



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 suction lip Ø15 ~ 32
40	For suction lip Ø45 ~ 60
60	For suction lip Ø65 ~ 85

Suction lip



Suction lip	Model		Material
	Diameter	Description	
X	25	For suction lip Ø15 ~ 32	N6
	30		S3
	45		S5
	55		W3
	65		W5
	75		W3(FDA)
			W5(FDA)
			U6
			PU
			N6
U	25	For suction lip Ø45 ~ 60	S3
	30		S5
	45		W3
	55		W5
	65		W3(FDA)
	75		W5(FDA)
			U6
			PU
			N6
			S3
P	15	For suction lip Ø65 ~ 85	S5
	17		W3
	20		W5
	27		W3(FDA)
	32		W5(FDA)
	48		U6
	60		PU
	72		N6
	85		S3
			S5
F	25	For suction lip Ø15 ~ 32	PU
	30		
	45		
	55		
DD	4030	For suction lip Ø45 ~ 60	N6
			S3
			S5
			W3
			W5
			W3(FDA)
			W5(FDA)
			U6
			PU
			N6
MBU	17	For suction lip Ø65 ~ 85	S3
	23		S5
	27		W3
			W5
			W3(FDA)
			W5(FDA)
			U6
			PU
			N6
			S3
MD	22	For suction lip Ø45 ~ 60	S5
			W3
			W5
			W3(FDA)
			W5(FDA)
			U6
			NE
			SE
			WSE
	S		30
50		S3	
60		S5	
		W3	
		W5	
		W3(FDA)	
		W5(FDA)	
		U6	
		N6	
MU		45	For suction lip Ø15 ~ 32
	55	S5	
	65	W3	
	75	W5	
	80	W3(FDA)	
		W5(FDA)	
		U6	
		N6	
		S3	
	MF	45	
55		W3	
65		W5	
75		W3(FDA)	
80		W5(FDA)	
		U6	
		N6	
		S3	
		S5	



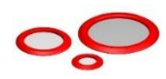


Suction Stopper



Model	Description
Suction Stopper	
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

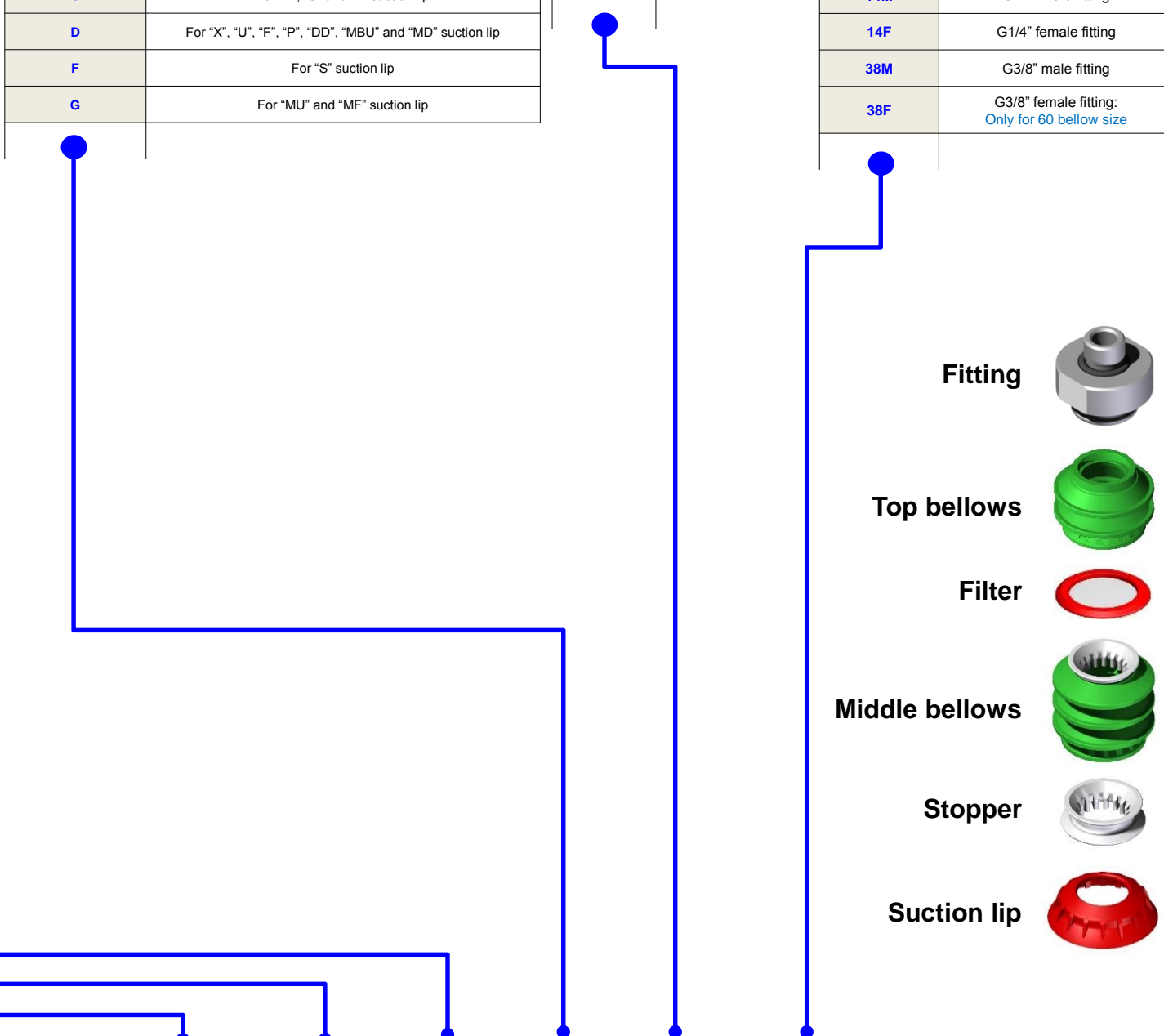


Model	Description
Filter	
Blank	No filter
F2	Mesh disk filter (200mesh)

Fitting



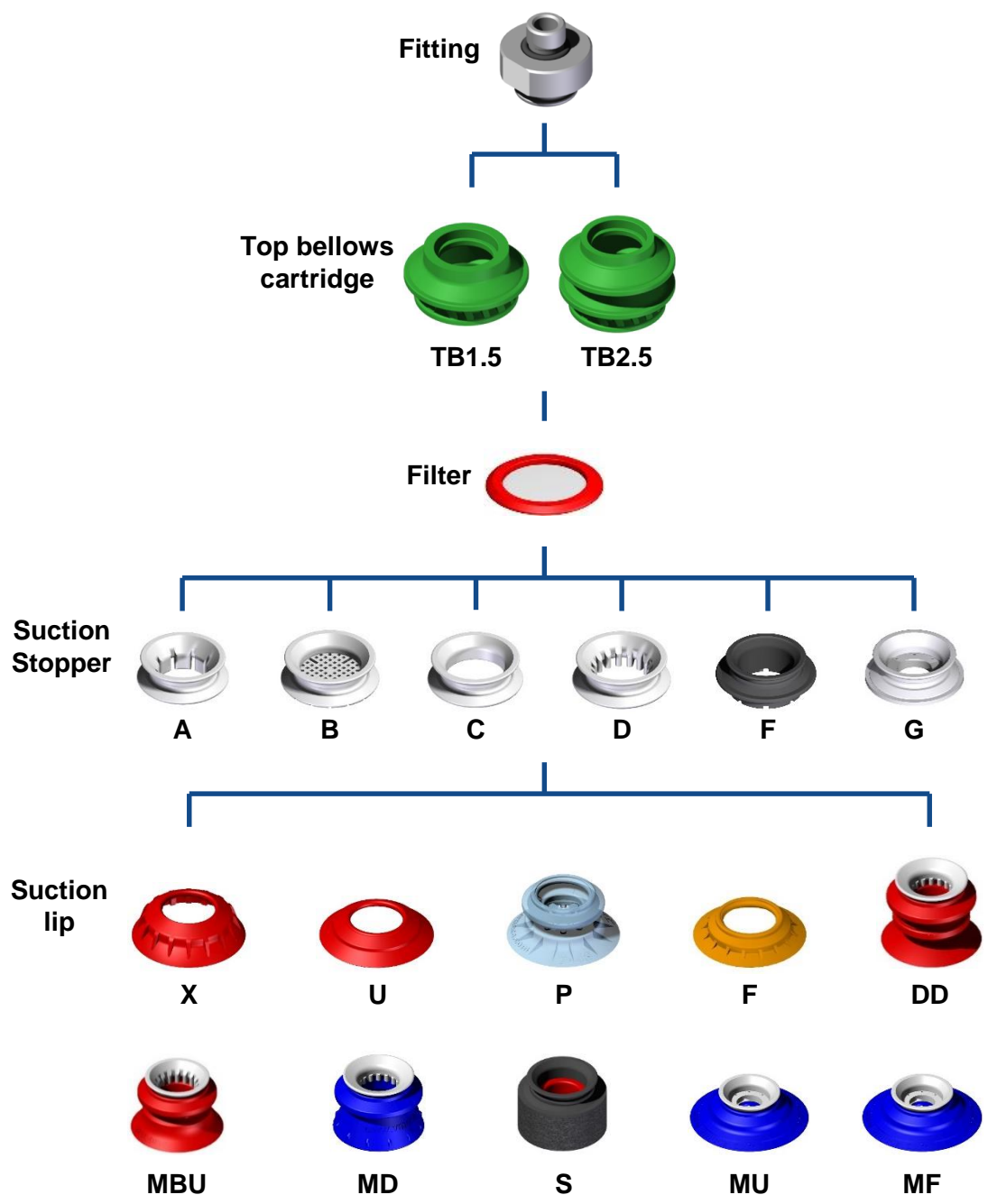
Model	Description
Fitting	
18M	G1/8" male fitting
18F	G1/8" female fitting
14M	G1/4" male fitting
14F	G1/4" female fitting
38M	G3/8" male fitting
38F	G3/8" female fitting: Only for 60 bellow size



