

# techhose

QUALITY CONNECTIONS

Hydraulics

Pneumatics  
& Vacuum

Industrial

Compressed Air  
& Ring Main

Process &  
Instrumentation

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## Pneumatics

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Vacuum

# SECTION 9

## Vacuum



- Suction Cups
- Suction Cup Fittings
- Vacuum Pumps
- Vacuum Cartridges
- Vacuum Generators
- Level Compensators
- Green Pumps
- Magic Pumps
- Turtle Pumps
- Magic Pumps
- Vacuum Filters
- In-line Vacuum Filters
- High Volume Mufflers
- Vacuum Conveying



Suction Cups, Bellows & Cross Groove	<a href="#">470-471</a>	Suction Cups, Mark Free, Flat Structure	<a href="#">485-487</a>
Suction Cups, Deep	<a href="#">488-494</a>	Suction Cups, Oval Type Universal	<a href="#">474-477</a>
Suction Cups, Double Bellows	<a href="#">467-469</a>	Suction Cups, Oval Type, Multi Bellows	<a href="#">473</a>
Suction Cups, Dual Lip Structure	<a href="#">472</a>	Suction Cups, Single Bellows	<a href="#">452-459</a>
Suction Cups, Fittings	<a href="#">507-512</a>	Suction Cups, Direct Fitting Bellows	<a href="#">460-461</a>
Suction Cups, Flat	<a href="#">499-504</a>	Suction Cups, Universal	<a href="#">478-484</a>
Suction Cups, Flat & Curve	<a href="#">495-498</a>	Vacuum Filters & Filter Elements	<a href="#">533-536</a>
Suction Cups, Flat, Dual Lip Structure	<a href="#">505-506</a>	Vacuum Pumps & Magic Grippers	<a href="#">513-532</a>
Suction Cups, Long Multi Bellows	<a href="#">462-466</a>		



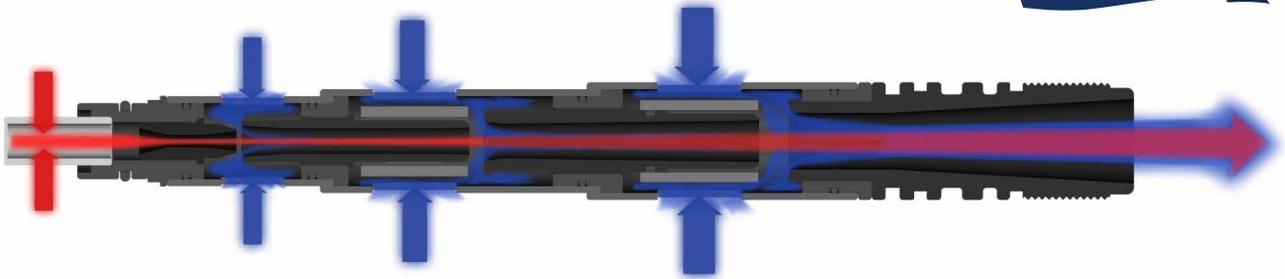
# Introducing To You The World's Best Vacuum Products





## VMECA Vacuum Principle

INTERNATIONAL  
PATENT



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

VMECA vacuum cartridge is a new and innovative multi-stage vacuum pump.

It is extremely compact in size and very light weight.

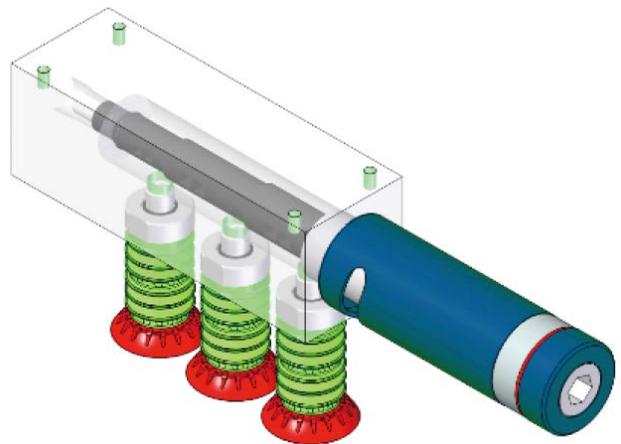
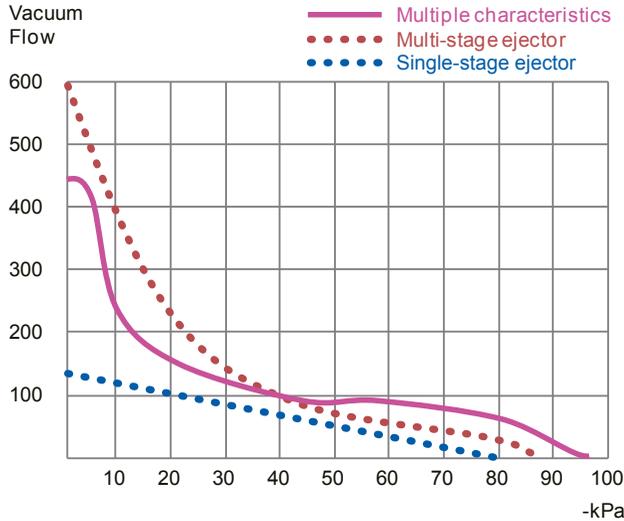
It is 'engineering and design friendly' making it easy to

create a vacuum pump and system for a specific application or machine.

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

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

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





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



## VMECA Vacuum Principle

### 1. Pressure Conversion Table

	Pa(N/m <sup>2</sup> )	bar	Kg/cm <sup>2</sup>	Torr	psi(lbf/in <sup>2</sup> )	kPa	inHg
1 Pa	1	0.00001	10.1972x10 <sup>-5</sup>	75.0062X10 <sup>-3</sup>	0.145038X10 <sup>-3</sup>	0.001	0.3X10 <sup>-3</sup>
1 kPa	1000	0.1	10.1972X10 <sup>-3</sup>	7.50062	0.145038	1	0.3
1 bar	100000	1	1.01972	750.062	14.5038	100	30
1 kg/cm <sup>2</sup>	98066.5	0.980665	1	735.559	14.2233	98.0665	29.42
1 Torr	133.322	1.33322X10 <sup>-3</sup>	1.35951X10 <sup>-3</sup>	1	19.3368X10 <sup>-3</sup>	0.133322	0.04
1 Psi	6894.76	68.9476XX10 <sup>-3</sup>	70.3069X10 <sup>-3</sup>	51.7149	1	6.89476	2.07

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

### 2. Vacuum Comparison Table (Pressure Below Atmospheric)

	mbar	kPa	-kPa	%vacuum	Torr	-mmHg	-inHg
Values at sea level	1013	101.3	0	0	760	0	0
	913	913.3	10	9.9	685	75	3
	813	81.3	20	19.7	610	150	6
	713	71.3	30	29.6	535	225	9
	613	61.3	40	39.5	460	300	12
	513	51.3	50	49.3	385	375	15
	413	41.3	60	59.2	310	450	18
	313	31.3	70	69.1	235	525	21
	213	21.3	80	79	160	600	24
113	11.3	90	89	85	675	27	
Absolute vacuum	0	0	101.3	100	0	760	30

### 3. Pressure Comparison Table (Pressure Above Atmospheric)

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



## 4. Flow Rate Comparison Tables

**Flow:** volume per unit of time.

**Quantity designations:** Q,q(Q)=V/t(volume/time).

**SI-unit:** cubic meters per second (m<sup>3</sup>/s).

**Common multiple units:** litre/min, litre/s, litre/h.

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

## Flow Comparison Table

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



## Applications



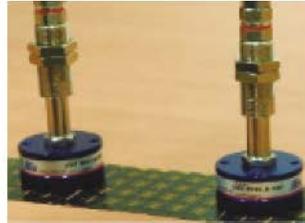
### Automotive Industry

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



### Packaging Industry

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



### Semiconductor – Solar Industry

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



### Wood Industry

VMECA vacuum pumps which have an auto-filter cleaning system can provide the ideal solution to customers who have a problem with dust from wooden sheeting. Suction cups are of a high quality and long-life span, which can shorten the downtime.





## Applications

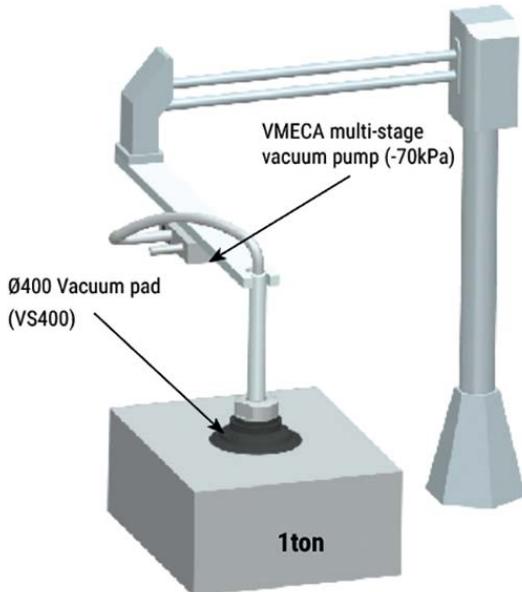
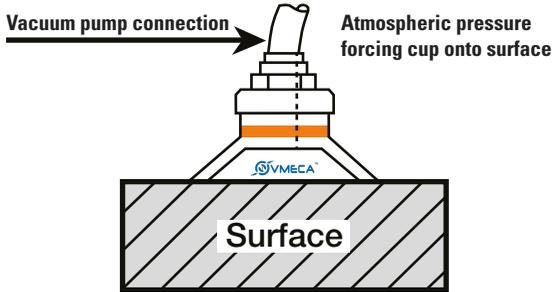
Material handling with suction cup is very simple and reliable with low cost. It is therefore a worthwhile solution before considering more complicated handling techniques.

Suction cups can lift and hold objects from a few grams up to several kg.

- Features
- Easy installation
- Low service requirement
- Low price
- Does not damage the goods

Fast attachment and detachment

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

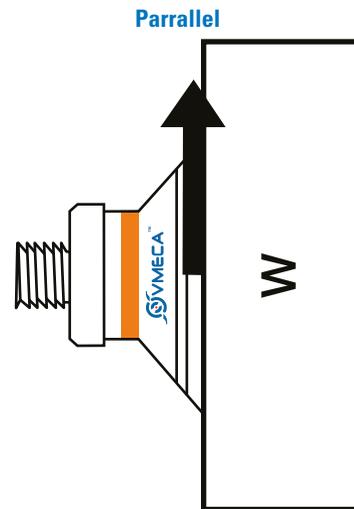
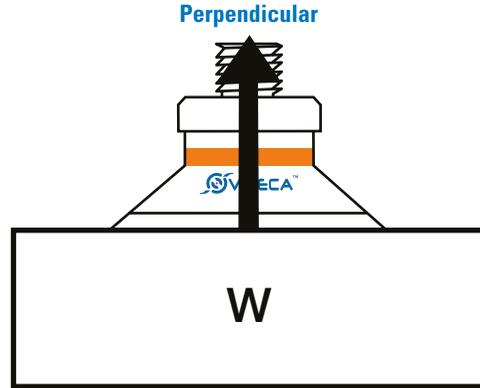


Weights that can be lifted with suction cup

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

### How to select suction cup

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



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

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



## Index

## VB Series

Page 452



- Single-bellow suction cup
- Diameter range: Ø5 to 150
- Material selection: NBR, silicone, conductive silicone, urethane, polyurethane

## Features &amp; Strengths

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

## Advantages

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

## VBU Series

Page 467



- Bellows and universal suction cup
- Diameter range: Ø35 to 55
- Material selection: NBR, silicone, polyurethane

## Features &amp; Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheet in stocks

## Advantages

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

## VB-M Series (Direct Fitting Bellows)

Page 460



- Single-bellow suction cup for direct fitting
- Diameter range: Ø20 to 50
- Material selection: NBR, silicone, conductive silicone, urethane

## Features &amp; Strengths

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

## Advantages

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

## VBX Series

Page 470



- Bellows and cross groove suction cup
- Diameter range: Ø35 to 55
- Material selection: polyurethane

## Features &amp; Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheet in stocks

## Advantages

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

## VBL Series

Page 462



- Long multi-bellow suction cup
- Diameter range: Ø15 to 50
- Material selection: NBR, silicone, conductive silicone, urethane

## Application

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

## Advantages

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

## BL5040

Page 472



- Dual lip structure suction cup
- Diameter range: Ø50
- Material selection: NBR, silicone

## Features &amp; Strengths

- Excellent for irregular curved surfaces and rough surfaces
- Dual lip structure to increase safety caused by lip wear and tear

## Advantages

- Stable and reliable performance by dual lip structure to increase safety caused by lip wear and tear



## Index

<b>VOBL Series</b>	Page 473
	<ul style="list-style-type: none"> <li>• Long multi bellows and oval suction cup</li> <li>• Diameter range: Ø35 x 90</li> <li>• Material selection: NBR, silicone, conductive silicone</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Wide cover for increased degree of height compensation</li> <li>• Excellent for fragile products</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows</li> <li>• Can cope with an increased degree of height compensation and is particularly good for handling fragile objects</li> <li>• The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece</li> </ul>
<b>VOU Series</b>	Page 474
	<ul style="list-style-type: none"> <li>• Oval universal suction cup</li> <li>• Diameter range: Ø4 x 10 to Ø20 x 60</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Great performance for handling long objects with flat and curved surfaces</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Good lifting forces can be achieved with small size</li> <li>• Conductive silicon is excellent for handling PCB board or electronic components</li> <li>• Easily mountable without detaching a fitting from the machine (saving maintenance time)</li> </ul>
<b>VU Series</b>	Page 478
	<ul style="list-style-type: none"> <li>• Universal suction cup</li> <li>• Diameter range: Ø1.5 to 80</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Excellent performance for flat stable and slightly curved surfaces</li> <li>• Suitable for concave surfaces</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Good lifting forces can be achieved with this cup, is best suited to flat stable surfaces but can cope with a small degree of curvature</li> <li>• Very small cups are available down to just 1.5mm diameter</li> </ul>
<b>FF Series</b>	Page 485
	<ul style="list-style-type: none"> <li>• Mark free and flat suction cup</li> <li>• Diameter range: Ø10 to 30</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Excellent performance for very thin and light weight products</li> <li>• Handling product without mark and damage</li> </ul>	<b>Examples of use</b> <ul style="list-style-type: none"> <li>• Semiconductor, display, thin film</li> </ul>
<b>VD Series</b>	Page 488
	<ul style="list-style-type: none"> <li>• Deep suction cup</li> <li>• Diameter range: Ø30 to 90</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane, polyurethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Suitable for curved or irregular surfaces</li> <li>• Excellent performance for round corners and edges</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Best suited to curved or irregular surfaces</li> <li>• Strong lifting force when transferring without shaking goods</li> </ul>
<b>VFC Series</b>	Page 495
	<ul style="list-style-type: none"> <li>• Flat curved suction cup</li> <li>• Diameter range: Ø50 to 100</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane, polyurethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Specifically designed for flat and curved surface</li> <li>• Available to handle multiple objects with the same suction cup</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Strong lifting force for both vertical and horizontal application</li> <li>• Stable gripping without sliding and shaking</li> </ul>



## Index

<b>VF Series</b> <span style="float: right;">Page 499</span>		<b>VBF Series</b> <span style="float: right;">Available on request</span>	
	<ul style="list-style-type: none"> <li>• Flat suction cup</li> <li>• Diameter range: Ø15 to 300</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane, polyurethane</li> </ul>		<ul style="list-style-type: none"> <li>• Bellows flat suction cup</li> <li>• Diameter range: Ø25 to 100</li> <li>• Material selection: NBR, silicone, polyurethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Specifically designed for flat and curved surface</li> <li>• Available to handle multiple objects with the same suction cup</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Strong lifting force for both vertical and horizontal application</li> <li>• Stable gripping without sliding and shaking</li> </ul>	<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Highly fast operation in automobile, glass and wooden panel industry</li> <li>• Excellent for oily surface products and convex products</li> <li>• Innovatively designed for slightly curved and flat material</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Very flexible adjustment according to different surface and shape</li> <li>• Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels</li> <li>• Longer life time with PU material (three times longer than NBR of competitor)</li> </ul>
<b>FCF Series</b> <span style="float: right;">Available on request</span>		<b>VOBF Series</b> <span style="float: right;">Available on request</span>	
	<ul style="list-style-type: none"> <li>• Deep flat suction cup</li> <li>• Diameter range: Ø25 to 100</li> <li>• Material selection: polyurethane</li> </ul>		<ul style="list-style-type: none"> <li>• Oval flat bellow suction cup</li> <li>• Diameter range: Ø30 x 60 to Ø55 x 100</li> <li>• Material selection: Polyurethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Excellent for flat and curved material in both vertical and horizontal application</li> <li>• No vibration when transferring</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• High speed handling without deformation</li> <li>• Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels</li> <li>• Great designed pattern for anti sliding</li> </ul>	<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Over bellows shaped for handling long, narrow, curved and oily work pieces</li> <li>• The feet inside the cup provide an anti-slide</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Excellent performance in high speed application – fast cycle time</li> <li>• Stable gripping without sliding</li> <li>• Longer life time with PU material (three times longer than NBR of competitor)</li> </ul>
<b>VDF Series</b> <span style="float: right;">Available on request</span>		<b>VOC Series</b> <span style="float: right;">Available on request</span>	
	<ul style="list-style-type: none"> <li>• Deep flat suction cup</li> <li>• Diameter range: Ø25 to 100</li> <li>• Material selection: polyurethane</li> </ul>		<ul style="list-style-type: none"> <li>• Oval curved suction cup</li> <li>• Diameter range: Ø11 x 23 to Ø60 x 180</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Highly fast operation in automobile, glass and wooden panel industry</li> <li>• Excellent for oily surface products and convex products</li> <li>• Innovatively designed for slightly curved and flat material</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Very flexible adjustment according to different surface and shape</li> <li>• Excellent for thin, oily and flat and slightly curved metal sheets and automotive panels</li> <li>• Longer life time with PU material (three times longer than NBR of competitor)</li> </ul>	<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Good for long objects with flat and curved surfaces</li> <li>• Strong lifting force and long life span</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Good lifting forces can be achieved with small size</li> <li>• Excellent for parallel to the surface of the object by thick and durable lip structure</li> </ul>



## Index

VS Series		Available on request	KPS Series		Available on request
 <ul style="list-style-type: none"> <li>• Sponge suction cup</li> <li>• Diameter range: Ø35 to 400</li> <li>• Material selection: EPDM</li> </ul>			 <ul style="list-style-type: none"> <li>• Customized suction cup</li> <li>• Diameter range: Ø13 to 68</li> <li>• Material selection: NBR, silicone, conductive silicone, urethane</li> </ul>		
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Excellent performance for rough and uneven surfaces</li> </ul>			<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>• Developed to be used specially for bag opening applications</li> <li>• Suitable to be used on thin plastic and film type material</li> </ul>		
<b>Advantages</b> <ul style="list-style-type: none"> <li>• Used for handling rough surfaces and when used with ball joint option and level compensator surfaces</li> </ul>			<b>Advantages</b> <ul style="list-style-type: none"> <li>• Excellent for bag opening with good adhesion</li> </ul>		



**EASY, EFFICIENT,  
RELIABLE &  
COMPACT!  
MAGIC GRIPPERS**

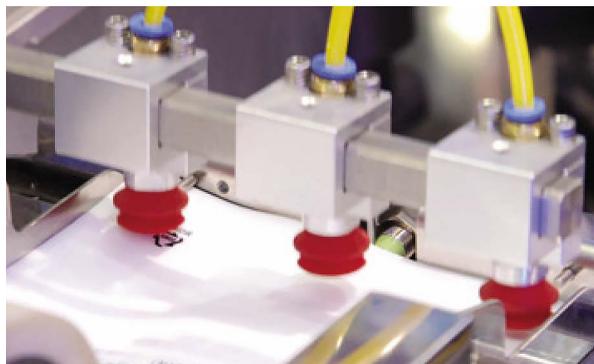


### Features & Strengths

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

### Examples of Use

- Cardboards, veneer sheets, packaging materials, plastic sheets, thin film sheets



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VB5	0.05	0.03	0.08	0.10
VB6X	0.09	0.05	0.11	0.14
VB8	0.15	0.08	0.16	0.25
VB10	0.48	0.15	0.34	0.50
VB12	0.59	0.20	0.41	0.62
VB15	1.10	0.29	0.60	0.90
VB17	1.50	0.40	0.80	1.00
VB20	2.70	0.60	1.00	1.42
VB30	10	1.22	2.24	2.42
VB40	15	2.24	3.97	5
VB50	32	3.36	6.63	8.36
VB75	110	7.65	17.04	23.06
VB75B	110	7.65	17.04	23.06
VB110	310	13.97	35	47.04
VB110B	310	13.97	35	47.04
VB150	650	30	70	90.1

The lifting force above does not include safety factor.

### Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone	55	Red	-70 to +200
White Silicone	55	Translucent White	-70 to +200
White Silicone (FDA)	55	Translucent White	-70 to +200
High temperature Silicone	50	Blue	-70 to +280
Conductive Silicone	70	Smoky Black	-45 to +90
Urethane	60	Dark Green	0 to +100
Mark Free	75	Black	-10 to +100

### Material Resistance

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

Specifications subject to change without notice.

