL40B-U
	Long multi-bellows suction cup, 40mm diameter, Mark free	VBL40B-A

2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL40B-N	Long multi-bellows suction cup, 40mm diameter, Nitrile (NBR)	9.87	Black
VBL40B-S	Long multi-bellows suction cup, 40mm diameter, Silicone	8.23	Red
VBL40B-WS	Long multi-bellows suction cup, 40mm diameter, White silicone	8.11	Translucent White
VBL40-WS 30(FDA)	Long multi-bellow suction cup, 40mm diameter, White silicone 30° (FDA)	11.31	Translucent White
VBL40-WS 55(FDA)	Long multi-bellow suction cup, 40mm diameter, White silicone 55° (FDA)	11.31	Translucent White
VBL40B-HS	Long multi-bellows suction cup, 40mm diameter, High temperature silicone	9.29	Blue
VBL40B-CS	Long multi-bellows suction cup, 40mm diameter, Conductive silicone	9.35	Smoky Black
VBL40B-U	Long multi-bellows suction cup, 40mm diameter, Urethane	10.51	Dark Green
VBL40B-A	Long multi-bellows suction cup, 40mm diameter, Mark free	10.69	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BL40B	Disc filter, Polyethylene	0.87

VBL50



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use

Fragile objects, General food products
Glass, Eggs, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VBL50	55.00	2.50	6.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

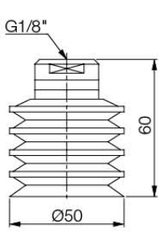
※ For additional material, see page 32~33

Material Resistance

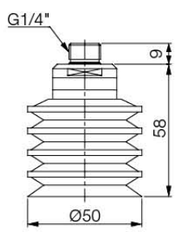
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

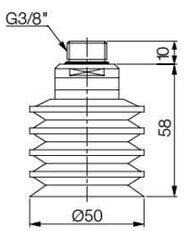
[Unit : mm]



[With 18F fitting]

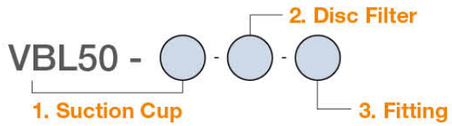


[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

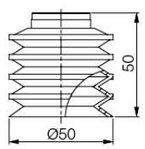


1. Suction cup	Description	Symbol
	Long multi-bellows suction cup, 50mm diameter, Nitrile (NBR)	VBL50-N
	Long multi-bellows suction cup, 50mm diameter, Silicone	VBL50-S
	Long multi-bellows suction cup, 50mm diameter, White silicone	VBL50-WS
	Long multi-bellows suction cup, 50mm diameter, White silicone (FDA)	VBL50-WS(FDA)
	Long multi-bellows suction cup, 50mm diameter, High temperature silicone	VBL50-HS
	Long multi-bellows suction cup, 50mm diameter, Conductive silicone	VBL50-CS
	Long multi-bellows suction cup, 50mm diameter, Urethane	VBL50-U
	Long multi-bellows suction cup, 50mm diameter, Mark free	VBL50-A
2. Disc Filter	**Description**	**Symbol**
	No disc filter	Blank
	Disc filter, Polyethylene	F
3. Fitting	**Description**	**Symbol**
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficient valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficient valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficient valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficient valve, Fitting, G3/8 male	38M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBL50-N	Long multi-bellows suction cup, 50mm diameter, Nitrile (NBR)	24.53	Black
VBL50-S	Long multi-bellows suction cup, 50mm diameter, Silicone	21.52	Red
VBL50-WS	Long multi-bellows suction cup, 50mm diameter, White silicone	21.55	Translucent White
VBL50-WS(FDA)	Long multi-bellows suction cup, 50mm diameter, White silicone (FDA)	21.55	Translucent White
VBL50-HS	Long multi-bellows suction cup, 50mm diameter, High temperature silicone	21.51	Blue
VBL50-CS	Long multi-bellows suction cup, 50mm diameter, Conductive silicone	21.59	Smoky Black
VBL50-U	Long multi-bellows suction cup, 50mm diameter, Urethane	26.12	Dark Green
VBL50-A	Long multi-bellows suction cup, 50mm diameter, Mark free	26.56	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BL50	Disc filter, Polyethylene	1.34

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3312	18F	G1/8 female	14.47
350 000 4312	18F-F	G1/8 female, Mesh filter	14.58
350 010 3312	18F-EV	Efficient valve, G1/8 female	5.81
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4912	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficient valve, G1/8 female, Old profile	10.22
350 000 3405	14M	G1/4 male	14.18
350 000 3805	14M-F	G1/4 male, Mesh filter	14.42
350 010 3405	14M-EV	Efficient valve, G1/4 male	14.38
350 000 3505	38M	G3/8 male	18.14
350 000 3905	38M-F	G3/8 male, Mesh filter	17.75
350 010 3505	38M-EV	Efficient valve, G3/8 male	17.53

VBU Series

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks

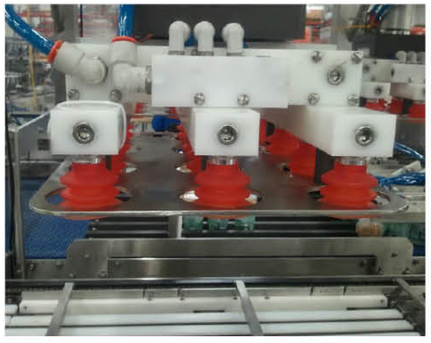
Advantages

Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
Can cope with an increased degree of height compensation and is particularly good for handling fragile objects
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece
Enhancing the adhesion to the surface

Application







Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack

Available size options

Model	Description
VBU35	Double bellow – universal suction cup, Ø35
VBU45	Double bellow – universal suction cup, Ø45
VBU55	Double bellow – universal suction cup, Ø55



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
VBU35	6.20	2.26	4.28	5.75	
VBU45	12.50	4.08	7.30	10.00	
VBU55	28.00	7.50	9.80	12.05	

※ The lifting force above does not include safety factor

VBU35



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks

Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBU35	6.20	2.26	4.28	5.75

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
Polyurethane	60	Translucent Orange	0~60

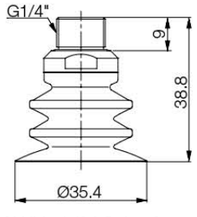
※ For additional material, see page 32~33

Material Resistance

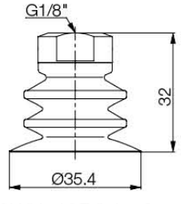
Description	NBR	Silicone	White Silicone	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Fair

Dimension

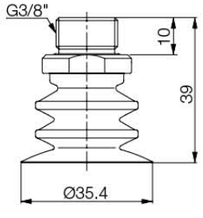
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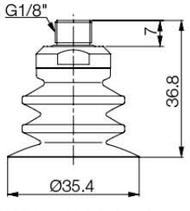
[With 14M fitting]



[With 18F fitting]

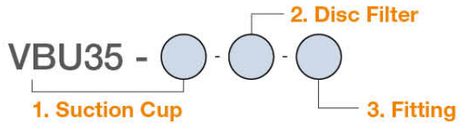


[With 38M fitting]



[With 18M fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellows – universal suction cup, 35mm diameter, Nitrile (NBR)	VBU35-N
	Double bellows – universal suction cup, 35mm diameter, Silicone	VBU35-S
	Double bellows – universal suction cup, 35mm diameter, White silicone	VBU35-WS
	Double bellows – universal suction cup, 35mm diameter, White silicone (FDA)	VBU35-WS (FDA)
	Double bellows – universal suction cup, 35mm diameter, Polyurethane	VBU35-PU

2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

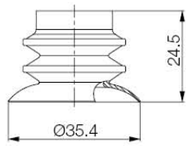
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV
	Fitting, G1/8 female, For silicone material	18FB2
	Fitting, G1/8 female, Mesh filter, For silicone material	M-18FB2
	Efficiency valve, Fitting, G1/8 female, For silicone material	18FB2-EV
	Fitting, G1/8 male, For silicone material	18MB2
	Fitting, G1/8 male, Mesh filter, For silicone material	M-18MB2
	Efficiency valve, Fitting, G1/8 male, For silicone material	18MB2-EV
	Fitting, G1/4 male, For silicone material	14MB2
	Fitting, G1/4 male, Mesh filter, For silicone material	M-14MB2
	Efficiency valve, Fitting, G1/4 male, For silicone material	14MB2-EV
	Fitting, G3/8 male, For silicone material	38MB2
	Fitting, G3/8 male, Mesh filter, For silicone material	M-38MB2
	Efficiency valve, Fitting, G3/8 male, For silicone material	38MB2-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBU35-N	Double bellow – universal suction cup, 35mm diameter, Nitrile (NBR)	4.48	Black
VBU35-S	Double bellow – universal suction cup, 35mm diameter, Silicone	3.99	Red
VBU35-WS	Double bellow – universal suction cup, 35mm diameter, White silicone	3.99	Translucent White
VBU35-WS (FDA)	Double bellow – universal suction cup, 35mm diameter, White silicone (FDA)	3.99	Translucent White
VBU35-PU	Double bellow – universal suction cup, 35mm diameter, Polyurethane	5.05	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BU35	Disc filter, Polyethylene	0.36

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	3.7
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3505	38M	G3/8 male	9.16
350 000 3905	M-38M	G3/8 male, Mesh filter	9.56
350 010 3505	38M-EV	Efficiency valve, G3/8 male	9.72
350 000 3342	18FB2	G1/8 female, For silicone material	5.4
350 000 4342	18FB2-F	G1/8 female, Mesh filter, For silicone material	5.5
350 010 3342	18FB2-EV	Efficiency valve, G1/8 female, For silicone material	5.64
350 000 3341	18MB2	G1/8 male, For silicone material	5.44
350 000 4341	18MB2-F	G1/8 male, Mesh filter, For silicone material	5.33
350 010 3341	18MB2-EV	Efficiency valve, G1/8 male, For silicone material	5.47
350 000 3441	14MB2	G1/4 male, For silicone material	5.88
350 000 3841	14MB2-F	G1/4 male, Mesh filter, For silicone material	6
350 010 3441	14MB2-EV	Efficiency valve, G1/4 male, For silicone material	6.14
350 000 3543	38MB2	G3/8 male, For silicone material	9.16
350 000 3943	M-38MB2	G3/8 male, Mesh filter, For silicone material	9.56
350 010 3543	38MB2-EV	Efficiency valve, G3/8 male, For silicone material	9.44

VBU45



Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks



Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBU45	12.50	4.08	7.30	10.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
Polyurethane	60	Translucent Orange	0~60

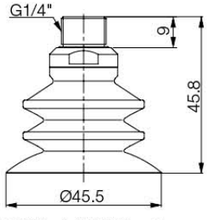
※ For additional material, see page 32~33

Material Resistance

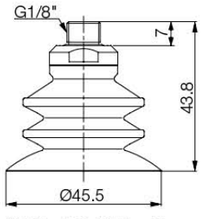
Description	NBR	Silicone	White Silicone	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Fair

Dimension

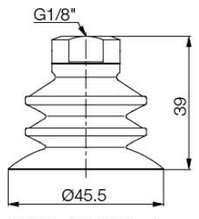
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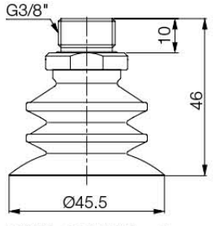
[With 14M fitting]



[With 18M fitting]

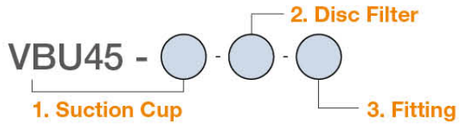


[With 18F fitting]



[With 38M fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellows – universal suction cup, 45mm diameter, Nitrile (NBR)	VBU45-N
	Double bellows – universal suction cup, 45mm diameter, Silicone	VBU45-S
	Double bellows – universal suction cup, 45mm diameter, White silicone	VBU45-WS
	Double bellows – universal suction cup, 45mm diameter, White silicone (FDA)	VBU45-WS (FDA)
	Double bellows – universal suction cup, 45mm diameter, Polyurethane	VBU45-PU

2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

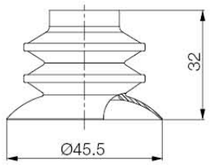
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV
	Fitting, G1/8 female, For silicone material	18FB2
	Fitting, G1/8 female, Mesh filter, For silicone material	M-18FB2
	Efficiency valve, Fitting, G1/8 female, For silicone material	18FB2-EV
	Fitting, G1/8 male, For silicone material	18MB2
	Fitting, G1/8 male, Mesh filter, For silicone material	M-18MB2
	Efficiency valve, Fitting, G1/8 male, For silicone material	18MB2-EV
	Fitting, G1/4 male, For silicone material	14MB2
	Fitting, G1/4 male, Mesh filter, For silicone material	M-14MB2
	Efficiency valve, Fitting, G1/4 male, For silicone material	14MB2-EV
	Fitting, G3/8 male, For silicone material	38MB2
	Fitting, G3/8 male, Mesh filter, For silicone material	M-38MB2
	Efficiency valve, Fitting, G3/8 male, For silicone material	38MB2-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBU45-N	Double bellows – universal suction cup, 45mm diameter, Nitrile (NBR)	7.76	Black
VBU45-S	Double bellows – universal suction cup, 45mm diameter, Silicone	7.17	Red
VBU45-WS	Double bellows – universal suction cup, 45mm diameter, White silicone	7.17	Translucent White
VBU45-WS (FDA)	Double bellows – universal suction cup, 45mm diameter, White silicone (FDA)	7.17	Translucent White
VBU45-PU	Double bellows – universal suction cup, 45mm diameter, Polyurethane	10.39	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BU45	Disc filter, Polyethylene	0.63

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	3.7
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3505	38M	G3/8 male	9.16
350 000 3905	M-38M	G3/8 male, Mesh filter	9.56
350 010 3505	38M-EV	Efficiency valve, G3/8 male	9.72
350 000 3342	18FB2	G1/8 female, For silicone material	5.4
350 000 4342	18FB2-F	G1/8 female, Mesh filter, For silicone material	5.5
350 010 3342	18FB2-EV	Efficiency valve, G1/8 female, For silicone material	5.64
350 000 3341	18MB2	G1/8 male, For silicone material	5.44
350 000 4341	18MB2-F	G1/8 male, Mesh filter, For silicone material	5.33
350 010 3341	18MB2-EV	Efficiency valve, G1/8 male, For silicone material	5.47
350 000 3441	14MB2	G1/4 male, For silicone material	5.88
350 000 3841	14MB2-F	G1/4 male, Mesh filter, For silicone material	6
350 010 3441	14MB2-EV	Efficiency valve, G1/4 male, For silicone material	6.14
350 000 3543	38MB2	G3/8 male, For silicone material	9.16
350 000 3943	M-38MB2	G3/8 male, Mesh filter, For silicone material	9.56
350 010 3543	38MB2-EV	Efficiency valve, G3/8 male, For silicone material	9.44

VBU55





Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks

Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBU55	28.00	7.50	9.80	12.05

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
Polyurethane	60	Translucent Orange	0~60

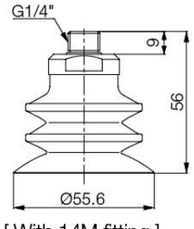
※ For additional material, see page 32~33

Material Resistance

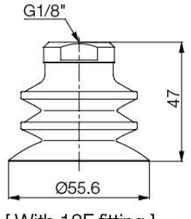
Description	NBR	Silicone	White Silicone	Polyurethane
Wear Resistance	Excellent	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Fair

Dimension

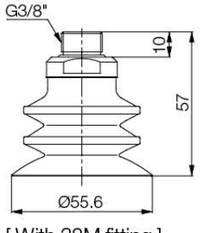
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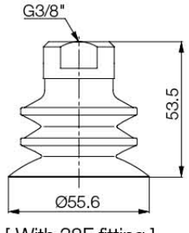
[With 14M fitting]



[With 18F fitting]

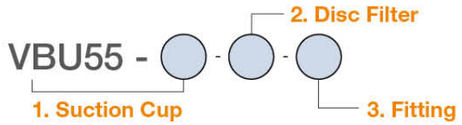


[With 38M fitting]



[With 38F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellows – universal suction cup, 55mm diameter, Nitrile (NBR)	VBU55-N
	Double bellows – universal suction cup, 55mm diameter, Silicone	VBU55-S
	Double bellows – universal suction cup, 55mm diameter, White silicone	VBU55-WS
	Double bellows – universal suction cup, 55mm diameter, White silicone (FDA)	VBU55-WS (FDA)
	Double bellows – universal suction cup, 55mm diameter, Polyurethane	VBU55-PU

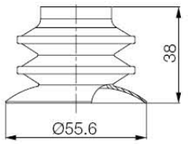
2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficiency valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV
	Fitting, G1/8 female, For silicone material	18FB2
	Fitting, G1/8 female, Mesh filter, For silicone material	M-18FB2
	Efficiency valve, Fitting, G1/8 female, For silicone material	18FB2-EV
	Fitting, G1/4 male, For silicone material	14MB2
	Fitting, G1/4 male, Mesh filter, For silicone material	M-14MB2
	Efficiency valve, Fitting, G1/4 male, For silicone material	14MB2-EV
	Fitting, G3/8 male, For silicone material	38MB2
	Fitting, G3/8 male, Mesh filter, For silicone material	M-38MB2
	Efficiency valve, Fitting, G3/8 male, For silicone material	38MB2-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBU55-N	Double bellows – universal suction cup, 55mm diameter, Nitrile (NBR)	17.83	Black
VBU55-S	Double bellows – universal suction cup, 55mm diameter, Silicone	15.25	Red
VBU55-WS	Double bellows – universal suction cup, 55mm diameter, White silicone	15.32	Translucent White
VBU55-WS (FDA)	Double bellows – universal suction cup, 55mm diameter, White silicone (FDA)	15.32	Translucent White
VBU55-PU	Double bellows – universal suction cup, 55mm diameter, Polyurethane	19.14	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BU55	Disc filter, Polyethylene	1.06

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3312	18F	G1/8 female	5.68
350 000 4312	18F-F	G1/8 female, Mesh filter	5.73
350 010 3312	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4912	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficiency valve, G1/8 female, Old profile	10.37
350 000 3405	14M	G1/4 male	5.88
350 000 3805	14M-F	G1/4 male, Mesh filter	5.92
350 010 3405	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3505	38M	G3/8 male	9.16
350 000 3905	38M-F	G3/8 male, Mesh filter	9.56
350 010 3505	38M-EV	Efficiency valve, G3/8 male	9.46
350 000 3344	18FB2	G1/8 female, For silicone material	15.33
350 000 4344	18FB2-F	G1/8 female, Mesh filter, For silicone material	15.81
350 010 3344	18FB2-EV	Efficiency valve, G1/8 female, For silicone material	15.95
350 000 3443	14MB2	G1/4 male, For silicone material	16.69
350 000 3843	14MB2-F	G1/4 male, Mesh filter, For silicone material	17.22
350 010 3443	14MB2-EV	Efficiency valve, G1/4 male, For silicone material	17.26
350 000 3543	38MB2	G3/8 male, For silicone material	16.77
350 000 3943	38MB2-F	G3/8 male, Mesh filter, For silicone material	17.28
350 010 3543	38MB2-EV	Efficiency valve, G3/8 male, For silicone material	17.06

VBX Series

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks

Advantages

Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
Can cope with an increased degree of height compensation and is particularly good for handling fragile objects
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece
Enhancing the adhesion to the surface

Application





Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack

Available size options

Model	Description
VBX35	Double bellow – universal suction cup, Ø35
VBX45	Double bellow – universal suction cup, Ø45
VBX55	Double bellow – universal suction cup, Ø55



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
VBX35	5.80	2.63	4.38	6.95	
VBX45	13.00	6.40	8.80	10.50	
VBX55	29.50	7.60	10.10	12.20	

※ The lifting force above does not include safety factor

VBX35

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products and separating thin sheet in stocks



Examples of use

Convex surface, Plastic bag, Metal sheets, Plywood,
Carton box, Cement sack

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBX35	5.80	2.63	4.38	6.95

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

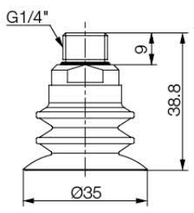
※ For additional material, see page 32~33

Material Resistance

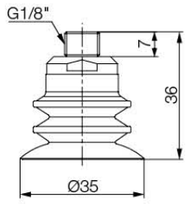
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

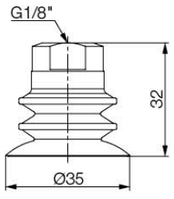
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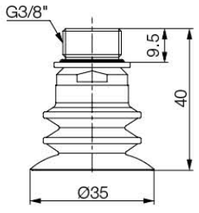
[With 14M fitting]



[With 18M fitting]

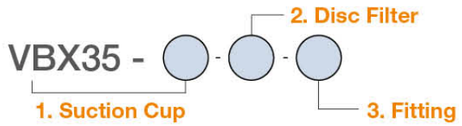


[With 18F fitting]



[With 38M fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellow – cross groove suction cup, 35mm diameter, Polyurethane	VBX35-PU

2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

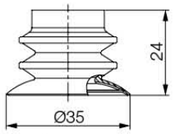
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBX35-PU	Double bellow – cross groove suction cup, 35mm diameter, Polyurethane	5.12	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BX35	Disc filter, Polyethylene	0.36

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	3.7
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3504	38M	G3/8 male	9.16
350 000 3904	38M-F	G3/8 male, Mesh filter	9.56
350 010 3504	38M-EV	Efficiency valve, G3/8 male	5.93

VBX45

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for curved products

Examples of use

Veneer sheets, Metal sheets, Plywood, Carton box, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBX45	13.00	6.40	8.80	10.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

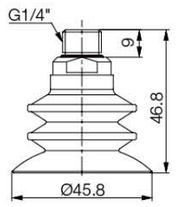
※ For additional material, see page 32~33

Material Resistance

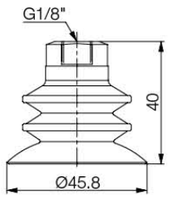
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

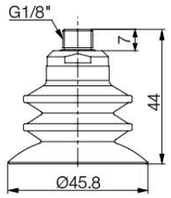
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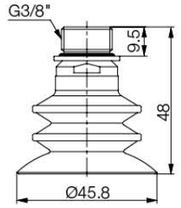
[With 14M fitting]



[With 18F fitting]

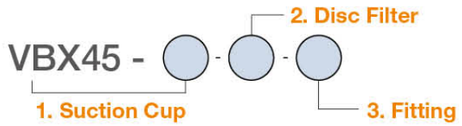


[With 18M fitting]



[With 38M fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellow – cross groove suction cup, 45mm diameter, Polyurethane	VBX45-PU

2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

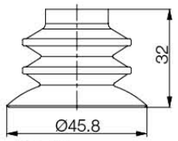
3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FB*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV

* 18FB is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBX45-PU	Double bellow – cross groove suction cup, 45mm diameter, Polyurethane	10.61	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BX45	Disc filter, Polyethylene	0.63

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 3331	18FB	G1/8 female, For silicone material	3.7
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3504	38M	G3/8 male	9.16
350 000 3904	38M-F	G3/8 male, Mesh filter	9.56
350 010 3504	38M-EV	Efficiency valve, G3/8 male	5.93

VBX55

Features and Strengths
Widely cover for increased degree of height compensation
Excellent for curved products

Examples of use
Veneer sheets, Metal sheets, Plywood, Carton box, Glasses



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VBX55	29.50	7.60	10.10	12.20

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

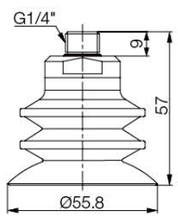
※ For additional material, see page 32~33

Material Resistance

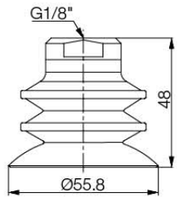
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

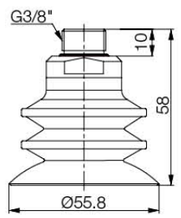
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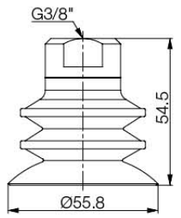
[With 14M fitting]



[With 18F fitting]

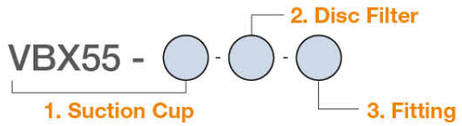


[With 38M fitting]



[With 38F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Double bellow – cross groove suction cup, 55mm diameter, Polyurethane	VBX55-PU

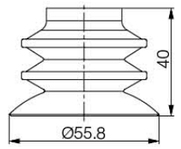
2. Disc filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 Female	18F-EV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficiency valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VBX55-PU	Double bellow – cross groove suction cup, 55mm diameter, Polyurethane	20.72	Translucent Orange

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-BX55	Disc filter, Polyethylene	1.06

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3312	18F	G1/8 female	5.68
350 000 4312	18F-F	G1/8 female, Mesh filter	5.73
350 010 3312	18F-EV	Efficiency valve, G1/8 female	5.63
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4912	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficiency valve, G1/8 female, Old profile	10.22
350 000 3405	14M	G1/4 male	5.88
350 000 3805	14M-F	G1/4 male, Mesh filter	5.92
350 010 3405	14M-EV	Efficiency valve, G1/4 male	6.03
350 000 3505	38M	G3/8 male	9.16
350 000 3905	38M-F	G3/8 male, Mesh filter	9.56
350 010 3505	38M-EV	Efficiency valve, G3/8 male	9.41

BL5040

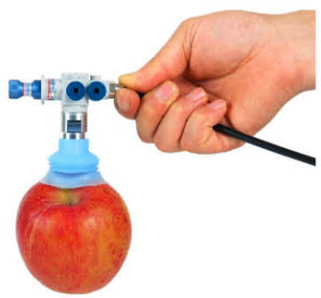


Features and Strengths
Excellent for irregular curved surface and rough surface
Dual lip structure to increase safety caused by lip worn and torn

Advantages
Stable and reliable performance by dual lip structure to increase safety caused by lip worn and torn

Application





Examples of use
Food (Orange, Apple, Cheese ball, etc.)
Convex surface

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
BL5040	32.30	1.90	3.98	5.25	

※ The lifting force above does not include safety factor

Available size options

Model	Description
BL5040	Dual lip structure suction cup, inner Ø40 - outer Ø50

BL5040



Features and Strengths

Excellent for irregular curved surface and rough surface
Dual lip structure to increase safety caused by lip worn and torn

Examples of use

Food (Orange, Apple, Cheese ball, etc.)
Convex surface

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
BL5040	32.30	1.90	3.98	5.25

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone - S3	30	Translucent Blue	-70~200
Silicone - S5	55	Red	-70~200
White Silicone – WS3	30	Translucent White	-70~200
White Silicone – WS5	55	Translucent White	-70~200
White Silicone – WS3 (FDA)	30	Translucent White	-70~200
White Silicone – WS5 (FDA)	55	Translucent White	-70~200

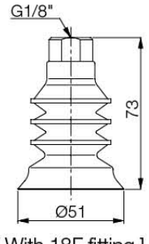
※ For additional material, see page 32~33

Material Resistance

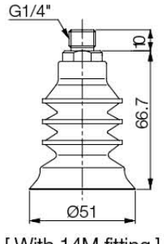
Description	NBR	Silicone	White silicone
Wear Resistance	Excellent	Good	Good
Oil	Excellent	Poor	Poor
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Good
Acid	Fair	Poor	Poor

Dimension

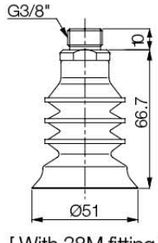
[Unit : mm]



[With 18F fitting]



[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

BL5040 - ○ - ○

1. Suction Cup
2. Fitting

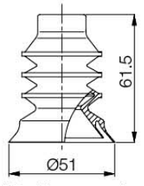
1. Suction cup	Description	Symbol
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Nitrile (NBR)	BL5040-N
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Silicone – Hardness 30°	BL5040-S3
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Silicone – Hardness 55°	BL5040-S5
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 30°	BL5040-WS3
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 55°	BL5040-WS5
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 30° (FDA)	BL5040-WS3(FDA)
	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 55° (FDA)	BL5040-WS5(FDA)

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
BL5040-N	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Nitrile (NBR)	24.28	Black
BL5040-S3	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Silicone – Hardness 30°	22.2	Translucent Blue
BL5040-S5	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, Silicone – Hardness 55°	22.9	Red
BL5040-WS3	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 30°	21.93	Translucent White
BL5040-WS5	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 55°	22.15	Translucent White
BL5040-WS3(FDA)	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 30° (FDA)	21.93	Translucent White
BL5040-WS5(FDA)	Dual lip structure suction cup, inner 40mm - outer 50mm diameter, White silicone – Hardness 55° (FDA)	22.15	Translucent White

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 005 0101	18F	G1/8 female	11.24
350 005 0103	18F-F	G1/8 female, Mesh filter	11.27
350 005 0202	14M	G1/4 male	7.92
350 005 0204	14M-F	G1/4 male, Mesh filter	8.96
350 005 0302	38M	G3/8 male	11.47
350 005 0304	38M-F	G3/8 male, Mesh filter	11.51

VOBL Series

Features and Strengths

Widely cover for increased degree of height compensation
Excellent for fragile products

Advantages

Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows.
Can cope with an increased degree of height compensation and is particularly good for handling fragile objects.
The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece.



Application



Examples of use

Fragile objects, General food products, Glass, Bread

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		Page
		- 20 kPa	- 60 kPa	
VOBL35x90	43.00	2.90	5.00	

※ The lifting force above does not include safety factor

Available size options

Model	Description
VOBL35x90	Long multi-bellow & oval suction cup, Ø35x90

VOBL35x90



Features and Strengths
Widely cover for increased degree of height compensation
Excellent for fragile products

Examples of use
Fragile objects, General food products, Glass, Bread



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular	
		- 20 kPa	- 60 kPa
VOBL35x90	43.00	2.90	5.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

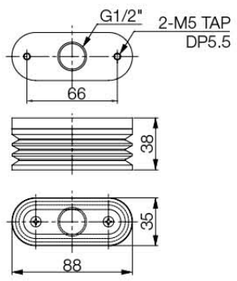
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

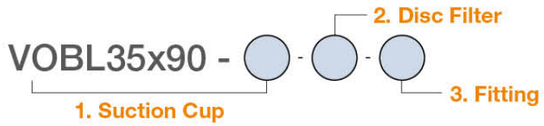
Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Long multi-bellow & oval suction cup, 35x90mm diameter, Nitrile (NBR)	VOBL35x90-N
	Long multi-bellow & oval suction cup, 35x90mm diameter, Silicone	VOBL35x90-S
	Long multi-bellow & oval suction cup, 35x90mm diameter, White silicone	VOBL35x90-WS
	Long multi-bellow & oval suction cup, 35x90mm diameter, White silicone (FDA)	VOBL35x90-WS(FDA)
	Long multi-bellow & oval suction cup, 35x90mm diameter, High temperature silicone	VOBL35x90-HS
	Long multi-bellow & oval suction cup, 35x90mm diameter, Conductive silicone	VOBL35x90-CS
	Long multi-bellow & oval suction cup, 35x90mm diameter, Urethane	VOBL35x90-U
	Long multi-bellow & oval suction cup, 35x90mm diameter, Mark free	VOBL35x90-A

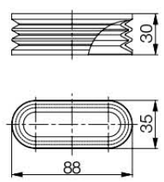
2. Disc Filter	Description	Symbol
	No disc filter	Blank
	Disc filter, Polyethylene	F

3. Fitting	Description	Symbol
	Fitting, G1/2 female	12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOBL35x90-N	Long multi-bellow & oval suction cup, 35x90mm diameter, Nitrile (NBR)	22.2	Black
VOBL35x90-S	Long multi-bellow & oval suction cup, 35x90mm diameter, Silicone	20.71	Red
VOBL35x90-WS	Long multi-bellow & oval suction cup, 35x90mm diameter, White silicone	21.03	Translucent White
VOBL35x90-WS(FDA)	Long multi-bellow & oval suction cup, 35x90mm diameter, White silicone (FDA)	21.03	Translucent White
VOBL35x90-HS	Long multi-bellow & oval suction cup, 35x90mm diameter, High temperature silicone	20.54	Blue
VOBL35x90-CS	Long multi-bellow & oval suction cup, 35x90mm diameter, Conductive silicone	21.23	Smoky Black
VOBL35x90-U	Long multi-bellow & oval suction cup, 35x90mm diameter, Urethane	23.34	Dark Green
VOBL35x90-A	Long multi-bellow & oval suction cup, 35x90mm diameter, Mark free	21.23	Black

[Unit : mm]



[Rubber part]

Spare Parts – Disc Filter

Part No.	Description	Weight (g)
VTFE-OBL35x90	Disc filter, Polyethylene	2.08

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3660	12F	G1/2 female	18.7

VOU Series

Features and Strengths

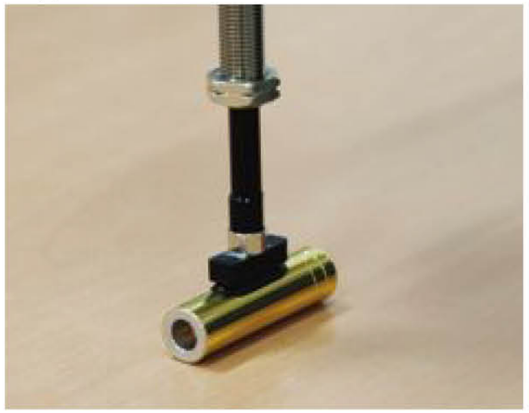
Great performance for handling long objects with flat and curved surfaces

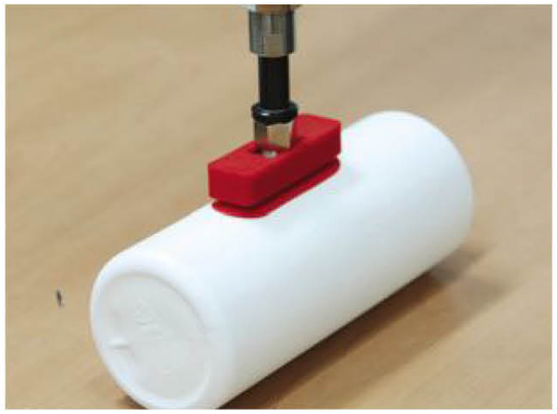
Advantages

Good lifting forces can be achieved with small size
Conductive silicon is excellent for handling PCB Board or Electronic components
Easily mountable without detaching a fitting from the machine(save the maintenance time)



Application





Examples of use

Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Available size option

Model	Description	Model	Description
VOU4x10	Oval universal suction cup Ø4x10	VOU8x30	Oval universal suction cup Ø8x30
VOU4x20	Oval universal suction cup Ø4x20	VOU10x30	Oval universal suction cup Ø10x30
VOU6x10	Oval universal suction cup Ø6x10	VOU15x45	Oval universal suction cup Ø15x45
VOU6x20	Oval universal suction cup Ø4x20	VOU20x60	Oval universal suction cup Ø20x60
VOU8x20	Oval universal suction cup Ø8x20		

Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Min. Curvatur Radius R (mm)	Lifting Force (Kg) - Perpendicular			Page
			- 20 kPa	- 60 kPa	- 90 kPa	
VOU4x10	0.064	3.50	0.19	0.30	0.35	
VOU4x20	0.094	3.50	0.24	0.48	0.60	
VOU6x10	0.081	4.50	0.21	0.39	0.49	
VOU6x20	0.137	4.50	0.31	0.64	0.80	
VOU8x20	0.170	6.50	0.38	0.83	1.21	
VOU8x30	0.250	6.50	0.52	1.21	1.66	
VOU10x30	0.394	8.00	0.62	1.42	2.05	
VOU15x45	1.584	11.00	1.06	2.88	4.22	
VOU20x60	3.532	17.00	1.93	5.10	7.65	

※ The lifting force above does not include safety factor

VOU4x10



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU4x10	0.064	3.50	0.19	0.30	0.35

※ The lifting force above does not include safety factor

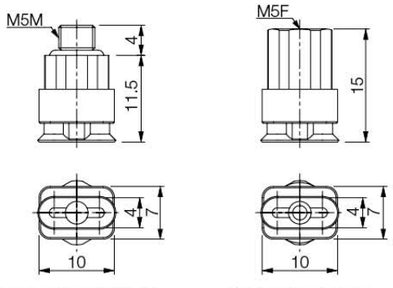
Material Specifications

Material	Hardness Shore (º)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension
[Unit : mm]



[With M5M fitting] [With M5F fitting]

Build an Ordering No.

VOU4x10 - ○ - ○

1. Suction Cup 2. Fitting

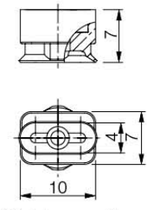
1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 4x10mm diameter, Nitrile (NBR)	VOU4x10-N
	Oval-Universal suction cup, 4x10mm diameter, Silicone	VOU4x10-S
	Oval-Universal suction cup, 4x10mm diameter, White silicone	VOU4x10-WS
	Oval-Universal suction cup, 4x10mm diameter, White silicone (FDA)	VOU4x10-WS (FDA)
	Oval-Universal suction cup, 4x10mm diameter, High temperature silicone	VOU4x10-HS
	Oval-Universal suction cup, 4x10mm diameter, Conductive silicone	VOU4x10-CS
	Oval-Universal suction cup, 4x10mm diameter, Urethane	VOU4x10-U

2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU4x10-N	Oval-Universal suction cup, 4x10mm diameter, Nitrile (NBR)	0.30	Black
VOU4x10-S	Oval-Universal suction cup, 4x10mm diameter, Silicone	0.28	Red
VOU4x10-WS	Oval-Universal suction cup, 4x10mm diameter, White silicone	0.28	Translucent White
VOU4x10-WS (FDA)	Oval-Universal suction cup, 4x10mm diameter, White silicone (FDA)	0.28	Translucent White
VOU4x10-HS	Oval-Universal suction cup, 4x10mm diameter, High temperature silicone	0.31	Blue
VOU4x10-CS	Oval-Universal suction cup, 4x10mm diameter, Conductive silicone	0.29	Smoky Black
VOU4x10-U	Oval-Universal suction cup, 4x10mm diameter, Urethane	0.31	Dark Green

Dimension
[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1111	M5F	M5 female	2.82
350 002 1011	M5M	M5 male	1.78

VOU4x20



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU4x20	0.094	3.50	0.24	0.48	0.60

※ The lifting force above does not include safety factor

Material Specifications

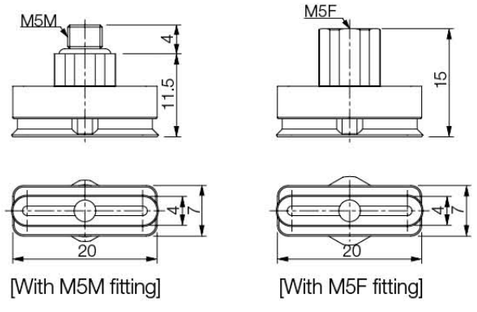
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



Build an Ordering No.

VOU4x20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 4x20mm diameter, Nitrile (NBR)	VOU4x20-N
	Oval-Universal suction cup, 4x20mm diameter, Silicone	VOU4x20-S
	Oval-Universal suction cup, 4x20mm diameter, White silicone	VOU4x20-WS
	Oval-Universal suction cup, 4x20mm diameter, White silicone (FDA)	VOU4x20-WS (FDA)
	Oval-Universal suction cup, 4x20mm diameter, High temperature silicone	VOU4x20-HS
	Oval-Universal suction cup, 4x20mm diameter, Conductive silicone	VOU4x20-CS
	Oval-Universal suction cup, 4x20mm diameter, Urethane	VOU4x20-U

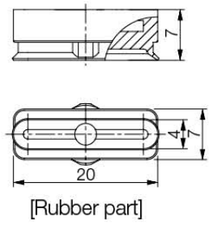
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU4x20-N	Oval-Universal suction cup, 4x20mm diameter, Nitrile (NBR)	0.72	Black
VOU4x20-S	Oval-Universal suction cup, 4x20mm diameter, Silicone	0.61	Red
VOU4x20-WS	Oval-Universal suction cup, 4x20mm diameter, White silicone	0.60	Translucent White
VOU4x20-WS (FDA)	Oval-Universal suction cup, 4x20mm diameter, White silicone (FDA)	0.60	Translucent White
VOU4x20-HS	Oval-Universal suction cup, 4x20mm diameter, High temperature silicone	0.74	Blue
VOU4x20-CS	Oval-Universal suction cup, 4x20mm diameter, Conductive silicone	0.7	Smoky Black
VOU4x20-U	Oval-Universal suction cup, 4x20mm diameter, Urethane	0.74	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

VOU6x10



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU6x10	0.081	4.50	0.21	0.39	0.49

※ The lifting force above does not include safety factor

Material Specifications

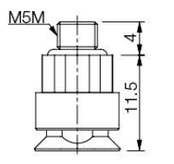
Material	Hardness Shore (º)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

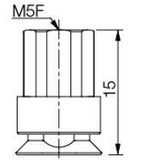
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With M5M fitting]



[With M5F fitting]

Build an Ordering No.

VOU6x10 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 6x10mm diameter, Nitrile (NBR)	VOU6x10-N
	Oval-Universal suction cup, 6x10mm diameter, Silicone	VOU6x10-S
	Oval-Universal suction cup, 6x10mm diameter, White silicone	VOU6x10-WS
	Oval-Universal suction cup, 6x10mm diameter, White silicone (FDA)	VOU6x10-WS (FDA)
	Oval-Universal suction cup, 6x10mm diameter, High temperature silicone	VOU6x10-HS
	Oval-Universal suction cup, 6x10mm diameter, Conductive silicone	VOU6x10-CS
	Oval-Universal suction cup, 6x10mm diameter, Urethane	VOU6x10-U

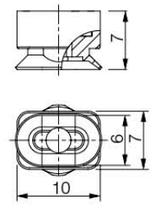
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU6x10-N	Oval-Universal suction cup, 6x10mm diameter, Nitrile (NBR)	0.30	Black
VOU6x10-S	Oval-Universal suction cup, 6x10mm diameter, Silicone	0.28	Red
VOU6x10-WS	Oval-Universal suction cup, 6x10mm diameter, White silicone	0.28	Translucent White
VOU6x10-WS (FDA)	Oval-Universal suction cup, 6x10mm diameter, White silicone (FDA)	0.28	Translucent White
VOU6x10-HS	Oval-Universal suction cup, 6x10mm diameter, High temperature silicone	0.31	Blue
VOU6x10-CS	Oval-Universal suction cup, 6x10mm diameter, Conductive silicone	0.29	Smoky Black
VOU6x10-U	Oval-Universal suction cup, 6x10mm diameter, Urethane	0.31	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1111	M5F	M5 female	2.82
350 002 1011	M5M	M5 male	1.78

VOU6x20



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU6x20	0.137	4.50	0.31	0.64	0.80

※ The lifting force above does not include safety factor

Material Specifications

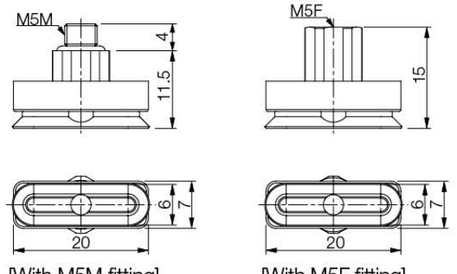
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With M5M fitting] [With M5F fitting]

Build an Ordering No.

VOU6x20 - ○ - ○

1. Suction Cup 2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 6x20mm diameter, Nitrile (NBR)	VOU6x20-N
	Oval-Universal suction cup, 6x20mm diameter, Silicone	VOU6x20-S
	Oval-Universal suction cup, 6x20mm diameter, White silicone	VOU6x20-WS
	Oval-Universal suction cup, 6x20mm diameter, White silicone (FDA)	VOU6x20-WS (FDA)
	Oval-Universal suction cup, 6x20mm diameter, High temperature silicone	VOU6x20-HS
	Oval-Universal suction cup, 6x20mm diameter, Conductive silicone	VOU6x20-CS
	Oval-Universal suction cup, 6x20mm diameter, Urethane	VOU6x20-U

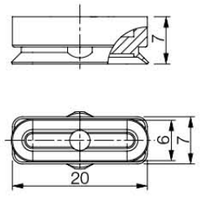
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU6x20-N	Oval-Universal suction cup, 6x20mm diameter, Nitrile (NBR)	0.64	Black
VOU6x20-S	Oval-Universal suction cup, 6x20mm diameter, Silicone	0.61	Red
VOU6x20-WS	Oval-Universal suction cup, 6x20mm diameter, White silicone	0.61	Translucent White
VOU6x20-WS (FDA)	Oval-Universal suction cup, 6x20mm diameter, White silicone (FDA)	0.61	Translucent White
VOU6x20-HS	Oval-Universal suction cup, 6x20mm diameter, High temperature silicone	0.66	Blue
VOU6x20-CS	Oval-Universal suction cup, 6x20mm diameter, Conductive silicone	0.63	Smoky Black
VOU6x20-U	Oval-Universal suction cup, 6x20mm diameter, Urethane	0.66	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

VOU8x20



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU8x20	0.170	6.50	0.38	0.83	1.21

※ The lifting force above does not include safety factor

Material Specifications

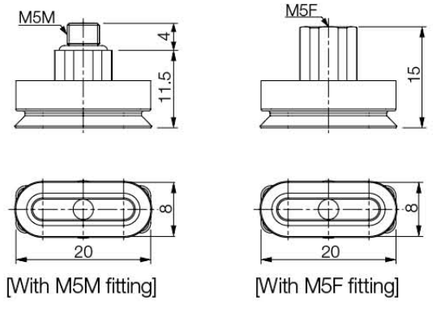
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



Build an Ordering No.

VOU8x20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 8x20mm diameter, Nitrile (NBR)	VOU8x20-N
	Oval-Universal suction cup, 8x20mm diameter, Silicone	VOU8x20-S
	Oval-Universal suction cup, 8x20mm diameter, White silicone	VOU8x20-WS
	Oval-Universal suction cup, 8x20mm diameter, White silicone (FDA)	VOU8x20-WS (FDA)
	Oval-Universal suction cup, 8x20mm diameter, High temperature silicone	VOU8x20-HS
	Oval-Universal suction cup, 8x20mm diameter, Conductive silicone	VOU8x20-CS
	Oval-Universal suction cup, 8x20mm diameter, Urethane	VOU8x20-U

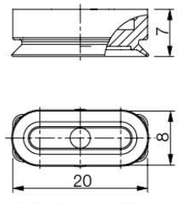
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU8x20-N	Oval-Universal suction cup, 8x20mm diameter, Nitrile (NBR)	0.71	Black
VOU8x20-S	Oval-Universal suction cup, 8x20mm diameter, Silicone	0.67	Red
VOU8x20-WS	Oval-Universal suction cup, 8x20mm diameter, White silicone	0.68	Translucent White
VOU8x20-WS (FDA)	Oval-Universal suction cup, 8x20mm diameter, White silicone (FDA)	0.68	Translucent White
VOU8x20-HS	Oval-Universal suction cup, 8x20mm diameter, High temperature silicone	0.70	Blue
VOU8x20-CS	Oval-Universal suction cup, 8x20mm diameter, Conductive silicone	0.70	Smoky Black
VOU8x20-U	Oval-Universal suction cup, 8x20mm diameter, Urethane	0.73	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

VOU8x30



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU8x30	0.250	6.50	0.52	1.21	1.66

※ The lifting force above does not include safety factor

Material Specifications

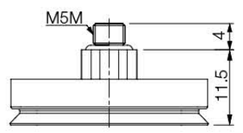
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

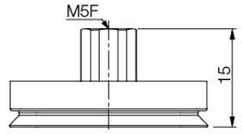
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With M5M fitting]



[With M5F fitting]

Build an Ordering No.

VOU8x30 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 8x30mm diameter, Nitrile (NBR)	VOU8x30-N
	Oval-Universal suction cup, 8x30mm diameter, Silicone	VOU8x30-S
	Oval-Universal suction cup, 8x30mm diameter, White silicone	VOU8x30-WS
	Oval-Universal suction cup, 8x30mm diameter, White silicone (FDA)	VOU8x30-WS (FDA)
	Oval-Universal suction cup, 8x30mm diameter, High temperature silicone	VOU8x30-HS
	Oval-Universal suction cup, 8x30mm diameter, Conductive silicone	VOU8x30-CS
	Oval-Universal suction cup, 8x30mm diameter, Urethane	VOU8x30-U

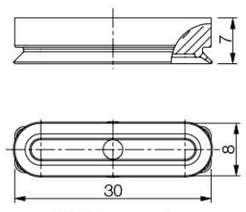
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU8x30-N	Oval-Universal suction cup, 8x30mm diameter, Nitrile (NBR)	1.20	Black
VOU8x30-S	Oval-Universal suction cup, 8x30mm diameter, Silicone	1.12	Red
VOU8x30-WS	Oval-Universal suction cup, 8x30mm diameter, White silicone	1.14	Translucent White
VOU8x30-WS (FDA)	Oval-Universal suction cup, 8x30mm diameter, White silicone (FDA)	1.14	Translucent White
VOU8x30-HS	Oval-Universal suction cup, 8x30mm diameter, High temperature silicone	1.15	Blue
VOU8x30-CS	Oval-Universal suction cup, 8x30mm diameter, Conductive silicone	1.18	Smoky Black
VOU8x30-U	Oval-Universal suction cup, 8x30mm diameter, Urethane	1.24	Dark Green

Dimension

[Unit : mm]

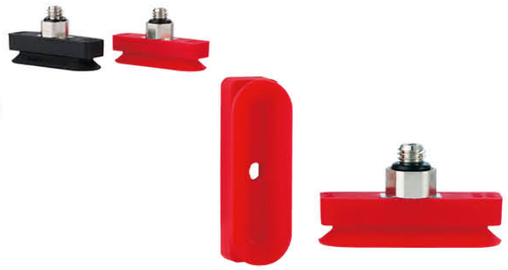


[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

VOU10x30



Features and Strengths

Great performance for handling long objects with flat and curved surfaces

Examples of use

Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU10x30	0.394	8.00	0.62	1.42	2.05

※ The lifting force above does not include safety factor

Material Specifications

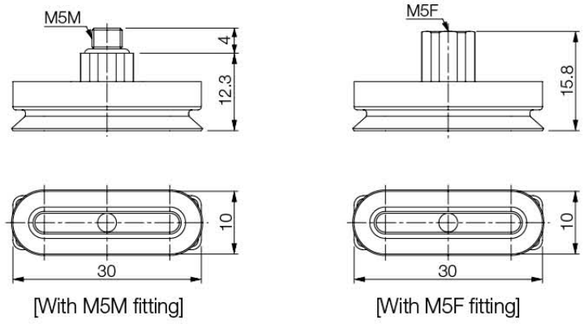
Material	Hardness Shore (º)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With M5M fitting] [With M5F fitting]

Build an Ordering No.

VOU10x30 - ○ - ○

1. Suction Cup 2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 10x30mm diameter, Nitrile (NBR)	VOU10x30-N
	Oval-Universal suction cup, 10x30mm diameter, Silicone	VOU10x30-S
	Oval-Universal suction cup, 10x30mm diameter, White silicone	VOU10x30-WS
	Oval-Universal suction cup, 10x30mm diameter, White silicone (FDA)	VOU10x30-WS (FDA)
	Oval-Universal suction cup, 10x30mm diameter, High temperature silicone	VOU10x30-HS
	Oval-Universal suction cup, 10x30mm diameter, Conductive silicone	VOU10x30-CS
	Oval-Universal suction cup, 10x30mm diameter, Urethane	VOU10x30-U

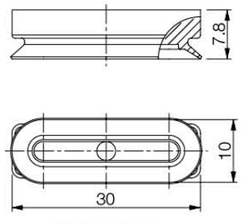
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU10x30-N	Oval-Universal suction cup, 10x30mm diameter, Nitrile (NBR)	1.79	Black
VOU10x30-S	Oval-Universal suction cup, 10x30mm diameter, Silicone	1.55	Red
VOU10x30-WS	Oval-Universal suction cup, 10x30mm diameter, White silicone	1.56	Translucent White
VOU10x30-WS (FDA)	Oval-Universal suction cup, 10x30mm diameter, White silicone (FDA)	1.56	Translucent White
VOU10x30-HS	Oval-Universal suction cup, 10x30mm diameter, High temperature silicone	1.85	Blue
VOU10x30-CS	Oval-Universal suction cup, 10x30mm diameter, Conductive silicone	1.77	Smoky Black
VOU10x30-U	Oval-Universal suction cup, 10x30mm diameter, Urethane	1.85	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

VOU15x45



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU15x45	1.584	11.00	1.06	2.88	4.22

※ The lifting force above does not include safety factor

Material Specifications

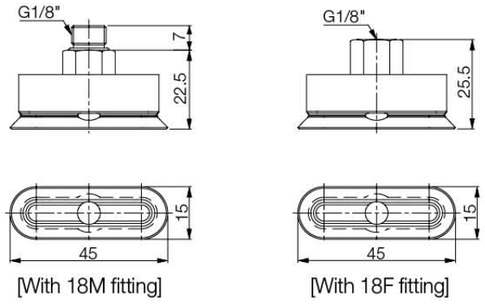
Material	Hardness Shore (º)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



Build an Ordering No.