B5.0 / 40 – X55 – S5 – D – F2 – 18M

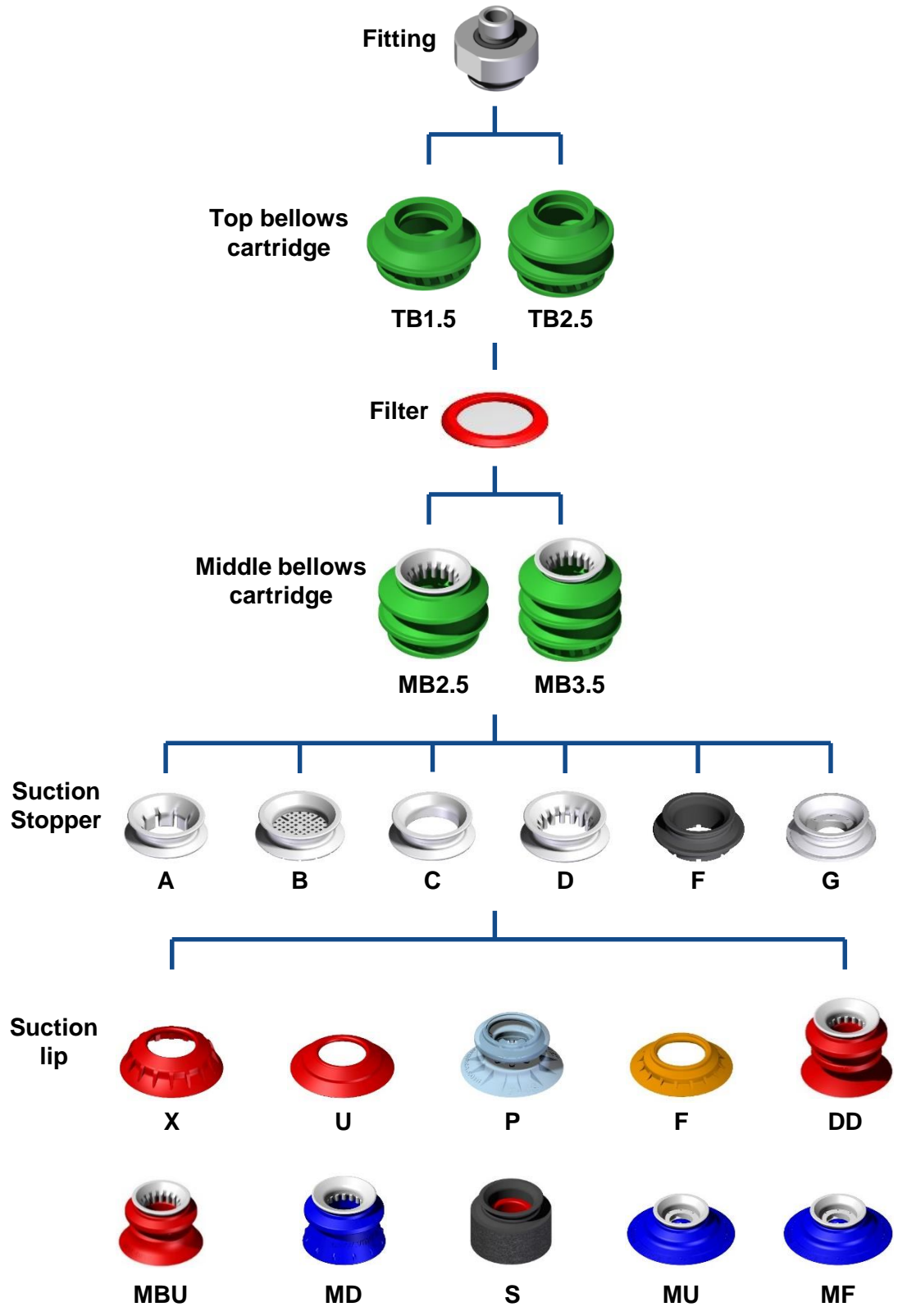


Structure – B1.5 & B2.5 series



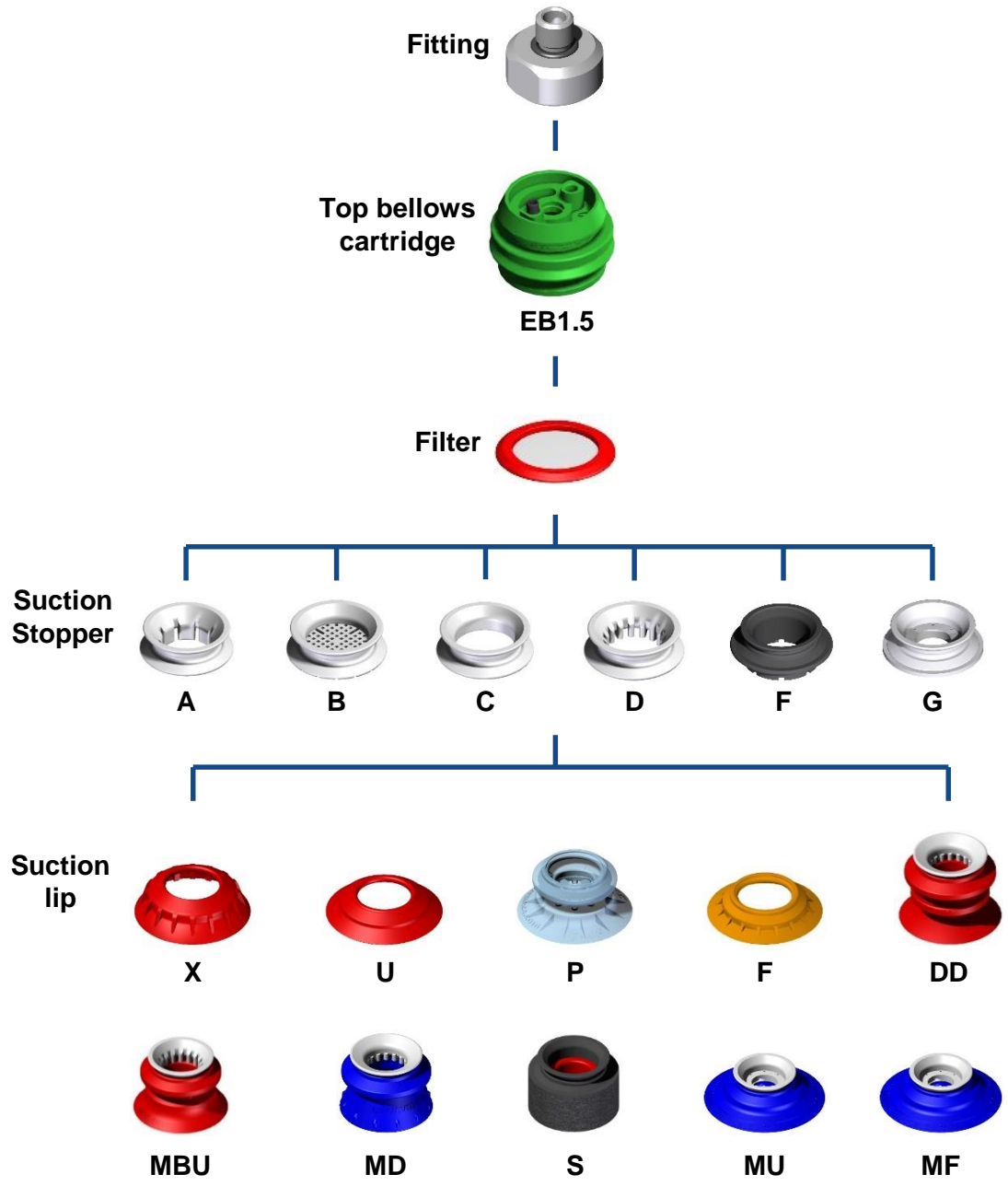


Structure – B4.0 & B5.0 & B6.0 series



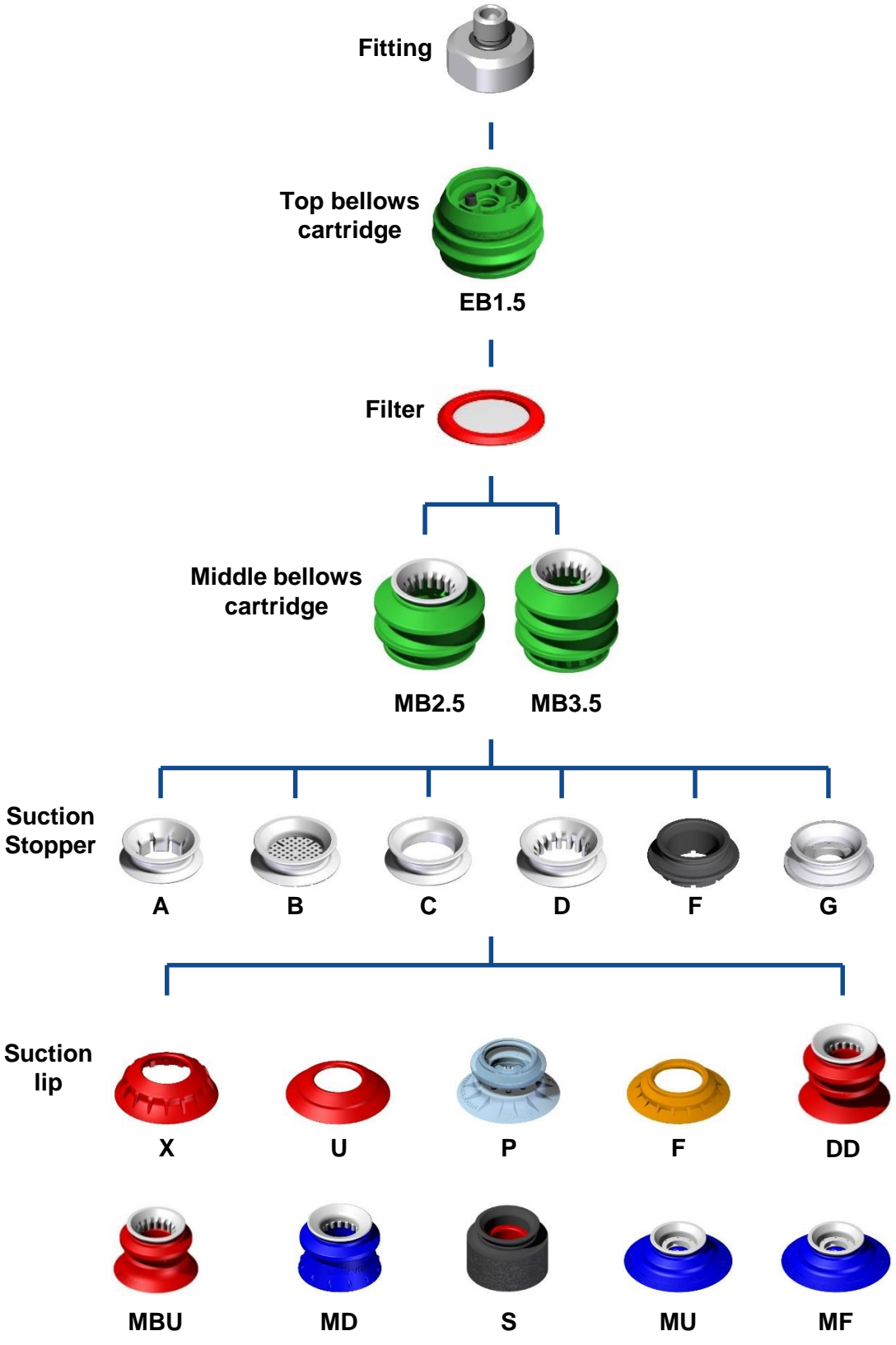


Structure – EB1.5 series