# SUCTION CUPS – SINGLE BELLOWS



## Features & Strengths

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

## Advantages

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

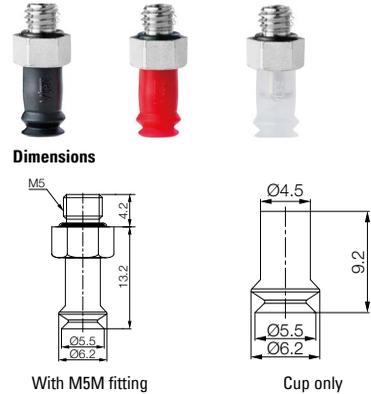
## Examples of Use

- Cardboards
- Packaging materials
- Thin film sheets
- Veneer sheets
- Plastic sheets

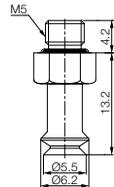
## VB Series

### 5mm, Cup Only

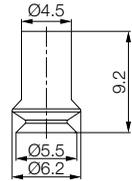
9205	Material	Colour	Temperature	Hardness
VB5-N	Nitrile	Black	-20°C-110°C	60
VB5-S	Silicone	Red	-70°C-200°C	55
VB5-WS	White Silicone	Translucent White	-70°C-200°C	55
VB5-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB5-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB5-U	Urethane	Dark Green	0°C-100°C	60
VB5-A	Mark Free	Black	-10°C-100°C	75



Dimensions



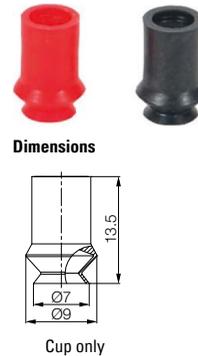
With M5M fitting



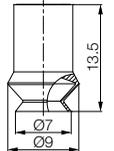
Cup only

### 6mm, Cup Only

9205	Material	Colour	Temperature	Hardness
VB6X-N	Nitrile	Black	-20°C-110°C	60
VB6X-S	Silicone	Red	-70°C-200°C	55
VB6X-WS	White Silicone	Translucent White	-70°C-200°C	55
VB6X-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB6X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB6X-U	Urethane	Dark Green	0°C-100°C	60
VB6X-A	Mark Free	Black	-10°C-100°C	75



Dimensions



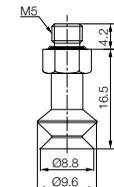
Cup only

### 8mm, Cup Only

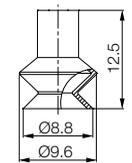
9205	Material	Colour	Temperature	Hardness
VB8X-N	Nitrile	Black	-20°C-110°C	60
VB8X-S	Silicone	Red	-70°C-200°C	55
VB8X-WS	White Silicone	Translucent White	-70°C-200°C	55
VB8X-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB8X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB8X-U	Urethane	Dark Green	0°C-100°C	60
VB8X-A	Mark Free	Black	-10°C-100°C	75



Dimensions



With M5M fitting



Cup only



## Features & Strengths

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

## Advantages

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

## Examples of Use

- Cardboards
- Packaging materials
- Thin film sheets
- Veneer sheets
- Plastic sheets

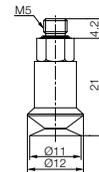
## VB Series

### 10mm, Cup Only

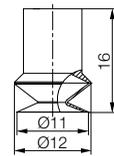
9204	Material	Colour	Temperature	Hardness
VB10-N	Nitrile	Black	-20°C-110°C	60
VB10-S	Silicone	Red	-70°C-200°C	55
VB10-WS	White Silicone	Translucent White	-70°C-200°C	55
VB10-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB10-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB10-U	Urethane	Dark Green	0°C-100°C	60
VB10-A	Mark Free	Black	-10°C-100°C	75



#### Dimensions



With M5M fitting



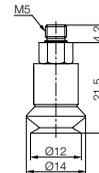
Cup only

### 12mm, Cup Only

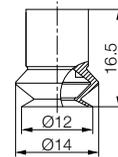
9204	Material	Colour	Temperature	Hardness
VB12-N	Nitrile	Black	-20°C-110°C	60
VB12-S	Silicone	Red	-70°C-200°C	55
VB12-WS	White Silicone	Translucent White	-70°C-200°C	55
VB12-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB12-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB12-U	Urethane	Dark Green	0°C-100°C	60
VB12-A	Mark Free	Black	-10°C-100°C	75



#### Dimensions



With M5M fitting



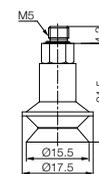
Cup only

### 15mm, Cup Only

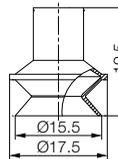
9204	Material	Colour	Temperature	Hardness
VB15-N	Nitrile	Black	-20°C-110°C	60
VB15-S	Silicone	Red	-70°C-200°C	55
VB15-WS	White Silicone	Translucent White	-70°C-200°C	55
VB15-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VB15-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB15-U	Urethane	Dark Green	0°C-100°C	60
VB15-A	Mark Free	Black	-10°C-100°C	75
VB15-PU	Polyurethane	Translucent Orange	0°C-60°C	60



#### Dimensions



With M5M fitting



Cup only



### Features & Strengths

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- Various materials for a wide range of applications

### Advantages

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

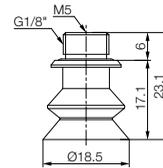
### Examples of Use

- Cardboards
- Packaging materials
- Thin film sheets
- Veneer sheets
- Plastic sheets

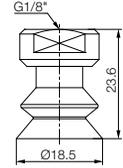
## VB Series



### Dimensions



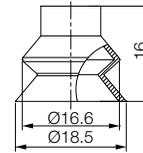
With M518MF fitting



With 18F fitting

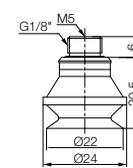
### 17mm, Cup Only

9205	Material	Colour	Temperature	Hardness
<b>VB17-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB17-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB17-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB17-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VB17-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB17-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB17-A</b>	Mark Free	Black	-10°C-100°C	75

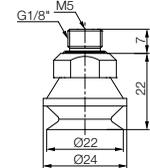


Cup only

### Dimensions



With M518MF fitting

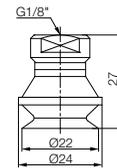


With M518MFB fitting

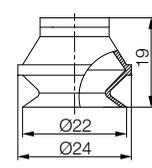


### 20mm, Cup Only

9205	Material	Colour	Temperature	Hardness
<b>VB20-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB20-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB20-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB20-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VB20-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB20-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB20-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60



With 18F fitting



Cup only





## Features & Strengths

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

## Advantages

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

## Examples of Use

- Cardboards
- Packaging materials
- Thin film sheets
- Veneer sheets
- Plastic sheets

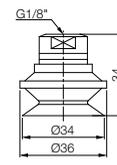
## VB Series



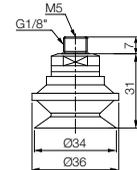
### 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VB30-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB30-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB30-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB30-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VB30-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB30-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB30-A</b>	Mark Free	Black	-10°C-100°C	75
<b>VB30-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60

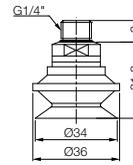
### Dimensions



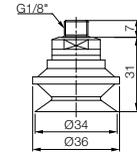
With 18F fitting



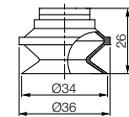
With M518MF fitting



With 14M fitting



With 18M fitting



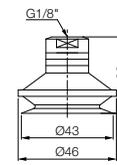
Cup only



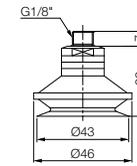
### 40mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VB40-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB40-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB40-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB40-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VB40-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB40-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB40-A</b>	Mark Free	Black	-10°C-100°C	75
<b>VB40-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60

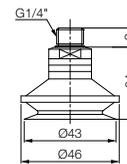
### Dimensions



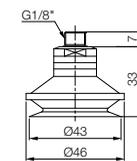
With 18F fitting



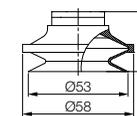
With 18M fitting



With 14M fitting



With 18M fitting



Cup only



# SUCTION CUPS – SINGLE BELLOWS



## Features & Strengths

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

## Advantages

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

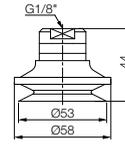
## Examples of Use

- Cardboards
- Veneer sheets
- Packaging materials
- Plastic sheets
- Thin film sheets

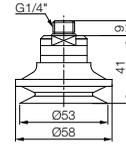
## VB Series



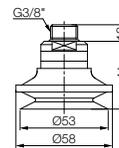
### Dimensions



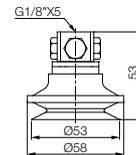
With 18F fitting



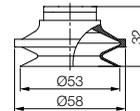
With 14M fitting



With 38M fitting



With 18x5F fitting



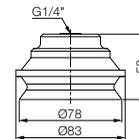
Cup only

### 50mm, Cup Only

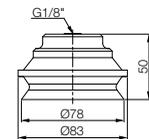
9204	Material	Colour	Temperature	Hardness
<b>VB50-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB50-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB50-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB50-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VB50-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB50-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB50-A</b>	Mark Free	Black	-10°C-100°C	75
<b>VB50-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60



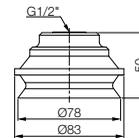
### Dimensions



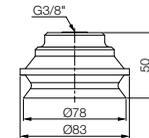
With 14F fitting



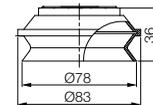
With 18F fitting



With 12F fitting



With 38F fitting



Cup only

### 75mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VB75-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB75-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB75-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB75-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VB75-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB75-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB75-A</b>	Mark Free	Black	-10°C-100°C	75
<b>VB75-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60



## Features & Strengths

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

## Advantages

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

## Examples of Use

- Cardboards
- Packaging materials
- Thin film sheets
- Veneer sheets
- Plastic sheets

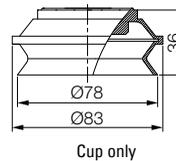
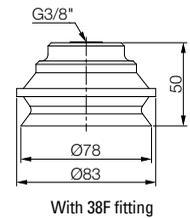
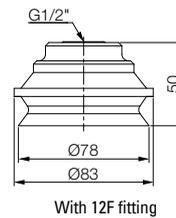
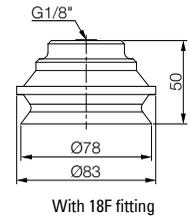
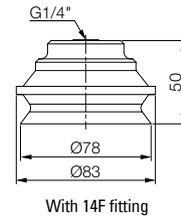
## VB Series



### 75mm with Large Cleats, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VB75B-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB75B-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB75B-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB75B-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VB75B-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB75B-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB75B-A</b>	Mark Free	Black	-10°C-100°C	75

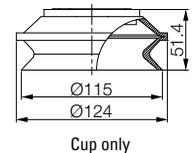
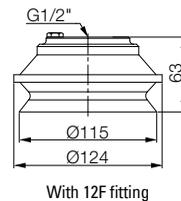
### Dimensions



### 110mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VB110-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VB110-S</b>	Silicone	Red	-70°C-200°C	55
<b>VB110-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VB110-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VB110-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VB110-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VB110-A</b>	Mark Free	Black	-10°C-100°C	75

### Dimensions





### Features & Strengths

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

### Advantages

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

### Examples of Use

- Cardboards
- Veneer sheets
- Packaging materials
- Plastic sheets
- Thin film sheets

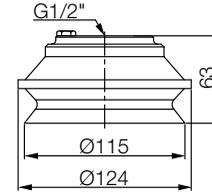
## VB Series



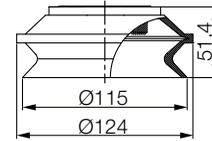
### 110mm with Large Cleats, Cup Only

9204	Material	Colour	Temperature	Hardness
VB110B-N	Nitrile	Black	-20°C-110°C	60
VB110B-S	Silicone	Red	-70°C-200°C	55
VB110B-WS	White Silicone	Translucent White	-70°C-200°C	55
VB110B-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VB110B-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB110B-U	Urethane	Dark Green	0°C-100°C	60
VB110B-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 12F fitting



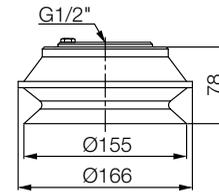
Cup only



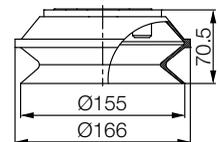
### 150mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VB150-N	Nitrile	Black	-20°C-110°C	60
VB150-S	Silicone	Red	-70°C-200°C	55
VB150-WS	White Silicone	Translucent White	-70°C-200°C	55
VB150-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VB150-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB150-U	Urethane	Dark Green	0°C-100°C	60
VB150-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 12F fitting



Cup only

## Disc Filters

### To suit VB Series Cups

9204	Material	To Suit
VTFE-B30	Polyethylene	VB30/30M
VTFE-B40	Polyethylene	VB40
VTFE-B50	Polyethylene	VB50/50M
VTFE-B75	Polyethylene	VB75
VTFE-B110	Polyethylene	VB110





### Features & Strengths

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

### Examples of Use

- Cardboards, veneer sheets, packaging materials, plastic sheets, thin film sheets



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VB30M	1	1.50	2.60	3.90
VB50M	32.00	3.20	7.90	10.50

The lifting force above does not include safety factor.

### Material Specifications

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

### Material Resistance

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



# SUCTION CUPS – DIRECT FITTING BELLOWS



## Features & Strengths

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

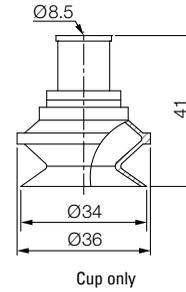
## Advantages

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

## Examples of Use

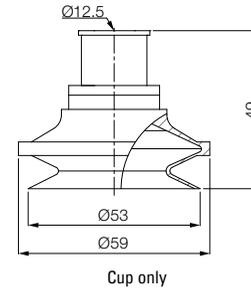
- Cardboards
- Veneer sheets
- Packaging materials
- Plastic sheets
- Thin film sheets

## VB-M Series



### 30mm with Long Neck, Cup Only

9204	Material	Colour	Temperature	Hardness
VB30M-N	Nitrile	Black	-20°C-110°C	60
VB30M-S	Silicone	Red	-70°C-200°C	55
VB30M-WS	White Silicone	Translucent White	-70°C-200°C	55
VB30M-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VB30M-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB30M-U	Urethane	Dark Green	0°C-100°C	60
VB30M-A	Mark Free	Black	-10°C-100°C	75
VB30M-PU	Polyurethane	Translucent Orange	0°C-60°C	60



### 50mm with Long Neck, Cup Only

9204	Material	Colour	Temperature	Hardness
VB50M-N	Nitrile	Black	-20°C-110°C	60
VB50M-S	Silicone	Red	-70°C-200°C	55
VB50M-WS	White Silicone	Translucent White	-70°C-200°C	55
VB50M-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VB50M-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VB50M-U	Urethane	Dark Green	0°C-100°C	60
VB50M-A	Mark Free	Black	-10°C-100°C	75
VB50M-PU	Polyurethane	Translucent Orange	0°C-60°C	60

## Disc Filters

### To suit VB-M Series Cups

9204	Material	To Suit
VTFE-B30	Polyethylene	VB30/30M
VTFE-B50	Polyethylene	VB50/50M





#### Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

#### Examples of Use

- Fragile objects, general food products, glass, metal ball, plastic bag, bread



#### Recommended Lifting Force (Maximum)

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

#### Material Specifications

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

The lifting force above does not include safety factor.

#### Material Resistance

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

# SUCTION CUPS – LONG MULTI BELLOWS



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

## Advantages

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

## Examples of Use

- Fragile objects
- Glass
- Bread
- General food products
- Eggs

## VBL Series



### 10mm, Cup Only

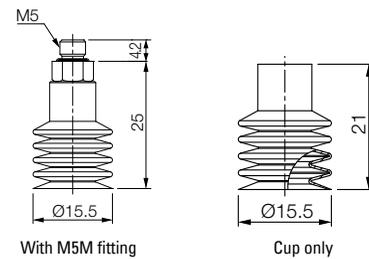
9204	Material	Colour	Temperature	Hardness
<b>VBL10-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL10-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL10-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL10-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL10-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL10-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL10-A</b>	Mark Free	Black	-10°C-100°C	75



### 15mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBL15-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL15-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL15-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL15-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL15-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL15-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL15-A</b>	Mark Free	Black	-10°C-100°C	75

### Dimensions



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

## Advantages

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

## Examples of Use

- Fragile objects
- Glass
- Bread
- General food products
- Eggs

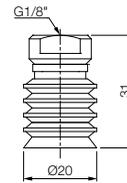
## VBL Series



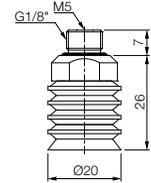
### 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBL20-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL20-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL20-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL20-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL20-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL20-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL20-A</b>	Mark Free	Black	-10°C-100°C	75

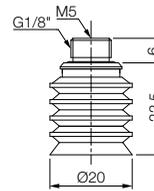
### Dimensions



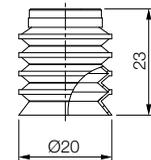
With 18F fitting



With M518MB fitting



With M518MF fitting



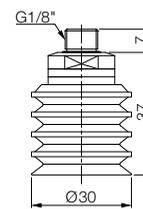
Cup only



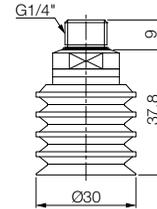
### 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBL30-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL30-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL30-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL30-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL30-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL30-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL30-A</b>	Mark Free	Black	-10°C-100°C	75

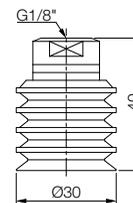
### Dimensions



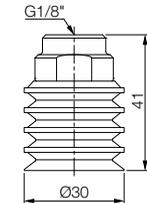
With 18M fitting



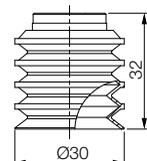
With 14M fitting



With 18FB fitting



With 18FB fitting



Cup only

# SUCTION CUPS – LONG MULTI BELLOWS



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

## Advantages

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

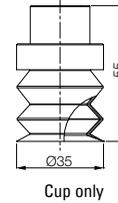
## Examples of Use

- Fragile objects
- Glass
- Bread
- General food products
- Eggs

## VBL Series



### Dimensions

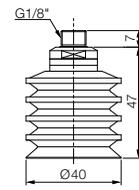
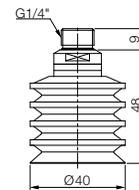


### 35mm, with Pipe Mount Neck, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBL35M-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL35M-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL35M-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL35M-FDA-30</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL35M-FDA-55</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL35M-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL35M-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL35M-A</b>	Mark Free	Black	-10°C-100°C	75

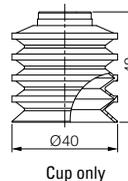
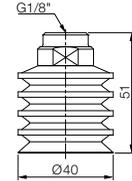
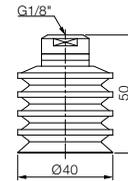


### Dimensions



### 40mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBL40-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBL40-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBL40-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBL40-WS-FDA</b>	White Silicone FDA	Translucent White	-70°C-200°C	55
<b>VBL40-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VBL40-U</b>	Urethane	Dark Green	0°C-100°C	60
<b>VBL40-A</b>	Mark Free	Black	-10°C-100°C	75





## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

## Advantages

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

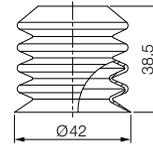
## Examples of Use

- Fragile objects
- Glass
- Bread
- General food products
- Eggs

## VBL Series



### Dimensions



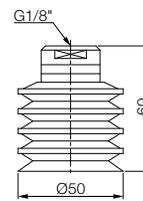
Cup only

### 40mm, Alternate Design, Cup Only

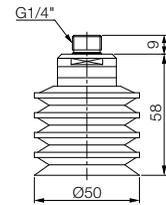
9204	Material	Colour	Temperature	Hardness
VBL40B-N	Nitrile	Black	-20°C-110°C	60
VBL40B-S	Silicone	Red	-70°C-200°C	55
VBL40B-WS	White Silicone	Translucent White	-70°C-200°C	55
VBL40B-FDA-30	White Silicone FDA	Translucent White	-70°C-200°C	30
VBL40B-FDA-55	White Silicone FDA	Translucent White	-70°C-200°C	55
VBL40B-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VBL40B-U	Urethane	Dark Green	0°C-100°C	60
VBL40B-A	Mark Free	Black	-10°C-100°C	75



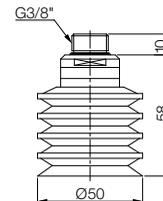
### Dimensions



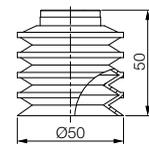
With 18F fitting



With 14M fitting



With 38M fitting



Cup only

### 50mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VBL50-N	Nitrile	Black	-20°C-110°C	60
VBL50-S	Silicone	Red	-70°C-200°C	55
VBL50-WS	White Silicone	Translucent White	-70°C-200°C	55
VBL50-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VBL50-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VBL50-U	Urethane	Dark Green	0°C-100°C	60
VBL50-A	Mark Free	Black	-10°C-100°C	75

## Disc Filters

### To suit VBL Series

9204	Material	To Suit
VTFE-BL20	Polyethylene	VBL20
VTFE-BL30	Polyethylene	VBL30
VTFE-BL40B	Polyethylene	VBL40B
VTFE-BL40	Polyethylene	VBL40
VTFE-BL50	Polyethylene	VBL50



# VBU SERIES TECHNICAL INFORMATION



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheets in stocks

## Advantages

- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of height compensation and is particularly good for handling fragile objects

## Examples of Use

- Convex surface
- Plastic bag
- Metal sheets
- Plywood
- Carton box
- Cement sack



## Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-60 kPa
VBU35	6.20	2.26	4.28	5.75
VBU45	12.50	4.08	7.30	10.00

The lifting force above does not include safety factor.

## Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone	55	Red	-70 to +200
White Silicone	55	Translucent White	-70 to +200
White Silicone (FDA)	55	Translucent White	-70 to +200
Polyurethane	60	Translucent Orange	0 to +60

## Material Resistance

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



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheets in stocks

## Advantages

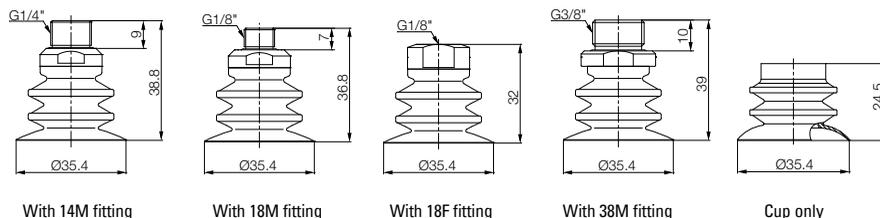
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of height compensation and is particularly good for handling fragile objects

## Examples of Use

- Convex surface
- Plastic bag
- Metal sheets
- Plywood
- Carton box
- Cement sack

## VBU Series

### Dimensions

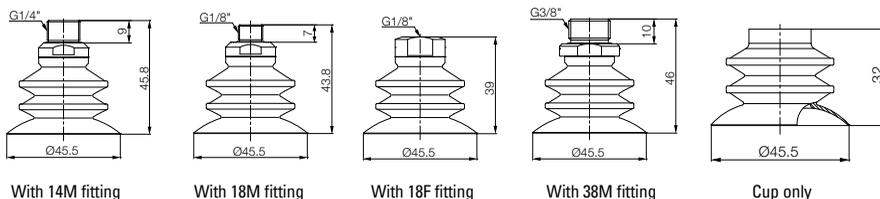


### 35mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBU35-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBU35-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBU35-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBU35-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VBU35-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60



### Dimensions



### 45mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VBU45-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VBU45-S</b>	Silicone	Red	-70°C-200°C	55
<b>VBU45-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VBU45-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VBU45-PU</b>	Polyurethane	Translucent Orange	0°C-60°C	60



# SUCTION CUPS – DOUBLE BELLOWS



## Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheets in stocks

## Advantages

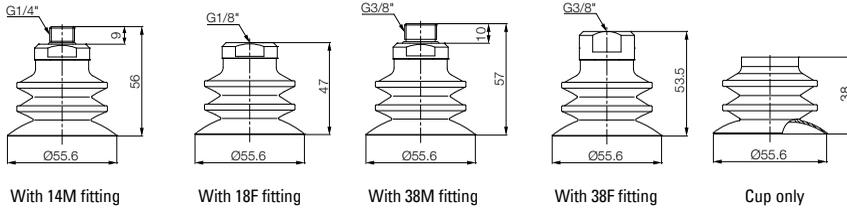
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of height compensation and is particularly good for handling fragile objects

## Examples of Use

- Convex surface
- Plastic bag
- Metal sheets
- Plywood
- Carton box
- Cement sack

## VBU Series

### Dimensions



### 55mm, Cup Only

9205	Material	Colour	Temperature	Hardness
VBU55-N	Nitrile	Black	-20°C-110°C	60
VBU55-S	Silicone	Red	-70°C-200°C	55
VBU55-WS	White Silicone	Translucent White	-70°C-200°C	55
VBU55-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VBU55-PU	Polyurethane	Translucent Orange	0°C-60°C	60

## Disc Filters

### To suit VBU Series Cups

9204	Material	To Suit
VTFE-BU35	Polyethylene	VBU35
VTFE-BU45	Polyethylene	VBU45
VTFE-BU55	Polyethylene	VBU55





#### Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for curved products and separating thin sheets in stocks

#### Advantages

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

#### Examples of Use

- Metal sheets
- Plywood
- Carton box
- Cement sack
- Glasses
- Veneer sheets



#### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-60 kPa
VBX35	5.80	2.63	4.38	6.95
VBX45	13.00	6.40	8.80	10.50
VBX55	29.50	7.60	10.10	12.20

The lifting force above does not include safety factor.

#### Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
Polyurethane	60	Translucent Orange	0 to +60

#### Material Resistance

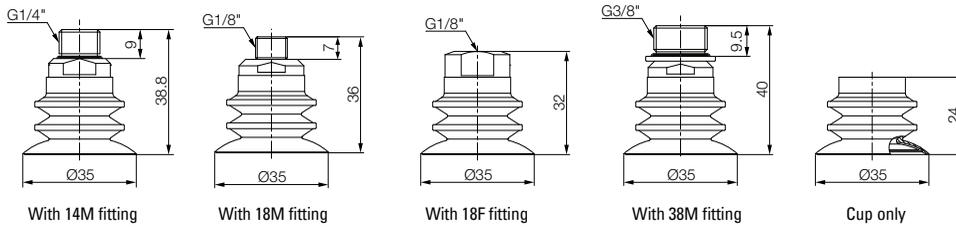
Description	Polyurethane
Wear Resistance	Excellent
Oil	Excellent
Weather / Ozone	Excellent
Alcohol	Fair
Acid	Fair





## VBX Series

### Dimensions

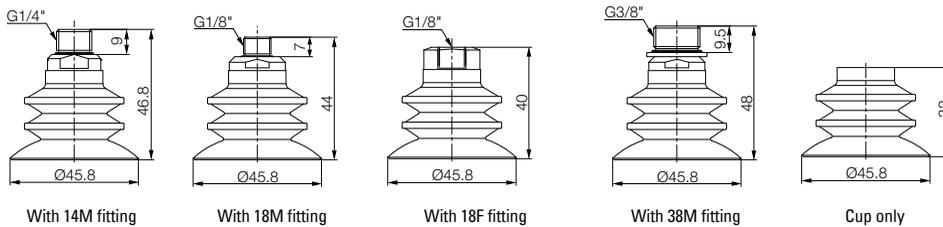


### 35mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VBX35-PU	Polyurethane	Translucent Orange	0°C-60°C	60



### Dimensions

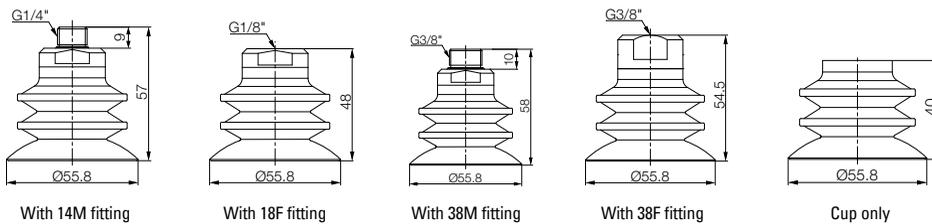


### 45mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VBX45-PU	Polyurethane	Translucent Orange	0°C-60°C	60



### Dimensions



### 55mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VBX55-PU	Polyurethane	Translucent Orange	0°C-60°C	60



## Disc Filters

### To suit VBX Series

9204	Material	To Suit
VTFE-BX35	Polyethylene	VBX35-PU
VTFE-BX45	Polyethylene	VBX45-PU
VTFE-BX55	Polyethylene	VBX55-PU



**Features & Strengths**

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

**Examples of use**

- Food (orange, apple, cheese ball, etc.)
- Convex surface

**Recommended Lifting Force (Maximum)**

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-60 kPa
BL5040	32.30	1.90	3.98	5.25

The lifting force above does not include safety factor.

**Material Resistance**

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

**Material Specifications**

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone - S3	30	Translucent Blue	-70 to +200
Silicone - S5	55	Red	-70 to +200
White Silicone - WS3	30	Translucent White	-70 to +200
White Silicone - WS5	55	Translucent White	-70 to +200
White Silicone - WS3 (FDA)	30	Translucent White	-70 to +200
White Silicone - WS5 (FDA)	55	Translucent White	-70 to +200

**SUCTION CUPS – DUAL LIP STRUCTURE****BL5040 Series****Features & Strengths**

- Excellent for irregular curved surfaces and rough surfaces and has a dual lip structure to increase safety

**Advantages**

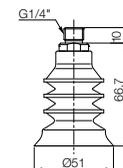
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of heights compensation and is particularly good for handling fragile objects

**Examples of Use**

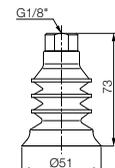
- Round food types (such as apples & oranges)
- Convex surface

**40mm Inner x 50mm Outer, Cup Only**

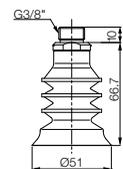
9205	Material	Colour	Temperature	Hardness
<b>BL5040-N</b>	Nitrile	Black	-20°C-110°C	60
<b>BL5040-S3</b>	Silicone - S3	Translucent Blue	-70°C-200°C	30
<b>BL5040-S5</b>	Silicone - S5	Red	-70°C-200°C	55
<b>BL5040-WS3</b>	White Silicone - WS3	Translucent White	-70°C-200°C	30
<b>BL5040-WS5</b>	White Silicone - WS5	Translucent White	-70°C-200°C	55
<b>BL5040-WS3-FDA</b>	White Silicone - WS3 (FDA)	Translucent White	-70°C-200°C	30
<b>BL5040-WS5-FDA</b>	White Silicone - WS5 (FDA)	Translucent White	-70°C-200°C	55

**Dimensions**

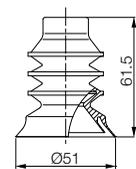
With 14M fitting



With 18F fitting



With 38M fitting



Cup Only

# VOBL SERIES TECHNICAL INFORMATION



### Features & Strengths

- Wide cover for increased degree of height compensation
- Excellent for fragile products

### Examples of Use

- Fragile objects, general food products, glass, bread



### Material Specifications

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

### Recommended Lifting Force (Maximum)

Model	Volume (cm³)	Lifting Force (Kg) Perpendicular	
		-20 kPa	-60 kPa
VOBL35x90	43.00	2.90	5.00

The lifting force above does not include safety factor.

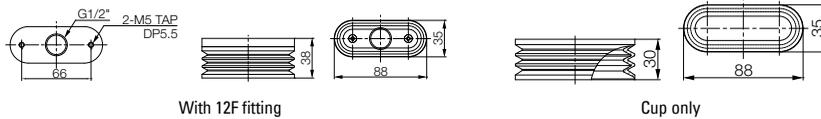
### Material Resistance

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

## SUCTION CUPS – LONG MULTI BELLOWS & OVAL TYPE

### VOBL Series

#### Dimensions



With 12F fitting

Cup only



### 35 x 90mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VOBL35X90-N	Nitrile	Black	-20°C-110°C	60
VOBL35X90-S	Silicone	Red	-70°C-200°C	55
VOBL35X90-W/S	White Silicone	Translucent White	-70°C-200°C	55
VOBL35X90-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VOBL35X90-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VOBL35X90-U	Urethane	Dark Green	0-100°C	60
VOBL35X90-A	Mark Free	Black	-10°C-100°C	75

### Disc Filters

#### To suit VOBL Series

9204	Material
VTFE-OBL35X90	Polyethylene





### Features & Strengths

- Great performance for handling long objects with flat and curved surfaces

### Examples of Use

- Semiconductor chips, PCB boards, electronic component
- Solar cell, small glass cases, pipes



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Minimum Curvature Radius R (mm)	Lifting Force (Kg) Perpendicular		
			-20 kPa	-60 kPa	-90 kPa
VOU4x10	0.064	3.50	0.19	0.30	0.35
VOU6x10	0.081	4.50	0.21	0.39	0.49

The lifting force above does not include safety factor.

### Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone	55	Red	-70 to +200
White Silicone	55	Translucent White	-70 to +200
White Silicone (FDA)	55	Translucent White	-70 to +200
High Temp. Silicone	50	Blue	-70 to +280
Conductive Silicone	70	Smoky Black	-45 to +90
Urethane	60	Dark Green	0 to +100

### Material Specifications

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



# SUCTION CUPS - OVAL UNIVERSAL



## Features & Strengths

- Great performance for handling long objects with flat and curved surfaces

## Advantages

- Good lifting forces can be achieved with even the small sizes
- Conductive silicone material provides excellent handling of PCB boards or electronic components
- Easily mountable without having to detach a fitting from the machine (saving in maintenance time)

## Examples of Use

- Semiconductor chips
- PCB boards
- Electronic components
- Solar cells
- Small glass cases

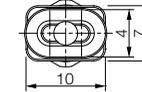
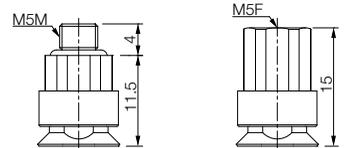
## VOU Series



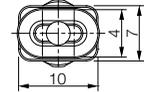
### 4 x 10mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU4X10-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU4X10-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU4X10-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU4X10-WS(FDA)</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU4X10-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU4X10-U</b>	Urethane	Dark Green	0-100°C	60

### Dimensions



With M5M Fitting



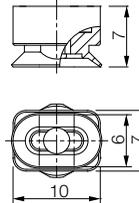
With M5F Fitting



### 6 x 10mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU6X10-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU6X10-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU6X10-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU6X10-WS(FDA)</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU6X10-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU6X10-U</b>	Urethane	Dark Green	0-100°C	60

### Dimensions



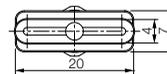
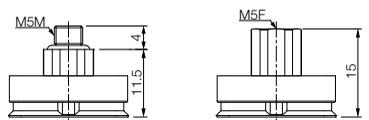
Cup only



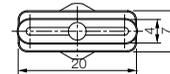
### 4 x 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU4X20-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU4X20-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU4X20-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU4X20-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU4X20-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU4X20-U</b>	Urethane	Dark Green	0-100°C	60

### Dimensions



With M5M Fitting



With M5F Fitting



## Features & Strengths

- Great performance for handling long objects with flat and curved surfaces

## Advantages

- Good lifting forces can be achieved with even the small sizes
- Conductive silicone material provides excellent handling of PCB boards or electronic components
- Easily mountable without having to detach a fitting from the machine (saving in maintenance time)

## Examples of Use

- Semiconductor chips
- PCB boards
- Electronic components
- Solar cells
- Small glass cases

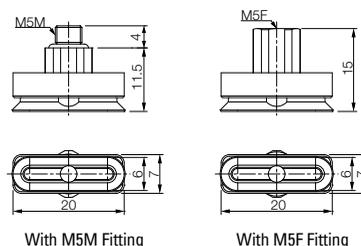
## VOU Series



### 6 x 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU6X20-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU6X20-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU6X20-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU6X20-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU6X20-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU6X20-U</b>	Urethane	Dark Green	0-100°C	60

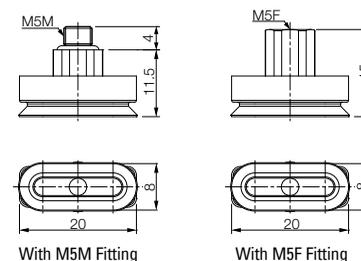
### Dimensions



### 8 x 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU8X20-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU8X20-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU8X20-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU8X20-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU8X20-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU8X20-U</b>	Urethane	Dark Green	0-100°C	60

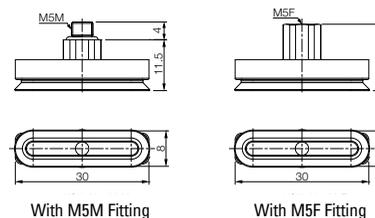
### Dimensions



### 8 x 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VOU8X30-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VOU8X30-S</b>	Silicone	Red	-70°C-200°C	55
<b>VOU8X30-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VOU8X30-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VOU8X30-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VOU8X30-U</b>	Urethane	Dark Green	0-100°C	60

### Dimensions



# SUCTION CUPS - OVAL UNIVERSAL



## Features & Strengths

- Great performance for handling long objects with flat and curved surfaces

## Advantages

- Good lifting forces can be achieved with even the small sizes
- Conductive silicone material provides excellent handling of PCB boards or electronic components
- Easily mountable without having to detach a fitting from the machine (saving in maintenance time)

## Examples of Use

- Semiconductor chips
- PCB boards
- Electronic components
- Solar cells
- Small glass cases

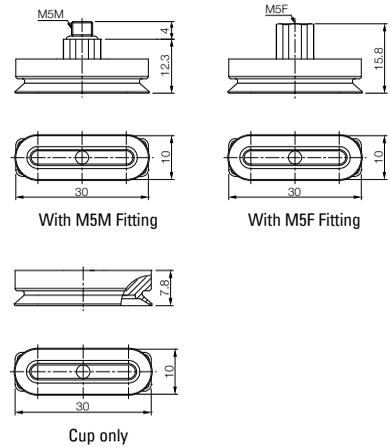
## VOU Series



### 10 x 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VOU10X30-N	Nitrile	Black	-20°C-110°C	60
VOU10X30-S	Silicone	Red	-70°C-200°C	55
VOU10X30-WS	White Silicone	Translucent White	-70°C-200°C	55
VOU10X30-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VOU10X30-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VOU10X30-U	Urethane	Dark Green	0-100°C	60

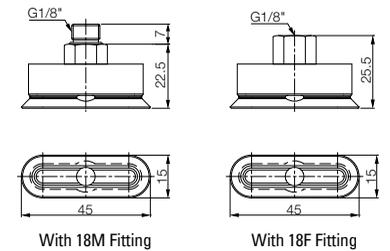
### Dimensions



### 15 x 45mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VOU15X45-N	Nitrile	Black	-20°C-110°C	60
VOU15X45-S	Silicone	Red	-70°C-200°C	55
VOU15X45-WS	White Silicone	Translucent White	-70°C-200°C	55
VOU15X45-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VOU15X45-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VOU15X45-U	Urethane	Dark Green	0-100°C	60

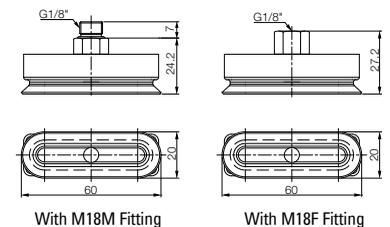
### Dimensions



### 20 x 60mm Cup Only

9204	Material	Colour	Temperature	Hardness
VOU20X60-N	Nitrile	Black	-20°C-110°C	60
VOU20X60-S	Silicone	Red	-70°C-200°C	55
VOU20X60-WS	White Silicone	Translucent White	-70°C-200°C	55
VOU20X60-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VOU20X60-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VOU20X60-U	Urethane	Dark Green	0-100°C	60

### Dimensions



### Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface



### Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular			Lifting Force (Kg) Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VU1.5X	0.0015	0.0008	0.003	0.004	-	-	-
VU2X	0.0025	0.003	0.01	0.015	-	-	-
VU3	0.005	0.009	0.04	0.06	-	-	-
VU3K	0.018	0.014	0.06	0.09	-	-	-
VU4	0.03	0.02	0.09	0.13	0.02	0.08	0.10
VU4X	0.03	0.02	0.09	0.13	0.02	0.08	0.10
VU6	0.05	0.05	0.17	0.25	0.03	0.15	0.20
VU8	0.10	0.10	0.29	0.39	0.10	0.29	0.34
VU10	0.18	0.15	0.44	0.70	0.15	0.44	0.50
VU15	0.50	0.35	0.85	1.12	0.35	0.55	0.60
VU20	1.00	0.60	1.22	1.63	0.60	0.89	1.00
VU25	1.50	0.91	1.98	2.50	0.70	0.95	1.05
VU30	2.00	1.22	2.55	3.06	0.79	1.00	1.12
VU30X	1.80	0.65	1.48	1.78	-	-	-
VU40	5.50	2.04	3.97	5.00	1.42	2.24	2.80
VU50	12.00	3.57	7.44	9.38	2.04	3.77	4.48
VU80	32.00	7.77	19.80	25.21	4.53	12.70	16.94

The lifting force above does not include safety factor.