VOU15x45 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 15x45mm diameter, Nitrile (NBR)	VOU15x45-N
	Oval-Universal suction cup, 15x45mm diameter, Silicone	VOU15x45-S
	Oval-Universal suction cup, 15x45mm diameter, White silicone	VOU15x45-WS
	Oval-Universal suction cup, 15x45mm diameter, White silicone (FDA)	VOU15x45-WS (FDA)
	Oval-Universal suction cup, 15x45mm diameter, High temperature silicone	VOU15x45-HS
	Oval-Universal suction cup, 15x45mm diameter, Conductive silicone	VOU15x45-CS
	Oval-Universal suction cup, 15x45mm diameter, Urethane	VOU15x45-U

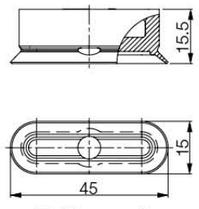
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU15x45-N	Oval-Universal suction cup, 15x45mm diameter, Nitrile (NBR)	5.82	Black
VOU15x45-S	Oval-Universal suction cup, 15x45mm diameter, Silicone	5.13	Red
VOU15x45-WS	Oval-Universal suction cup, 15x45mm diameter, White silicone	5.11	Translucent White
VOU15x45-WS (FDA)	Oval-Universal suction cup, 15x45mm diameter, White silicone (FDA)	5.11	Translucent White
VOU15x45-HS	Oval-Universal suction cup, 15x45mm diameter, High temperature silicone	5.26	Blue
VOU15x45-CS	Oval-Universal suction cup, 15x45mm diameter, Conductive silicone	5.76	Smoky Black
VOU15x45-U	Oval-Universal suction cup, 15x45mm diameter, Urethane	6.02	Dark Green

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 3121	18F	G1/8 female	10.32
350 002 3122	18F-F	G1/8 female, Mesh filter	10.46
350 002 3021	18M	G1/8 male	13.74
350 002 3022	18M-F	G1/8 male, Mesh filter	13.84

VOU20x60



Features and Strengths
Great performance for handling long objects with flat and curved surfaces

Examples of use
Semiconductor Chips, PCB boards, Electronic component
Solar cell, Small glass cases, Pipes

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU20x60	3.532	17.00	1.93	5.10	7.65

※ The lifting force above does not include safety factor

Material Specifications

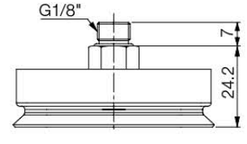
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

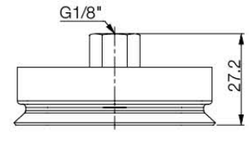
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With 18M fitting]



[With 18F fitting]

Build an Ordering No.

VOU20x60 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 20x60mm diameter, Nitrile (NBR)	VOU20x60-N
	Oval-Universal suction cup, 20x60mm diameter, Silicone	VOU20x60-S
	Oval-Universal suction cup, 20x60mm diameter, White silicone	VOU20x60-WS
	Oval-Universal suction cup, 20x60mm diameter, White silicone (FDA)	VOU20x60-WS (FDA)
	Oval-Universal suction cup, 20x60mm diameter, High temperature silicone	VOU20x60-HS
	Oval-Universal suction cup, 20x60mm diameter, Conductive silicone	VOU20x60-CS
	Oval-Universal suction cup, 20x60mm diameter, Urethane	VOU20x60-U

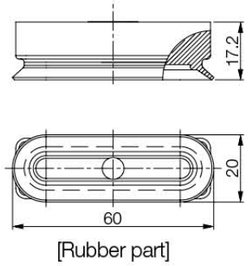
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU20x60-N	Oval-Universal suction cup, 20x60mm diameter, Nitrile (NBR)	14.78	Black
VOU20x60-S	Oval-Universal suction cup, 20x60mm diameter, Silicone	13.22	Red
VOU20x60-WS	Oval-Universal suction cup, 20x60mm diameter, White silicone	13.04	Translucent White
VOU20x60-WS (FDA)	Oval-Universal suction cup, 20x60mm diameter, White silicone (FDA)	13.04	Translucent White
VOU20x60-HS	Oval-Universal suction cup, 20x60mm diameter, High temperature silicone	15.28	Blue
VOU20x60-CS	Oval-Universal suction cup, 20x60mm diameter, Conductive silicone	14.63	Smoky Black
VOU20x60-U	Oval-Universal suction cup, 20x60mm diameter, Urethane	15.31	Dark Green

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 3121	18F	G1/8 female	10.32
350 002 3122	18F-F	G1/8 female, Mesh filter	10.46
350 002 3021	18M	G1/8 male	13.74
350 002 3022	18M-F	G1/8 male, Mesh filter	13.84

VU Series



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

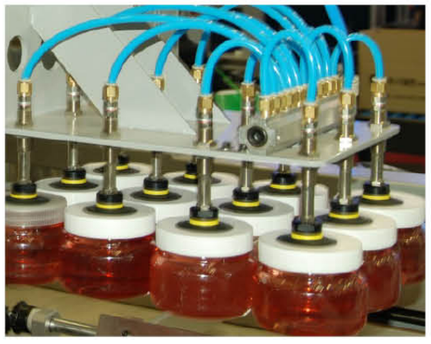
Advantages

Good lifting forces can be achieved with this cup, is best suited to flat stable surfaces, but can cope with a small degree of curvature
Very small cup are available down to just 1.5mm diameter

Application







Examples of use

Cardboards, Veneer Sheets, Packaging Materials,
Plastic Sheets, Thin Film Sheets

Available size options

Model	Description	Model	Description
VU1.5X	Universal suction cup, Ø1.5	VU10	Universal suction cup, Ø10
VU2	Universal suction cup, Ø2	VU15	Universal suction cup, Ø15
VU2X	Universal suction cup, Ø2	VU20	Universal suction cup, Ø20
VU3	Universal suction cup, Ø3	VU25	Universal suction cup, Ø25
VU3K	Universal suction cup, Ø3	VU30	Universal suction cup, Ø30
VU4	Universal suction cup, Ø4	VU30-X	Universal suction cup, Ø30
VU4X	Universal suction cup, Ø4	VU40	Universal suction cup, Ø40
VU6	Universal suction cup, Ø6	VU50	Universal suction cup, Ø50
VU8	Universal suction cup, Ø8	VU80	Universal suction cup, Ø80

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VU1.5X	0.0015	0.0008	0.003	0.004				
VU2	0.0025	0.003	0.01	0.015				
VU2X	0.0025	0.003	0.01	0.015				
VU3	0.005	0.009	0.04	0.06				
VU3K	0.018	0.014	0.06	0.09				
VU4	0.03	0.02	0.09	0.13	0.02	0.08	0.10	
VU4X	0.03	0.02	0.09	0.13	0.02	0.08	0.10	
VU6	0.05	0.05	0.17	0.25	0.03	0.15	0.20	
VU8	0.10	0.10	0.29	0.39	0.10	0.29	0.34	
VU10	0.18	0.15	0.44	0.70	0.15	0.44	0.50	
VU15	0.50	0.35	0.85	1.12	0.35	0.55	0.60	
VU20	1.00	0.60	1.22	1.63	0.60	0.89	1.00	
VU25	1.50	0.91	1.98	2.50	0.70	0.95	1.05	
VU30	2.00	1.22	2.55	3.06	0.79	1.00	1.12	
VU30-X	1.80	0.65	1.48	1.78				
VU40	5.50	2.04	3.97	5.00	1.42	2.24	2.80	
VU50	12.00	3.57	7.44	9.38	2.04	3.77	4.48	
VU80	32.00	7.77	19.80	25.21	4.53	12.70	16.94	

※ The lifting force above does not include safety factor

VU1.5X



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces with direct fitting
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU1.5X	0.0015	0.0008	0.003	0.004

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

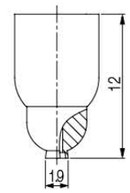
Build an Ordering No.

VU1.5X - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Universal suction cup, For level compensator mount, 1.5mm diameter, Nitrile (NBR)	0.26	VU1.5X-N
	Universal suction cup, For level compensator mount, 1.5mm diameter, Silicone	0.22	VU1.5X-S
	Universal suction cup, For level compensator mount, 1.5mm diameter, White silicone	0.24	VU1.5X-WS
	Universal suction cup, For level compensator mount, 1.5mm diameter, White silicone (FDA)	0.24	VU1.5X-WS(FDA)
	Universal suction cup, For level compensator mount, 1.5mm diameter, High temperature silicone	0.25	VU1.5X-HS
	Universal suction cup, For level compensator mount, 1.5mm diameter, Conductive silicone	0.25	VU1.5X-CS
	Universal suction cup, For level compensator mount, 1.5mm diameter, Urethane	0.26	VU1.5X-U
	Universal suction cup, For level compensator mount, 1.5mm diameter, Mark free	0.32	VU1.5X-A

[Unit : mm]



[Rubber part]

VU2



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces with direct fitting
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU2	0.0025	0.003	0.01	0.015

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

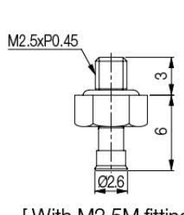
※ For additional material, see page 32~33

Material Resistance

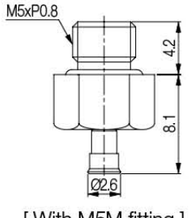
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M2.5M fitting]



[With M5M fitting]

Build an Ordering No.

VU2 - ○ - ○

1. Suction Cup　2. Fitting

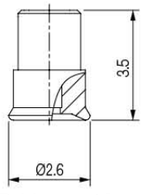
1. Suction cup	Description	Symbol
	Universal suction cup, 2mm diameter, Nitrile (NBR)	VU2-N
	Universal suction cup, 2mm diameter, Silicone	VU2-S
	Universal suction cup, 2mm diameter, White silicone	VU2-WS
	Universal suction cup, 2mm diameter, White silicone (FDA)	VU2-WS (FDA)
	Universal suction cup, 2mm diameter, High temperature silicone	VU2-HS
	Universal suction cup, 2mm diameter, Conductive silicone	VU2-CS
	Universal suction cup, 2mm diameter, Urethane	VU2-U
	Universal suction cup, 2mm diameter, Mark free	VU2-A

2. Fitting	Description	Symbol
	Fitting, M2.5 male	M2.5M
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU2-N	Universal suction cup, 2mm diameter, Nitrile (NBR)	0.01	Black
VU2-S	Universal suction cup, 2mm diameter, Silicone	0.01	Red
VU2-WS	Universal suction cup, 2mm diameter, White silicone	0.01	Translucent White
VU2-WS (FDA)	Universal suction cup, 2mm diameter, White silicone (FDA)	0.01	Translucent White
VU2-HS	Universal suction cup, 2mm diameter, High temperature silicone	0.01	Blue
VU2-CS	Universal suction cup, 2mm diameter, Conductive silicone	0.01	Smoky Black
VU2-U	Universal suction cup, 2mm diameter, Urethane	0.01	Dark Green
VU2-A	Universal suction cup, 2mm diameter, Mark free	0.01	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3000	M2.5M	M2.5 male	0.47
350 000 3100	M5M	M5 male	0.54

VU2X



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces with direct fitting
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU2X	0.0025	0.003	0.01	0.015

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

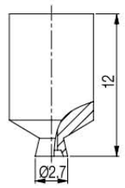
Build an Ordering No.

VU2X - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Universal suction cup, For level compensator mount, 2mm diameter, Nitrile (NBR)	0.33	VU2X-N
	Universal suction cup, For level compensator mount, 2mm diameter, Silicone	0.32	VU2X-S
	Universal suction cup, For level compensator mount, 2mm diameter, White silicone	0.30	VU2X-WS
	Universal suction cup, For level compensator mount, 2mm diameter, White silicone (FDA)	0.30	VU2X-WS(FDA)
	Universal suction cup, For level compensator mount, 2mm diameter, High temperature silicone	0.31	VU2X-HS
	Universal suction cup, For level compensator mount, 2mm diameter, Conductive silicone	0.31	VU2X-CS
	Universal suction cup, For level compensator mount, 2mm diameter, Urethane	0.34	VU2X-U
	Universal suction cup, For level compensator mount, 2mm diameter, Mark free	0.40	VU2X-A

[Unit : mm]



[Rubber part]

VU3



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces with direct fitting
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU3	0.005	0.009	0.04	0.06

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

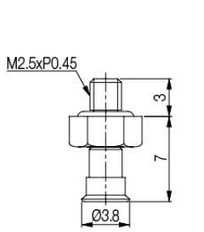
※ For additional material, see page 32~33

Material Resistance

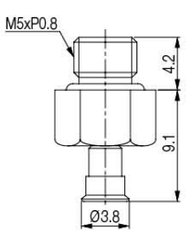
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M2.5M fitting]



[With M5M fitting]

Build an Ordering No.

VU3 - ○ - ○

1. Suction Cup　2. Fitting

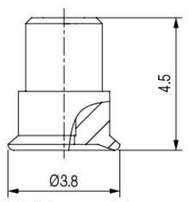
1. Suction cup	Description	Symbol
	Universal suction cup, 3mm diameter, Nitrile (NBR)	VU3-N
	Universal suction cup, 3mm diameter, Silicone	VU3-S
	Universal suction cup, 3mm diameter, White silicone	VU3-WS
	Universal suction cup, 3mm diameter, White silicone (FDA)	VU3-WS (FDA)
	Universal suction cup, 3mm diameter, High temperature silicone	VU3-HS
	Universal suction cup, 3mm diameter, Conductive silicone	VU3-CS
	Universal suction cup, 3mm diameter, Urethane	VU3-U
	Universal suction cup, 3mm diameter, Mark free	VU3-A

2. Fitting	Description	Symbol
	Fitting, M2.5 male	M2.5M
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU3-N	Universal suction cup, 3mm diameter, Nitrile (NBR)	0.01	Black
VU3-S	Universal suction cup, 3mm diameter, Silicone	0.01	Red
VU3-WS	Universal suction cup, 3mm diameter, White silicone	0.01	Translucent White
VU3-WS (FDA)	Universal suction cup, 3mm diameter, White silicone (FDA)	0.01	Translucent White
VU3-HS	Universal suction cup, 3mm diameter, High temperature silicone	0.01	Blue
VU3-CS	Universal suction cup, 3mm diameter, Conductive silicone	0.01	Smoky Black
VU3-U	Universal suction cup, 3mm diameter, Urethane	0.01	Dark Green
VU3-A	Universal suction cup, 3mm diameter, Mark free	0.01	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3000	M2.5M	M2.5 male	0.47
350 000 3100	M5M	M5 male	0.54

VU3K



Features and Strengths
Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use
Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU3K	0.018	0.014	0.06	0.09

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

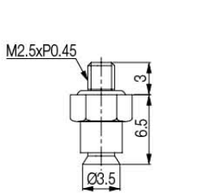
※ For additional material, see page 32~33

Material Resistance

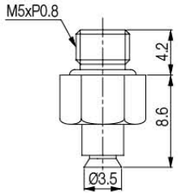
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M2.5M fitting]



[With M5M fitting]

Build an Ordering No.

VU3K - ○ - ○

1. Suction Cup
2. Fitting

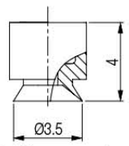
1. Suction cup	Description	Symbol
	Universal suction cup, For level compensator mount, 3mm diameter, Nitrile (NBR)	VU3K-N
	Universal suction cup, For level compensator mount, 3mm diameter, Silicone	VU3K-S
	Universal suction cup, For level compensator mount, 3mm diameter, White silicone	VU3K-WS
	Universal suction cup, For level compensator mount, 3mm diameter, White silicone(FDA)	VU3K-WS(FDA)
	Universal suction cup, For level compensator mount, 3mm diameter, High temperature silicone	VU3K-HS
	Universal suction cup, For level compensator mount, 3mm diameter, Conductive silicone	VU3K-CS
	Universal suction cup, For level compensator mount, 3mm diameter, Urethane	VU3K-U
	Universal suction cup, For level compensator mount, 3mm diameter, Mark free	VU3K-A

2. Fitting	Description	Symbol
	Fitting, M2.5 male	M2.5M
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU3K-N	Universal suction cup, For level compensator mount, 3mm diameter, Nitrile (NBR)	0.01	Black
VU3K-S	Universal suction cup, For level compensator mount, 3mm diameter, Silicone	0.01	Red
VU3K-WS	Universal suction cup, For level compensator mount, 3mm diameter, White silicone	0.01	Translucent White
VU3K-WS(FDA)	Universal suction cup, For level compensator mount, 3mm diameter, White silicone(FDA)	0.01	Translucent White
VU3K-HS	Universal suction cup, For level compensator mount, 3mm diameter, High temperature silicone	0.01	Blue
VU3K-CS	Universal suction cup, For level compensator mount, 3mm diameter, Conductive silicone	0.01	Smoky Black
VU3K-U	Universal suction cup, For level compensator mount, 3mm diameter, Urethane	0.01	Dark Green
VU3K-A	Universal suction cup, For level compensator mount, 3mm diameter, Mark free	0.01	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3006	M2.5M	M2.5 male	2.03
350 000 3106	M5M	M5 male	1.93

VU4

Features and Strengths
Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use
Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU4	0.03	0.02	0.09	0.13	0.02	0.08	0.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

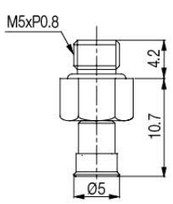
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VU4 - ○ - ○

1. Suction Cup 2. Fitting

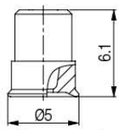
1. Suction cup	Description	Symbol
	Universal suction cup, 4mm diameter, Nitrile (NBR)	VU4-N
	Universal suction cup, 4mm diameter, Silicone	VU4-S
	Universal suction cup, 4mm diameter, White silicone	VU4-WS
	Universal suction cup, 4mm diameter, White silicone(FDA)	VU4-WS(FDA)
	Universal suction cup, 4mm diameter, High temperature silicone	VU4-HS
	Universal suction cup, 4mm diameter, Conductive silicone	VU4-CS
	Universal suction cup, 4mm diameter, Urethane	VU4-U
	Universal suction cup, 4mm diameter, Mark free	VU4-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU4-N	Universal suction cup, 4mm diameter, Nitrile (NBR)	0.07	Black
VU4-S	Universal suction cup, 4mm diameter, Silicone	0.07	Red
VU4-WS	Universal suction cup, 4mm diameter, White silicone	0.07	Translucent White
VU4-WS (FDA)	Universal suction cup, 4mm diameter, White silicone(FDA)	0.07	Translucent White
VU4-HS	Universal suction cup, 4mm diameter, High temperature silicone	0.07	Blue
VU4-CS	Universal suction cup, 4mm diameter, Conductive silicone	0.06	Smoky Black
VU4-U	Universal suction cup, 4mm diameter, Urethane	0.06	Dark Green
VU4-A	Universal suction cup, 4mm diameter, Mark free	0.08	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3101	M5M	M5 male	1.84

VU4X





Features and Strengths

Excellent performance for flat stable and slightly curved surfaces with direct fitting
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU4X	0.03	0.02	0.09	0.13	0.02	0.08	0.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

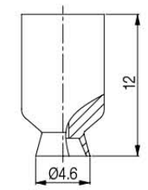
Build an Ordering No.

VU4X - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Universal suction cup, For level compensator mount, 4mm diameter, Nitrile (NBR)	0.32	VU4X-N
	Universal suction cup, For level compensator mount, 4mm diameter, Silicone	0.30	VU4X-S
	Universal suction cup, For level compensator mount, 4mm diameter, White silicone	0.29	VU4X-WS
	Universal suction cup, For level compensator mount, 4mm diameter, White silicone(FDA)	0.29	VU4X-WS(FDA)
	Universal suction cup, For level compensator mount, 4mm diameter, High temperature silicone	0.31	VU4X-HS
	Universal suction cup, For level compensator mount, 4mm diameter, Conductive silicone	0.31	VU4X-CS
	Universal suction cup, For level compensator mount, 4mm diameter, Urethane	0.33	VU4X-U
	Universal suction cup, For level compensator mount, 4mm diameter, Mark free	0.38	VU4X-A

[Unit : mm]



[Rubber part]

VU6



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU6	0.05	0.05	0.17	0.25	0.03	0.15	0.20

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

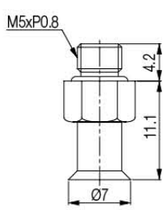
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VU6 - ○ - ○

1. Suction Cup
2. Fitting

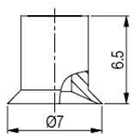
1. Suction cup	Description	Symbol
	Universal suction cup, 6mm diameter, Nitrile (NBR)	VU6-N
	Universal suction cup, 6mm diameter, Silicone	VU6-S
	Universal suction cup, 6mm diameter, White silicone	VU6-WS
	Universal suction cup, 6mm diameter, White silicone(FDA)	VU6-WS(FDA)
	Universal suction cup, 6mm diameter, High temperature silicone	VU6-HS
	Universal suction cup, 6mm diameter, Conductive silicone	VU6-CS
	Universal suction cup, 6mm diameter, Urethane	VU6-U
	Universal suction cup, 6mm diameter, Mark free	VU6-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU6-N	Universal suction cup, 6mm diameter, Nitrile (NBR)	0.13	Black
VU6-S	Universal suction cup, 6mm diameter, Silicone	0.12	Red
VU6-WS	Universal suction cup, 6mm diameter, White silicone	0.11	Translucent White
VU6-WS (FDA)	Universal suction cup, 6mm diameter, White silicone(FDA)	0.11	Translucent White
VU6-HS	Universal suction cup, 6mm diameter, High temperature silicone	0.11	Blue
VU6-CS	Universal suction cup, 6mm diameter, Conductive silicone	0.12	Smoky Black
VU6-U	Universal suction cup, 6mm diameter, Urethane	0.13	Dark Green
VU6-A	Universal suction cup, 6mm diameter, Mark free	0.14	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3101	M5M	M5 male	1.84

VU8

Features and Strengths
Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use
Small components, Semiconductor chips, Packaging materials,
Metal sheet, Printing industry, Paper box



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU8	0.10	0.10	0.29	0.39	0.10	0.29	0.34

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

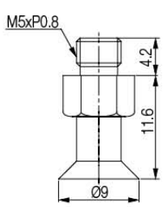
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VU8 - ○ - ○

1. Suction Cup
2. Fitting

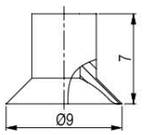
1. Suction cup	Description	Symbol
	Universal suction cup, 8mm diameter, Nitrile (NBR)	VU8-N
	Universal suction cup, 8mm diameter, Silicone	VU8-S
	Universal suction cup, 8mm diameter, White silicone	VU8-WS
	Universal suction cup, 8mm diameter, White silicone(FDA)	VU8-WS(FDA)
	Universal suction cup, 8mm diameter, High temperature silicone	VU8-HS
	Universal suction cup, 8mm diameter, Conductive silicone	VU8-CS
	Universal suction cup, 8mm diameter, Urethane	VU8-U
	Universal suction cup, 8mm diameter, Mark free	VU8-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU8-N	Universal suction cup, 8mm diameter, Nitrile (NBR)	0.18	Black
VU8-S	Universal suction cup, 8mm diameter, Silicone	0.16	Red
VU8-WS	Universal suction cup, 8mm diameter, White silicone	0.15	Translucent White
VU8-WS (FDA)	Universal suction cup, 8mm diameter, White silicone(FDA)	0.15	Translucent White
VU8-HS	Universal suction cup, 8mm diameter, High temperature silicone	0.15	Blue
VU8-CS	Universal suction cup, 8mm diameter, Conductive silicone	0.18	Smoky Black
VU8-U	Universal suction cup, 8mm diameter, Urethane	0.17	Dark Green
VU8-A	Universal suction cup, 8mm diameter, Mark free	0.18	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3101	M5M	M5 male	1.84

VU10



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU10	0.18	0.15	0.44	0.70	0.15	0.44	0.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

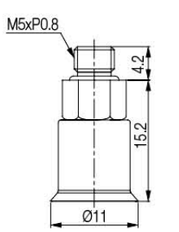
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VU10 - ○ - ○

1. Suction Cup — 2. Fitting

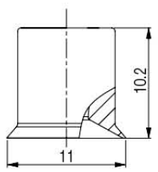
1. Suction cup	Description	Symbol
	Universal suction cup, 10mm diameter, Nitrile (NBR)	VU10-N
	Universal suction cup, 10mm diameter, Silicone	VU10-S
	Universal suction cup, 10mm diameter, White silicone	VU10-WS
	Universal suction cup, 10mm diameter, White silicone (FDA)	VU10-WS (FDA)
	Universal suction cup, 10mm diameter, High temperature silicone	VU10-HS
	Universal suction cup, 10mm diameter, Conductive silicone	VU10-CS
	Universal suction cup, 10mm diameter, Urethane	VU10-U
	Universal suction cup, 10mm diameter, Mark free	VU10-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU10-N	Universal suction cup, 10mm diameter, Nitrile (NBR)	0.60	Black
VU10-S	Universal suction cup, 10mm diameter, Silicone	0.54	Red
VU10-WS	Universal suction cup, 10mm diameter, White silicone	0.53	Translucent White
VU10-WS (FDA)	Universal suction cup, 10mm diameter, White silicone (FDA)	0.53	Translucent White
VU10-HS	Universal suction cup, 10mm diameter, High temperature silicone	0.55	Blue
VU10-CS	Universal suction cup, 10mm diameter, Conductive silicone	0.51	Smoky Black
VU10-U	Universal suction cup, 10mm diameter, Urethane	0.60	Dark Green
VU10-A	Universal suction cup, 10mm diameter, Mark free	0.71	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VU15



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU15	0.50	0.35	0.85	1.12	0.35	0.55	0.60

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

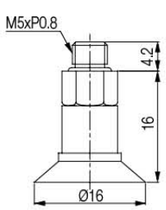
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VU15 - ○ - ○

1. Suction Cup — 2. Fitting

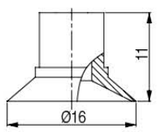
1. Suction cup	Description	Symbol
	Universal suction cup, 15mm diameter, Nitrile (NBR)	VU15-N
	Universal suction cup, 15mm diameter, Silicone	VU15-S
	Universal suction cup, 15mm diameter, White silicone	VU15-WS
	Universal suction cup, 15mm diameter, White silicone (FDA)	VU15-WS (FDA)
	Universal suction cup, 15mm diameter, High temperature silicone	VU15-HS
	Universal suction cup, 15mm diameter, Conductive silicone	VU15-CS
	Universal suction cup, 15mm diameter, Urethane	VU15-U
	Universal suction cup, 15mm diameter, Mark free	VU15-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU15-N	Universal suction cup, 15mm diameter, Nitrile (NBR)	0.75	Black
VU15-S	Universal suction cup, 15mm diameter, Silicone	0.66	Red
VU15-WS	Universal suction cup, 15mm diameter, White silicone	0.84	Translucent White
VU15-WS (FDA)	Universal suction cup, 15mm diameter, White silicone (FDA)	0.84	Translucent White
VU15-HS	Universal suction cup, 15mm diameter, High temperature silicone	0.65	Blue
VU15-CS	Universal suction cup, 15mm diameter, Conductive silicone	0.68	Smoky Black
VU15-U	Universal suction cup, 15mm diameter, Urethane	0.68	Dark Green
VU15-A	Universal suction cup, 15mm diameter, Mark free	1.03	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VU20





Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU20	1.00	0.60	1.22	1.63	0.60	0.89	1.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

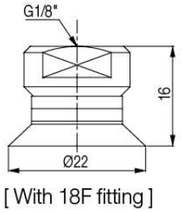
※ For additional material, see page 32~33

Material Resistance

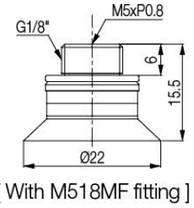
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

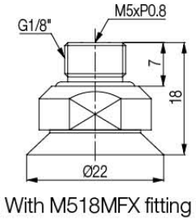
[Unit : mm]



[With 18F fitting]



[With M518MF fitting]



[With M518MFX fitting]

Build an Ordering No.

VU20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Universal suction cup, 20mm diameter, Nitrile (NBR)	VU20-N
	Universal suction cup, 20mm diameter, Silicone	VU20-S
	Universal suction cup, 20mm diameter, White silicone	VU20-WS
	Universal suction cup, 20mm diameter, White silicone (FDA)	VU20-WS (FDA)
	Universal suction cup, 20mm diameter, High temperature silicone	VU20-HS
	Universal suction cup, 20mm diameter, Conductive silicone	VU20-CS
	Universal suction cup, 20mm diameter, Urethane	VU20-U
	Universal suction cup, 20mm diameter, Mark free	VU20-A

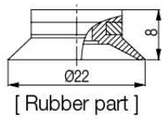
2. Fitting	Description	Symbol
	Fitting, G1/8 Male - M5 female	M518MF
	Fitting, G1/8 Male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8Male - M5 Female	M518MF-EV
	Fitting, G1/8 Male - M5 female, Old profile	M518MFO
	Fitting, G1/8 Male - M5 Female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8Male - M5 Female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 Female	18F-EV

* M518MFX is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU20-N	Universal suction cup, 20mm diameter, Nitrile (NBR)	1.21	Black
VU20-S	Universal suction cup, 20mm diameter, Silicone	1.20	Red
VU20-WS	Universal suction cup, 20mm diameter, White silicone	1.20	Translucent White
VU20-WS (FDA)	Universal suction cup, 20mm diameter, White silicone (FDA)	1.20	Translucent White
VU20-HS	Universal suction cup, 20mm diameter, High temperature silicone	1.20	Blue
VU20-CS	Universal suction cup, 20mm diameter, Conductive silicone	1.26	Smoky Black
VU20-U	Universal suction cup, 20mm diameter, Urethane	1.22	Dark Green
VU20-A	Universal suction cup, 20mm diameter, Mark free	1.51	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 Male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 Male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8Male - M5 Female	1.94
350 000 1209	M518MFO	G1/8 Male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 Male - M5 Female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8Male - M5 Female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.71
350 000 3310	18F	G1/8 female	3.23
350 000 4310	18F-F	G1/8 female, Mesh filter	3.3
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.43

VU25



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU25	1.50	0.91	1.98	2.50	0.70	0.95	1.05

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

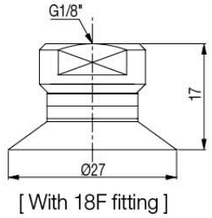
※ For additional material, see page 32~33

Material Resistance

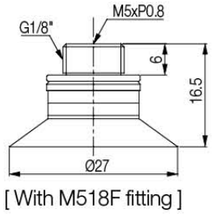
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

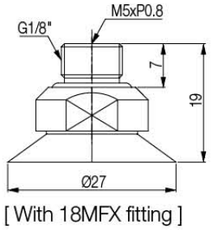
[Unit : mm]



[With 18F fitting]



[With M518F fitting]



[With 18MFX fitting]

Build an Ordering No.

VU25 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Universal suction cup, 25mm diameter, Nitrile (NBR)	VU25-N
	Universal suction cup, 25mm diameter, Silicone	VU25-S
	Universal suction cup, 25mm diameter, White silicone	VU25-WS
	Universal suction cup, 25mm diameter, White silicone (FDA)	VU25-WS (FDA)
	Universal suction cup, 25mm diameter, High temperature silicone	VU25-HS
	Universal suction cup, 25mm diameter, Conductive silicone	VU25-CS
	Universal suction cup, 25mm diameter, Urethane	VU25-U
	Universal suction cup, 25mm diameter, Mark free	VU25-A

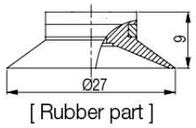
2. Fitting	Description	Symbol
	Fitting, G1/8 Male - M5 female	M518MF
	Fitting, G1/8 Male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8Male - M5 Female	M518MF-EV
	Fitting, G1/8 Male - M5 female, Old profile	M518MFO
	Fitting, G1/8 Male - M5 Female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8Male - M5 Female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 Female	18F-EV

* M518MFX is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU25-N	Universal suction cup, 25mm diameter, Nitrile (NBR)	1.45	Black
VU25-S	Universal suction cup, 25mm diameter, Silicone	1.45	Red
VU25-WS	Universal suction cup, 25mm diameter, White silicone	1.45	Translucent White
VU25-WS (FDA)	Universal suction cup, 25mm diameter, White silicone (FDA)	1.45	Translucent White
VU25-HS	Universal suction cup, 25mm diameter, High temperature silicone	1.45	Blue
VU25-CS	Universal suction cup, 25mm diameter, Conductive silicone	1.48	Smoky Black
VU25-U	Universal suction cup, 25mm diameter, Urethane	1.46	Dark Green
VU25-A	Universal suction cup, 25mm diameter, Mark free	1.77	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 Male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 Male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8Male - M5 Female	1.94
350 000 1209	M518MFO	G1/8 Male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 Male - M5 Female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8Male - M5 Female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.71
350 000 3310	18F	G1/8 female	3.23
350 000 4310	18F-F	G1/8 female, Mesh filter	3.3
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.43

VU30





Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU30	2.00	1.22	2.55	3.06	0.79	1.00	1.12

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

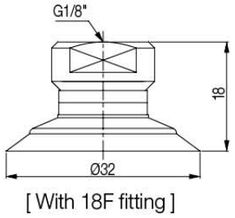
※ For additional material, see page 32~33

Material Resistance

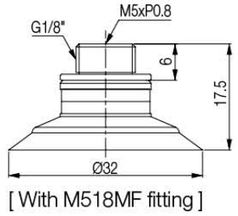
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

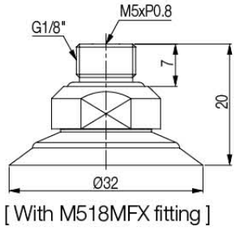
[Unit : mm]



[With 18F fitting]



[With M518MF fitting]



[With M518MFX fitting]

Build an Ordering No.

VU30 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Universal suction cup, 30mm diameter, Nitrile (NBR)	VU30-N
	Universal suction cup, 30mm diameter, Silicone	VU30-S
	Universal suction cup, 30mm diameter, White silicone	VU30-WS
	Universal suction cup, 30mm diameter, White silicone (FDA)	VU30-WS (FDA)
	Universal suction cup, 30mm diameter, High temperature silicone	VU30-HS
	Universal suction cup, 30mm diameter, Conductive silicone	VU30-CS
	Universal suction cup, 30mm diameter, Urethane	VU30-U
	Universal suction cup, 30mm diameter, Mark free	VU30-A

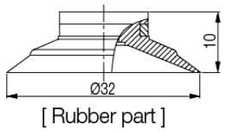
2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 Female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8 male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV

* M518MFX* is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU30-N	Universal suction cup, 30mm diameter, Nitrile (NBR)	2.04	Black
VU30-S	Universal suction cup, 30mm diameter, Silicone	1.96	Red
VU30-WS	Universal suction cup, 30mm diameter, White silicone	1.96	Translucent White
VU30-WS (FDA)	Universal suction cup, 30mm diameter, White silicone (FDA)	1.96	Translucent White
VU30-HS	Universal suction cup, 30mm diameter, High temperature silicone	1.96	Blue
VU30-CS	Universal suction cup, 30mm diameter, Conductive silicone	2.01	Smoky Black
VU30-U	Universal suction cup, 30mm diameter, Urethane	1.97	Dark Green
VU30-A	Universal suction cup, 30mm diameter, Mark free	2.55	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 male - M5 female	1.94
350 000 1209	M518MFO	G1/8 male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male - M5 Female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 male - M5 female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.71
350 000 3310	18F	G1/8 female	3.23
350 000 4310	18F-F	G1/8 female, Mesh filter	3.3
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.43

VU30-X



Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VU30X	1.80	0.65	1.48	1.78

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Build an Ordering No.

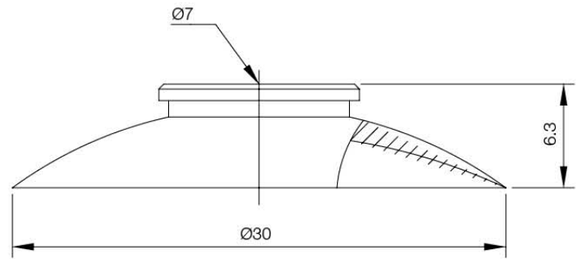
VU30X - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 30mm diameter, Nitrile (NBR)	1.05	VU30X-N
	Customized suction cup, 30mm diameter, Silicone	0.9	VU30X-S
	Customized suction cup, 30mm diameter, White silicone	1.02	VU30X-WS
	Customized suction cup, 30mm diameter, White silicone (FDA)	1.02	VU30X-WS(FDA)
	Customized suction cup, 30mm diameter, High temperature silicone	1.08	VU30X-HS
	Customized suction cup, 30mm diameter, Conductive silicone	1.04	VU30X-CS
	Customized suction cup, 30mm diameter, Urethane	1.08	VU30X-U

Dimension

[Unit : mm]



[Rubber Part]

VU40





Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU40	5.50	2.04	3.97	5.00	1.42	2.24	2.80

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

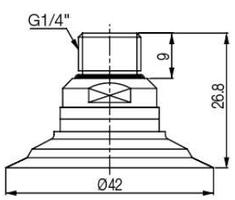
※ For additional material, see page 32~33

Material Resistance

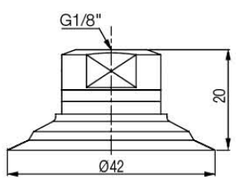
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

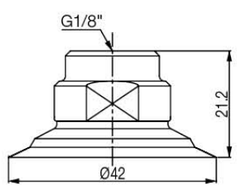
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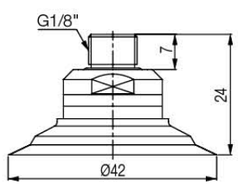
[With 14M fitting]



[With 18F fitting]



[With 18FX fitting]



[With 18M fitting]

Build an Ordering No.

VU40 - ○ - ○

1. Suction Cup　　2. Fitting

1. Suction cup	Description	Symbol
	Universal suction cup, 40mm diameter, Nitrile (NBR)	VU40-N
	Universal suction cup, 40mm diameter, Silicone	VU40-S
	Universal suction cup, 40mm diameter, White silicone	VU40-WS
	Universal suction cup, 40mm diameter, White silicone (FDA)	VU40-WS (FDA)
	Universal suction cup, 40mm diameter, High temperature silicone	VU40-HS
	Universal suction cup, 40mm diameter, Conductive silicone	VU40-CS
	Universal suction cup, 40mm diameter, Urethane	VU40-U
	Universal suction cup, 40mm diameter, Mark free	VU40-A

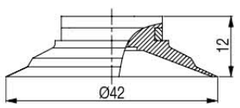
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, For silicone material	18FX*
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

* 18FX is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU40-N	Universal suction cup, 40mm diameter, Nitrile (NBR)	4.77	Black
VU40-S	Universal suction cup, 40mm diameter, Silicone	4.51	Red
VU40-WS	Universal suction cup, 40mm diameter, White silicone	4.51	Translucent White
VU40-WS (FDA)	Universal suction cup, 40mm diameter, White silicone (FDA)	4.51	Translucent White
VU40-HS	Universal suction cup, 40mm diameter, High temperature silicone	4.51	Blue
VU40-CS	Universal suction cup, 40mm diameter, Conductive silicone	4.57	Smoky Black
VU40-U	Universal suction cup, 40mm diameter, Urethane	4.78	Dark Green
VU40-A	Universal suction cup, 40mm diameter, Mark free	5.85	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.62
350 000 4311	18F-F	G1/8 female, Mesh filter	5.72
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.86
350 000 3321	18FX	G1/8 female, For silicone material	8.46
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.07
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.21
350 000 3404	14M	G1/4 male	5.79
350 000 3804	14M-F	G1/4 male, Mesh filter	5.88
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.02

VU50





Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU50	12.00	3.57	7.44	9.38	2.04	3.77	4.48

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

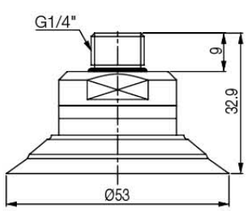
※ For additional material, see page 32~33

Material Resistance

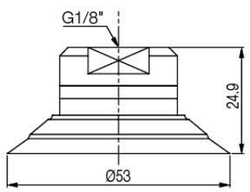
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

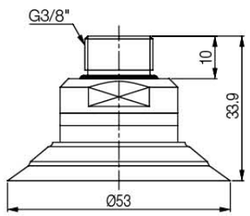
[Unit : mm]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

VU50 - ○ - ○

1. Suction Cup — 2. Fitting

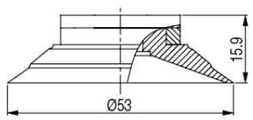
1. Suction cup	Description	Symbol
	Universal suction cup, 50mm diameter, Nitrile (NBR)	VU50-N
	Universal suction cup, 50mm diameter, Silicone	VU50-S
	Universal suction cup, 50mm diameter, White silicone	VU50-WS
	Universal suction cup, 50mm diameter, White silicone (FDA)	VU50-WS (FDA)
	Universal suction cup, 50mm diameter, High temperature silicone	VU50-HS
	Universal suction cup, 50mm diameter, Conductive silicone	VU50-CS
	Universal suction cup, 50mm diameter, Urethane	VU50-U
	Universal suction cup, 50mm diameter, Mark free	VU50-A

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 Female	18F-EV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficiency valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VU50-N	Universal suction cup, 50mm diameter, Nitrile (NBR)	10.51	Black
VU50-S	Universal suction cup, 50mm diameter, Silicone	10.22	Red
VU50-WS	Universal suction cup, 50mm diameter, White silicone	10.22	Translucent White
VU50-WS (FDA)	Universal suction cup, 50mm diameter, White silicone (FDA)	10.22	Translucent White
VU50-HS	Universal suction cup, 50mm diameter, High temperature silicone	10.22	Blue
VU50-CS	Universal suction cup, 50mm diameter, Conductive silicone	10.29	Smoky Black
VU50-U	Universal suction cup, 50mm diameter, Urethane	10.50	Dark Green
VU50-A	Universal suction cup, 50mm diameter, Mark free	13.05	Black

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3312	18F	G1/8 female	14.47
350 000 4312	18F-F	G1/8 female, Mesh filter	14.58
350 010 3312	18F-EV	Efficiency valve, G1/8 female	15.81
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4912	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficiency valve, G1/8 female, Old profile	10.22
350 000 3405	14M	G1/4 male	14.18
350 000 3805	14M-F	G1/4 male, Mesh filter	14.42
350 010 3405	14M-EV	Efficiency valve, G1/4 male	14.38
350 000 3505	38M	G3/8 male	18.14
350 000 3905	38M-F	G3/8 male, Mesh filter	17.75
350 010 3505	38M-EV	Efficiency valve, G3/8 male	17.53

VU80



Features and Strengths

Excellent performance for flat stable and slightly curved surfaces
Suitable for concave surface

Examples of use

Semiconductor chips, Packaging materials, Metal sheet,
Printing industry, Paper box

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VU80	32.00	7.77	19.80	25.21	4.53	12.70	16.94

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

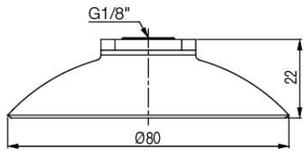
※ For additional material, see page 32~33

Material Resistance

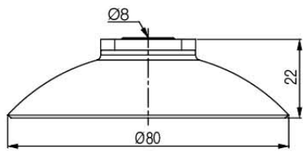
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 18F fitting]



[8Ø Hole]

Build an Ordering No.

VU80 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Universal suction cup, 80mm diameter, Nitrile (NBR), G1/8 female fitting	35.65	VU80-N-18F
	Universal suction cup, 80mm diameter, Silicone, G1/8 female fitting	30.84	VU80-S-18F
	Universal suction cup, 80mm diameter, White silicone, G1/8 female fitting	30.83	VU80-WS-18F
	Universal suction cup, 80mm diameter, White silicone (FDA), G1/8 female fitting	30.83	VU80-WS-18F (FDA)
	Universal suction cup, 80mm diameter, High temperature silicone, G1/8 female fitting	31.39	VU80-HS-18F
	Universal suction cup, 80mm diameter, Conductive silicone, G1/8 female fitting	34.1	VU80-CS-18F
	Universal suction cup, 80mm diameter, Urethane, G1/8 female fitting	32.98	VU80-U-18F
	Universal suction cup, 80mm diameter, Mark free, G1/8 female fitting	29.3	VU80-A-18F
	Universal suction cup, 80mm diameter, Nitrile (NBR), 8Ø hole	33.77	VU80-N
	Universal suction cup, 80mm diameter, Silicone, 8Ø hole	29.99	VU80-S
	Universal suction cup, 80mm diameter, White silicone, 8Ø hole	28.26	VU80-WS
	Universal suction cup, 80mm diameter, White silicone (FDA), 8Ø hole	28.26	VU80-WS (FDA)
	Universal suction cup, 80mm diameter, High temperature silicone, 8Ø hole	29.73	VU80-HS
	Universal suction cup, 80mm diameter, Conductive silicone, 8Ø hole	32.3	VU80-CS
	Universal suction cup, 80mm diameter, Urethane, 8Ø hole	30.46	VU80-U
	Universal suction cup, 80mm diameter, Mark free, 8Ø hole	29.3	VU80-A

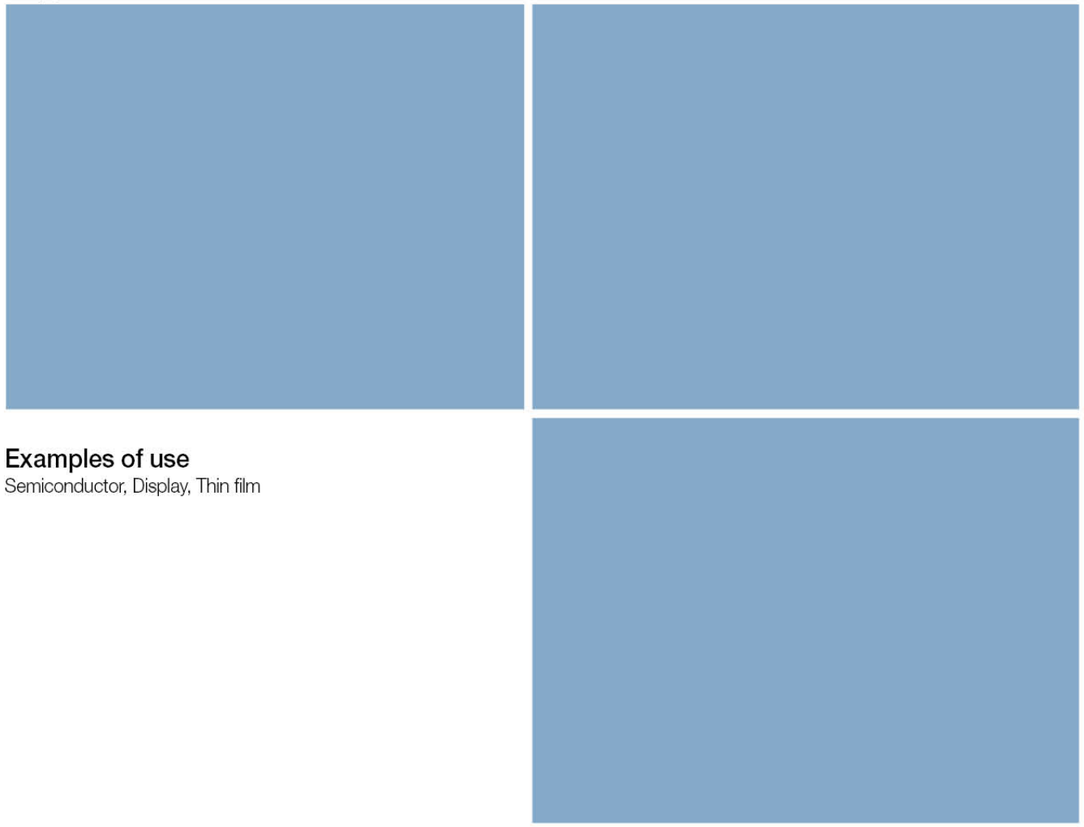
FF Series

Features and Strengths

Excellent performance for very thin and light weight products
Handling product without mark and damage



Application



Examples of use
Semiconductor, Display, Thin film

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
FF10	0.01	0.18	0.38	0.55	
FF15	0.04	0.35	0.9	1.20	
FF20	0.07	0.54	1.35	1.6	
FF25	0.11	0.86	1.40	1.60	
FF30	0.17	1.15	1.50	1.60	
FF15X	0.12	0.35	0.36	0.50	
FF20X	0.12	0.35	0.36	0.50	

※ The lifting force above does not include safety factor

Available size option

Model	Description	Model	Description
FF10	Mark free and Flat structure suction cup, Ø10	FF30	Mark free and Flat structure suction cup, Ø30
FF15	Mark free and Flat structure suction cup, Ø15	FF15X	Mark free and Flat structure suction cup, Ø15
FF20	Mark free and Flat structure suction cup, Ø20	FF20X	Mark free and Flat structure suction cup, Ø20
FF25	Mark free and Flat structure suction cup, Ø25		

FF10





Features and Strengths

Excellent performance for very thin and light weight products
Mark free

Examples of use

Semiconductor, Display

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF10	0.01	0.18	0.38	0.55

※ The lifting force above does not include safety factor

Material Specifications

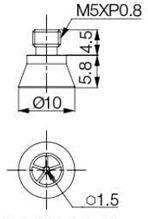
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF10 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting. Nitrile (NBR)	FF10-N-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, Silicone	FF10-S-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, White silicone	FF10-WS-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, White silicone (FDA)	FF10-WS-M5M (FDA)
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, High temperature silicone	FF10-HS-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, Conductive silicone	FF10-CS-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, Urethane	FF10-U-M5M
	Mark free and Flat structure suction cup, 10mm diameter, M5 male fitting, Mark free	FF10-A-M5M

FF15



Features and Strengths

Excellent performance for very thin and light weight products
Mark free

Examples of use

Semiconductor, Display



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF15	0.04	0.35	0.9	1.20

※ The lifting force above does not include safety factor

Material Specifications

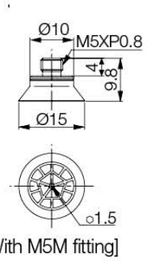
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

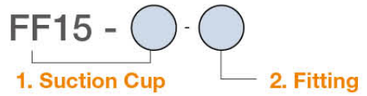
Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.