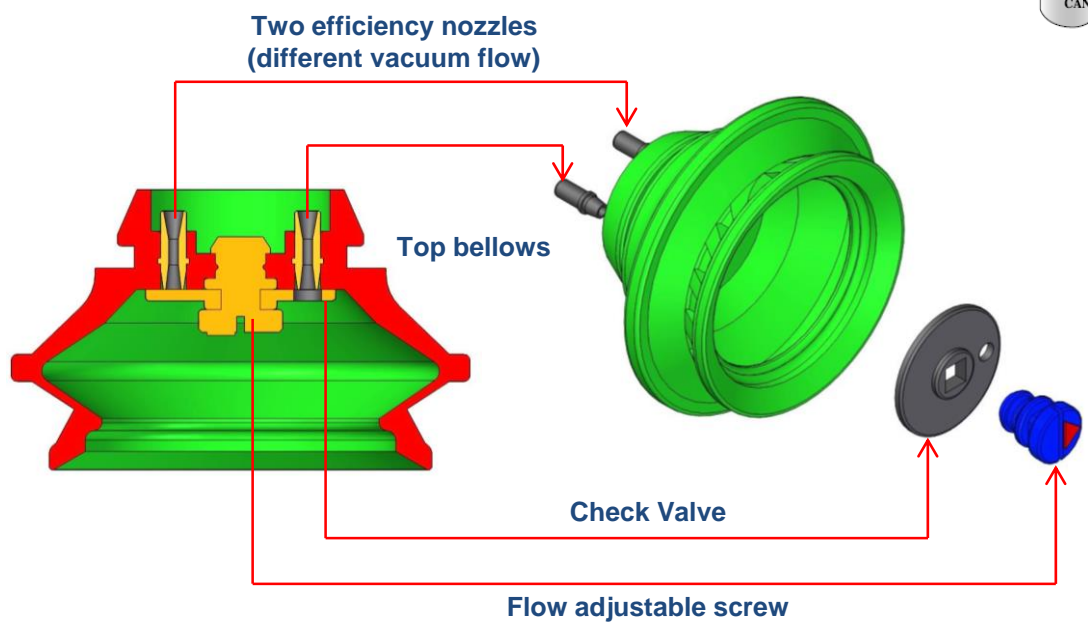
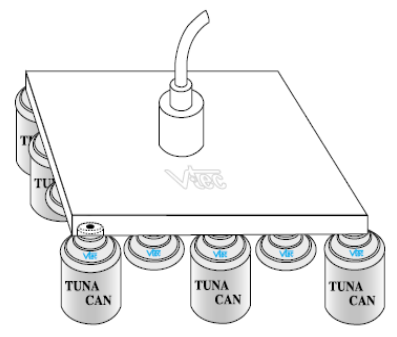
Structure – EB4.0 & EB5.0 series





Features of Efficient valve (EB type)

With EV Valve (EB)



- Flow adjustment

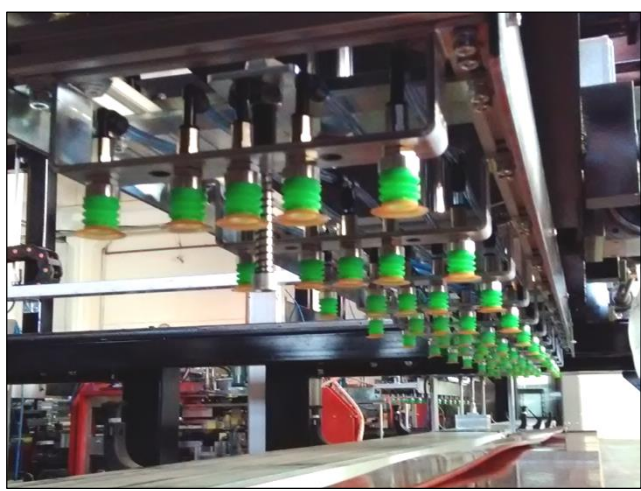
Hole size (0.5~1mm)	Hole size (2.3mm)	Max. Open	Close