### Material Specifications

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

### Material Resistance

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

# SUCTION CUPS - UNIVERSAL



## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

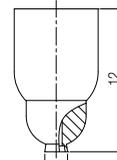
## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

## VU Series



### Dimensions



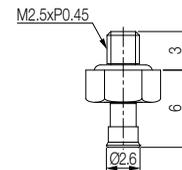
Cup only

### 1.5mm to suit Level Compensator, Cup Only

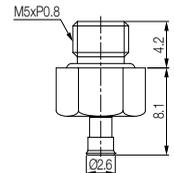
9204	Material	Colour	Temperature	Hardness
VU1.5X-N	Nitrile	Black	-20°C-110°C	60
VU1.5X-S	Silicone	Red	-70°C-200°C	55
VU1.5X-WS	White Silicone	Translucent White	-70°C-200°C	55
VU1.5X-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU1.5X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU1.5X-U	Urethane	Dark Green	0-100°C	60
VU1.5X-A	Mark Free	Black	-10°C-100°C	75



### Dimensions



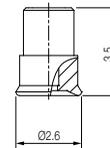
With M2.5M fitting



With M5M fitting

### 2mm, Cup Only

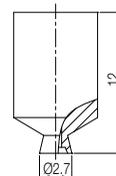
9204	Material	Colour	Temperature	Hardness
VU2-N	Nitrile	Black	-20°C-110°C	60
VU2-S	Silicone	Red	-70°C-200°C	55
VU2-WS	White Silicone	Translucent White	-70°C-200°C	55
VU2-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU2-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU2-U	Urethane	Dark Green	0°C-100°C	60
VU2-A	Mark Free	Black	-10°C-100°C	75



Cup only



### Dimensions



Cup only

### 2mm to suit Level Compensator, Cup Only

9204	Material	Colour	Temperature	Hardness
VU2X-N	Nitrile	Black	-20°C-110°C	60
VU2X-S	Silicone	Red	-70°C-200°C	55
VU2X-WS	White Silicone	Translucent White	-70°C-200°C	55
VU2X-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU2X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU2X-U	Urethane	Dark Green	0-100°C	60
VU2X-A	Mark Free	Black	-10°C-100°C	75



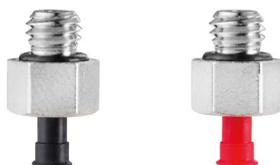
## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

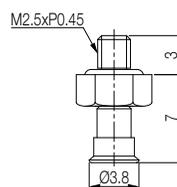
## VU Series



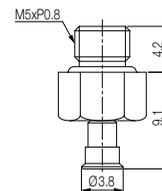
### 3mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VU3-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VU3-S</b>	Silicone	Red	-70°C-200°C	55
<b>VU3-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VU3-WS(FDA)</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VU3-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VU3-U</b>	Urethane	Dark Green	0-100°C	60
<b>VU3-A</b>	Mark Free	Black	-10°C-100°C	75

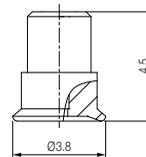
### Dimensions



With M2.5M fitting



With M5M fitting



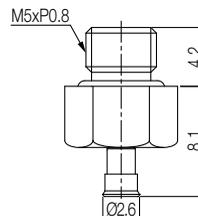
Cup only



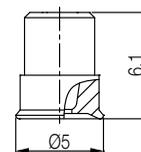
### 4mm, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VU4-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VU4-S</b>	Silicone	Red	-70°C-200°C	55
<b>VU4-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VU4-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VU4-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VU4-U</b>	Urethane	Dark Green	0-100°C	60
<b>VU4-A</b>	Mark Free	Black	-10°C-100°C	75

### Dimensions



With M5M fitting



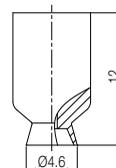
Cup only



### 4mm to suit Level Compensators, Cup Only

9204	Material	Colour	Temperature	Hardness
<b>VU4X-N</b>	Nitrile	Black	-20°C-110°C	60
<b>VU4X-S</b>	Silicone	Red	-70°C-200°C	55
<b>VU4X-WS</b>	White Silicone	Translucent White	-70°C-200°C	55
<b>VU4X-WS-FDA</b>	White Silicone (FDA)	Translucent White	-70°C-200°C	55
<b>VU4X-CS</b>	Conductive Silicone	Smoky Black	-45°C-90°C	70
<b>VU4X-U</b>	Urethane	Dark Green	0-100°C	60
<b>VU4X-A</b>	Mark Free	Black	-10°C-100°C	75

### Dimensions



Cup only



## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

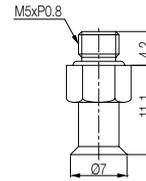
## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

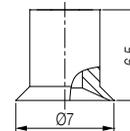
## VU Series



### Dimensions



With M5M fitting



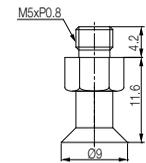
Cup only

### 6mm, Cup Only

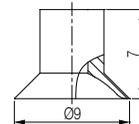
9204	Material	Colour	Temperature	Hardness
VU6-N	Nitrile	Black	-20°C-110°C	60
VU6-S	Silicone	Red	-70°C-200°C	55
VU6-WS	White Silicone	Translucent White	-70°C-200°C	55
VU6-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU6-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU6-U	Urethane	Dark Green	0-100°C	60
VU6-A	Mark Free	Black	-10°C-100°C	75



### Dimensions



With M5M fitting



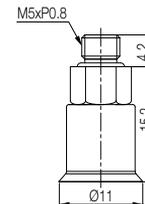
Cup only

### 8mm, Cup Only

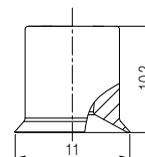
9204	Material	Colour	Temperature	Hardness
VU8-N	Nitrile	Black	-20°C-110°C	60
VU8-S	Silicone	Red	-70°C-200°C	55
VU8-WS	White Silicone	Translucent White	-70°C-200°C	55
VU8-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU8-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU8-U	Urethane	Dark Green	0-100°C	60
VU8-A	Mark Free	Black	-10°C-100°C	75



### Dimensions



With M5M fitting



Cup only

### 10mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU10-N	Nitrile	Black	-20°C-110°C	60
VU10-S	Silicone	Red	-70°C-200°C	55
VU10-WS	White Silicone	Translucent White	-70°C-200°C	55
VU10-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU10-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU10-U	Urethane	Dark Green	0-100°C	60
VU10-A	Mark Free	Black	-10°C-100°C	75



## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

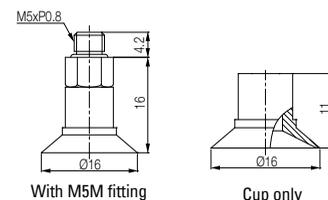
## VU Series



### 15mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU15-N	Nitrile	Black	-20°C-110°C	60
VU15-S	Silicone	Red	-70°C-200°C	55
VU15-WS	White Silicone	Translucent White	-70°C-200°C	55
VU15-WS(FDA)	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU15-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU15-U	Urethane	Dark Green	0-100°C	60
VU15-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With M5M fitting

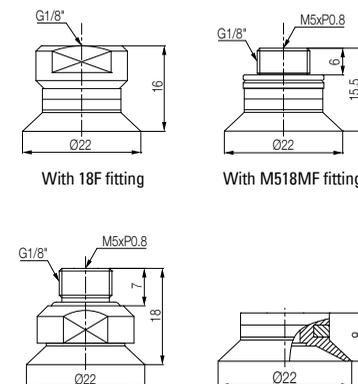
Cup only



### 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU20-N	Nitrile	Black	-20°C-110°C	60
VU20-S	Silicone	Red	-70°C-200°C	55
VU20-WS	White Silicone	Translucent White	-70°C-200°C	55
VU20-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU20-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU20-U	Urethane	Dark Green	0-100°C	60
VU20-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 18F fitting

With M518MF fitting

With M518MFX fitting

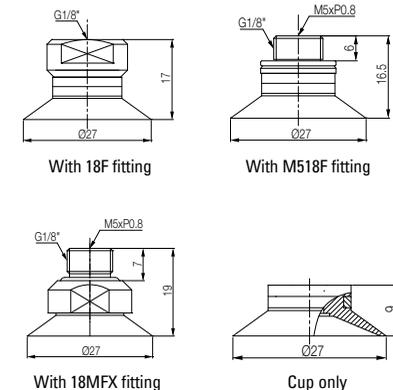
Cup only



### 25mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU25-N	Nitrile	Black	-20°C-110°C	60
VU25-S	Silicone	Red	-70°C-200°C	55
VU25-WS	White Silicone	Translucent White	-70°C-200°C	55
VU25-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU25-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU25-U	Urethane	Dark Green	0-100°C	60
VU25-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 18F fitting

With M518F fitting

With 18MFX fitting

Cup only

# SUCTION CUPS - UNIVERSAL



## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

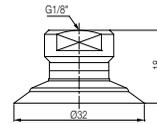
## VU Series



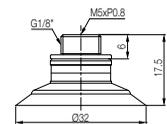
### 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU30-N	Nitrile	Black	-20°C-110°C	60
VU30-S	Silicone	Red	-70°C-200°C	55
VU30-WS	White Silicone	Translucent White	-70°C-200°C	55
VU30-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU30-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU30-U	Urethane	Dark Green	0-100°C	60
VU30-A	Mark Free	Black	-10°C-100°C	75

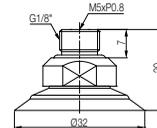
### Dimensions



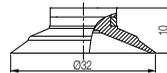
With 18F fitting



With M518MF fitting



With M518MFX fitting



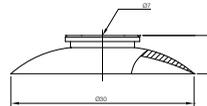
Cup only



### 30mm to suit Level Compensators, Cup Only

9204	Material	Colour	Temperature	Hardness
VU30X-N	Nitrile	Black	-20°C-110°C	60
VU30X-S	Silicone	Red	-70°C-200°C	55
VU30X-WS	White Silicone	Translucent White	-70°C-200°C	55
VU30X-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VU30X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU30X-U	Urethane	Dark Green	0-100°C	60

### Dimensions



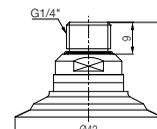
Cup only



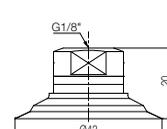
### 40mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU40-N	Nitrile	Black	-40°C-110°C	60
VU40-S	Silicone	Red	-70°C-400°C	55
VU40-WS	White Silicone	Translucent White	-70°C-400°C	55
VU40-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-400°C	55
VU40-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU40-U	Urethane	Dark Green	0-100°C	60
VU40-A	Mark Free	Black	-10°C-100°C	75

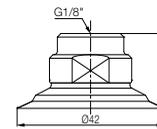
### Dimensions



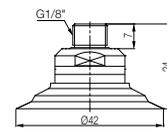
With 14M fitting



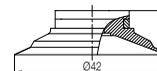
With 18F fitting



With 18FX fitting



With 18M fitting



Cup only





## Features & Strengths

- Excellent performance for flat stable and slightly curved surfaces with direct fitting
- Suitable for concave surface

## Examples of Use

- Good lifting forces can be achieved with this cup; is best suited to flat stable surfaces, but can cope with a small degree of curvature
- Very small cups are available down to just 1.5mm diameter

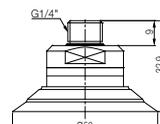
## VU Series



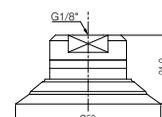
### 50mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU50-N	Nitrile	Black	-40°C-110°C	60
VU50-S	Silicone	Red	-70°C-400°C	55
VU50-WS	White Silicone	Translucent White	-70°C-400°C	55
VU50-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-400°C	55
VU50-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU50-U	Urethane	Dark Green	0-100°C	60
VU50-A	Mark Free	Black	-10°C-100°C	75

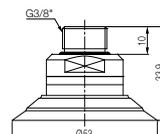
### Dimensions



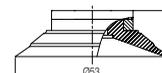
With 14M fitting



With 18F fitting



With 38M fitting



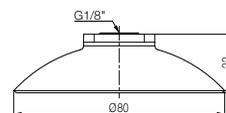
Cup only



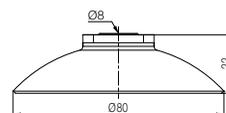
### 80mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VU80-N	Nitrile	Black	-40°C-110°C	60
VU80-S	Silicone	Red	-70°C-400°C	55
VU80-WS	White Silicone	Translucent White	-70°C-400°C	55
VU80-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-400°C	55
VU80-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VU80-U	Urethane	Dark Green	0-100°C	60
VU80-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 18F fitting



Ø8 Hole



# FF SERIES TECHNICAL INFORMATION

## Features & Strengths

- Excellent performance for very thin and light weight products
- Mark free

## Examples of Use

- Semiconductor, display, thin film



## Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone	55	Red	-70 to +200
White Silicone	55	Translucent White	-70 to +200
White Silicone (FDA)	55	Translucent White	-70 to +200
High Temperature Silicone	50	Blue	-70 to +280
Conductive Silicone	70	Smoky Black	-45 to +90
Urethane	70	Dark Green	0 to +100
Mark Free	60	Black	-10 to +100

## Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular		
		-20 kPa	-60 kPa	-60 kPa
FF10	0.01	0.18	0.38	0.55
FF15	0.04	0.35	0.9	1.20
FF20	0.07	0.54	1.35	1.6
FF25	0.11	0.86	1.40	1.60
FF30	0.17	1.15	1.50	1.60
FF15X	0.12	0.35	0.36	0.50
FF20X	0.12	0.35	0.36	0.50

The lifting force above does not include safety factor.

## Material Resistance

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



# SUCTION CUPS - MARK FREE, FLAT STRUCTURE

## Features & Strengths

- Excellent performance for very thin and light weight products
- Mark free

## Examples of Use

- Semiconductor, display, thin film

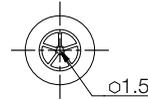
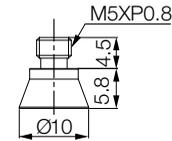
## FF Series



### 10mm Cups with M5 Male Fitting

9204	Material	Colour	Temperature	Hardness
FF10-N-M5M	Nitrile	Black	-20°C-110°C	60
FF10-S-M5M	Silicone	Red	-70°C-200°C	55
FF10-WS-M5M	White Silicone	Translucent White	-70°C-200°C	55
FF10-WS-M5M-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF10-CS-M5M	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



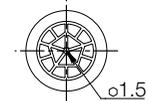
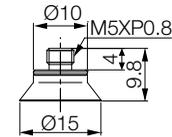
With M5M fitting



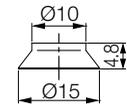
### 15mm, Cup Only

9204	Material	Colour	Temperature	Hardness
FF15-N	Nitrile	Black	-20°C-110°C	60
FF15-S	Silicone	Red	-70°C-200°C	55
FF15-WS	White Silicone	Translucent White	-70°C-200°C	55
FF15-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF15-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting



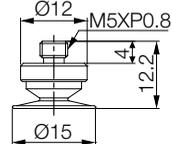
Cup only



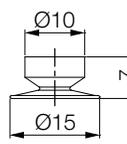
### 15mm with 7mm Neck, Cup Only

9204	Material	Colour	Temperature	Hardness
FF15X-N	Nitrile	Black	-20°C-110°C	60
FF15X-S	Silicone	Red	-70°C-200°C	55
FF15X-WS	White Silicone	Translucent White	-70°C-200°C	55
FF15X-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF15X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting



Cup only

# SUCTION CUPS - MARK FREE, FLAT STRUCTURE



## Features & Strengths

- Excellent performance for very thin and light weight products
- Mark free

## Examples of Use

- Semiconductor, display, thin film

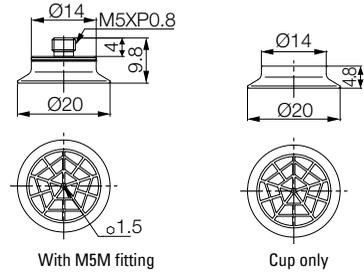
## FF Series



### 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
FF20-N	Nitrile	Black	-20°C-110°C	60
FF20-S	Silicone	Red	-70°C-200°C	55
FF20-WVS	White Silicone	Translucent White	-70°C-200°C	55
FF20-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF20-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting

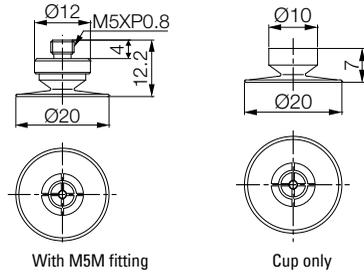
Cup only



### 20mm with 7mm Neck, Cup Only

9204	Material	Colour	Temperature	Hardness
FF20X-N	Nitrile	Black	-20°C-110°C	60
FF20X-S	Silicone	Red	-70°C-200°C	55
FF20X-WVS	White Silicone	Translucent White	-70°C-200°C	55
FF20X-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF20X-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting

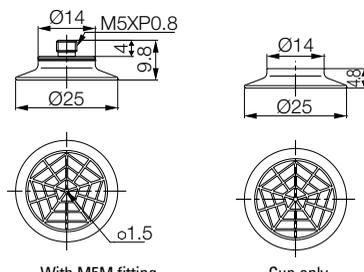
Cup only



### 25mm, Cup Only

9204	Material	Colour	Temperature	Hardness
FF25-N	Nitrile	Black	-20°C-110°C	60
FF25-S	Silicone	Red	-70°C-200°C	55
FF25-WVS	White Silicone	Translucent White	-70°C-200°C	55
FF25-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF25-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting

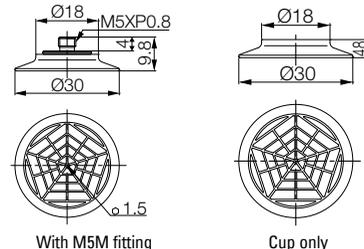
Cup only



### 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
FF30-N	Nitrile	Black	-20°C-110°C	60
FF30-S	Silicone	Red	-70°C-200°C	55
FF30-WVS	White Silicone	Translucent White	-70°C-200°C	55
FF30-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
FF30-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70

### Dimensions



With M5M fitting

Cup only





### Features & Strengths

- Suitable for curved or irregular surfaces
- Excellent performance for round corners and edges

### Examples of Use

- Automobile roofs and doors, metal sheets, plastic sheets, veneer sheets, shaped metal panels



### Material Specifications

Material	Hardness Shore (°)	Colour	Temperature (°C)
NBR	60	Black	-20 to +110
Silicone	55	Red	-70 to +200
White Silicone	55	Translucent White	-70 to +200
White Silicone (FDA)	55	Translucent White	-70 to +200
High Temperature Silicone	50	Blue	-70 to +280
Conductive Silicone	70	Smoky Black	-45 to +90
Urethane	70	Dark Green	0 to +100
Mark Free	60	Black	-10 to +100
Polyurethane	60	Translucent Orange	0 to +60



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular			Lifting Force (Kg) Parallel		
		-20 kPa	-60 kPa	-60 kPa	-20 kPa	-60 kPa	-60 kPa
VD30	4.50	1.22	2.55	3.06	0.73	1.53	1.83
VD40	7.00	2.04	3.97	5.00	1.22	2.38	3.00
VD50	13.50	3.57	7.44	9.38	2.14	4.46	5.62
VD60	22.00	5.50	14.00	18.50	3.30	8.40	11.10
VD70	38.00	7.15	18.80	24.90	4.20	11.60	16.20
VD85	60.00	10.00	28.00	39.00	6.00	16.80	23.40
VD90F	56.00	9.25	24.36	32.17	7.97	14.42	18.15

The lifting force above does not include safety factor.

### Material Resistance

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





### Features & Strengths

- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

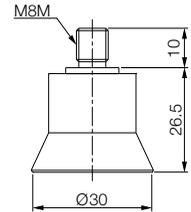
### Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

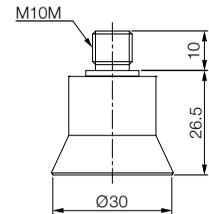
## VD Series



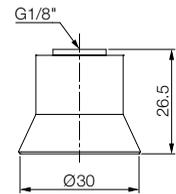
### Dimensions



With M8M fitting



With M10M fitting



With 18F fitting

### 30mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD30-N-M8M</b>	Nitrile	M8	Black	-20°C-110°C	60	Male
<b>VD30-S-M8M</b>	Silicone	M8	Red	-70°C-200°C	55	Male
<b>VD30-WS-M8M</b>	White Silicone	M8	Translucent White	-70°C-200°C	55	Male
<b>VD30-WS-FDA-M8M</b>	White Silicone (FDA)	M8	Translucent White	-70°C-200°C	55	Male
<b>VD30-CS-M8M</b>	Conductive Silicone	M8	Smoky Black	-45°C-90°C	70	Male
<b>VD30-U-M8M</b>	Urethane	M8	Dark Green	0°C-100°C	60	Male
<b>VD30-A-M8M</b>	Mark Free	M8	Black	-10°C-100°C	75	Male
<b>VD30-PU-M8M</b>	Polyurethane	M8	Translucent Orange	0°C-60°C	60	Male
<b>VD30-N-M10M</b>	Nitrile	M10	Black	-20°C-110°C	60	Male
<b>VD30-S-M10M</b>	Silicone	M10	Red	-70°C-200°C	55	Male
<b>VD30-WS-M10M</b>	White Silicone	M10	Translucent White	-70°C-200°C	55	Male
<b>VD30-WS-FDA-M10M</b>	White Silicone (FDA)	M10	Translucent White	-70°C-200°C	55	Male
<b>VD30-CS-M10M</b>	Conductive Silicone	M10	Smoky Black	-45°C-90°C	70	Male
<b>VD30-U-M10M</b>	Urethane	M10	Dark Green	0°C-100°C	60	Male
<b>VD30-A-M10M</b>	Mark Free	M10	Black	-10°C-100°C	75	Male
<b>VD30-PU-M10M</b>	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
<b>VD30-N-18F</b>	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
<b>VD30-S-18F</b>	Silicone	G1/8"	Red	-70°C-200°C	55	Female
<b>VD30-WS-18F</b>	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD30-WS-FDA-18F</b>	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD30-CS-18F</b>	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
<b>VD30-U-18F</b>	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
<b>VD30-A-18F</b>	Mark Free	G1/8"	Black	-10°C-100°C	75	Female
<b>VD30-PU-18F</b>	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female



## Features & Strengths

- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

## Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

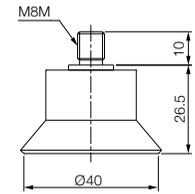
## VD Series



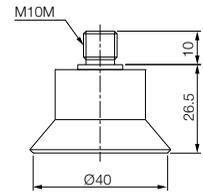
### 40mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD40-N-M8M</b>	Nitrile	M8	Black	-20°C-110°C	60	Male
<b>VD40-S-M8M</b>	Silicone	M8	Red	-70°C-200°C	55	Male
<b>VD40-WS-M8M</b>	White Silicone	M8	Translucent White	-70°C-200°C	55	Male
<b>VD40-WS-FDA-M8M</b>	White Silicone (FDA)	M8	Translucent White	-70°C-200°C	55	Male
<b>VD40-CS-M8M</b>	Conductive Silicone	M8	Smoky Black	-45°C-90°C	70	Male
<b>VD40-U-M8M</b>	Urethane	M8	Dark Green	0°C-100°C	60	Male
<b>VD40-A-M8M</b>	Mark Free	M8	Black	-10°C-100°C	75	Male
<b>VD40-PU-M8M</b>	Polyurethane	M8	Translucent Orange	0°C-60°C	60	Male
<b>VD40-N-M10M</b>	Nitrile	M10	Black	-20°C-110°C	60	Male
<b>VD40-S-M10M</b>	Silicone	M10	Red	-70°C-200°C	55	Male
<b>VD40-WS-M10M</b>	White Silicone	M10	Translucent White	-70°C-200°C	55	Male
<b>VD40-WS-FDA-M10M</b>	White Silicone (FDA)	M10	Translucent White	-70°C-200°C	55	Male
<b>VD40-CS-M10M</b>	Conductive Silicone	M10	Smoky Black	-45°C-90°C	70	Male
<b>VD40-U-M10M</b>	Urethane	M10	Dark Green	0°C-100°C	60	Male
<b>VD40-A-M10M</b>	Mark Free	M10	Black	-10°C-100°C	75	Male
<b>VD40-PU-M10M</b>	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
<b>VD40-N-18F</b>	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
<b>VD40-S-18F</b>	Silicone	G1/8"	Red	-70°C-200°C	55	Female
<b>VD40-WS-18F</b>	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD40-WS-FDA-18F</b>	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD40-CS-18F</b>	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
<b>VD40-U-18F</b>	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
<b>VD40-A-18F</b>	Mark Free	G1/8"	Black	-10°C-100°C	75	Female
<b>VD40-PU-18F</b>	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female

