

techhose

QUALITY CONNECTIONS

Hydraulics

Pneumatics
& Vacuum

Industrial

Compressed Air
& Ring Main

Process &
Instrumentation

Pneumatics

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



| | | | |
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| Suction Cups, Deep | 488-494 | Suction Cups, Oval Type Universal | 474-477 |
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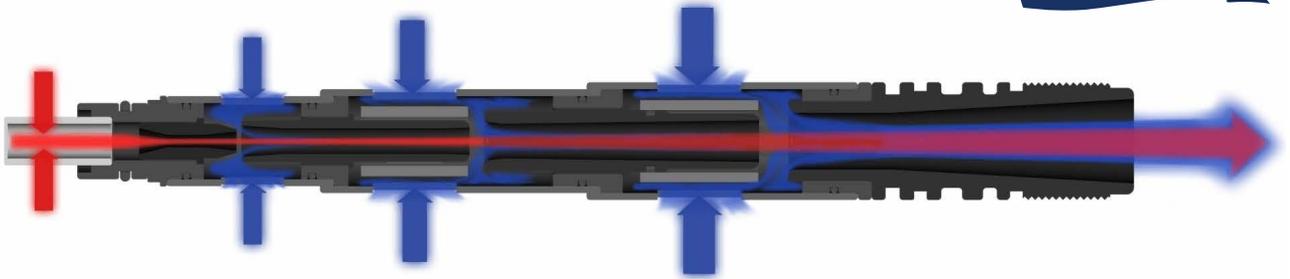
Introducing To You The World's Best Vacuum Products





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.

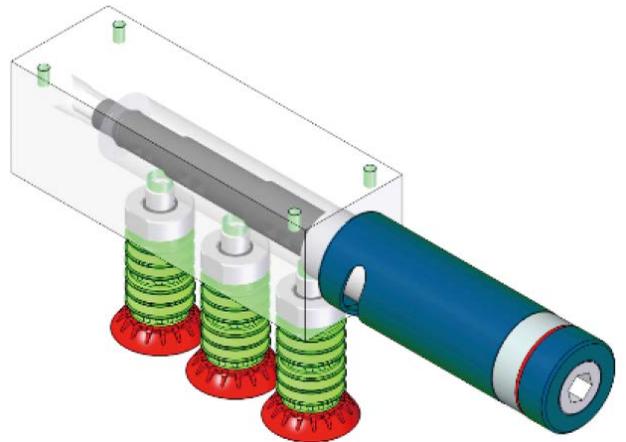
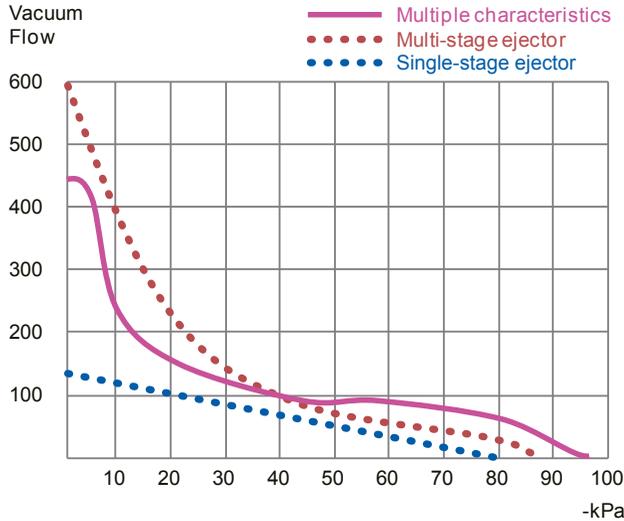
It is 'engineering and design friendly' making it easy to

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

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

2. Vacuum Comparison Table (Pressure Below Atmospheric)

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

3. Pressure Comparison Table (Pressure Above Atmospheric)

| kPa | bar | psi(lbf/in ²) | At(kg/cm ²) |
|------|-------|---------------------------|-------------------------|
| 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^3/s).

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

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

Flow Comparison Table

| l / s | m^3/min | m^3/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

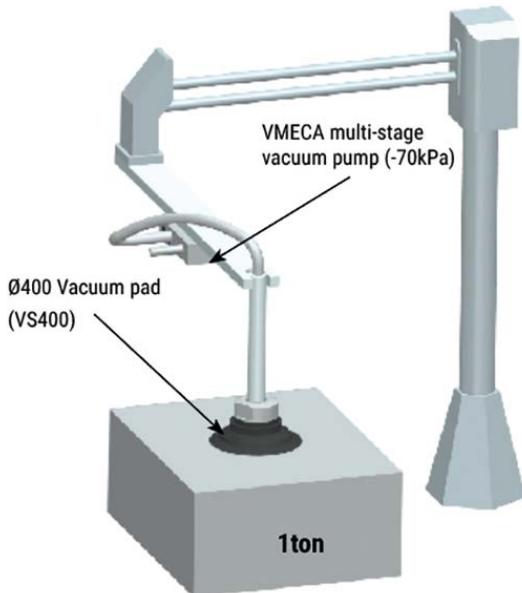
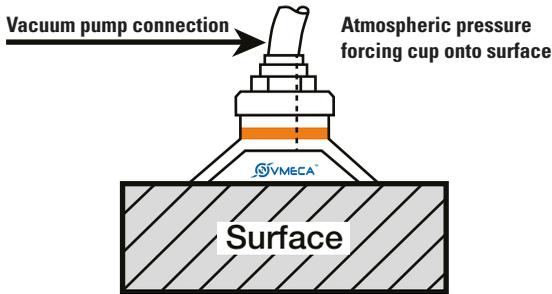
Material handling with suction cup is very simple and reliable with low cost. It is therefore a worthwhile solution before considering more complicated handling techniques.

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.

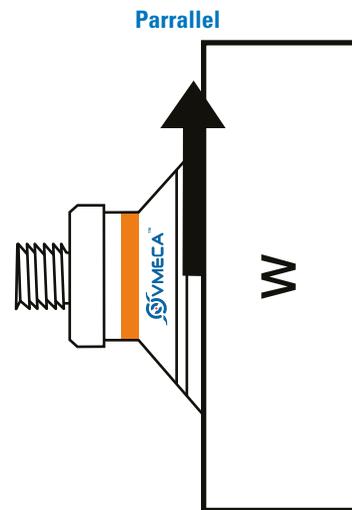
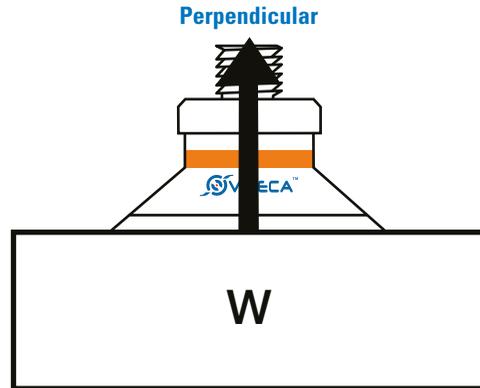


Weights that can be lifted with suction cup

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

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 (cm²)
 n : Safety factor { Perpendicular : insert 2 or 3
 Parallel : 3 insert or 4

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



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| | | |
|---|---|----------|
| VB Series | | Page 452 |
|  <ul style="list-style-type: none"> • Single-bellow suction cup • Diameter range: Ø5 to 150 • Material selection: NBR, silicone, conductive silicone, urethane, polyurethane | | |
| Features & Strengths <ul style="list-style-type: none"> • Compensating for a difference in level • Various materials for a wide range of applications | Advantages <ul style="list-style-type: none"> • 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 | |
| VB-M Series (Direct Fitting Bellows) | | Page 460 |
|  <ul style="list-style-type: none"> • Single-bellow suction cup for direct fitting • Diameter range: Ø20 to 50 • Material selection: NBR, silicone, conductive silicone, urethane | | |
| Features & Strengths <ul style="list-style-type: none"> • Compensating for a difference in level • Various materials for a wide range of applications | Advantages <ul style="list-style-type: none"> • 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 | |
| VB Series | | Page 467 |
|  <ul style="list-style-type: none"> • Bellows and universal suction cup • Diameter range: Ø35 to 55 • Material selection: NBR, silicone, polyurethane | | |
| Features & Strengths <ul style="list-style-type: none"> • Wide cover for increased degree of height compensation • Excellent for curved products and separating thin sheet in stocks | Advantages <ul style="list-style-type: none"> • 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 | |
| VBX Series | | Page 470 |
|  <ul style="list-style-type: none"> • Bellows and cross groove suction cup • Diameter range: Ø35 to 55 • Material selection: polyurethane | | |
| Features & Strengths <ul style="list-style-type: none"> • Wide cover for increased degree of height compensation • Excellent for curved products and separating thin sheet in stocks | Advantages <ul style="list-style-type: none"> • 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 |
|  <ul style="list-style-type: none"> • Long multi-bellow suction cup • Diameter range: Ø15 to 50 • Material selection: NBR, silicone, conductive silicone, urethane | | |
| Application <ul style="list-style-type: none"> • Widely cover for increased degree of height compensation • Excellent for fragile products | Advantages <ul style="list-style-type: none"> • 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 |
|  <ul style="list-style-type: none"> • Dual lip structure suction cup • Diameter range: Ø50 • Material selection: NBR, silicone | | |
| Features & Strengths <ul style="list-style-type: none"> • Excellent for irregular curved surfaces and rough surfaces • Dual lip structure to increase safety caused by lip wear and tear | Advantages <ul style="list-style-type: none"> • Stable and reliable performance by dual lip structure to increase safety caused by lip wear and tear | |



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



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



Index

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



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



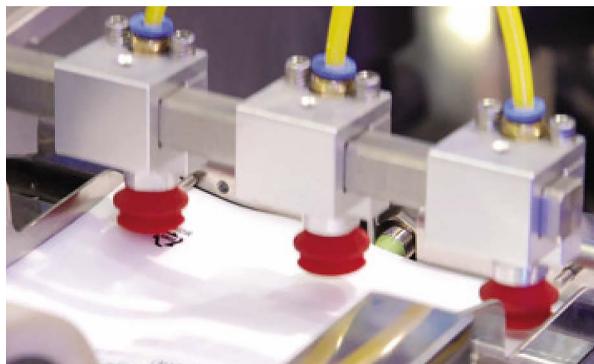


Features & Strengths

- 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 ³) | 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.