Adjustable suction flow by different position of check valve screw module



Application

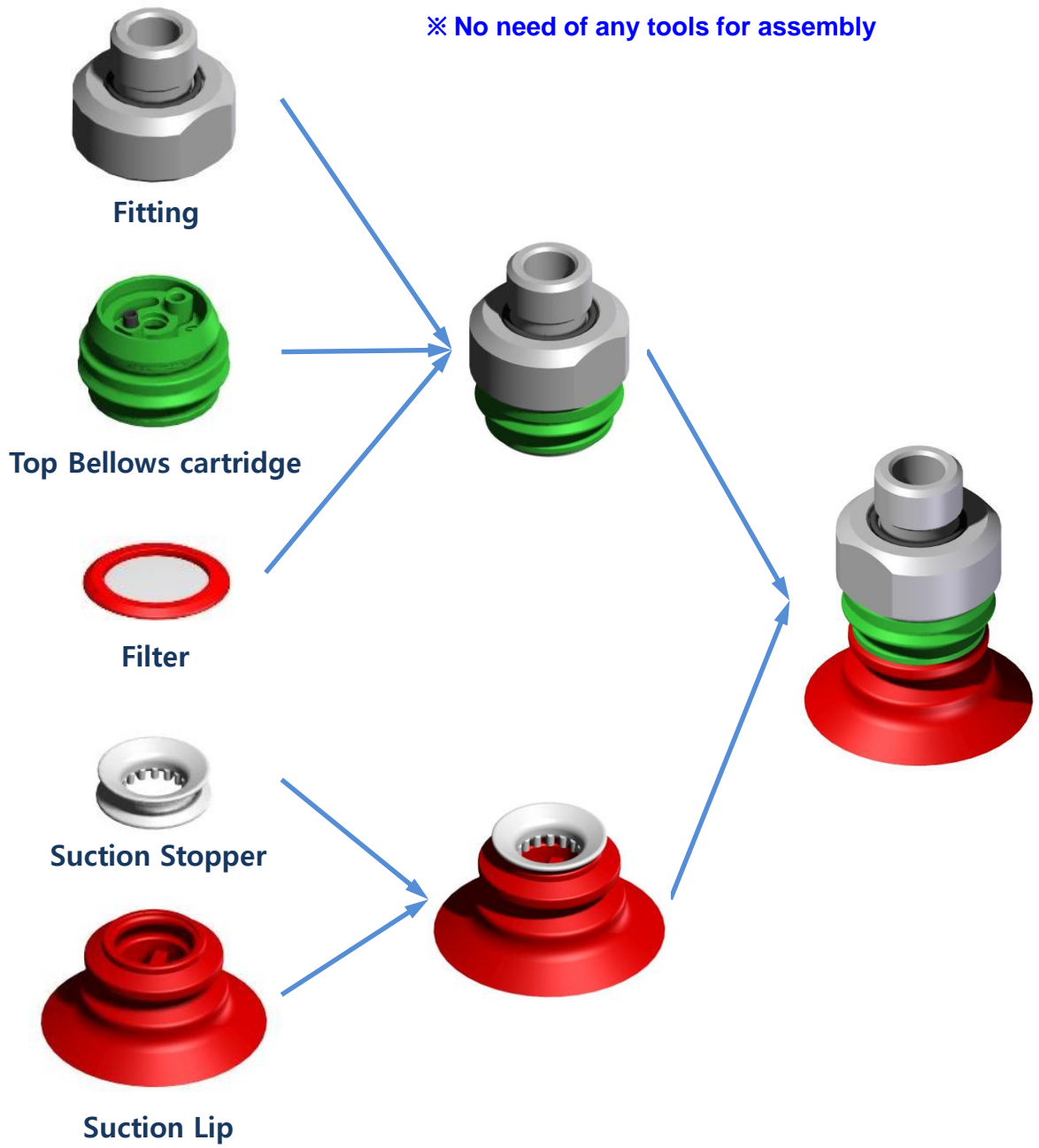




How to assemble and disassemble

Assembly sequence

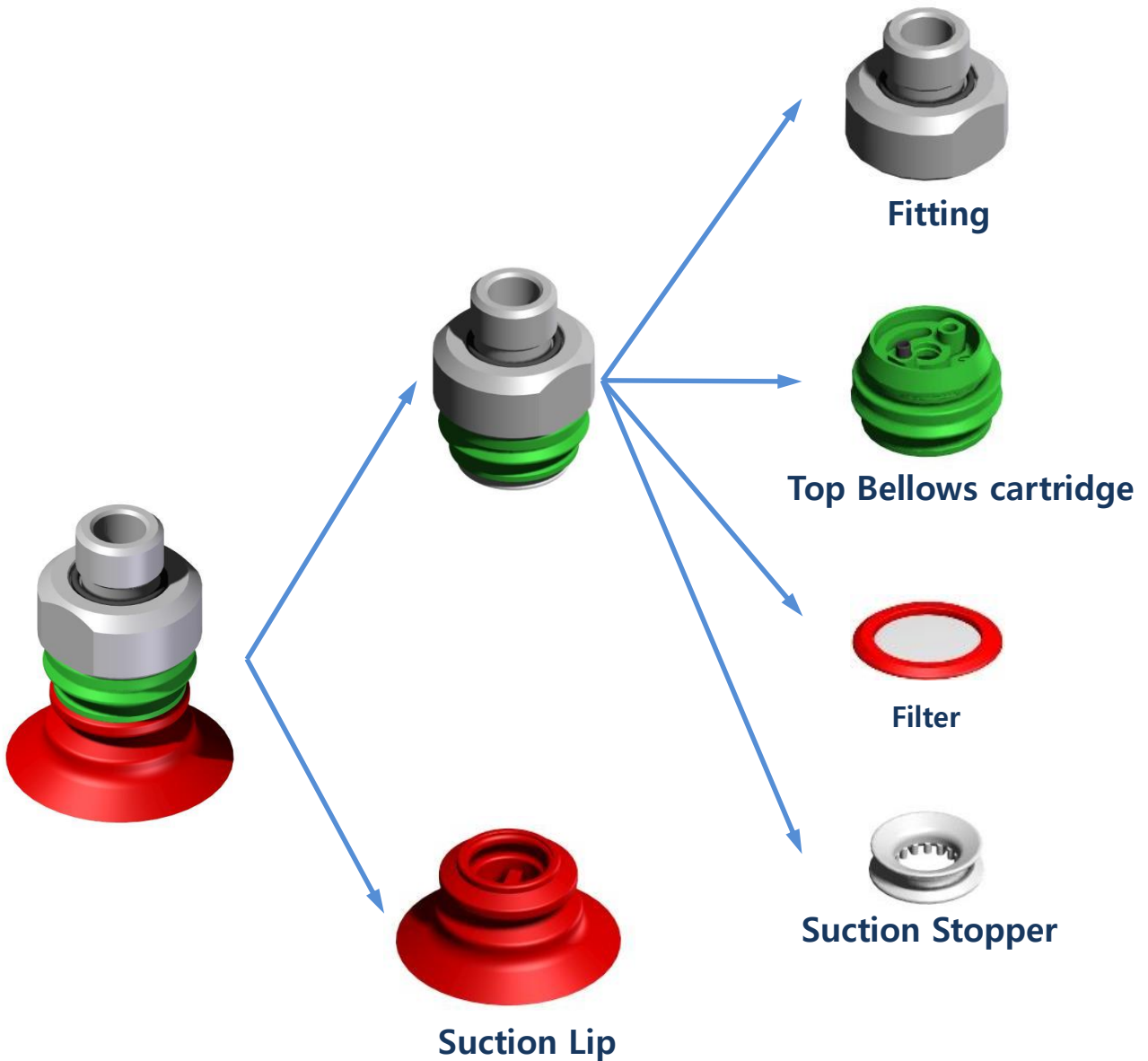
- 1) Assemble fitting, top bellows cartridge and filter together
 - 2) Put stopper and suction lip together
 - 3) Connect two parts assembled each other
- ※ No need of any tools for assembly





Disassembly sequence

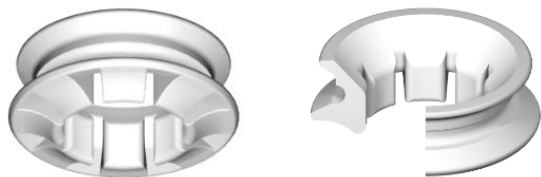
- 1) Disassemble suction lip firstly
 - 2) The put out fitting, bellow cartridge, filter and stopper
- ※ No need of any tools for disassembly





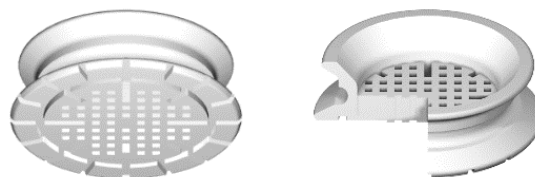
Suction Stoppers

Stopper A



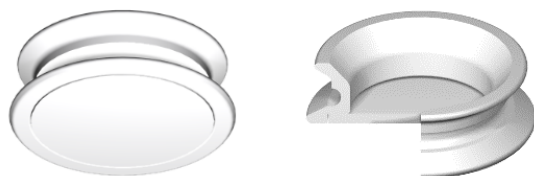
- Recommended with X suction lip
- Suitable for thin and light plastic bags

Stopper B



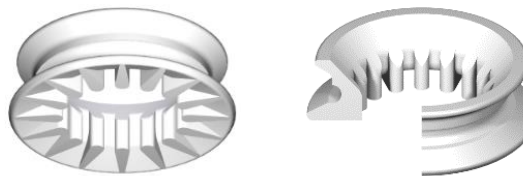
- Recommended with X, U & F suction lip
- Suitable for plastic bags, flexible objects
- Minimized mark for plastic bags

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	"U" lip
<ul style="list-style-type: none"> • X suction lip is excellent in handling thin, light and flexible plastic bag applications • Ice cream bags, Aluminum foil 	<ul style="list-style-type: none"> • U suction lip is excellent in handling flat and slightly curved object applications • Carton boxes, Flat objects
"F" lip	"P" lip
<ul style="list-style-type: none"> • F suction lip is excellent in handling flat object applications • Thin boxes, Wooden panel 	<ul style="list-style-type: none"> • 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



• 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” lip



• MBU suction lip is excellent in compensating the height difference for curved objects



“MD” lip



• MD suction lip is suitable for curved or uneven surface with excellent performance for rounded corners and edges



“S” lip



• S suction lip is excellent in handling uneven surface and porous material





Suction lips

“MU” lip



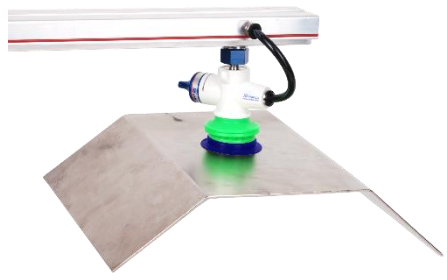
- MU suction lip offers great gripping force for flat and stable surfaces
- Metal sheets, Carton boxes, Glass, Veneer sheets



“MF” lip



- MF suction lip offers great gripping force for both horizontal and vertical applications





X type – Without efficient valve

Features and Strengths

Excellent in handling 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

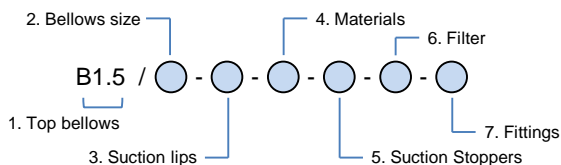
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For X25 & X30	20
	40mm bellow diameter: For X45 & X55	40
	60mm bellow diameter: For X65 & X75	60
3. Suction lips	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. Materials	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 Stoppers	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. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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		

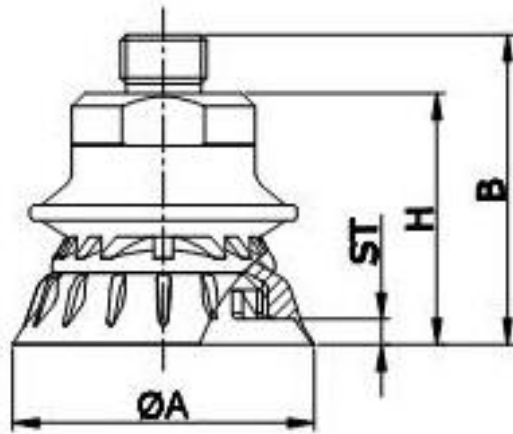


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 20 & 40 & 60 series]

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

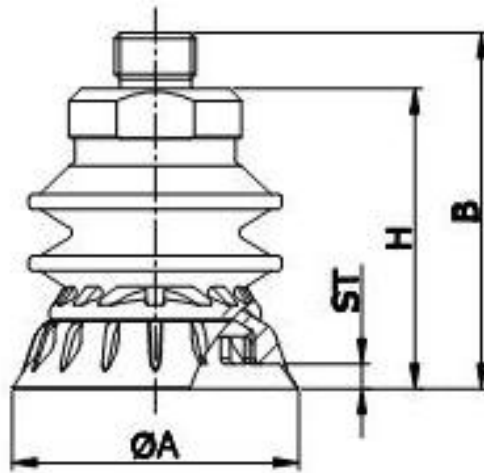
[Unit : mm]

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 & 6.0 / 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

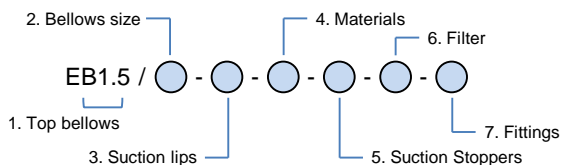
** For additional materials, please contact us







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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For X25 & X30	20
	40mm bellow diameter: For X45 & X55	40
3. Suction lips	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. Materials	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 Stoppers	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. Fittings	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 bellow diameter	VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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		