1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 15mm diameter, Nitrile (NBR)	FF15-N
	Mark free and Flat structure suction cup, 15mm diameter, Silicone	FF15-S
	Mark free and Flat structure suction cup, 15mm diameter, White silicone	FF15-WS
	Mark free and Flat structure suction cup, 15mm diameter, White silicone (FDA)	FF15-WS (FDA)
	Mark free and Flat structure suction cup, 15mm diameter, High temperature silicone	FF15-HS
	Mark free and Flat structure suction cup, 15mm diameter, Conductive silicone	FF15-CS
	Mark free and Flat structure suction cup, 15mm diameter, Urethane	FF15-U
	Mark free and Flat structure suction cup, 15mm diameter, Mark free	FF15-A

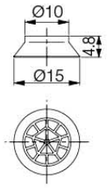
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF15-N	Mark free and Flat structure suction cup, 15mm diameter, Nitrile (NBR)	0.91	Black
FF15-S	Mark free and Flat structure suction cup, 15mm diameter, Silicone	0.86	Red
FF15-WS	Mark free and Flat structure suction cup, 15mm diameter, White silicone	0.88	Translucent White
FF15-WS (FDA)	Mark free and Flat structure suction cup, 15mm diameter, White silicone (FDA)	0.88	Translucent White
FF15-HS	Mark free and Flat structure suction cup, 15mm diameter, High temperature silicone	0.94	Blue
FF15-CS	Mark free and Flat structure suction cup, 15mm diameter, Conductive silicone	0.9	Smoky Black
FF15-U	Mark free and Flat structure suction cup, 15mm diameter, Urethane	0.94	Dark Green
FF15-A	Mark free and Flat structure suction cup, 15mm diameter, Mark free	0.98	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0101	M5M	M5 male	1.41

FF20



Features and Strengths

Excellent performance for very thin and light weight products
Mark free

Examples of use

Semiconductor, Display



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF20	0.07	0.54	1.35	1.6

※ The lifting force above does not include safety factor

Material Specifications

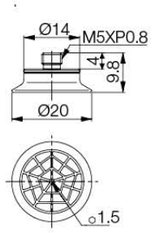
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 20mm diameter, Nitrile (NBR)	FF20-N
	Mark free and Flat structure suction cup, 20mm diameter, Silicone	FF20-S
	Mark free and Flat structure suction cup, 20mm diameter, White silicone	FF20-WS
	Mark free and Flat structure suction cup, 20mm diameter, White silicone (FDA)	FF20-WS (FDA)
	Mark free and Flat structure suction cup, 20mm diameter, High temperature silicone	FF20-HS
	Mark free and Flat structure suction cup, 20mm diameter, Conductive silicone	FF20-CS
	Mark free and Flat structure suction cup, 20mm diameter, Urethane	FF20-U
	Mark free and Flat structure suction cup, 20mm diameter, Mark free	FF20-A

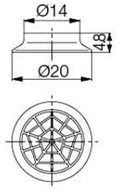
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF20-N	Mark free and Flat structure suction cup, 20mm diameter, Nitrile (NBR)	0.99	Black
FF20-S	Mark free and Flat structure suction cup, 20mm diameter, Silicone	0.94	Red
FF20-WS	Mark free and Flat structure suction cup, 20mm diameter, White silicone	0.96	Translucent White
FF20-WS (FDA)	Mark free and Flat structure suction cup, 20mm diameter, White silicone (FDA)	0.96	Translucent White
FF20-HS	Mark free and Flat structure suction cup, 20mm diameter, High temperature silicone	1.02	Blue
FF20-CS	Mark free and Flat structure suction cup, 20mm diameter, Conductive silicone	0.98	Smoky Black
FF20-U	Mark free and Flat structure suction cup, 20mm diameter, Urethane	1.02	Dark Green
FF20-A	Mark free and Flat structure suction cup, 20mm diameter, Mark free	1.06	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0102	M5M	M5 male	2.59

FF25



Features and Strengths
Excellent performance for very thin and light weight products
Mark free

Examples of use
Semiconductor, Display



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF25	0.11	0.86	1.40	1.60

※ The lifting force above does not include safety factor

Material Specifications

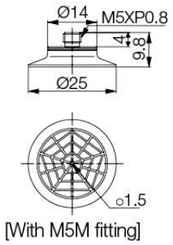
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF25 - ○ - ○

1. Suction Cup — 2. Fitting

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 25mm diameter, Nitrile (NBR)	FF25-N
	Mark free and Flat structure suction cup, 25mm diameter, Silicone	FF25-S
	Mark free and Flat structure suction cup, 25mm diameter, White silicone	FF25-WS
	Mark free and Flat structure suction cup, 25mm diameter, White silicone (FDA)	FF25-WS (FDA)
	Mark free and Flat structure suction cup, 25mm diameter, High temperature silicone	FF25-HS
	Mark free and Flat structure suction cup, 25mm diameter, Conductive silicone	FF25-CS
	Mark free and Flat structure suction cup, 25mm diameter, Urethane	FF25-U
	Mark free and Flat structure suction cup, 25mm diameter, Mark free	FF25-A

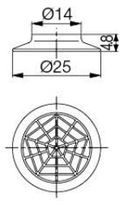
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF25-N	Mark free and Flat structure suction cup, 25mm diameter, Nitrile (NBR)	1.22	Black
FF25-S	Mark free and Flat structure suction cup, 25mm diameter, Silicone	1.17	Red
FF25-WS	Mark free and Flat structure suction cup, 25mm diameter, White silicone	1.18	Translucent White
FF25-WS (FDA)	Mark free and Flat structure suction cup, 25mm diameter, White silicone (FDA)	1.18	Translucent White
FF25-HS	Mark free and Flat structure suction cup, 25mm diameter, High temperature silicone	1.26	Blue
FF25-CS	Mark free and Flat structure suction cup, 25mm diameter, Conductive silicone	1.2	Smoky Black
FF25-U	Mark free and Flat structure suction cup, 25mm diameter, Urethane	1.26	Dark Green
FF25-A	Mark free and Flat structure suction cup, 25mm diameter, Mark free	1.31	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0102	M5M	M5 male	2.59

FF30



Features and Strengths
Excellent performance for very thin and light weight products
Mark free

Examples of use
Semiconductor, Display



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF30	0.17	1.15	1.50	1.60

※ The lifting force above does not include safety factor

Material Specifications

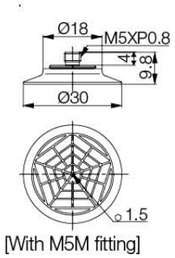
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF30 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 30mm diameter, Nitrile (NBR)	FF30-N
	Mark free and Flat structure suction cup, 30mm diameter, Silicone	FF30-S
	Mark free and Flat structure suction cup, 30mm diameter, White silicone	FF30-WS
	Mark free and Flat structure suction cup, 30mm diameter, White silicone (FDA)	FF30-WS (FDA)
	Mark free and Flat structure suction cup, 30mm diameter, High temperature silicone	FF30-HS
	Mark free and Flat structure suction cup, 30mm diameter, Conductive silicone	FF30-CS
	Mark free and Flat structure suction cup, 30mm diameter, Urethane	FF30-U
	Mark free and Flat structure suction cup, 30mm diameter, Mark free	FF30-A

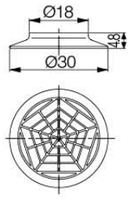
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF30-N	Mark free and Flat structure suction cup, 30mm diameter, Nitrile (NBR)	2.07	Black
FF30-S	Mark free and Flat structure suction cup, 30mm diameter, Silicone	1.97	Red
FF30-WS	Mark free and Flat structure suction cup, 30mm diameter, White silicone	1.91	Translucent White
FF30-WS (FDA)	Mark free and Flat structure suction cup, 30mm diameter, White silicone (FDA)	1.91	Translucent White
FF30-HS	Mark free and Flat structure suction cup, 30mm diameter, High temperature silicone	2.03	Blue
FF30-CS	Mark free and Flat structure suction cup, 30mm diameter, Conductive silicone	1.95	Smoky Black
FF30-U	Mark free and Flat structure suction cup, 30mm diameter, Urethane	2.04	Dark Green
FF30-A	Mark free and Flat structure suction cup, 30mm diameter, Mark free	2.12	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0102	M5M	M5 male	2.59

FF15X





Features and Strengths

Excellent performance for very thin and light weight products
Mark free

Examples of use

Semiconductor, Display

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF15X	0.12	0.35	0.36	0.50

※ The lifting force above does not include safety factor

Material Specifications

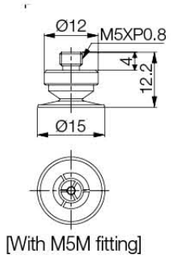
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF15X - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 15mm diameter, Nitrile (NBR)	FF15X-N
	Mark free and Flat structure suction cup, 15mm diameter, Silicone	FF15X-S
	Mark free and Flat structure suction cup, 15mm diameter, White silicone	FF15X-WS
	Mark free and Flat structure suction cup, 15mm diameter, White silicone (FDA)	FF15X-WS (FDA)
	Mark free and Flat structure suction cup, 15mm diameter, High temperature silicone	FF15X-HS
	Mark free and Flat structure suction cup, 15mm diameter, Conductive silicone	FF15X-CS
	Mark free and Flat structure suction cup, 15mm diameter, Urethane	FF15X-U
	Mark free and Flat structure suction cup, 15mm diameter, Mark free	FF15X-A

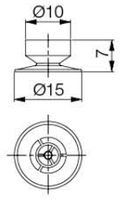
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF15X-N	Mark free and Flat structure suction cup, 15mm diameter, Nitrile (NBR)	0.46	Black
FF15X-S	Mark free and Flat structure suction cup, 15mm diameter, Silicone	0.43	Red
FF15X-WS	Mark free and Flat structure suction cup, 15mm diameter, White silicone	0.44	Translucent White
FF15X-WS (FDA)	Mark free and Flat structure suction cup, 15mm diameter, White silicone (FDA)	0.44	Translucent White
FF15X-HS	Mark free and Flat structure suction cup, 15mm diameter, High temperature silicone	0.47	Blue
FF15X-CS	Mark free and Flat structure suction cup, 15mm diameter, Conductive silicone	0.45	Smoky Black
FF15X-U	Mark free and Flat structure suction cup, 15mm diameter, Urethane	0.47	Dark Green
FF15X-A	Mark free and Flat structure suction cup, 15mm diameter, Mark free	0.49	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0103	M5M	M5 male	2.41

FF20X



Features and Strengths
Excellent performance for very thin and light weight products
Mark free

Examples of use
Semiconductor, Display

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
FF20X	0.12	0.35	0.36	0.50

※ The lifting force above does not include safety factor

Material Specifications

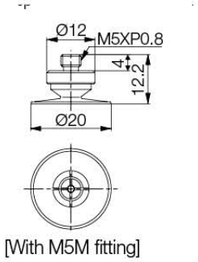
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M5M fitting]

Build an Ordering No.

FF20X - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Mark free and Flat structure suction cup, 20mm diameter, Nitrile (NBR)	FF20X-N
	Mark free and Flat structure suction cup, 20mm diameter, Silicone	FF20X-S
	Mark free and Flat structure suction cup, 20mm diameter, White silicone	FF20X-WS
	Mark free and Flat structure suction cup, 20mm diameter, White silicone (FDA)	FF20X-WS (FDA)
	Mark free and Flat structure suction cup, 20mm diameter, High temperature silicone	FF20X-HS
	Mark free and Flat structure suction cup, 20mm diameter, Conductive silicone	FF20X-CS
	Mark free and Flat structure suction cup, 20mm diameter, Urethane	FF20X-U
	Mark free and Flat structure suction cup, 20mm diameter, Mark free	FF20X-A

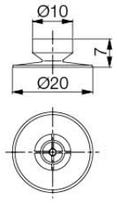
2. Fitting	Description	Symbol
	Fitting, M5 male	M5M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
FF20X-N	Mark free and Flat structure suction cup, 20mm diameter, Nitrile (NBR)	0.5	Black
FF20X-S	Mark free and Flat structure suction cup, 20mm diameter, Silicone	0.47	Red
FF20X-WS	Mark free and Flat structure suction cup, 20mm diameter, White silicone	0.48	Translucent White
FF20X-WS (FDA)	Mark free and Flat structure suction cup, 20mm diameter, White silicone (FDA)	0.48	Translucent White
FF20X-HS	Mark free and Flat structure suction cup, 20mm diameter, High temperature silicone	0.51	Blue
FF20X-CS	Mark free and Flat structure suction cup, 20mm diameter, Conductive silicone	0.49	Smoky Black
FF20X-U	Mark free and Flat structure suction cup, 20mm diameter, Urethane	0.51	Dark Green
FF20X-A	Mark free and Flat structure suction cup, 20mm diameter, Mark free	0.54	Black

Dimension

[Unit : mm]



Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 007 0103	M5M	M5 male	2.41

VD Series

Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Advantages

Best suited to curved or irregular surfaces
Strong lifting force when transferring without shaking goods



Application





Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets,
Veneer Sheets, Shaped Metal panels

Available size options

Model	Description	Model	Description
VD30	Deep suction cup, Ø30	VD70	Deep suction cup, Ø70
VD40	Deep suction cup, Ø40	VD85	Deep suction cup, Ø85
VD50	Deep suction cup, Ø50	VD85X	Deep suction cup, Ø85
VD60	Deep suction cup, Ø60	VD90F	Deep suction cup, Ø90

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VD30	4.50	1.22	2.55	3.06	0.73	1.53	1.83	
VD40	7.00	2.04	3.97	5.00	1.22	2.38	3.00	
VD50	13.50	3.57	7.44	9.38	2.14	4.46	5.62	
VD60	22.00	5.50	14.00	18.50	3.30	8.40	11.10	
VD70	38.00	7.15	18.80	24.90	4.20	11.60	16.20	
VD85	60.00	10.00	28.00	39.00	6.00	16.80	23.40	
VD85X	68.00	10.00	28.00	39.00	6.00	16.80	23.40	
VD90F	56.00	9.25	24.36	32.17	7.97	14.42	18.15	

※ The lifting force above does not include safety factor

VD30



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD30	4.50	1.22	2.55	3.06	0.73	1.53	1.83

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

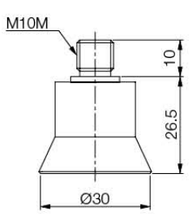
※ For additional material, see page 32~33

Material Resistance

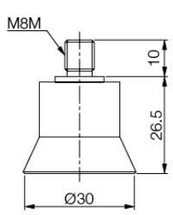
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

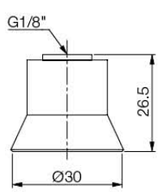
[Unit : mm]



[With M10M fitting]



[With M8M fitting]



[With 18F fitting]

Build an Ordering No.

VD30 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 30mm diameter, Nitrile (NBR), M8 male	12.87	VD30-N-M8M
	Deep suction cup, 30mm diameter, Silicone, M8 male	12.83	VD30-S-M8M
	Deep suction cup, 30mm diameter, White silicone, M8 male	12.5	VD30-WS-M8M
	Deep suction cup, 30mm diameter, White silicone (FDA), M8 male	12.5	VD30-WS-M8M (FDA)
	Deep suction cup, 30mm diameter, High temperature silicone, M8 male	13.3	VD30-HS-M8M
	Deep suction cup, 30mm diameter, Conductive silicone, M8 male	12.74	VD30-CS-M8M
	Deep suction cup, 30mm diameter, Urethane, M8 male	13.33	VD30-U-M8M
	Deep suction cup, 30mm diameter, Mark free, M8 male	13.20	VD30-A-M8M
	Deep suction cup, 30mm diameter, Polyurethane, M8 male	11.75	VD30-PU-M8M
	Deep suction cup, 30mm diameter, Nitrile (NBR), M10 male	12.63	VD30-N-M10M
	Deep suction cup, 30mm diameter, Silicone, M10 male	12.26	VD30-S-M10M
	Deep suction cup, 30mm diameter, White silicone, M10 male	12.56	VD30-WS-M10M
	Deep suction cup, 30mm diameter, White silicone (FDA), M10 male	12.56	VD30-WS-M10M (FDA)
	Deep suction cup, 30mm diameter, High temperature silicone, M10 male	130.5	VD30-HS-M10M
	Deep suction cup, 30mm diameter, Conductive silicone, M10 male	12.5	VD30-CS-M10M
	Deep suction cup, 30mm diameter, Urethane, M10 male	13.08	VD30-U-M10M
	Deep suction cup, 30mm diameter, Mark free, M10 male	13.64	VD30-A-M10M
	Deep suction cup, 30mm diameter, Polyurethane, M10 male	11.53	VD30-PU-M10M
	Deep suction cup, 30mm diameter, Nitrile (NBR), G1/8 female	10.32	VD30-N-18F
	Deep suction cup, 30mm diameter, Silicone, G1/8 female	9.81	VD30-S-18F
	Deep suction cup, 30mm diameter, White silicone, G1/8 female	10.02	VD30-WS-18F
	Deep suction cup, 30mm diameter, White silicone (FDA), G1/8 female	10.02	VD30-WS-18F (FDA)
	Deep suction cup, 30mm diameter, High temperature silicone, G1/8 female	10.67	VD30-HS-18F
	Deep suction cup, 30mm diameter, Conductive silicone, G1/8 female	10.24	VD30-CS-18F
	Deep suction cup, 30mm diameter, Urethane, G1/8 female	10.57	VD30-U-18F
	Deep suction cup, 30mm diameter, Mark free, G1/8 female	11.14	VD30-A-18F
	Deep suction cup, 30mm diameter, Polyurethane, G1/8 female	9.42	VD30-PU-18F

VD40



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD40	7.00	2.04	3.97	5.00	1.22	2.38	3.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

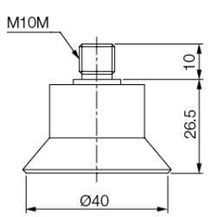
※ For additional material, see page 32~33

Material Resistance

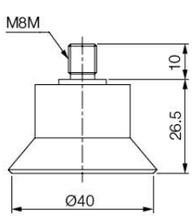
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

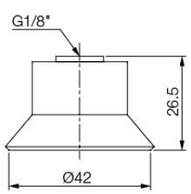
[Unit : mm]



[With M10M fitting]



[With M8M fitting]



[With 18F fitting]

Build an Ordering No.

VD40 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 40mm diameter, Nitrile (NBR), M8 male	17.66	VD40-N-M8M
	Deep suction cup, 40mm diameter, Silicone, M8 male	17.08	VD40-S-M8M
	Deep suction cup, 40mm diameter, White silicone, M8 male	17.14	VD40-WS-M8M
	Deep suction cup, 40mm diameter, White silicone (FDA), M8 male	17.14	VD40-WS-M8M (FDA)
	Deep suction cup, 40mm diameter, High temperature silicone, M8 male	18.26	VD40-HS-M8M
	Deep suction cup, 40mm diameter, Conductive silicone, M8 male	17.48	VD40-CS-M8M
	Deep suction cup, 40mm diameter, Urethane, M8 male	18.29	VD40-U-M8M
	Deep suction cup, 40mm diameter, Mark free, M8 male	19.07	VD40-A-M8M
	Deep suction cup, 40mm diameter, Polyurethane, M8 male	16.12	VD40-PU-M8M
	Deep suction cup, 40mm diameter, Nitrile (NBR), M10 male	18.08	VD40-N-M10M
	Deep suction cup, 40mm diameter, Silicone, M10 male	16.92	VD40-S-M10M
	Deep suction cup, 40mm diameter, White silicone, M10 male	17.56	VD40-WS-M10M
	Deep suction cup, 40mm diameter, White silicone (FDA), M10 male	17.56	VD40-WS-M10M (FDA)
	Deep suction cup, 40mm diameter, High temperature silicone, M10 male	18.69	VD40-HS-M10M
	Deep suction cup, 40mm diameter, Conductive silicone, M10 male	17.9	VD40-CS-M10M
	Deep suction cup, 40mm diameter, Urethane, M10 male	18.73	VD40-U-M10M
	Deep suction cup, 40mm diameter, Mark free, M10 male	19.53	VD40-A-M10M
	Deep suction cup, 40mm diameter, Polyurethane, M10 male	16.5	VD40-PU-M10M
	Deep suction cup, 40mm diameter, Nitrile (NBR), G1/8 female	14.58	VD40-N-18F
	Deep suction cup, 40mm diameter, Silicone, G1/8 female	14.36	VD40-S-18F
	Deep suction cup, 40mm diameter, White silicone, G1/8 female	14.16	VD40-WS-18F
	Deep suction cup, 40mm diameter, White silicone (FDA), G1/8 female	14.16	VD40-WS-18F (FDA)
	Deep suction cup, 40mm diameter, High temperature silicone, G1/8 female	16.74	VD40-HS-18F
	Deep suction cup, 40mm diameter, Conductive silicone, G1/8 female	14.95	VD40-CS-18F
	Deep suction cup, 40mm diameter, Urethane, G1/8 female	15.67	VD40-U-18F
	Deep suction cup, 40mm diameter, Mark free, G1/8 female	17.07	VD40-A-18F
	Deep suction cup, 40mm diameter, Polyurethane, G1/8 female	13.31	VD40-PU-18F

VD50





Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD50	13.50	3.57	7.44	9.38	2.14	4.46	5.62

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

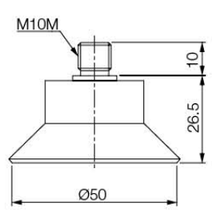
※ For additional material, see page 32~33

Material Resistance

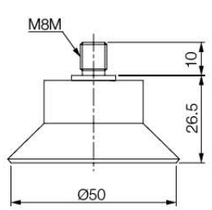
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

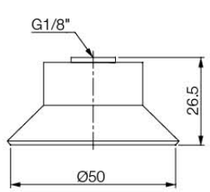
[Unit : mm]



[With M10M fitting]



[With M8M fitting]



[With 18F fitting]

Build an Ordering No.

VD50 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 50mm diameter, Nitrile (NBR), M8 male	21.03	VD50-N-M8M
	Deep suction cup, 50mm diameter, Silicone, M8 male	20.82	VD50-S-M8M
	Deep suction cup, 50mm diameter, White silicone, M8 male	20.42	VD50-WS-M8M
	Deep suction cup, 50mm diameter, White silicone (FDA), M8 male	20.42	VD50-WS-M8M (FDA)
	Deep suction cup, 50mm diameter, High temperature silicone, M8 male	21.74	VD50-HS-M8M
	Deep suction cup, 50mm diameter, Conductive silicone, M8 male	20.82	VD50-CS-M8M
	Deep suction cup, 50mm diameter, Urethane, M8 male	21.78	VD50-U-M8M
	Deep suction cup, 50mm diameter, Mark free, M8 male	22.72	VD50-A-M8M
	Deep suction cup, 50mm diameter, Polyurethane, M8 male	19.2	VD50-PU-M8M
	Deep suction cup, 50mm diameter, Nitrile (NBR), M10 male	21.22	VD50-N-M10M
	Deep suction cup, 50mm diameter, Silicone, M10 male	20.18	VD50-S-M10M
	Deep suction cup, 50mm diameter, White silicone, M10 male	20.61	VD50-WS-M10M
	Deep suction cup, 50mm diameter, White silicone (FDA), M10 male	20.61	VD50-WS-M10M (FDA)
	Deep suction cup, 50mm diameter, High temperature silicone, M10 male	21.94	VD50-HS-M10M
	Deep suction cup, 50mm diameter, Conductive silicone, M10 male	21.01	VD50-CS-M10M
	Deep suction cup, 50mm diameter, Urethane, M10 male	21.98	VD50-U-M10M
	Deep suction cup, 50mm diameter, Mark free, M10 male	22.92	VD50-A-M10M
	Deep suction cup, 50mm diameter, Polyurethane, M10 male	19.37	VD50-PU-M10M
	Deep suction cup, 50mm diameter, Nitrile (NBR), G1/8 female	34.39	VD50-N-18F
	Deep suction cup, 50mm diameter, Silicone, G1/8 female	18.06	VD50-S-18F
	Deep suction cup, 50mm diameter, White silicone, G1/8 female	35.56	VD50-WS-18F
	Deep suction cup, 50mm diameter, White silicone (FDA), G1/8 female	35.56	VD50-WS-18F (FDA)
	Deep suction cup, 50mm diameter, High temperature silicone, G1/8 female	21.56	VD50-HS-18F
	Deep suction cup, 50mm diameter, Conductive silicone, G1/8 female	34.05	VD50-CS-18F
	Deep suction cup, 50mm diameter, Urethane, G1/8 female	19.99	VD50-U-18F
	Deep suction cup, 50mm diameter, Mark free, G1/8 female	20.47	VD50-A-18F
	Deep suction cup, 50mm diameter, Polyurethane, G1/8 female	31.39	VD50-PU-18F

VD60



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD60	22.00	5.50	14.00	18.50	3.30	8.40	11.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

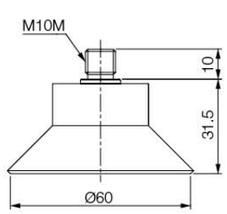
※ For additional material, see page 32~33

Material Resistance

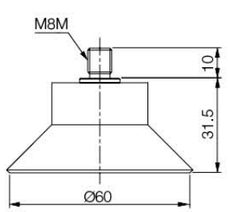
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

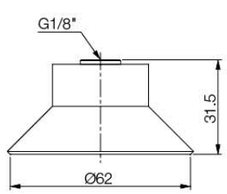
[Unit : mm]



[With M10M fitting]



[With M8M fitting]



[With 18F fitting]

Build an Ordering No.

VD60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 60mm diameter, Nitrile (NBR), M8 male	35.51	VD60-N-M8M
	Deep suction cup, 60mm diameter, Silicone, M8 male	34.31	VD60-S-M8M
	Deep suction cup, 60mm diameter, White silicone, M8 male	34.49	VD60-WS-M8M
	Deep suction cup, 60mm diameter, White silicone (FDA), M8 male	34.49	VD60-WS-M8M (FDA)
	Deep suction cup, 60mm diameter, High temperature silicone, M8 male	36.72	VD60-HS-M8M
	Deep suction cup, 60mm diameter, Conductive silicone, M8 male	35.16	VD60-CS-M8M
	Deep suction cup, 60mm diameter, Urethane, M8 male	36.78	VD60-U-M8M
	Deep suction cup, 60mm diameter, Mark free, M8 male	38.36	VD60-A-M8M
	Deep suction cup, 60mm diameter, Polyurethane, M8 male	32.42	VD60-PU-M8M
	Deep suction cup, 60mm diameter, Nitrile (NBR), M10 male	35.45	VD60-N-M10M
	Deep suction cup, 60mm diameter, Silicone, M10 male	28.18	VD60-S-M10M
	Deep suction cup, 60mm diameter, White silicone, M10 male	34.43	VD60-WS-M10M
	Deep suction cup, 60mm diameter, White silicone (FDA), M10 male	34.43	VD60-WS-M10M (FDA)
	Deep suction cup, 60mm diameter, High temperature silicone, M10 male	36.65	VD60-HS-M10M
	Deep suction cup, 60mm diameter, Conductive silicone, M10 male	35.1	VD60-CS-M10M
	Deep suction cup, 60mm diameter, Urethane, M10 male	36.72	VD60-U-M10M
	Deep suction cup, 60mm diameter, Mark free, M10 male	38.3	VD60-A-M10M
	Deep suction cup, 60mm diameter, Polyurethane, M10 male	32.36	VD60-PU-M10M
	Deep suction cup, 60mm diameter, Nitrile (NBR), G1/8 female	33.00	VD60-N-18F
	Deep suction cup, 60mm diameter, Silicone, G1/8 female	31.29	VD60-S-18F
	Deep suction cup, 60mm diameter, White silicone, G1/8 female	26.09	VD60-WS-18F
	Deep suction cup, 60mm diameter, White silicone (FDA), G1/8 female	26.09	VD60-WS-18F (FDA)
	Deep suction cup, 60mm diameter, High temperature silicone, G1/8 female	37.04	VD60-HS-18F
	Deep suction cup, 60mm diameter, Conductive silicone, G1/8 female	26.13	VD60-CS-18F
	Deep suction cup, 60mm diameter, Urethane, G1/8 female	34.19	VD60-U-18F
	Deep suction cup, 60mm diameter, Mark free, G1/8 female	40.28	VD60-A-18F
	Deep suction cup, 60mm diameter, Polyurethane, G1/8 female	30.13	VD60-PU-18F

VD70



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD70	38.00	7.15	18.80	24.90	4.20	11.60	16.20

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

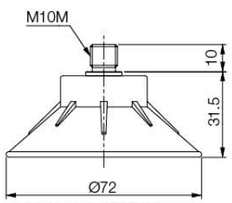
※ For additional material, see page 32~33

Material Resistance

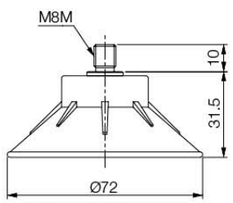
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

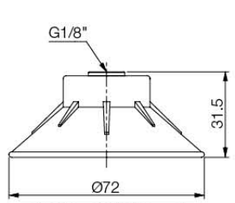
[Unit : mm]



[With M10M fitting]



[With M8M fitting]



[With 18F fitting]

Build an Ordering No.

VD70 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 70mm diameter, Polyurethane, M8 male	46.51	VD70-PU-M8M
	Deep suction cup, 70mm diameter, Polyurethane, M10 male	47.25	VD70-PU-M10M
	Deep suction cup, 70mm diameter, Polyurethane, G1/8 female	41.26	VD70-PU-18F

VD85



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD85	60.00	10.00	28.00	39.00	6.00	16.80	23.40

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

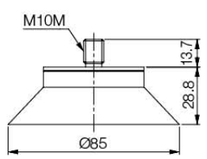
※ For additional material, see page 32~33

Material Resistance

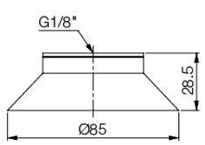
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

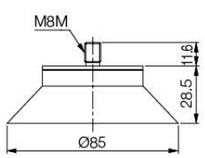
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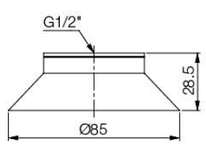
[With M10M fitting]



[With 18F fitting]



[With M8M fitting]



[With 12F fitting]

Build an Ordering No.

VD85 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 85mm diameter, Nitrile (NBR), M8 male	67.94	VD85-N-M8M
	Deep suction cup, 85mm diameter, Silicone, M8 male	64.63	VD85-S-M8M
	Deep suction cup, 85mm diameter, White silicone, M8 male	65.99	VD85-WS-M8M
	Deep suction cup, 85mm diameter, White silicone (FDA), M8 male	65.99	VD85-WS-M8M (FDA)
	Deep suction cup, 85mm diameter, High temperature silicone, M8 male	70.25	VD85-HS-M8M
	Deep suction cup, 85mm diameter, Conductive silicone, M8 male	67.28	VD85-CS-M8M
	Deep suction cup, 85mm diameter, Urethane, M8 male	70.38	VD85-U-M8M
	Deep suction cup, 85mm diameter, Mark free, M8 male	73.4	VD85-A-M8M
	Deep suction cup, 85mm diameter, Nitrile (NBR), M10 male	69.84	VD85-N-M10M
	Deep suction cup, 85mm diameter, Silicone, M10 male	66.43	VD85-S-M10M
	Deep suction cup, 85mm diameter, White silicone, M10 male	67.84	VD85-WS-M10M
	Deep suction cup, 85mm diameter, White silicone (FDA), M10 male	67.84	VD85-WS-M10M (FDA)
	Deep suction cup, 85mm diameter, High temperature silicone, M10 male	72.22	VD85-HS-M10M
	Deep suction cup, 85mm diameter, Conductive silicone, M10 male	69.16	VD85-CS-M10M
	Deep suction cup, 85mm diameter, Urethane, M10 male	72.35	VD85-U-M10M
	Deep suction cup, 85mm diameter, Mark free, M10 male	75.45	VD85-A-M10M
	Deep suction cup, 85mm diameter, Nitrile (NBR), G1/8 female	65.01	VD85-N-18F
	Deep suction cup, 85mm diameter, Silicone, G1/8 female	60.65	VD85-S-18F
	Deep suction cup, 85mm diameter, White silicone, G1/8 female	63.15	VD85-WS-18F
	Deep suction cup, 85mm diameter, White silicone (FDA), G1/8 female	63.15	VD85-WS-18F (FDA)
	Deep suction cup, 85mm diameter, High temperature silicone, G1/8 female	67.22	VD85-HS-18F
	Deep suction cup, 85mm diameter, Conductive silicone, G1/8 female	67.37	VD85-CS-18F
	Deep suction cup, 85mm diameter, Urethane, G1/8 female	67.35	VD85-U-18F
	Deep suction cup, 85mm diameter, Mark free, G1/8 female	71.64	VD85-A-18F
	Deep suction cup, 85mm diameter, Nitrile (NBR), G1/2 female	55.71	VD85-N-12F
	Deep suction cup, 85mm diameter, Silicone, G1/2 female	52.93	VD85-S-12F
	Deep suction cup, 85mm diameter, White silicone, G1/2 female	54.14	VD85-WS-12F
	Deep suction cup, 85mm diameter, White silicone (FDA), G1/2 female	54.14	VD85-WS-12F(FDA)
	Deep suction cup, 85mm diameter, High temperature silicone, G1/2 female	57.64	VD85-HS-12F
	Deep suction cup, 85mm diameter, Conductive silicone, G1/2 female	63.19	VD85-CS-12F
	Deep suction cup, 85mm diameter, Urethane, G1/2 female	64.98	VD85-U-12F
	Deep suction cup, 85mm diameter, Mark free, G1/2 female	66.97	VD85-A-12F

VD85X



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD85X	68.00	10.00	28.00	39.00	6.00	16.80	23.40

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

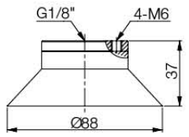
※ For additional material, see page 32~33

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

VD85X - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 85mm diameter, Nitrile (NBR), G1/8 female	85.25	VD85X-N-18F
	Deep suction cup, 85mm diameter, Silicone, G1/8 female	83.31	VD85X-S-18F
	Deep suction cup, 85mm diameter, White silicone, G1/8 female	82.81	VD85X-WS-18F
	Deep suction cup, 85mm diameter, White silicone (FDA), G1/8 female	82.81	VD85X-WS-18F (FDA)
	Deep suction cup, 85mm diameter, High temperature silicone, G1/8 female	88.15	VD85X-HS-18F
	Deep suction cup, 85mm diameter, Conductive silicone, G1/8 female	84.42	VD85X-CS-18F
	Deep suction cup, 85mm diameter, Urethane, G1/8 female	88.32	VD85X-U-18F
	Deep suction cup, 85mm diameter, Mark free, G1/8 female	92.1	VD85X-A-18F

VD90F



Features and Strengths

Suitable for curved or irregular surfaces.
Excellent performance for round corners and edges

Examples of use

Automobile Roofs and Doors, Metal Sheets, Plastic Sheets, Veneer Sheets, Shaped Metal panels

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VD90F	56.00	9.25	24.36	32.17	7.97	14.42	18.15

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

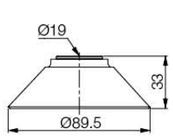
※ For additional material, see page 32~33

Material Resistance

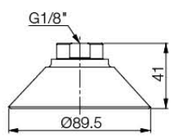
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

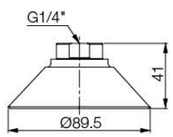
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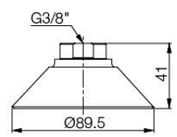
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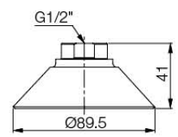
[With 18F fitting]



[With 14F fitting]



[With 38F fitting]



[With 12F fitting]

Build an Ordering No.

VD90F - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep suction cup, 90mm diameter, Polyurethane, G1/8 female	65.49	VD90F-PU-18F
	Deep suction cup, 90mm diameter, Polyurethane, G1/4 female	63.05	VD90F-PU-14F
	Deep suction cup, 90mm diameter, Polyurethane, G3/8 female	60.60	VD90F-PU-38F
	Deep suction cup, 90mm diameter, Polyurethane, G1/2 female	59.88	VD90F-PU-12F
	Deep suction cup, 90mm diameter, Polyurethane, 19Ø hole	49.21	VD90F-PU-H19
	Deep suction cup, 90mm diameter, Polyurethane, M10 male	57.68	VD90F-PU-M10M

VFC Series

Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Advantages

Strong lifting force for both vertical and horizontal application
Stable gripping without sliding and shaking

Application





Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Available size option

Model	Description	Model	Description
VFC50	Flat-Curved suction cup, Ø50	VFC75x1	Flat-Curved suction cup, Ø75
VFC60	Flat-Curved suction cup, Ø60	VFC75x2	Flat-Curved suction cup, Ø75
VFC60x1	Flat-Curved suction cup, Ø60	VFC90	Flat-Curved suction cup, Ø90
VFC75	Flat-Curved suction cup, Ø75	VFC100	Flat-Curved suction cup, Ø100



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VFC50	10.00	2.85	6.94	10.20	2.61	6.34	8.20	
VFC60	20.00	4.55	11.57	15.30	3.05	7.92	10.70	
VFC60x1	20.00	4.55	11.57	15.30	3.05	7.92	10.70	
VFC75	30.00	7.65	19.38	25.51	6.19	15.46	20.90	
VFC75x1	30.00	7.65	19.38	25.51	6.19	15.46	20.90	
VFC75x2	30.00	7.65	19.38	25.51	6.19	15.46	20.90	
VFC90	60.00	9.80	24.82	32.65	9.52	21.59	27.89	
VFC100	80.00	12.75	35.71	46.93	12.24	23.97	28.57	

※ The lifting force above does not include safety factor

VFC50





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC50	10.00	2.85	6.94	10.20	2.61	6.34	8.20

※ The lifting force above does not include safety factor

Material Specifications

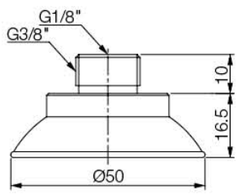
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With 1838MF fitting]

Build an Ordering No.

VFC50 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-Curved suction cup, 50mm diameter, Nitrile (NBR), G1/8 female - G3/8 male	16.42	VFC50-N-1838MF
	Flat-Curved suction cup, 50mm diameter, Silicone, G1/8 female - G3/8 male	15.62	VFC50-S-1838MF
	Flat-Curved suction cup, 50mm diameter, White silicone, G1/8 female - G3/8 male	15.95	VFC50-WS-1838MF
	Flat-Curved suction cup, 50mm diameter, White silicone (FDA), G1/8 female - G3/8 male	15.95	VFC50-WS-1838MF (FDA)
	Flat-Curved suction cup, 50mm diameter, High temperature silicone, G1/8 female - G3/8 male	16.98	VFC50-HS-1838MF
	Flat-Curved suction cup, 50mm diameter, Conductive silicone , G1/8 female - G3/8 male	16.26	VFC50-CS-1838MF
	Flat-Curved suction cup, 50mm diameter, Urethane, G1/8 female - G3/8 male	17.01	VFC50-U-1838MF
	Flat-Curved suction cup, 50mm diameter, Mark free, G1/8 female - G3/8 male	17.74	VFC50-A-1838MF
	Flat-Curved suction cup, 50mm diameter, Polyurethane, G1/8 female - G3/8 male	14.99	VFC50-PU-1838MF

VFC60





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC60	20.00	4.55	11.57	15.30	3.05	7.92	10.70

※ The lifting force above does not include safety factor

Material Specifications

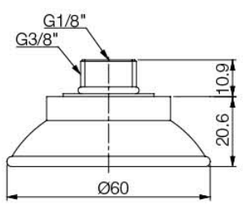
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With 1838MF fitting]

Build an Ordering No.

VFC60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight(g)	Symbol
	Flat-Curved suction cup, 60mm diameter, Nitrile (NBR), G1/8 female - G3/8 male	31.32	VFC60-N-1838MF
	Flat-Curved suction cup, 60mm diameter, Silicone, G1/8 female - G3/8 male	30.14	VFC60-S-1838MF
	Flat-Curved suction cup, 60mm diameter, White silicone, G1/8 female - G3/8 male	30.48	VFC60-WS-1838MF
	Flat-Curved suction cup, 60mm diameter, White silicone (FDA), G1/8 female - G3/8 male	30.48	VFC60-WS-1838MF (FDA)
	Flat-Curved suction cup, 60mm diameter, High temperature silicone, G1/8 female - G3/8 male	33.14	VFC60-HS-1838MF
	Flat-Curved suction cup, 60mm diameter, Conductive silicone , G1/8 female - G3/8 male	31.02	VFC60-CS-1838MF
	Flat-Curved suction cup, 60mm diameter, Urethane, G1/8 female - G3/8 male	32.46	VFC60-U-1838MF
	Flat-Curved suction cup, 60mm diameter, Mark free, G1/8 female - G3/8 male	35.67	VFC60-A-1838MF
	Flat-Curved suction cup, 60mm diameter, Polyurethane, G1/8 female - G3/8 male	26.47	VFC60-PU-1838MF

VFC60x1





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC60x1	20.00	4.55	11.57	15.30	3.05	7.92	10.70

※ The lifting force above does not include safety factor

Material Specifications

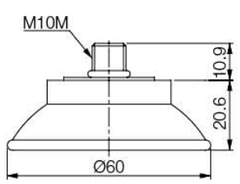
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With M10M fitting]

Build an Ordering No.

VFC60x1 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight(g)	Symbol
	Flat-Curved suction cup, 60mm diameter, Nitrile (NBR), M10xP1.5 Male Fitting	29.44	VFC60X1-N-M10M
	Flat-Curved suction cup, 60mm diameter, Silicone, M10xP1.5 Male Fitting	28.33	VFC60x1-S-M10M
	Flat-Curved suction cup, 60mm diameter, White silicone, M10xP1.5 Male Fitting	28.65	VFC60x1-WS-M10M
	Flat-Curved suction cup, 60mm diameter, White silicone (FDA), M10xP1.5 Male Fitting	28.65	VFC60x1-WS-M10M (FDA)
	Flat-Curved suction cup, 60mm diameter, High temperature silicone, M10xP1.5 Male Fitting	31.15	VFC60x1-HS-M10M
	Flat-Curved suction cup, 60mm diameter, Conductive silicone , M10xP1.5 Male Fitting	29.15	VFC60x1-CS-M10M
	Flat-Curved suction cup, 60mm diameter, Urethane, M10xP1.5 Male Fitting	30.51	VFC60x1-U-M10M
	Flat-Curved suction cup, 60mm diameter, Mark free, M10xP1.5 Male Fitting	33.52	VFC60x1-A-M10M
	Flat-Curved suction cup, 60mm diameter, Polyurethane, M10xP1.5 Male Fitting	24.88	VFC60x1-PU-M10M

VFC75





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC75	30.00	7.65	19.38	25.51	6.19	15.46	20.90

※ The lifting force above does not include safety factor

Material Specifications

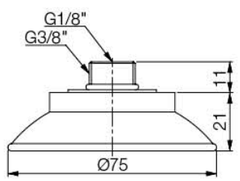
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With 1838MF fitting]

Build an Ordering No.

VFC75 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight(g)	Symbol
	Flat-Curved suction cup, 75mm diameter, Nitrile (NBR), G1/8 female - G3/8 male	41.12	VFC75-N-1838MF
	Flat-Curved suction cup, 75mm diameter, Silicone, G1/8 female - G3/8 male	39.73	VFC75-S-1838MF
	Flat-Curved suction cup, 75mm diameter, White silicone, G1/8 female - G3/8 male	40.01	VFC75-WS-1838MF
	Flat-Curved suction cup, 75mm diameter, White silicone (FDA), G1/8 female - G3/8 male	40.01	VFC75-WS-1838MF (FDA)
	Flat-Curved suction cup, 75mm diameter, High temperature silicone, G1/8 female - G3/8 male	43.5	VFC75-HS-1838MF
	Flat-Curved suction cup, 75mm diameter, Conductive silicone , G1/8 female - G3/8 male	40.72	VFC75-CS-1838MF
	Flat-Curved suction cup, 75mm diameter, Urethane, G1/8 female - G3/8 male	43.79	VFC75-U-1838MF
	Flat-Curved suction cup, 75mm diameter, Mark free, G1/8 female - G3/8 male	47.13	VFC75-A-1838MF
	Flat-Curved suction cup, 75mm diameter, Polyurethane, G1/8 female - G3/8 male	39.86	VFC75-PU-1838MF

VFC75x1



Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC75x1	30.00	7.65	19.38	25.51	6.19	15.46	20.90

※ The lifting force above does not include safety factor

Material Specifications

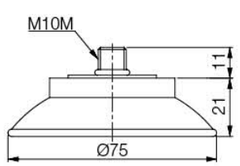
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With M10M fitting]

Build an Ordering No.

VFC75x1 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight(g)	Symbol
	Flat-Curved suction cup, 75mm diameter, Nitrile (NBR), M10xP1.5 Male Fitting	41.39	VFC75x1-N-M10M
	Flat-Curved suction cup, 75mm diameter, Silicone, M10xP1.5 Male Fitting	38.41	VFC75x1-S-M10M
	Flat-Curved suction cup, 75mm diameter, White silicone, M10xP1.5 Male Fitting	40.27	VFC75x1-WS-M10M
	Flat-Curved suction cup, 75mm diameter, White silicone (FDA), M10xP1.5 Male Fitting	40.27	VFC75x1-WS-M10M (FDA)
	Flat-Curved suction cup, 75mm diameter, High temperature silicone, M10xP1.5 Male Fitting	43.79	VFC75x1-HS-M10M
	Flat-Curved suction cup, 75mm diameter, Conductive silicone , M10xP1.5 Male Fitting	40.99	VFC75x1-CS-M10M
	Flat-Curved suction cup, 75mm diameter, Urethane, M10xP1.5 Male Fitting	41.24	VFC75x1-U-M10M
	Flat-Curved suction cup, 75mm diameter, Mark free, M10xP1.5 Male Fitting	47.13	VFC75x1-A-M10M
	Flat-Curved suction cup, 75mm diameter, Polyurethane, M10xP1.5 Male Fitting	38.22	VFC75x1-PU-M10M

VFC75x2



Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC75x2	30.00	7.65	19.38	25.51	6.19	15.46	20.90

※ The lifting force above does not include safety factor

Material Specifications

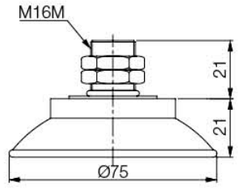
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

[Unit : mm]



[With M16M fitting]

Build an Ordering No.

VFC75x2 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight(g)	Symbol
	Flat-Curved suction cup, 75mm diameter, Nitrile (NBR), M16xP1.0 Male Fitting	62.77	VFC75x2-N-M16M
	Flat-Curved suction cup, 75mm diameter, Silicone, M16xP1.0 Male Fitting	61.34	VFC75x2-S-M16M
	Flat-Curved suction cup, 75mm diameter, White silicone, M16xP1.0 Male Fitting	61.57	VFC75x2-WS-M16M
	Flat-Curved suction cup, 75mm diameter, White silicone (FDA), M16xP1.0 Male Fitting	61.57	VFC75x2-WS-M16M (FDA)
	Flat-Curved suction cup, 75mm diameter, High temperature silicone, M16xP1.0 Male Fitting	59.36	VFC75x2-HS-M16M
	Flat-Curved suction cup, 75mm diameter, Conductive silicone , M16xP1.0 Male Fitting	62.34	VFC75x2-CS-M16M
	Flat-Curved suction cup, 75mm diameter, Urethane, M16xP1.0 Male Fitting	63.76	VFC75x2-U-M16M
	Flat-Curved suction cup, 75mm diameter, Mark free, M16xP1.0 Male Fitting	68.96	VFC75x2-A-M16M

VFC90

Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC90	60.00	9.80	24.82	32.65	9.52	21.59	27.89

※ The lifting force above does not include safety factor

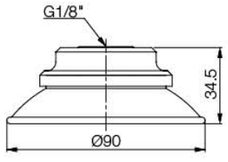
Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

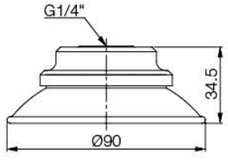
Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

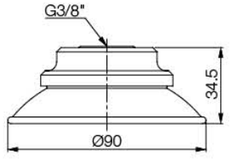
Dimension
[Unit : mm]



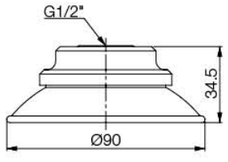
[With 18F fitting]



[With 14F fitting]



[With 38F fitting]



[With 12F fitting]

Build an Ordering No.

VFC90 - ○ - ○
1. Suction Cup
2. Fitting

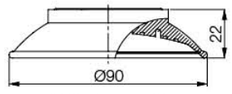
1. Suction cup	Description	Symbol
	Flat-Curved suction cup, 90mm diameter, Polyurethane	VFC90-PU

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VFC90-PU	Flat-Curved suction cup, 90mm diameter, Polyurethane	62.19	Translucent Orange

Dimension
[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.9

VFC100





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Automobile Windscreens, Roof and Door, Metal Sheet
Shaped Metal panel, TV cathode ray tube

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VFC100	80.00	12.75	35.71	46.93	12.24	23.97	28.57

※ The lifting force above does not include safety factor

Material Specifications

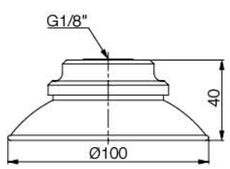
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

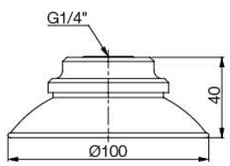
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

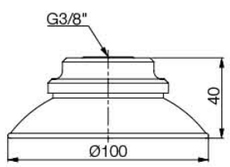
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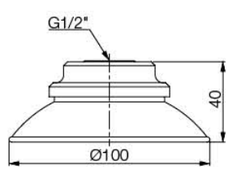
[With 18F fitting]



[With 14F fitting]



[With 38F fitting]



[With 12F fitting]

Build an Ordering No.

VFC100 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat-Curved suction cup, 100mm diameter, Nitrile (NBR)	VFC100-N
	Flat-Curved suction cup, 100mm diameter, Silicone	VFC100-S
	Flat-Curved suction cup, 100mm diameter, White silicone	VFC100-WS
	Flat-Curved suction cup, 100mm diameter, White silicone (FDA)	VFC100-WS (FDA)
	Flat-Curved suction cup, 100mm diameter, High temperature silicone	VFC100-HS
	Flat-Curved suction cup, 100mm diameter, Conductive silicone	VFC100-CS
	Flat-Curved suction cup, 100mm diameter, Urethane	VFC100-U
	Flat-Curved suction cup, 100mm diameter, Mark free	VFC100-A
	Flat-Curved suction cup, 100mm diameter, Polyurethane	VFC100-PU

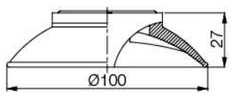
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VFC100-N	Flat-Curved suction cup, 100mm diameter, Nitrile (NBR)	83.87	Black
VFC100-S	Flat-Curved suction cup, 100mm diameter, Silicone	76.35	Red
VFC100-WS	Flat-Curved suction cup, 100mm diameter, White silicone	81.62	Translucent White
VFC100-WS (FDA)	Flat-Curved suction cup, 100mm diameter, White silicone (FDA)	81.62	Translucent White
VFC100-HS	Flat-Curved suction cup, 100mm diameter, High temperature silicone	88.74	Blue
VFC100-CS	Flat-Curved suction cup, 100mm diameter, Conductive silicone	80.32	Smoky Black
VFC100-U	Flat-Curved suction cup, 100mm diameter, Urethane	84.51	Dark Green
VFC100-A	Flat-Curved suction cup, 100mm diameter, Mark free	95.71	Black
VFC100-PU	Flat-Curved suction cup, 100mm diameter, Polyurethane	70.74	Translucent Orange

Dimension

[Unit : mm]



[Rubber part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.9

FCF Series

Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring

Advantages

High speed handling without deformation
Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels
Great designed pattern for anti sliding



Application





Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
FCF30	2.00	2.00	4.60	6.40	0.80	2.00	2.90	
FCF40	4.40	2.90	6.90	9.90	2.10	5.00	7.20	
FCF50	8.00	4.20	10.80	15.40	3.70	6.70	8.90	
FCF60	14.60	5.60	15.20	22.30	5.50	13.30	16.70	
FCF70	20.70	7.60	19.60	28.20	6.30	15.80	20.10	
FCF80	36.00	10.30	25.90	34.40	6.70	17.70	23.80	
FCF100	58.00	14.70	37.10	50.60	13.60	35.40	43.70	
FCF125	115.00	19.40	44.50	57.90	19.10	42.50	64.90	

※ The lifting force above does not include safety factor

Available size options

Model	Description	Model	Description
FCF30	Flat-curve suction cup, Ø30	FCF70	Flat-curve suction cup, Ø70
FCF40	Flat-curve suction cup, Ø40	FCF80	Flat-curve suction cup, Ø80
FCF50	Flat-curve suction cup, Ø50	FCF100	Flat-curve suction cup, Ø100
FCF60	Flat-curve suction cup, Ø60	FCF125	Flat-curve suction cup, Ø125

FCF30





Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF30	2.00	2.00	4.60	6.40	0.80	2.00	2.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

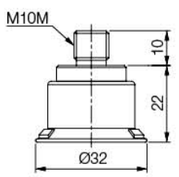
※ For additional material, see page 32~33

Material Resistance

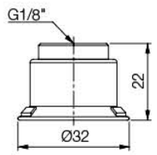
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

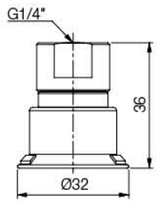
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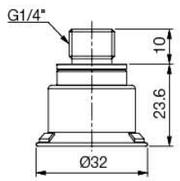
[With M10M fitting]



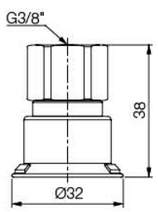
[With 18F fitting]



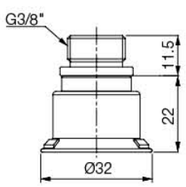
[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

FCF30 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), M10xP1.5 male fitting	18.9	FCF30-N-M10M
	Flat-curve suction cup, 30mm diameter, Silicone, M10xP1.5 male fitting	15.98	FCF30-S-M10M
	Flat-curve suction cup, 30mm diameter, Polyurethane, M10xP1.5 male fitting	17.16	FCF30-PU-M10M
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), G1/8 female fitting	15.97	FCF30-N-18F
	Flat-curve suction cup, 30mm diameter, Silicone, G1/8 female fitting	14.12	FCF30-S-18F
	Flat-curve suction cup, 30mm diameter, Polyurethane, G1/8 female fitting	14.43	FCF30-PU-18F
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), G1/4 female fitting	26.24	FCF30-N-14F
	Flat-curve suction cup, 30mm diameter, Silicone, G1/4 female fitting	25.05	FCF30-S-14F
	Flat-curve suction cup, 30mm diameter, Polyurethane, G1/4 female fitting	23.2	FCF30-PU-14F
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), G1/4 male fitting	21.1	FCF30-N-14M
	Flat-curve suction cup, 30mm diameter, Silicone, G1/4 male fitting	18.06	FCF30-S-14M
	Flat-curve suction cup, 30mm diameter, Polyurethane, G1/4 male fitting	18.37	FCF30-PU-14M
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), G3/8 female fitting	24.01	FCF30-N-38F
	Flat-curve suction cup, 30mm diameter, Silicone, G3/8 female fitting	22.16	FCF30-S-38F
	Flat-curve suction cup, 30mm diameter, Polyurethane, G3/8 female fitting	22.47	FCF30-PU-38F
	Flat-curve suction cup, 30mm diameter, Nitrile (NBR), G3/8 male fitting	22.4	FCF30-N-38M
	Flat-curve suction cup, 30mm diameter, Silicone, G3/8 male fitting	20.55	FCF30-S-38M
	Flat-curve suction cup, 30mm diameter, Polyurethane, G3/8 male fitting	20.86	FCF30-PU-38M

FCF40



Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring



Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF40	4.40	2.90	6.90	9.90	2.10	5.00	7.20

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

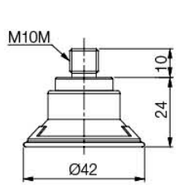
※ For additional material, see page 32~33

Material Resistance

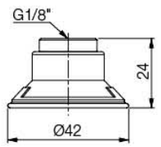
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

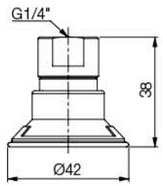
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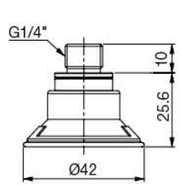
[With M10M fitting]



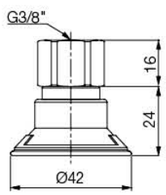
[With 18F fitting]



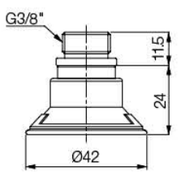
[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

FCF40 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), M10xP1.5 male fitting	18.33	FCF40-N-M10M
	Flat-curve suction cup, 40mm diameter, Silicone, M10xP1.5 male fitting	17.15	FCF40-S-M10M
	Flat-curve suction cup, 40mm diameter, Polyurethane, M10xP1.5 male fitting	17.93	FCF40-PU-M10M
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), G1/8 female fitting	17.22	FCF40-N-18F
	Flat-curve suction cup, 40mm diameter, Silicone, G1/8 female fitting	14.72	FCF40-S-18F
	Flat-curve suction cup, 40mm diameter, Polyurethane, G1/8 female fitting	15.56	FCF40-PU-18F
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), G1/4 female fitting	26.3	FCF40-N-14F
	Flat-curve suction cup, 40mm diameter, Silicone, G1/4 female fitting	23.8	FCF40-S-14F
	Flat-curve suction cup, 40mm diameter, Polyurethane, G1/4 female fitting	24.64	FCF40-PU-14F
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), G1/4 male fitting	21.16	FCF40-N-14M
	Flat-curve suction cup, 40mm diameter, Silicone, G1/4 male fitting	18.66	FCF40-S-14M
	Flat-curve suction cup, 40mm diameter, Polyurethane, G1/4 male fitting	19.5	FCF40-PU-14M
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), G3/8 female fitting	25.26	FCF40-N-38F
	Flat-curve suction cup, 40mm diameter, Silicone, G3/8 female fitting	22.76	FCF40-S-38F
	Flat-curve suction cup, 40mm diameter, Polyurethane, G3/8 female fitting	23.6	FCF40-PU-38F
	Flat-curve suction cup, 40mm diameter, Nitrile (NBR), G3/8 male fitting	23.65	FCF40-N-38M
	Flat-curve suction cup, 40mm diameter, Silicone, G3/8 male fitting	21.15	FCF40-S-38M
	Flat-curve suction cup, 40mm diameter, Polyurethane, G3/8 male fitting	21.99	FCF40-PU-38M

FCF50



Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring



Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF50	8.00	4.20	10.80	15.40	3.70	6.70	8.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

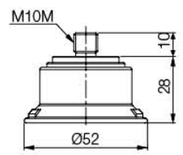
※ For additional material, see page 32~33

Material Resistance

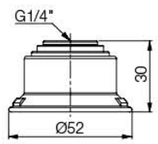
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

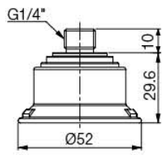
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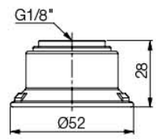
[With M10M fitting]



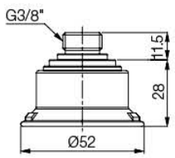
[With 14F fitting]



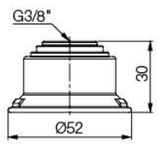
[With 14M fitting]



[With 18F fitting]



[With 38M fitting]



[With 38F fitting]

Build an Ordering No.

