



MF type – Without efficiency valve

Features and Strengths

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

Examples of use

Metal sheets, Glass, Veneer sheets



Recommended Lifting Force (Max.)

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



I 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(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60°C

** For additional materials, please contact us

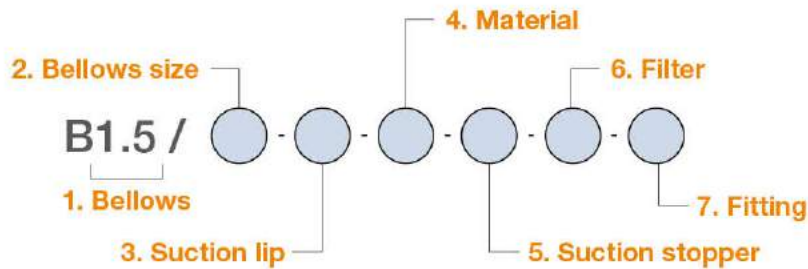
I Material Resistance







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

SUCTION CUPS / Magic suction cup



Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds	B1.5
	Top bellows 2.5 folds	B2.5
	Top bellows 1.5 folds + Middle bellows 2.5 folds	B4.0
	Top bellows 1.5 folds + Middle bellows 3.5 folds	B5.0
	Top bellows 2.5 folds + Middle bellows 3.5 folds	B6.0
2. Bellows size	Description	Symbol
	40mm bellows diameter: For MF45 & MF55	40
	60mm bellows diameter: For MF65 & MF75 & MF80	60
3. Suction lip	Description	Symbol
	MF type lip, 45mm diameter	MF45
	MF type lip, 55mm diameter	MF55
	MF type lip, 65mm diameter	MF65
	MF type lip, 75mm diameter	MF75
	MF type lip, 80mm diameter	MF80
4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
5. Suction stopper	Description	Symbol
	G type	G
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M
	Fitting, G3/8 female: Only for 60mm bellow diameter	38F

Spare Parts – Top Bellows

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



Spare Parts – Middle Bellows

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

Spare Parts – Suction Stoppers

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

Spare Parts – Filters

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

Spare Parts – Suction Lips

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

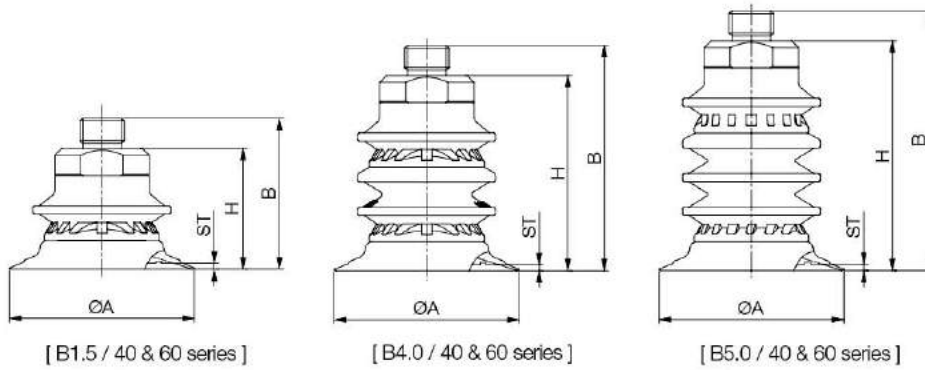
Spare Parts – Fittings

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

SUCTION CUPS / Magic suction cup



Dimensional Data



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

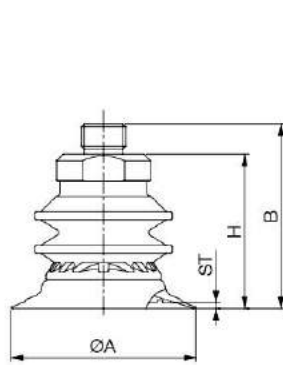
[Unit : mm]

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

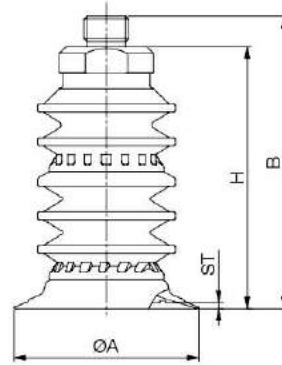
* Dimension "H" and "B" is measured with 14M fitting option



Dimensional Data



[B2.5 / 40 & 60 series]