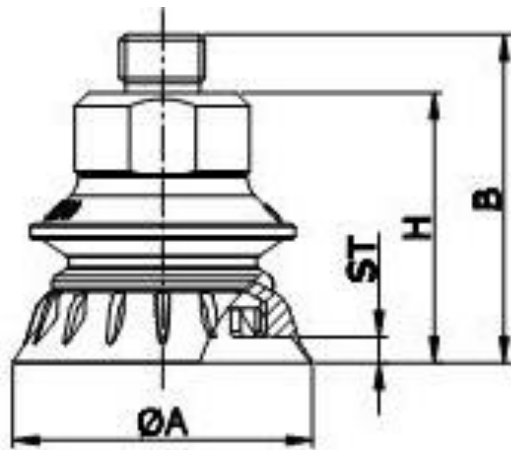


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

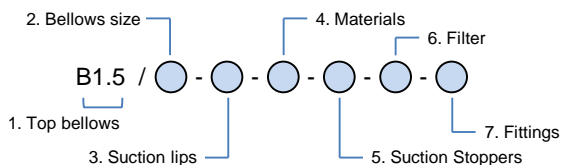
** For additional materials, please contact us







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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For U25 & U30	20
	40mm bellow diameter: For U45 & U55	40
	60mm bellow diameter: For U65 & U75	60
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	B type	B
	C type	C
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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		

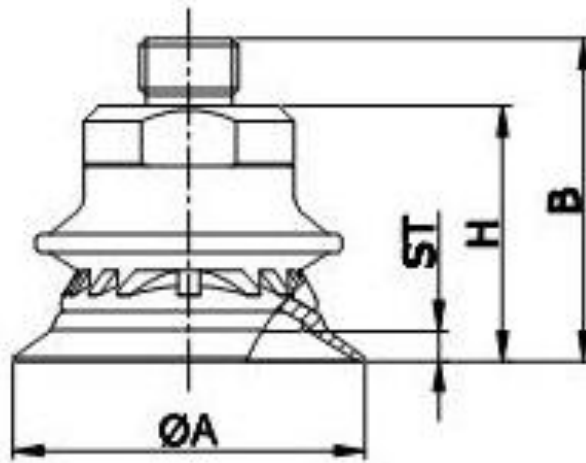


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 20 & 40 & 60 series]

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

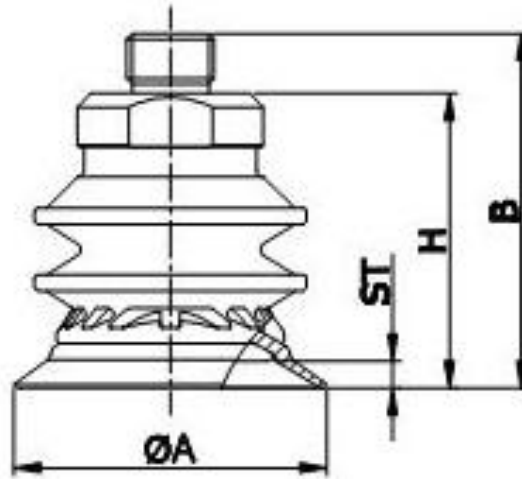
[Unit : mm]

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 & 6.0 / 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

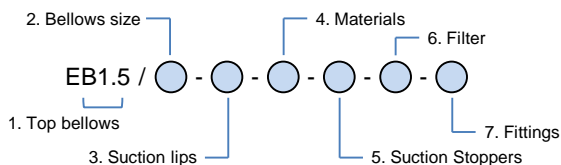
** For additional materials, please contact us







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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For U25 & U30	20
	40mm bellow diameter: For U45 & U55	40
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	B type	B
	C type	C
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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
VTFE20	Mesh disk filter (200mesh) for 20mm bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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		

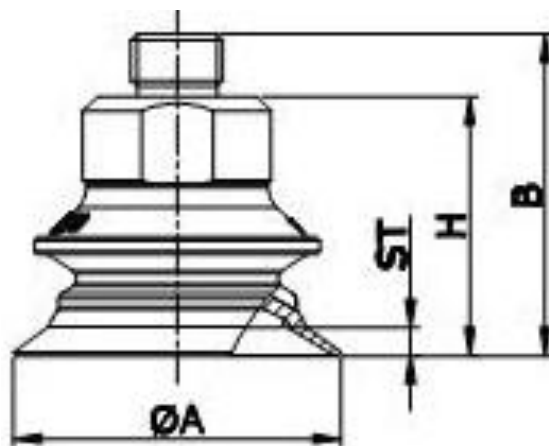


Spare Parts – Fittings

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



Dimensional Data



Fitting
18F
18M
14F
14M
38M

[EB1.5 & 4.0 & 5.0 / 20 & 40 series]

[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 (°C)
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°C

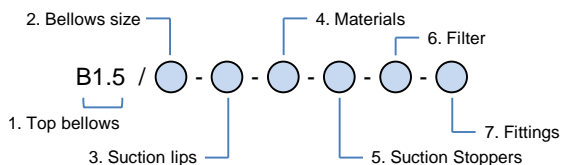
** For additional materials, please contact us







Material Resistance

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



Build an Ordering No.



1. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For F25 & F30	20
	40mm bellow diameter: For F45 & F55	40
3. Suction lips	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. Materials	Description	Symbol
	Polyurethane	PU
5. Suction Stoppers	Description	Symbol
	B type	B
	C type	C
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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

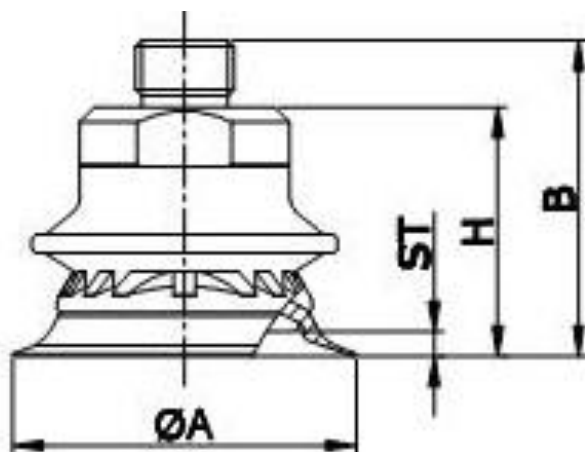


Spare Parts – Fittings

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



Dimensional Data



Fitting
18F
18M
14F
14M
38M

[B1.5 & 4.0 & 5.0 / 20 & 40 series]

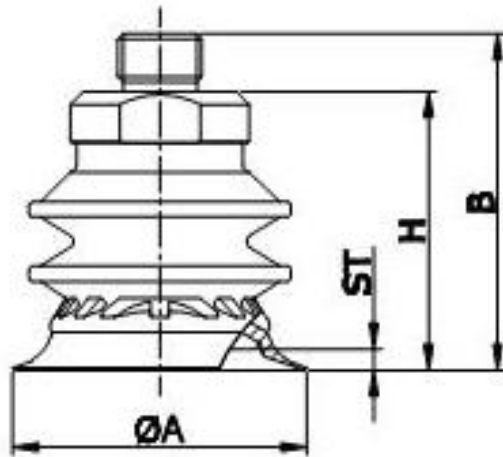
[Unit : mm]

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 & 6.0 / 20 & 40 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



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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°C

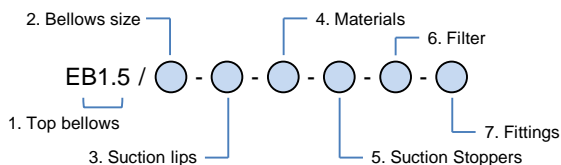
** For additional materials, please contact us

Material Resistance

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



Build an Ordering No.



1. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For F25 & F30	20
	40mm bellow diameter: For F45 & F55	40
3. Suction lips	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. Materials	Description	Symbol
	Polyurethane	PU
5. Suction Stoppers	Description	Symbol
	B type	B
	C type	C
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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	Mesh disk filter (200mesh) for 20mm bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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

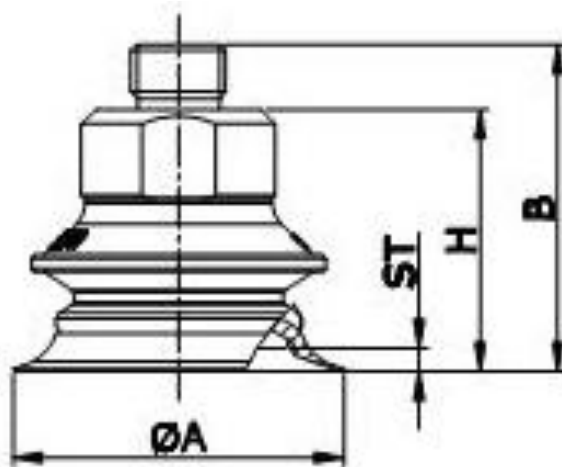


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 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 (cm ³)	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				
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				
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				
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				
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				
B6.0/60-P85				



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

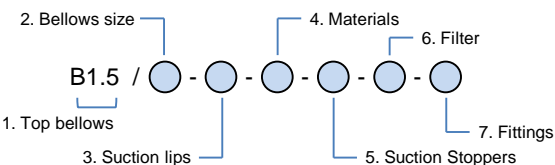
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For P15, P17, P20, P27 & P32	20
	40mm bellow diameter: For P48 & P60	40
	60mm bellow diameter: For P72 & P85	60
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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-U6	P type - 15mm diameter, White Silicone, 30° hardness	P15-U6	P type - 15mm diameter, Urethane, 60° hardness
P17-U6	P type - 17mm diameter, White Silicone, 30° hardness	P17-U6	P type - 17mm diameter, Urethane, 60° hardness
P20-U6	P type - 20mm diameter, White Silicone, 30° hardness	P20-U6	P type - 20mm diameter, Urethane, 60° hardness
P27-U6	P type - 27mm diameter, White Silicone, 30° hardness	P27-U6	P type - 27mm diameter, Urethane, 60° hardness
P32-U6	P type - 32mm diameter, White Silicone, 30° hardness	P32-U6	P type - 32mm diameter, Urethane, 60° hardness
P48-U6	P type - 48mm diameter, White Silicone, 30° hardness	P48-U6	P type - 48mm diameter, Urethane, 60° hardness
P60-U6	P type - 60mm diameter, White Silicone, 30° hardness	P60-U6	P type - 60mm diameter, Urethane, 60° hardness
P72-U6	P type - 72mm diameter, White Silicone, 30° hardness	P72-U6	P type - 72mm diameter, Urethane, 60° hardness
P85-U6	P type - 85mm diameter, White Silicone, 30° hardness	P85-U6	P type - 85mm diameter, Urethane, 60° hardness