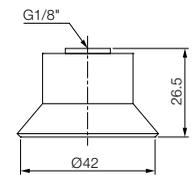
### Dimensions



With M8M fitting



With M10M fitting



With 18F fitting



### Features & Strengths

- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

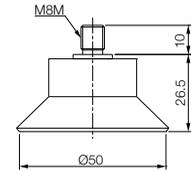
### Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

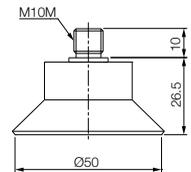
## VD Series



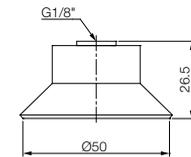
### Dimensions



With M8M fitting



With M10M fitting



With 18F fitting

### 50mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD50-N-M8M</b>	Nitrile	M8	Black	-20°C-110°C	60	Male
<b>VD50-S-M8M</b>	Silicone	M8	Red	-70°C-200°C	55	Male
<b>VD50-WS-M8M</b>	White Silicone	M8	Translucent White	-70°C-200°C	55	Male
<b>VD50-WS-FDA-M8M</b>	White Silicone (FDA)	M8	Translucent White	-70°C-200°C	55	Male
<b>VD50-CS-M8M</b>	Conductive Silicone	M8	Smoky Black	-45°C-90°C	70	Male
<b>VD50-U-M8M</b>	Urethane	M8	Dark Green	0°C-100°C	60	Male
<b>VD50-A-M8M</b>	Mark Free	M8	Black	-10°C-100°C	75	Male
<b>VD50-PU-M8M</b>	Polyurethane	M8	Translucent Orange	0°C-60°C	60	Male
<b>VD50-N-M10M</b>	Nitrile	M10	Black	-20°C-110°C	60	Male
<b>VD50-S-M10M</b>	Silicone	M10	Red	-70°C-200°C	55	Male
<b>VD50-WS-M10M</b>	White Silicone	M10	Translucent White	-70°C-200°C	55	Male
<b>VD50-WS-FDA-M10M</b>	White Silicone (FDA)	M10	Translucent White	-70°C-200°C	55	Male
<b>VD50-CS-M10M</b>	Conductive Silicone	M10	Smoky Black	-45°C-90°C	70	Male
<b>VD50-U-M10M</b>	Urethane	M10	Dark Green	0°C-100°C	60	Male
<b>VD50-A-M10M</b>	Mark Free	M10	Black	-10°C-100°C	75	Male
<b>VD50-PU-M10M</b>	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
<b>VD50-N-18F</b>	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
<b>VD50-S-18F</b>	Silicone	G1/8"	Red	-70°C-200°C	55	Female
<b>VD50-WS-18F</b>	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD50-WS-FDA-18F</b>	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD50-CS-18F</b>	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
<b>VD50-U-18F</b>	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
<b>VD50-A-18F</b>	Mark Free	G1/8"	Black	-10°C-100°C	75	Female
<b>VD50-PU-18F</b>	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female



## Features & Strengths

- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

## Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

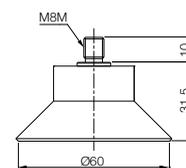
## VD Series



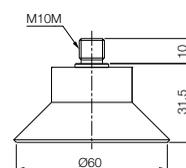
### 60mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD60-N-M8M</b>	Nitrile	M8	Black	-20°C-110°C	60	Male
<b>VD60-S-M8M</b>	Silicone	M8	Red	-70°C-200°C	55	Male
<b>VD60-WS-M8M</b>	White Silicone	M8	Translucent White	-70°C-200°C	55	Male
<b>VD60-WS-FDA-M8M</b>	White Silicone (FDA)	M8	Translucent White	-70°C-200°C	55	Male
<b>VD60-CS-M8M</b>	Conductive Silicone	M8	Smoky Black	-45°C-90°C	70	Male
<b>VD60-U-M8M</b>	Urethane	M8	Dark Green	0°C-100°C	60	Male
<b>VD60-A-M8M</b>	Mark Free	M8	Black	-10°C-100°C	75	Male
<b>VD60-PU-M8M</b>	Polyurethane	M8	Translucent Orange	0°C-60°C	60	Male
<b>VD60-N-M10M</b>	Nitrile	M10	Black	-20°C-110°C	60	Male
<b>VD60-S-M10M</b>	Silicone	M10	Red	-70°C-200°C	55	Male
<b>VD60-WS-M10M</b>	White Silicone	M10	Translucent White	-70°C-200°C	55	Male
<b>VD60-WS-FDA-M10M</b>	White Silicone (FDA)	M10	Translucent White	-70°C-200°C	55	Male
<b>VD60-CS-M10M</b>	Conductive Silicone	M10	Smoky Black	-45°C-90°C	70	Male
<b>VD60-U-M10M</b>	Urethane	M10	Dark Green	0°C-100°C	60	Male
<b>VD60-A-M10M</b>	Mark Free	M10	Black	-10°C-100°C	75	Male
<b>VD60-PU-M10M</b>	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
<b>VD60-N-18F</b>	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
<b>VD60-S-18F</b>	Silicone	G1/8"	Red	-70°C-200°C	55	Female
<b>VD60-WS-18F</b>	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD60-WS-FDA-18F</b>	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD60-CS-18F</b>	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
<b>VD60-U-18F</b>	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
<b>VD60-A-18F</b>	Mark Free	G1/8"	Black	-10°C-100°C	75	Female
<b>VD60-PU-18F</b>	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female

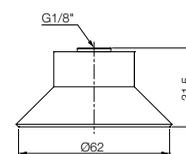
### Dimensions



With M8M fitting



With M10M fitting



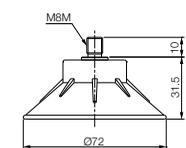
With 18F fitting



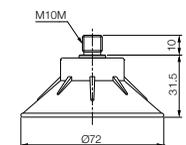
### 70mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD70-PU-M8M</b>	Polyurethane	M8	Translucent Orange	0°C-60°C	60	Male
<b>VD70-PU-M10M</b>	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
<b>VD70-PU-18F</b>	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female

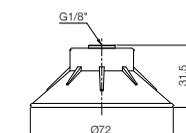
### Dimensions



With M8M fitting



With M10M fitting



With 18F fitting

For technical information see page 488



### Features & Strengths

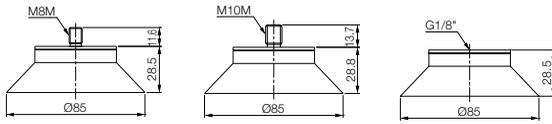
- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

### Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

## VD Series

### Dimensions



With M8M fitting

With M10M fitting

With 18F fitting



### 85mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
<b>VD85-N-M8M</b>	Nitrile	M8	Black	-20°C-110°C	60	Male
<b>VD85-S-M8M</b>	Silicone	M8	Red	-70°C-200°C	55	Male
<b>VD85-WS-M8M</b>	White Silicone	M8	Translucent White	-70°C-200°C	55	Male
<b>VD85-WS-FDA-M8M</b>	White Silicone (FDA)	M8	Translucent White	-70°C-200°C	55	Male
<b>VD85-CS-M8M</b>	Conductive Silicone	M8	Smoky Black	-45°C-90°C	70	Male
<b>VD85-U-M8M</b>	Urethane	M8	Dark Green	0°C-100°C	60	Male
<b>VD85-A-M8M</b>	Mark Free	M8	Black	-10°C-100°C	75	Male
<b>VD85-N-M10M</b>	Nitrile	M10	Black	-20°C-110°C	60	Male
<b>VD85-S-M10M</b>	Silicone	M10	Red	-70°C-200°C	55	Male
<b>VD85-WS-M10M</b>	White Silicone	M10	Translucent White	-70°C-200°C	55	Male
<b>VD85-WS-FDA-M10M</b>	White Silicone (FDA)	M10	Translucent White	-70°C-200°C	55	Male
<b>VD85-CS-M10M</b>	Conductive Silicone	M10	Smoky Black	-45°C-90°C	70	Male
<b>VD85-U-M10M</b>	Urethane	M10	Dark Green	0°C-100°C	60	Male
<b>VD85-A-M10M</b>	Mark Free	M10	Black	-10°C-100°C	75	Male
<b>VD85-N-18F</b>	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
<b>VD85-S-18F</b>	Silicone	G1/8"	Red	-70°C-200°C	55	Female
<b>VD85-WS-18F</b>	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD85-WS-FDA-18F</b>	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
<b>VD85-CS-18F</b>	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
<b>VD85-U-18F</b>	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
<b>VD85-A-18F</b>	Mark Free	G1/8"	Black	-10°C-100°C	75	Female
<b>VD85-N-12F</b>	Nitrile	G1/2"	Black	-20°C-110°C	60	Female
<b>VD85-S-12F</b>	Silicone	G1/2"	Red	-70°C-200°C	55	Female
<b>VD85-WS-12F</b>	White Silicone	G1/2"	Translucent White	-70°C-200°C	55	Female
<b>VD85-WS-FDA-12F</b>	White Silicone (FDA)	G1/2"	Translucent White	-70°C-200°C	55	Female
<b>VD85-CS-12F</b>	Conductive Silicone	G1/2"	Smoky Black	-45°C-90°C	70	Female
<b>VD85-U-12F</b>	Urethane	G1/2"	Dark Green	0°C-100°C	60	Female
<b>VD85-A-12F</b>	Mark Free	G1/2"	Black	-10°C-100°C	75	Female



## Features & Strengths

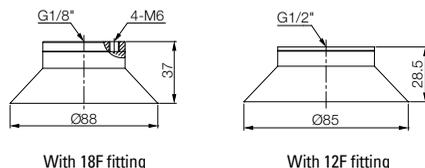
- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

## Suitable for Handling

- Automotive roof and doors
- Sheet metals, plastics and veneers
- Shaped sheet metal
- Pre-mounted fitting

## VD Series

### Dimensions



With 18F fitting

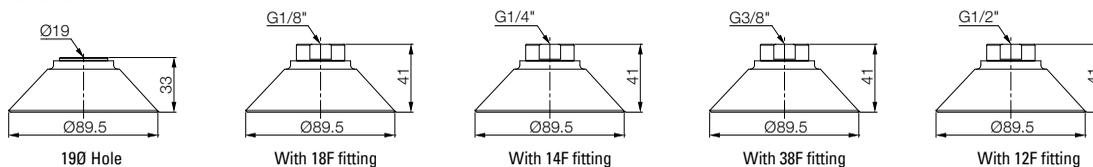
With 12F fitting



### 85mm Cups with Fitting (inc. 4 x M6)

9204	Material	Connection	Colour	Temperature	Hardness	Type
VD85X-N-18F	Nitrile	G1/8"	Black	-20°C-110°C	60	Female
VD85X-S-18F	Silicone	G1/8"	Red	-70°C-200°C	55	Female
VD85X-WS-18F	White Silicone	G1/8"	Translucent White	-70°C-200°C	55	Female
VD85X-WS-FDA-18F	White Silicone (FDA)	G1/8"	Translucent White	-70°C-200°C	55	Female
VD85X-CS-18F	Conductive Silicone	G1/8"	Smoky Black	-45°C-90°C	70	Female
VD85X-U-18F	Urethane	G1/8"	Dark Green	0°C-100°C	60	Female
VD85X-A-18F	Mark Free	G1/8"	Black	-10°C-100°C	75	Female

### Dimensions



190 Hole

With 18F fitting

With 14F fitting

With 38F fitting

With 12F fitting



### 90mm Cups with Fitting

9204	Material	Connection	Colour	Temperature	Hardness	Type
VD90F-PU-M10M	Polyurethane	M10	Translucent Orange	0°C-60°C	60	Male
VD90F-PU-18F	Polyurethane	G1/8"	Translucent Orange	0°C-60°C	60	Female
VD90F-PU-14F	Polyurethane	G1/4"	Translucent Orange	0°C-60°C	60	Female
VD90F-PU-38F	Polyurethane	G3/8"	Translucent Orange	0°C-60°C	60	Female
VD90F-PU-12F	Polyurethane	G1/2"	Translucent Orange	0°C-60°C	60	Female
VD90F-PU-H19	Polyurethane	190 Hole	Translucent Orange	0°C-60°C	60	N/A

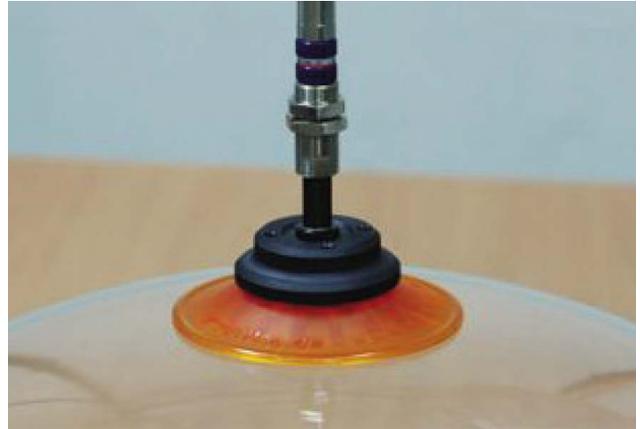
# VFC SERIES TECHNICAL INFORMATION

## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

## Examples of Use

- Automobile windscreens, roof and door, metal sheet, shaped metal panel, TV cathode ray tube



## Material Specifications

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



## Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular			Lifting Force (Kg) Parallel		
		-20 kPa	-60 kPa	-60 kPa	-20 kPa	-60 kPa	-60 kPa
VFC50	10.00	2.85	6.94	10.20	2.61	6.34	8.20
VFC60	20.00	4.55	11.57	15.30	3.05	7.92	10.70
VFC75	30.00	7.65	19.38	25.51	6.19	15.46	20.90
VFC90	60.00	9.80	24.82	32.65	9.52	21.59	27.89
VFC100	80.00	12.75	35.71	46.93	12.24	23.97	28.57

The lifting force above does not include safety factor.

## Material Resistance

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





**Features & Strengths**

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

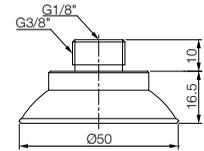
**Examples of Use**

- Automobile windscreens, roof and door, metal sheet, shaped metal panel, TV cathode ray tube

**VFC Series**



**Dimensions**



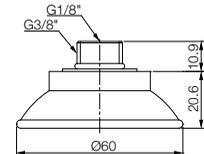
With 1838MF fitting

**50mm Cup with Fitting**

9204	Material	Connection		Colour	Temperature	Hardness
		Male	Female			
VFC50-N-1838MF	Nitrile	3/8"	1/8"	Black	-20°C-110°C	60
VFC50-S-1838MF	Silicone	3/8"	1/8"	Red	-70°C-200°C	55
VFC50-WS-1838MF	White Silicone	3/8"	1/8"	Translucent White	-70°C-200°C	55
VFC50-WS-FDA	White Silicone FDA	3/8"	1/8"	Translucent White	-70°C-200°C	55
VFC50-CS-1838MF	Conductive Silicone	3/8"	1/8"	Smoky Black	-45°C-90°C	70
VFC50-U-1838MF	Urethane	3/8"	1/8"	Dark Green	0°C-100°C	60
VFC50-A-1838MF	Mark Free	3/8"	1/8"	Black	-10°C-100°C	75
VFC50-PU-1838MF	Polyurethane	3/8"	1/8"	Translucent Orange	0°C-60°C	60



**Dimensions**



With 1838MF fitting

**60mm Cup with Fitting**

9204	Material	Connection		Colour	Temperature	Hardness
		Male	Female			
VFC60-N-1838MF	Nitrile	3/8"	1/8"	Black	-20°C-110°C	60
VFC60-S-1838MF	Silicone	3/8"	1/8"	Red	-70°C-200°C	55
VFC60-WS-1838MF	White Silicone	3/8"	1/8"	Translucent White	-70°C-200°C	55
VFC60-WS-FDA	White Silicone FDA	3/8"	1/8"	Translucent White	-70°C-200°C	55
VFC60-CS-1838MF	Conductive Silicone	3/8"	1/8"	Smoky Black	-45°C-90°C	70
VFC60-U-1838MF	Urethane	3/8"	1/8"	Dark Green	0°C-100°C	60
VFC60-A-1838MF	Mark Free	3/8"	1/8"	Black	-10°C-100°C	75
VFC60-PU-1838MF	Polyurethane	3/8"	1/8"	Translucent Orange	0°C-60°C	60
VFC60X1-N-M10M	Nitrile	M10	-	Black	-20°C-110°C	60
VFC60X1-S-M10M	Silicone	M10	-	Red	-70°C-200°C	55
VFC60X1-WS-M10M	White Silicone	M10	-	Translucent White	-70°C-200°C	55
VFC60X1-WSA-FDA	White Silicone FDA	M10	-	Translucent White	-70°C-200°C	55
VFC60X1-CS-M10M	Conductive Silicone	M10	-	Smoky Black	-45°C-90°C	70
VFC60X1-U-M10M	Urethane	M10	-	Dark Green	0°C-100°C	60
VFC60X1-A-M10M	Mark Free	M10	-	Black	-10°C-100°C	75
VFC60X1-PU-M10M	Polyurethane	M10	-	Translucent Orange	0°C-60°C	60



# SUCTION CUPS - FLAT & CURVE



## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

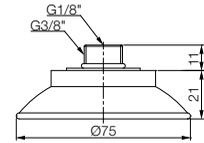
## Examples of Use

- Automobile windscreens, roof and door, metal sheet, shaped metal panel, TV cathode ray tube

## VFC Series



### Dimensions



With 1838MF fitting

### 75mm Cup with Fitting

9204	Material	Connection		Colour	Temperature	Hardness
		Male	Female			
<b>VFC75-N-1838MF</b>	Nitrile	3/8"	1/8"	Black	-20°C-110°C	60
<b>VFC75-S-1838MF</b>	Silicone	3/8"	1/8"	Red	-70°C-200°C	55
<b>VFC75-WS-1838MF</b>	White Silicone	3/8"	1/8"	Translucent White	-70°C-200°C	55
<b>VFC75-WS-FDA</b>	White Silicone FDA	3/8"	1/8"	Translucent White	-70°C-200°C	55
<b>VFC75-CS-1838MF</b>	Conductive Silicone	3/8"	1/8"	Smoky Black	-45°C-90°C	70
<b>VFC75-U-1838MF</b>	Urethane	3/8"	1/8"	Dark Green	0°C-100°C	60
<b>VFC75-A-1838MF</b>	Mark Free	3/8"	1/8"	Black	-10°C-100°C	75
<b>VFC75-PU-1838MF</b>	Polyurethane	3/8"	1/8"	Translucent Orange	0°C-60°C	60
<b>VFC75X1-N-M10M</b>	Nitrile	M10	-	Black	-20°C-110°C	60
<b>VFC75X1-S-M10M</b>	Silicone	M10	-	Red	-70°C-200°C	55
<b>VFC75X1-WS-M10M</b>	White Silicone	M10	-	Translucent White	-70°C-200°C	55
<b>VFC75X1-WS-FDA</b>	White Silicone FDA	M10	-	Translucent White	-70°C-200°C	55
<b>VFC75X1-CS-M10M</b>	Conductive Silicone	M10	-	Smoky Black	-45°C-90°C	70
<b>VFC75X1-U-M10M</b>	Urethane	M10	-	Dark Green	0°C-100°C	60
<b>VFC75X1-A-M10M</b>	Mark Free	M10	-	Black	-10°C-100°C	75
<b>VFC75X2-N-M16M</b>	Nitrile	M16	-	Black	-20°C-110°C	60
<b>VFC75X2-S-M16M</b>	Silicone	M16	-	Red	-70°C-200°C	55
<b>VFC75X2-WS-M16M</b>	White Silicone	M16	-	Translucent White	-70°C-200°C	55
<b>VFC75X2-WS-FDA</b>	White Silicone FDA	M16	-	Translucent White	-70°C-200°C	55
<b>VFC75X2-CS-M16M</b>	Conductive Silicone	M16	-	Smoky Black	-45°C-90°C	70
<b>VFC75X2-U-M16M</b>	Urethane	M16	-	Dark Green	0°C-100°C	60
<b>VFC75X2-A-M16M</b>	Mark Free	M16	-	Black	-10°C-100°C	75



**Features & Strengths**

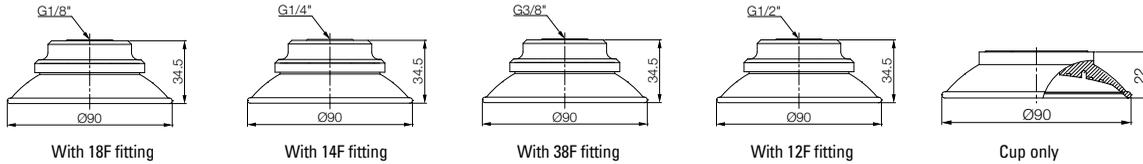
- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

**Examples of Use**

- Automobile windscreens, roof and door, metal sheet, shaped metal panel, TV cathode ray tube

**VFC Series**

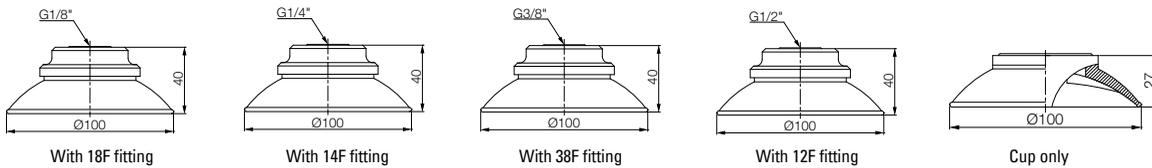
**Dimensions**



**90mm Cups, Cup Only**

9204	Material	Colour	Temperature	Hardness
VFC90-PU	Polyurethane	Translucent Orange	0°C-60°C	60

**Dimensions**



**100mm Cups, Cup Only**

9204	Material	Colour	Temperature	Hardness
VFC100-N	Nitrile	Black	-20°C-110°C	60
VFC100-S	Silicone	Red	-70°C-200°C	55
VFC100-WS	White Silicone	Translucent White	-70°C-200°C	55
VFC100-WS-FDA	White Silicone FDA	Translucent White	-70°C-200°C	55
VFC100-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VFC100-U	Urethane	Dark Green	0°C-100°C	60
VFC100-A	Mark Free	Black	-10°C-100°C	75
VFC100-PU	Polyurethane	Translucent Orange	0°C-60°C	60

# VF SERIES TECHNICAL INFORMATION

## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components



## Material Specifications

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



## Recommended Lifting Force (Maximum)

Model	Volume (cm³)	Lifting Force (Kg) Perpendicular			Lifting Force (Kg) Parallel		
		-20 kPa	-60 kPa	-60 kPa	-20 kPa	-60 kPa	-60 kPa
VF15	0.037	0.35	0.86	1.12	0.35	0.66	0.76
VF20	1.00	0.61	1.47	1.93	0.51	0.81	0.86
VF25	1.10	0.91	1.98	2.55	0.81	0.91	1.02
VF30	2.00	1.22	2.55	3.16	1.12	1.63	2.04
VF40	4.80	2.04	4.08	5.10	1.53	2.55	3.06
VF50	10.00	3.67	7.55	9.79	2.44	4.08	5.10
VF75	20.00	8.16	20.40	27.55	6.12	11.22	14.28
VF90	50.00	10.20	27.83	37.41	8.84	15.98	19.72
VF110	70.00	14.28	42.58	57.14	14.28	25.51	30.61
VF150	160.00	30.61	86.73	112.24	25.51	61.22	81.63
VF200	460.00	76.53	193.87	275.51	38.30	96.90	137.50
VF300	820.00	163	438	653	135	307	476

The lifting force above does not include safety factor.