FCF50 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), M10xP1.5 male fitting	48.22	FCF50-N-M10M
	Flat-curve suction cup, 50mm diameter, Silicone, M10xP1.5 male fitting	45.5	FCF50-S-M10M
	Flat-curve suction cup, 50mm diameter, Polyurethane, M10xP1.5 male fitting	45.8	FCF50-PU-M10M
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), G1/8 female fitting	46.26	FCF50-N-18F
	Flat-curve suction cup, 50mm diameter, Silicone, G1/8 female fitting	41.6	FCF50-S-18F
	Flat-curve suction cup, 50mm diameter, Polyurethane, G1/8 female fitting	41.8	FCF50-PU-18F
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), G1/4 female fitting	55.34	FCF50-N-14F
	Flat-curve suction cup, 50mm diameter, Silicone, G1/4 female fitting	50.68	FCF50-S-14F
	Flat-curve suction cup, 50mm diameter, Polyurethane, G1/4 female fitting	50.88	FCF50-PU-14F
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), G1/4 male fitting	50.2	FCF50-N-14M
	Flat-curve suction cup, 50mm diameter, Silicone, G1/4 male fitting	45.54	FCF50-S-14M
	Flat-curve suction cup, 50mm diameter, Polyurethane, G1/4 male fitting	45.74	FCF50-PU-14M
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), G3/8 female fitting	54.3	FCF50-N-38F
	Flat-curve suction cup, 50mm diameter, Silicone, G3/8 female fitting	49.64	FCF50-S-38F
	Flat-curve suction cup, 50mm diameter, Polyurethane, G3/8 female fitting	49.84	FCF50-PU-38F
	Flat-curve suction cup, 50mm diameter, Nitrile (NBR), G3/8 male fitting	52.69	FCF50-N-38M
	Flat-curve suction cup, 50mm diameter, Silicone, G3/8 male fitting	48.03	FCF50-S-38M
	Flat-curve suction cup, 50mm diameter, Polyurethane, G3/8 male fitting	48.23	FCF50-PU-38M

FCF60





Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF60	14.60	5.60	15.20	22.30	5.50	13.30	16.70

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

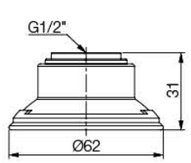
※ For additional material, see page 32~33

Material Resistance

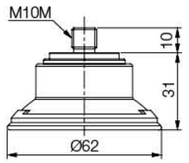
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

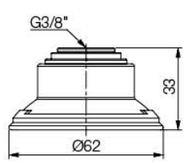
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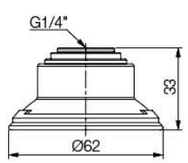
[With 12F fitting]



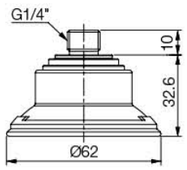
[With M10M fitting]



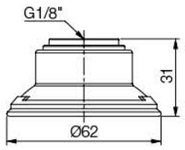
[With 38F fitting]



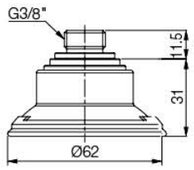
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

FCF60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), M10xP1.5 male fitting	54.29	FCF60-N-M10M
	Flat-curve suction cup, 60mm diameter, Silicone, M10xP1.5 male fitting	49.9	FCF60-S-M10M
	Flat-curve suction cup, 60mm diameter, Polyurethane, M10xP1.5 male fitting	51	FCF60-PU-M10M
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G1/8 female fitting	50	FCF60-N-18F
	Flat-curve suction cup, 60mm diameter, Silicone, G1/8 female fitting	45.59	FCF60-S-18F
	Flat-curve suction cup, 60mm diameter, Polyurethane, G1/8 female fitting	46.6	FCF60-PU-18F
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G1/4 female fitting	59.8	FCF60-N-14F
	Flat-curve suction cup, 60mm diameter, Silicone, G1/4 female fitting	54.67	FCF60-S-14F
	Flat-curve suction cup, 60mm diameter, Polyurethane, G1/4 female fitting	55.68	FCF60-PU-14F
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G1/4 male fitting	53.94	FCF60-N-14M
	Flat-curve suction cup, 60mm diameter, Silicone, G1/4 male fitting	49.53	FCF60-S-14M
	Flat-curve suction cup, 60mm diameter, Polyurethane, G1/4 male fitting	50.54	FCF60-PU-14M
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G3/8 female fitting	46.74	FCF60-N-38F
	Flat-curve suction cup, 60mm diameter, Silicone, G3/8 female fitting	43.34	FCF60-S-38F
	Flat-curve suction cup, 60mm diameter, Polyurethane, G3/8 female fitting	43.75	FCF60-PU-38F
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G3/8 male fitting	54.42	FCF60-N-38M
	Flat-curve suction cup, 60mm diameter, Silicone, G3/8 male fitting	51.02	FCF60-S-38M
	Flat-curve suction cup, 60mm diameter, Polyurethane, G3/8 male fitting	51.43	FCF60-PU-38M
	Flat-curve suction cup, 60mm diameter, Nitrile (NBR), G1/2 female fitting	43.56	FCF60-N-12F
	Flat-curve suction cup, 60mm diameter, Silicone, G1/2 female fitting	40.16	FCF60-S-12F
	Flat-curve suction cup, 60mm diameter, Polyurethane, G1/2 female fitting	40.57	FCF60-PU-12F

FCF70



Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring



Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF70	20.70	7.60	19.60	28.20	6.30	15.80	20.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

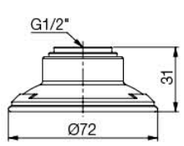
※ For additional material, see page 32~33

Material Resistance

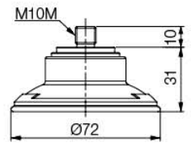
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

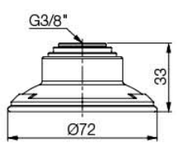
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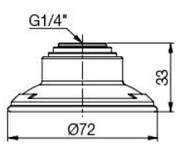
[With 12F fitting]



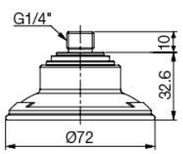
[With M10M fitting]



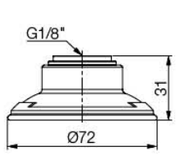
[With 38F fitting]



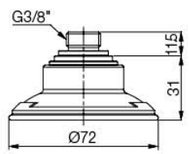
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

FCF70 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), M10xP1.5 male fitting	59.36	FCF70-N-M10M
	Flat-curve suction cup, 70mm diameter, Silicone, M10xP1.5 male fitting	50.19	FCF70-S-M10M
	Flat-curve suction cup, 70mm diameter, Polyurethane, M10xP1.5 male fitting	53.9	FCF70-PU-M10M
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G1/8 female fitting	57.2	FCF70-N-18F
	Flat-curve suction cup, 70mm diameter, Silicone, G1/8 female fitting	50.58	FCF70-S-18F
	Flat-curve suction cup, 70mm diameter, Polyurethane, G1/8 female fitting	51.7	FCF70-PU-18F
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G1/4 female fitting	66.28	FCF70-N-14F
	Flat-curve suction cup, 70mm diameter, Silicone, G1/4 female fitting	59.66	FCF70-S-14F
	Flat-curve suction cup, 70mm diameter, Polyurethane, G1/4 female fitting	60.78	FCF70-PU-14F
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G1/4 male fitting	61.14	FCF70-N-14M
	Flat-curve suction cup, 70mm diameter, Silicone, G1/4 male fitting	54.52	FCF70-S-14M
	Flat-curve suction cup, 70mm diameter, Polyurethane, G1/4 male fitting	55.64	FCF70-PU-14M
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G3/8 female fitting	52.71	FCF70-N-38F
	Flat-curve suction cup, 70mm diameter, Silicone, G3/8 female fitting	46.7	FCF70-S-38F
	Flat-curve suction cup, 70mm diameter, Polyurethane, G3/8 female fitting	47.36	FCF70-PU-38F
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G3/8 male fitting	60.39	FCF70-N-38M
	Flat-curve suction cup, 70mm diameter, Silicone, G3/8 male fitting	54.38	FCF70-S-38M
	Flat-curve suction cup, 70mm diameter, Polyurethane, G3/8 male fitting	55.04	FCF70-PU-38M
	Flat-curve suction cup, 70mm diameter, Nitrile (NBR), G1/2 female fitting	49.53	FCF70-N-12F
	Flat-curve suction cup, 70mm diameter, Silicone, G1/2 female fitting	43.52	FCF70-S-12F
	Flat-curve suction cup, 70mm diameter, Polyurethane, G1/2 female fitting	44.18	FCF70-PU-12F

FCF80





Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF80	36.00	10.30	25.90	34.40	6.70	17.70	23.80

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

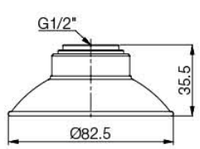
※ For additional material, see page 32~33

Material Resistance

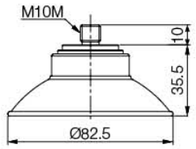
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

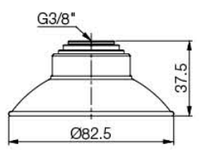
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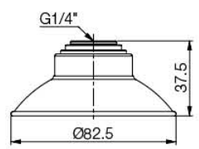
[With 12F fitting]



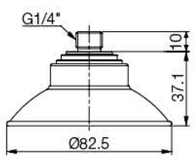
[With M10M fitting]



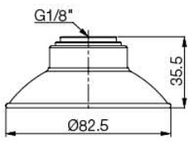
[With 38F fitting]



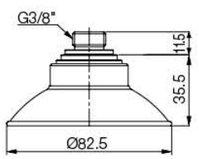
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

FCF80 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), M10xP1.5 male fitting	72.09	FCF80-N-M10M
	Flat-curve suction cup, 80mm diameter, Silicone, M10xP1.5 male fitting	60.95	FCF80-S-M10M
	Flat-curve suction cup, 80mm diameter, Polyurethane, M10xP1.5 male fitting	65.46	FCF80-PU-M10M
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G1/8 female fitting	67.72	FCF80-N-18F
	Flat-curve suction cup, 80mm diameter, Silicone, G1/8 female fitting	65.69	FCF80-S-18F
	Flat-curve suction cup, 80mm diameter, Polyurethane, G1/8 female fitting	60.84	FCF80-PU-18F
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G1/4 female fitting	76.8	FCF80-N-14F
	Flat-curve suction cup, 80mm diameter, Silicone, G1/4 female fitting	74.77	FCF80-S-14F
	Flat-curve suction cup, 80mm diameter, Polyurethane, G1/4 female fitting	69.92	FCF80-PU-14F
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G1/4 male fitting	71.66	FCF80-N-14M
	Flat-curve suction cup, 80mm diameter, Silicone, G1/4 male fitting	69.63	FCF80-S-14M
	Flat-curve suction cup, 80mm diameter, Polyurethane, G1/4 male fitting	64.78	FCF80-PU-14M
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G3/8 female fitting	64.45	FCF80-N-38F
	Flat-curve suction cup, 80mm diameter, Silicone, G3/8 female fitting	58.1	FCF80-S-38F
	Flat-curve suction cup, 80mm diameter, Polyurethane, G3/8 female fitting	58.61	FCF80-PU-38F
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G3/8 male fitting	72.13	FCF80-N-38M
	Flat-curve suction cup, 80mm diameter, Silicone, G3/8 male fitting	65.78	FCF80-S-38M
	Flat-curve suction cup, 80mm diameter, Polyurethane, G3/8 male fitting	66.29	FCF80-PU-38M
	Flat-curve suction cup, 80mm diameter, Nitrile (NBR), G1/2 female fitting	61.27	FCF80-N-12F
	Flat-curve suction cup, 80mm diameter, Silicone, G1/2 female fitting	54.92	FCF80-S-12F
	Flat-curve suction cup, 80mm diameter, Polyurethane, G1/2 female fitting	55.43	FCF80-PU-12F

FCF100



Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring



Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF100	58.00	14.70	37.10	50.60	13.60	35.40	43.70

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

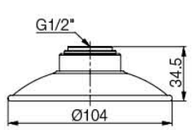
※ For additional material, see page 32~33

Material Resistance

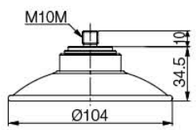
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

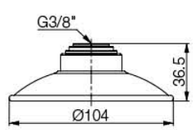
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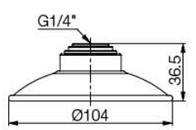
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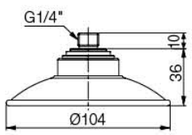
[With M10M fitting]



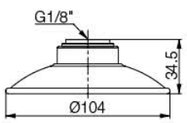
[With 38F fitting]



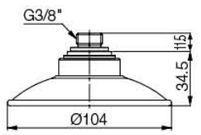
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

FCF100 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), M10xP1.5 male fitting	80.86	FCF100-N-M10M
	Flat-curve suction cup, 100mm diameter, Silicone, M10xP1.5 male fitting	69.8	FCF100-S-M10M
	Flat-curve suction cup, 100mm diameter, Polyurethane, M10xP1.5 male fitting	75.03	FCF100-PU-M10M
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G1/8 female fitting	75.83	FCF100-N-18F
	Flat-curve suction cup, 100mm diameter, Silicone, G1/8 female fitting	69.69	FCF100-S-18F
	Flat-curve suction cup, 100mm diameter, Polyurethane, G1/8 female fitting	71.23	FCF100-PU-18F
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G1/4 female fitting	84.91	FCF100-N-14F
	Flat-curve suction cup, 100mm diameter, Silicone, G1/4 female fitting	78.77	FCF100-S-14F
	Flat-curve suction cup, 100mm diameter, Polyurethane, G1/4 female fitting	80.31	FCF100-PU-14F
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G1/4 male fitting	79.77	FCF100-N-14M
	Flat-curve suction cup, 100mm diameter, Silicone, G1/4 male fitting	73.63	FCF100-S-14M
	Flat-curve suction cup, 100mm diameter, Polyurethane, G1/4 male fitting	75.17	FCF100-PU-14M
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G3/8 female fitting	76.75	FCF100-N-38F
	Flat-curve suction cup, 100mm diameter, Silicone, G3/8 female fitting	68.59	FCF100-S-38F
	Flat-curve suction cup, 100mm diameter, Polyurethane, G3/8 female fitting	68.18	FCF100-PU-38F
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G3/8 male fitting	84.43	FCF100-N-38M
	Flat-curve suction cup, 100mm diameter, Silicone, G3/8 male fitting	76.27	FCF100-S-38M
	Flat-curve suction cup, 100mm diameter, Polyurethane, G3/8 male fitting	75.86	FCF100-PU-38M
	Flat-curve suction cup, 100mm diameter, Nitrile (NBR), G1/2 female fitting	73.57	FCF100-N-12F
	Flat-curve suction cup, 100mm diameter, Silicone, G1/2 female fitting	65.41	FCF100-S-12F
	Flat-curve suction cup, 100mm diameter, Polyurethane, G1/2 female fitting	65	FCF100-PU-12F

FCF125



Features and Strengths

Excellent for flat and curved material in both vertical and horizontal application
No vibration when transferring



Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
FCF125	115.00	19.40	44.50	57.90	19.10	42.50	64.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

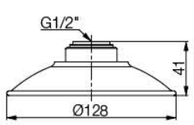
※ For additional material, see page 32~33

Material Resistance

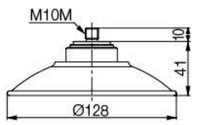
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

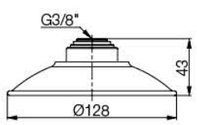
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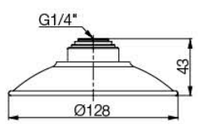
[With 12F fitting]



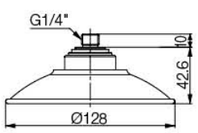
[With M10M fitting]



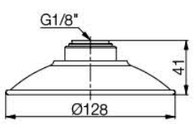
[With 38F fitting]



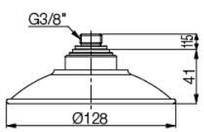
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

FCF125 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), M10xP1.5 male fitting	112.27	FCF125-N-M10M
	Flat-curve suction cup, 125mm diameter, Silicone, M10xP1.5 male fitting	99.15	FCF125-S-M10M
	Flat-curve suction cup, 125mm diameter, Polyurethane, M10xP1.5 male fitting	106.48	FCF125-PU-M10M
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G1/8 female fitting	114.23	FCF125-N-18F
	Flat-curve suction cup, 125mm diameter, Silicone, G1/8 female fitting	103.65	FCF125-S-18F
	Flat-curve suction cup, 125mm diameter, Polyurethane, G1/8 female fitting	105.93	FCF125-PU-18F
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G1/4 female fitting	123.31	FCF125-N-14F
	Flat-curve suction cup, 125mm diameter, Silicone, G1/4 female fitting	112.73	FCF125-S-14F
	Flat-curve suction cup, 125mm diameter, Polyurethane, G1/4 female fitting	115.01	FCF125-PU-14F
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G1/4 male fitting	118.17	FCF125-N-14M
	Flat-curve suction cup, 125mm diameter, Silicone, G1/4 male fitting	107.59	FCF125-S-14M
	Flat-curve suction cup, 125mm diameter, Polyurethane, G1/4 male fitting	109.87	FCF125-PU-14M
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G3/8 female fitting	123.74	FCF125-N-38F
	Flat-curve suction cup, 125mm diameter, Silicone, G3/8 female fitting	108.18	FCF125-S-38F
	Flat-curve suction cup, 125mm diameter, Polyurethane, G3/8 female fitting	101.01	FCF125-PU-38F
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G3/8 male fitting	131.42	FCF125-N-38M
	Flat-curve suction cup, 125mm diameter, Silicone, G3/8 male fitting	115.86	FCF125-S-38M
	Flat-curve suction cup, 125mm diameter, Polyurethane, G3/8 male fitting	108.69	FCF125-PU-38M
	Flat-curve suction cup, 125mm diameter, Nitrile (NBR), G1/2 female fitting	120.56	FCF125-N-12F
	Flat-curve suction cup, 125mm diameter, Silicone, G1/2 female fitting	105	FCF125-S-12F
	Flat-curve suction cup, 125mm diameter, Polyurethane, G1/2 female fitting	97.83	FCF125-PU-12F

VDF Series

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

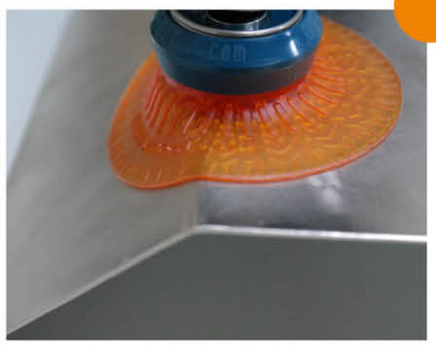
Advantages

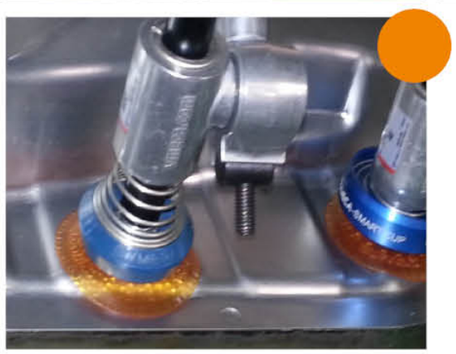
Very flexible adjustment according to different surface and shape
Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels
Longer life time with PU material (3times longer than NBR of competitor)



Application







Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VDF25	1.50	1.40	3.00	4.10	0.70	1.90	2.90	
VDF30	2.70	1.80	4.40	5.70	1.00	2.80	3.80	
VDF40	7.00	2.70	6.20	8.30	2.40	4.70	7.10	
VDF50	14.00	4.10	10.10	14.00	3.50	9.20	18.50	
VDF60	24.00	5.60	13.70	19.00	4.30	13.80	24.50	
VDF80	50.50	8.60	21.20	29.30	7.20	18.50	27.00	
VDF100	94.00	12.60	30.80	41.70	12.30	28.20	39.60	

※ The lifting force above does not include safety factor

Available size options

Model	Description	Model	Description
VDF25	Deep-flat suction cup, Ø25	VDF60	Deep-flat suction cup, Ø60
VDF30	Deep-flat suction cup, Ø30	VDF80	Deep-flat suction cup, Ø80
VDF40	Deep-flat suction cup, Ø40	VDF100	Deep-flat suction cup, Ø100
VDF50	Deep-flat suction cup, Ø50		

VDF25

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF25	1.50	1.40	3.00	4.10	0.70	1.90	2.90

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

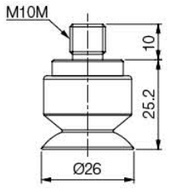
※ For additional material, see page 32~33

Material Resistance

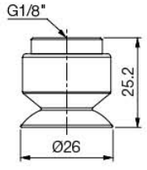
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

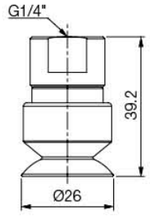
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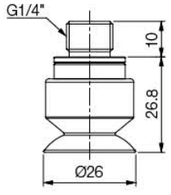
[With M10M fitting]



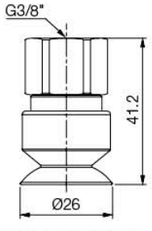
[With 18F fitting]



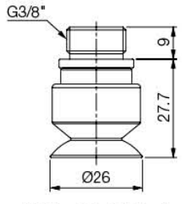
[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VDF25 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 25mm diameter, Polyurethane, M10xP1.5 male fitting	17	VDF25-PU-M10M
	Deep-flat suction cup, 25mm diameter, Polyurethane, G1/8 female fitting	15.12	VDF25-PU-18F
	Deep-flat suction cup, 25mm diameter, Polyurethane, G1/4 female fitting	14.28	VDF25-PU-14F
	Deep-flat suction cup, 25mm diameter, Polyurethane, G1/4 male fitting	19.06	VDF25-PU-14M
	Deep-flat suction cup, 25mm diameter, Polyurethane, G3/8 female fitting	23.16	VDF25-PU-38F
	Deep-flat suction cup, 25mm diameter, Polyurethane, G3/8 male fitting	21.55	VDF25-PU-38M

VDF30

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF30	2.70	1.80	4.40	5.70	1.00	2.80	3.80

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

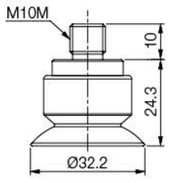
※ For additional material, see page 32~33

Material Resistance

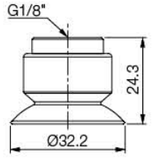
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

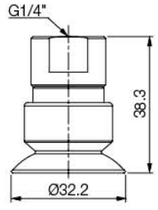
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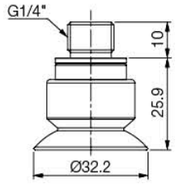
[With M10M fitting]



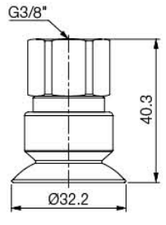
[With 18F fitting]



[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VDF30 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 30mm diameter, Polyurethane, M10xP1.5 male fitting	17.2	VDF30-PU-M10M
	Deep-flat suction cup, 30mm diameter, Polyurethane, G1/8 female fitting	16.02	VDF30-PU-18F
	Deep-flat suction cup, 30mm diameter, Polyurethane, G1/4 female fitting	16.32	VDF30-PU-14F
	Deep-flat suction cup, 30mm diameter, Polyurethane, G1/4 male fitting	19.96	VDF30-PU-14M
	Deep-flat suction cup, 30mm diameter, Polyurethane, G3/8 female fitting	24.06	VDF30-PU-38F
	Deep-flat suction cup, 30mm diameter, Polyurethane, G3/8 male fitting	22.45	VDF30-PU-38M

VDF40

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF40	7.00	2.70	6.20	8.30	2.40	4.70	7.10

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

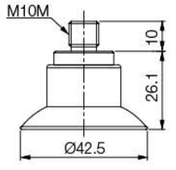
※ For additional material, see page 32~33

Material Resistance

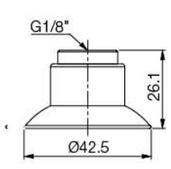
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

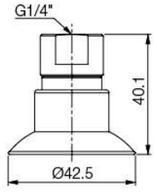
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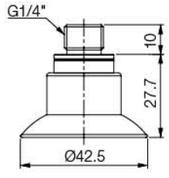
[With M10M fitting]



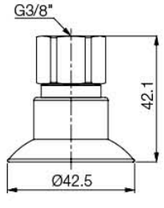
[With 18F fitting]



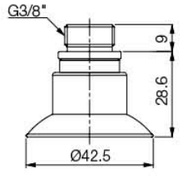
[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VDF40 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 40mm diameter, Polyurethane, M10xP1.5 male fitting	18.5	VDF40-PU-M10M
	Deep-flat suction cup, 40mm diameter, Polyurethane, G1/8 female fitting	17.95	VDF40-PU-18F
	Deep-flat suction cup, 40mm diameter, Polyurethane, G1/4 female fitting	14.89	VDF40-PU-14F
	Deep-flat suction cup, 40mm diameter, Polyurethane, G1/4 male fitting	21.89	VDF40-PU-14M
	Deep-flat suction cup, 40mm diameter, Polyurethane, G3/8 female fitting	25.99	VDF40-PU-38F
	Deep-flat suction cup, 40mm diameter, Polyurethane, G3/8 male fitting	24.38	VDF40-PU-38M

VDF50

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF50	14.00	4.10	10.10	14.00	3.50	9.20	18.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

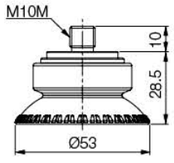
※ For additional material, see page 32~33

Material Resistance

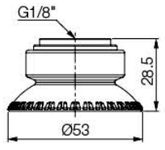
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

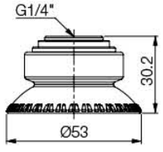
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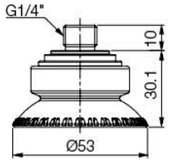
[With M10M fitting]



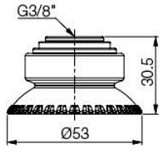
[With 18F fitting]



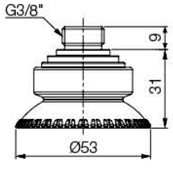
[With 14F fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VDF50 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 50mm diameter, Polyurethane, M10xP1.5 male fitting	40.9	VDF50-PU-M10M
	Deep-flat suction cup, 50mm diameter, Polyurethane, G1/8 female fitting	40.22	VDF50-PU-18F
	Deep-flat suction cup, 50mm diameter, Polyurethane, G1/4 female fitting	49.3	VDF50-PU-14F
	Deep-flat suction cup, 50mm diameter, Polyurethane, G1/4 male fitting	44.16	VDF50-PU-14M
	Deep-flat suction cup, 50mm diameter, Polyurethane, G3/8 female fitting	38.18	VDF50-PU-38F
	Deep-flat suction cup, 50mm diameter, Polyurethane, G3/8 male fitting	46.65	VDF50-PU-38M

VDF60

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF60	24.00	5.60	13.70	19.00	4.30	13.80	24.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

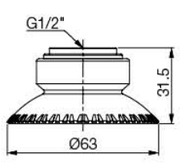
※ For additional material, see page 32~33

Material Resistance

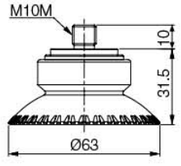
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

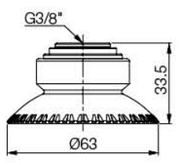
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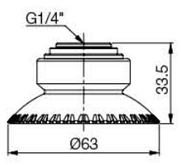
[With 12F fitting]



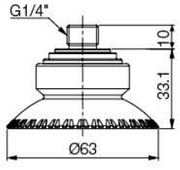
[With M10M fitting]



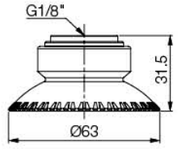
[With 38F fitting]



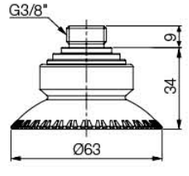
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

VDF60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 60mm diameter, Polyurethane, M10xP1.5 male fitting	44.3	VDF60-PU-M10M
	Deep-flat suction cup, 60mm diameter, Polyurethane, G1/8 female fitting	55.42	VDF60-PU-18F
	Deep-flat suction cup, 60mm diameter, Polyurethane, G1/4 female fitting	39.52	VDF60-PU-14F
	Deep-flat suction cup, 60mm diameter, Polyurethane, G1/4 male fitting	59.36	VDF60-PU-14M
	Deep-flat suction cup, 60mm diameter, Polyurethane, G3/8 female fitting	52.17	VDF60-PU-38F
	Deep-flat suction cup, 60mm diameter, Polyurethane, G3/8 male fitting	44.94	VDF60-PU-38M
	Deep-flat suction cup, 60mm diameter, Polyurethane, G1/2 female fitting	34.08	VDF60-PU-12F

VDF80

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF80	50.50	8.60	21.20	29.30	7.20	18.50	27.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

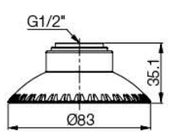
※ For additional material, see page 32~33

Material Resistance

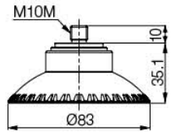
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

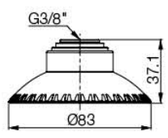
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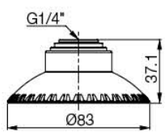
[With 12F fitting]



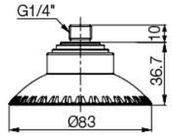
[With M10M fitting]



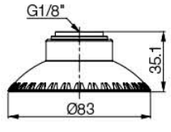
[With 38F fitting]



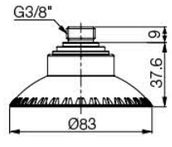
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

VDF80 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 80mm diameter, Polyurethane, M10xP1.5 male fitting	52.13	VDF80-PU-M10M
	Deep-flat suction cup, 80mm diameter, Polyurethane, G1/8 female fitting	48.62	VDF80-PU-18F
	Deep-flat suction cup, 80mm diameter, Polyurethane, G1/4 female fitting	47.94	VDF80-PU-14F
	Deep-flat suction cup, 80mm diameter, Polyurethane, G1/4 male fitting	53.88	VDF80-PU-14M
	Deep-flat suction cup, 80mm diameter, Polyurethane, G3/8 female fitting	45.7	VDF80-PU-38F
	Deep-flat suction cup, 80mm diameter, Polyurethane, G3/8 male fitting	53.36	VDF80-PU-38M
	Deep-flat suction cup, 80mm diameter, Polyurethane, G1/2 female fitting	42.5	VDF80-PU-12F

VDF100

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Flat&curved glass



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VDF100	94.00	12.60	30.80	41.70	12.30	28.20	39.60

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

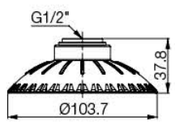
※ For additional material, see page 32~33

Material Resistance

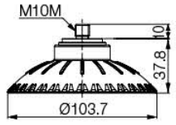
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

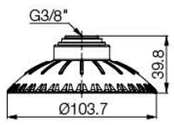
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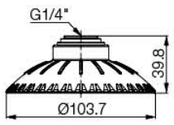
[With 12F fitting]



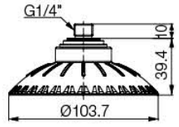
[With M10M fitting]



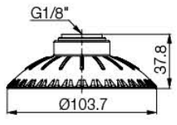
[With 38F fitting]



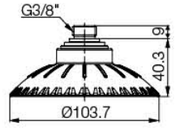
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

VDF100 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Deep-flat suction cup, 100mm diameter, Polyurethane, M10xP1.5 male fitting	63.15	VDF100-PU-M10M
	Deep-flat suction cup, 100mm diameter, Polyurethane, G1/8 female fitting	59.42	VDF100-PU-18F
	Deep-flat suction cup, 100mm diameter, Polyurethane, G1/4 female fitting	57.14	VDF100-PU-14F
	Deep-flat suction cup, 100mm diameter, Polyurethane, G1/4 male fitting	64.23	VDF100-PU-14M
	Deep-flat suction cup, 100mm diameter, Polyurethane, G3/8 female fitting	56.52	VDF100-PU-38F
	Deep-flat suction cup, 100mm diameter, Polyurethane, G3/8 male fitting	64.23	VDF100-PU-38M
	Deep-flat suction cup, 100mm diameter, Polyurethane, G1/2 female fitting	53.32	VDF100-PU-12F

VBF Series

Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Advantages

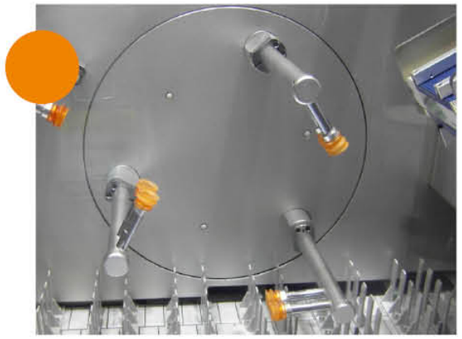
Very flexible adjustment according to different surface and shape
Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels
Longer life time with PU material (3times longer than NBR of competitor)



Application







Examples of use

Metal sheets, Car panel, Press metal sheets, Panel,
Electronic goods, Glass, Carton boxes, Furniture, Wood panel

Available size options

Model	Description	Model	Description
VBF25	Bellows-flat suction cup, Ø25	VBF60	Bellows-flat suction cup, Ø60
VBF30	Bellows-flat suction cup, Ø30	VBF80	Bellows-flat suction cup, Ø80
VBF40	Bellows-flat suction cup, Ø40	VBF100	Bellows-flat suction cup, Ø100
VBF50	Bellows-flat suction cup, Ø50		

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VBF25	2.6	1.10	3.20	3.80	0.61	1.37	1.89	
VBF30	6.0	1.77	6.26	9.48	0.86	3.09	7.75	
VBF40	7.20	2.50	9.66	12.80	1.18	6.50	11.30	
VBF50	11.00	4.18	13.20	16.28	2.09	9.60	14.70	
VBF60	22.00	8.94	16.26	18.54	6.84	12.84	16.92	
VBF80	59.50	11.92	21.68	24.72	9.12	17.12	22.56	
VBF100	103.50	14.90	27.10	30.90	11.40	21.40	28.20	

※ The lifting force above does not include safety factor

VBF25



Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material



Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF25	2.6	1.10	3.20	3.80	0.61	1.37	1.89

※ The lifting force above does not include safety factor

Material Specifications

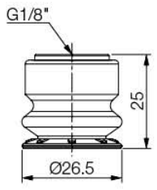
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

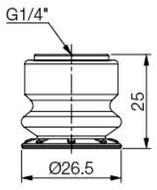
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

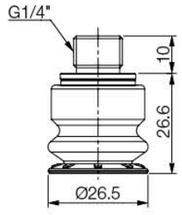
[Unit : mm]



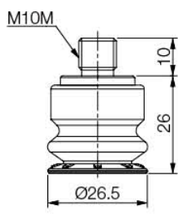
[With 18F fitting]



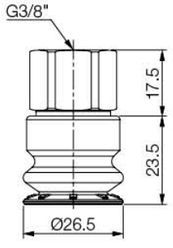
[With 14F fitting]



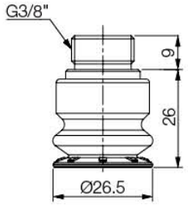
[With 14M fitting]



[With M10M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VBF25 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), M10xP1.5 male fitting	19.73	VBF25-N-M10M
	Bellows-flat suction cup, 25mm diameter, Silicone, M10xP1.5 male fitting	18.51	VBF25-S-M10M
	Bellows-flat suction cup, 25mm diameter, Polyurethane, M10xP1.5 male fitting	19.87	VBF25-PU-M10M
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), G1/8 female fitting	13.41	VBF25-N-18F
	Bellows-flat suction cup, 25mm diameter, Silicone, G1/8 female fitting	12.19	VBF25-S-18F
	Bellows-flat suction cup, 25mm diameter, Polyurethane, G1/8 female fitting	14	VBF25-PU-18F
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), G1/4 female fitting	11.93	VBF25-N-14F
	Bellows-flat suction cup, 25mm diameter, Silicone, G1/4 female fitting	10.84	VBF25-S-14F
	Bellows-flat suction cup, 25mm diameter, Polyurethane, G1/4 female fitting	14	VBF25-PU-14F
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), G1/4 male fitting	17.35	VBF25-N-14M
	Bellows-flat suction cup, 25mm diameter, Silicone, G1/4 male fitting	15.77	VBF25-S-14M
	Bellows-flat suction cup, 25mm diameter, Polyurethane, G1/4 male fitting	17.49	VBF25-PU-14M
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), G3/8 female fitting	21.45	VBF25-N-38F
	Bellows-flat suction cup, 25mm diameter, Silicone, G3/8 female fitting	19.5	VBF25-S-38F
	Bellows-flat suction cup, 25mm diameter, Polyurethane, G3/8 female fitting	21.59	VBF25-PU-38F
	Bellows-flat suction cup, 25mm diameter, Nitrile (NBR), G3/8 male fitting	19.84	VBF25-N-38M
	Bellows-flat suction cup, 25mm diameter, Silicone, G3/8 male fitting	18.03	VBF25-S-38M
	Bellows-flat suction cup, 25mm diameter, Polyurethane, G3/8 male fitting	19.98	VBF25-PU-38M

VBF30



Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF30	6.0	1.77	6.26	9.48	0.86	3.09	7.75

※ The lifting force above does not include safety factor

Material Specifications

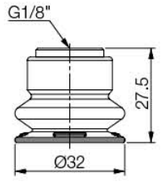
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

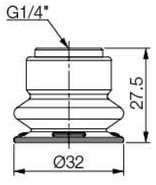
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

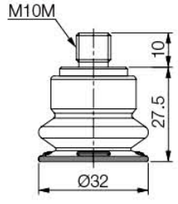
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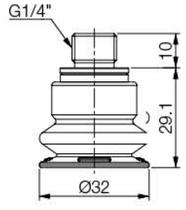
[With 18F fitting]



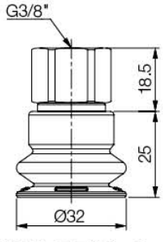
[With 14F fitting]



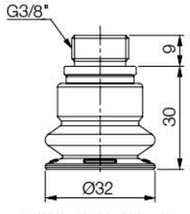
[With M10M fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VBF30 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), M10xP1.5 male fitting	17.45	VBF30-N-M10M
	Bellows-flat suction cup, 30mm diameter, Silicone, M10xP1.5 male fitting	17.58	VBF30-S-M10M
	Bellows-flat suction cup, 30mm diameter, Polyurethane, M10xP1.5 male fitting	18.88	VBF30-PU-M10M
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), G1/8 female fitting	17.93	VBF30-N-18F
	Bellows-flat suction cup, 30mm diameter, Silicone, G1/8 female fitting	16.3	VBF30-S-18F
	Bellows-flat suction cup, 30mm diameter, Polyurethane, G1/8 female fitting	15.11	VBF30-PU-18F
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), G1/4 female fitting	15.31	VBF30-N-14F
	Bellows-flat suction cup, 30mm diameter, Silicone, G1/4 female fitting	13.91	VBF30-S-14F
	Bellows-flat suction cup, 30mm diameter, Polyurethane, G1/4 female fitting	15	VBF30-PU-14F
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), G1/4 male fitting	21.87	VBF30-N-14M
	Bellows-flat suction cup, 30mm diameter, Silicone, G1/4 male fitting	20.24	VBF30-S-14M
	Bellows-flat suction cup, 30mm diameter, Polyurethane, G1/4 male fitting	19.5	VBF30-PU-14M
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), G3/8 female fitting	25.97	VBF30-N-38F
	Bellows-flat suction cup, 30mm diameter, Silicone, G3/8 female fitting	24.34	VBF30-S-38F
	Bellows-flat suction cup, 30mm diameter, Polyurethane, G3/8 female fitting	23.6	VBF30-PU-38F
	Bellows-flat suction cup, 30mm diameter, Nitrile (NBR), G3/8 male fitting	24.36	VBF30-N-38M
	Bellows-flat suction cup, 30mm diameter, Silicone, G3/8 male fitting	22.73	VBF30-S-38M
	Bellows-flat suction cup, 30mm diameter, Polyurethane, G3/8 male fitting	21.99	VBF30-PU-38M

VBF40





Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF40	7.20	2.50	9.66	12.80	1.18	6.50	11.30

※ The lifting force above does not include safety factor

Material Specifications

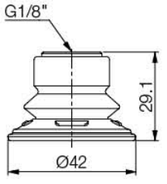
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

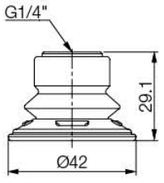
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

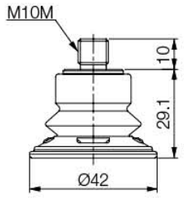
[Unit : mm]



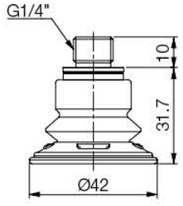
[With 18F fitting]



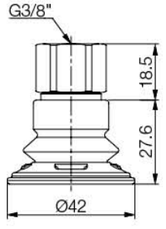
[With 14F fitting]



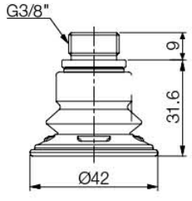
[With M10M fitting]



[With 14M fitting]



[With 38F fitting]



[With 38M fitting]

Build an Ordering No.

VBF40 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), M10xP1.5 male fitting	19	VBF40-N-M10M
	Bellows-flat suction cup, 40mm diameter, Silicone, M10xP1.5 male fitting	19.2	VBF40-S-M10M
	Bellows-flat suction cup, 40mm diameter, Polyurethane, M10xP1.5 male fitting	20.62	VBF40-PU-M10M
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), G1/8 female fitting	17.66	VBF40-N-18F
	Bellows-flat suction cup, 40mm diameter, Silicone, G1/8 female fitting	16.4	VBF40-S-18F
	Bellows-flat suction cup, 40mm diameter, Polyurethane, G1/8 female fitting	17.85	VBF40-PU-18F
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), G1/4 female fitting	15.57	VBF40-N-14F
	Bellows-flat suction cup, 40mm diameter, Silicone, G1/4 female fitting	13.47	VBF40-S-14F
	Bellows-flat suction cup, 40mm diameter, Polyurethane, G1/4 female fitting	14.66	VBF40-PU-14F
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), G1/4 male fitting	21.6	VBF40-N-14M
	Bellows-flat suction cup, 40mm diameter, Silicone, G1/4 male fitting	20.34	VBF40-S-14M
	Bellows-flat suction cup, 40mm diameter, Polyurethane, G1/4 male fitting	21.79	VBF40-PU-14M
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), G3/8 female fitting	25.7	VBF40-N-38F
	Bellows-flat suction cup, 40mm diameter, Silicone, G3/8 female fitting	24.44	VBF40-S-38F
	Bellows-flat suction cup, 40mm diameter, Polyurethane, G3/8 female fitting	25.89	VBF40-PU-38F
	Bellows-flat suction cup, 40mm diameter, Nitrile (NBR), G3/8 male fitting	24.09	VBF40-N-38M
	Bellows-flat suction cup, 40mm diameter, Silicone, G3/8 male fitting	22.83	VBF40-S-38M
	Bellows-flat suction cup, 40mm diameter, Polyurethane, G3/8 male fitting	24.28	VBF40-PU-38M

VBF50



Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF50	11.00	4.18	13.20	16.28	2.09	9.60	14.70

※ The lifting force above does not include safety factor

Material Specifications

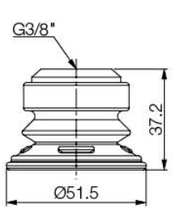
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

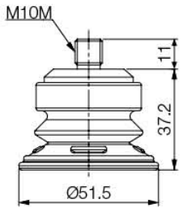
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

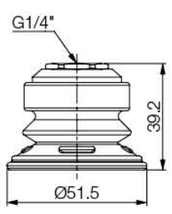
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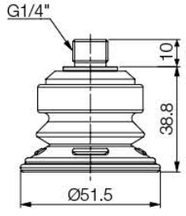
[With 38F fitting]



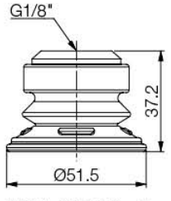
[With M10M fitting]



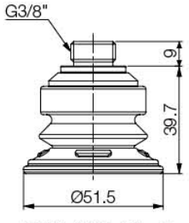
[With 14F fitting]



[With 14M fitting]



[With 18F fitting]



[With 38M fitting]

Build an Ordering No.