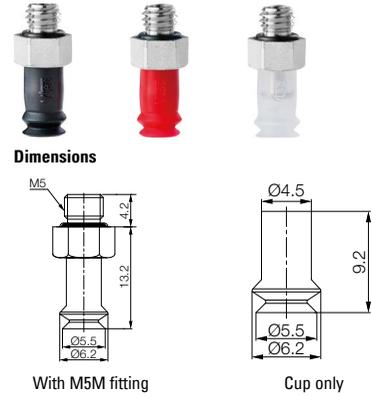
Examples of Use

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

VB Series

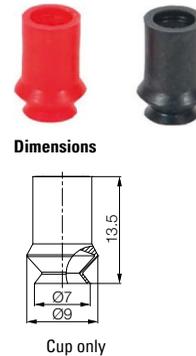
5mm, Cup Only

| 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 |



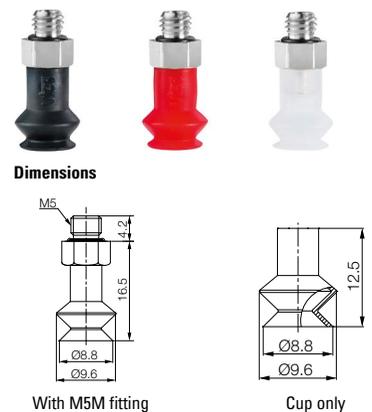
6mm, Cup Only

| 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 |



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 |



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

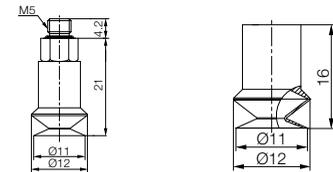
VB Series

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

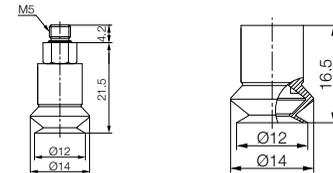
Cup only

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

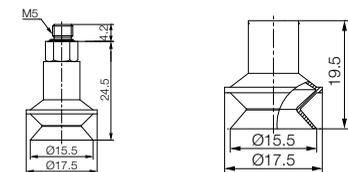
Cup only

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

- 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.

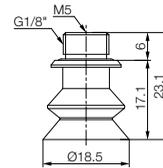
Examples of Use

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

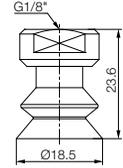
VB Series



Dimensions



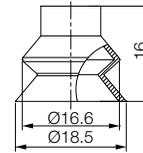
With M518MF fitting



With 18F fitting

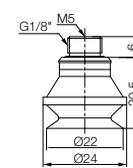
17mm, Cup Only

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

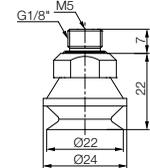


Cup only

Dimensions



With M518MF fitting

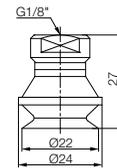


With M518MFB fitting

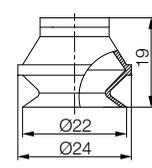


20mm, Cup Only

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

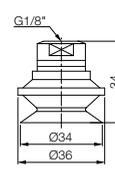
VB Series



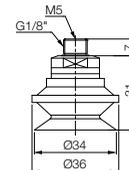
30mm, Cup Only

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

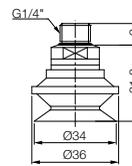
Dimensions



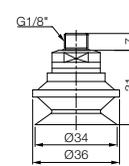
With 18F fitting



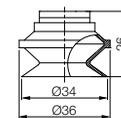
With M518MF fitting



With 14M fitting



With 18M fitting



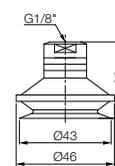
Cup only



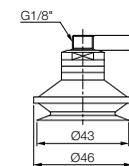
40mm, Cup Only

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

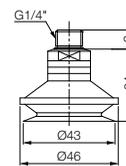
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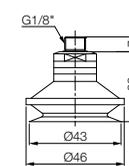
With 18F fitting



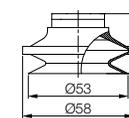
With 18M fitting



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.

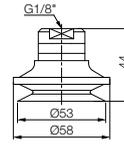
Examples of Use

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

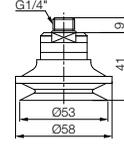
VB Series



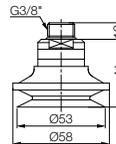
Dimensions



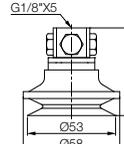
With 18F fitting



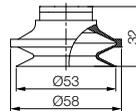
With 14M fitting



With 38M fitting



With 18x5F fitting



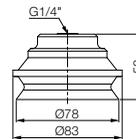
Cup only

50mm, Cup Only

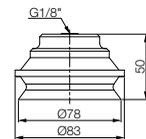
| 9204 | Material | Colour | Temperature | Hardness |
|-------------|---------------------|--------------------|-------------|----------|
| VB50-N | Nitrile | Black | -20°C-110°C | 60 |
| VB50-S | Silicone | Red | -70°C-200°C | 55 |
| VB50-WS | White Silicone | Translucent White | -70°C-200°C | 55 |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



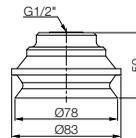
Dimensions



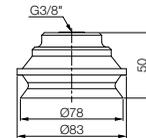
With 14F fitting



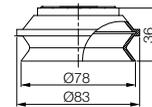
With 18F fitting



With 12F fitting



With 38F fitting



Cup only

75mm, Cup Only

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

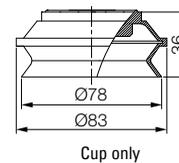
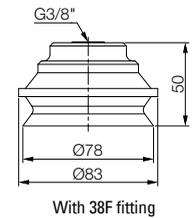
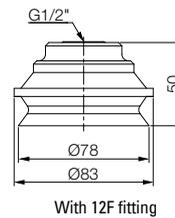
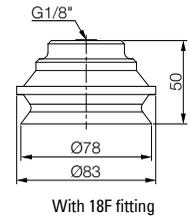
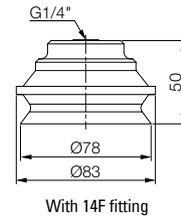
VB Series



75mm with Large Cleats, Cup Only

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

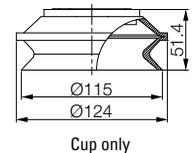
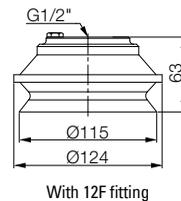
Dimensions



110mm, Cup Only

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

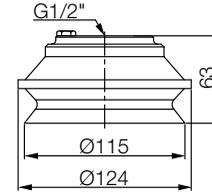
VB Series



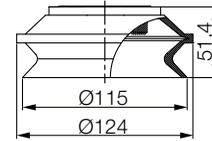
110mm with Large Cleats, Cup Only

| 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



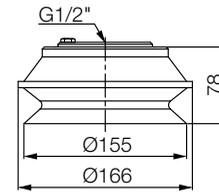
Cup only



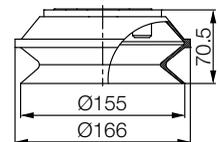
150mm, Cup Only

| 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 ³) | 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

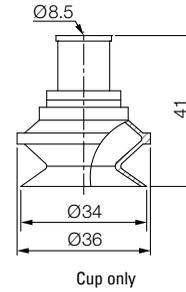
Advantages

- 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

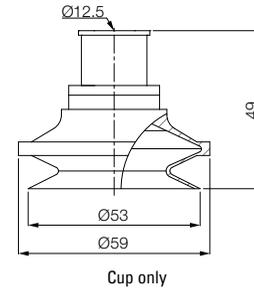
- Cardboards
- Veneer sheets
- Packaging materials
- Plastic sheets
- Thin film sheets

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 ³) | 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 |

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 |



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

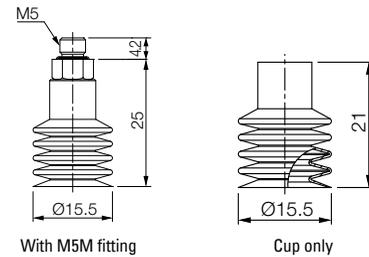
| 9204 | Material | Colour | Temperature | Hardness |
|---------------------|---------------------|-------------------|-------------|----------|
| VBL10-N | Nitrile | Black | -20°C-110°C | 60 |
| VBL10-S | Silicone | Red | -70°C-200°C | 55 |
| VBL10-WS | White Silicone | Translucent White | -70°C-200°C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