## Material Resistance

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





## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

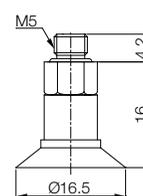
## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

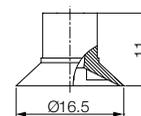
## VF Series



### Dimensions



With M5M fitting



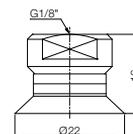
Cup only

### 15mm, Cup Only

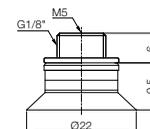
9204	Material	Colour	Temperature	Hardness
VF15-N	Nitrile	Black	-20°C-110°C	60
VF15-S	Silicone	Red	-70°C-200°C	55
VF15-WS	White Silicone	Translucent White	-70°C-200°C	55
VF15-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF15-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF15-U	Urethane	Dark Green	0°C-100°C	60
VF15-A	Mark Free	Black	-10°C-100°C	75



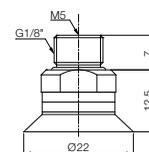
### Dimensions



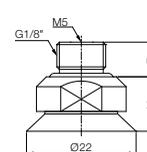
With 18F fitting



With M518MF fitting



With M518MF0 fitting



With M518MFX fitting



Cup only

### 20mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF20-N	Nitrile	Black	-20°C-110°C	60
VF20-S	Silicone	Red	-70°C-200°C	55
VF20-WS	White Silicone	Translucent White	-70°C-200°C	55
VF20-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF20-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF20-U	Urethane	Dark Green	0°C-100°C	60
VF20-A	Mark Free	Black	-10°C-100°C	75



# SUCTION CUPS - FLAT



## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

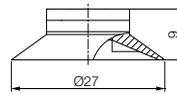
## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

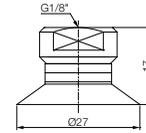
## VF Series



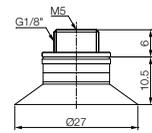
### Dimensions



Cup only



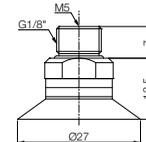
With 18F fitting



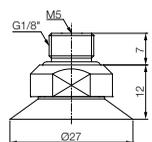
With M518MF fitting

### 25mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF25-N	Nitrile	Black	-20°C-110°C	60
VF25-S	Silicone	Red	-70°C-200°C	55
VF25-WS	White Silicone	Translucent White	-70°C-200°C	55
VF25-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF25-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF25-U	Urethane	Dark Green	0°C-100°C	60
VF25-A	Mark Free	Black	-10°C-100°C	75



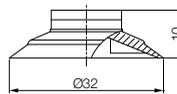
With M518MFO fitting



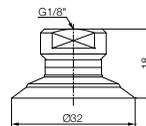
With M518MFX fitting



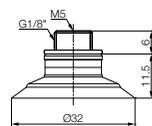
### Dimensions



Cup only



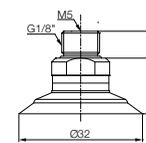
With 18F fitting



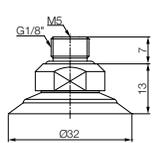
With M518MF fitting

### 30mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF30-N	Nitrile	Black	-20°C-110°C	60
VF30-S	Silicone	Red	-70°C-200°C	55
VF30-WS	White Silicone	Translucent White	-70°C-200°C	55
VF30-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF30-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF30-U	Urethane	Dark Green	0°C-100°C	60
VF30-A	Mark Free	Black	-10°C-100°C	75



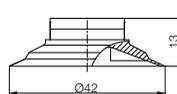
With M518MFO fitting



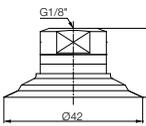
With M518MFX fitting



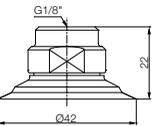
### Dimensions



Cup only



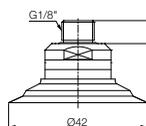
With 18F fitting



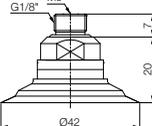
With 18FX fitting

### 40mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF40-N	Nitrile	Black	-20°C-110°C	60
VF40-S	Silicone	Red	-70°C-200°C	55
VF40-WS	White Silicone	Translucent White	-70°C-200°C	55
VF40-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF40-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF40-U	Urethane	Dark Green	0°C-100°C	60
VF40-A	Mark Free	Black	-10°C-100°C	75
VF40-PU	Polyurethane	Translucent Orange	0°C-60°C	60



With 18M fitting



With M518MFX fitting



## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

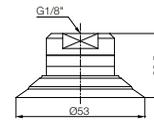
## VF Series



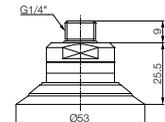
### 50mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF50-N	Nitrile	Black	-20°C-110°C	60
VF50-S	Silicone	Red	-70°C-200°C	55
VF50-WS	White Silicone	Translucent White	-70°C-200°C	55
VF50-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF50-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF50-U	Urethane	Dark Green	0°C-100°C	60
VF50-A	Mark Free	Black	-10°C-100°C	75
VF50-PU	Polyurethane	Translucent Orange	0°C-60°C	60

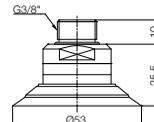
### Dimensions



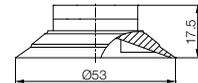
With 18F fitting



With 14M fitting



With 38M fitting



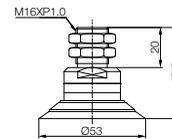
Cup only



### 50mm with M16M Fitting

9204	Material	Colour	Temperature	Hardness
VF50X2-N	Nitrile	Black	-20°C-110°C	60
VF50X2-S	Silicone	Red	-70°C-200°C	55
VF50X2-WS	White Silicone	Translucent White	-70°C-200°C	55
VF50X2-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF50X2-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF50X2-U	Urethane	Dark Green	0°C-100°C	60
VF50X2-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



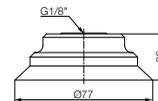
With M16M fitting



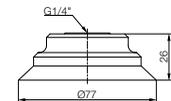
### 75mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF75-N	Nitrile	Black	-20°C-110°C	60
VF75-S	Silicone	Red	-70°C-200°C	55
VF75-WS	White Silicone	Translucent White	-70°C-200°C	55
VF75-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF75-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF75-U	Urethane	Dark Green	0°C-100°C	60
VF75-A	Mark Free	Black	-10°C-100°C	75
VF75-PU	Polyurethane	Translucent Orange	0°C-60°C	60

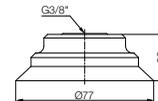
### Dimensions



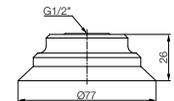
With 18F fitting



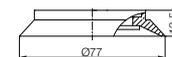
With 14F fitting



With 38F fitting



With 12F fitting



Cup only

# SUCTION CUPS - FLAT



## Features & Strengths

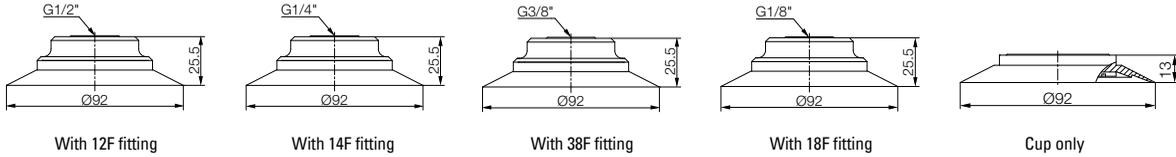
- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

## VF Series

### Dimensions



### 90mm, Cup Only

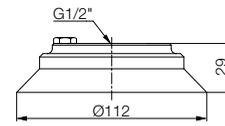
9204	Material	Colour	Temperature	Hardness
VF90-PU	Polyurethane	Translucent Orange	0°C-60°C	60



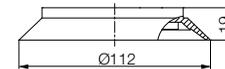
### 110mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF110-N	Nitrile	Black	-20°C-110°C	60
VF110-S	Silicone	Red	-70°C-200°C	55
VF110-WS	White Silicone	Translucent White	-70°C-200°C	55
VF110-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF110-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF110-U	Urethane	Dark Green	0°C-100°C	60
VF110-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 12F fitting



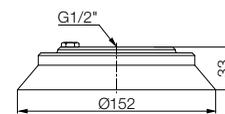
Cup only



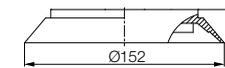
### 150mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF150-N	Nitrile	Black	-20°C-110°C	60
VF150-S	Silicone	Red	-70°C-200°C	55
VF150-WS	White Silicone	Translucent White	-70°C-200°C	55
VF150-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF150-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF150-U	Urethane	Dark Green	0°C-100°C	60
VF150-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 12F fitting



Cup only





## Features & Strengths

- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

## Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

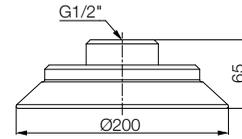
## VF Series



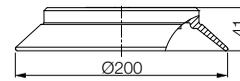
### 200mm, Cup Only

9204	Material	Colour	Temperature	Hardness
VF200-N	Nitrile	Black	-20°C-110°C	60
VF200-S	Silicone	Red	-70°C-200°C	55
VF200-WS	White Silicone	Translucent White	-70°C-200°C	55
VF200-WS-FDA	White Silicone (FDA)	Translucent White	-70°C-200°C	55
VF200-CS	Conductive Silicone	Smoky Black	-45°C-90°C	70
VF200-U	Urethane	Dark Green	0°C-100°C	60
VF200-A	Mark Free	Black	-10°C-100°C	75

### Dimensions



With 12F fitting



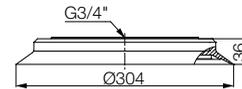
Cup only



### 300mm Cups with Female Fitting

9204	Material	Female Thread	Colour	Temperature	Hardness
VF300-N-34F	Nitrile	G3/4"	Black	-20°C-110°C	60
VF300-S-34F	Silicone	G3/4"	Red	-70°C-200°C	55
VF300-WS-34F	White Silicone	G3/4"	Translucent White	-70°C-200°C	55
VF300-WS-FDA-34F	White Silicone (FDA)	G3/4"	Translucent White	-70°C-200°C	55
VF300-CS-34F	Conductive Silicone	G3/4"	Smoky Black	-45°C-90°C	70
VF300-U-34F	Urethane	G3/4"	Dark Green	0°C-100°C	60
VF300-A-34F	Mark Free	G3/4"	Black	-10°C-100°C	75

### Dimensions



With 34F fitting



### Features & Strengths

- Excellent lifting force in both horizontal and vertical application
- Examples of Use
- Flat metal sheets and glass, veneer sheets, electronic components, marbles



### Material Specifications

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



### Recommended Lifting Force (Maximum)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) Perpendicular			Lifting Force (Kg) Parallel		
		-20 kPa	-60 kPa	-60 kPa	-20 kPa	-60 kPa	-60 kPa
LF150	145.00	34.00 / 53.00	51.00 / 79.00	80.00 / 115.00	39.00	43.00	68.00
LF200	275.00	78.00 / 150.00	115.00 / 154.00	176.00 / 224.00	65.00	98.00	149.00
LF250	435.00	134.00 / 167.00	199.00 / 251.00	293.00 / 361.00	114.00	168.00	260.00
LF300	666.00	219.00 / 267.00	327.00 / 384.00	472.00 / 556.00	187.00	278.00	402.00

The lifting force above does not include safety factor.

### Material Resistance

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





## LF Series

## 150mm, Cup Only



## Dimensions



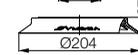
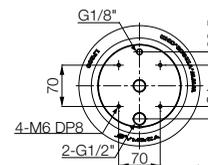
With 12F fitting

9204	Material	Female Thread	Colour	Temperature	Hardness
LF150-N-12F	Nitrile	G1/2"	Black	-20°C-110°C	60
LF150-S-12F	Silicone	G1/2"	Red	-70°C-200°C	55
LF150-WS-12F	White Silicone	G1/2"	Translucent White	-70°C-200°C	55
LF150-WS-12FDA	White Silicone FDA	G1/2"	Translucent White	-70°C-200°C	55

## 200mm, Cup Only



## Dimensions



With 12F fitting

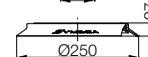
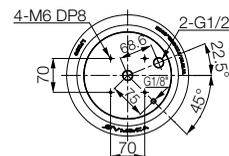
9204	Material	Female Thread	Colour	Temperature	Hardness
LF200-N-12F	Nitrile	G1/2"	Black	-20°C-110°C	60
LF200-S-12F	Silicone	G1/2"	Red	-70°C-200°C	55
LF200-WS-12F	White Silicone	G1/2"	Translucent White	-70°C-200°C	55
LF200-WS-12FDA	White Silicone FDA	G1/2"	Translucent White	-70°C-200°C	55



## 250mm, Cup Only



## Dimensions



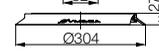
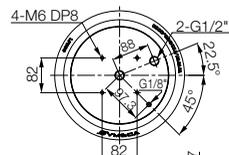
With 12F fitting

9204	Material	Female Thread	Colour	Temperature	Hardness
LF250-N-12F	Nitrile	G1/2"	Black	-20°C-110°C	60
LF250-S-12F	Silicone	G1/2"	Red	-70°C-200°C	55
LF250-WS-12F	White Silicone	G1/2"	Translucent White	-70°C-200°C	55
LF250-WS-12FDA	White Silicone FDA	G1/2"	Translucent White	-70°C-200°C	55

## 300mm, Cup Only



## Dimensions



With 12F fitting

9204	Material	Female Thread	Colour	Temperature	Hardness
LF300-N-12F	Nitrile	G1/2"	Black	-20°C-110°C	60
LF300-S-12F	Silicone	G1/2"	Red	-70°C-200°C	55
LF300-WS-12F	White Silicone	G1/2"	Translucent White	-70°C-200°C	55
LF300-WS-12FDA	White Silicone FDA	G1/2"	Translucent White	-70°C-200°C	55

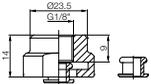
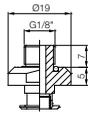
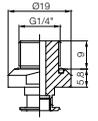
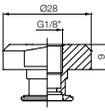
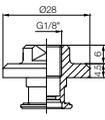
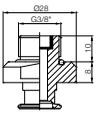
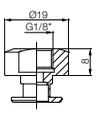
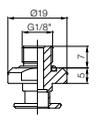
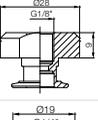


## VU/VB/VF/VBL/VBU/VBX/VFC Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
<b>M2.5M</b>	350 000 3000	Standard		VU2, VU3	0.47
<b>M5M</b>	350 000 3100	Standard		VU2, VU3	0.54
<b>M5M</b>	350 000 3101	Standard		VU4, VU6, VU8, VB5, VB8	1.84
<b>M5M</b>	350 000 3102	Standard		VU10, VU15, VF15, VB10, VB12, VB15, VBL15	2.52
	350 010 3102	Built in efficiency valve			2.63
<b>18FX (For silicone material)</b>	350 000 3321	Standard		VU40, VF40	8.46
<b>M518MF</b>	350 000 3209	Standard		VU20, VU25, VU30, VF20, VF25, VF30, VB17, VB20, VBL20	1.82
	350 000 5209	Built in mesh-filter			1.92
	350 010 4209	Built in efficiency valve			1.94
	350 020 4209	Built in button valve			2.21
<b>M518MFO</b>	350 000 1209	Standard		VU20, VU25, VU30, VF20, VF25, VF30, VB17, VB20, VBL20	2.88
	350 000 1109	Built in mesh-filter			2.94
	350 010 1209	Built in efficiency valve			2.87
<b>M518MFB (For silicone material)</b>	350 000 3239	Standard		VB17, VB20, VBL20	3.56
<b>18F</b>	350 000 3310	Standard		VU20, VU25, VU30, VF20, VF25, VF30, VB17, VB20, VBL20	3.23
	350 000 4310	Built in mesh-filter			3.3
	350 010 3310	Built in efficiency valve			3.43
	350 020 3310	Built in button valve			
<b>M518MFX (For silicone material)</b>	350 000 3229	Standard		VU20, VU25, VU30, VF20, VF25, VF30	3.71
<b>18F</b>	350 000 3311	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	5.62
	350 000 4311	Built in mesh-filter			5.72
	350 010 3311	Built in efficiency valve			5.86
	350 020 3311	Built in button valve			8.97
<b>18FO</b>	350 000 2311	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	8.24
	350 000 4811	Built in mesh-filter			8.41



## VU/VB/VF/VBL/VBU/VBX/VFC Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
<b>18FB</b> (For silicone material)	350 000 3331	Standard		VB30, VB40, VBL30, VBL40, VBU35, VBU45	9.78
<b>18M</b>	350 000 2304	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	5.68
	350 000 4304	Built in mesh-filter			5.73
	350 010 2304	Built in efficiency valve			5.63
<b>14M</b>	350 000 3404	Standard		VU40, VF40, VB30, VB40, VBL30, VBL40, VBU35, VBU45, VBX35, VBX45	5.88
	350 000 3804	Built in mesh-filter			5.92
	350 010 3404	Built in efficiency valve			6.03
<b>38M</b>	350 000 3504	Standard		VBU35, VBU45, VBX35, VBX45	9.16
	350 000 3904	Built in mesh-filter			9.56
	350 010 3504	Built in efficiency valve			9.72
<b>18F</b>	350 000 3312	Standard		VU50, VF50 VB50, VBL50 VBU55, VBX55	14.47
	350 000 4312	Built in mesh-filter			14.58
	350 010 3312	Built in efficiency valve			15.81
<b>18FO</b>	350 000 1312	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	10.12
	350 000 4912	Built in mesh-filter			10.2
	350 010 1312	Built in efficiency valve			10.22
<b>14M</b>	350 000 3405	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	14.18
	350 000 3805	Built in mesh-filter			14.42
	350 010 3405	Built in efficiency valve			14.38
<b>38M</b>	350 000 3505	Standard		VU50, VF50, VB50, VBL50, VBU55, VBX55	18.14
	350 000 3905	Built in mesh-filter			17.75
	350 010 3505	Built in efficiency valve			17.53
<b>18FB2</b> (For silicone material)	350 000 3342	Standard		VBU35, VBU45	5.4
	350 000 3442	Built in mesh-filter			5.5
	350 010 3342	Built in efficiency valve			5.64
<b>18MB2</b> (For silicone material)	350 000 3341	Standard		VBU35, VBU45	5.44
	350 000 4341	Built in mesh-filter			5.33
	350 010 3341	Built in efficiency valve			5.47
<b>18FB2</b> (For silicone material)	350 010 3342	Built in efficiency valve		VBU55, VBX55	15.95
<b>14MB2</b> (For silicone material)	350 000 3441	Standard		VBU35, VBU45	5.88
	350 000 3841	Built in mesh-filter			6
	350 010 3441	Built in efficiency valve			6.14