VBF50 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), M10xP1.5 male fitting	46.21	VBF50-N-M10M
	Bellows-flat suction cup, 50mm diameter, Silicone, M10xP1.5 male fitting	46.7	VBF50-S-M10M
	Bellows-flat suction cup, 50mm diameter, Polyurethane, M10xP1.5 male fitting	50.16	VBF50-PU-M10M
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), G1/8 female fitting	48.4	VBF50-N-18F
	Bellows-flat suction cup, 50mm diameter, Silicone, G1/8 female fitting	43.3	VBF50-S-18F
	Bellows-flat suction cup, 50mm diameter, Polyurethane, G1/8 female fitting	47.19	VBF50-PU-18F
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), G1/4 female fitting	47.79	VBF50-N-14F
	Bellows-flat suction cup, 50mm diameter, Silicone, G1/4 female fitting	41.34	VBF50-S-14F
	Bellows-flat suction cup, 50mm diameter, Polyurethane, G1/4 female fitting	45	VBF50-PU-14F
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), G1/4 male fitting	52.34	VBF50-N-14M
	Bellows-flat suction cup, 50mm diameter, Silicone, G1/4 male fitting	47.72	VBF50-S-14M
	Bellows-flat suction cup, 50mm diameter, Polyurethane, G1/4 male fitting	51.13	VBF50-PU-14M
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), G3/8 female fitting	42.64	VBF50-N-38F
	Bellows-flat suction cup, 50mm diameter, Silicone, G3/8 female fitting	42.37	VBF50-S-38F
	Bellows-flat suction cup, 50mm diameter, Polyurethane, G3/8 female fitting	44.89	VBF50-PU-38F
	Bellows-flat suction cup, 50mm diameter, Nitrile (NBR), G3/8 male fitting	50.49	VBF50-N-38M
	Bellows-flat suction cup, 50mm diameter, Silicone, G3/8 male fitting	49.59	VBF50-S-38M
	Bellows-flat suction cup, 50mm diameter, Polyurethane, G3/8 male fitting	52.74	VBF50-PU-38M

VBF60





Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF60	22.00	8.94	16.26	18.54	6.84	12.84	16.92

※ The lifting force above does not include safety factor

Material Specifications

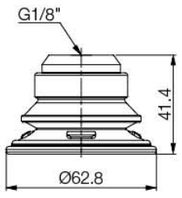
Material	Hardness Shore (˚)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

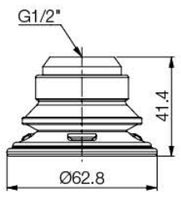
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

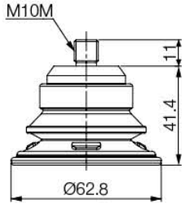
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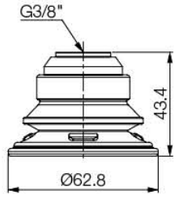
[With 18F fitting]



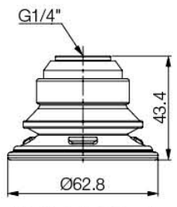
[With 12F fitting]



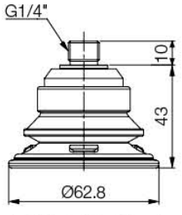
[With M10M fitting]



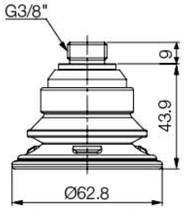
[With 38F fitting]



[With 14F fitting]



[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

VBF60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), M10xP1.5 male fitting	55.71	VBF60-N-M10M
	Bellows-flat suction cup, 60mm diameter, Silicone, M10xP1.5 male fitting	56.3	VBF60-S-M10M
	Bellows-flat suction cup, 60mm diameter, Polyurethane, M10xP1.5 male fitting	60.48	VBF60-PU-M10M
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G1/8 female fitting	57.67	VBF60-N-18F
	Bellows-flat suction cup, 60mm diameter, Silicone, G1/8 female fitting	54.74	VBF60-S-18F
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G1/8 female fitting	57.79	VBF60-PU-18F
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G1/4 female fitting	56.34	VBF60-N-14F
	Bellows-flat suction cup, 60mm diameter, Silicone, G1/4 female fitting	50.99	VBF60-S-14F
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G1/4 female fitting	55.57	VBF60-PU-14F
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G1/4 male fitting	61.61	VBF60-N-14M
	Bellows-flat suction cup, 60mm diameter, Silicone, G1/4 male fitting	58.68	VBF60-S-14M
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G1/4 male fitting	61.73	VBF60-PU-14M
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G3/8 female fitting	55.42	VBF60-N-38F
	Bellows-flat suction cup, 60mm diameter, Silicone, G3/8 female fitting	49.18	VBF60-S-38F
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G3/8 female fitting	52.7	VBF60-PU-38F
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G3/8 male fitting	57.93	VBF60-N-38M
	Bellows-flat suction cup, 60mm diameter, Silicone, G3/8 male fitting	57.56	VBF60-S-38M
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G3/8 male fitting	60.99	VBF60-PU-38M
	Bellows-flat suction cup, 60mm diameter, Nitrile (NBR), G1/2 female fitting	50.9	VBF60-N-12F
	Bellows-flat suction cup, 60mm diameter, Silicone, G1/2 female fitting	47.13	VBF60-S-12F
	Bellows-flat suction cup, 60mm diameter, Polyurethane, G1/2 female fitting	50.13	VBF60-PU-12F

VBF80





Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods, Carton boxes, Furniture, Wood panel

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF80	59.50	11.92	21.68	24.72	9.12	17.12	22.56

※ The lifting force above does not include safety factor

Material Specifications

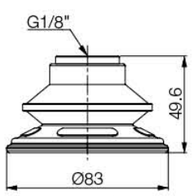
Material	Hardness Shore (˚)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

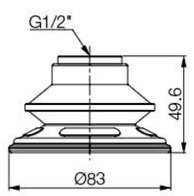
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

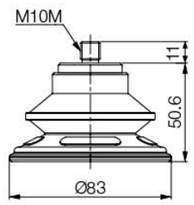
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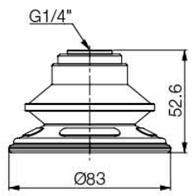
[With 18F fitting]



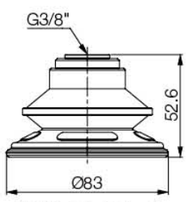
[With 12F fitting]



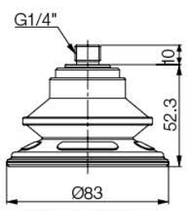
[With M10M fitting]



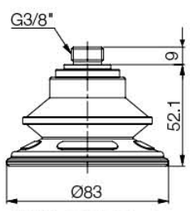
[With 14F fitting]



[With 38F fitting]



[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

VBF80 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), M10xP1.5 male fitting	76.84	VBF80-N-M10M
	Bellows-flat suction cup, 80mm diameter, Silicone, M10xP1.5 male fitting	77.65	VBF80-S-M10M
	Bellows-flat suction cup, 80mm diameter, Polyurethane, M10xP1.5 male fitting	83.42	VBF80-PU-M10M
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G1/8 female fitting	83.03	VBF80-N-18F
	Bellows-flat suction cup, 80mm diameter, Silicone, G1/8 female fitting	76.47	VBF80-S-18F
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G1/8 female fitting	80.74	VBF80-PU-18F
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G1/4 female fitting	77.94	VBF80-N-14F
	Bellows-flat suction cup, 80mm diameter, Silicone, G1/4 female fitting	74.39	VBF80-S-14F
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G1/4 female fitting	77.81	VBF80-PU-14F
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G1/4 male fitting	83.38	VBF80-N-14M
	Bellows-flat suction cup, 80mm diameter, Silicone, G1/4 male fitting	79.13	VBF80-S-14M
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G1/4 male fitting	83.25	VBF80-PU-14M
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G3/8 female fitting	74.65	VBF80-N-38F
	Bellows-flat suction cup, 80mm diameter, Silicone, G3/8 female fitting	80	VBF80-S-38F
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G3/8 female fitting	83.36	VBF80-PU-38F
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G3/8 male fitting	78.54	VBF80-N-38M
	Bellows-flat suction cup, 80mm diameter, Silicone, G3/8 male fitting	83.23	VBF80-S-38M
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G3/8 male fitting	72.5	VBF80-PU-38M
	Bellows-flat suction cup, 80mm diameter, Nitrile (NBR), G1/2 female fitting	68.03	VBF80-N-12F
	Bellows-flat suction cup, 80mm diameter, Silicone, G1/2 female fitting	72.37	VBF80-S-12F
	Bellows-flat suction cup, 80mm diameter, Polyurethane, G1/2 female fitting	71.87	VBF80-PU-12F

VBF100





Features and Strengths

Highly fast operation in automobile, glass and wooden panel industry
Excellent for oily surface products and convex products
Innovatively designed for slightly curved and flat material

Examples of use

Metal Sheets, Car panels, Press metal sheets,
Glass, Carton boxes, Electronic goods

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VBF100	103.50	14.90	27.10	30.90	11.40	21.40	28.20

※ The lifting force above does not include safety factor

Material Specifications

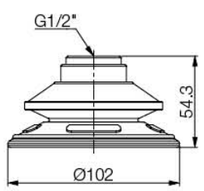
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Blue	-20~110
Silicone	55	Red	-70~200
Polyurethane	60	Translucent Orange	0~60

Material Resistance

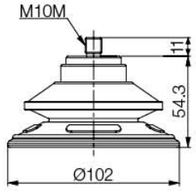
Description	NBR	Silicone	Polyurethane
Wear Resistance	Excellent	Good	Excellent
Oil	Excellent	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent
Alcohol	Good	Good	Fair
Acid	Fair	Poor	Fair

Dimension

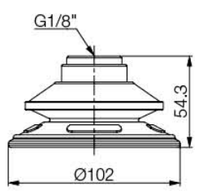
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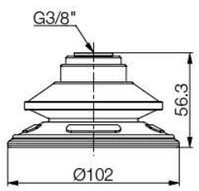
[With 12F fitting]



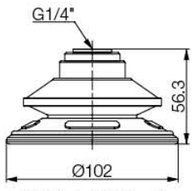
[With M10M fitting]



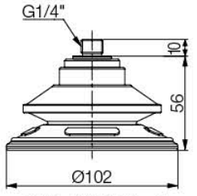
[With 18F fitting]



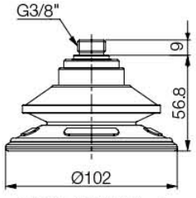
[With 38F fitting]



[With 14F fitting]



[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

VBF100 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), M10xP1.5 male fitting	128.24	VBF100-N-M10M
	Bellows-flat suction cup, 100mm diameter, Silicone, M10xP1.5 male fitting	117.47	VBF100-S-M10M
	Bellows-flat suction cup, 100mm diameter, Polyurethane, M10xP1.5 male fitting	126.2	VBF100-PU-M10M
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G1/8 female fitting	120.8	VBF100-N-18F
	Bellows-flat suction cup, 100mm diameter, Silicone, G1/8 female fitting	111.25	VBF100-S-18F
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G1/8 female fitting	117.47	VBF100-PU-18F
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G1/4 female fitting	115.65	VBF100-N-14F
	Bellows-flat suction cup, 100mm diameter, Silicone, G1/4 female fitting	108.2	VBF100-S-14F
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G1/4 female fitting	113.2	VBF100-PU-14F
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G1/4 male fitting	125.77	VBF100-N-14M
	Bellows-flat suction cup, 100mm diameter, Silicone, G1/4 male fitting	117.02	VBF100-S-14M
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G1/4 male fitting	123.12	VBF100-PU-14M
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G3/8 female fitting	119.13	VBF100-N-38F
	Bellows-flat suction cup, 100mm diameter, Silicone, G3/8 female fitting	108.82	VBF100-S-38F
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G3/8 female fitting	116.62	VBF100-PU-38F
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G3/8 male fitting	124.08	VBF100-N-38M
	Bellows-flat suction cup, 100mm diameter, Silicone, G3/8 male fitting	116.91	VBF100-S-38M
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G3/8 male fitting	123.9	VBF100-PU-38M
	Bellows-flat suction cup, 100mm diameter, Nitrile (NBR), G1/2 female fitting	111.85	VBF100-N-12F
	Bellows-flat suction cup, 100mm diameter, Silicone, G1/2 female fitting	98.5	VBF100-S-12F
	Bellows-flat suction cup, 100mm diameter, Polyurethane, G1/2 female fitting	112.24	VBF100-PU-12F

VOBF Series

Features and Strengths

Over bellows shaped for handling long, narrow, curved and oily workpieces
The feet inside the cup provide an anti-slide

Advantages

Excellent performance in high speed application – Fast cycle time
Stable gripping without sliding
Longer life time with PU material (3times longer than NBR of competitor)



Application





Examples of use

Automotive panels and doors, Metal Sheets, Press line
Carton box, Wood panel, Furniture

Available size option

Model	Description
VOBF30x60	Oval flat bellow suction cup, Ø30x60
VOBF40x80	Oval flat bellow suction cup, Ø40x80
VOBF55x110	Oval flat bellow suction cup, Ø55x110

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
			- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VOBF30x60	11.00	30.00	2.7	7.6	11.2	2.8	7.8	14.5	
VOBF40x80	22.50	40.00	4.8	12.8	18.2	5.3	15.6	22.9	
VOBF55x110	66.50	50.00	8.8	22.3	33.0	13.3	29.1	44.0	

※ The lifting force above does not include safety factor

VOBF30x60





Features and Strengths

Over bellows shaped for handling long, narrow, curved and oily workpieces
The feet inside the cup provide an anti-slide

Examples of use

Automotive panels and doors, Metal sheets, Press line
Carton box, Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOBF30x60	11.00	30.00	2.7	7.6	11.2	2.8	7.8	14.5

※ The lifting force above does not include safety factor

Material Specifications

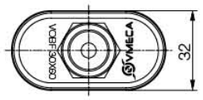
Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

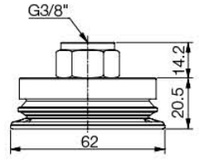
Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

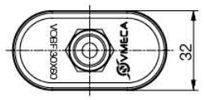
Dimension

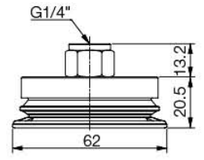
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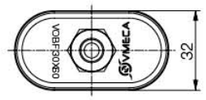


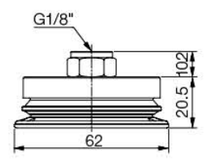
[With 38F fitting]



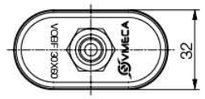


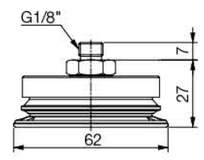
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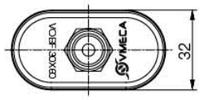


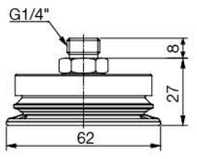
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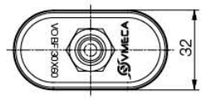


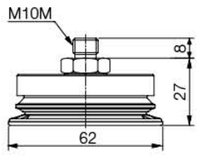
[With 18M fitting]





[With 14M fitting]





[With M10M fitting]

Build an Ordering No.

VOBF30x60 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, M10xP1.5 male Fitting	30.57	VOBF30x60-PU-M10M
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, G1/8 female Fitting	32.9	VOBF30x60-PU-18F
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, G1/8 male Fitting	30.96	VOBF30x60-PU-18M
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, G1/4 female Fitting	28.51	VOBF30x60-PU-14F
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, G1/4 male Fitting	32.15	VOBF30x60-PU-14M
	Oval flat bellow suction cup, 30x60mm diameter, Polyurethane, G3/8 female Fitting	31.83	VOBF30x60-PU-38F

VOBF40x80



Features and Strengths

Over bellows shaped for handling long, narrow, curved and oily workpieces
The feet inside the cup provide an anti-slide

Examples of use

Automotive panels and doors, Metal sheets, Press line
Carton box, Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOBF40x80	22.50	40.00	4.8	12.8	18.2	5.3	15.6	22.9

※ The lifting force above does not include safety factor

Material Specifications

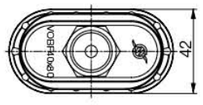
Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

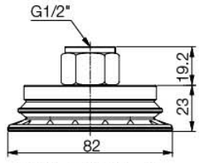
Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

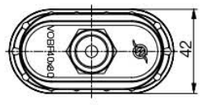
Dimension

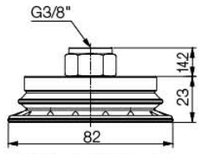
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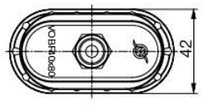


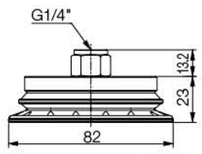
[With 12F fitting]



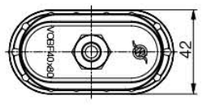


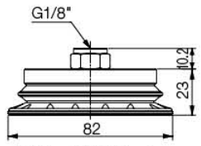
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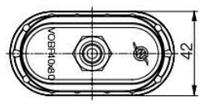


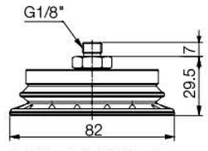
[With 14F fitting]



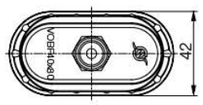


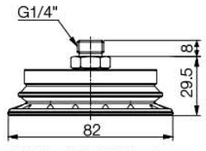
[With 18F fitting]



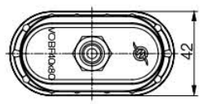


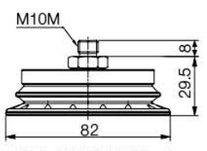
[With 18M fitting]





[With 14M fitting]





[With M10M fitting]

Build an Ordering No.

VOBF40x80 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, M10xP1.5 male Fitting	39.44	VOBF40x80-PU-M10M
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, G1/8 female Fitting	41.77	VOBF40x80-PU-18F
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, G1/8 male Fitting	39.83	VOBF40x80-PU-18M
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, G1/4 female Fitting	37.38	VOBF40x80-PU-14F
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, G1/4 male Fitting	41.02	VOBF40x80-PU-14M
	Oval flat bellow suction cup, 40x80mm diameter, Polyurethane, G3/8 female Fitting	40.7	VOBF40x80-PU-38F

VOBF55x110





Features and Strengths

Over bellows shaped for handling long, narrow, curved and oily workpieces
The feet inside the cup provide an anti-slide

Examples of use

Automotive panels and doors, Metal sheets, Press line

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
			- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOBF55x110	66.50	50.00	8.8	22.3	33.0	13.3	29.1	44.0

※ The lifting force above does not include safety factor

Material Specifications

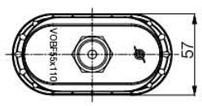
Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

Material Resistance

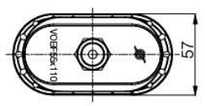
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

Dimension

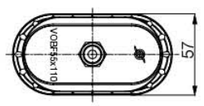
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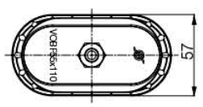
[With 12F fitting]



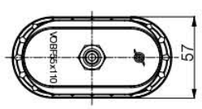
[With 38F fitting]



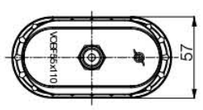
[With 14F fitting]



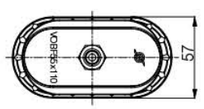
[With 18F fitting]



[With 18M fitting]



[With 14M fitting]



[With M10M fitting]

Build an Ordering No.

VOBF55x110 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, M10xP1.5 male Fitting	84.8	VOBF55x110-PU-M10M
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, G1/8 female Fitting	87.13	VOBF55x110-PU-18F
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, G1/8 male Fitting	85.19	VOBF55x110-PU-18M
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, G1/4 female Fitting	82.74	VOBF55x110-PU-14F
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, G1/4 male Fitting	86.38	VOBF55x110-PU-14M
	Oval flat bellow suction cup, 55x110mm diameter, Polyurethane, G3/8 female Fitting	86.06	VOBF55x110-PU-38F

VOC Series



Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Advantages
Good lifting forces can be achieved with small size
Excellent for parallel to the surface of the object by thick and durable lip structure

Application







Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers

Available size option

Model	Description	Model	Description
VOC11x23	Oval-Curved suction cup, Ø11x23	VOC60x140	Oval-Curved suction cup, Ø60x140
VOC35x90	Oval-Curved suction cup, Ø35x90	VOC60x180	Oval-Curved suction cup, Ø60x180
VOC35x110	Oval-Curved suction cup, Ø35x110		

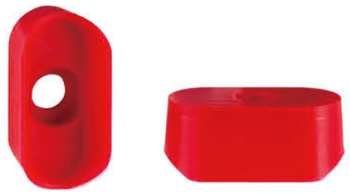
Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VOC11x23	2.00	0.61	1.30	1.60	0.60	1.20	1.50	
VOC35x90	20.00	5.00	13.40	17.40	4.00	10.72	13.92	
VOC35x110	25.00	6.25	16.70	21.70	5.00	13.36	17.36	
VOC60x140	52.00	13.40	38.00	53.00	10.72	30.40	42.40	
VOC60x180	67.00	19.10	54.20	75.70	15.28	43.36	60.56	

※ The lifting force above does not include safety factor

VOC11x23





Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers
Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOC11x23	2.00	0.61	1.30	1.60	0.60	1.20	1.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Build an Ordering No.

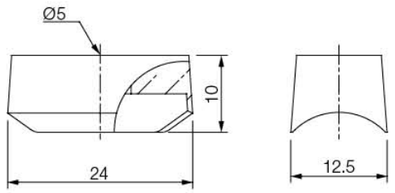
VOC11x23 - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 11x23mm diameter, Nitrile (NBR)	1.53	VOC11x23-N
	Oval-Curved suction cup, 11x23mm diameter, Silicone	1.48	VOC11x23-S
	Oval-Curved suction cup, 11x23mm diameter, White silicone	1.46	VOC11x23-WS
	Oval-Curved suction cup, 11x23mm diameter, White silicone (FDA)	1.46	VOC11x23-WS (FDA)
	Oval-Curved suction cup, 11x23mm diameter, High temperature silicone	1.58	VOC11x23-HS
	Oval-Curved suction cup, 11x23mm diameter, Conductive silicone	1.51	VOC11x23-CS
	Oval-Curved suction cup, 11x23mm diameter, Urethane	1.58	VOC11x23-U
	Oval-Curved suction cup, 11x23mm diameter, Mark free	1.65	VOC11x23-A

Dimension

[Unit : mm]



[Rubber Part]

VOC35x90



Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers
Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOC35x90	20.00	5.00	13.40	17.40	4.00	10.72	13.92

※ The lifting force above does not include safety factor

Material Specifications

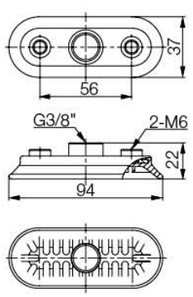
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 38F fitting]

Build an Ordering No.

VOC35x90 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 35x90mm diameter, Nitrile (NBR), G3/8 female	47.18	VOC35x90-N-38F
	Oval-Curved suction cup, 35x90mm diameter, Silicone, G3/8 female	45.40	VOC35x90-S-38F
	Oval-Curved suction cup, 35x90mm diameter, White silicone, G3/8 female	44.93	VOC35x90-WS-38F
	Oval-Curved suction cup, 35x90mm diameter, White silicone (FDA), G3/8 female	44.93	VOC35x90-WS-38F (FDA)
	Oval-Curved suction cup, 35x90mm diameter, High temperature silicone, G3/8 female	45.75	VOC35x90-HS-38F
	Oval-Curved suction cup, 35x90mm diameter, Conductive silicone, G3/8 female	46.72	VOC35x90-CS-38F
	Oval-Curved suction cup, 35x90mm diameter, Urethane, G3/8 female	47.89	VOC35x90-U-38F
	Oval-Curved suction cup, 35x90mm diameter, Mark free, G3/8 female	48.97	VOC35x90-A-38F

VOC35x110



Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers
Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOC35x110	25.00	6.25	16.70	21.70	5.00	13.36	17.36

※ The lifting force above does not include safety factor

Material Specifications

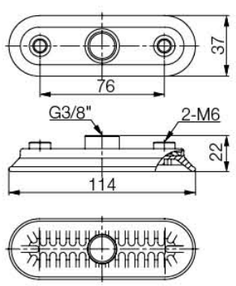
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 38F fitting]

Build an Ordering No.

VOC35x110 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 35x110mm diameter, Nitrile (NBR), G3/8 female	56.26	VOC35x110-N-38F
	Oval-Curved suction cup, 35x110mm diameter, Silicone, G3/8 female	55.16	VOC35x110-S-38F
	Oval-Curved suction cup, 35x110mm diameter, White silicone, G3/8 female	54.74	VOC35x110-WS-38F
	Oval-Curved suction cup, 35x110mm diameter, White silicone (FDA), G3/8 female	54.74	VOC35x110-WS-38F (FDA)
	Oval-Curved suction cup, 35x110mm diameter, High temperature silicone, G3/8 female	55.36	VOC35x110-HS-38F
	Oval-Curved suction cup, 35x110mm diameter, Conductive silicone, G3/8 female	56.81	VOC35x110-CS-38F
	Oval-Curved suction cup, 35x110mm diameter, Urethane, G3/8 female	56.07	VOC35x110-U-38F
	Oval-Curved suction cup, 35x110mm diameter, Mark free, G3/8 female	58.78	VOC35x110-A-38F

VOC60x140



Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers
Wood panel, Furniture

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOC60x140	52.00	13.40	38.00	53.00	10.72	30.40	42.40

※ The lifting force above does not include safety factor

Material Specifications

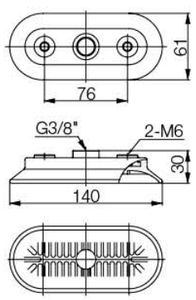
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 38F fitting]

Build an Ordering No.

VOC60x140 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 60x140mm diameter, Nitrile (NBR), G3/8 female	148.54	VOC60x140-N-38F
	Oval-Curved suction cup, 60x140mm diameter, Silicone, G3/8 female	145.14	VOC60x140-S-38F
	Oval-Curved suction cup, 60x140mm diameter, White silicone, G3/8 female	145.34	VOC60x140-WS-38F
	Oval-Curved suction cup, 60x140mm diameter, White silicone (FDA), G3/8 female	145.34	VOC60x140-WS-38F (FDA)
	Oval-Curved suction cup, 60x140mm diameter, High temperature silicone, G3/8 female	149.02	VOC60x140-HS-38F
	Oval-Curved suction cup, 60x140mm diameter, Conductive silicone, G3/8 female	150.97	VOC60x140-CS-38F
	Oval-Curved suction cup, 60x140mm diameter, Urethane, G3/8 female	149.54	VOC60x140-U-38F
	Oval-Curved suction cup, 60x140mm diameter, Mark free, G3/8 female	155.48	VOC60x140-A-38F

VOC60x180



Features and Strengths
Good for long objects with flat and curved surfaces
Strong lifting force and long life-span

Examples of use
Long flat objects, Curved surface, Metal panels, Automobile bumpers

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VOC60x180	67.00	19.10	54.20	75.70	15.28	43.36	60.56

※ The lifting force above does not include safety factor

Material Specifications

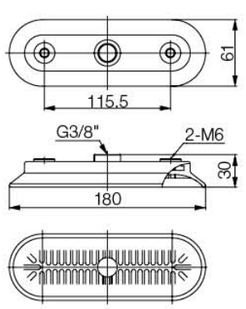
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 38F fitting]

Build an Ordering No.

VOC60x180 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 60x180mm diameter, Nitrile (NBR), G3/8 female	213.43	VOC60x180-N-38F
	Oval-Curved suction cup, 60x180mm diameter, Silicone, G3/8 female	204.01	VOC60x180-S-38F
	Oval-Curved suction cup, 60x180mm diameter, White silicone, G3/8 female	204.56	VOC60x180-WS-38F
	Oval-Curved suction cup, 60x180mm diameter, White silicone (FDA), G3/8 female	204.56	VOC60x180-WS-38F (FDA)
	Oval-Curved suction cup, 60x180mm diameter, High temperature silicone, G3/8 female	204.96	VOC60x180-HS-38F
	Oval-Curved suction cup, 60x180mm diameter, Conductive silicone, G3/8 female	204.88	VOC60x180-CS-38F
	Oval-Curved suction cup, 60x180mm diameter, Urethane, G3/8 female	215.75	VOC60x180-U-38F
	Oval-Curved suction cup, 60x180mm diameter, Mark free, G3/8 female	143.11	VOC60x180-A-38F

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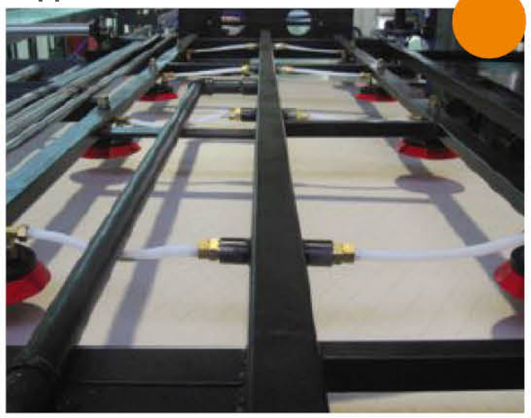
VF Series

Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

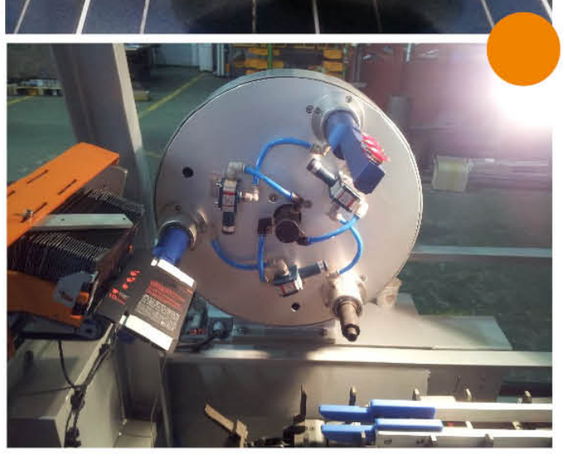
Advantages
Strong lifting force for both vertical and horizontal application
Stable gripping without sliding and shaking



Application







Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Available size option

Model	Description	Model	Description
VF15	Flat suction cup, Ø15	VF75	Flat suction cup, Ø75
VF20	Flat suction cup, Ø20	VF90	Flat suction cup, Ø90
VF25	Flat suction cup, Ø25	VF110	Flat suction cup, Ø110
VF30	Flat suction cup, Ø30	VF150	Flat suction cup, Ø150
VF40	Flat suction cup, Ø40	VF200	Flat suction cup, Ø200
VF50	Flat suction cup, Ø50	VF300	Flat suction cup, Ø300
VF50x2	Flat suction cup, Ø50		

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VF15	0.037	0.35	0.86	1.12	0.35	0.66	0.76	
VF20	1.00	0.61	1.47	1.93	0.51	0.81	0.86	
VF25	1.10	0.91	1.98	2.55	0.81	0.91	1.02	
VF30	2.00	1.22	2.55	3.16	1.12	1.63	2.04	
VF40	4.80	2.04	4.08	5.10	1.53	2.55	3.06	
VF50	10.00	3.67	7.55	9.79	2.44	4.08	5.10	
VF50x2	10.00	3.67	7.55	9.79	2.44	4.08	5.10	
VF75	20.00	8.16	20.40	27.55	6.12	11.22	14.28	
VF90	50.00	10.20	27.83	37.41	8.84	15.98	19.72	
VF110	70.00	14.28	42.58	57.14	14.28	25.51	30.61	
VF150	160.00	30.61	86.73	112.24	25.51	61.22	81.63	
VF200	460.00	76.53	193.87	275.51	38.30	96.90	137.50	
VF300	820.00	163	438	653	135	307	476	

※ The lifting force above does not include safety factor

VF15



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF15	0.037	0.35	0.86	1.12	0.35	0.66	0.76

※ The lifting force above does not include safety factor

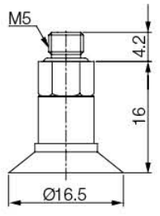
Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension
[Unit : mm]



[With M5M fitting]

Build an Ordering No.

VF15 - ○ - ○
1. Suction Cup
2. Fitting

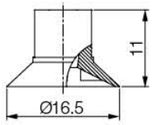
1. Suction cup	Description	Symbol
	Flat suction cup, 15mm diameter, Nitrile (NBR)	VF15-N
	Flat suction cup, 15mm diameter, Silicone	VF15-S
	Flat suction cup, 15mm diameter, White silicone	VF15-WS
	Flat suction cup, 15mm diameter, White silicone (FDA)	VF15-WS (FDA)
	Flat suction cup, 15mm diameter, High temperature silicone	VF15-HS
	Flat suction cup, 15mm diameter, Conductive silicone	VF15-CS
	Flat suction cup, 15mm diameter, Urethane	VF15-U
	Flat suction cup, 15mm diameter, Mark free	VF15-A

2. Fitting	Description	Symbol
	Fitting, M5 male	M5M
	Efficiency valve, Fitting, M5 male	M5M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF15-N	Flat suction cup, 15mm diameter, Nitrile (NBR)	0.73	Black
VF15-S	Flat suction cup, 15mm diameter, Silicone	0.65	Red
VF15-WS	Flat suction cup, 15mm diameter, White silicone	0.64	Translucent White
VF15-WS (FDA)	Flat suction cup, 15mm diameter, White silicone (FDA)	0.64	Translucent White
VF15-HS	Flat suction cup, 15mm diameter, High temperature silicone	0.66	Blue
VF15-CS	Flat suction cup, 15mm diameter, Conductive silicone	0.64	Smoky Black
VF15-U	Flat suction cup, 15mm diameter, Urethane	0.70	Dark Green
VF15-A	Flat suction cup, 15mm diameter, Mark free	0.84	Black

Dimension
[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3102	M5M	M5 male	2.52
350 010 3102	M5M-EV	Efficiency valve, M5 male	2.63

VF20



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF20	1.00	0.61	1.47	1.93	0.51	0.81	0.86

※ The lifting force above does not include safety factor

Material Specifications

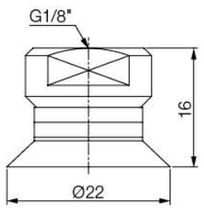
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

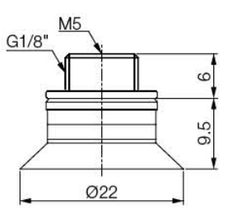
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

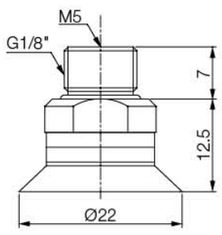
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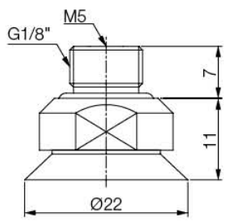
[With 18F fitting]



[With M518MF fitting]



[With M518MFO fitting]



[With M518MFX fitting]

Build an Ordering No.

VF20 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 20mm diameter, Nitrile (NBR)	VF20-N
	Flat suction cup, 20mm diameter, Silicone	VF20-S
	Flat suction cup, 20mm diameter, White silicone	VF20-WS
	Flat suction cup, 20mm diameter, White silicone (FDA)	VF20-WS (FDA)
	Flat suction cup, 20mm diameter, High temperature silicone	VF20-HS
	Flat suction cup, 20mm diameter, Conductive silicone	VF20-CS
	Flat suction cup, 20mm diameter, Urethane	VF20-U
	Flat suction cup, 20mm diameter, Mark free	VF20-A

2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 Male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Button valve	M518MF-BV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8 Male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Button valve	18F-BV

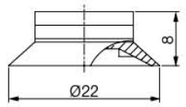
※ M518MFX* is available only for Silicone material

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF20-N	Flat suction cup, 20mm diameter, Nitrile (NBR)	1.31	Black
VF20-S	Flat suction cup, 20mm diameter, Silicone	1.23	Red
VF20-WS	Flat suction cup, 20mm diameter, White silicone	1.23	Translucent White
VF20-WS (FDA)	Flat suction cup, 20mm diameter, White silicone (FDA)	1.23	Translucent White
VF20-HS	Flat suction cup, 20mm diameter, High temperature silicone	1.23	Blue
VF20-CS	Flat suction cup, 20mm diameter, Conductive silicone	1.29	Smoky Black
VF20-U	Flat suction cup, 20mm diameter, Urethane	1.32	Dark Green
VF20-A	Flat suction cup, 20mm diameter, Mark free	1.48	Black

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No.	Part No.	Description	Weight (g)
350 000 3209	M518MF	G1/8 male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 Male - M5 female	1.94
350 020 4209	M518MF-BV	G1/8 male - M5 female, Button valve	2.24
350 000 1209	M518MFO	G1/8 male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male - M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 Male - M5 female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.71
350 000 3310	18F	G1/8 female	3.23
350 000 4310	18F-F	G1/8 female, Mesh filter	3.30
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.34
350 020 3310	18F-BV	G1/8 female, Button valve	3.59

VF25



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF25	1.10	0.91	1.98	2.55	0.81	0.91	1.02

※ The lifting force above does not include safety factor

Material Specifications

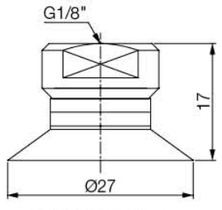
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

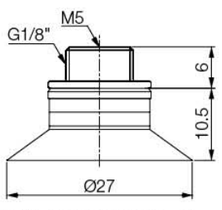
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

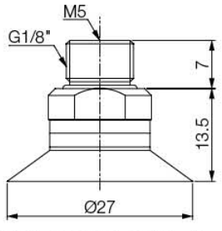
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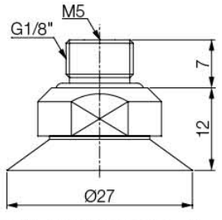
[With 18F fitting]



[With M518MF fitting]



[With M518MFO fitting]



[With M518MFX fitting]

Build an Ordering No.

VF25 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 25mm diameter, Nitrile (NBR)	VF25-N
	Flat suction cup, 25mm diameter, Silicone	VF25-S
	Flat suction cup, 25mm diameter, White silicone	VF25-WS
	Flat suction cup, 25mm diameter, White silicone (FDA)	VF25-WS (FDA)
	Flat suction cup, 25mm diameter, High temperature silicone	VF25-HS
	Flat suction cup, 25mm diameter, Conductive silicone	VF25-CS
	Flat suction cup, 25mm diameter, Urethane	VF25-U
	Flat suction cup, 25mm diameter, Mark free	VF25-A

2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 Male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Button valve	M518MF-BV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8 Male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Button valve	18F-BV

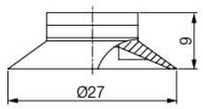
※ M518MFX* is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF25-N	Flat suction cup, 25mm diameter, Nitrile (NBR)	1.63	Black
VF25-S	Flat suction cup, 25mm diameter, Silicone	1.60	Red
VF25-WS	Flat suction cup, 25mm diameter, White silicone	1.60	Translucent White
VF25-WS (FDA)	Flat suction cup, 25mm diameter, White silicone (FDA)	1.60	Translucent White
VF25-HS	Flat suction cup, 25mm diameter, High temperature silicone	1.60	Blue
VF25-CS	Flat suction cup, 25mm diameter, Conductive silicone	1.67	Smoky Black
VF25-U	Flat suction cup, 25mm diameter, Urethane	1.62	Dark Green
VF25-A	Flat suction cup, 25mm diameter, Mark free	1.98	Black

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 Male - M5 female	1.94
350 020 4209	M518MF-BV	G1/8 male - M5 female, Button valve	2.24
350 000 1209	M518MFO	G1/8 male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male - M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 Male - M5 female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.71
350 000 3310	18F	G1/8 female	3.23
350 000 4310	18F-F	G1/8 female, Mesh filter	3.30
350 010 3310	18F-EV	Efficiency valve, G1/8 female	3.34
350 020 3310	18F-BV	G1/8 female, Button valve	3.59

VF30





Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF30	2.00	1.22	2.55	3.16	1.12	1.63	2.04

※ The lifting force above does not include safety factor

Material Specifications

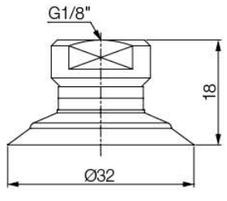
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

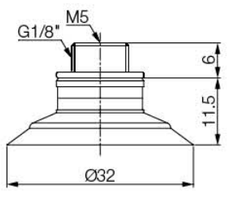
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

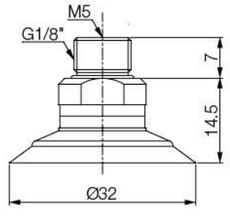
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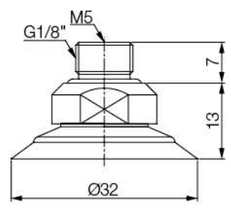
[With 18F fitting]



[With M518MF fitting]



[With M518MFO fitting]



[With M518MFX fitting]

Build an Ordering No.

VF30 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 30mm diameter, Nitrile (NBR)	VF30-N
	Flat suction cup, 30mm diameter, Silicone	VF30-S
	Flat suction cup, 30mm diameter, White silicone	VF30-WS
	Flat suction cup, 30mm diameter, White silicone (FDA)	VF30-WS (FDA)
	Flat suction cup, 30mm diameter, High temperature silicone	VF30-HS
	Flat suction cup, 30mm diameter, Conductive silicone	VF30-CS
	Flat suction cup, 30mm diameter, Urethane	VF30-U
	Flat suction cup, 30mm diameter, Mark free	VF30-A
	Flat suction cup, 30mm diameter, Polyurethane	VF30-PU

2. Fitting	Description	Symbol
	Fitting, G1/8 male - M5 female	M518MF
	Fitting, G1/8 male - M5 female, Mesh filter	M-M518MF
	Efficiency valve, Fitting, G1/8 Male - M5 female	M518MF-EV
	Fitting, G1/8 male - M5 female, Button valve	M518MF-BV
	Fitting, G1/8 male - M5 female, Old profile	M518MFO
	Fitting, G1/8 male - M5 female, Old profile, Mesh filter	M-M518MFO
	Efficiency valve, Fitting, G1/8 Male - M5 female, Old profile	M518MFO-EV
	Fitting, G1/8 male - M5 female, For silicone material	M518MFX*
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Button valve	18F-BV

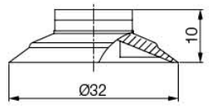
※ M518MFX* is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF30-N	Flat suction cup, 30mm diameter, Nitrile (NBR)	2.55	Black
VF30-S	Flat suction cup, 30mm diameter, Silicone	2.35	Red
VF30-WS	Flat suction cup, 30mm diameter, White silicone	2.35	Translucent White
VF30-WS (FDA)	Flat suction cup, 30mm diameter, White silicone (FDA)	2.35	Translucent White
VF30-HS	Flat suction cup, 30mm diameter, High temperature silicone	2.35	Blue
VF30-CS	Flat suction cup, 30mm diameter, Conductive silicone	2.48	Smoky Black
VF30-U	Flat suction cup, 30mm diameter, Urethane	2.57	Dark Green
VF30-A	Flat suction cup, 30mm diameter, Mark free	2.98	Black
VF30-PU	Flat suction cup, 30mm diameter, Polyurethane	2.33	Translucent Orange

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3209	M518MF	G1/8 male - M5 female	1.82
350 000 5209	M518MF-F	G1/8 male - M5 female, Mesh filter	1.92
350 010 4209	M518MF-EV	Efficiency valve, G1/8 Male - M5 female	1.94
350 020 4209	M518MF-BV	G1/8 male - M5 female, Button valve	2.25
350 000 1209	M518MFO	G1/8 male - M5 female, Old profile	2.88
350 000 1109	M518MFO-F	G1/8 male - M5 female, Old profile, Mesh filter	2.94
350 010 1209	M518MFO-EV	Efficiency valve, G1/8 Male - M5 female, Old profile	2.87
350 000 3229	M518MFX	G1/8 male - M5 female, For silicone material	3.53
350 000 3310	18F	G1/8 female	5.72
350 000 4310	18F-F	G1/8 female, Mesh filter	5.81
350 010 3310	18F-EV	Efficiency valve, G1/8 female	5.86
350 020 3310	18F-BV	G1/8 female, Button valve	6.01

VF40





Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF40	4.80	2.04	4.08	5.10	1.53	2.55	3.06

※ The lifting force above does not include safety factor

Material Specifications

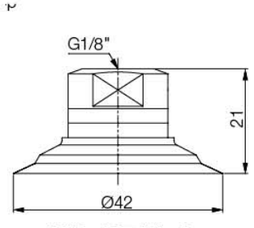
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

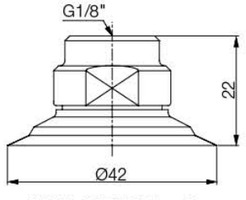
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

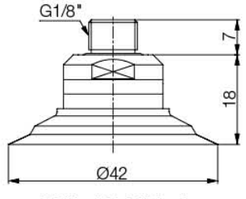
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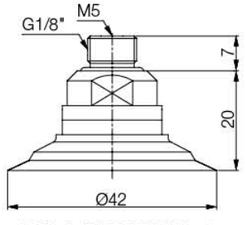
[With 18F fitting]



[With 18FX fitting]



[With 18M fitting]



[With M518MFX fitting]

Build an Ordering No.

VF40 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 40mm diameter, Nitrile (NBR)	VF40-N
	Flat suction cup, 40mm diameter, Silicone	VF40-S
	Flat suction cup, 40mm diameter, White silicone	VF40-WS
	Flat suction cup, 40mm diameter, White silicone (FDA)	VF40-WS (FDA)
	Flat suction cup, 40mm diameter, High temperature silicone	VF40-HS
	Flat suction cup, 40mm diameter, Conductive silicone	VF40-CS
	Flat suction cup, 40mm diameter, Urethane	VF40-U
	Flat suction cup, 40mm diameter, Mark free	VF40-A
	Flat suction cup, 40mm diameter, Polyurethane	VF40-PU

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Button valve	18F-BV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Fitting, G1/8 female, For silicone material	18FX*
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M
	Efficiency valve, Fitting, G1/8 male	18M-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV

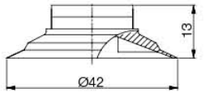
※ 18FX* is available only for Silicone material.

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF40-N	Flat suction cup, 40mm diameter, Nitrile (NBR)	5.40	Black
VF40-S	Flat suction cup, 40mm diameter, Silicone	5.16	Red
VF40-WS	Flat suction cup, 40mm diameter, White silicone	5.16	Translucent White
VF40-WS (FDA)	Flat suction cup, 40mm diameter, White silicone (FDA)	5.16	Translucent White
VF40-HS	Flat suction cup, 40mm diameter, High temperature silicone	5.16	Blue
VF40-CS	Flat suction cup, 40mm diameter, Conductive silicone	5.24	Smoky Black
VF40-U	Flat suction cup, 40mm diameter, Urethane	5.42	Dark Green
VF40-A	Flat suction cup, 40mm diameter, Mark free	6.56	Black
VF40-PU	Flat suction cup, 40mm diameter, Polyurethane	4.93	Translucent Orange

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3311	18F	G1/8 female	5.68
350 000 4311	18F-F	G1/8 female, Mesh filter	5.73
350 010 3311	18F-EV	Efficiency valve, G1/8 female	5.63
350 020 3311	18F-BV	G1/8 female, Button valve	5.86
350 000 2311	18FO	G1/8 female, Old profile	8.24
350 000 4811	18FO-F	G1/8 female, Old profile, Mesh filter	8.41
350 000 3321	18FX	G1/8 female, For silicone material	8.58
350 000 2304	18M	G1/8 male	4.93
350 000 4304	18M-F	G1/8 male, Mesh filter	5.04
350 010 2304	18M-EV	Efficiency valve, G1/8 male	5.08
350 000 3404	14M	G1/4 male	5.88
350 000 3804	14M-F	G1/4 male, Mesh filter	5.92
350 010 3404	14M-EV	Efficiency valve, G1/4 male	6.03

VF50



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF50	10.00	3.67	7.55	9.79	2.44	4.08	5.10

※ The lifting force above does not include safety factor

Material Specifications

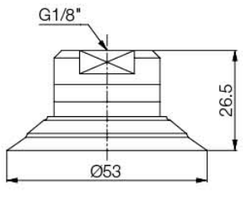
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

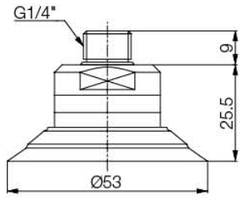
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

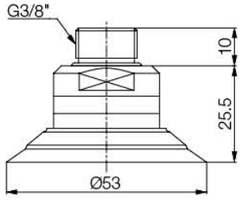
[Unit : mm]



[With 18F fitting]



[With 14M fitting]



[With 38M fitting]

Build an Ordering No.

VF50 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 50mm diameter, Nitrile (NBR)	VF50-N
	Flat suction cup, 50mm diameter, Silicone	VF50-S
	Flat suction cup, 50mm diameter, White silicone	VF50-WS
	Flat suction cup, 50mm diameter, White silicone (FDA)	VF50-WS (FDA)
	Flat suction cup, 50mm diameter, High temperature silicone	VF50-HS
	Flat suction cup, 50mm diameter, Conductive silicone	VF50-CS
	Flat suction cup, 50mm diameter, Urethane	VF50-U
	Flat suction cup, 50mm diameter, Mark free	VF50-A
	Flat suction cup, 50mm diameter, Polyurethane	VF50-PU

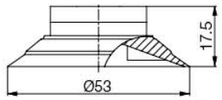
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Efficiency valve, Fitting, G1/8 female	18F-EV
	Fitting, G1/8 female, Button valve	18F-BV
	Fitting, G1/8 female, Old profile	18FO
	Fitting, G1/8 female, Old profile, Mesh filter	M-18FO
	Efficiency valve, Fitting, G1/8 female, Old profile	18FO-EV
	Fitting, G1/4 male	14M
	Fitting, G1/4 male, Mesh filter	M-14M
	Efficiency valve, Fitting, G1/4 male	14M-EV
	Fitting, G3/8 male	38M
	Fitting, G3/8 male, Mesh filter	M-38M
	Efficiency valve, Fitting, G3/8 male	38M-EV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF50-N	Flat suction cup, 50mm diameter, Nitrile (NBR)	12.25	Black
VF50-S	Flat suction cup, 50mm diameter, Silicone	11.88	Red
VF50-WS	Flat suction cup, 50mm diameter, White silicone	11.88	Translucent White
VF50-WS (FDA)	Flat suction cup, 50mm diameter, White silicone (FDA)	11.88	Translucent White
VF50-HS	Flat suction cup, 50mm diameter, High temperature silicone	11.88	Blue
VF50-CS	Flat suction cup, 50mm diameter, Conductive silicone	11.98	Smoky Black
VF50-U	Flat suction cup, 50mm diameter, Urethane	12.30	Dark Green
VF50-A	Flat suction cup, 50mm diameter, Mark free	14.20	Black
VF50-PU	Flat suction cup, 50mm diameter, Polyurethane	11.18	Translucent Orange

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No.	Part No.	Description	Weight (g)
350 000 3312	18F	G1/8 female	14.47
350 000 4312	18F-F	G1/8 female, Mesh filter	14.58
350 010 3312	18F-EV	Efficiency valve, G1/8 female	15.81
350 020 3312	18F-BV	G1/8 female, Button valve	14.86
350 000 1312	18FO	G1/8 female, Old profile	10.12
350 000 4912	18FO-F	G1/8 female, Old profile, Mesh filter	10.2
350 010 1312	18FO-EV	Efficiency valve, G1/8 female, Old profile	10.22
350 000 3405	14M	G1/4 male	14.18
350 000 3805	14M-F	G1/4 male, Mesh filter	14.42
350 010 3405	14M-EV	Efficiency valve, G1/4 male	14.38
350 000 3505	38M	G3/8 male	18.14
350 000 3905	38M-F	G3/8 male, Mesh filter	17.75
350 010 3505	38M-EV	Efficiency valve, G3/8 male	17.53

VF50x2





Features and Strengths

Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use

Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF50x2	10.00	3.67	7.55	9.79	2.44	4.08	5.10

※ The lifting force above does not include safety factor

Material Specifications

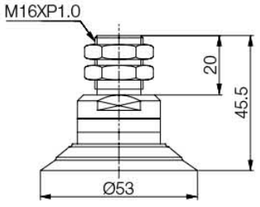
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With M16M fitting]

Build an Ordering No.

VF50x2 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 50mm diameter, Nitrile (NBR)	VF50x2-N
	Flat suction cup, 50mm diameter, Silicone	VF50x2-S
	Flat suction cup, 50mm diameter, White silicone	VF50x2-WS
	Flat suction cup, 50mm diameter, White silicone (FDA)	VF50x2-WS (FDA)
	Flat suction cup, 50mm diameter, High temperature silicone	VF50x2-HS
	Flat suction cup, 50mm diameter, Conductive silicone	VF50x2-CS
	Flat suction cup, 50mm diameter, Urethane	VF50x2-U
	Flat suction cup, 50mm diameter, Mark free	VF50x2-A

2. Fitting	Description	Symbol
	Fitting, M16 male	M16M

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF50x2-N	Flat suction cup, 50mm diameter, Nitrile (NBR)	12.25	Black
VF50x2-S	Flat suction cup, 50mm diameter, Silicone	11.88	Red
VF50x2-WS	Flat suction cup, 50mm diameter, White silicone	11.88	Translucent White
VF50x2-WS (FDA)	Flat suction cup, 50mm diameter, White silicone (FDA)	11.88	Translucent White
VF50x2-HS	Flat suction cup, 50mm diameter, High temperature silicone	11.88	Blue
VF50x2-CS	Flat suction cup, 50mm diameter, Conductive silicone	11.98	Smoky Black
VF50x2-U	Flat suction cup, 50mm diameter, Urethane	12.3	Dark Green
VF50x2-A	Flat suction cup, 50mm diameter, Mark free	14.2	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 1405	M16M	M16 male	52.23

VF75



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components



Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF75	20.00	8.16	20.40	27.55	6.12	11.22	14.28

※ The lifting force above does not include safety factor

Material Specifications

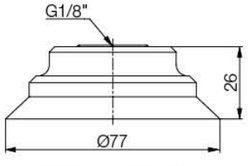
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100
Polyurethane	60	Translucent Orange	0~60

Material Resistance

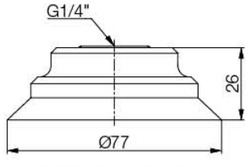
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free	Polyurethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent	Fair

Dimension

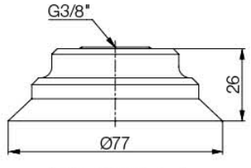
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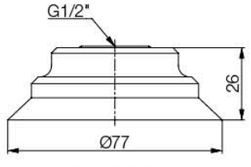
[With 18F fitting]



[With 14F fitting]



[With 38F fitting]



[With 12F fitting]

Build an Ordering No.

VF75 - ○ - ○

1. Suction Cup — 2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 75mm diameter, Nitrile (NBR)	VF75-N
	Flat suction cup, 75mm diameter, Silicone	VF75-S
	Flat suction cup, 75mm diameter, White silicone	VF75-WS
	Flat suction cup, 75mm diameter, White silicone (FDA)	VF75-WS (FDA)
	Flat suction cup, 75mm diameter, High temperature silicone	VF75-HS
	Flat suction cup, 75mm diameter, Conductive silicone	VF75-CS
	Flat suction cup, 75mm diameter, Urethane	VF75-U
	Flat suction cup, 75mm diameter, Mark free	VF75-A
	Flat suction cup, 75mm diameter, Polyurethane	VF75-PU

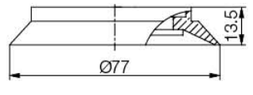
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 female, Button valve	18F-BV
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF75-N	Flat suction cup, 75mm diameter, Nitrile (NBR)	47.72	Black
VF75-S	Flat suction cup, 75mm diameter, Silicone	46.07	Red
VF75-WS	Flat suction cup, 75mm diameter, White silicone	46.07	Translucent White
VF75-WS (FDA)	Flat suction cup, 75mm diameter, White silicone (FDA)	46.07	Translucent White
VF75-HS	Flat suction cup, 75mm diameter, High temperature silicone	46.07	Blue
VF75-CS	Flat suction cup, 75mm diameter, Conductive silicone	46.17	Smoky Black
VF75-U	Flat suction cup, 75mm diameter, Urethane	47.75	Dark Green
VF75-A	Flat suction cup, 75mm diameter, Mark free	53.46	Black
VF75-PU	Flat suction cup, 75mm diameter, Polyurethane	45.72	Translucent Orange

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 020 3323	18F-BV	G1/8 female, Button valve	83.56
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.90

VF90

Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF90	50.00	10.20	27.83	37.41	8.84	15.98	19.72

※ The lifting force above does not include safety factor

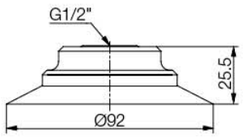
Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Polyurethane	60	Translucent Orange	0~60

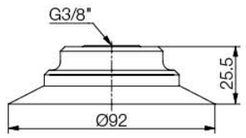
Material Resistance

Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair

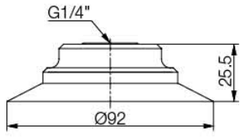
Dimension
[Unit : mm]



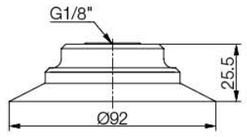
[With 12F fitting]



[With 38F fitting]



[With 14F fitting]



[With 18F fitting]

Build an Ordering No.