15mm, Cup Only

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

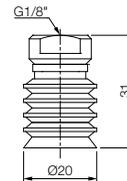
VBL Series



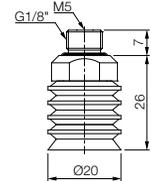
20mm, Cup Only

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

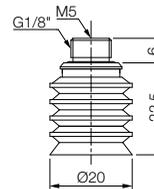
Dimensions



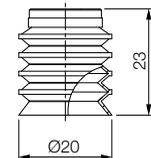
With 18F fitting



With M518MB fitting



With M518MF fitting



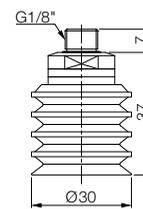
Cup only



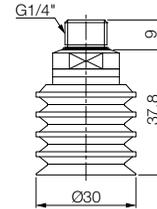
30mm, Cup Only

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

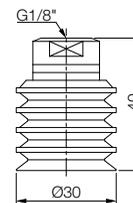
Dimensions



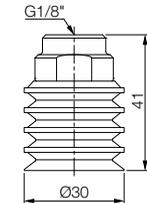
With 18M fitting



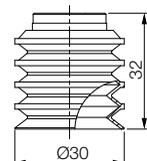
With 14M fitting



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

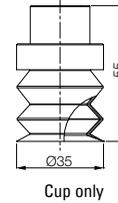
Examples of Use

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

VBL Series



Dimensions

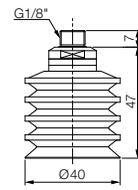
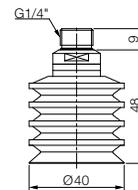


35mm, with Pipe Mount Neck, Cup Only

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

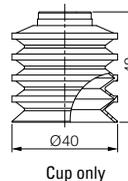
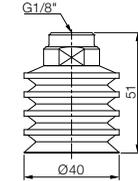
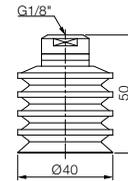


Dimensions



40mm, Cup Only

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

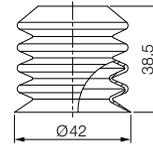
Examples of Use

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

VBL Series



Dimensions



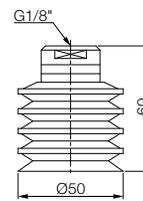
Cup only

40mm, Alternate Design, Cup Only

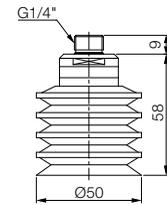
| 9204 | Material | Colour | Temperature | Hardness |
|---------------|---------------------|-------------------|-------------|----------|
| VBL40B-N | Nitrile | Black | -20°C-110°C | 60 |
| VBL40B-S | Silicone | Red | -70°C-200°C | 55 |
| VBL40B-WS | White Silicone | Translucent White | -70°C-200°C | 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 |



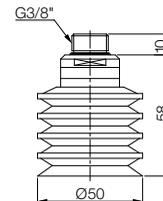
Dimensions



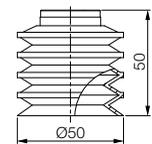
With 18F fitting



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 ³) | 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

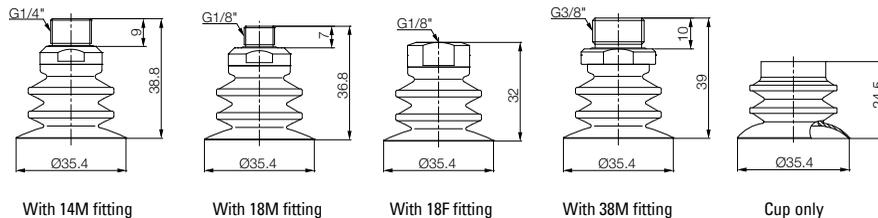
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of height compensation and is particularly good for handling fragile objects

Examples of Use

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

VBU Series

Dimensions

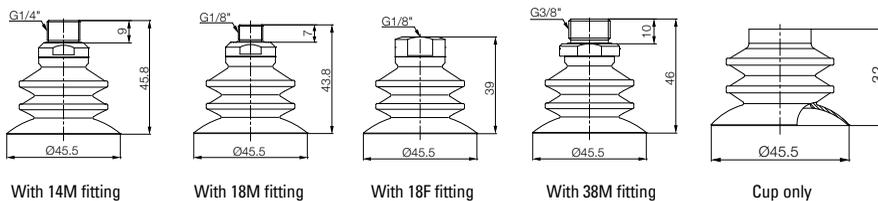


35mm, Cup Only

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



Dimensions



45mm, Cup Only

| 9204 | Material | Colour | Temperature | Hardness |
|---------------------|----------------------|--------------------|-------------|----------|
| VBU45-N | Nitrile | Black | -20°C-110°C | 60 |
| VBU45-S | Silicone | Red | -70°C-200°C | 55 |
| VBU45-WS | White Silicone | Translucent White | -70°C-200°C | 55 |
| VBU45-WS-FDA | White Silicone (FDA) | Translucent White | -70°C-200°C | 55 |
| VBU45-PU | 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

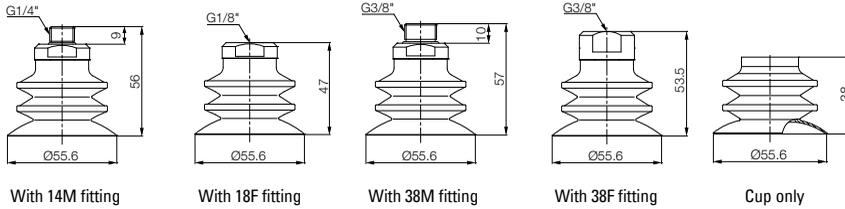
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of height compensation and is particularly good for handling fragile objects

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 ³) | 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 Resistance

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

Material Specifications

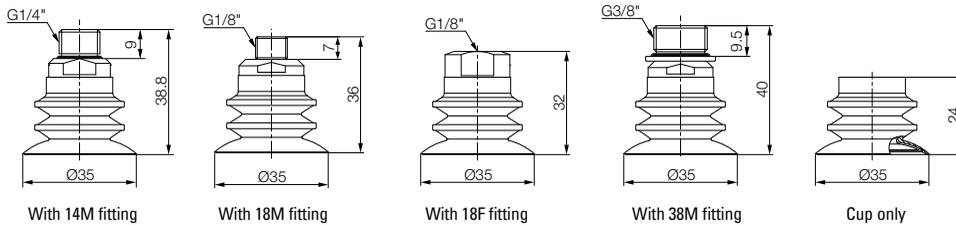
| Material | Hardness Shore (°) | Colour | Temperature (°C) |
|--------------|--------------------|--------------------|------------------|
| Polyurethane | 60 | Translucent Orange | 0 to +60 |





VBX Series

Dimensions

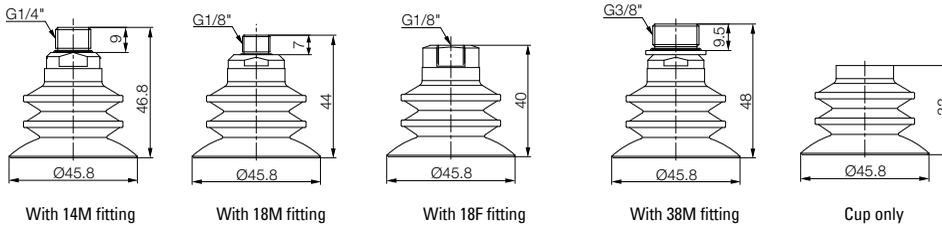


35mm, Cup Only

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



Dimensions

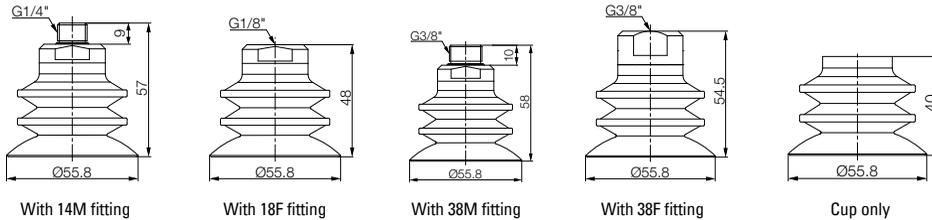


45mm, Cup Only

| 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 ³) | 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

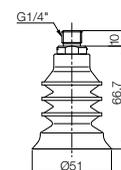
- Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks with long bellows
- Can cope with an increased degree of heights compensation and is particularly good for handling fragile objects

Examples of Use

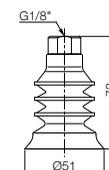
- Round food types (such as apples & oranges)
- Convex surface

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

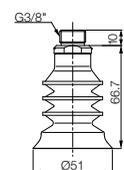
| 9205 | Material | Colour | Temperature | Hardness |
|----------------|----------------------------|-------------------|-------------|----------|
| BL5040-N | Nitrile | Black | -20°C-110°C | 60 |
| BL5040-S3 | Silicone - S3 | Translucent Blue | -70°C-200°C | 30 |
| BL5040-S5 | Silicone - S5 | Red |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

Dimensions

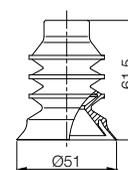
With 14M fitting



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 (cm ³) | Lifting Force (Kg) Perpendicular | |
|-----------|---------------------------|----------------------------------|---------|
| | | -20 kPa | -60 kPa |
| VOBL35x90 | 43.00 | 2.90 | 5.00 |

The lifting force above does not include safety factor.