[B2.5 / 40 & 60 series]

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

[Unit : mm]

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

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



MF type – With efficiency 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



I 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(FDA) - White Silicone(FDA)	30	Translucent White	-70~200
W5(FDA) - White Silicone(FDA)	50	Translucent White	-70~200
U6 - Urethane	60	Dark Grey	0~100

* The temperature data is only for suction lip. Please contact us if it is used in over 60°C

** For additional materials, please contact us

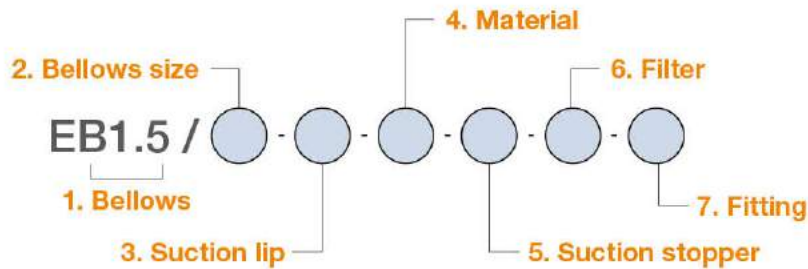
I Material Resistance

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

SUCTION CUPS / Magic suction cup



Build an Ordering No.



1. Bellows	Description	Symbol
	Top bellows 1.5 folds with efficiency valve	EB1.5
	Top bellows 1.5 folds with efficiency valve + Middle bellows 2.5 folds	EB4.0
	Top bellows 1.5 folds with efficiency valve + Middle bellows 3.5 folds	EB5.0
2. Bellows size	Description	Symbol
	40mm bellows diameter: For MF45 & MF55	40
3. Suction lip	Description	Symbol
	MF type lip, 45mm diameter	MF45
	MF type lip, 55mm diameter	MF55
4. Material	Description	Symbol
	NBR (Nitrile), 60° hardness	N6
	Silicone, 30° hardness	S3
	Silicone, 50° hardness	S5
	White Silicone, 30° hardness	W3
	White Silicone, 50° hardness	W5
	White Silicone, 30° hardness (FDA)	W3(FDA)
	White Silicone, 50° hardness (FDA)	W5(FDA)
	Urethane, 60° hardness	U6
5. Suction stopper	Description	Symbol
	G type	G
6. Filter	Description	Symbol
	No filter	Blank
	Mesh disk filter (200mesh)	F2
7. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/4 female	14F
	Fitting, G1/8 male	18M
	Fitting, G1/4 male	14M
	Fitting, G3/8 male	38M

Spare Parts – Top Bellows

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



I 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

I Spare Parts – Suction Stoppers

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

I Spare Parts – Filters

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

I 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

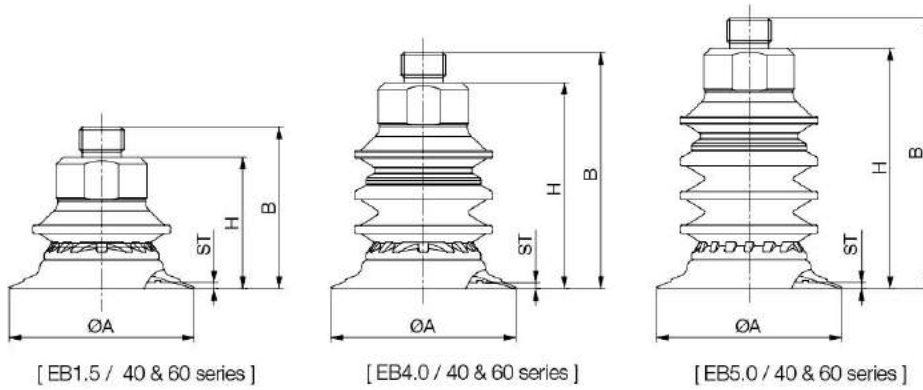
I Spare Parts – Fittings

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

SUCTION CUPS / Magic suction cup



Dimensional Data



Fitting
18F
18M
14F
14M
38M

[Unit : mm]

Model	Ø A	G	ST	H *	B *
EB1.5/40-MF45	45	Female thread : 1/8", 1/4"	1.8	35.9	44.9
EB1.5/40-MF55	55		1.8	36.3	45.3
EB4.0/40-MF45	45	Male thread : 1/8", 1/4", 3/8"	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