VF90 - ○ - ○
1. Suction Cup
2. Fitting

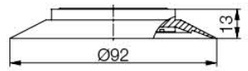
1. Suction cup	Description	Symbol
	Flat suction cup, 90mm diameter, Polyurethane	VF90-PU

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 female, Button valve	18F-BV
	Fitting, G1/4 female	14F
	Fitting, G1/4 female, Mesh filter	M-14F
	Fitting, G3/8 female	38F
	Fitting, G3/8 female, Mesh filter	M-38F
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF90-PU	Flat suction cup, 90mm diameter, Polyurethane	48.90	Translucent Orange

Dimension
[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3323	18F	G1/8 female	59.36
350 000 4323	18F-F	G1/8 female, Mesh filter	59.76
350 020 3323	18F-BV	G1/8 female, Button valve	83.56
350 000 3423	14F	G1/4 female	56.92
350 000 3823	14F-F	G1/4 female, Mesh filter	57.32
350 000 3523	38F	G3/8 female	55.08
350 000 3923	38F-F	G3/8 female, Mesh filter	55.48
350 000 3623	12F	G1/2 female	51.50
350 000 4023	12F-F	G1/2 female, Mesh filter	51.90

VF110



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF110	70.00	14.28	42.58	57.14	14.28	25.51	30.61

※ The lifting force above does not include safety factor

Material Specifications

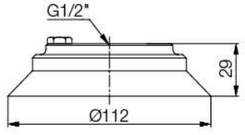
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VF110 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 110mm diameter, Nitrile (NBR)	VF110-N
	Flat suction cup, 110mm diameter, Silicone	VF110-S
	Flat suction cup, 110mm diameter, White silicone	VF110-WS
	Flat suction cup, 110mm diameter, White silicone (FDA)	VF110-WS (FDA)
	Flat suction cup, 110mm diameter, High temperature silicone	VF110-HS
	Flat suction cup, 110mm diameter, Conductive silicone	VF110-CS
	Flat suction cup, 110mm diameter, Urethane	VF110-U
	Flat suction cup, 110mm diameter, Mark free	VF110-A

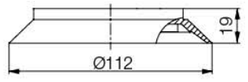
2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F
	Fitting, G1/2 female, Button valve	12F-BV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF110-N	Flat suction cup, 110mm diameter, Nitrile (NBR)	126.8	Black
VF110-S	Flat suction cup, 110mm diameter, Silicone	123.04	Red
VF110-WS	Flat suction cup, 110mm diameter, White silicone	121.27	Translucent White
VF110-WS (FDA)	Flat suction cup, 110mm diameter, White silicone (FDA)	121.27	Translucent White
VF110-HS	Flat suction cup, 110mm diameter, High temperature silicone	131.12	Blue
VF110-CS	Flat suction cup, 110mm diameter, Conductive silicone	125.57	Smoky Black
VF110-U	Flat suction cup, 110mm diameter, Urethane	127.6	Dark Green
VF110-A	Flat suction cup, 110mm diameter, Mark free	139.96	Black

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3614	12F	G1/2 female	103.70
350 000 4014	12F-F	G1/2 female, Mesh filter	104.50
350 020 3614	12F-BV	G1/2 female, Button valve	115.54

VF150





Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF150	160.00	30.61	86.73	112.24	25.51	61.22	81.63

※ The lifting force above does not include safety factor

Material Specifications

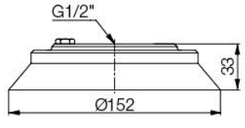
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VF150 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 150mm diameter, Nitrile (NBR)	VF150-N
	Flat suction cup, 150mm diameter, Silicone	VF150-S
	Flat suction cup, 150mm diameter, White silicone	VF150-WS
	Flat suction cup, 150mm diameter, White silicone (FDA)	VF150-WS (FDA)
	Flat suction cup, 150mm diameter, High temperature silicone	VF150-HS
	Flat suction cup, 150mm diameter, Conductive silicone	VF150-CS
	Flat suction cup, 150mm diameter, Urethane	VF150-U
	Flat suction cup, 150mm diameter, Mark free	VF150-A

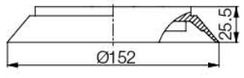
2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F
	Fitting, G1/2 female, Button valve	12F-BV

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF150-N	Flat suction cup, 150mm diameter, Nitrile (NBR)	351	Black
VF150-S	Flat suction cup, 150mm diameter, Silicone	333.9	Red
VF150-WS	Flat suction cup, 150mm diameter, White silicone	340.96	Translucent White
VF150-WS (FDA)	Flat suction cup, 150mm diameter, White silicone (FDA)	340.96	Translucent White
VF150-HS	Flat suction cup, 150mm diameter, High temperature silicone	362.96	Blue
VF150-CS	Flat suction cup, 150mm diameter, Conductive silicone	347.59	Smoky Black
VF150-U	Flat suction cup, 150mm diameter, Urethane	363.63	Dark Green
VF150-A	Flat suction cup, 150mm diameter, Mark free	375.48	Black

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3615	12F	G1/2 female	198.93
350 000 4015	12F-F	G1/2 female, Mesh filter	199.73
350 020 3615	12F-BV	G1/2 female, Button valve	314.47

VF200



Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF200	460.00	76.53	193.87	275.51	38.30	96.90	137.50

※ The lifting force above does not include safety factor

Material Specifications

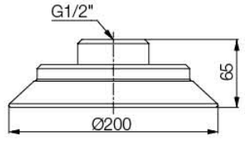
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VF200 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Flat suction cup, 200mm diameter, Nitrile (NBR)	VF200-N
	Flat suction cup, 200mm diameter, Silicone	VF200-S
	Flat suction cup, 200mm diameter, White silicone	VF200-WS
	Flat suction cup, 200mm diameter, White silicone (FDA)	VF200-WS (FDA)
	Flat suction cup, 200mm diameter, High temperature silicone	VF200-HS
	Flat suction cup, 200mm diameter, Conductive silicone	VF200-CS
	Flat suction cup, 200mm diameter, Urethane	VF200-U
	Flat suction cup, 200mm diameter, Mark free	VF200-A

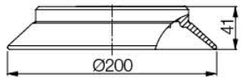
2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G1/2 female, Mesh filter	M-12F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VF200-N	Flat suction cup, 200mm diameter, Nitrile (NBR)	748	Black
VF200-S	Flat suction cup, 200mm diameter, Silicone	725	Red
VF200-WS	Flat suction cup, 200mm diameter, White silicone	731.6	Translucent White
VF200-WS (FDA)	Flat suction cup, 200mm diameter, White silicone (FDA)	731.6	Translucent White
VF200-HS	Flat suction cup, 200mm diameter, High temperature silicone	763.5	Blue
VF200-CS	Flat suction cup, 200mm diameter, Conductive silicone	740.74	Smoky Black
VF200-U	Flat suction cup, 200mm diameter, Urethane	769.92	Dark Green
VF200-A	Flat suction cup, 200mm diameter, Mark free	778.13	Black

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3616	12F	G1/2 female	555
350 000 4016	12F-F	G1/2 female, Mesh filter	555.3

VF300





Features and Strengths
Specifically designed for flat and curved surface
Available to handle multiple objects with the same suction cup

Examples of use
Metal sheet, Veneer sheets, Glass, Electronic components

Recommended Lifting Force (Max.)

Model	Volume (cm³)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
VF300	820.00	163	438	653	135	307	476

※ The lifting force above does not include safety factor

Material Specifications

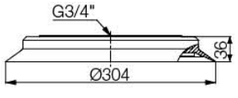
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 34F fitting]

Build an Ordering No.

VF300 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat suction cup, 300mm diameter, Nitrile (NBR), G3/4 female fitting	2677	VF300-N-34F
	Flat suction cup, 300mm diameter, Silicone, G3/4 female fitting	2646.37	VF300-S-34F
	Flat suction cup, 300mm diameter, White silicone, G3/4 female fitting	2670.15	VF300-WS-34F
	Flat suction cup, 300mm diameter, White silicone (FDA), G3/4 female fitting	2670.15	VF300-WS-34F (FDA)
	Flat suction cup, 300mm diameter, High temperature silicone, G3/4 female fitting	2768.28	VF300-HS-34F
	Flat suction cup, 300mm diameter, Conductive silicone , G3/4 female fitting	2651.03	VF300-CS-34F
	Flat suction cup, 300mm diameter, Urethane, G3/4 female fitting	2773.37	VF300-U-34F
	Flat suction cup, 300mm diameter, Mark free, G3/4 female fitting	2842.23	VF300-A-34F

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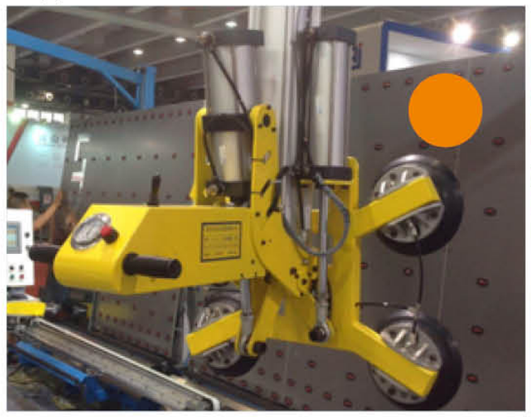
LF Series



Features and Strengths
Excellent lifting force in both horizontal and vertical application

Advantages
Dual lip structure to increase safety caused by lip worn and torn
Stable gripping without sliding and shaking

Application





Examples of use
Flat Metal Sheets & Glass, Veneer Sheets, Electronic Components
Marbles

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
LF150	145.00	34.00 / 53.00	51.00 / 79.00	80.00 / 115.00	39.00	43.00	68.00	
LF200	275.00	78.00 / 150.00	115.00 / 154.00	176.00 / 224.00	65.00	98.00	149.00	
LF250	435.00	134.00 / 167.00	199.00 / 251.00	293.00 / 361.00	114.00	168.00	260.00	
LF300	666.00	219.00 / 267.00	327.00 / 384.00	472.00 / 556.00	187.00	278.00	402.00	

※ The lifting force above does not include safety factor

Available size option

Model	Description
LF150	Flat and Dual lip structure suction cup, Ø150
LF200	Flat and Dual lip structure suction cup, Ø200
LF250	Flat and Dual lip structure suction cup, Ø250
LF300	Flat and Dual lip structure suction cup, Ø300

LF150

Features and Strengths
Excellent lifting force in both horizontal and vertical application

Examples of use
Flat Metal Sheets & Glass, Veneer Sheets, Electronic Components
Marbles



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
LF150	145.00	34.00 / 53.00	51.00 / 79.00	80.00 / 115.00	39.00	43.00	68.00

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

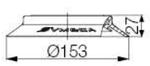
Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]





[With 12F fitting]

Build an Ordering No.

LF150 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, Nitrile (NBR)	347	LF150-N-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, Silicone	330.1	LF150-S-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, White silicone	337.07	LF150-WS-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, White silicone (FDA)	337.07	LF150-WS-12F (FDA)
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, High temperature silicone	343.63	LF150-HS-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, Conductive silicone	358.83	LF150-CS-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, Urethane	359.49	LF150-U-12F
	Flat and Dual lip structure suction cup, 150mm diameter, G1/2 female, Mark free	374.89	LF150-A-12F

LF200

Features and Strengths
Excellent lifting force in both horizontal and vertical application

Examples of use
Flat Metal Sheets & Glass, Veneer Sheets, Electronic Components
Marbles



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
LF200	275.00	78.00 / 150.00	115.00 / 154.00	176.00 / 224.00	65.00	98.00	149.00

※ The lifting force above does not include safety factor

Material Specifications

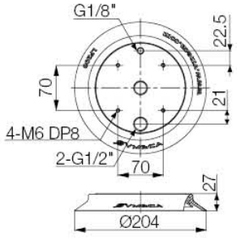
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

LF200 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, Nitrile (NBR)	767	LF200-N-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, Silicone	729.64	LF200-S-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, White silicone	745.06	LF200-WS-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, White silicone (FDA)	745.06	LF200-WS-12F (FDA)
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, High temperature silicone	793.15	LF200-HS-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, Conductive silicone	759.56	LF200-CS-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, Urethane	794.61	LF200-U-12F
	Flat and Dual lip structure suction cup, 200mm diameter, G1/2 female, Mark free	828.66	LF200-A-12F

LF250

Features and Strengths
Excellent lifting force in both horizontal and vertical application

Examples of use
Flat Metal Sheets & Glass, Veneer Sheets, Electronic Components
Marbles



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
LF250	435.00	134.00 / 167.00	199.00 / 251.00	293.00 / 361.00	114.00	168.00	260.00

※ The lifting force above does not include safety factor

Material Specifications

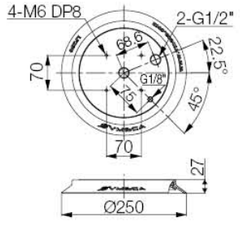
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

LF250 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, Nitrile (NBR)	1379	LF250-N-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, Silicone	1311.84	LF250-S-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, White silicone	1399.56	LF250-WS-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, White silicone (FDA)	1399.56	LF250-WS-12F (FDA)
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, High temperature silicone	1426.02	LF250-HS-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, Conductive silicone	1365.62	LF250-CS-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, Urethane	1428.64	LF250-U-12F
	Flat and Dual lip structure suction cup, 250mm diameter, G1/2 female, Mark free	1489.87	LF250-A-12F

LF300

Features and Strengths
Excellent lifting force in both horizontal and vertical application

Examples of use
Flat Metal Sheets & Glass, Veneer Sheets, Electronic Components



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel		
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa
LF300	666.00	219.00 / 267.00	327.00 / 384.00	472.00 / 556.00	187.00	278.00	402.00

※ The lifting force above does not include safety factor

Material Specifications

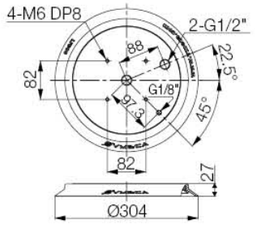
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

LF300 - ○ - ○ : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, Nitrile (NBR)	1991	LF300-N-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, Silicone	1894.03	LF300-S-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, White silicone	1934.05	LF300-WS-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, White silicone (FDA)	1934.05	LF300-WS-12F (FDA)
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, High temperature silicone	2058.89	LF300-HS-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, Conductive silicone	1971.68	LF300-CS-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, Urethane	2062.67	LF300-U-12F
	Flat and Dual lip structure suction cup, 300mm diameter, G1/2 female, Mark free	2151.07	LF300-A-12F

VS Series

Features and Strengths
Excellent performance for rough and uneven surfaces

Advantages
Used for handling rough surfaces and when used with ball joint option and level compensator surfaces



Application







Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry

Recommended Lifting Force (Max.)

Model	Volume(cm³)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
VS30x80	43.00	2.70	9.10	14.00	
VS35	6.00	2.04	5.10	7.14	
VS60	20.00	6.12	15.30	22.44	
VS100	55.00	18.36	45.90	67.34	
VS150	125.00	38.00	97.00	138.00	
VS200	543.00	76.53	193.87	275.51	
VS300	1285.00	163.26	438.77	653.06	
VS400	2288.00	326.00	876.00	1300.00	

※ The lifting force above does not include safety factor

Available size option

Model	Description	Model	Description
VS30x80	Sponge suction cup, 30xØ80	VS150	Sponge suction cup, Ø150
VS35	Sponge suction cup, Ø35	VS200	Sponge suction cup, Ø200
VS60	Sponge suction cup, Ø60	VS300	Sponge suction cup, Ø300
VS100	Sponge suction cup, Ø100	VS400	Sponge suction cup, Ø400

VS30x80



Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry

Recommended Lifting Force (Max.)

Model	Volume(cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS30x80	43.00	2.70	9.10	14.00

※ The lifting force above does not include safety factor

Material Specifications

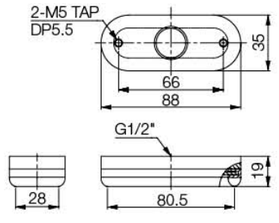
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VS30x80 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 30x80mm diameter, EPDM	VS30x80-E

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS30x80-E	EPDM Perimeter Seal	9.2	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3611	12F	G1/2 female	63.1

VS35

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS35	6.00	2.04	5.10	7.14

※ The lifting force above does not include safety factor

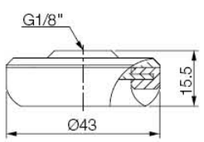
Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension
[Unit : mm]



[With 18F fitting]

Build an Ordering No.

VS35 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 35mm diameter, EPDM	VS35-E

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Button valve, Fitting, G1/8 female	18F-BV

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS35-E	EPDM Perimeter Seal	5.39	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3311	18F	G1/8 female	17.81
350 021 3311	18F-BV	Button valve, G1/8 female	41.17

VS60

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS60	20.00	6.12	15.30	22.44

※ The lifting force above does not include safety factor

Material Specifications

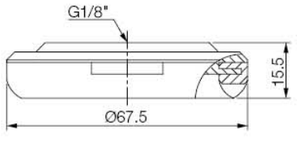
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

VS60 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 60mm diameter, EPDM	VS60-E

2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Button valve, Fitting, G1/8 female	18F-BV

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS60-E	EPDM Perimeter Seal	9.4	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3312	18F	G1/8 female	47.57
350 021 3312	18F-BV	Button valve, G1/8 female	70.92

VS100

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm³)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS100	55.00	18.36	45.90	67.34

※ The lifting force above does not include safety factor

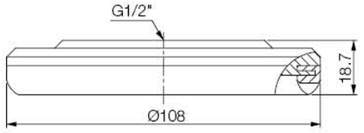
Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension
[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VS100 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 100mm diameter, EPDM	VS100-E

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Button valve, Fitting, G1/2 female	12F-BV

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS100-E	EPDM Perimeter Seal	16.43	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3623	12F	G1/2 female	222.99
350 021 3623	12F-BV	Button valve, G1/2 female	338.53

VS150

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS150	125.00	38.00	97.00	138.00

※ The lifting force above does not include safety factor

Material Specifications

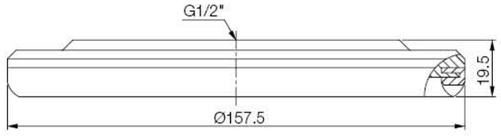
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 12F fitting]

Build an Ordering No.

VS150 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 150mm diameter, EPDM,	VS150-E

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Button valve, Fitting, G1/2 female	12F-BV

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS150-E	EPDM Perimeter Seal	25	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3615	12F	G1/2 female	525
350 021 3615	12F-BV	Button valve, G1/2 female	640.54

VS200

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS200	543.00	76.53	193.87	275.51

※ The lifting force above does not include safety factor

Material Specifications

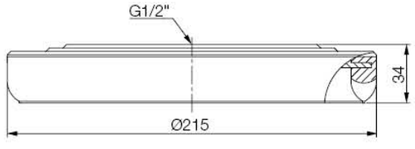
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

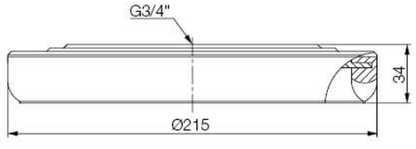
Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 12F fitting]



[With 34F fitting]

Build an Ordering No.

VS200 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 200mm diameter, EPDM	VS200-E

2. Fitting	Description	Symbol
	Fitting, G1/2 female	12F
	Fitting, G3/4 female	34F

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS200-E	EPDM Perimeter Seal	176.66	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3616	12F	G1/2 female	1015
350 001 3716	34F	G3/4 female	1015

VS300

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS300	1285.00	163.26	438.77	653.06

※ The lifting force above does not include safety factor

Material Specifications

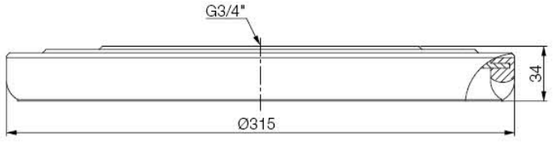
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 34F fitting]

Build an Ordering No.

VS300 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 300mm diameter, EPDM	VS300-E

2. Fitting	Description	Symbol
	Fitting, G3/4 female	34F

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS300-E	EPDM Perimeter Seal	265	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3717	34F	G3/4 female	2303

VS400

Features and Strengths
Excellent performance for rough and uneven surfaces

Examples of use
Marbles, Paving Slabs, Bricks, Rough Wood, Masonry



Recommended Lifting Force (Max.)

Model	Volume(cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
VS400	2288.00	326.00	876.00	1300.00

※ The lifting force above does not include safety factor

Material Specifications

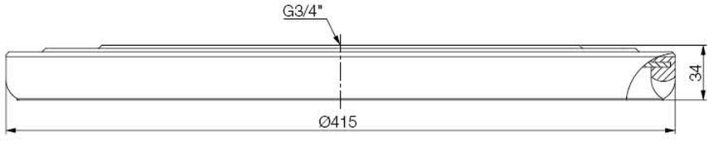
Material	Hardness Shore (°)	Color	Temperature (℃)
EPDM	40°	Black	0~150

Material Resistance

Description	EPDM
Wear Resistance	Fair
Oil	Poor
Weather / Ozone	Excellent
Alcohol	Excellent
Acid	Poor

Dimension

[Unit : mm]



[With 34F fitting]

Build an Ordering No.

VS400 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Sponge suction cup, 400mm diameter, EPDM	VS400-E

2. Fitting	Description	Symbol
	Fitting, G3/4 female	34F

Spare Parts – Rubber Part

Part No.	Description	Weight (g)	Color
VS400-E	EPDM Perimeter Seal	350	Black

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 001 3718	34F	G3/4 female	3016

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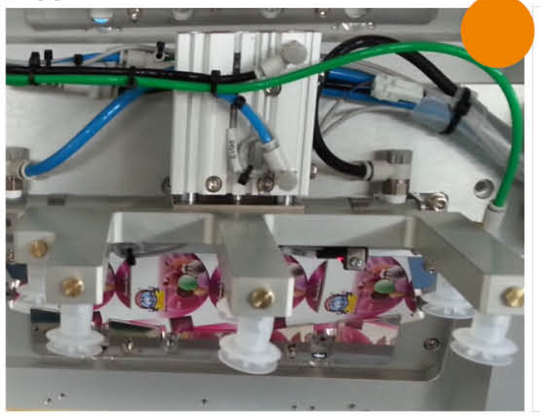
KPS Series

Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Advantages
Excellent for bag opening with good adhesion



Application





Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Available size option

Model	Description	Model	Description
KPS-1	Customized suction cup, Ø34	KPS-6	Customized suction cup, Ø30
KPS-2	Customized suction cup, Ø28	KPS-7	Customized suction cup, Ø68
KPS-3	Customized suction cup, Ø13	KPS-8	Customized suction cup, Ø25
KPS-4	Customized suction cup, Ø16	KPS-9	Customized suction cup, Ø40
KPS-5	Customized suction cup, Ø28		
KPS-5-15	Customized suction cup, Ø15		

Recommended Lifting Force (Max.)

Model	Volume(cm³)	Lifting Force (Kg) - Perpendicular			Page
		- 20 kPa	- 60 kPa	- 90 kPa	
KPS-1	14.50	1.22	2.24	2.75	
KPS-2	2.00	0.70	1.53	1.83	
KPS-3	0.50	0.35	0.85	1.12	
KPS-4	1.00	0.60	1.22	1.63	
KPS-5	2.00	0.70	1.53	1.83	
KPS-5-15	1.10	0.40	1.11	1.23	
KPS-6	2.00	0.80	1.70	2.05	
KPS-7	20.00	5.50	14.00	18.50	
KPS-8	1.4	0.50	1.15	1.25	
KPS-9	8.00	1.55	2.80	5.10	

※ The lifting force above does not include safety factor

KPS-1



Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-1	14.50	1.22	2.24	2.75

※ The lifting force above does not include safety factor

Material Specifications

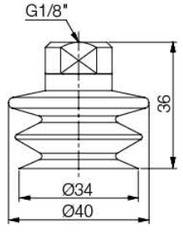
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

KPS-1 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Customized suction cup, 34mm diameter, Nitrile (NBR)	KPS1-N
	Customized suction cup, 34mm diameter, Silicone	KPS1-S
	Customized suction cup, 34mm diameter, White silicone	KPS1-WS
	Customized suction cup, 34mm diameter, White silicone (FDA)	KPS1-WS(FDA)
	Customized suction cup, 34mm diameter, High temperature silicone	KPS1-HS
	Customized suction cup, 34mm diameter, Conductive silicone	KPS1-CS
	Customized suction cup, 34mm diameter, Urethane	KPS1-U

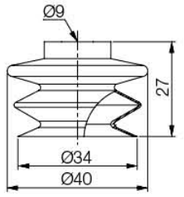
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
KPS1-N	Customized suction cup, 34mm diameter, Nitrile (NBR)	8.99	Black
KPS1-S	Customized suction cup, 34mm diameter, Silicone	8.35	Red
KPS1-WS	Customized suction cup, 34mm diameter, White silicone	7.62	Translucent White
KPS1-WS (FDA)	Customized suction cup, 34mm diameter, White silicone (FDA)	7.62	Translucent White
KPS1-HS	Customized suction cup, 34mm diameter, High temperature silicone	7.53	Blue
KPS1-CS	Customized suction cup, 34mm diameter, Conductive silicone	7.44	Smoky Black
KPS1-U	Customized suction cup, 34mm diameter, Urethane	8.17	Dark Green

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3350	18F	G1/8 female	6.76
350 000 4350	18F-F	G1/8 female, Mesh filter	6.78

KPS-2





Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-2	2.00	0.70	1.53	1.83

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Build an Ordering No.

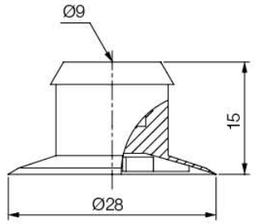
KPS-2 - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 28mm diameter, Nitrile (NBR)	2.31	KPS2-N
	Customized suction cup, 28mm diameter, Silicone	2.15	KPS2-S
	Customized suction cup, 28mm diameter, White silicone	2.20	KPS2-WS
	Customized suction cup, 28mm diameter, White silicone (FDA)	2.20	KPS2-WS(FDA)
	Customized suction cup, 28mm diameter, High temperature silicone	2.50	KPS2-HS
	Customized suction cup, 28mm diameter, Conductive silicone	2.28	KPS2-CS
	Customized suction cup, 28mm diameter, Urethane	2.45	KPS2-U

Dimension

[Unit : mm]



[Rubber Part]

KPS-3





Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-3	0.50	0.35	0.85	1.12

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Build an Ordering No.

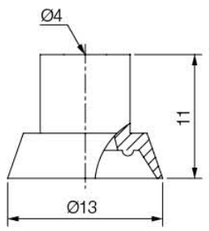
KPS-3 - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 13mm diameter, Nitrile (NBR)	0.51	KPS3-N
	Customized suction cup, 13mm diameter, Silicone	0.46	KPS3-S
	Customized suction cup, 13mm diameter, White silicone	0.45	KPS3-WS
	Customized suction cup, 13mm diameter, White silicone (FDA)	0.45	KPS3-WS(FDA)
	Customized suction cup, 13mm diameter, High temperature silicone	0.52	KPS3-HS
	Customized suction cup, 13mm diameter, Conductive silicone	0.5	KPS3-CS
	Customized suction cup, 13mm diameter, Urethane	0.51	KPS3-U

Dimension

[Unit : mm]



[Rubber Part]

KPS-4





Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-4	1.00	0.60	1.22	1.63

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Build an Ordering No.

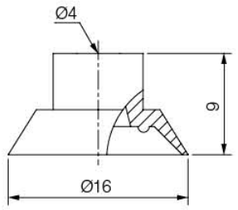
KPS-4 - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 16mm diameter, Nitrile (NBR)	0.58	KPS4-N
	Customized suction cup, 16mm diameter, Silicone	0.57	KPS4-S
	Customized suction cup, 16mm diameter, White silicone	0.51	KPS4-WS
	Customized suction cup, 16mm diameter, White silicone (FDA)	0.51	KPS4-WS(FDA)
	Customized suction cup, 16mm diameter, High temperature silicone	0.58	KPS4-HS
	Customized suction cup, 16mm diameter, Conductive silicone	0.54	KPS4-CS
	Customized suction cup, 16mm diameter, Urethane	0.59	KPS4-U

Dimension

[Unit : mm]



[Rubber Part]

KPS-5



Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-5	2.00	0.70	1.53	1.83

※ The lifting force above does not include safety factor

Material Specifications

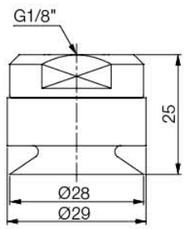
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

KPS-5 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Customized suction cup, 28mm diameter, Nitrile (NBR)	KPS5-N
	Customized suction cup, 28mm diameter, Silicone	KPS5-S
	Customized suction cup, 28mm diameter, White silicone	KPS5-WS
	Customized suction cup, 28mm diameter, White silicone (FDA)	KPS5-WS(FDA)
	Customized suction cup, 28mm diameter, High temperature silicone	KPS5-HS
	Customized suction cup, 28mm diameter, Conductive silicone	KPS5-CS
	Customized suction cup, 28mm diameter, Urethane	KPS5-U

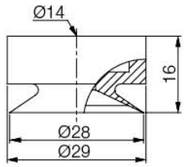
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
KPS5-N	Customized suction cup, 28mm diameter, Nitrile (NBR)	7.07	Black
KPS5-S	Customized suction cup, 28mm diameter, Silicone	6.48	Red
KPS5-WS	Customized suction cup, 28mm diameter, White silicone	6.48	Translucent White
KPS5-WS(FDA)	Customized suction cup, 28mm diameter, White silicone (FDA)	6.48	Translucent White
KPS5-HS	Customized suction cup, 28mm diameter, High temperature silicone	6.56	Blue
KPS5-CS	Customized suction cup, 28mm diameter, Conductive silicone	6.65	Smoky Black
KPS5-U	Customized suction cup, 28mm diameter, Urethane	7.35	Dark Green

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3351	18F	G1/8 female	16.22
350 000 4351	18F-F	G1/8 female, Mesh filter	16.26

KPS-5-15

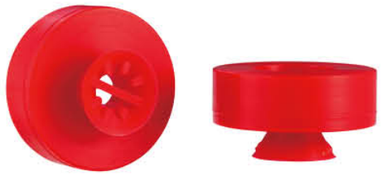


Features and Strengths

Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use

Plastic bag opening, Thin Film Material, Paper Bag Handling



Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-5-15	1.10	0.40	1.11	1.23

※ The lifting force above does not include safety factor

Material Specifications

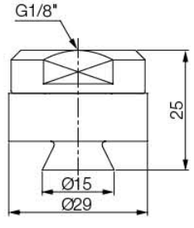
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

KPS-5-15 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Customized suction cup, 15mm diameter, Nitrile (NBR)	KPS-5-15-N
	Customized suction cup, 15mm diameter, Silicone	KPS-5-15-S
	Customized suction cup, 15mm diameter, White silicone	KPS-5-15-WS
	Customized suction cup, 15mm diameter, White silicone (FDA)	KPS-5-15-WS(FDA)
	Customized suction cup, 15mm diameter, High temperature silicone	KPS-5-15-HS
	Customized suction cup, 15mm diameter, Conductive silicone	KPS-5-15-CS
	Customized suction cup, 15mm diameter, Urethane	KPS-5-15-U

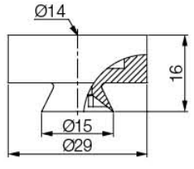
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
KPS-5-15-N	Customized suction cup, 15mm diameter, Nitrile (NBR)	6.17	Black
KPS-5-15-S	Customized suction cup, 15mm diameter, Silicone	5.89	Red
KPS-5-15-WS	Customized suction cup, 15mm diameter, White silicone	5.85	Translucent White
KPS-5-15-WS(FDA)	Customized suction cup, 15mm diameter, White silicone (FDA)	5.85	Translucent White
KPS-5-15-HS	Customized suction cup, 15mm diameter, High temperature silicone	6.02	Blue
KPS-5-15-CS	Customized suction cup, 15mm diameter, Conductive silicone	6.35	Smoky Black
KPS-5-15-U	Customized suction cup, 15mm diameter, Urethane	6.39	Dark Green

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3351	18F	G1/8 female	16.22
350 000 4351	18F-F	G1/8 female, Mesh filter	16.26

KPS-6





Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-6	2.00	0.80	1.70	2.05

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

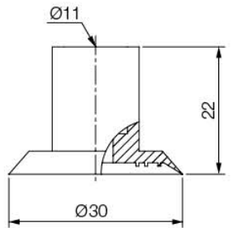
Build an Ordering No.

KPS-6 - ○
1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 30mm diameter, Nitrile (NBR)	2.65	KPS6-N
	Customized suction cup, 30mm diameter, Silicone	2.51	KPS6-S
	Customized suction cup, 30mm diameter, White silicone	2.47	KPS6-WS
	Customized suction cup, 30mm diameter, White silicone (FDA)	2.47	KPS6-WS(FDA)
	Customized suction cup, 30mm diameter, High temperature silicone	2.54	KPS6-HS
	Customized suction cup, 30mm diameter, Conductive silicone	2.55	KPS6-CS
	Customized suction cup, 30mm diameter, Urethane	2.95	KPS6-U

Dimension

[Unit : mm]



[Rubber Part]

KPS-7



Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-7	20.00	5.50	14.00	18.50

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Build an Ordering No.

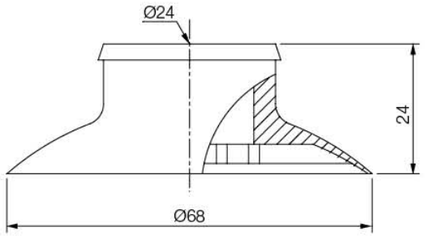
KPS-7 - ○

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 68mm diameter, Nitrile (NBR)	17.07	KPS7-N
	Customized suction cup, 68mm diameter, Silicone	14.99	KPS7-S
	Customized suction cup, 68mm diameter, White silicone	15.48	KPS7-WS
	Customized suction cup, 68mm diameter, White silicone (FDA)	15.48	KPS7-WS(FDA)
	Customized suction cup, 68mm diameter, High temperature silicone	15.86	KPS7-HS
	Customized suction cup, 68mm diameter, Conductive silicone	16.9	KPS7-CS
	Customized suction cup, 68mm diameter, Urethane	16.98	KPS7-U

Dimension

[Unit : mm]



[Rubber Part]

KPS-8





Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-8	1.4	0.5	1.15	1.25

※ The lifting force above does not include safety factor

Material Specifications

Material	Hardness Shore (°)	Color	Temperature (℃)
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280

Material Resistance

Description	Silicone	White Silicone	High temp.Silicone
Wear Resistance	Good	Good	Good
Oil	Poor	Poor	Poor
Weather / Ozone	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good
Acid	Poor	Poor	Poor

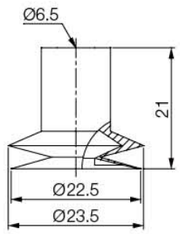
Build an Ordering No.

KPS-8 - ○
1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Customized suction cup, 22.5mm diameter, Silicone	2.33	KPS8-S
	Customized suction cup, 22.5mm diameter, White silicone	2.34	KPS8-WS
	Customized suction cup, 22.5mm diameter, White silicone (FDA)	2.34	KPS8-WS(FDA)
	Customized suction cup, 22.5mm diameter, High temperature silicone	2.39	KPS8-HS

Dimension

[Unit : mm]



[Rubber Part]

KPS-9





Features and Strengths
Developed to be used specially for bag opening application
Suitable to be used in thin plastic and film type material

Examples of use
Plastic bag opening, Thin Film Material, Paper Bag Handling

Recommended Lifting Force (Max.)

Model	Volume (cm^3)	Lifting Force (Kg) - Perpendicular		
		- 20 kPa	- 60 kPa	- 90 kPa
KPS-9	8.00	1.55	2.80	5.10

※ The lifting force above does not include safety factor

Material Specifications

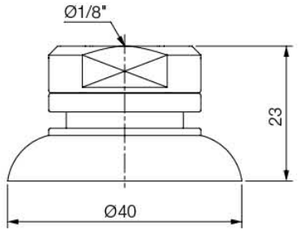
Material	Hardness Shore (°)	Color	Temperature (℃)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid	Fair	Poor	Poor	Poor	Poor	Poor

Dimension

[Unit : mm]



[With 18F fitting]

Build an Ordering No.

KPS-9 - ○ - ○

1. Suction Cup
2. Fitting

1. Suction cup	Description	Symbol
	Customized suction cup, 40mm diameter, Nitrile (NBR)	KPS9-N
	Customized suction cup, 40mm diameter, Silicone	KPS9-S
	Customized suction cup, 40mm diameter, White silicone	KPS9-WS
	Customized suction cup, 40mm diameter, White silicone (FDA)	KPS9-WS(FDA)
	Customized suction cup, 40mm diameter, High temperature silicone	KPS9-HS
	Customized suction cup, 40mm diameter, Conductive silicone	KPS9-CS
	Customized suction cup, 40mm diameter, Urethane	KPS9-U

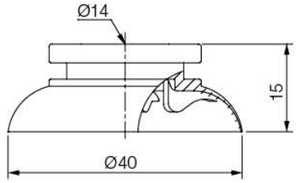
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F

Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
KPS9-N	Customized suction cup, 34mm diameter, Nitrile (NBR)	3.85	Black
KPS9-S	Customized suction cup, 34mm diameter, Silicone	3.85	Red
KPS9-WS	Customized suction cup, 34mm diameter, White silicone	3.68	Translucent White
KPS9-WS(FDA)	Customized suction cup, 34mm diameter, White silicone (FDA)	3.68	Translucent White
KPS9-HS	Customized suction cup, 34mm diameter, High temperature silicone	3.92	Blue
KPS9-CS	Customized suction cup, 34mm diameter, Conductive silicone	3.81	Smoky Black
KPS9-U	Customized suction cup, 34mm diameter, Urethane	3.72	Dark Green

Dimension

[Unit : mm]



[Rubber Part]

Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 000 3352	18F	G1/8 female	12.65
350 000 4352	18F-F	G1/8 female, Mesh filter	12.85

LEVEL COMPENSATORS

Level compensators

VMECA Level compensators

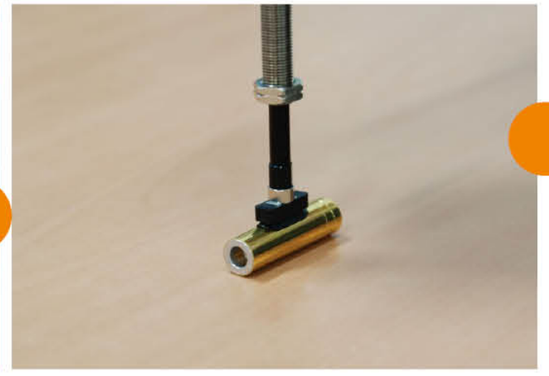
The VMECA level compensator is used to compensate for differences in height on the surface of the material that is to be lifted. The advantages being a more reliable and less precise pick up position when handling product that may be less consistent in it shape, size and position. The level compensator also provides a degree of shock absorption should this be required. The level compensator come in configurations with varying sizes of spring and stroke.



Application

[Unit : mm]







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L14 Series Page 14



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L12 Series Page 12



L12 Series Page 14



None-Rotating Series Page 50

L5 series

Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke



Specifications

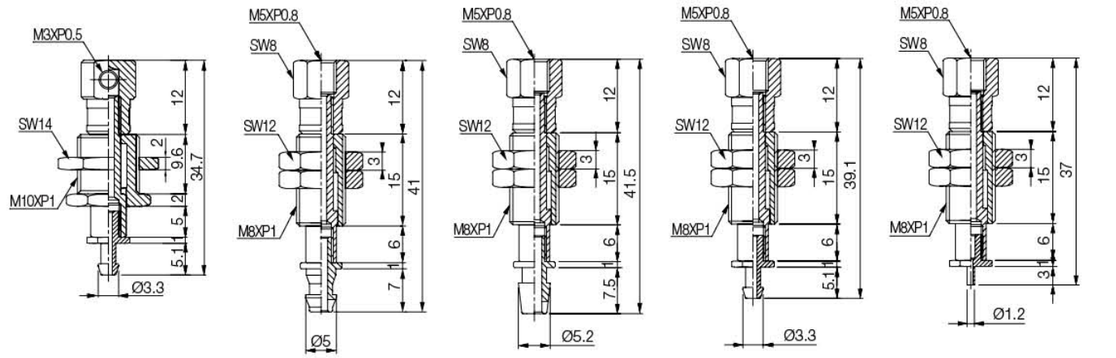
Model	Stroke (mm)	Weight (g)	Material	Model	Stroke (mm)	Weight (g)	Material
L505TU	5	13.32	Al, SS, BS	L510LTS	10	19.8	Al, SS, BS
L506TX	6	12		L510LTU	10	19.2	
L506TS	6	12		L510LTM	10	19	
L506TU	6	11		L510C	10	37	
L506TM	6	11		L510TL	10	35.52	
L506TX-SS	6	12.48		L510STX	10	16.06	
L506TS-SS	6	12.48		L510LTX-SS	10	20.28	
L506TU-SS	6	11.44		L510LTS-SS	10	17.68	
L506TM-SS	6	11.44		L510LTU-SS	10	17.03	
L507T	7	17		L510LTM-SS	10	19.76	
L508W	8	5.07		L515T	15	20	
L508FW	8	15.27		L515T-M4F	15	25.92	
L510	10	33		L520	20	36	
L510T	10	30		L520T	20	33	
L510LTX	10	19.5		L520TF	20	20	

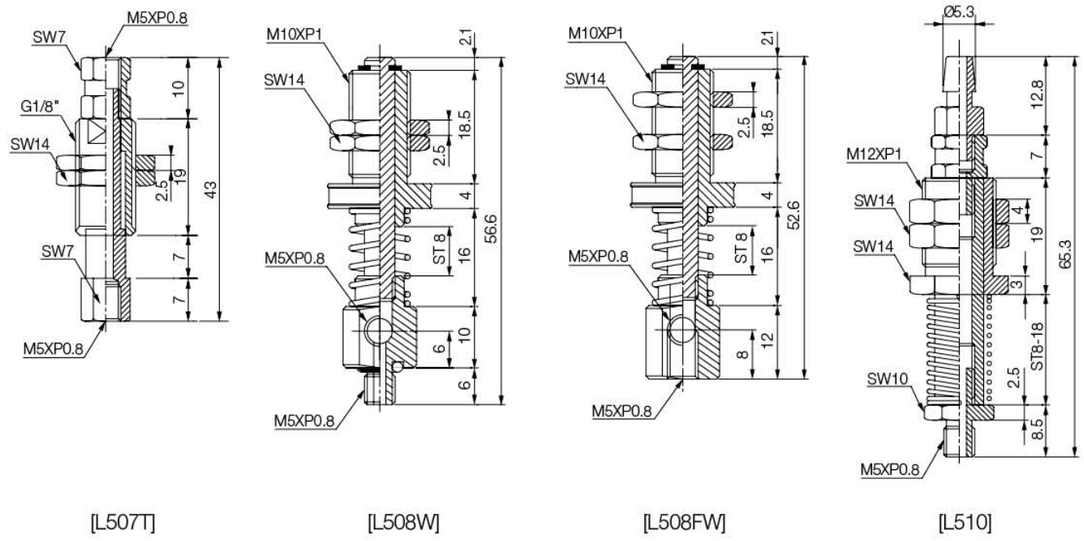
Build an Ordering No.

1. Level compensator	Description	Symbol
	Level compensator, 6mm stroke, Direct fitting connection for VB6X, VU1.5X, VU2X & VU4X	L506TX
	Level compensator, 6mm stroke, Direct fitting connection for VU10, VU15, VF15, VB10, VB12 & VB15	L506TS
	Level compensator, 6mm stroke, Direct fitting connection for VU4, VU6, VU8, VB5 & VB8	L506TU
	Level compensator, 6mm stroke, Direct fitting connection for VU2 & VU3	L506TM
	Level compensator, 6mm stroke, Stainless, Direct fitting connection for VB6X, VU1.5X, VU2X & VU4X	L506TX-SS
	Level compensator, 6mm stroke, Stainless, Direct fitting connection for VU10, VU15, VF15, VB10, VB12 & VB15	L506TS-SS
	Level compensator, 6mm stroke, Stainless, Direct fitting connection for VU4, VU6, VU8, VB5 & VB8	L506TU-SS
	Level compensator, 6mm stroke, Stainless, Direct fitting connection for VU2 & VU3	L506TM-SS
	Level compensator, 7mm stroke, Connection – Fitting M5 female	L507T
	Level compensator, 8mm stroke, Connection – Fitting M5 male	L508W
	Level compensator, 8mm stroke, Connection – Fitting M5 female	L508FW
	Level compensator, 10mm stroke, Connection – Fitting M5 male	L510
	Level compensator, 10mm stroke, Connection – Fitting M5 male	L510T
	Level compensator, 10mm stroke, Direct fitting connection for VB6X, VU1.5X, VU2X & VU4X	L510LTX
	Level compensator, 10mm stroke, Direct fitting connection for VU10, VU15, VF15, VB10, VB12 & VB15	L510LTS
	Level compensator, 10mm stroke, Direct fitting connection for VU4, VU6, VU8, VB5 & VB8	L510LTU
	Level compensator, 10mm stroke, Direct fitting connection for VU2 & VU3	L510LTM
	Level compensator, 10mm stroke, Connection – Fitting M5 female	L510C
	Level compensator, 10mm stroke, Stainless, Direct fitting connection for VB6X, VU1.5X, VU2X & VU4X	L510LTX-SS
	Level compensator, 10mm stroke, Stainless, Direct fitting connection for VU10, VU15, VF15, VB10, VB12 & VB15	L510LTS-SS
	Level compensator, 10mm stroke, Stainless, Direct fitting connection for VU4, VU6, VU8, VB5 & VB8	L510LTU-SS
	Level compensator, 10mm stroke, Stainless, Direct fitting connection for VU2 & VU3	L510LTM-SS
	Level compensator, 15mm stroke, Connection – Fitting M5 female	L515T
	Level compensator, 15mm stroke, Connection – Fitting M4 female	L515T-M4F
	Level compensator, 20mm stroke, Connection – Fitting M5 male	L520
	Level compensator, 20mm stroke, Connection – Fitting M5 male	L520T
	Level compensator, 20mm stroke, Connection – Fitting M5 female	L520TF

Dimension

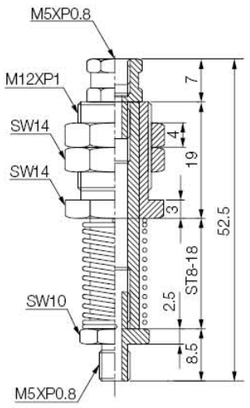
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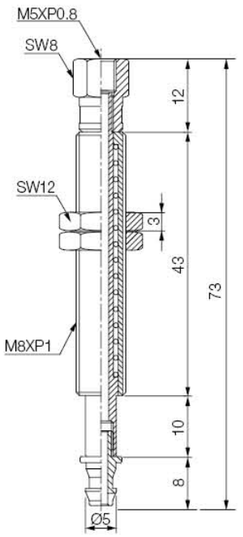


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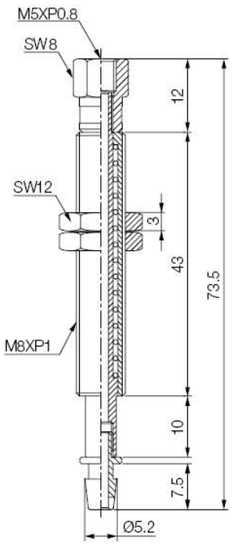
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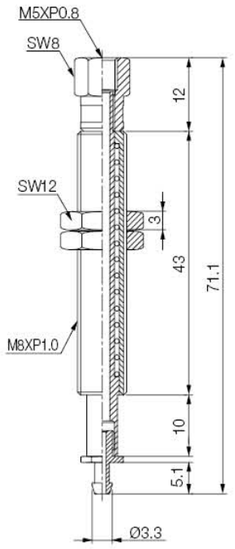
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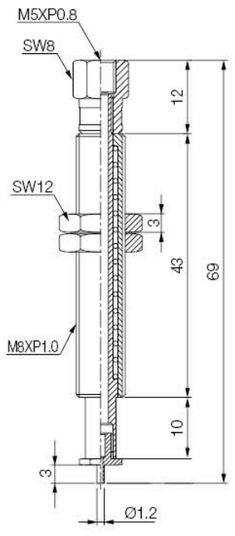
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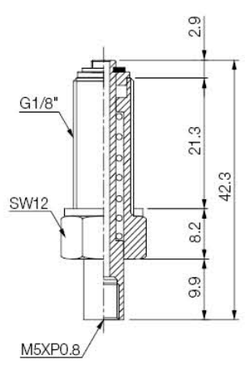
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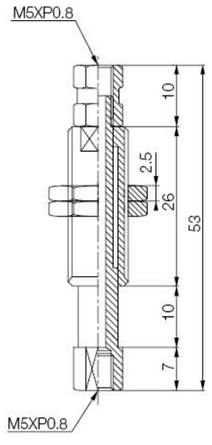
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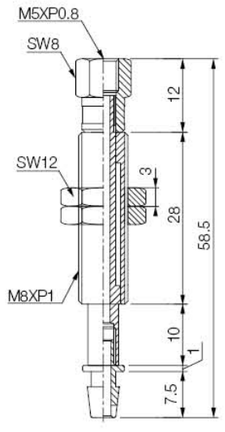
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[L510C]



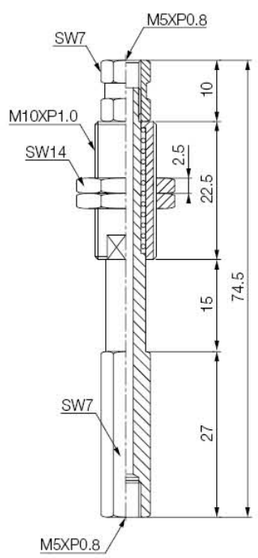
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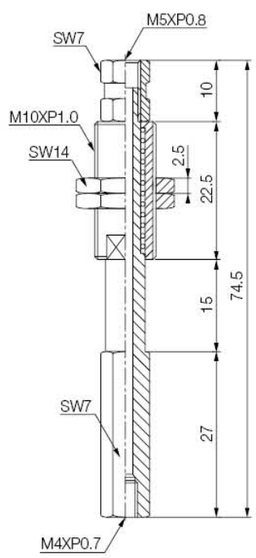
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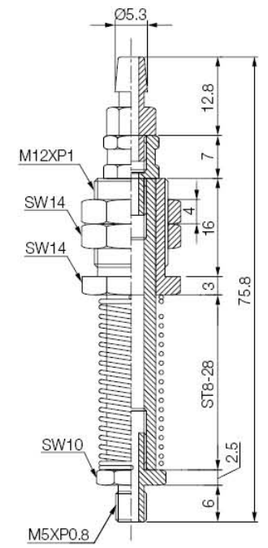
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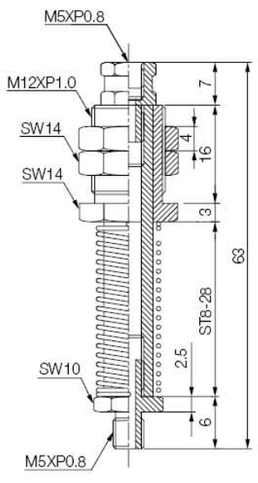
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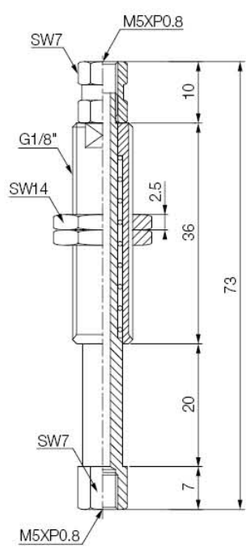
[L515T-M4F]



[L520]



[L520T]



[L520TF]

L18 series

Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke



Specifications

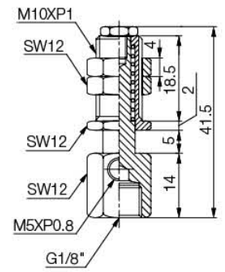
Model	Stroke (mm)	Weight (g)	Material	Model	Stroke (mm)	Weight (g)	Material
L1805F	5	24	Al, SS, BS	L1830	30	54	Al, SS, BS
L1805M	5	28		L1830T	30	60	
L1808W	8	16.1		L1830TS	30	130	
L1810T	10	44		L1850	50	105	
L1810TS	10	73		L1850T	50	66	
L1810TSE	10	93		L1850TS	50	89.79	
L1815	15	86		L1870TS	70	129.56	
L1815T	15	36		LBX1820T	20	152.18	
L1820T	20	56		LBX1830T	30	164.81	
L1820TS	20	83		LBX1850T	50	181.77	

Build an Ordering No.