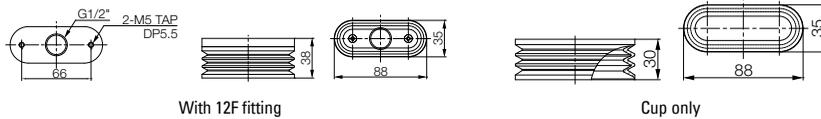
Material Resistance

| 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



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-WVS | 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 ³) | 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

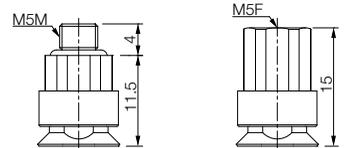
VOU Series



4 x 10mm, Cup Only

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

Dimensions



With M5M Fitting

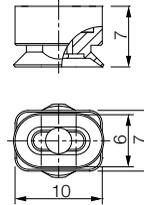
With M5F Fitting



6 x 10mm, Cup Only

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

Dimensions



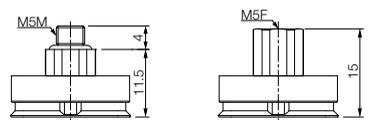
Cup only



4 x 20mm, Cup Only

| 9204 | Material | Colour | Temperature | Hardness |
|-----------------------|----------------------|-------------------|-------------|----------|
| VOU4X20-N | Nitrile | Black | -20°C-110°C | 60 |
| VOU4X20-S | Silicone | Red | -70°C-200°C | 55 |
| VOU4X20-WS | White Silicone | Translucent White | -70°C-200°C | 55 |
| VOU4X20-WS-FDA | White Silicone (FDA) | Translucent White | -70°C-200°C | 55 |
| VOU4X20-CS | Conductive Silicone | Smoky Black | -45°C-90°C | 70 |
| VOU4X20-U | 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

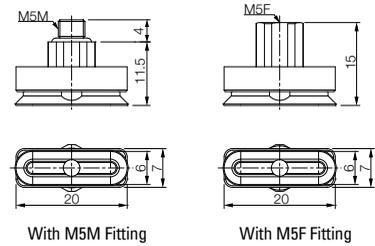
VOU Series



6 x 20mm, Cup Only

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

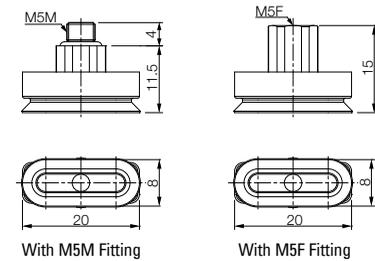
Dimensions



8 x 20mm, Cup Only

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

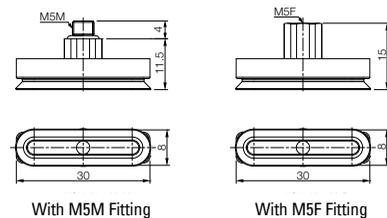
Dimensions



8 x 30mm, Cup Only

| 9204 | Material | Colour | Temperature | Hardness |
|-----------------------|----------------------|-------------------|-------------|----------|
| VOU8X30-N | Nitrile | Black | -20°C-110°C | 60 |
| VOU8X30-S | Silicone | Red | -70°C-200°C | 55 |
| VOU8X30-WS | White Silicone | Translucent White | -70°C-200°C | 55 |
| VOU8X30-WS-FDA | White Silicone (FDA) | Translucent White | -70°C-200°C | 55 |
| VOU8X30-CS | Conductive Silicone | Smoky Black | -45°C-90°C | 70 |
| VOU8X30-U | 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

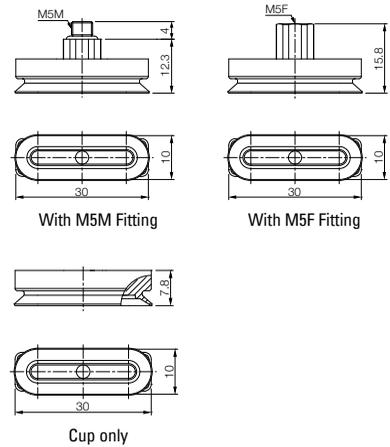
VOU Series



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 |

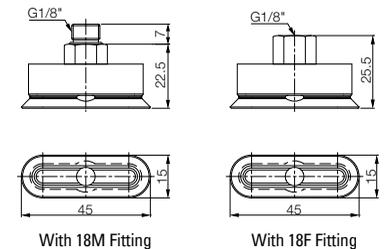
Dimensions



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 |

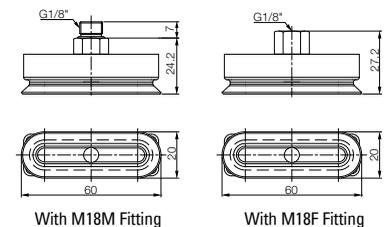
Dimensions



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



Recommended Lifting Force (Maximum)

| Model | Volume (cm ³) | 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 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 |

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



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 |

SUCTION CUPS - UNIVERSAL



Features & Strengths

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

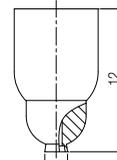
Examples of Use

- 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



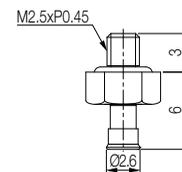
Cup only

1.5mm to suit Level Compensator, Cup Only

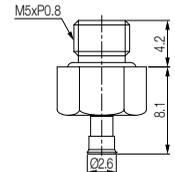
| 9204 | Material | Colour | Temperature | Hardness |
|----------------|----------------------|-------------------|-------------|----------|
| VU1.5X-N | Nitrile | Black | -20°C-110°C | 60 |
| VU1.5X-S | Silicone | Red | -70°C-200°C | 55 |
| VU1.5X-WS | White Silicone | Translucent White | -70°C-200°C | 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



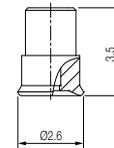
With M2.5M fitting



With M5M fitting

2mm, Cup Only

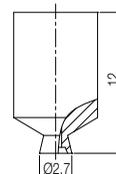
| 9204 | Material | Colour | Temperature | Hardness |
|-------------|----------------------|-------------------|-------------|----------|
| VU2-N | Nitrile | Black | -20°C-110°C | 60 |
| VU2-S | Silicone | Red | -70°C-200°C | 55 |
| VU2-WS | White Silicone | Translucent White | -70°C-200°C | 55 |
| VU2-WS(FDA) | 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