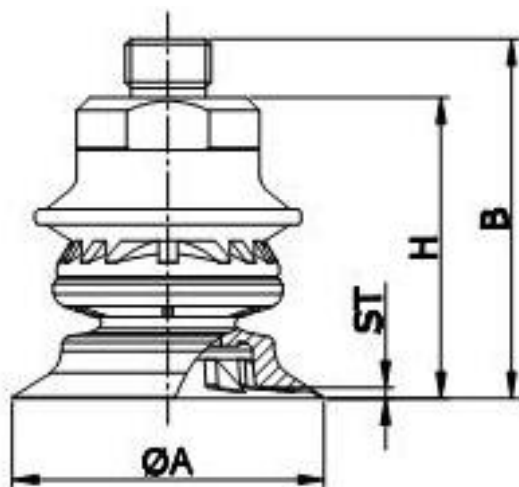


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 20 & 40 & 60 series]

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

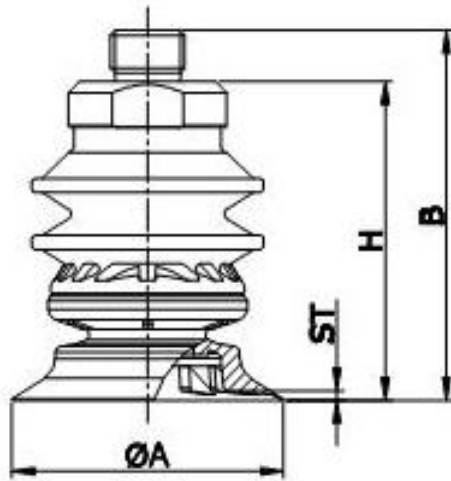
[Unit : mm]

Model	Ø A	G	ST	H*	B *	
B 1.5/20 – P15	15.5	Female thread : 1/8", 1/4", 3/8" 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						
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 & 6.0 / 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", 3/8" 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	72					
B 2.5/60 – P85	85					
B 6.0/60 – P72	72					
B 6.0/60 – P85	85					

* 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

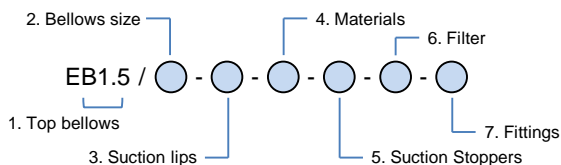
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For P15, P17, P20, P27 & P32	20
	40mm bellow diameter: For P48 & P60	40
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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-U6	P type - 15mm diameter, White Silicone, 30° hardness	P15-U6	P type - 15mm diameter, Urethane, 60° hardness
P17-U6	P type - 17mm diameter, White Silicone, 30° hardness	P17-U6	P type - 17mm diameter, Urethane, 60° hardness
P20-U6	P type - 20mm diameter, White Silicone, 30° hardness	P20-U6	P type - 20mm diameter, Urethane, 60° hardness
P27-U6	P type - 27mm diameter, White Silicone, 30° hardness	P27-U6	P type - 27mm diameter, Urethane, 60° hardness
P32-U6	P type - 32mm diameter, White Silicone, 30° hardness	P32-U6	P type - 32mm diameter, Urethane, 60° hardness
P48-U6	P type - 48mm diameter, White Silicone, 30° hardness	P48-U6	P type - 48mm diameter, Urethane, 60° hardness
P60-U6	P type - 60mm diameter, White Silicone, 30° hardness	P60-U6	P type - 60mm diameter, Urethane, 60° hardness

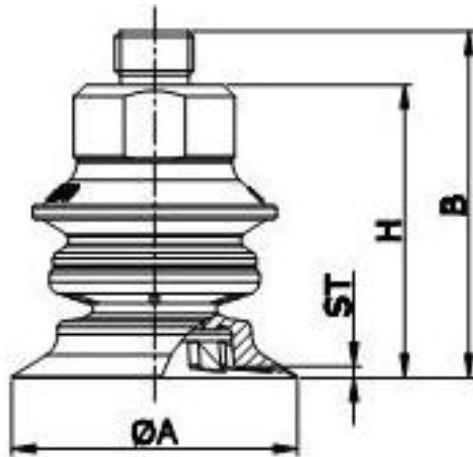


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

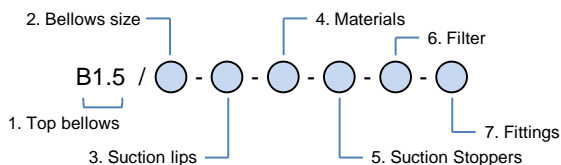
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	40mm bellow diameter	40
3. Suction lips	Description	Symbol
	DD type lip, inner lip 30mm diameter, outer lip 41mm diameter	DD4030
4. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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

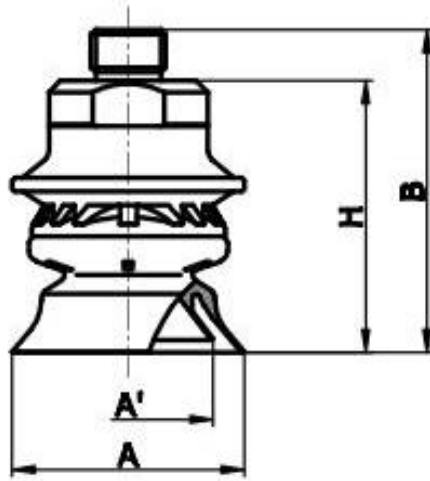


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 40 series]

Fitting
18F
18M
14F
14M
38M

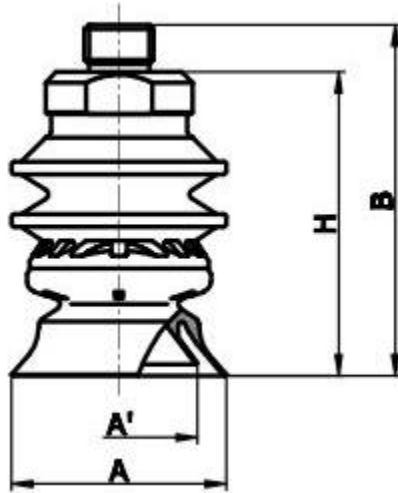
[Unit : mm]

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 & 6.0 / 40 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"	57.9	66.9
B6.0/40-DD4030	41	30	Male thread : 1/4", 1/8", 3/8"	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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

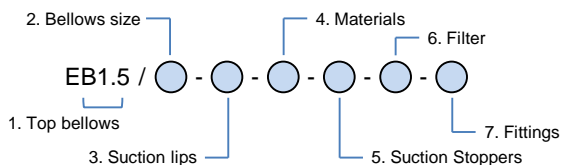
** For additional materials, please contact us







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. Top 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. Bellow size	Description	Symbol
	40mm bellow diameter	40
3. Suction lips	Description	Symbol
	DD type lip, inner lip 30mm diameter, outer lip 41mm diameter	DD4030
4. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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

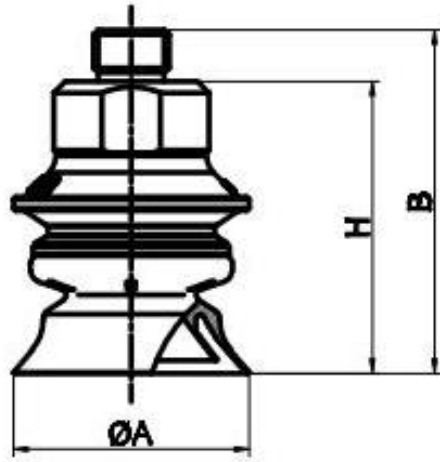


Spare Parts – Fittings

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



Dimensional Data



Fitting
18F
18M
14F
14M
38M

[EB1.5 & 4.0 & 5.0 / 40 series]

[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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

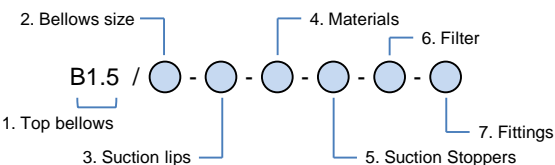
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter	20
3. Suction lips	Description	Symbol
	MBU type lip, 17mm diameter	MBU17
	MBU type lip, 23mm diameter	MBU23
	MBU type lip, 27mm diameter	MBU27
4. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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

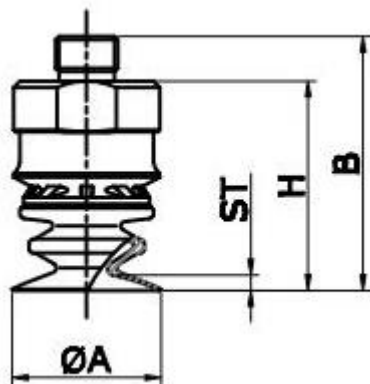


Spare Parts – Fittings

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



Dimensional Data



Fitting
18F
18M
14F
14M
38M

[B1.5 & 4.0 & 5.0 / 20 series]