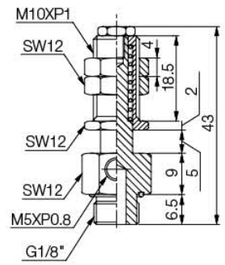
1. Level compensator	Description	Symbol
	Level compensator, 5mm stroke, Connection – Fitting G1/8” female	L1805F
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	Level compensator, 8mm stroke, Connection – Fitting G1/8” male	L1808W
	Level compensator, 10mm stroke, Connection – Fitting G1/8” male	L1810T
	Level compensator, 10mm stroke, Connection – Fitting G1/8” male	L1810TS
	Level compensator, 10mm stroke, Connection – Fitting M10 female	L1810TS-M10F
	Level compensator, 10mm stroke, Connection – Fitting G1/8” male	L1810TSE
	Level compensator, 15mm stroke, Connection – Fitting G1/8” male	L1815
	Level compensator, 15mm stroke, Connection – Fitting G1/8” male	L1815T
	Level compensator, 20mm stroke, Connection – Fitting G1/8” male	L1820T
	Level compensator, 20mm stroke, Connection – Fitting G1/8” male	L1820TS
	Level compensator, 30mm stroke, Connection – Fitting G1/8” male	L1830
	Level compensator, 30mm stroke, Connection – Fitting G1/8” male	L1830T
	Level compensator, 30mm stroke, Connection – Fitting G1/8” male	L1830TS
	Level compensator, 50mm stroke, Connection – Fitting G1/8” male	L1850
	Level compensator, 50mm stroke, Connection – Fitting G1/8” male	L1850T
	Level compensator, 50mm stroke, Connection – Fitting M10 female	L1850TS-M10F
	Level compensator, 70mm stroke, Connection – Fitting G1/8” male	L1870TS

Dimension

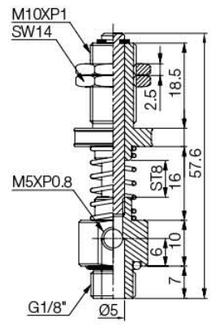
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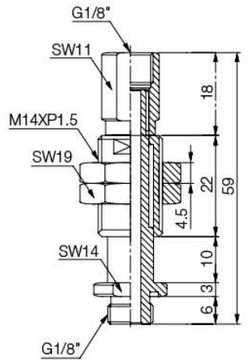
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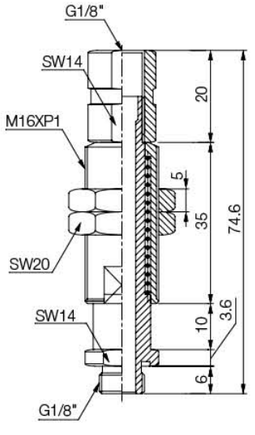
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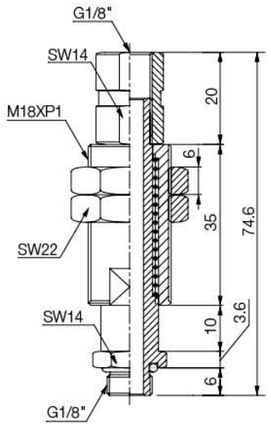
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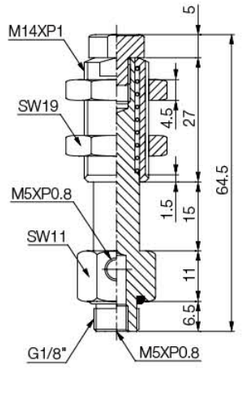
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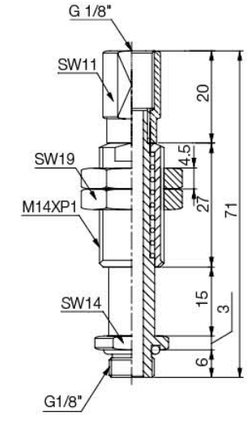
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[L1810TSE]



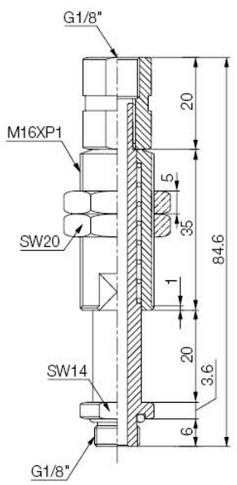
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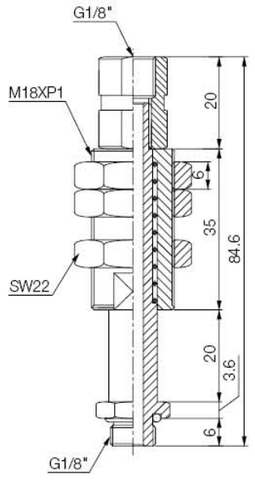
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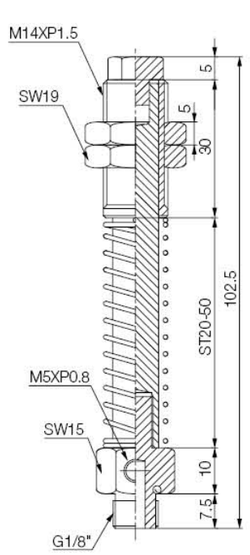
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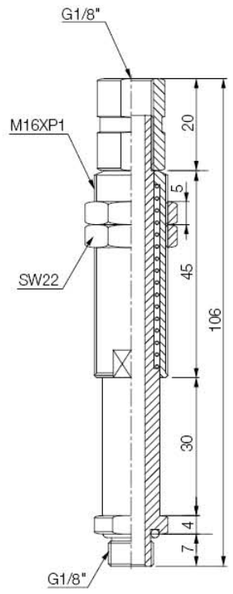
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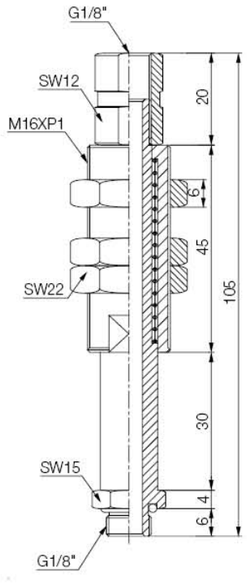
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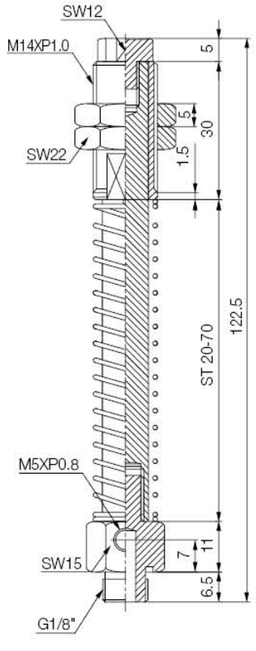
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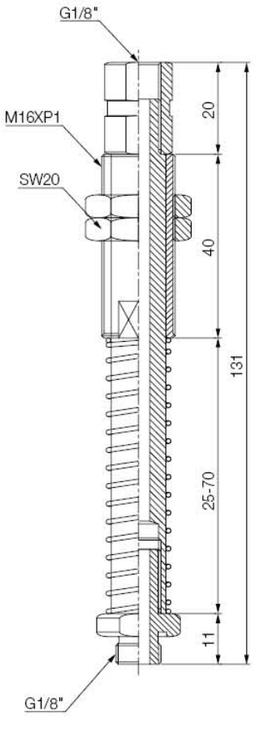
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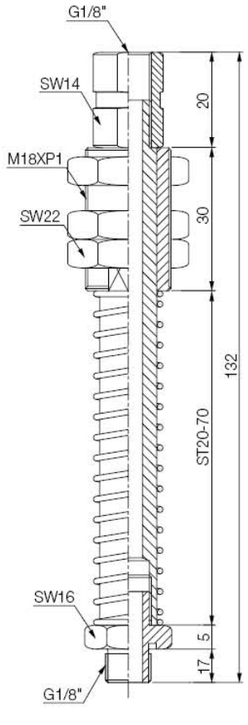
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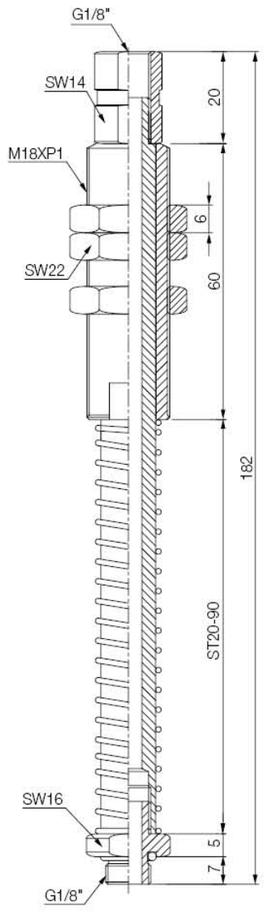
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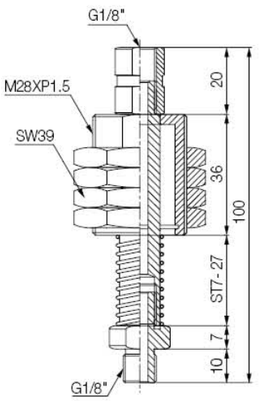
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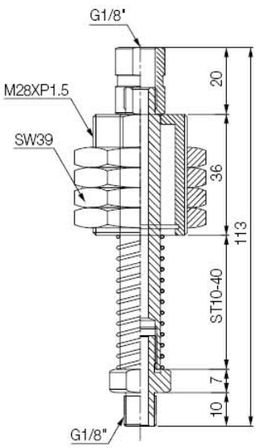
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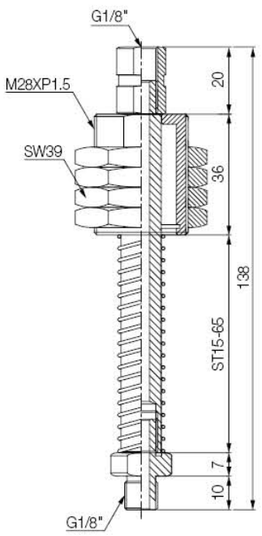
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[LBX1820T]



[LBX1830T]



[LBX1850T]

LEVEL COMPENSATORS

L14 series



Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke

Specifications

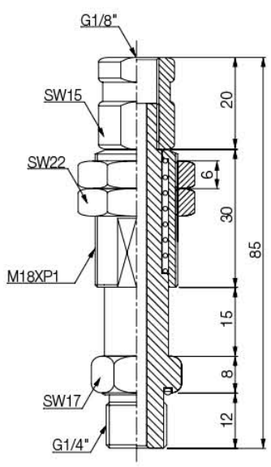
Model	Stroke (mm)	Weight (g)	Material
L1415T	15	66.33	Al, SS, BS
L1420T	20	45.05	Al, SS, BS
L1430LTS	30	100.75	Al, SS, BS

Build an Ordering No.

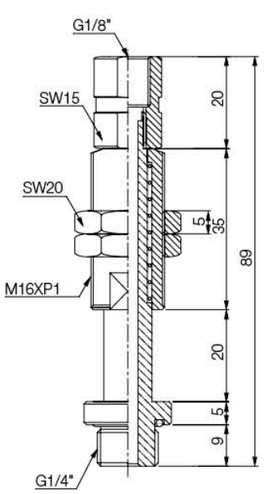
1. Level compensator	Description	Symbol
	Level compensator, 15mm stroke, Connection – Fitting G1/4” male	L1415T
	Level compensator, 20mm stroke, Connection – Fitting G1/4” male	L1420T
	Level compensator, 30mm stroke, Connection – Fitting G1/4” male	L1430LTS

Dimension

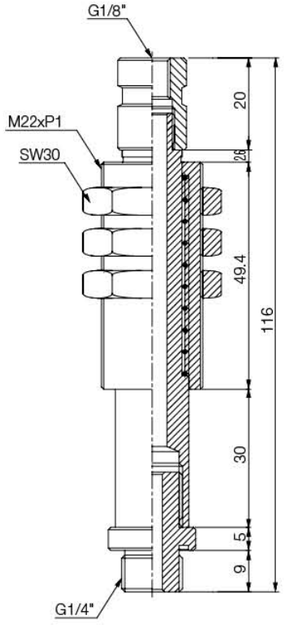
[Unit : mm]



[L1415T]



[L1420T]



[L1430LTS]

L38 series



Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke

Specifications

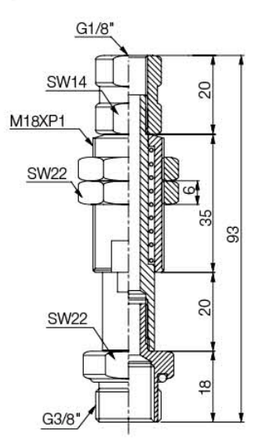
Model	Stroke (mm)	Weight (g)	Material
L3820TS	20	79.6	Al, SS, BS
L3830TS	30	85.36	Al, SS, BS
L3850LT	50	88.3	Al, SS, BS

Build an Ordering No.

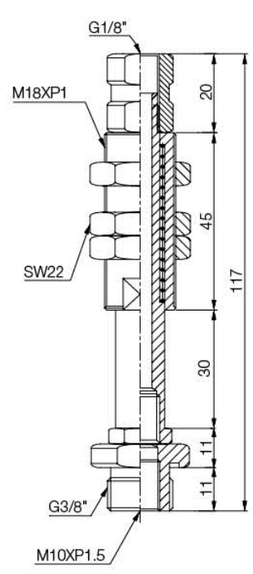
1. Level compensator	Description	Symbol
	Level compensator, 20mm stroke, Connection – Fitting G3/8” male	L3820TS
	Level compensator, 30mm stroke, Connection – Fitting G3/8” male	L3830TS
	Level compensator, 50mm stroke, Connection – Fitting G3/8” male	L3850LT

Dimension

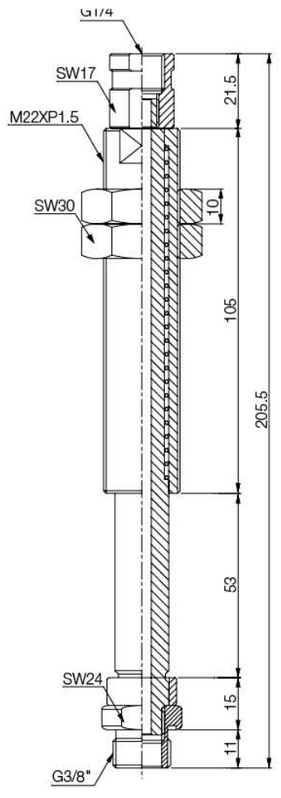
[Unit : mm]



[L3820TS]



[L3830TS]



[L3850LT]

L12 series

Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke



Specifications

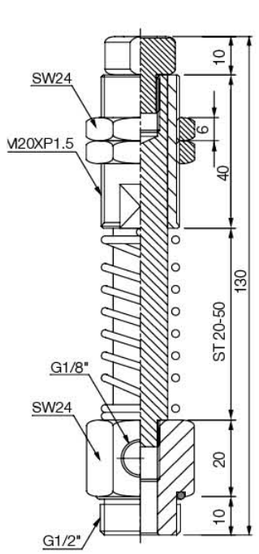
Model	Stroke (mm)	Weight (g)	Material
L1230	30	289	Al, SS, BS
L1230T	30	241	Al, SS, BS
L1250	50	350	Al, SS, BS
L1250T	50	156	Al, SS, BS
L1250LT	50	306	Al, SS, BS
L1280	80	185.59	Al, SS, BS
L1280-18F	80	175.20	Al, SS, BS
L1280-14F	80	193.42	Al, SS, BS

Build an Ordering No.

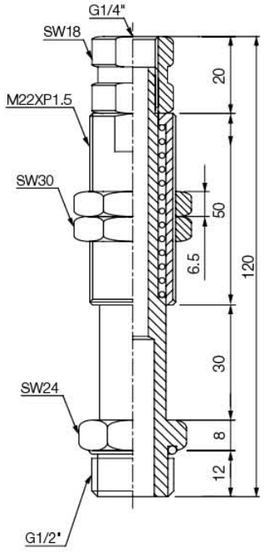
1. Level compensator	Description	Symbol
	Level compensator, 30mm stroke, Connection – Fitting G1/2” male	L1230
	Level compensator, 30mm stroke, Connection – Fitting G1/2” male	L1230T
	Level compensator, 50mm stroke, Connection – Fitting G1/2” male	L1250
	Level compensator, 50mm stroke, Connection – Fitting G1/2” male, G1/4” female	L1250T
	Level compensator, 50mm stroke, Connection – Fitting G1/2” male	L1250LT
	Level compensator, 80mm stroke, Connection – Fitting G1/2” male	L1280
	Level compensator, 80mm stroke, Connection – Fitting G1/2” male, G1/8” female	L1280-18F
	Level compensator, 80mm stroke, Connection – Fitting G1/2” male, G1/4” female	L1280-14F

Dimension

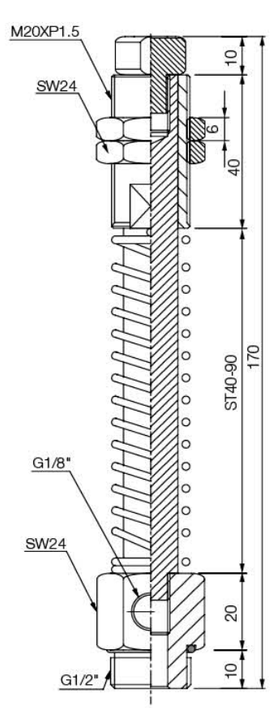
[Unit : mm]



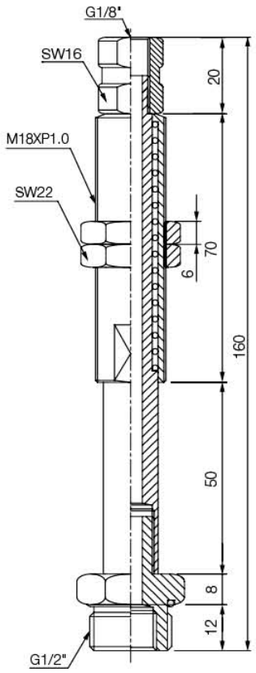
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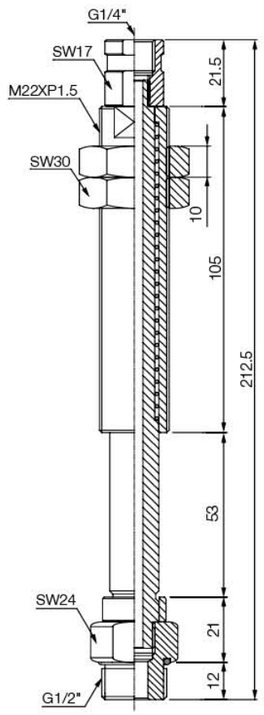
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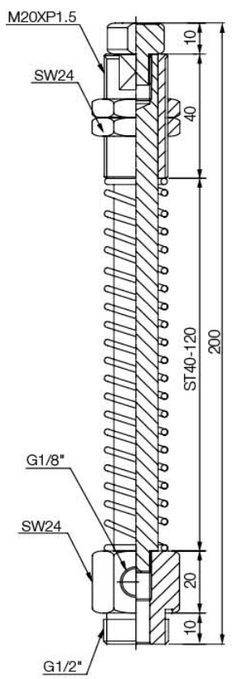
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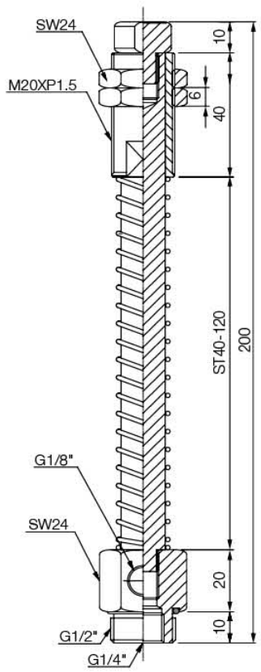
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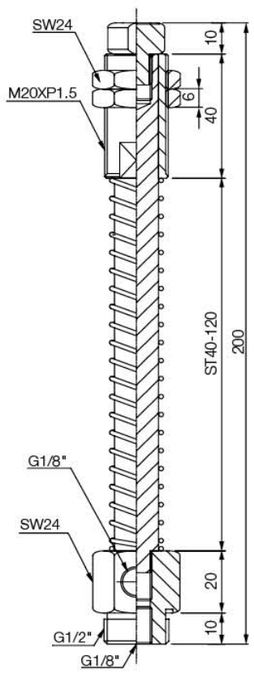
[L1250LT]



[L1280]



[L1280-14F]



[L1280-18F]

LEVEL COMPENSATORS

L10 series



Features and Strengths

Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke

Specifications

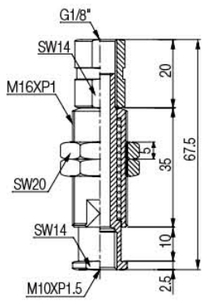
Model	Stroke (mm)	Weight (g)	Material
L1810TS - M10F	10	42.60	Al, SS, BS
LM1020TS	20	82.57	AL, SS, BS
LSM10F25T18-X	25	51.2	AL, SS, BS
LM1030TS	30	122	Al, SS, BS
L1850TS-M10F	50	163.3	Al, SS, BS

Build an Ordering No.

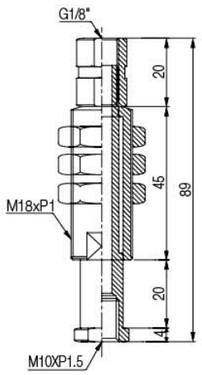
1. Level compensator	Description	Symbol
	Level compensator, 10mm stroke, Connection – Fitting M10 female	L1810TS - M10F
	Level compensator, 20mm stroke, Connection – Fitting M10 female	LM1020TS
	Level compensator, 25mm stroke, Connection – Fitting M10 female	LSM10F25T18-X
	Level compensator, 30mm stroke, Connection – Fitting M10 female	LM1030TS
	Level compensator, 50mm stroke, Connection – Fitting M10 female	L1850TS-M10F

Dimension

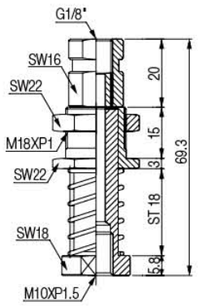
[Unit : mm]



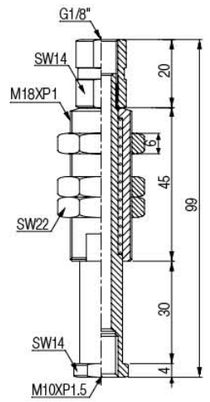
[L1810TS-M10F]



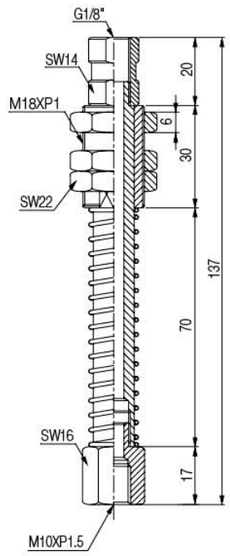
[LM1020TS]



[LSM10F25T18-X]



[LM1030TS]



[L1850TS-M10F]

Non-rotating Level Compensator



Features and Strengths

Non-rotating structure
Reliable and precise pick up position for differences in height on the surface of material
Configurations with varying sizes of spring and stroke

Specifications

Model	Stroke (mm)	Weight (g)	Material
L503CN	3	9.94	Al, SS, BS
L503CN-SS	3	10.4	
L507TN	7	18	
L507TN-SS	7	14.53	
L507TNL2-SS	7	23.7	
L507TNL2	7	19.14	
L510CN	10	12.84	
L510CN2-SS	10	16.79	
L510CN3-SS	10	13.37	
L510TNX-SS	10	38.21	
L520TN-SS	20	40.53	
L523TN-SS	23	29.48	
L525TXN	25	20.7	
L525TSN	25	20.6	
L525TUN	25	20.3	
L525TMN	25	20.1	
L1820TN	20	54	
L1850TN	50	140	
L3820TSN	20	82.4	

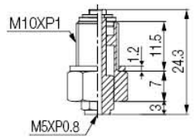
Build an Ordering No.

1. Level compensator	Description	Symbol
	Non-rotating level compensator, 3mm stroke, Connection – Fitting M5 female	L503CN
	Non-rotating level compensator, 3mm stroke, Stainless, Connection – Fitting M5 female	L503CN-SS
	Non-rotating level compensator, 7mm stroke, Connection – Fitting M5 female	L507TN
	Non-rotating level compensator, 7mm stroke, Stainless, Connection – Fitting M5 female	L507TN-SS
	Non-rotating level compensator, 7mm stroke, Stainless, Connection – Fitting M5 female	L507TNL2-SS
	Non-rotating level compensator, 7mm stroke, Connection – Fitting M5 female	L507TNL2
	Non-rotating level compensator, 10mm stroke, Connection – Fitting M5 female	L510CN
	Non-rotating level compensator, 10mm stroke, Stainless, Connection – Fitting M5 female	L510CN2-SS
	Non-rotating level compensator, 10mm stroke, Stainless, Connection – Fitting M5 female	L510CN3-SS
	Non-rotating level compensator, 10mm stroke, Stainless, Connection – Fitting M5 female	L510TNX-SS
	Non-rotating level compensator, 20mm stroke, Stainless, Connection – Fitting M5 female	L520TN-SS
	Non-rotating level compensator, 23mm stroke, Stainless, Connection – Fitting M5 female	L523TN-SS
	Non-rotating level compensator, 25mm stroke, Direct fitting connection for VB6X, VU1.5X, VU2X & VU4X	L525TXN
	Non-rotating level compensator, 25mm stroke, Direct fitting connection for VU10, VU15, VF15, VB10, VB12 & VB15	L525TSN
	Non-rotating level compensator, 25mm stroke, Direct fitting connection for VU4, VU6, VU8, VB5 & VB8	L525TUN
	Non-rotating level compensator, 25mm stroke, Direct fitting connection for VU2 & VU3	L525TMN
	Non-rotating level compensator, 20mm stroke, Connection – Fitting G1/8" male	L1820TN
	Non-rotating level compensator, 50mm stroke, Connection – Fitting G1/8" male	L1850TN
	Non-rotating level compensator, 20mm stroke, Connection – Fitting G3/8" male	L3820TSN

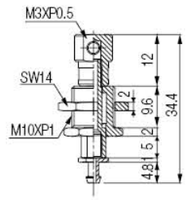
LEVEL COMPENSATORS

Dimension

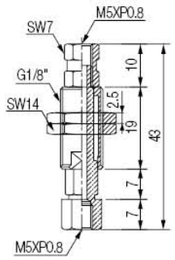
[Unit : mm]



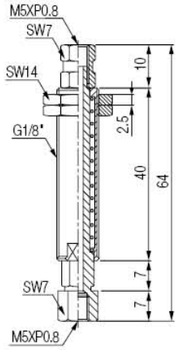
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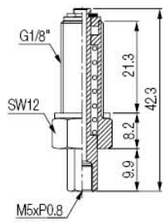
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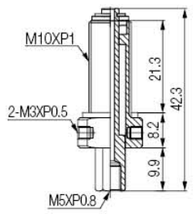
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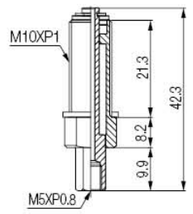
[L507TNL2-SS]



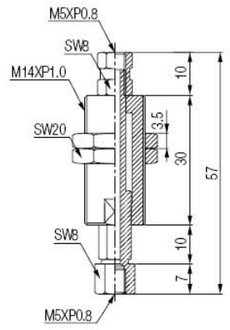
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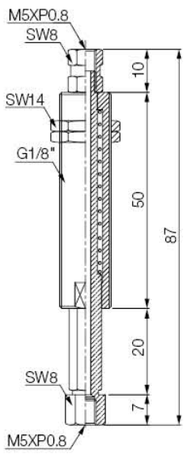
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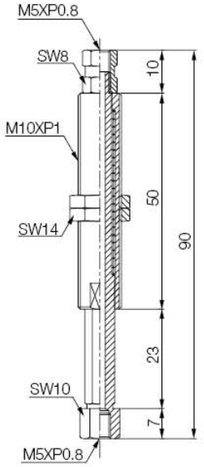
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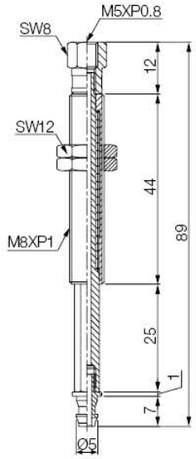
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[L520TN-SS]



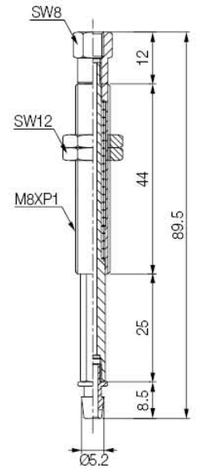
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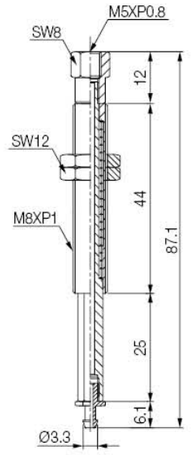
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Dimension

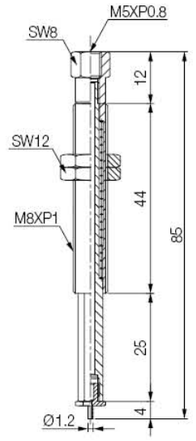
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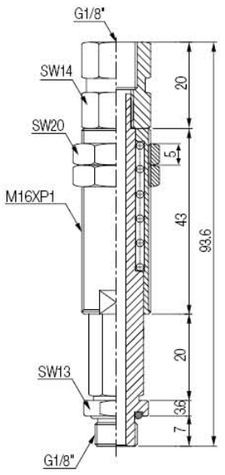
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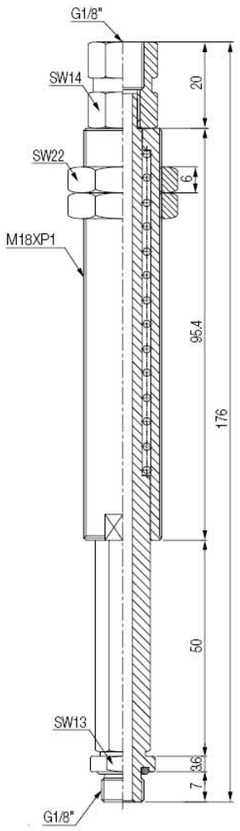
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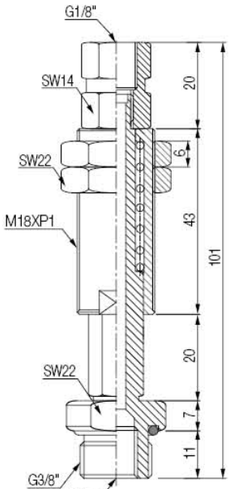
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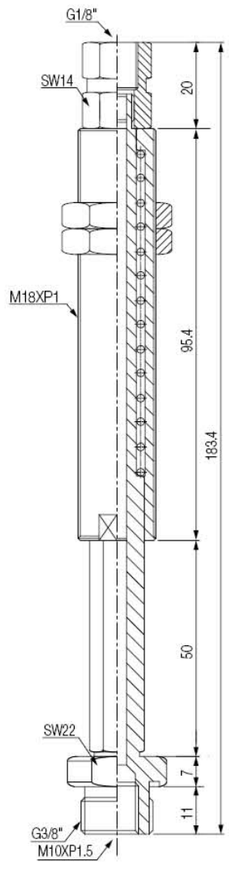
[L1820TN]



[L1850TN]



[L3820TSN]



[L3850TSN]

BJ18

Features and Strengths
Reliable and precise pick up position for a degree of angular compliance



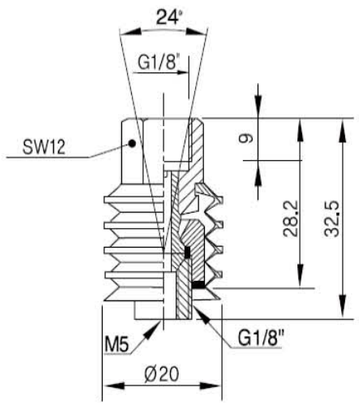
Recommended Lifting Force (Max.)

Model	Thread size	Angle (°)	Material	Temperature range (℃)	Weight (g)
BJ18	G 1/8"	±12°	AL, SS, BS	-80° ~200°	19

Build an Ordering No.

1. Ball joint	Description	Symbol
	Ball joint, Connection – G1/8 male - M5 female, Top thread – G1/8" female	BJ18

Dimension
[Unit : mm]



BJ12

Features and Strengths
Reliable and precise pick up position for a degree of angular compliance



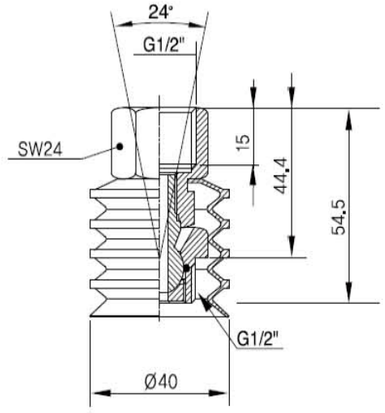
Recommended Lifting Force (Max.)

Model	Thread size	Angle (°)	Material	Temperature range (℃)	Weight (g)
BJ12	G 1/2"	±12°	AL, SS, BS	-80° ~200°	112

Build an Ordering No.

1. Ball joint	Description	Symbol
	Ball joint, Connection – G1/2 male, Top thread – G1/2" female	BJ12

Dimension
[Unit : mm]



Fitting connector



Features and Strengths

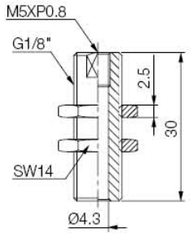
Specifically designed to allow assembled suction cup with fitting to mount on a plate
Available for various thread size options according to vertical or horizontal type
Light and durable

Build an Ordering No.

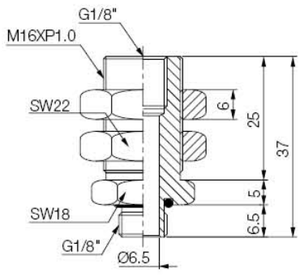
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	Fitting connector, M16X1, Top vacuum port - G1/8 female	C1816T
	Fitting connector, M14X1, Side vacuum port - M5 female	C1814
	Fitting connector, M14X1, Top vacuum port - G1/8 female	C1814T
	Fitting connector, M12X1, Side vacuum port - M5 female	C1812
	Fitting connector, M12X1, Top vacuum port - M5 female	C1812T

Dimension

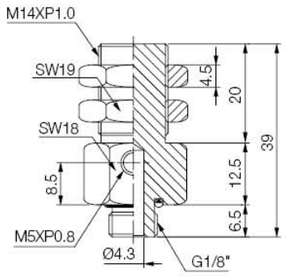
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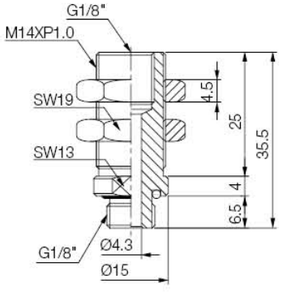
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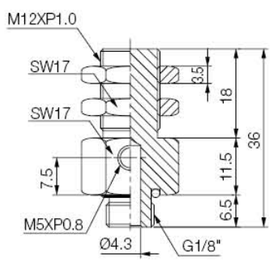
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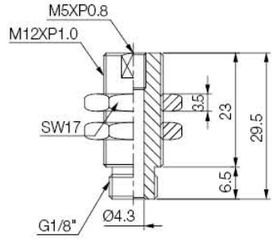
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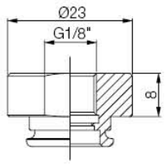
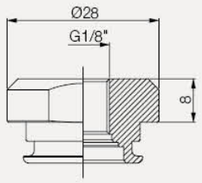
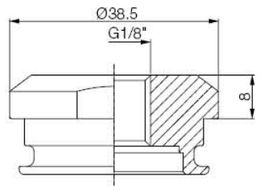
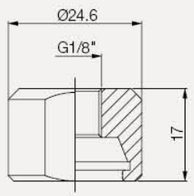
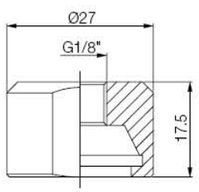
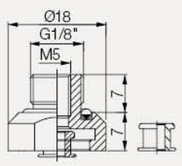


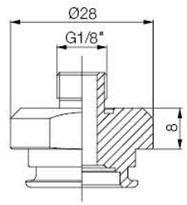
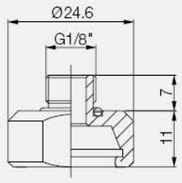
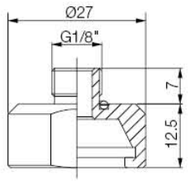
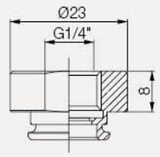
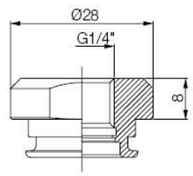
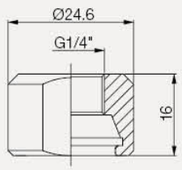
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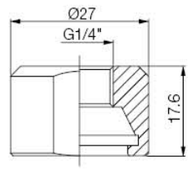
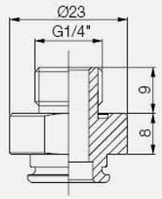
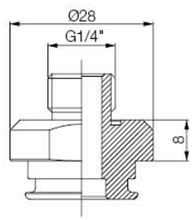
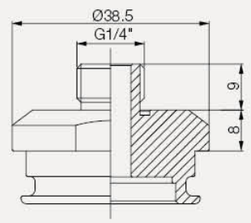
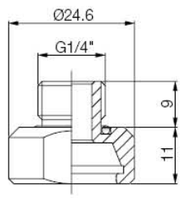
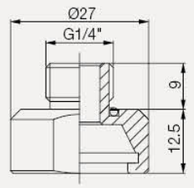


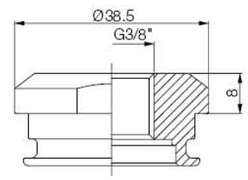
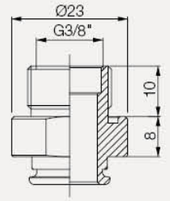
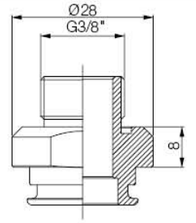
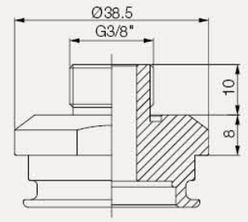
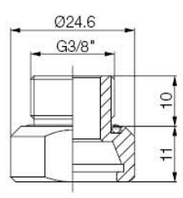
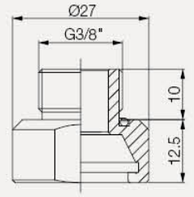
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Fitting – Magic Suction cup

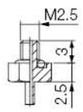
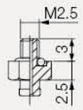
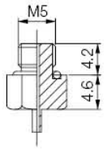
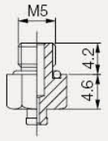
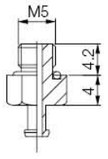
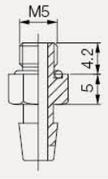
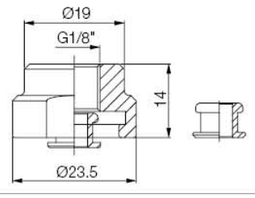
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18F	350 003 1107	Standard		B1.5/60 B2.5/60	36.15
18F	350 006 1101	Standard		EB1.5/20	13.05
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18M	350 003 1201	Standard		B1.5/20 B2.5/20	10.40

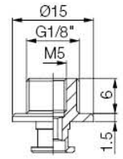
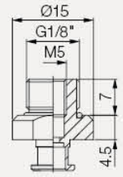
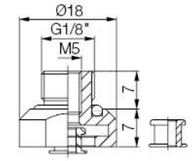
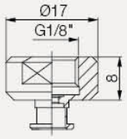
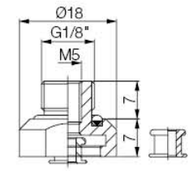
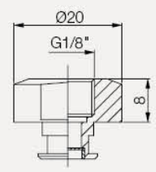
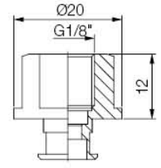
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18M	350 006 1201	Standard		EB1.5/20	8.64
18M	350 006 1202	Standard		EB1.5/40	11.37
14F	350 003 1501	Standard		B1.5/20 B2.5/20	7.57
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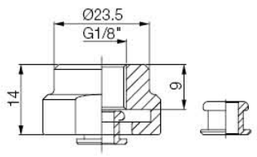
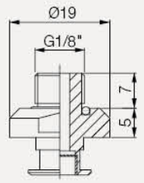
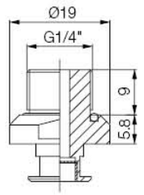
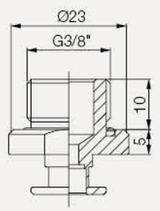
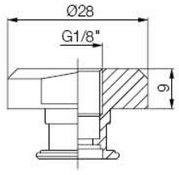
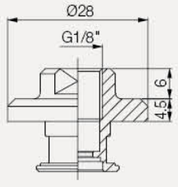
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
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14M	350 003 1302	Standard		B1.5/40 B2.5/40	17.36
14M	350 003 1307	Standard		B1.5/60 B2.5/60	34.19
14M	350 006 1301	Standard		EB1.5/20	9.04
14M	350 006 1302	Standard		EB1.5/40	11.71

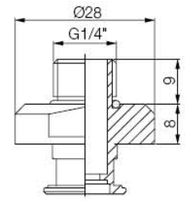
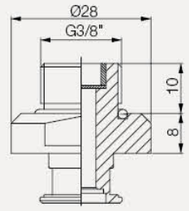
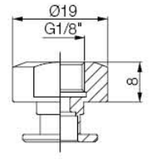
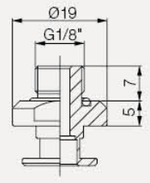
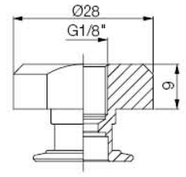
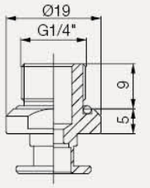
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
38F	350 003 1707	Standard		B1.5/60 B2.5/60	31.25
38M	350 003 1401	Standard		B1.5/20 B2.5/20	10.35
38M	350 003 1402	Standard		B1.5/40 B2.5/40	15.96
38M	350 003 1407	Standard		B1.5/60 B2.5/60	38.27
38M	350 006 1401	Standard		EB1.5/20	9.70
38M	350 006 1402	Standard		EB1.5/40	12.43

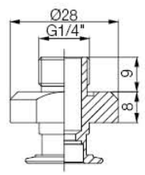
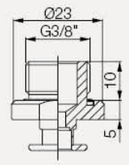
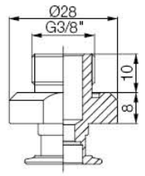
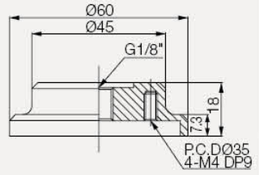
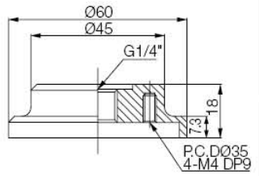
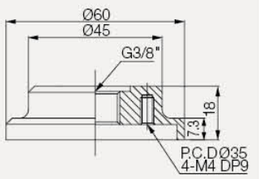
Fitting – VU / VB / VF / VBL / VBU / VBX / VFC series

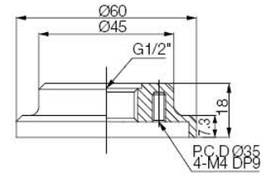
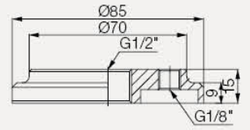
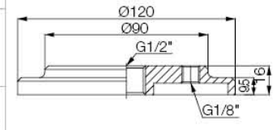
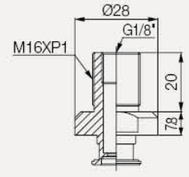
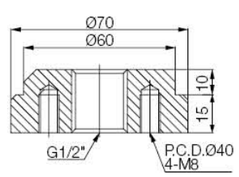
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M2.5M	350 000 3000	Standard		VU2, VU3	0.47
M2.5M	350 000 3006	Standard		VU3K	2.03
M5M	350 000 3100	Standard		VU2, VU3	0.54
M5M	350 000 3106	Standard		VU3K	1.93
M5M	350 000 3101	Standard		VU4, VU6, VU8, VB5, VB8	1.84
M5M	350 000 3102	Standard		VU10, VU15, VF15, VB10, VB12, VB15, VBL15	2.52
	350 010 3102	Built in efficiency valve			2.63
18FX (For silicone material)	350 000 3321	Standard		VU40 VF40	8.46

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M518MF	350 000 3209	Standard		VU20, VU25, VU30, VF20, VF25, VF30, VB17, VB20, VBL20	1.82
	350 000 5209	Built in mesh-filter			1.92
	350 010 4209	Built in efficiency valve			1.94
	350 020 4209	Built in button valve			2.21
M518MFO	350 000 1209	Standard		VU20, VU25, VU30, VF20, VF25, VF30, VB17, VB20, VBL20	2.88
	350 000 1109	Built in mesh-filter			2.94
	350 010 1209	Built in efficiency valve			2.87
M518MFB (For silicone material)	350 000 3239	Standard		VB17, VB20 VBL20	3.56
18F	350 000 3310	Standard		VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20	3.23
	350 000 4310	Built in mesh-filter			3.3
	350 010 3310	Built in efficiency valve			3.43
	350 020 3310	Built in button valve			
M518MFX (For silicone material)	350 000 3229	Standard		VU20, VU25, VU30 VF20, VF25, VF30	3.71
18F	350 000 3311	Standard		VU40 VF40 VB30, VB40 VBL30, VBL40 VBU35, VBU45 VBX35, VBX45	5.62
	350 000 4311	Built in mesh-filter			5.72
	350 010 3311	Built in efficiency valve			5.86
	350 020 3311	Built in button valve			8.97
18FO	350 000 2311	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35,VBU45, VBX35, VBX45	8.24
	350 000 4811	Built in mesh-filter			8.41

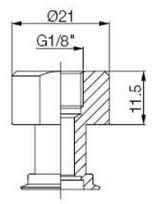
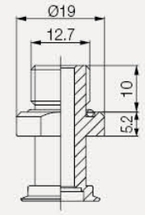
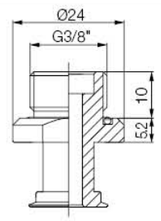
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
18FB (For silicone material)	350 000 3331	Standard		VB30, VB40, VBL30, VBL40, VBU35, VBU45	9.78
18M	350 000 2304	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	5.68
	350 000 4304	Built in mesh-filter			5.73
	350 010 2304	Built in efficiency valve			5.63
14M	350 000 3404	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	5.88
	350 000 3804	Built in mesh-filter			5.92
	350 010 3404	Built in efficiency valve			6.03
38M	350 000 3504	Standard		VBU35, VBU45, VBX35, VBX45	9.16
	350 000 3904	Built in mesh-filter			9.56
	350 010 3504	Built in efficiency valve			9.72
18F	350 000 3312	Standard		VU50, VF50 VB50, VBL50 VBU55, VBX55	14.47
	350 000 4312	Built in mesh-filter			14.58
	350 010 3312	Built in efficiency valve			15.81
	350 020 3312	Built in button valve			14.25
18FO	350 000 1312	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	10.12
	350 000 4912	Built in mesh-filter			10.2
	350 010 1312	Built in efficiency valve			10.22

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
14M	350 000 3405	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	14.18
	350 000 3805	Built in mesh-filter			14.42
	350 010 3405	Built in efficiency valve			14.38
38M	350 000 3505	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	18.14
	350 000 3905	Built in mesh-filter			17.75
	350 010 3505	Built in efficiency valve			17.53
18FB2 (For silicone material)	350 000 3342	Standard		VBU35, VBU45	5.4
	350 000 3442	Built in mesh-filter			5.5
	350 010 3342	Built in efficiency valve			5.64
18MB2 (For silicone material)	350 000 3341	Standard		VBU35, VBU45	5.44
	350 000 4341	Built in mesh-filter			5.33
	350 010 3341	Built in efficiency valve			5.47
18FB2 (For silicone material)	350 000 3444	Standard		VBU55, VBX55	15.33
	350 000 3844	Built in mesh-filter			15.81
	350 010 3342	Built in efficiency valve			15.95
14MB2 (For silicone material)	350 000 3441	Standard		VBU35, VBU45	5.88
	350 000 3841	Built in mesh-filter			6
	350 010 3441	Built in efficiency valve			6.14

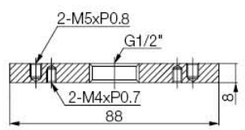
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
14MB2 (For silicone material)	350 000 3443	Standard		VBU55	16.69
	350 000 3843	Built in mesh-filter			17.22
	350 010 3441	Built in efficiency valve			17.26
38MB2 (For silicone material)	350 000 3541	Standard		VBU35, VBU45	9.44
	350 000 3941	Built in mesh-filter			9.53
	320 010 3541	Built in efficiency valve			9.56
38MB2 (For silicone material)	350 000 3543	Standard		VBU55	16.69
	350 000 3943	Built in mesh-filter			17.05
	350 010 3543	Built in efficiency valve			17.11
18F	350 000 3323	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	59.36
	350 000 4323	Built in mesh-filter			59.76
	350 020 3323	Built in button valve		VF75, VF90	83.56
14F	350 000 3423	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	56.92
	350 000 3823	Built in mesh-filter			57.32
38F	350 000 3523	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	55.08
	350 000 3923	Built in mesh-filter			55.48

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
12F	350 000 3623	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	51.50
	350 000 4023	Built in mesh-filter			51.90
12F	350 000 3614	Standard		VB110, VB110B, VF110	103.70
	350 000 4014	Built in mesh-filter			10.50
	350 020 3614	Built in button valve		VF110	115.54
12F	350 000 3615	Standard		VB150, VF150	198.93
	350 000 4015	Built in mesh-filter			199.73
	350 020 3615	Built in button valve		VF150	314.47
M16M	350 000 1405	Standard		VF50X2	52.23
12F	350 000 3616	Standard		VF200	555
	350 000 4016	Built in mesh-filter			555.3

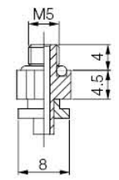
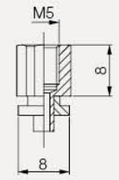
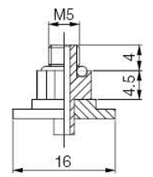
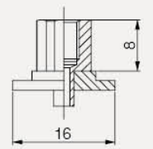
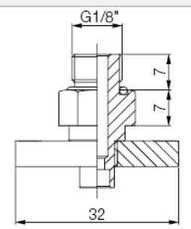
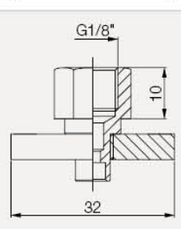
Fitting – BL5040 series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
18F	350 005 0101	Standard		BL5040	11.24
	350 005 0103	Built in mesh-filter			11.27
14M	350 005 0202	Standard		BL5040	7.92
	350 005 0204	Built in mesh-filter			8.96
38M	350 005 0302	Standard		BL5040	11.47
	350 005 0304	Built in mesh-filter			11.51

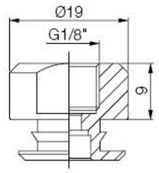
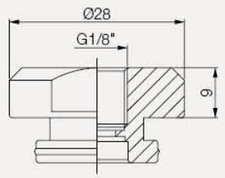
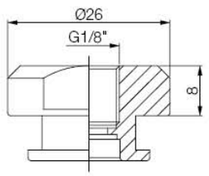
Fitting – VOBL35x90 series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
12F	350 000 3660	Standard		VOBL35x90	18.7

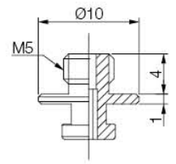
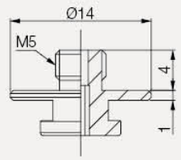
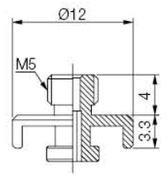
Fitting – VOU series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M5M	350 002 1011	Standard		VOU4x10, VOU6X10	1.78
M5F	350 002 1111	Standard		VOU4x10, VOU6X10	2.82
M5M	350 002 1012	Standard		VOU4x20, VOU6X20, VOU8X20, VOU8X30, VOU10X30	1.78
M5F	350 002 1112	Standard		VOU4x20, VOU6X20, VOU8X20, VOU8X30, VOU10X30	2.82
18M	350 002 3021	Standard		VOU15x45, VOU20X60	13.74
	350 002 3022	Built in mesh-filter			13.84
18F	350 002 3121	Standard		VOU15x45, VOU20X60	10.32
	350 002 3122	Built in mesh-filter			10.46

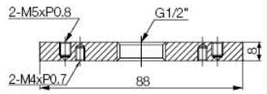
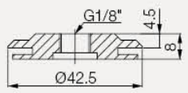
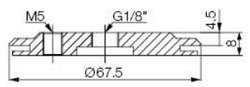
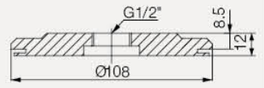
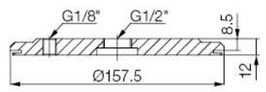
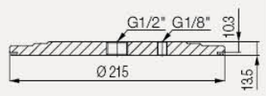
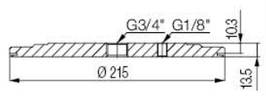
Fitting – KPS series

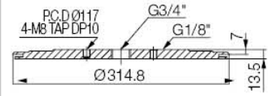
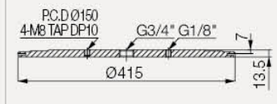
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
18F	350 000 3350	Standard		KPS1	6.76
	350 000 4350	Built in mesh-filter			6.78
18F	350 000 3351	Standard		KPS5, KPS5-15	16.22
	350 000 4351	Built in mesh-filter			16.26
18F	350 000 3352	Standard		KPS9	12.65
	350 000 4352	Built in mesh-filter			12.85

Fitting – FF series

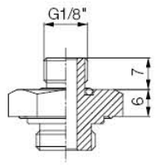
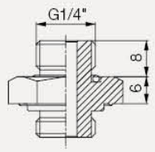
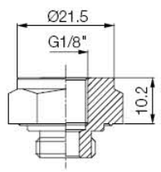
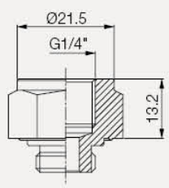
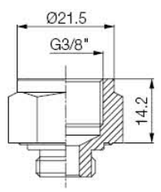
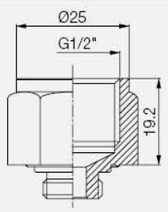
Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M5M	350 007 0101	Standard		FF15	1.41
M5M	350 007 0102	Standard		FF20, FF25, FF30	2.59
M5M	350 007 0103	Standard		FF15X, FF20X	2.41

Fitting – VS series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
12F	350 001 3611	Standard		VS30x80	6.31
18F	350 001 3311	Standard		VS35	17.81
	350 021 3311	Built in button valve			41.17
18F	350 001 3312	Standard		VS60	47.57
	350 021 3312	Built in button valve			70.92
12F	350 001 3623	Standard		VS100	222.99
	350 021 3623	Built in button valve			338.53
12F	350 001 3615	Standard		VS150	525
	350 021 3615	Built in button valve			640.54
12F	350 001 3616	Standard		VS200	1015
34F	350 001 3716	Standard		VS200	1015

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
34F	350 001 3717	Standard		VS300	2303
34F	350 001 3718	Standard		VS400	3016

Fitting – VOBF series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
18M	350 000 3346	Standard		VOBF30x60, VOBF40x80 VOBF55x110	9.7
14M	350 000 3446	Standard		VOBF30x60 VOBF40x80 VOBF55x110	10.88
18F	350 000 3345	Standard		VOBF30x60 VOBF40x80 VOBF55x110	11.63
14F	350 000 3445	Standard		VOBF30x60 VOBF40x80 VOBF55x110	7.25
38F	350 000 3445	Standard		VOBF30x60 VOBF40x80 VOBF55x110	10.56
12F	350 000 3645	Standard		VOBF30x60 VOBF40x80 VOBF55x110	15.7

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Index



Floating Suction Cup Page 50

· Floating suction cup
· Diameter range: Ø20 ~ Ø60
· Material selection: Aluminum, Peek



Solar Master Page 12

· VMECA vacuum cartridge technology integrated
· Low air consumption while achieving very fast and stable vacuum
· Available for various sizes according to wafer size



Needle Gripper Page 14

· Double-acting pneumatic cylinder for safe handling of work pieces
· Variable needle stroke for widely covering applications
· Easy operation and maintenance



MINI V-GRIP (G16, G20, G30 series) Page 50

· Integrated VMECA cartridge technology inside
· Handles various products with different shapes, sizes and porous material
· Flexible sealing foam(EPDM) for excellent gripping

NF Series



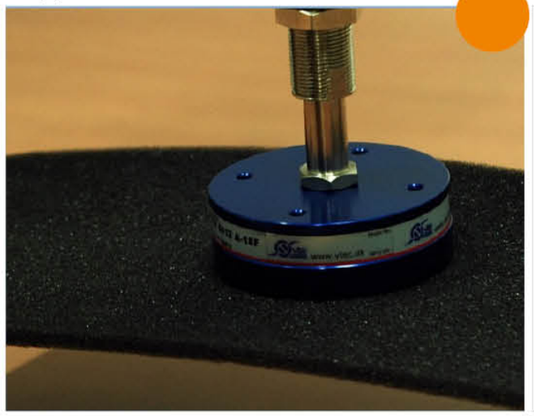
Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling

Advantages

Handling thin and porous items without damage and deformation
High vacuum flow and efficient compressed air-consumption

Application





Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper Film, CDs and DVDs

Recommended Lifting Force (Max.)