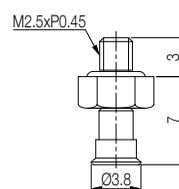
VU Series



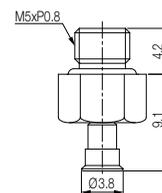
3mm, Cup Only

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

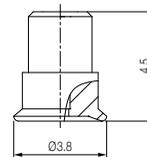
Dimensions



With M2.5M fitting



With M5M fitting



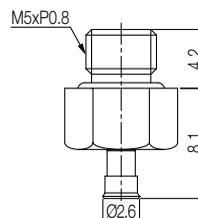
Cup only



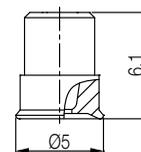
4mm, Cup Only

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

Dimensions



With M5M fitting



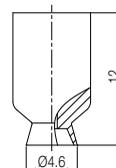
Cup only



4mm to suit Level Compensators, Cup Only

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

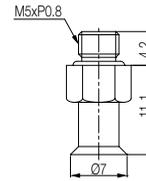
VU Series



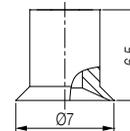
6mm, Cup Only

| 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



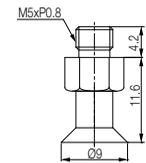
Cup only



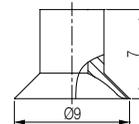
8mm, Cup Only

| 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



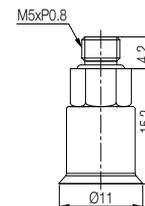
Cup only



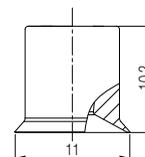
10mm, Cup Only

| 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 |

Dimensions



With M5M 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

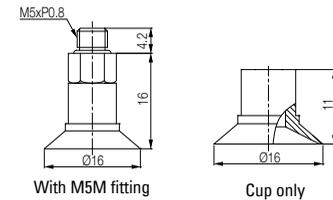
VU Series



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

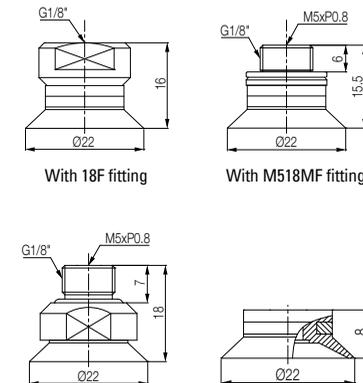
Cup only



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

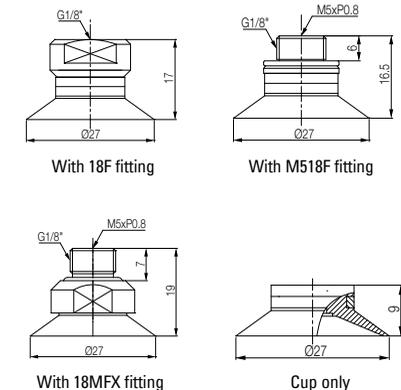
Cup only



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



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

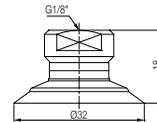
VU Series



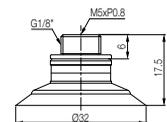
30mm, Cup Only

| 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 |

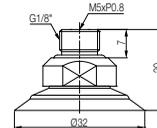
Dimensions



With 18F fitting



With M518MF fitting



With M518MFX fitting



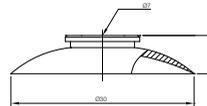
Cup only



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



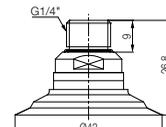
Cup only



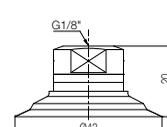
40mm, Cup Only

| 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 |

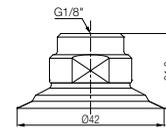
Dimensions



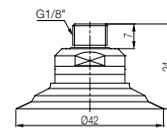
With 14M fitting



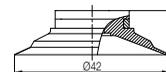
With 18F fitting



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

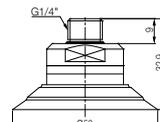
VU Series



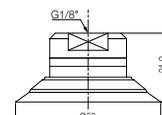
50mm, Cup Only

| 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 |

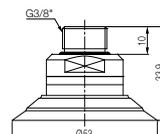
Dimensions



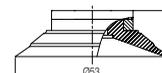
With 14M fitting



With 18F fitting



With 38M fitting



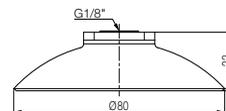
Cup only



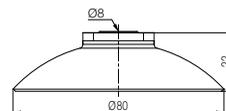
80mm, Cup Only

| 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 (cm³) | 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

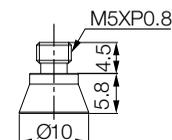
FF Series



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



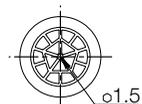
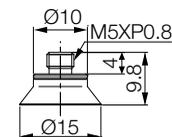
With M5M fitting



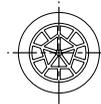
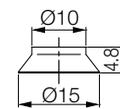
15mm, Cup Only

| 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



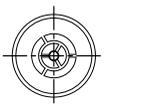
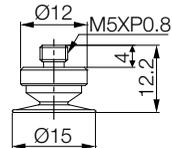
Cup only



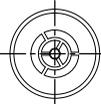
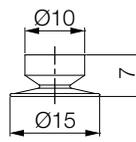
15mm with 7mm Neck, Cup Only

| 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

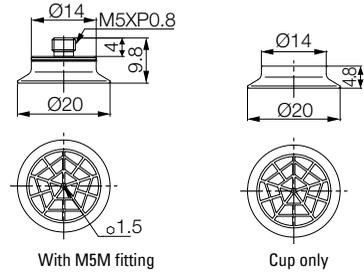
FF Series



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 |

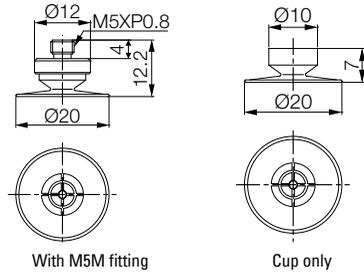
Dimensions



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 |

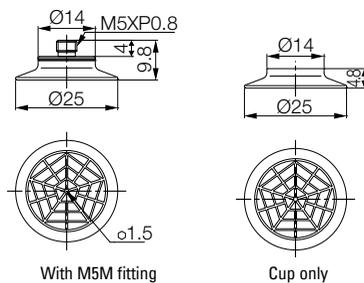
Dimensions



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 |

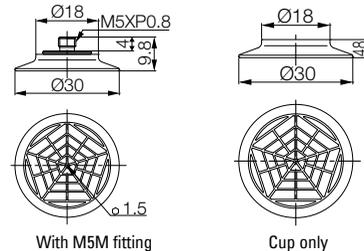
Dimensions



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





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 ³) | 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

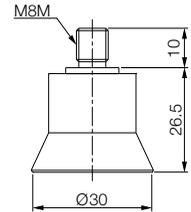
Suitable for Handling

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

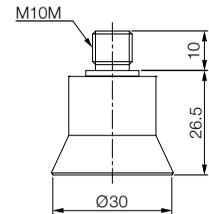
VD Series



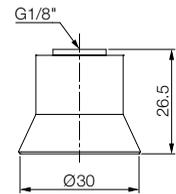
Dimensions



With M8M fitting



With M10M fitting



With 18F fitting

30mm Cups with Fitting

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

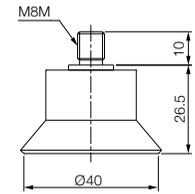
VD Series



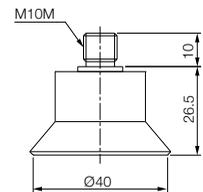
40mm Cups with Fitting

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

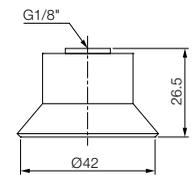
Dimensions



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

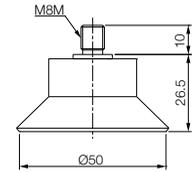
Suitable for Handling

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

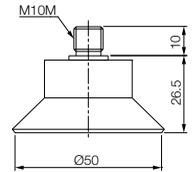
VD Series



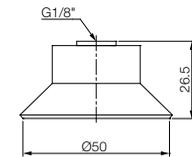
Dimensions



With M8M fitting



With M10M fitting



With 18F fitting

50mm Cups with Fitting

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

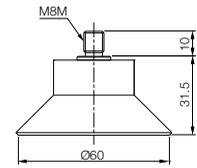
Suitable for Handling

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

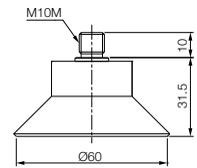
VD Series



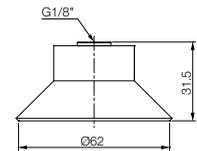
Dimensions



With M8 fitting



With M10M fitting



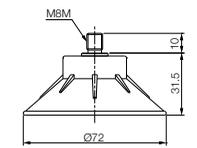
With 1/8" fitting

60mm Cups with Fitting

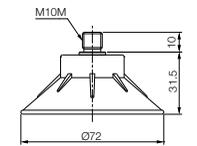
| 9204 | Material | Connection | Colour | Temperature | Hardness | Type |
|-------------------------|----------------------|------------|--------------------|-------------|----------|--------|
| VD60-N-M8M | Nitrile | M8 | Black | -20°C-110°C | 60 | Male |
| VD60-S-M8M | Silicone | M8 | Red | -70°C-200°C | 55 | Male |
| VD60-WS-M8M | White Silicone | M8 | Translucent White | -70°C-200°C | 55 | Male |
| VD60-WS-FDA-M8M | White Silicone (FDA) | M8 | Translucent White | -70°C-200°C | 55 | Male |
| VD60-CS-M8M | Conductive Silicone | M8 | Smoky Black | -45°C-90°C | 70 | Male |
| VD60-U-M8M | Urethane | M8 | Dark Green | 0°C-100°C | 60 | Male |
| VD60-A-M8M | Mark Free | M8 | Black | -10°C-100°C | 75 | Male |
| VD60-PU-M8M | Polyurethane | M8 | Translucent Orange | 0°C-60°C | 60 | Male |
| VD60-N-M10M | Nitrile | M10 | Black | -20°C-110°C | 60 | Male |
| VD60-S-M10M | Silicone | M10 | Red | -70°C-200°C | 55 | Male |
| VD60-WS-M10M | White Silicone | M10 | Translucent White | -70°C-200°C | 55 | Male |
| VD60-WS-FDA-M10M | White Silicone (FDA) | M10 | Translucent White | -70°C-200°C | 55 | Male |
| VD60-CS-M10M | Conductive Silicone | M10 | Smoky Black | -45°C-90°C | 70 | Male |
| VD60-U-M10M | Urethane | M10 | Dark Green | 0°C-100°C | 60 | Male |
| VD60-A-M10M | Mark Free | M10 | Black | -10°C-100°C | 75 | Male |
| VD60-PU-M10M | Polyurethane | M10 | Translucent Orange | 0°C-60°C | 60 | Male |
| VD60-N-1/8F | Nitrile | G1/8" | Black | -20°C-110°C | 60 | Female |
| VD60-S-1/8F | Silicone | G1/8" | Red | -70°C-200°C | 55 | Female |
| VD60-WS-1/8F | White Silicone | G1/8" | Translucent White | -70°C-200°C | 55 | Female |
| VD60-WS-FDA-1/8F | White Silicone (FDA) | G1/8" | Translucent White | -70°C-200°C | 55 | Female |
| VD60-CS-1/8F | Conductive Silicone | G1/8" | Smoky Black | -45°C-90°C | 70 | Female |
| VD60-U-1/8F | Urethane | G1/8" | Dark Green | 0°C-100°C | 60 | Female |
| VD60-A-1/8F | Mark Free | G1/8" | Black | -10°C-100°C | 75 | Female |
| VD60-PU-1/8F | Polyurethane | G1/8" | Translucent Orange | 0°C-60°C | 60 | Female |



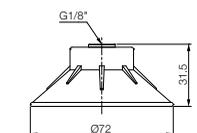
Dimensions



With M8 fitting



With M10M fitting



With 1/8" fitting

70mm Cups with Fitting

| 9204 | Material | Connection | Colour | Temperature | Hardness | Type |
|---------------------|--------------|------------|--------------------|-------------|----------|--------|
| VD70-PU-M8M | Polyurethane | M8 | Translucent Orange | 0°C-60°C | 60 | Male |
| VD70-PU-M10M | Polyurethane | M10 | Translucent Orange | 0°C-60°C | 60 | Male |
| VD70-PU-1/8F | Polyurethane | G1/8" | Translucent Orange | 0°C-60°C | 60 | Female |