## VU/VB/VF/VBL/VBU/VBX/VFC Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
<b>14MB2</b> (For silicone material)	350 000 3443	Standard		VBU55	16.69
	350 000 3843	Built in mesh-filter			17.22
	350 010 3441	Built in efficiency valve			17.26
<b>38MB2</b> (For silicone material)	350 000 3543	Standard		VBU55	16.69
	350 000 3943	Built in mesh-filter			17.05
	350 010 3543	Built in efficiency valve			17.11
<b>18F</b>	350 000 3323	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	59.36
	350 000 4323	Built in mesh-filter		VF75, VF90	59.76
	350 020 3323	Built in button valve			83.56
<b>14F</b>	350 000 3423	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	56.92
	350 000 3823	Built in mesh-filter			57.32
<b>38F</b>	350 000 3523	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	55.08
	350 000 3923	Built in mesh-filter			55.48
<b>12F</b>	350 000 3623	Standard		VB75, VB75B, VF75, VF90, VFC90, VFC100	51.50
	350 000 4023	Built in mesh-filter			51.90
<b>12F</b>	350 000 3614	Standard		VB110, VB110B, VF110	103.70
	350 000 4014	Built in mesh-filter			10.50
	350 020 3614	Built in button valve			VF110
<b>12F</b>	350 000 3615	Standard		VB150, VF150	198.93
	350 000 4015	Built in mesh-filter			199.73
	350 020 3615	Built in button valve			VF150
<b>M16M</b>	350 000 1405	Standard		VF50X2	52.23
<b>12F</b>	350 000 3616	Standard		VF200	555
	350 000 4016	Built in mesh-filter			555.3

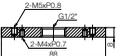




## BL5040 Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
18F	350 005 0101	Standard		BL5040	11.24
	350 005 0103	Built in mesh-filter			11.27
14M	350 005 0202	Standard		BL5040	7.92
	350 005 0204	Built in mesh-filter			8.96
38M	350 005 0302	Standard		BL5040	11.47
	350 005 0304	Built in mesh-filter			11.51

## VOBL35x90 Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
12F	350 000 3660	Standard		VOBL35x90	18.7

## VOU Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M5M	350 002 1012	Standard		VOU4x20, VOU6X20, VOU8X20, VOU8X30, VOU10X30	1.78
M5F	350 002 1112	Standard		VOU4x20, VOU6X20, VOU8X20, VOU8X30, VOU10X30	2.82
18M	350 002 3021	Standard		VOU15x45, VOU20X60	13.74
	350 002 3022	Built in mesh-filter			13.84
18F	350 002 3121	Standard		VOU15x45, VOU20X60	10.32
	350 002 3122	Built in mesh-filter			10.46

## FF Series

Type	Code No.	Description	Dimension	Available suction cups	Weight (g)
M5M	350 007 0101	Standard		FF15	1.41
M5M	350 007 0102	Standard		FF20, FF25, FF30	2.59
M5M	350 007 0103	Standard		FF15X, FF20X	2.41



# SUCTION CUPS - FITTINGS



## VU/VB/VF/VBL/VBU/VBX/VFC Series



9205
350 000 3000
350 000 3100
350 000 3101
350 000 3102
350 010 3102
350 000 3321
350 000 3209
350 000 5209
350 010 4209
350 020 4209
350 000 1209
350 000 1109
350 010 1209
350 000 3239
350 000 3310
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350 000 2304

9205
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350 000 3805
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350 000 3342
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350 000 4341
350 010 3341
350 000 3441

9205
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350 000 4016



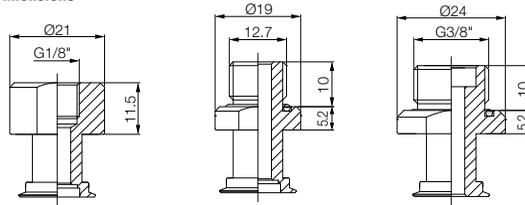


### BL5040 Series

9205

- 350 005 0101
- 350 005 0103
- 350 005 0202
- 350 005 0204
- 350 005 0302
- 350 005 0304

Dimensions

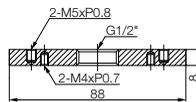


### VOBL 35 x 90 Series

9205

- 350 000 3660

Dimensions

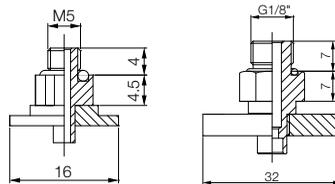


### VOU Series

9205

- 350 002 1012
- 350 002 1112
- 350 002 3021
- 350 002 3022
- 350 002 3121
- 350 002 3122

Dimensions

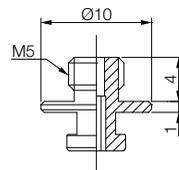


### FF Series

9205

- 350 007 0101
- 350 007 0102
- 350 007 0103

Dimensions





## Index

<b>Green Pump</b> <span style="float: right;">Page 518</span>	
	<ul style="list-style-type: none"> <li>VMECA vacuum cartridge technology integrated</li> <li>High polished clean surface (= for food, pharma industry)</li> <li>Vacuum filter self-cleaning system</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>Excellent hygiene products for food, pharma and chemical industry</li> <li>Integrated vacuum filter with high dirt capacity</li> <li>Single/dual cartridge option selectable</li> <li>Compact size and light weight</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption</li> <li>Suitable in application where high level hygiene standard is needed in</li> <li>Compact size and easy installation</li> </ul>
<b>PM Pump</b> <span style="float: right;">Page 519</span>	
	<ul style="list-style-type: none"> <li>VMECA vacuum cartridge technology integrated</li> <li>High vacuum flow with durable aluminium body</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>Highly operational reliability despite fluctuating or low compressed-air pressure</li> <li>Various connection ports</li> <li>Durable aluminium body</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>Excellent performance in application that the large vacuum flow is needed</li> <li>Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption</li> <li>Optional air saving kit (AS-KIT) to minimise energy consumption</li> </ul>
<b>MPM Pump</b> <span style="float: right;">Page 519</span>	
	<ul style="list-style-type: none"> <li>VMECA vacuum cartridge technology integrated</li> <li>Large vacuum flow with up to 16 VMECA vacuum cartridge</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>Highly operational reliability despite fluctuating or low compressed-air pressure</li> <li>Extremely low noise level</li> <li>Available with a three-stage MIDI vacuum cartridge pump integrate</li> <li>Up to 16 cartridges with high vacuum flow</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>Large vacuum flow to replace 4kw (5Hp) electric motor pump</li> <li>Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption</li> <li>Durable and light aluminium body</li> </ul>
<b>Turtle Pump</b> <span style="float: right;">Page 519</span>	
	<p>VMECA vacuum cartridge technology integrated</p> <p>Vacuum filter in one body with auto filter cleaning system</p>
<b>Features &amp; Strengths</b> <p>Highly operational reliability despite fluctuating or low compressed-air pressure</p> <p>Integrated pleated filter with high dirt capacity and auto-cleaning system</p>	<b>Advantages</b> <p>Excellent performance in most of every automation application – especially, dust environment application</p> <p>Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption</p> <p>Optional air-saving kit (AS-KIT) to minimise energy consumption</p>
<b>Magic Pump</b> <span style="float: right;">Page 519</span>	
	<p>VMECA vacuum cartridge technology integrated</p> <p>Flexibly rotatable vacuum pump</p> <p>Easy to distribute vacuum connections with integrated distribution body module</p>
<b>Features &amp; Strengths</b> <p>Highly operational reliability despite fluctuating or low compressed-air pressure</p> <p>Available to select various port options and port position/direction</p> <p>Integrated pleated filter with high dirt capacity and auto-cleaning system</p>	<b>Advantages</b> <p>Flexible structure to fit various application such as limited space, vacuum distribution, etc</p> <p>Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption</p> <p>Optional air-saving kit (AS-KIT) to minimise energy consumption</p> <p>High durable and corrosion resistant</p> <p>Light weight</p>
<b>VCS Pump</b> <span style="float: right;">Page 518</span>	
	<ul style="list-style-type: none"> <li>VMECA vacuum cartridge technology integrated</li> <li>Level compensator and vacuum ejector in one body</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>Highly operational reliability despite fluctuating or low compressed air pressure</li> <li>Integrated with level compensator and vacuum ejector</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>No need additional level compensator</li> <li>Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption</li> <li>Compact size and light weight</li> </ul>
<b>VSM Pump</b> <span style="float: right;">Page 518</span>	
	<ul style="list-style-type: none"> <li>VMECA vacuum cartridge technology integrated</li> <li>Various mounting options for easy installation</li> <li>Extremely low noise level</li> </ul>
<b>Features &amp; Strengths</b> <ul style="list-style-type: none"> <li>Highly operational reliability despite fluctuating or low compressed-air pressure</li> <li>Multiple connection ports</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>Fast response time with individual vacuum system available</li> <li>Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption</li> </ul>





#### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed-air pressure
- Integrated vacuum filter with high dirt capacity and auto-cleaning system
- High polished clean surface for food, pharma and chemical industry
- Easy to install in limited space due to compact size
- Quick response time



#### GS Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
GS203	90	3 - 4	85.8	21 - 32	52 - 58	4 - 6	6	8
GS252	94	5 - 6	113	70.5 - 83.5	60 - 68	6 - 8	6	10
GS253	94	5 - 6	146	70.5 - 83.5		6 - 8	8	10
GS302	93	3 - 4	171	97 - 152		6 - 8	8	10
GSL302	75	4 - 6	200	70 - 104		6 - 8	8	10

#### Features & Strengths

- Dual vacuum cartridge structure
- Highly operational reliability despite fluctuating or low compressed-air pressure
- Integrated vacuum filter with high dirt capacity and auto-cleaning system
- High polished clean surface for food, pharma and chemical industry
- Easy to install in limited space due to compact size
- Quick response time



#### GH Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
GH203	90	3 - 4	172	40 - 64	52 - 58	6 - 8	8	10
GH252	94	5 - 6	222	141 - 167	60 - 68	6 - 8	8	10
GH253	94	5 - 6	292	141 - 167		6 - 8	8	10
GH302	93	3 - 4	343	194 - 304		6 - 8	8	10
GHL302	75	4 - 6	400	140 - 208		6 - 8	8	10





### Features & Strengths

- Efficient individual and independent point-of-use vacuum
- Highly operational reliability despite fluctuating or low compressed-air pressure
- Extremely quick response
- Available for multiple connection ports
- Extremely low noise level with VMECA twofold silencer



### VSM Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
VSM202	90	3 - 4	44	22 - 40.5	55 - 65	8	8	8
VSM203	90	3 - 4	84.5	21 - 40		8	8	10
VSM303	92	4	341	82 - 152		8	12	14

### Features & Strengths

- Built in level compensator in one body
- Highly operational reliability despite fluctuating or low compressed air pressure
- Quick response time
- Compact size and light weight



### VCS Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
VCS102	85	1.2 - 2.6	16.5	6.8 - 10.6	55 - 65	4 - 6	8	6
VCS102C								





#### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Top and side vacuum connection ports available
- Optional air-saving kit available to minimise energy consumption
- Quick response time
- Strong aluminium body



#### PM Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
PM303X1	92	3 - 4	341	97 - 158	60 - 65	8	12	12
PM303X2	92	3 - 4	682	194 - 340		8	15	15
PM303X3	92	3 - 4	1023	291 - 456		10	19	22
PM303X4	92	3 - 4	1364	388 - 608		10	22	32

#### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed-air pressure
- High vacuum flow with low energy consumption
- Available to replace 4kw(5Hp) electric motor pump
- Very low noise level
- Durable and light aluminium body



#### PM Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
MPM303x6	93	3 - 4	2048	804	55 - 62	11	35	40
MPM303x8	93	3 - 4	2728	1072	55 - 62	11	40	40
MPM303x10	93	3 - 4	3410	1340	55 - 62	11	40	45
MPM303x12	93	3 - 4	4092	1608	55 - 62	12	40	50
MPM303x14	93	3 - 4	4774	1876	55 - 62	13	45	50
MPM303x16	93	3 - 4	5456	2144	55 - 62	14	35	60





### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed-air pressure
- Integrated pleated filter with high dirt capacity and auto-cleaning system
- Flexible structure available to select various port options and port position/direction
- Easy to assemble and disassemble without any tools
- Quick response time
- Patented design



### M3000 Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
M3122	92	3 - 4	342	194 - 304	50 - 60	8	15	15
M3123	92	3 - 4	513	291 - 456		10	19	22
M3124	92	3 - 4	684	388 - 608		10	22	32
M3132	92	3 - 4	682	194 - 304	50 - 60	8	15	15
M3133	92	3 - 4	1023	291 - 456		10	19	22
M3134	92	3 - 4	1364	388 - 608		10	22	32

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed-air pressure
- Integrated pleated filter with high dirt capacity and auto-cleaning system
- Optional air-saving kit available to minimise energy consumption
- Quick response time
- Patented design



### VTC Range

Model	Max. Vacuum level (- kPa)	Supply Air Pressure (bar)	Max. Vacuum Flow(Nl/m)	Air Consumption (Nl/m)	Noise level (dBA)	Min. hose inner Ø (within 2m)		
						Air supply	Vacuum	Exhaust
VTC3021	92	3 - 4	171	97 - 152	50 - 60	6	8	10
VTC3031	92	3 - 4	341	97 - 152		6	8	10
VTC3122	92	3 - 4	342	194 - 304		8	15	15
VTC3032	92	3 - 4	682	194 - 304	60 - 65	8	12	18
VTC3022	92	3 - 4	342	194 - 304		8	12	18
VTC3132	92	3 - 4	682	194 - 304		8	15	15
VTC3123	92	3 - 4	513	291 - 456		10	19	22
VTC3133	92	3 - 4	1023	291 - 456		10	19	22
VTC3124	92	3 - 4	684	388 - 608		10	22	32
VTC3134	92	3 - 4	1364	388 - 608		10	22	32





## Green Pumps

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Integrated vacuum filter with high dirt capacity and auto cleaning system
- High polished clean surface for food, pharma and chemical industry
- Easy to install in limited space due to its compact size
- Quick response time



### GS Range

9205	Max. Vacuum (-kPa)	Open Vacuum Flow (NI/min)	Max. Feed Pressure (bar)
GS203	90	85	4
GS252	94	113	6
GS253	94	146	6
GS302	92	171	4
GSL302	75	200	6

## Green Pumps

### Features & Strengths

- Dual vacuum cartridge structure
- Highly operational reliability despite fluctuating or low compressed air pressure
- Integrated vacuum filter with high dirt capacity and auto-cleaning system
- Easy to install in limited space due to its compact size
- Quick response time



### GH Range

9205	Max. Vacuum (-kPa)	Open Vacuum Flow (NI/min)	Max. Feed Pressure (bar)
GH203	90	172	4
GH252	94	222	6
GH253	94	292	6
GH302	92	343	4
GHL302	75	400	6

## VSM Pumps

### Features & Strengths

- Efficient individual and independent point of use vacuum
- Highly operational reliability despite fluctuating or low compressed air pressure
- Extremely quick response
- Available for multiple connection ports
- Extremely low noise level with VMECA twofold silencer



### VSM Range

9205	Open Vacuum Flow (NI/min)	Vacuum Connection	Type
VSM202	44	3/8" (x1), 1/8" (x3)	Holding Plug
VSM203	84.5	3/8" (x1), 1/8" (x3)	Silencer
VSM303	34.1	1/2" (x1), 1/4" (x3)	Silencer

## VCS Pumps

### Features & Strengths

- Built in level compensator
- Highly operational reliability despite fluctuating or low compressed air pressure
- Quick response time
- Compact size and light weight



### VCS Range

9205	Male Thread	Female Thread	Check Valve
VCS102	M5	N/A	No
VCS102C	N/A	G1/8"	Yes





## Premium Pumps

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Various connection ports
- Durable aluminium

### Advantages

- Excellent performance when a large vacuum flow is needed
- Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption
- Operational Air saving kit (AS-KIT) to minimise energy consumption



### PM Range with Side Vacuum Port

9205	No. of Cartridges	Thread
PM303X1	1	G1"
PM303X2	2	G1"
PM303X3	3	G1"
PM303X4	4	G1"

## Mega Premium Pumps

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Extremely low noise level
- Available with three-stage MIDI vacuum cartridge pump
- Up to 16 cartridges with high vacuum flow

### Advantages

- Large vacuum flow to replace 4kw (5Hp) electric motor pump
- Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption
- Durable and light aluminium body



### MPM Range without Vacuum Filter

9205	No. of Cartridges	Thread
MPM303X6	6	G2"
MPM303X8	8	G2"
MPM303X10	10	G2"
MPM303X12	12	G2"
MPM303X14	14	G2"
MPM303X16	16	G2"

## Magic Pumps

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Available to select various port options and port positions/direction
- Integrated pleated filter with high dirt capacity and auto-cleaning system

### Advantages

- Flexible structure to fit various applications such as limited space, vacuum distribution, etc
- Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption
- Operational air saving kit (AS-KIT) to minimise energy consumption
- Highly durable and corrosion resistant
- Light weight



### M3000 Range

9205	No. of Cartridges	Thread	Stage
M3122	2	G3/4"	2
M3123	3	G3/4"	2
M3124	4	G3/4"	2
M3132	2	G3/4"	3
M3133	3	G3/4"	3
M3134	4	G3/4"	3

## Turtle Pumps

### Features & Strengths

- Highly operational reliability despite fluctuating or low compressed air pressure
- Integrated pleated filter with high dirt capacity and auto-cleaning system

### Advantages

- Excellent performance in most every automation application
- Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption
- Operational air saving kit (AS-KIT) to minimise energy consumption



### VTC Range with Bowl Vacuum Port

9205	No. of Cartridges	Thread	Silencer	Stage
VTC3021-2	1	G3/4"	-	2
VTC3031-2	1	G3/4"	Two Fold	3
VTC3122-2	2	G3/4"	Standard	2
VTC3032-2	2	G3/4"	Two Fold	3
VTC3022-2	2	G3/4"	-	3
VTC3132-2	2	G3/4"	Standard	3
VTC3123-2	3	G3/4"	Standard	2
VTC3133-2	3	G3/4"	Standard	3
VTC3124-2	4	G3/4"	Standard	2
VTC3134-2	4	G3/4"	Standard	3



# Easy Efficient, Reliable & Compact! Magic Grippers





## What is the Magic Gripper?

The Magic Grippers are a general purpose, all-in-one vacuum system that covers most applications. The Magic Gripper has eliminated the need to purchase separate fittings, connection hoses, filters, and suction cups as they come as a one-piece standard. The ultra-lightweight and compact design allows for easy mounting options. Easy to use, and no tools required when replacing spare parts. A variety of sealing lip options allow for the Magic Gripper to grasp all different kinds of objects.

### Disadvantages of Conventional Systems

- High cost for installation and process
- Various piping and connectors needed
- High energy consumption
- Difficult installation and complicated structure
- Difficult to select suitable model without vacuum knowledge
- Not available as an individual vacuum system

### Features

- Cost efficient
- Easy to build vacuum systems
- Various suction lips
- Fast response and excellent performance
- Individual vacuum systems
- 73% less energy consumption
- Custom profile options – easy mounting
- Various flow rate options available
- VMECA multi-stage vacuum cartridge integrated



Aluminium profile

Mounting bracket

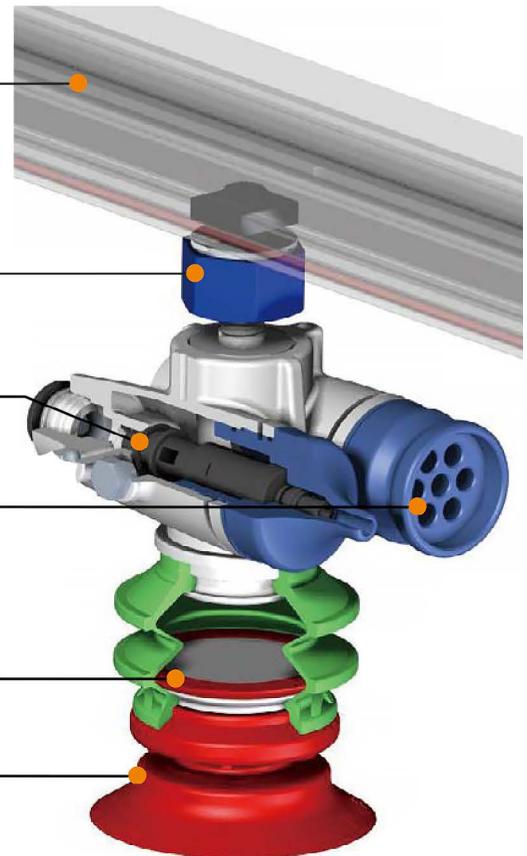
Vacuum generator  
(VMECA vacuum cartridge system)

Auto vacuum release valve

Vacuum filter

Suction lip

All in the "Magic Gripper"





## How to select a proper vacuum pump

### Sealed system

For sealed system the capacity of the pump is determined by how fast the system can be evacuated to a certain vacuum level.

This capacity is called the evacuation time of the pump and is normally specified in sec/l. This value is multiplied by the volume of the system in order to obtain the evacuation time to the desired vacuum level.

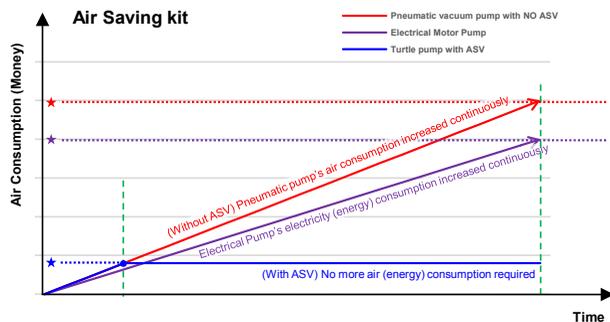
### Non-sealed system

With non-sealed system (lifting porous material), the case is different. To maintain the desired vacuum level the pump must have the capacity to pump away the air-leaking in by establishing the leaking flow; it is possible, by reading the pump data, to find the right pump for the application in question. If the leakage occurs via a known aperture, the flow can be established according to the diagram.