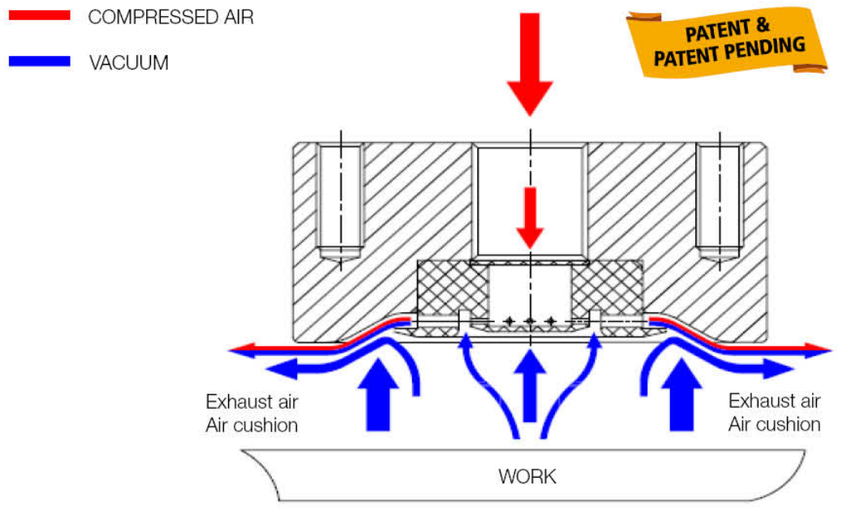
Model	Operating Pressure	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular			Page
		4bar	5bar	6bar	4bar	5bar	6bar	
NF20-06	4~6	58	67	78	0.16	0.19	0.21	
NF20-12	4~6	116	135	154	0.19	0.25	0.35	
NF40-06	4~6	58	67	78	0.29	0.39	0.49	
NF40-12	4~6	116	135	154	0.49	0.59	0.68	
NF60-06	4~6	105	123	126	0.59	0.79	0.89	
NF60-12	4~6	160	190	223	0.99	1.25	1.49	

※ The lifting force above does not include safety factor

Available size option

Model	Description	Model	Description
NF20-06	Floating suction cup, Ø20	NF60-06	Floating suction cup, Ø60
NF20-12	Floating suction cup, Large flow, Ø20	NF60-12	Floating suction cup, Large flow, Ø60
NF40-06	Floating suction cup, Ø40		
NF40-12	Floating suction cup, Large flow, Ø40		

Principle of Operation



NF20

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling

Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs



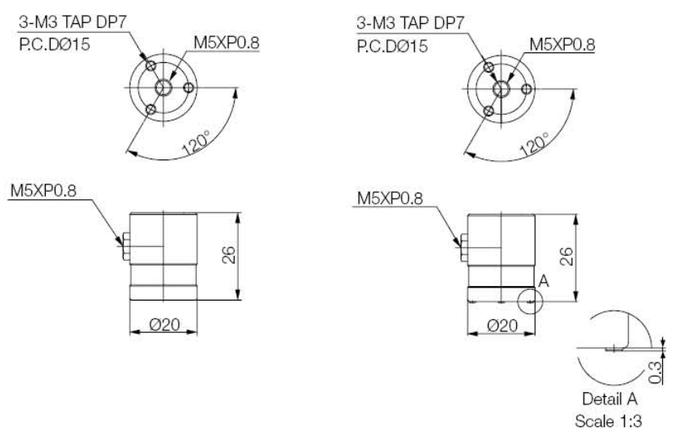
Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular		
		4bar	5bar	6bar	4bar	5bar	6bar
NF20-06	4~6	58	67	78	0.16	0.19	0.21
NF20-12	4~6	116	135	154	0.19	0.25	0.35

※ The lifting force above does not include safety factor

Dimension

[Unit : mm]



Build an Ordering No.

NF20 - ◯◯ - ◯ - ◯◯ - M5F : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Floating suction cup, 20mm diameter, Aluminum, Fitting, M5xP0.8 female fitting	19.1	NF20-06-A-M5F
	Floating suction cup, 20mm diameter, Peek, M5xP0.8 female fitting	11.32	NF20-06-P-M5F
	Floating suction cup, 20mm diameter, Large flow, Aluminum, M5xP0.8 female fitting	19.03	NF20-12-A-M5F
	Floating suction cup, 20mm diameter, Large flow, Peek, M5xP0.8 female fitting	11.4	NF20-12-P-M5F
	Floating suction cup, 20mm diameter, 4-Peek points, Aluminum, M5xP0.8 female fitting	19.5	NF20-06-4P-M5F
	Floating suction cup, 20mm diameter, 4-Peek points, Peek, M5xP0.8 female fitting	11.5	NF20-06-P-4P-M5F
	Floating suction cup, 20mm diameter, Large flow, 4-Peek points, Aluminum, M5xP0.8 female fitting	19.6	NF20-12-4P-M5F
	Floating suction cup, 20mm diameter, Large flow, 4-Peek points, Peek, M5xP0.8 female fitting	11.54	NF20-12-P-4P-M5F

NF40

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling

Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs



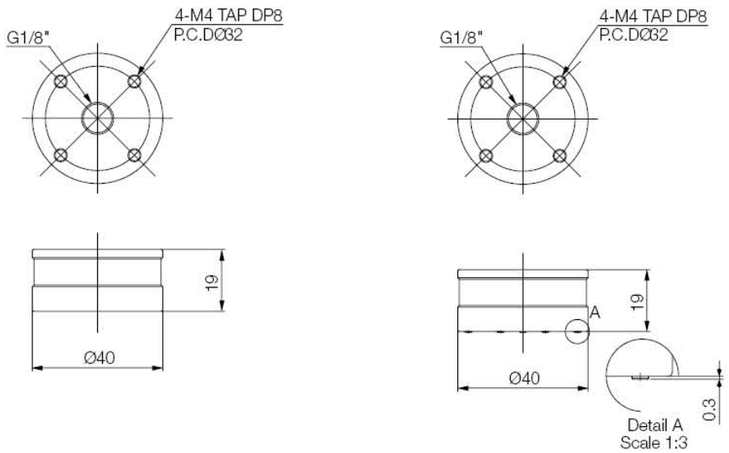
Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular		
		4bar	5bar	6bar	4bar	5bar	6bar
NF40-06	4~6	58	67	78	0.29	0.39	0.49
NF40-12	4~6	116	135	154	0.49	0.59	0.68

※ The lifting force above does not include safety factor

Dimension

[Unit : mm]



[Without peek points] [With peek points]

Build an Ordering No.

NF40 - ◯◯ - ◯ - ◯◯ - 18F : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Floating suction cup, 40mm diameter, Aluminum, Fitting, G1/8 female fitting	54.75	NF40-06-A-18F
	Floating suction cup, 40mm diameter, Peek, G1/8 female fitting	29.2	NF40-06-P-18F
	Floating suction cup, 40mm diameter, Large flow, Aluminum, G1/8 female fitting	54.68	NF40-12-A-18F
	Floating suction cup, 40mm diameter, Large flow, Peek, G1/8 female fitting	29.17	NF40-12-P-18F
	Floating suction cup, 40mm diameter, 9-Peek points, Aluminum, G1/8 female fitting	54.42	NF40-06-9P-18F
	Floating suction cup, 40mm diameter, 9-Peek points, Peek, G1/8 female fitting	30.1	NF40-06-P-9P-18F
	Floating suction cup, 40mm diameter, Large flow, 9-Peek points, Aluminum, G1/8 female fitting	54.37	NF40-12-9P-18F
	Floating suction cup, 40mm diameter, Large flow, 9-Peek points, Peek, G1/8 female fitting	30.15	NF40-12-P-9P-18F

NF60

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling

Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs



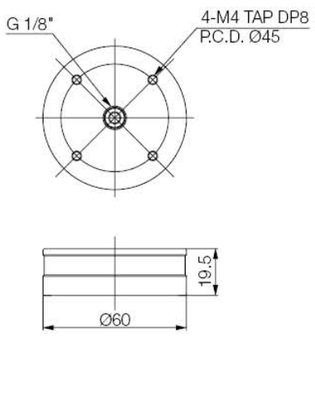
Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular		
		4bar	5bar	6bar	4bar	5bar	6bar
NF60-06	4~6	105	123	126	0.59	0.79	0.89
NF60-12	4~6	160	190	223	0.99	1.25	1.49

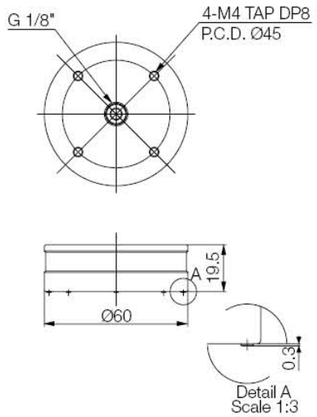
※ The lifting force above does not include safety factor

Dimension

[Unit : mm]



[Without peek points]



[With peek points]

Build an Ordering No.

NF60 - ◯◯ - ◯ - ◯◯ - 18F : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Floating suction cup, 60mm diameter, Aluminum, Fitting, G1/8 female fitting	130.1	NF60-06-A-18F
	Floating suction cup, 60mm diameter, Peek, G1/8 female fitting	62.22	NF60-06-P-18F
	Floating suction cup, 60mm diameter, Large flow, Aluminum, G1/8 female fitting	129.6	NF60-12-A-18F
	Floating suction cup, 60mm diameter, Large flow, Peek, G1/8 female fitting	62.47	NF60-12-P-18F
	Floating suction cup, 60mm diameter, 9-Peek points, Aluminum, G1/8 female fitting	130.25	NF60-06-9P-18F
	Floating suction cup, 60mm diameter, 9-Peek points, Peek, G1/8 female fitting	62.37	NF60-06-P-9P-18F
	Floating suction cup, 60mm diameter, Large flow, 9-Peek points, Aluminum, G1/8 female fitting	129.75	NF60-12-9P-18F
	Floating suction cup, 60mm diameter, Large flow, 9-Peek points, Peek, G1/8 female fitting	62.62	NF60-12-P-9P-18F

NF-RA Series

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling in non-contact handling
Vacuum port on the side – Available to keep clean on surface for transfer
Vacuum flow adjustment

Advantages

Handling thin and porous items without damage and deformation
High vacuum flow and efficient compressed air-consumption

Application



Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs

Available size option

Model	Description
NF40-06-RA-18F	Floating suction cup, Side vacuum, Ø40
NF40-12-RA-18F	Floating suction cup, Side vacuum, Ø40
NF60-06-RA-18F	Floating suction cup, Side vacuum, Ø60
NF60-12-RA-18F	Floating suction cup, Side vacuum, Ø60

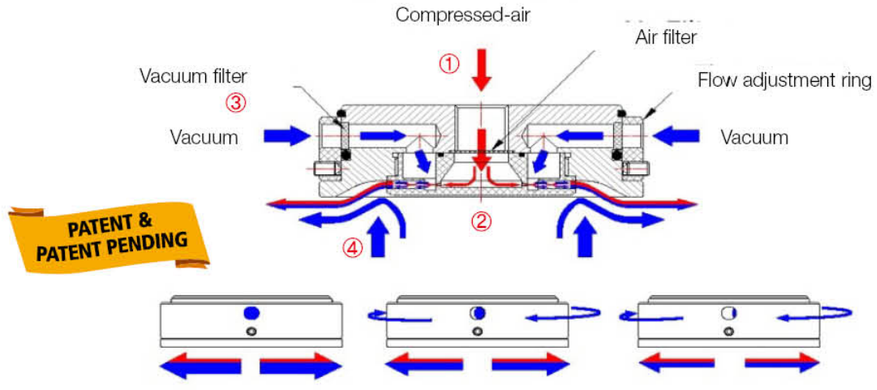


Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular			Page
		4bar	5bar	6bar	4bar	5bar	6bar	
NF40-06-RA-18F	4~6							
NF40-12-RA-18F	4~6	118	140	162	0.5~0.6	0.6~0.7	0.7~0.8	
NF60-06-RA-18F	4~6							
NF60-12-RA-18F	4~6	160	190	223	0.5~1.2	0.7~1.5	0.9~1.8	

※ The lifting force above does not include safety factor

Principle of Operation



① Compressed air supplies to the compressed air port
② Compressed air is passing through the 1st and 2nd nozzle (multi-stage vacuum nozzle)
③ High flow vacuum is created from its side port (max. vacuum flow and level of vacuum can be achieved)
④ High vacuum lifting force is generated.

Vacuum nozzles are not blocked by particle/ dust while it is operated.

NF40-RA

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling in non-contact handling
Vacuum port on the side – Available to keep clean on surface for transfer
Vacuum flow adjustment



Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs

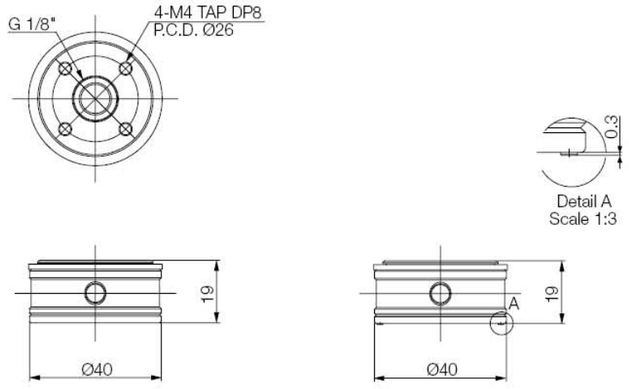
Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular		
		4bar	5bar	6bar	4bar	5bar	6bar
NF40-06-RA-18F	4~6						
NF40-12-RA-18F	4~6	118	140	162	0.5~0.6	0.6~0.7	0.7~0.8

※ The lifting force above does not include safety factor

Dimension

[Unit : mm]



Build an Ordering No.

NF40 - ◯◯ - RA - ◯◯ - 18F : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Adjustable floating suction cup, 40mm diameter, Aluminum, G1/8 female fitting	47.8	NF40-06-RA-18F
	Adjustable floating suction cup, 40mm diameter, 5-Peek points, Aluminum, G1/8 female fitting	47.84	NF40-06-RA-5P-18F
	Adjustable floating suction cup, 40mm diameter, 9-Peek points, Aluminum, G1/8 female fitting	47.91	NF40-06-RA-9P-18F
	Adjustable floating suction cup, 40mm diameter, Large flow, Aluminum, G1/8 female fitting	47.91	NF40-12-RA-18F
	Adjustable floating suction cup, 40mm diameter, Large flow, 5-Peek points, Aluminum, G1/8 female fitting	47.6	NF40-12-RA-5P-18F
	Adjustable floating suction cup, 40mm diameter, Large flow, 9-Peek points, Aluminum, G1/8 female fitting	47.71	NF40-12-RA-9P-18F

NF60-RA

Features and Strengths

Integrated with multi-stage vacuum generator
Large vacuum flow and powerful suction force in non-contact handling in non-contact handling
Vacuum port on the side – Available to keep clean on surface for transfer
Vacuum flow adjustment



Examples of use

Circuit boards, Solar cells, PCB boards, Wafer, Food, Paper
Film, CDs and DVDs

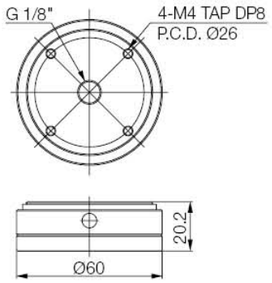
Recommended Lifting Force (Max.)

Model	Operating Pressure (bar)	Air Consumption (Nl/min)			Lifting Force (Kg) – Perpendicular		
		4bar	5bar	6bar	4bar	5bar	6bar
NF60-06-RA-18F	4~6						
NF60-12-RA-18F	4~6	160	190	223	0.5~1.2	0.7~1.5	0.9~1.8

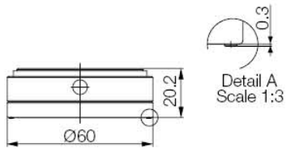
※ The lifting force above does not include safety factor

Dimension

[Unit : mm]



[With 18F fitting]



[With peek points]

Build an Ordering No.

NF60 - ◯◯ - RA - ◯◯ - 18F : Pre-mounted fitting

1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Adjustable floating suction cup, 60mm diameter, Aluminum, G1/8 female fitting	128.2	NF60-06-RA-18F
	Adjustable floating suction cup, 60mm diameter, 5-Peek points, Aluminum, G1/8 female fitting	128.24	NF60-06-RA-5P-18F
	Adjustable floating suction cup, 60mm diameter, 9-Peek points, Aluminum, G1/8 female fitting	128.34	NF60-06-RA-9P-18F
	Adjustable floating suction cup, 60mm diameter, Large flow, Aluminum, G1/8 female fitting	128	NF60-12-RA-18F
	Adjustable floating suction cup, 60mm diameter, 5-Peek points, Large flow, Aluminum, G1/8 female fitting	128.04	NF60-12-RA-5P-18F
	Adjustable floating suction cup, 60mm diameter, 9-Peek points, Large flow, Aluminum, G1/8 female fitting	128.11	NF60-12-RA-9P-18F

Solar Master



Features and Strengths
VMECA vacuum cartridge technology integrated
Low air consumption while achieving very fast and stable vacuum
Available for various sizes according to wafer size

Examples of use
Wafers, Solar cells

Holding force

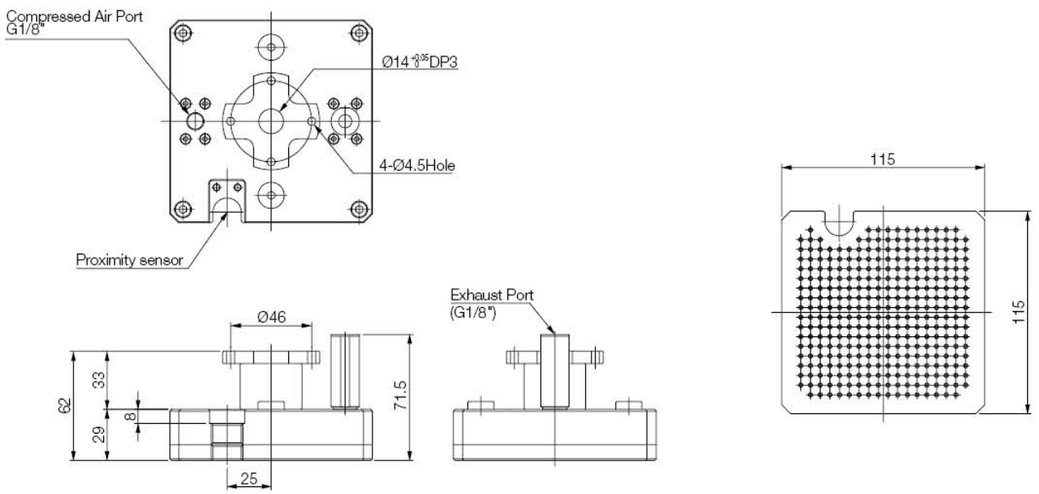
Model	Holding force (N) at different air inlet pressure			
	3 bar	4 bar	5 bar	6 bar
SM05	112.7	120.4	132.4	147

Air consumption

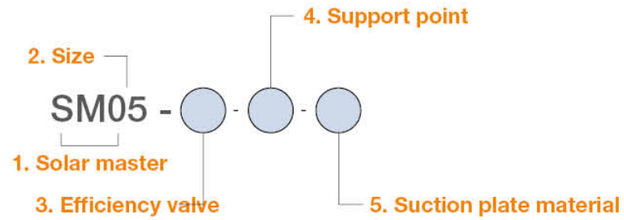
Model	Air consumption (Nl/min) at different air inlet pressure			
	1.7 bar	2.2 bar	3.14 bar	4 bar
SM05	34	40	52	64

Dimensions

[Unit : mm]



Build an Ordering No.



1. Solar master	Description	Symbol
	Wafer size 5", With free flow silencer, Integrated with the VMECA Vacuum Cartridge	SM

2. Size	Description	Symbol
	115mm X 115mm X H62mm	05

3. Efficiency valve	Description	Symbol
	No efficiency valve	Blank
	Efficiency valve	EV

4. Support point	Description	Symbol
	No support point	Blank
	Support point	P

5. Suction plate material	Description	Symbol
	Aluminum	A
	PEEK	PK
	POM	PO

Needle Gripper



Features and Strengths

Double-acting pneumatic cylinder for safe handling of work pieces
Variable needle stroke for widely covering applications
Easy operation and maintenance

Examples of use

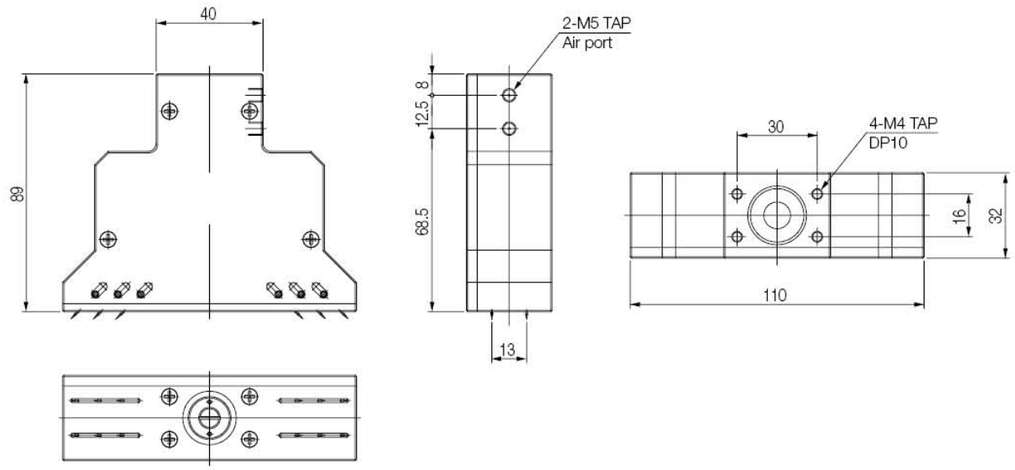
Textiles, Fleece, Shoes soles, Carpets, Metal foam, Felt
Insulating mats, Foam materials

Specifications

Description	VHN110–12P
Number of needles	12
Needle diameter	1.5 Ø
Stroke	0 ~ 3.5 mm
Operating pressure	3 ~ 6 bar
Operating temperature	5 ~ 60 °C
Weight	500 g
Material of Needles	S45C

Dimensions

[Unit : mm]

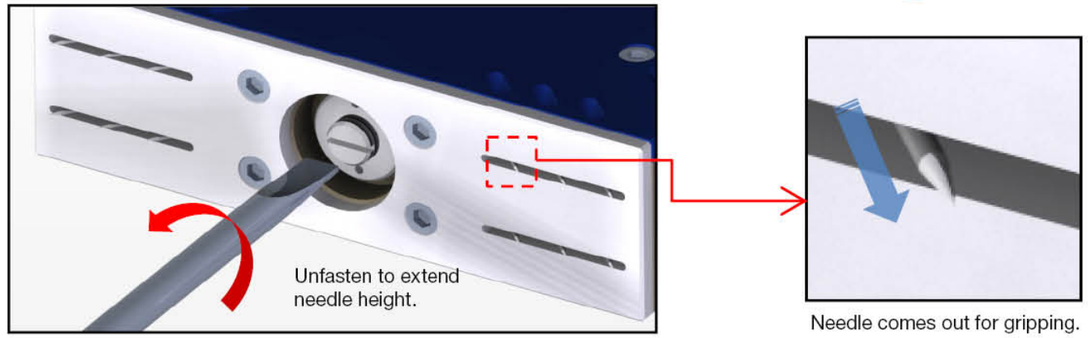


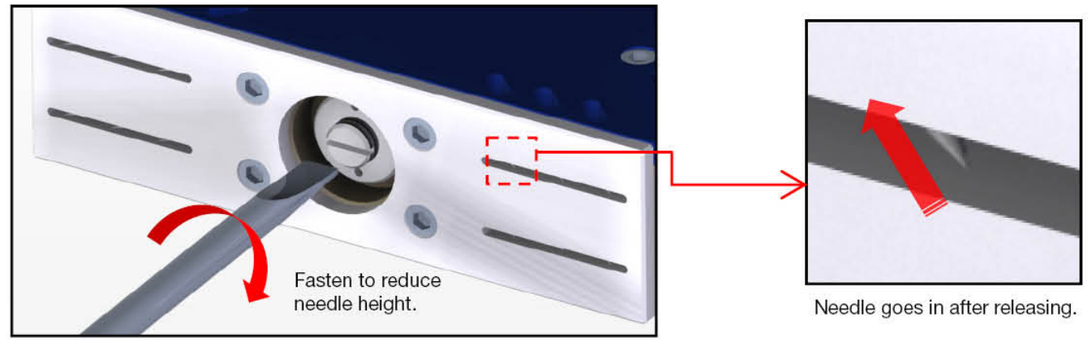
Build an Ordering No.

VHN110–12P
1. Needle Gripper

1. Needle Gripper	Description	Symbol
	Needle Gripper, 110mm size, Aluminum Body, 12 needles, Needle dia.1.5mm	VHN110–12P

Adjustable needle length





G16&G20 Series

Features and Strengths

Integrated with VMECA vacuum cartridge pump
Excellent grip for both even & uneven surface products with flexible sealing form
Available for customized size according to applications

Examples of use

PCB boards, Solar cell, Porous material products



Performance data

Model	Max. Vacuum Level (-kPa)	Feed pressure (Bar)	Air Consumption	Working Temperature	Noise Level (dBA)
G16x60-C202-B	-90	3~6	32 Nl/min at 4bar	-20°C ~ 80°C	55 ~ 65
G16X108–C203–B	-90	3~6	32 Nl/min at 4bar	-20°C ~ 80°C	55 ~ 65
G20x60-C202-B	-90	3~6	32 Nl/min at 4bar	-20°C ~ 80°C	55 ~ 65
G20x108-C203-B	-90	3~6	32 Nl/min at 4bar	-20°C ~ 80°C	55 ~ 65

Performance data

Model	Holding force at 60% Sealing (N)	Holding force at 80% Sealing (N)	Holding force at 100% Sealing (N)	Net weight (g)
G16x60-C202-B	6.8	11	16	57.0
G16x108-C203-B	8.0	22	32	85.0
G20x60-C202-B	6.8	11	16	64.0
G20x108-C203-B	8.0	22	32	95.0

※ Actual holding force might be different according to surface and porousness of product
※ In above test result, the safety factor is not considered.

Build an Ordering No.

G20x108–C203–B

1. Mini V-GRIP

1. Mini V-GRIP	Description	Symbol
	Mini V-GRIP, Width 16mm x Length 60mm, 2stage cartridge	G16X60–C202–B
	Mini V-GRIP, Width 16mm x Length 108mm, 3stage cartridge	G16X108–C203–B
	Mini V-GRIP, Width 20mm x Length 60mm, 2stage cartridge	G20x60-C202-B
	Mini V-GRIP, Width 20mm x Length 108mm, 3stage cartridge	G20x108-C203-B

Spare Parts – Flexible sealing foam

Part No.	Description
16X60–S08	Flexible sealing foam for G16x60-C202-B
16X108–S08	Flexible sealing foam for G16x108-C203-B
20X60–S08	Flexible sealing foam for G20x60-C202-B
20X108–S08	Flexible sealing foam for G20x108-C203-B

G 30 series

Features and Strengths

- Integrated VMECA cartridge technology inside
- Handles various products with different shapes, sizes and porous material
- Flexible sealing foam(EPDM) for excellent gripping
- Check valve and filter integrated
- Durable and light weight aluminum body frame
- Easy Installation and low maintenance

Specifications

Spec.	G30
Max. Vacuum level	-90 kPa
Max. Open Vacuum flow	146 Nl/min
Max. Feed pressure	7 bar
Temperature	-20 ~ 80 ℃
Noise level	55 ~ 65 dbA

Characteristics

Model	Air inlet Pressure psi (bar)	Air consumption Nl/m (scfm)	Max. Vacuum flow Nl/m (scfm)	Max. Vacuum level -kPa (-mmHg)
G30X100-LC1	87 (6)	83.5 (2.95)	111 (3.92)	90 (675)
G30X150-LC1				
G30X200-L1	87 (6)	83.5 (2.95)	146 (5.16)	90 (675)
G30X250-L1				
G30X300-L1				
G30X400-L1				
G30X500-L1				
G30X600-L1				

Holding Force Ratio according to Length

■ EL type (Oval shape suction hole)

Model	Holding force at 40% Sealing (N)	Holding force at 60% Sealing (N)	Holding force at 80% Sealing (N)	Holding force at 100% Sealing (N)	Product weight (Kg)
G30X100-L1-EL	Please contact VMECA	51	Please contact VMECA	77	0.159
G30X150-L1-EL	43	78	108	168	0.243
G30X200-L1-EL	49	106	151	173	0.344
G30X250-L1-EL	69	120	170	206	0.418
G30X300-L1-EL	72	132	182	244	0.503
G30X400-L1-EL	80	158	295	443	0.671
G30X500-L1-EL	97	190	377	526	0.823
G30X600-L1-EL	111	231	487	604	0.979

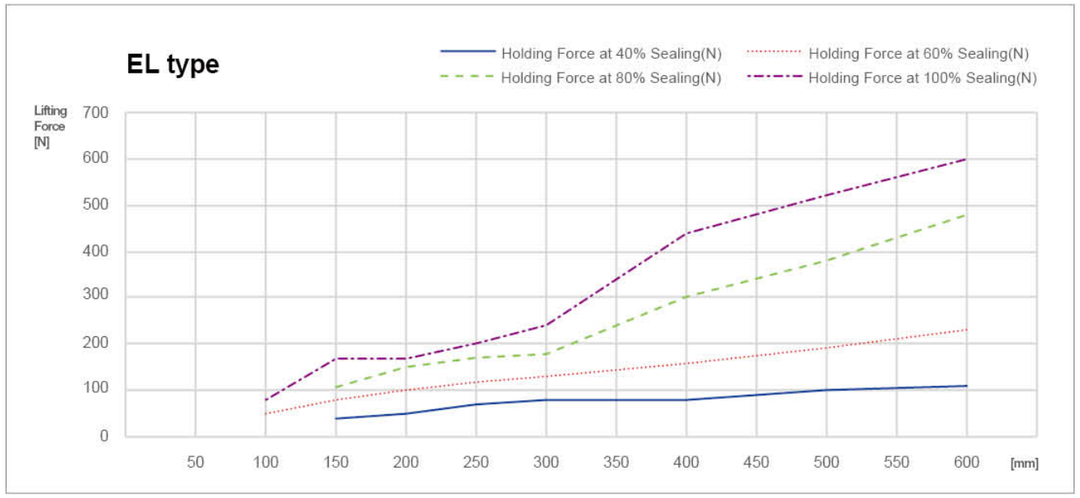
※ The holding force above is actual test result, not considered with a safety factor.

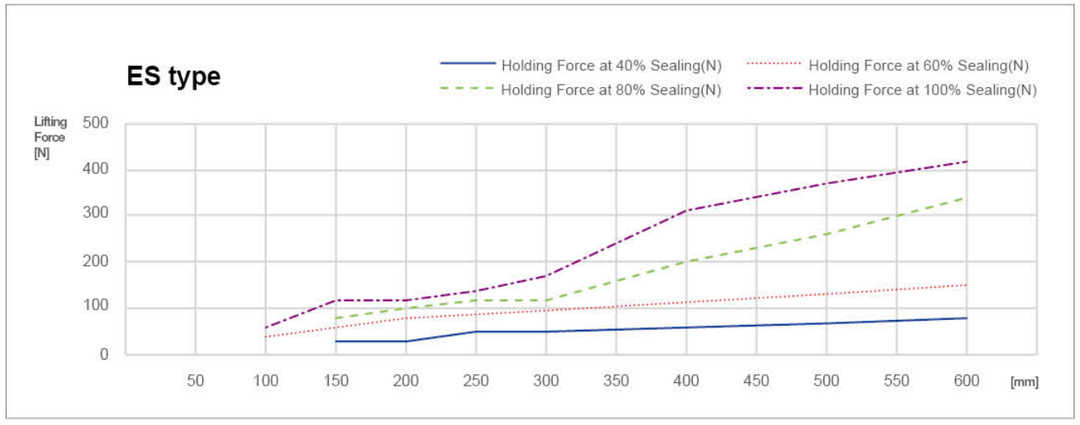
Holding Force Ratio according to Length

■ ES type (Round shape suction hole)

Model	Holding force at 40% Sealing (N)	Holding force at 60% Sealing (N)	Holding force at 80% Sealing (N)	Holding force at 100% Sealing (N)	Product weight (Kg)
G30X100-LC1-ES	Please contact VMECA	36	Please contact VMECA	55	0.159
G30X150-LC1-ES	31	55	76	120	0.243
G30X200-L1-ES	33	75	106	123	0.343
G30X250-L1-ES	48	84	120	145	0.418
G30X300-L1-ES	51	92	126	168	0.503
G30X400-L1-ES	57	110	205	308	0.669
G30X500-L1-ES	69	132	263	371	0.822
G30X60-L1-ES	78	149	343	420	0.978

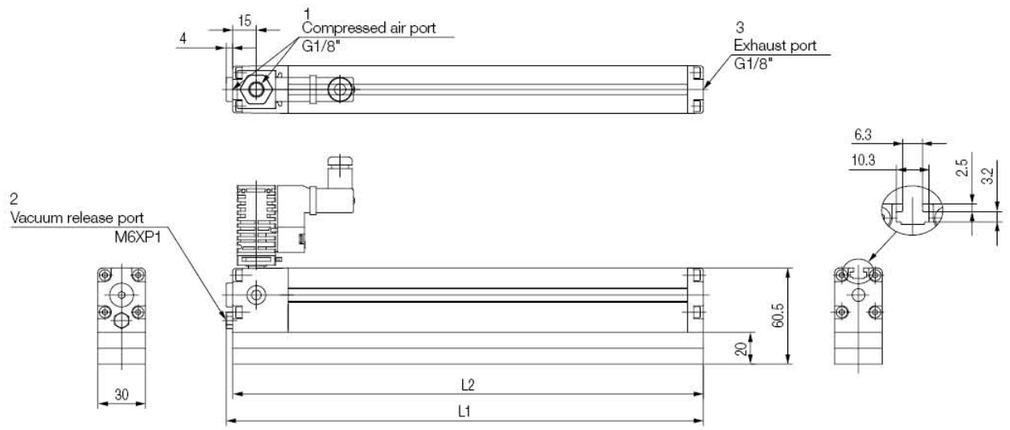
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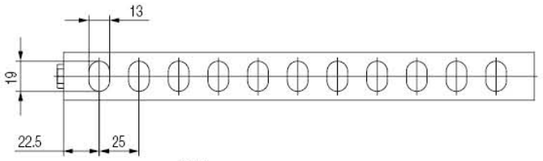


Dimensions – G30 series (100~600mm)

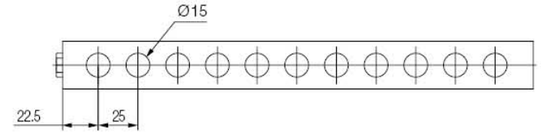
[Unit : mm]



▶ EL type

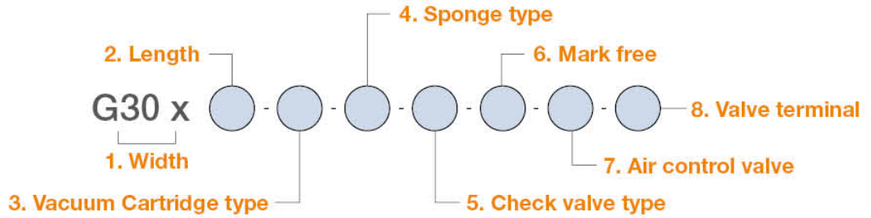


▶ ES type



Model	Length	Sponge pad length	Vacuum port	Compressed air valve
	L1	L2	The number of port	Type
G30X100-LC1-ES	102.1	96.6	3	VMS18
G30X150-LC1-ES	150.6	146.6	5	
G30X200-L1-ES	200.6	196.6	7	
G30X250-L1-ES	250.6	246.6	9	
G30X300-L1-ES	300.6	296.6	11	
G30X400-L1-ES	400.6	396.6	15	
G30X500-L1-ES	500.6	496.6	19	
G30X600-L1-ES	600.6	596.6	23	

Build an Ordering No.



1. Width	Description	Symbol
	G series, Width 30mm	G30

2. Length	Description	Symbol
	Length 100mm	100
	Length 150mm	150
	Length 200mm	200
	Length 250mm	250
	Length 300mm	300
	Length 400mm	400
	Length 500mm	500
	Length 600mm	600

3. Vacuum Cartridge type	Description	Symbol
	VC252 -cartridges for length 100mm ~ 150mm	LC1
	VC253 -cartridges for length 200mm ~ 600mm	L1

4. Sponge type	Description	Symbol
	Oval shape suction hole	EL
	Round shape suction hole	ES

5. Check valve type	Description	Symbol
	For non-leakage application	1
	For leakage rate 1~10% application	2
	* The result above is with VSM203 and VU50 suction cup and it is for your reference, not for absolute standard	

6. Mark free	Description	Symbol
	Standard (No mark free)	Blank
	Mark free	A

7. Air control valve	Description	Symbol
	No air control valve	Blank
	Air control valve, AC110V	A1
	Air control valve, AC220V	A2
	Air control valve, DC24V	A3
	Double solenoid valve, AC110V	D1
	Double solenoid valve, AC220V	D2
	Double solenoid valve, DC24V	D3

8. Valve terminal	Description	Symbol
	Solenoid Terminal, DIN, Lamp, No LW	DL

G 60 series

Features and Strengths

- Integrated VMECA cartridge technology inside
- Handles various products with different shapes, sizes and porous material
- Flexible sealing foam(EPDM) for excellent gripping
- Check valve and filter integrated
- Durable and light weight aluminum body frame
- Easy Installation and low maintenance

Specifications

Spec.	G60
Max. Vacuum level	-90 kPa
Max. Open Vacuum flow	292 Nl/min
Max. Feed pressure	7 bar
Temperature	-20 ~ 80℃
Noise level	55 ~ 65 dbA

Characteristics

Model	Air inletPressure psi (bar)	Air consumption Nl/m (scfm)	Max. Vacuum flow Nl/m (scfm)	Max. Vacuum level -kPa (-mmHg)
G60X100-LC2	87 (6)	167 (5.897)	222 (7.84)	90 (675)
G60X150-LC2				
G60X200-L2	87 (6)	167 (5.897)	292 (10.31)	90 (675)
G60X250-L2				
G60X300-L2				
G60X400-L2				
G60X500-L2				
G60X600-L2				

Holding Force Ratio according to Length

■ EL type (Oval shape suction hole)

Model	Holding force at 40% Sealing (N)	Holding force at 60% Sealing (N)	Holding force at 80% Sealing (N)	Holding force at 100% Sealing (N)	Product weight (Kg)
G60X100-LC2-EL	Please contact VMECA	102	Please contact VMECA	154	0.319
G60X150-LC2-EL	86	156	216	336	0.486
G60X200-L2-EL	98	212	302	346	0.689
G60X250-L2-EL	138	240	340	412	0.836
G60X300-L2-EL	144	264	364	488	1.007
G60X400-L2-EL	160	316	590	886	1.343
G60X500-L2-EL	194	380	754	1052	1.646
G60X600-L2-EL	222	462	974	1208	1.947

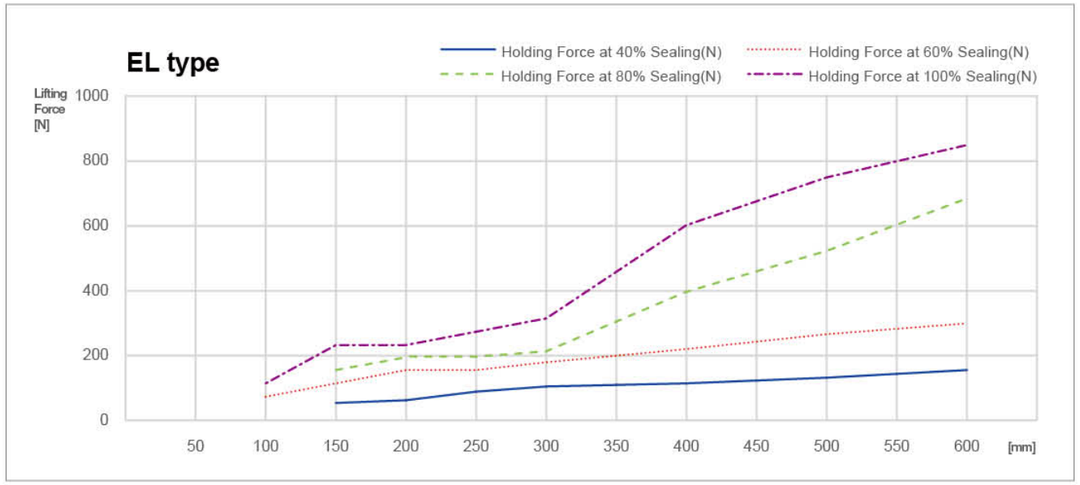
※ The holding force above is actual test result, not considered with a safety factor.

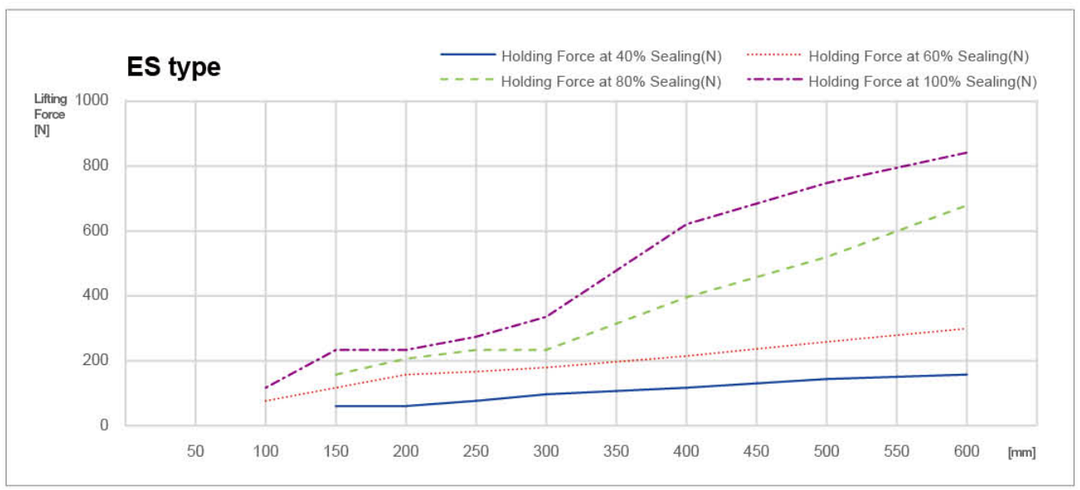
Holding Force Ratio according to Length

■ ES type (Round shape suction hole)

Model	Holding force at 40% Sealing (N)	Holding force at 60% Sealing (N)	Holding force at 80% Sealing (N)	Holding force at 100% Sealing (N)	Product weight (Kg)
G60X100-LC2-ES	Please contact VMECA	72	Please contact VMECA	110	0.319
G60X150-LC2-ES	62	110	152	240	0.486
G60X200-L2-ES	66	150	212	246	0.686
G60X250-L2-ES	96	168	240	290	0.836
G60X300-L2-ES	102	184	252	336	1.006
G60X400-L2-ES	114	220	410	616	1.369
G60X500-L2-ES	138	264	526	742	1.644
G60X600-L2-ES	156	298	686	840	1.947

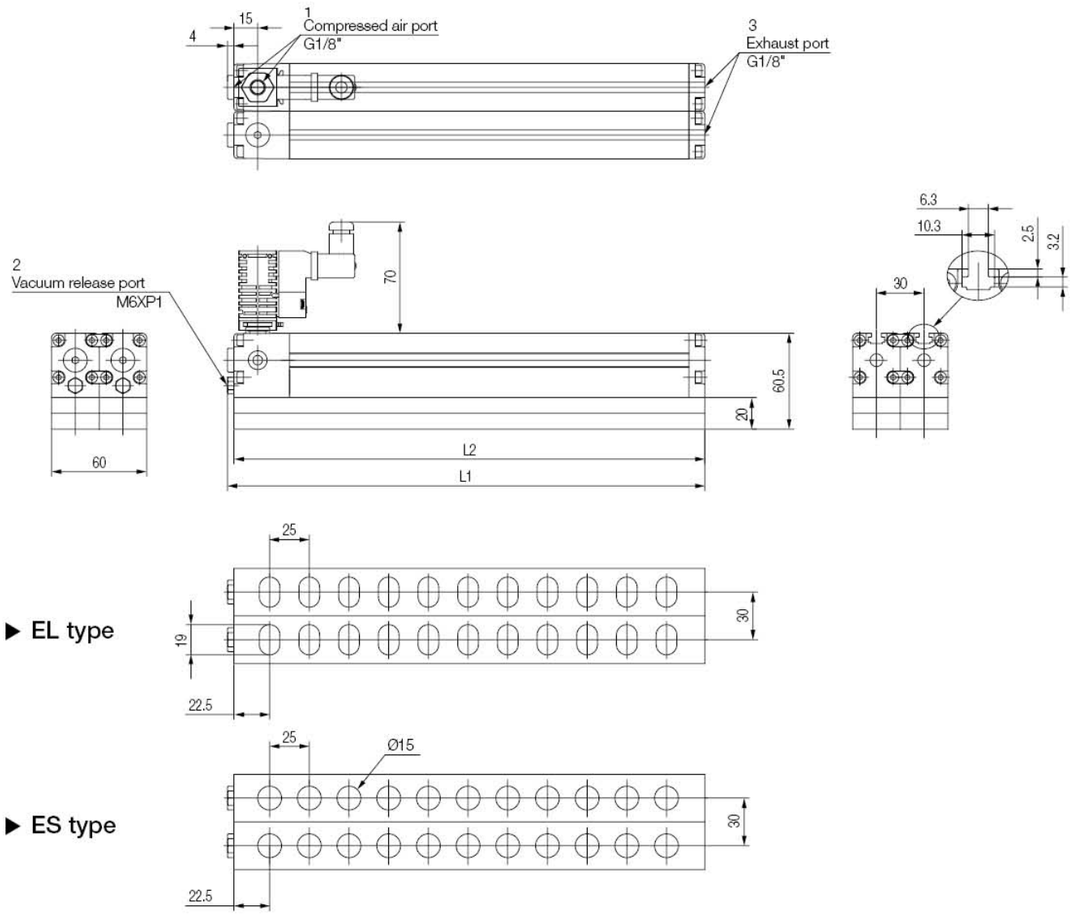
※ The holding force above is actual test result, not considered with a safety factor.





Dimensions – G30 series (100~600mm)

[Unit : mm]

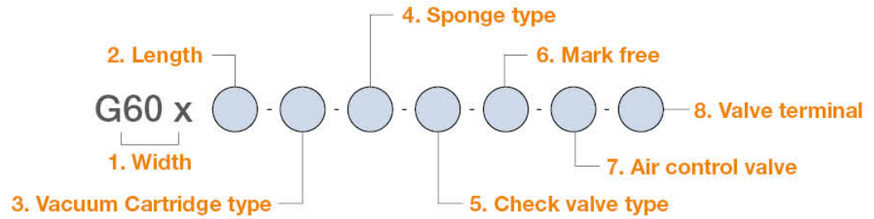


▶ EL type

▶ ES type

Model	Length	Sponge pad length	Vacuum port	Compressed air valve
	L2	L2	The number of port	Type
G60X100-LC2-ES	102.1	96.6	6	MS18
G60X150-LC2-ES	150.6	146.6	10	
G60X200-L2-ES	200.6	196.6	7	
G60X250-L2-ES	250.6	246.6	18	
G60X300-L2-ES	300.6	296.6	22	
G60X400-L2-ES	400.6	396.6	30	
G60X500-L2-ES	500.6	496.6	38	
G60X600-L2-ES	600.6	596.6	46	

Build an Ordering No.



1. Width	Description	Symbol
	G series, Width 60mm	G60

2. Length	Description	Symbol
	Length 100mm	100
	Length 150mm	150
	Length 200mm	200
	Length 250mm	250
	Length 300mm	300
	Length 400mm	400
	Length 500mm	500
	Length 600mm	600

3. Vacuum Cartridge type	Description	Symbol
	VC252 -cartridges for length 100mm ~ 150mm	LC2
	VC253 -cartridges for length 200mm ~ 600mm	L2

4. Sponge type	Description	Symbol
	Oval shape suction hole	EL
	Round shape suction hole	ES

5. Check valve type	Description	Symbol
	For non-leakage application	1
	For leakage rate 1~10% application	2
	* The result above is with VSM203 and VU50 suction cup and it is for your reference, not for absolute standard.	

6. Mark free	Description	Symbol
	Standard (No mark free)	Blank
	Mark free	A

7. Air control valve	Description	Symbol
	No air control valve	Blank
	Air control valve, AC110V	A1
	Air control valve, AC220V	A2
	Air control valve, DC24V	A3
	Double solenoid valve, AC110V	D1
	Double solenoid valve, AC220V	D2
	Double solenoid valve, DC24V	D3

8. Valve terminal	Description	Symbol
	Solenoid Terminal, DIN, Lamp, No LW	DL