Features & Strengths

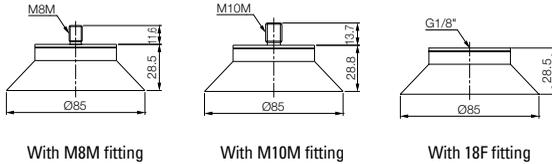
- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

Suitable for Handling

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

VD Series

Dimensions



85mm Cups with Fitting

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



Features & Strengths

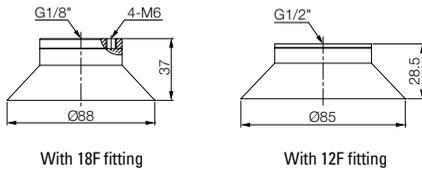
- This cup is best suited to curved or irregular surfaces
- Excellent performance for round corners and edge

Suitable for Handling

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

VD Series

Dimensions



With 18F fitting

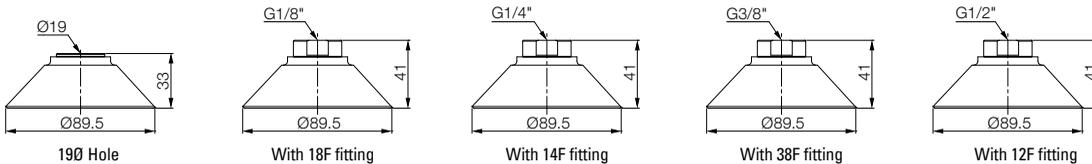
With 12F fitting



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 |

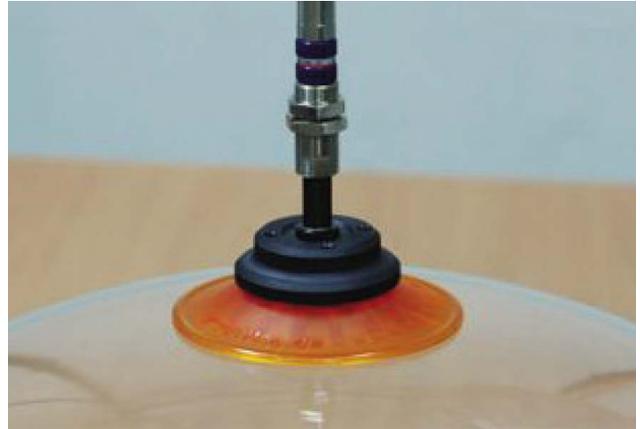
VFC SERIES TECHNICAL INFORMATION

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 ³) | 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

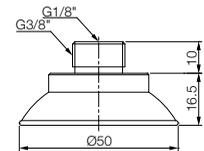
Examples of Use

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

VFC Series



Dimensions



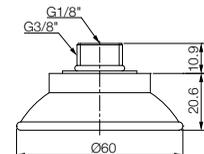
With 1838MF fitting

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

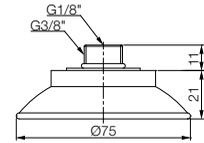
Examples of Use

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





Features & Strengths

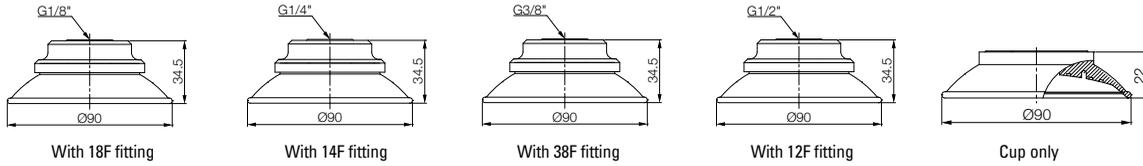
- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

Examples of Use

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

VFC Series

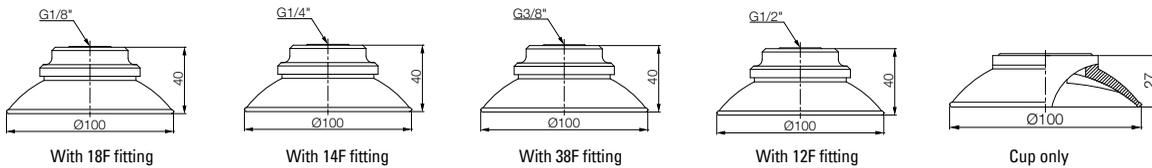
Dimensions



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 |



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

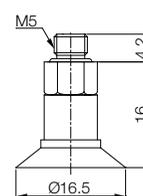
Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

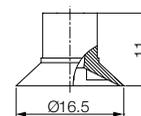
VF Series



Dimensions



With M5M fitting



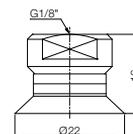
Cup only

15mm, Cup Only

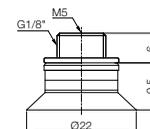
| 9204 | Material | Colour | Temperature | Hardness |
|-------------|----------------------|-------------------|-------------|----------|
| VF15-N | Nitrile | Black | -20°C-110°C | 60 |
| VF15-S | Silicone | Red | -70°C-200°C | 55 |
| VF15-WS | White Silicone | Translucent White | -70°C-200°C | 55 |
| 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 |



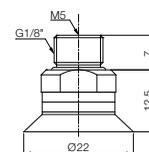
Dimensions



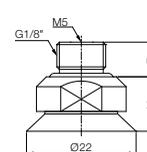
With 18F fitting



With M518MF fitting



With M518MFO 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

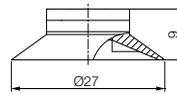
Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

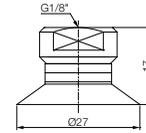
VF Series



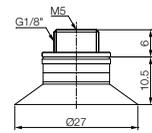
Dimensions



Cup only



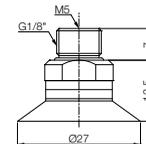
With 18F fitting



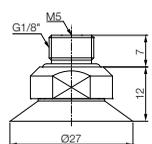
With M518MF fitting

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 |



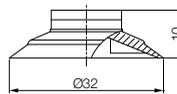
With M518MFO fitting



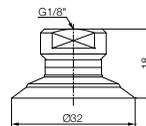
With M518MFX fitting



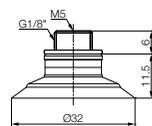
Dimensions



Cup only



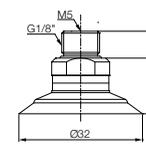
With 18F fitting



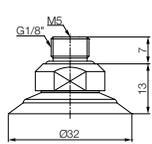
With M518MF fitting

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 |



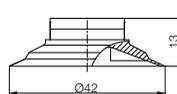
With M518MFO fitting



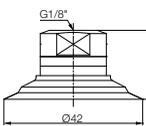
With M518MFX fitting



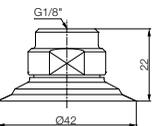
Dimensions



Cup only



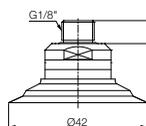
With 18F fitting



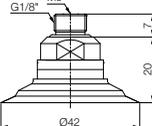
With 18FX fitting

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

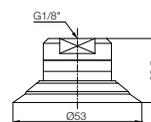
VF Series



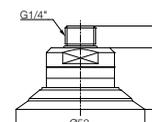
50mm, Cup Only

| 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 |

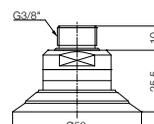
Dimensions



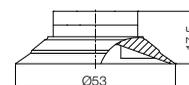
With 18F fitting



With 14M fitting



With 38M fitting



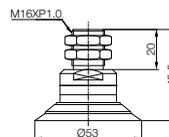
Cup only



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



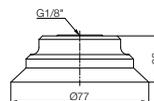
With M16M fitting



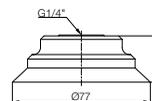
75mm, Cup Only

| 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 |

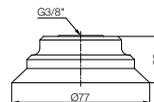
Dimensions



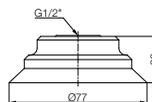
With 18F fitting



With 14F fitting



With 38F fitting



With 12F fitting



Cup only



SUCTION CUPS - FLAT



Features & Strengths

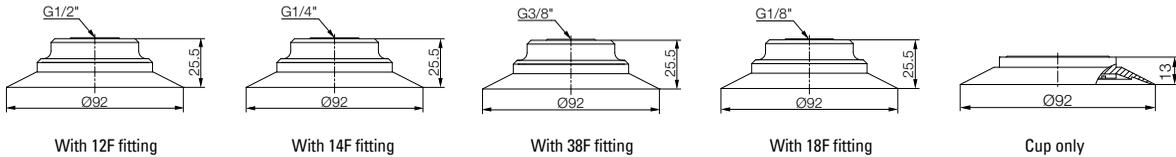
- Specifically designed for flat and curved surface
- Available to handle multiple objects with the same suction cup

Examples of Use

- Metal sheet, veneer sheets, glass, electronic components

VF Series

Dimensions



90mm, Cup Only

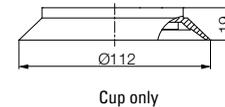
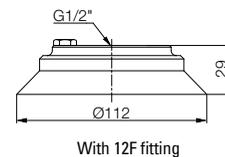
| 9204 | Material | Colour | Temperature | Hardness |
|---------|--------------|--------------------|-------------|----------|
| VF90-PU | Polyurethane | Translucent Orange | 0°C-60°C | 60 |