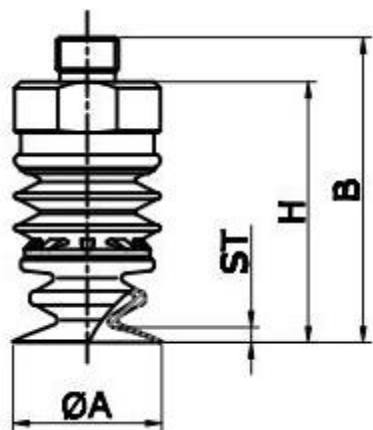
[Unit : mm]

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



Fitting
18F
18M
14F
14M
38M

[B2.5 & 6.0 / 20 series]

[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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

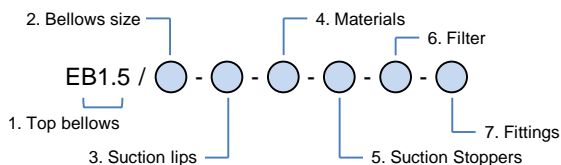
** For additional materials, please contact us







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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter	20
3. Suction lips	Description	Symbol
	MBU type lip, 17mm diameter	MBU17
	MBU type lip, 23mm diameter	MBU23
	MBU type lip, 27mm diameter	MBU27
4. Materials	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 Stoppers	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 bellow 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

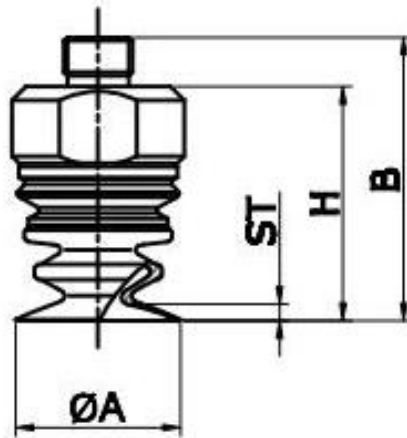


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
EB1.5/20-MBU17	17	Female thread : 1/8", 1/4" Male thread : 1/8", 1/4", 3/8"	2.1	33.5	42.5
EB1.5/20-MBU23	23		2.3	33.5	42.5
EB1.5/20-MBU27	27		2.7	33.5	42.5
EB4.0/20-MBU17	17		2.1	44.3	53.3
EB4.0/20-MBU23	23		2.3	44.3	53.3
EB4.0/20-MBU27	27		2.7	44.3	53.3
EB5.0/20-MBU17	17		2.1	49.3	58.3
EB5.0/20-MBU23	23		2.3	49.3	58.3
EB5.0/20-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	2.67	0.71	1.61	2.20
B2.5/20-MD22	4.78	0.71	1.61	2.20
B4.0/20-MD22	4.51	0.71	1.61	2.20
B5.0/20-MD22	5.67	0.71	1.61	2.20
B6.0/20-MD22	7.76	0.71	1.61	2.20



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

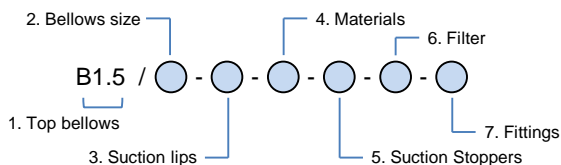
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter	20
3. Suction lips	Description	Symbol
	MD type lip, 22mm diameter	MD22
4. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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		

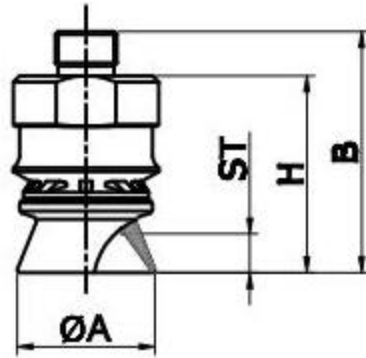


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

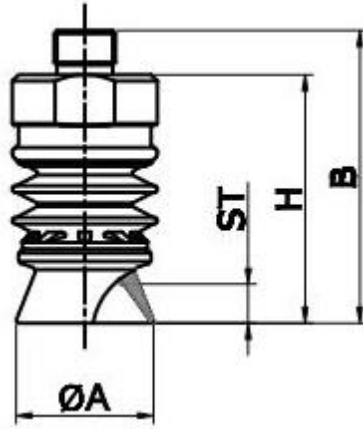
[Unit : mm]

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 & 6.0 / 20 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
B2.5/20-MD22	22	Female thread : 1/8", 1/4"	6.1	39.1	48.1
B6.0/20-MD22	22	Male thread : 1/8", 1/4", 3/8"	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	3.47	0.71	1.61	2.20
EB4.0/20-MD22	5.58	0.71	1.61	2.20
EB5.0/20-MD22	5.31	0.71	1.61	2.20



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

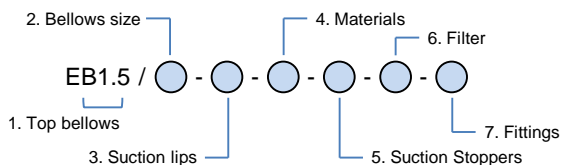
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter	20
3. Suction lips	Description	Symbol
	MD type lip, 22mm diameter	MD22
4. Materials	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 Stoppers	Description	Symbol
	D type	D
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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		

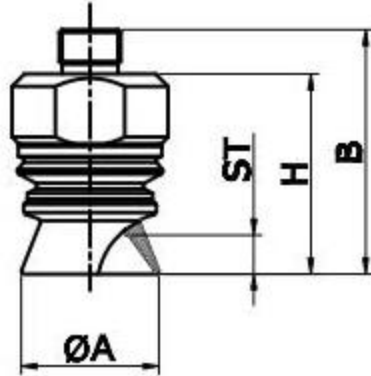


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 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 (°C)
EPDM	15	Black	-0 ~ 120

INSERT PAD

Material	Hardness Shore (°)	Color	Temperature (°C)
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°C

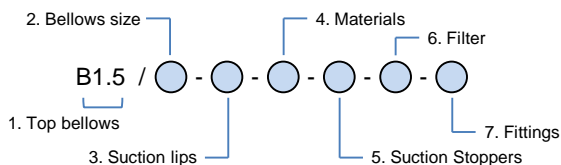
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	20mm bellow diameter: For S30	20
	40mm bellow diameter: For S50	40
	60mm bellow diameter For S50	60
3. Suction lips	Description	Symbol
	S type lip, 30mm diameter	S30
	S type lip, 50mm diameter	S50
	S type lip, 60mm diameter	S60
4. Materials (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 Stoppers	Description	Symbol
	F type : Only for S type	F
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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 pad

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		

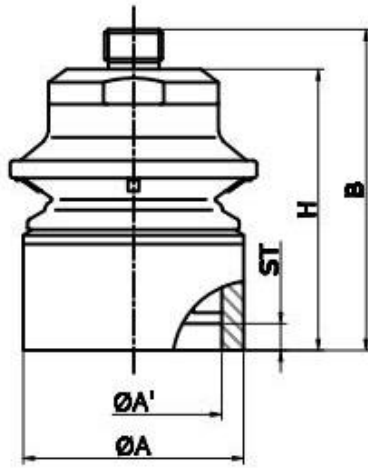


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 20 & 40 & 60 series]

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

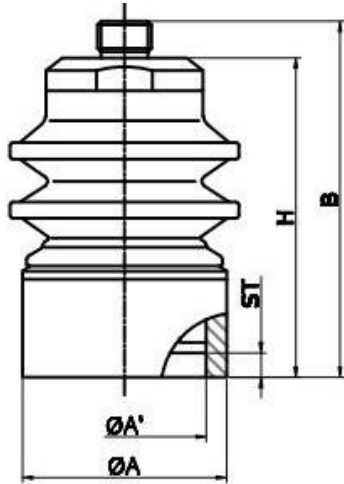
[Unit : mm]

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	34.0	43.0
B1.5/40-S50	40	30		4.5	46.1	55.1
B1.5/60-S60	50	37		6.5	63.7	72.7
B4.0/20-S30	30	20		4.5	44.8	53.8
B4.0/40-S50	40	30		4.5	68.5	77.5
B5.0/20-S30	30	20		4.5	44.8	53.8
B5.0/40-S50	40	30		4.5	78.4	87.4
B5.0/60-S60	50	37		6.5	110.3	119.3

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



Dimensional Data



[B2.5 & 6.0 / 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	42.0	51.0
B2.5/40-S50	40	30		4.5	56.1	65.1
B2.5/60-S60	50	37		6.5	78.2	87.2
B6.0/20-S30	30	20		4.5	57.8	66.8
B6.0/40-S50	40	30		4.5	88.4	97.4
B6.0/60-S60	50	37		6.5	124.7	133.7

* 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 (°C)
EPDM	15	Black	-0 ~ 120

INSERT PAD

Material	Hardness Shore (°)	Color	Temperature (°C)
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°C

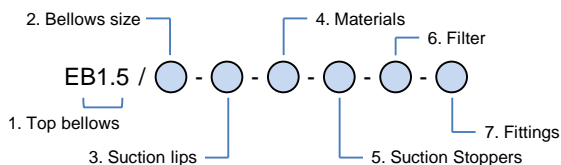
** For additional materials, please contact us

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. Top 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 lips	Description	Symbol
	S type lip, 30mm diameter	S30
	S type lip, 50mm diameter	S50
4. Materials (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 Stoppers	Description	Symbol
	F type: : Only for S type	F
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow diameter
VTFE40	Mesh disk filter (200mesh) for 40mm bellow 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 pad