When the leakage occurs through a porous material or in an unknown way, the flow can be established by a test with a vacuum pump. The pump is connected to the system and the obtained vacuum level is read. (It should be at least -20kPa).

### Air saving system

Electrically driven, mechanical vacuum pumps normally work during the whole working period and the vacuum requirements are controlled by a valve on the vacuum side. In system with compressed air-driven vacuum pumps it is often possible to save a lot of energy. As these pumps have a faster reaction time (fast start-up) the pump can be shut off when the vacuum is no longer needed. Many pumps can be delivered with air saving system as option.



**Features**

- Various suction lips
- Cost efficient
- Easy to build vacuum systems
- Various suction lips
- Fast response and excellent performance
- Individual vacuum systems
- 73% less energy consumption
- Custom profile options – easy mounting
- Various flow rate options available
- VMECA multi-stage vacuum cartridge integrated



**Suction lip -**  
see pages 526-527

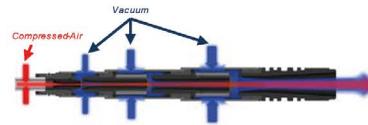
**Type - see page 525**



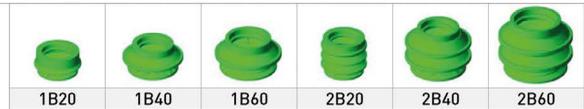
**Mount options - Available on request**



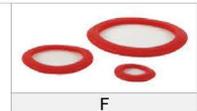
**Cartridge - see pages 528-529**



**Top bellows options - Available on request**



**Vacuum filter - Available on request**



**Stopper options - see page 531**



**Various Suction Lips**



X-Lip

U-Lip

P-Lip

F-Lip

DD-Lip



Page 530



Page 530



Page 530



Available on request



Available on request



MBU-Lip



MD-Lip



S-Lip



MU/MF-Lip

Stopper

Suction lip



Available on request



Available on request



Available on request



Available on request



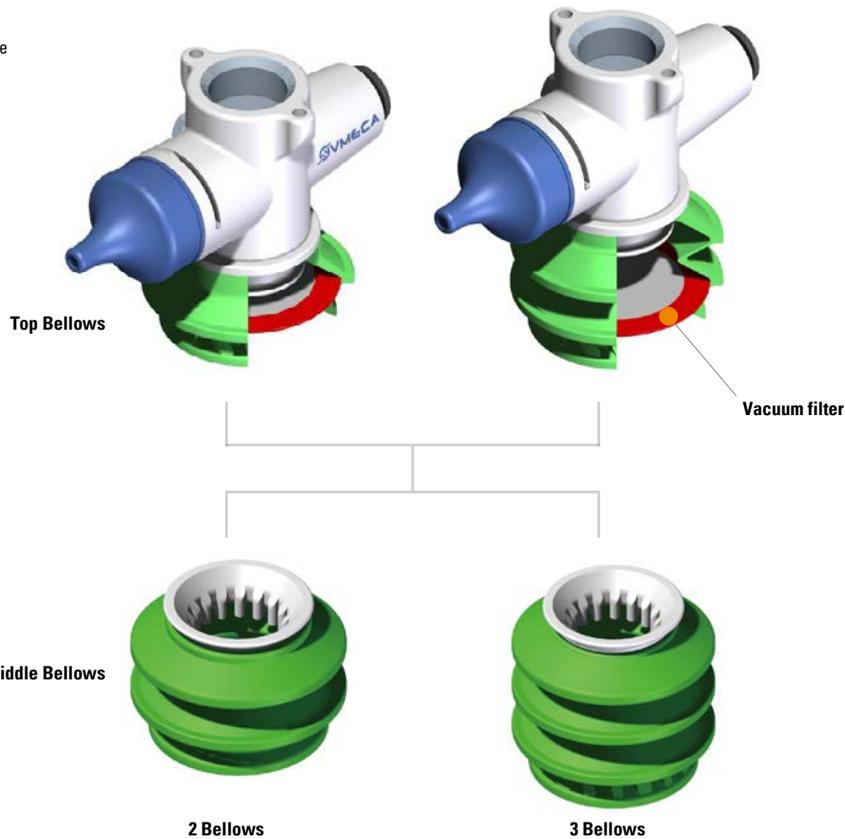
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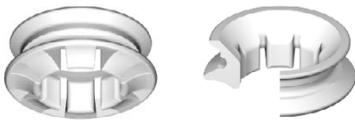


### Top & Middle Bellows/Vacuum Filter

- Easy to connect with suction lips
- Several bellows folds options available
- Compensating different height
- Long lifetime
- Vacuum filter integrated (optional)



## Stoppers



### Stopper A

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



### Stopper C

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



### Stopper E

- Recommended with S suction lip
- Sponge suction lip



### Stopper B

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



### Stopper D

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



### Stopper F

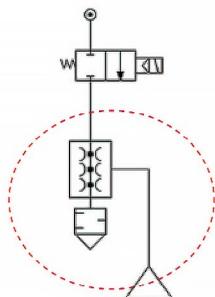
- Recommended with MU and MF suction lip
- Stopper is not visible when used with suction lip MU and MF type

# TECHNICAL INFORMATION - VACUUM GENERATOR OPTIONS



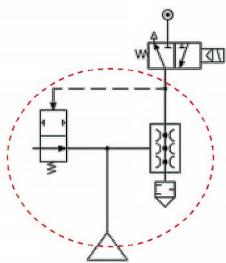
## 1. Single cartridge – A-TYPE

- Single cartridge



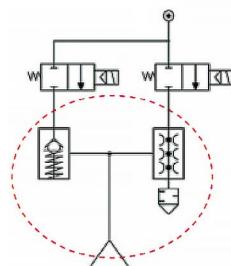
## 2. Single cartridge & automatic vacuum release function – B-TYPE

- Automatic vacuum release function is available
- Vacuum release valve is not necessary
- 3/2 way valve is required for air control valve



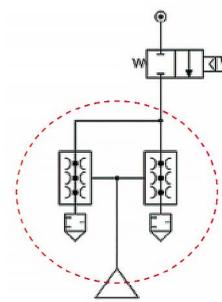
## 3. Single cartridge & Check valve – C-TYPE

- Check valve integrated and it makes fast evacuation time
- Vacuum release control valve is required



## 4. Dual cartridges – D-TYPE

- Dual cartridges for large vacuum flow



## Suction Lips

### X Lip



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



### U Lip



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



### F Lip



- F suction lip is excellent in handling flat object applications
- Thin boxes, wooden panel, glass



### P Lip



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



### 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 and dual lip design offers a safety factor against suction lip wear and tear





## Suction Lips

### 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 mark free as optional material



### MU Lip



- MU suction lip offers great gripping force for flat and stable surfaces
- Carton boxes, glass, veneer sheets



### MF Lip



- MF suction lip offers great gripping force for both horizontal and vertical applications
- Metal sheets, carton boxes, glass, veneer sheets





#### Features & Strengths

- Reliable performance despite inconsistent compressed air pressure
- Extremely compact and light weight
- Low air consumption
- Various mounting options
- Excellent gripping power
- Various suction lips for different applications

### A-Type - Single Cartridge



#### Micro Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC10A1-20	20	Nitrile
MC10A2-20	20	Nitrile
MC10A1-40	40	Nitrile
MC10A2-40	40	Nitrile

#### Mini Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC20A1-40	40	Nitrile
MC20A2-40	40	Nitrile
MC20A1-60	60	Nitrile
MC20A2-60	60	Nitrile

#### Mini Cartridge, 3-Stage

9205	Bellow Size mm	Material
MC23A1-40	40	Nitrile
MC23A2-40	40	Nitrile
MC23A1-60	60	Nitrile
MC23A2-60	60	Nitrile

#### Mini Premium Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC25A1-40	40	Nitrile
MC25A2-40	40	Nitrile
MC25A1-60	60	Nitrile
MC25A2-60	60	Nitrile

### B Type - Single Cartridge/Auto Vac Release



#### Micro Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC10B1-20	20	Nitrile
MC10B2-20	20	Nitrile
MC10B1-40	40	Nitrile
MC10B2-40	40	Nitrile

#### Mini Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC20B1-40	40	Nitrile
MC20B2-40	40	Nitrile
MC20B1-60	60	Nitrile
MC20B2-60	60	Nitrile

#### Mini Cartridge, 3-Stage

9205	Bellow Size mm	Material
MC23B1-40	40	Nitrile
MC23B2-40	40	Nitrile
MC23B1-60	60	Nitrile
MC23B2-60	60	Nitrile

#### Mini Premium Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC25B1-40	40	Nitrile
MC25B2-40	40	Nitrile
MC25B1-60	60	Nitrile
MC25B2-60	60	Nitrile





### Features & Strengths

- Reliable performance despite inconsistent compressed air pressure
- Extremely compact and light weight
- Low air consumption
- Various mounting options
- Excellent gripping power
- Various suction lips for different applications

## C Type – Single Cartridge/Check Valve



### Micro Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC10C1-20	20	Nitrile
MC10C2-20	20	Nitrile
MC10C1-40	40	Nitrile
MC10C2-40	40	Nitrile

### Mini Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC20C1-40	40	Nitrile
MC20C2-40	40	Nitrile
MC20C1-60	60	Nitrile
MC20C2-60	60	Nitrile

### Mini Cartridge, 3-Stage

9205	Bellow Size mm	Material
MC23C1-40	40	Nitrile
MC23C2-40	40	Nitrile
MC23C1-60	60	Nitrile
MC23C2-60	60	Nitrile

### Mini Premium Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC25C1-40	40	Nitrile
MC25C2-40	40	Nitrile
MC25C1-60	60	Nitrile
MC25C2-60	60	Nitrile

## D-Type - Dual Cartridge



### Micro Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC10D1-20	20	Nitrile
MC10D2-20	20	Nitrile
MC10D1-40	40	Nitrile
MC10D2-40	40	Nitrile

### Mini Cartridge, 2-Stage

9205	Bellow Size mm	Material
MC20D1-40	40	Nitrile
MC20D2-40	40	Nitrile
MC20D1-60	60	Nitrile
MC20D2-60	60	Nitrile

### Mini Cartridge, 3-Stage

9205	Bellow Size mm	Material
MC23D1-40	40	Nitrile
MC23D2-40	40	Nitrile
MC23D1-60	60	Nitrile
MC23D2-60	60	Nitrile





## Suction Lips

- X type suction lips are excellent in handling thin and light plastic bag applications such as ice cream bags and aluminium foil.



### X Type

9205	Ø mm	Material
X25-N6	25	Nitrile
X30-N6	30	Nitrile
X45-N6	45	Nitrile
X55-N6	55	Nitrile
X65-N6	65	Nitrile
X75-N6	75	Nitrile
X25-S3	25	Silicone
X30-S3	30	Silicone
X45-S3	45	Silicone
X55-S3	55	Silicone
X65-S3	65	Silicone
X75-S3	75	Silicone
X25-W3	25	White Silicone
X30-W3	30	White Silicone
X45-W3	45	White Silicone
X55-W3	55	White Silicone
X65-W3	65	White Silicone
X75-W3	75	White Silicone

- P type suction lips are excellent in handling heavy or thick plastic bags containing liquid and powder substances.
- Various stopper and lip material options to cover a wide range of vacuum applications.



### P Type

9205	Ø mm	Material
P15-N6	15	Nitrile
P17-N6	17	Nitrile
P20-N6	20	Nitrile
P27-N6	27	Nitrile
P32-N6	32	Nitrile
P48-N6	48	Nitrile
P60-N6	60	Nitrile
P15-S3	15	Silicone
P17-S3	17	Silicone
P20-S3	20	Silicone
P27-S3	27	Silicone
P32-S3	32	Silicone
P48-S3	48	Silicone
P60-S3	60	Silicone
P85-S3	85	Silicone
P15-W3	15	White Silicone
P17-W3	17	White Silicone
P20-W3	20	White Silicone
P27-W3	27	White Silicone
P32-W3	32	White Silicone
P48-W3	48	White Silicone
P60-W3	60	White Silicone

- U type suction lips are excellent in handling flat and slightly curved objects such as carton boxes and tubes.



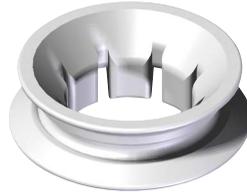
### U Type

9205	Ø mm	Material
U25-N6	25	Nitrile
U30-N6	30	Nitrile
U45-N6	45	Nitrile
U55-N6	55	Nitrile
U65-N6	65	Nitrile
U75-N6	75	Nitrile
U25-S3	25	Silicone
U30-S3	30	Silicone
U45-S3	45	Silicone
U55-S3	55	Silicone
U65-S3	65	Silicone
U75-S3	75	Silicone
U25-W3	25	White Silicone
U30-W3	30	White Silicone
U45-W3	45	White Silicone
U55-W3	55	White Silicone
U65-W3	65	White Silicone
U75-W3	75	White Silicone





## Stoppers - A-Type



To Suit X Type Lips

9205	Stopper Size mm
MS20-A	20
MS40-A	40
MS60-A	60

## Stoppers - C-Type



To Suit U & X Type Lips

9205	Stopper Size mm
MS20-C	20
MS40-C	40
MS60-C	60

## Stoppers - A-Type



To Suit U & X Type Lips

9205	Stopper Size mm
MS20-B	20
MS40-B	40
MS60-B	60

## Stoppers - C-Type



To Suit P, U & X Type Lips

9205	Stopper Size mm
MS20-D	20
MS40-D	40
MS60-D	60



## Applications



# IN-LINE VACUUM FILTER



These filters provide a cost effective in-line vacuum filtration method. The 6mm push fit version is useful for individual lines particularly with the Online pump and multiple stack pumps. The 3/8" version can be screwed directly into the mini type vacuum pump as well as any other port using a 3/8" BSP connection. When used with the mini pumps and midi multiple pumps, it provides a very compact set up.

### Features & Strengths

- Simply pushing the tube into the LV-filter
- No other operation is required
- Excellent filtering - minimum particle : 10 micron
- Easy to check and replace filter element

### VTF Filters

9205	OD (mm)
VTF-0706	6
VTF-1208	8

### VTFB Filters

9205	Vacuum Connection
VTF38-96	G3/8"
VTF38-141	G3/8"
VTF12-96	G1/2"
VTF12-141	G1/2"
VTF34-96	G3/4"
VTF34-141	G3/4"
VTF01-118	G1"
VTF01-154	G1"
VTF02-118	G1.1/2"
VTF02-154	G1.1/2"



### VTF Replacement Elements

9205	To Suit
VTFE27.5-39096	VTF38-96, 12-96, 34-96
VTFE27.5-39141	VTF38-141, 12-141, 34-141
VTFE47.4-62118	VTF01-118, 02-118
VTFE47.4-62154	VTF01-154, 02-154

### Specifications

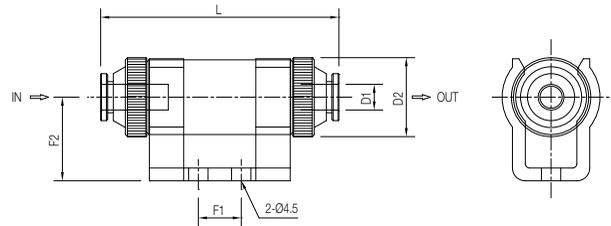
Model	Tube size (mm) (Outer diameter)	Removal efficiency (µ)	Filter area (mm²)	Temperature (°C)	Weight (g)
VTF-0706	6	10	7.5	0 to +60	25.0
VTF-1208	8	10	12.5	0 to +60	39.5

### Dimensions

Unit: mm

Model	L	D1	D2	F1	F2
VTF-0706	55.5	Ø6	Ø18.5	10	20
VTF-1208	65.2	Ø8	Ø22.5	14	44

### Dimensions



### Square Parts - Filter Element

Model	Description	Weight (g)
VTFE0706	Filter Element for VTF-0706	0.74
VTFE1208	Filter Element for VTF-1208	1.2



# INTERCHANGE FILTER ELEMENTS



## Vacuum Pump Filters

Please request a technical data sheet.



### BSP

9156	d1	Male/ Female	d2 mm	h1 mm	h2 mm	Dh3 mm	h4 mm	Flow Rate m <sup>3</sup> /h	Element ref
SA6654	G3/8"	F	80	66	12	39	45	24	SA6715
SA6058	G3/4"	F	110	76	14	53	54	42	SA6091
SA6647	G1/2"	F	110	76	14	53	54	42	SA6091
SA6952	G1"	F	133	85	17	53	78	85	SA6120
SA6059	G1.1/4"	F	133	85	17	53	78	96	SA6120
SA6061	G1.1/4"	F	170	141	17	93	96	108	SA6122
SA6648	G1.1/2"	F	170	170	18	124	100	192	SA6651
SA6649	G2"	F	200	240	18	124	114	310	SA6096
SA6060	G2.1/2"	F	200	240	18	124	114	360	SA6096
SA6650	G3"	F	270	180	50	145	165	550	SA6095
SA6652	G4"	F	270	180	50	145	165	720	SA6095
SA6749	G3"	F	280	395	50	330	190	1080	SA6005
SA6750	G4"	F	360	590	50	400	230	1260	SA6005

## Vacuum Pump Spare Filter Elements

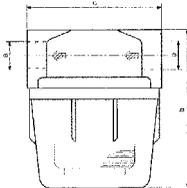


### BSP

9156	To Suit
SA6715	Element for SA6654
SA6091	Element for SA6647 & SA6058
SA6120	Element for SA6952 & SA6059
SA6122	Element for SA6061
SA6651	Element for SA6648
SA6096	Element for SA6649 & SA6060
SA6095	Element for SA6650 & SA6652
SA6005	Element for SA6749
SA6025	Element for SA6750

## In-line Vacuum Filter

- (1) Flow rates measured with 10 mbar pressure loss
- (2) C = paper  
R = stainless steel net
- (3) Metallic frame



### BSP

9032	Flow Rate m <sup>3</sup> /h	A inches	B mm	C mm	Element (2)	Weight kg
9001003	12	G1/4"	82	62	C	0.16
9001004	12	G1/4"	76	62	R	0.13
9001069	12	G1/4"	74	62	C	0.13
9001004/0	12	G3/8"	76	62	R	0.13
9001009	24	G3/8"	138	85	C	0.37
9001070	24	G3/8"	117	80	C	0.37
9001008	30	G1/2"	88	85	R	0.25
9001010	30	G1/2"	88	80	C	0.25
9001030	90	G1"	240	145	C	1.16
9001016	90	G1"	175	120	R	0.85

## In-line Vacuum Spare Filter Elements



### Spare Filter Elements

9032	Element to Suit NI/min(1)	µm	Temperature Maximum °C
1801001	9001069, 9001003	30	80
1803002	9001004, 9001004/0	100	50
1802003	9001008	44	50
1801006	9001009, 9001010	30	50
1802011	9001016	60	50
1801047	9001070	15	80
1801021	9001030	25	50





# INTERCHANGE FILTER ELEMENTS

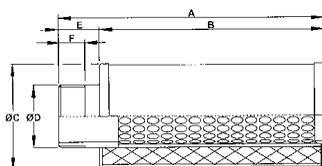
## Blower Intake Filter



### Female

9033	Female Thread	A	D	H	S	L	M	Capacity m <sup>3</sup> /h
FL1	1/2"	75	21	62	23	100	15	25
FL2	3/4"	150	27	105	23	130	15	85
FL3	1"	150	33	105	23	130	15	85
FL4	1.1/4"	150	42	105	23	200	15	85
FL5	1.1/2"	180	48	155	23	200	15	250
FL6	2"	230	60	155	23	200	15	400
FL8	3"	280	89	180	35	200	15	700
FL9	4"	410	114	330	35	200	15	1400

## High Volume Muffler



Type SS



### Pump Mounted, Male

9033	D	A	B	C	E
SS4	G1.1/4"	190	138	69	52
SS5	G1.1/2"	200	168	80	32
SS6	G2"	230	198	89	32
SS8	G3"	390	350	152	40

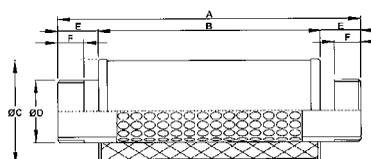
## Blower Intake Spare Filter Elements



### Spare Filter Elements

9033	Element For	A	D	H
CF1	FL1	55	25	50
CF4	FL2, FL3, FL4	110	55	83
CF5	FL5	150	80	135
CF6	FL6	180	80	135
CF8	FL8	225	100	150
CF9	FL9, FL10	300	215	300

## High Volume Muffler



Type SI



### In-line, Male x Male

9033	D	A	B	C	E
SI4	G1.1/4"	242	138	69	52
SI5	G1.1/2"	232	168	80	32
SI6	G2"	262	198	89	32
SI8	G3"	430	350	152	40

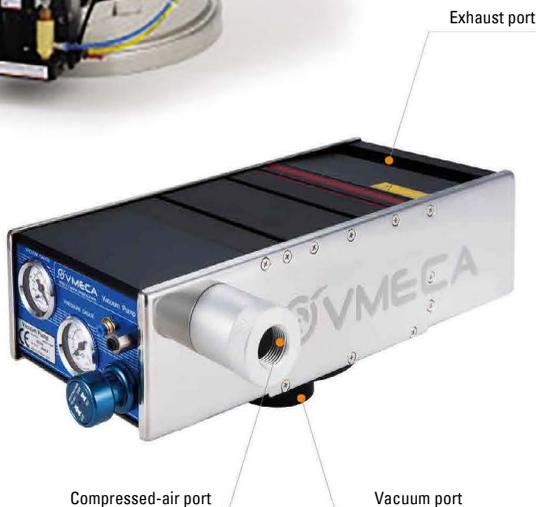




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### Vacuum Conveyor System

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