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 |

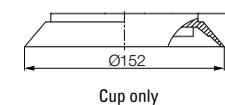
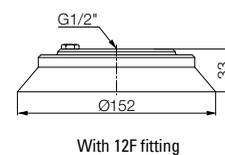
Dimensions



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





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

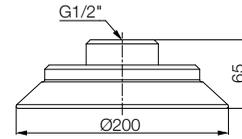
VF Series



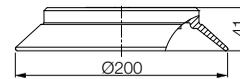
200mm, Cup Only

| 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



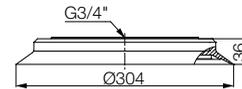
Cup only



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 ³) | 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



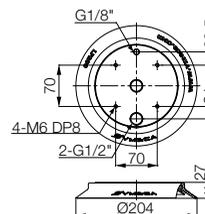
With 12F fitting

| 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

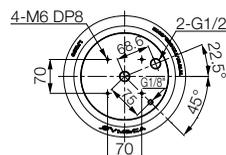
| 9204 | Material | Female Thread | Colour | Temperature | Hardness |
|----------------|--------------------|---------------|-------------------|-------------|----------|
| LF200-N-12F | Nitrile | G1/2" | Black | -20°C-110°C | 60 |
| LF200-S-12F | Silicone | G1/2" | Red | -70°C-200°C | 55 |
| LF200-WS-12F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



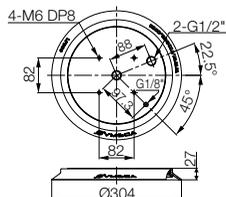
With 12F fitting

| 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 |

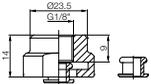
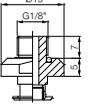
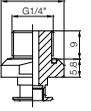
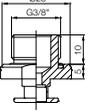
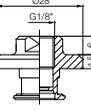
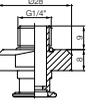
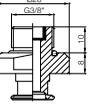
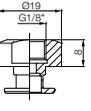
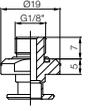
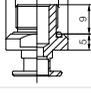


VU/VB/VF/VBL/VBU/VBX/VFC Series

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



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

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



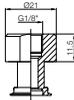
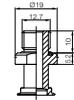
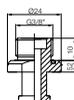
VU/VB/VF/VBL/VBU/VBX/VFC Series

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

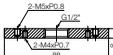




BL5040 Series

| 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 |
| 350 000 4310 |
| 350 010 3310 |
| 350 020 3310 |
| 350 000 3311 |
| 350 000 4311 |
| 350 010 3311 |
| 350 020 3311 |
| 350 000 2311 |
| 350 000 4811 |
| 350 000 3331 |
| 350 000 2304 |

| 9205 |
|--------------|
| 350 000 4304 |
| 350 010 2304 |
| 350 000 3404 |
| 350 000 3804 |
| 350 010 3404 |
| 350 000 3504 |
| 350 000 3904 |
| 350 010 3504 |
| 350 000 3312 |
| 350 000 4312 |
| 350 010 3312 |
| 350 000 1312 |
| 350 000 4912 |
| 350 010 1312 |
| 350 000 3405 |
| 350 000 3805 |
| 350 010 3405 |
| 350 000 3505 |
| 350 000 3905 |
| 350 010 3505 |
| 350 000 3342 |
| 350 010 3342 |
| 350 000 3341 |
| 350 000 4341 |
| 350 010 3341 |
| 350 000 3441 |

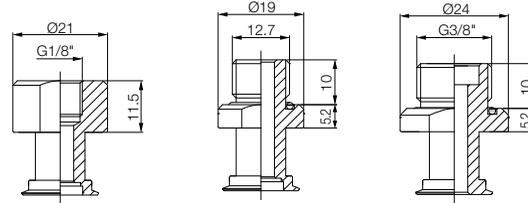
| 9205 |
|--------------|
| 350 000 3841 |
| 350 010 3441 |
| 350 000 3443 |
| 350 000 3843 |
| 350 000 3543 |
| 350 000 3943 |
| 350 010 3543 |
| 350 000 3323 |
| 350 000 4323 |
| 350 020 3323 |
| 350 000 3423 |
| 350 000 3823 |
| 350 000 3523 |
| 350 000 3923 |
| 350 000 3623 |
| 350 000 4023 |
| 350 000 3614 |
| 350 000 4014 |
| 350 020 3614 |
| 350 000 3615 |
| 350 000 4015 |
| 350 020 3615 |
| 350 000 1405 |
| 350 000 3616 |
| 350 000 4016 |





BL5040 Series

Dimensions

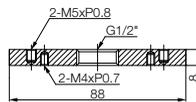


9205

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

VOBL 35 x 90 Series

Dimensions

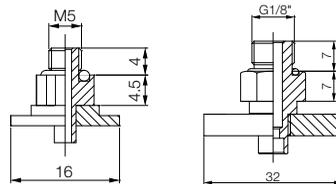


9205

- 350 000 3660

VOU Series

Dimensions

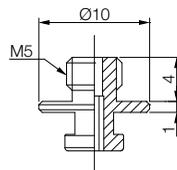


9205

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

FF Series

Dimensions



9205

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





Index

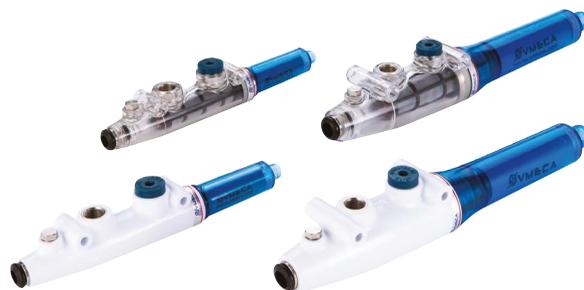
| | |
|--|---|
| Green Pump Page 518 | |
| | <ul style="list-style-type: none"> VMECA vacuum cartridge technology integrated High polished clean surface (= for food, pharma industry) Vacuum filter self-cleaning system |
| Features & Strengths <ul style="list-style-type: none"> Excellent hygiene products for food, pharma and chemical industry Integrated vacuum filter with high dirt capacity Single/dual cartridge option selectable Compact size and light weight | Advantages <ul style="list-style-type: none"> Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption Suitable in application where high level hygiene standard is needed in Compact size and easy installation |
| PM Pump Page 519 | |
| | <ul style="list-style-type: none"> VMECA vacuum cartridge technology integrated High vacuum flow with durable aluminium body |
| Features & Strengths <ul style="list-style-type: none"> Highly operational reliability despite fluctuating or low compressed-air pressure Various connection ports Durable aluminium body | Advantages <ul style="list-style-type: none"> Excellent performance in application that the large vacuum flow is needed Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption Optional air saving kit (AS-KIT) to minimise energy consumption |
| MPM Pump Page 519 | |
| | <ul style="list-style-type: none"> VMECA vacuum cartridge technology integrated Large vacuum flow with up to 16 VMECA vacuum cartridge |
| Features & Strengths <ul style="list-style-type: none"> Highly operational reliability despite fluctuating or low compressed-air pressure Extremely low noise level Available with a three-stage MIDI vacuum cartridge pump integrate Up to 16 cartridges with high vacuum flow | Advantages <ul style="list-style-type: none"> 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 |
| Turtle Pump Page 519 | |
| | <p>VMECA vacuum cartridge technology integrated</p> <p>Vacuum filter in one body with auto filter cleaning system</p> |
| Features & Strengths <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> | Advantages <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> |
| Magic Pump Page 519 | |
| | <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> |
| Features & Strengths <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> | Advantages <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> |
| VCS Pump Page 518 | |
| | <ul style="list-style-type: none"> VMECA vacuum cartridge technology integrated Level compensator and vacuum ejector in one body |
| Features & Strengths <ul style="list-style-type: none"> Highly operational reliability despite fluctuating or low compressed air pressure Integrated with level compensator and vacuum ejector | Advantages <ul style="list-style-type: none"> No need additional level compensator Reliable and stable operation – high vacuum level and vacuum flow in efficient air consumption Compact size and light weight |
| VSM Pump Page 518 | |
| | <ul style="list-style-type: none"> VMECA vacuum cartridge technology integrated Various mounting options for easy installation Extremely low noise level |
| Features & Strengths <ul style="list-style-type: none"> Highly operational reliability despite fluctuating or low compressed-air pressure Multiple connection ports | Advantages <ul style="list-style-type: none"> Fast response time with individual vacuum system available Reliable and stable operation - high vacuum level and vacuum flow in efficient air consumption |





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 | 60 - 65 | 8 | 15 | 15 |
| VTC3032 | 92 | 3 - 4 | 682 | 194 - 304 | | 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

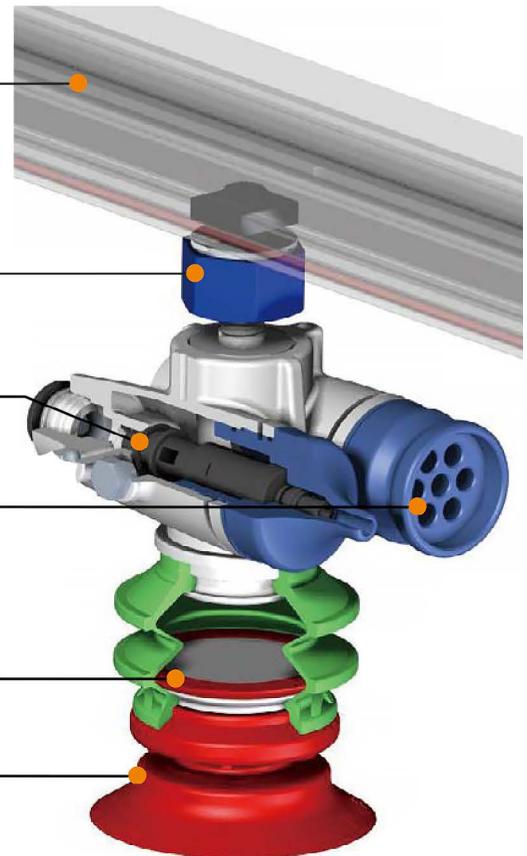
Vacuum generator
(VMECA vacuum cartridge system)

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.