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		

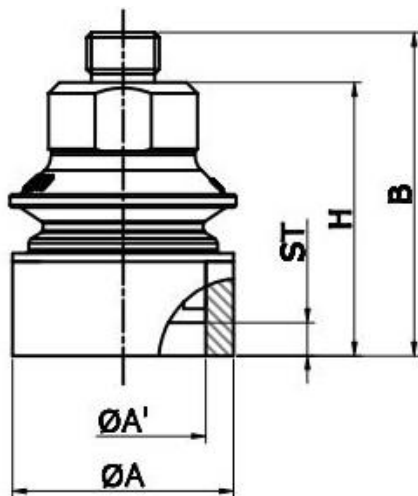


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 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	34.5	43.5
EB1.5/40-S50	40	30		4.5	49.2	58.2
EB4.0/20-S30	30	20		4.5	45.3	54.3
EB4.0/40-S50	40	30		4.5	71.6	80.6
EB5.0/20-S30	30	20		4.5	50.3	59.3
EB5.0/40-S50	40	30		4.5	81.6	90.6

* 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				
B2.5/40-MU45	17.33	0.66	1.34	1.79
B2.5/40-MU55	19.58	1.34	2.81	3.37
B2.5/60-MU65	47.70	2.24	4.37	5.50
B2.5/60-MU75	52.78	3.93	8.18	10.32
B2.5/60-MU80				
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				
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				



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

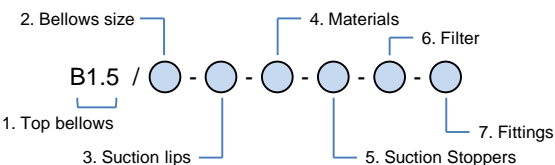
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	40mm bellow diameter: For MU45 & MU55	40
	60mm bellow diameter: For MU65 & MU75 & MU80	60
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	G type	G
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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
MB2.5/60	Middle bellows 2.5 folds for MU65 & MU75 & MU80	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 bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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

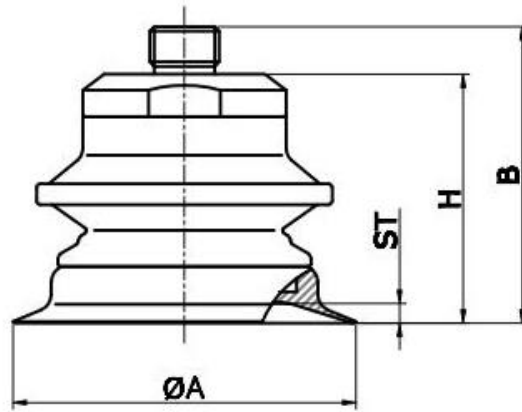


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 40 & 60 series]

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

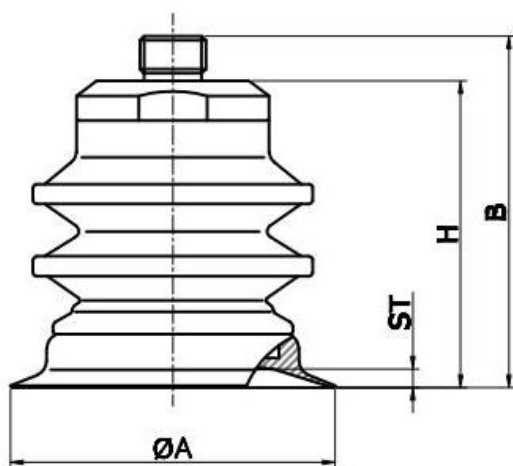
[Unit : mm]

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						
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						

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



Dimensional Data



[B2.5 & 6.0 / 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					
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					

* 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

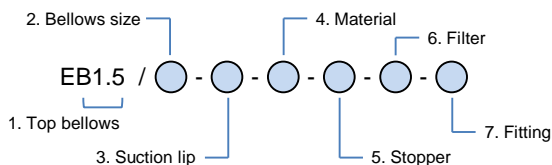
** For additional materials, please contact us







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. Top bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 2.5 folds with efficient valve	EB2.5
	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
	Top bellows 2.5 folds with efficient valve + Middle bellows 3.5 folds	EB6.0
2. Bellow size	Description	Symbol
	40mm bellow 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. 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 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 bellow 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

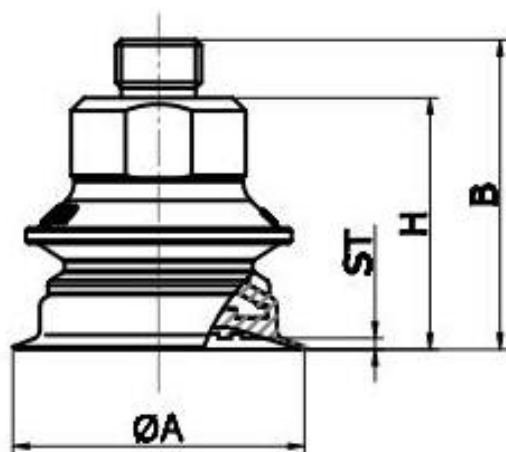


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
EB1.5/40-MU45	45	Female thread : 1/4", 1/8" Male thread : 1/4", 1/8", 3/8"	1.8	35.9	44.9
EB1.5/40-MU55	55		1.8	36.3	45.3
EB4.0/40-MU45	45		1.8	58.3	67.3
EB4.0/40-MU55	55		1.8	58.7	67.7
EB5.0/40-MU45	45		1.8	68.2	77.2
EB5.0/40-MU55	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				
B2.5/40-MF45	17.03	0.67	1.62	2.12
B2.5/40-MF55	19.59	1.34	2.81	3.48
B2.5/60-MF65	47.20	2.24	4.49	5.61
B2.5/60-MF75	52.38	4.04	8.31	10.70
B2.5/60-MF80				
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				
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				



Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

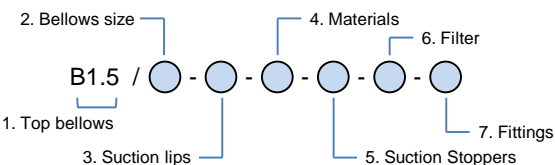
** For additional materials, please contact us

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. Top 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. Bellow size	Description	Symbol
	40mm bellow diameter: For MF45 & MF55	40
	60mm bellow diameter: For MF65 & MF75 & MF80	60
3. Suction lips	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. Materials	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 Stoppers	Description	Symbol
	G type	G
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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
MB2.5/60	Middle bellows 2.5 folds for MF65 & MF75 & MF80	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 bellow diameter
VTFE60	Mesh disk filter (200mesh) for 60mm bellow 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

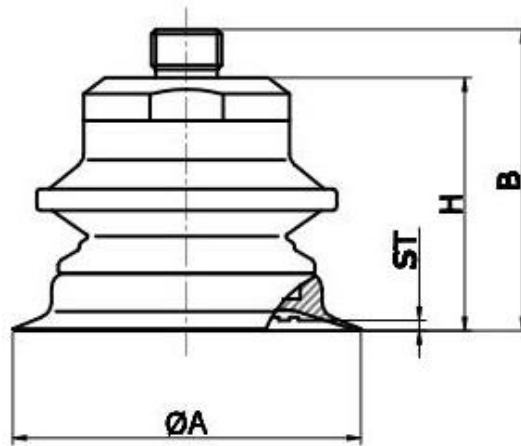


Spare Parts – Fittings

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



Dimensional Data



[B1.5 & 4.0 & 5.0 / 40 & 60 series]

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

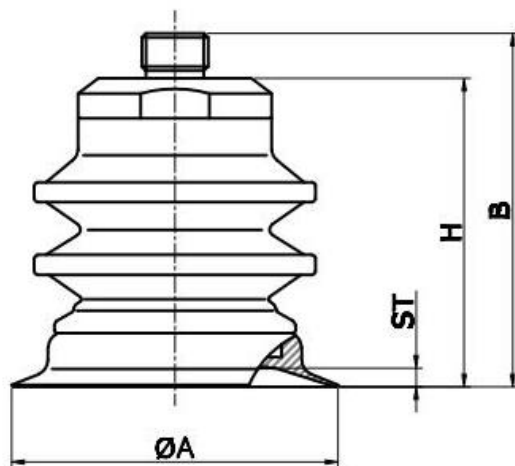
[Unit : mm]

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						
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						

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



Dimensional Data



[B2.5 & 6.0 / 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						
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						

* 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 (°C)
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 - White Silicone(FDA)	30	Translucent White	-70~200
W5 - 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°C

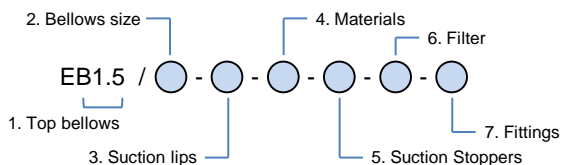
** For additional materials, please contact us







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. Top bellows	Description	Symbol
	Top bellows 1.5 folds with efficient valve	EB1.5
	Top bellows 2.5 folds with efficient valve	EB2.5
	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
	Top bellows 2.5 folds with efficient valve + Middle bellows 3.5 folds	EB6.0
2. Bellow size	Description	Symbol
	40mm bellow diameter: For MF45 & MF55	40
3. Suction lips	Description	Symbol
	MF type lip, 45mm diameter	MF45
	MF type lip, 55mm diameter	MF55
4. Materials	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 Stoppers	Description	Symbol
	G type	G
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fittings	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 bellow 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

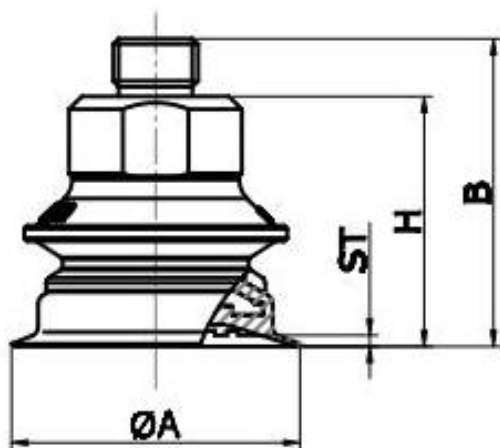


Spare Parts – Fittings

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



Dimensional Data



[EB1.5 & 4.0 & 5.0 / 40 series]

Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H*	B *
EB1.5/40-MF45	45	Female thread : 1/4", 1/8" Male thread : 1/4", 1/8", 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