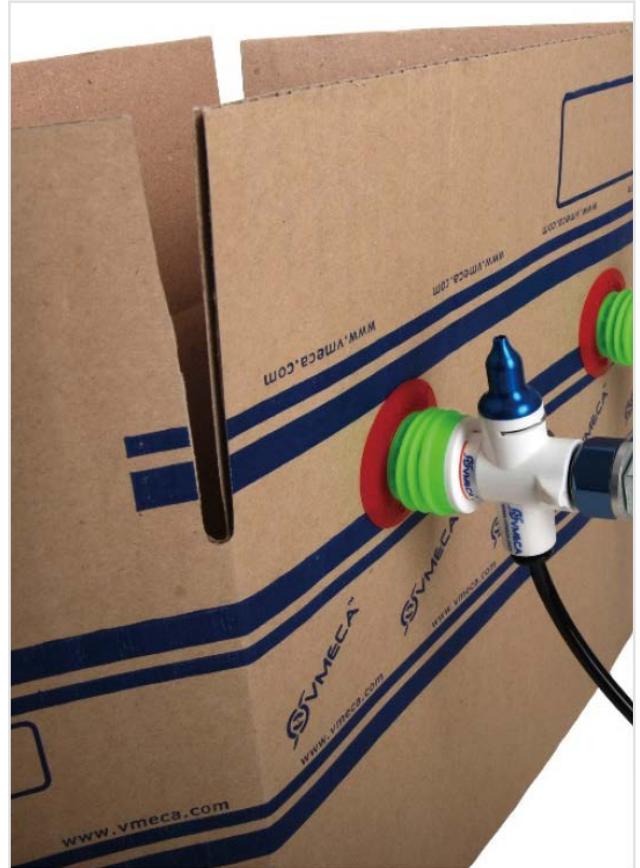
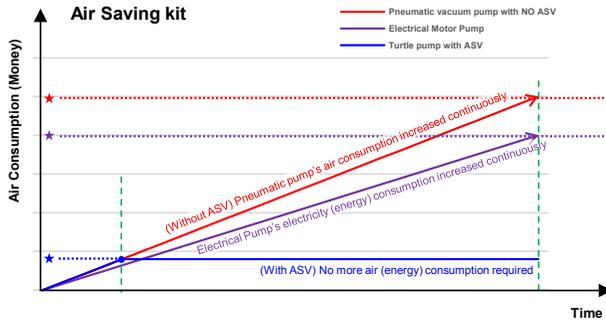
Non-sealed system

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

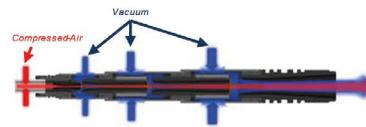
Type - see page 525



Mount options - Available on request



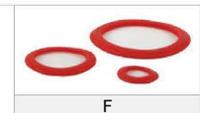
Cartridge - see pages 528-529



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



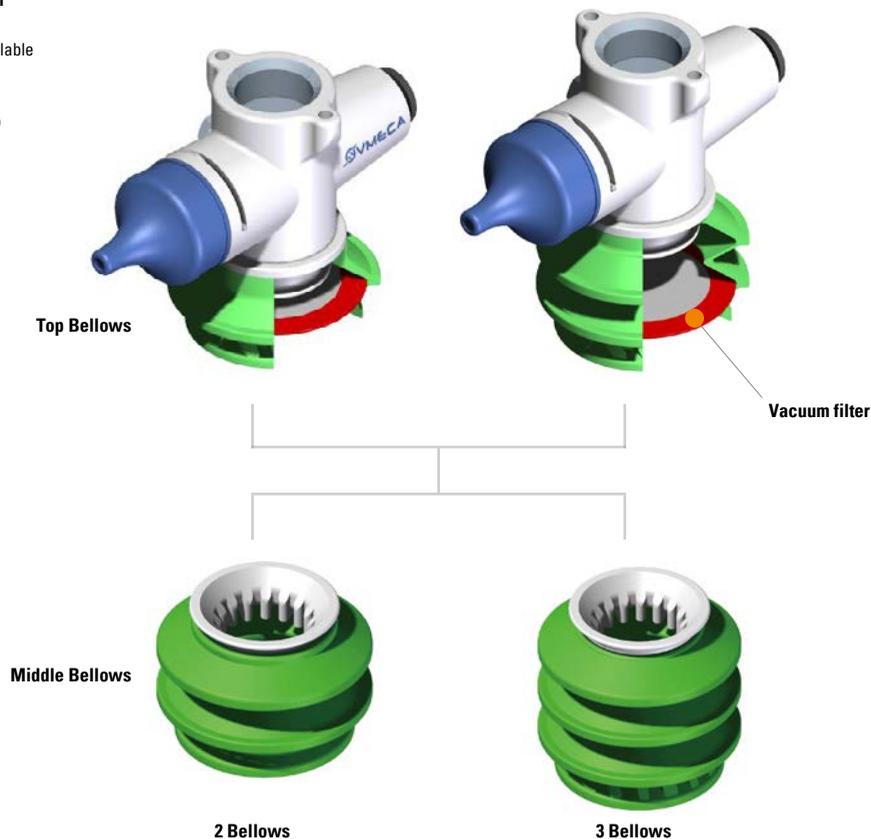
Available on request





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



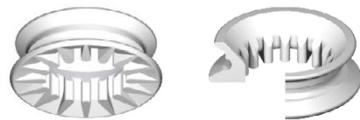
Stopper E

- 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

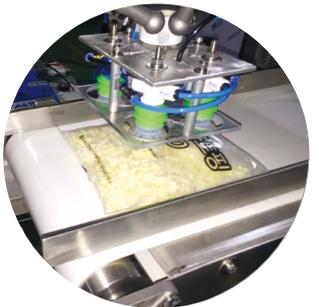


To Suit P, U & X Type Lips

| 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 Oneline 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

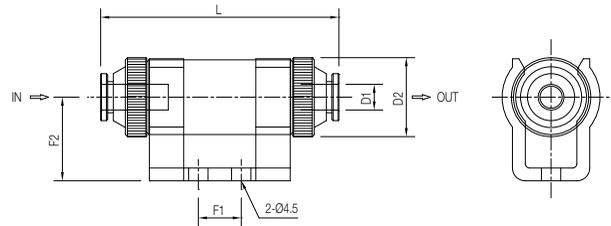
| Model | Tube size (mm) (Outer diameter) | Removal efficiency (µ) | Filter area (mm²) | Temperature (°C) | Weight (g) |
|----------|---------------------------------|------------------------|-------------------|------------------|------------|
| VTF-0706 | 6 | 10 | 7.5 | 0 to +60 | 25.0 |
| VTF-1208 | 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 ³ /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

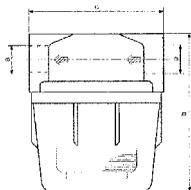


BSP

| 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 ³ /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 ³ /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 |

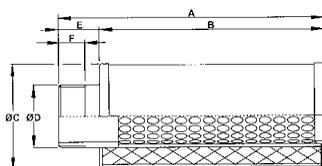
Blower Intake Spare Filter Elements



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



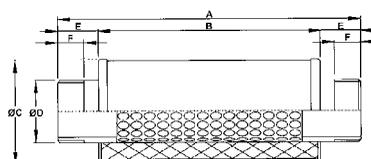
Type SS



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 |

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 |

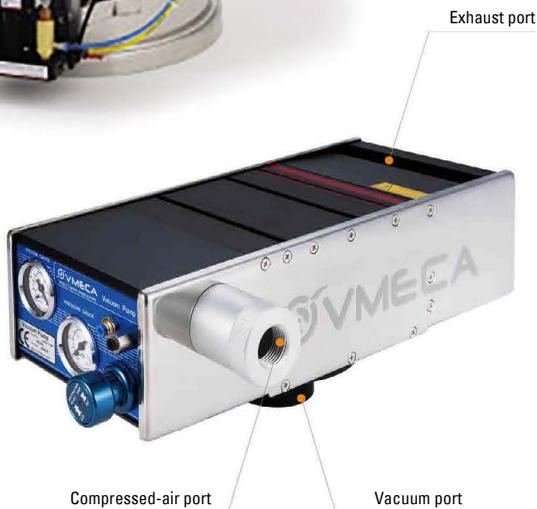




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Vacuum Conveyor System

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- Low Noise Level
- Automatic Filter Cleaning System
- Low Energy Consumption
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- Dustless Conveying
- Acid-Proof
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- Lightweight
- Quick Delivery



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