

VACUUM TECHNOLOGY-I



ISO 9001 CERTIFIED

Multi-stage Vacuum Cartridge
(High Quality Vacuum Technology)

Vacuum Flow & Quick Response
(Improving Productivity)

Check Valves
(Safety & Speed of Evacuation.)

Minimum Compressed Air
(Energy Saving)

VMECA TM

- The “V” in our logo comes from Vacuum technology and “MECA” comes from the Mechanical technology.
- By using the vacuum cartridge icon and blue VTEC color, it clearly reminds that “VMECA” is the same brand as VTEC.
- The VMECA reflects vacuum and mechanical technologies that combines well and supplies complement system to the customers.

KMAR
Certificate No.: ROM1247

Quality Management System Certificate

This is to certify that the quality management system of

KOREA PNEUMATIC SYSTEM CO.,LTD.
at
(Rm 206, Saehan Venture World Bldg.)#113-15, Sheung-dong, Geumcheon-gu, Seoul, Korea

Has been found to conform to the Quality Management System Standards:

KS A 9001:2001 / ISO 9001:2000

This Certificate is valid for the following product or service ranges:

Design, Manufacture and Services of Vacuum Pumps, Vacuum Conveyors, Vacuum Pads, Vacuum Filters and Related Parts

Issue Date: Jul. 9, 2007
Certification Date: Jul. 6, 2007 Valid Date: Jul. 5, 2010

Authorized By: *C.H. Park*
K.H. Park, President

• KMAR indicates that KMAR is accredited by the KAS (No. KAS-02-17)
• KMAR indicates that KMAR is Accredited by the member of the International Accreditation Forum Multilateral Recognition Arrangement
• KSC CODE: 181-9912/ initial certification date: Jul. 8, 2001
KMAR: TONG, 12F, Aca High Tech City, #54-66, Mulsae-dong, 3-gu, Yeongdeungpo-gu, Seoul, 150-992, Korea

TUV NORD

Certificate of conformity with the following European Directives

Registered No.: **K1879/M09**

Machinery Directive 98/37/EC

Reference of applicant	Date of application	File reference	Test report No.	Date of issue	Expiry date
-	08.07.2009	K27-09-302	K41435809	23.07.2009	29.12.2009

This is to certify that the following products comply to the essential requirements (Annex 1) of the above mentioned European Directive and the following standards, taking into account the German national deviations:

Product: Vacuum Pumps
Type designation: VTC 3021, VTC 3022, VTC 3031, VTC 3032
Applicant: Korea Pneumatic System Co., Ltd.
206 Saehan-Ventureworld
113-15 Shiheung-dong, Geumcheon-gu, Seoul 153-839, Korea
Standard(s): EN ISO 12100-2:2003
EN 1012-2:1996

This Certificate of conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TUV NORD CERT. The holder of this certificate may use this Certificate together with his EC-Declaration of Conformity.

762
Certification Body for Product Safety

TUV NORD Korea Ltd.
Tel: +82-2-8000-4222
Fax: +82-2-8000-4223
E-mail: product@tuvnord.or.kr

CE The CE marking can be affixed on the product if all relevant and effective Directives are complied with. CE

TUV NORD

Certificate of conformity with the following European Directives

Registered No.: **K1881/M09**

Machinery Directive 98/37/EC

Reference of applicant	Date of application	File reference	Test report No.	Date of issue	Expiry date
-	08.07.2009	K27-09-302	K41435809	23.07.2009	29.12.2009

This is to certify that the following products comply to the essential requirements (Annex 1) of the above mentioned European Directive and the following standards, taking into account the German national deviations:

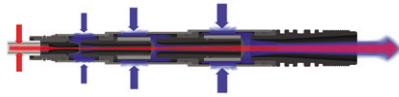
Product: Vacuum Pumps
Type designation: VTC 3132, VTC 3133, VTC 3134
Applicant: Korea Pneumatic System Co., Ltd.
206 Saehan-Ventureworld
113-15 Shiheung-dong, Geumcheon-gu, Seoul 153-839, Korea
Standard(s): EN ISO 12100-2:2003
EN 1012-2:1996

This Certificate of conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TUV NORD CERT. The holder of this certificate may use this Certificate together with his EC-Declaration of Conformity.

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VACUUM TECHNOLOGY

Page 4

VACUUM
TECHNOLOGY



SUCTION CUPS

Page 10

SUCTION
CUPS



VACUUM SPEEDER

Page 75

VACUUM
SPEEDER



VACUUM PUMPS

Page 103

VACUUM
PUMPS



V-GRIP SYSTEM

Page 310

V-GRIP
SYSTEM



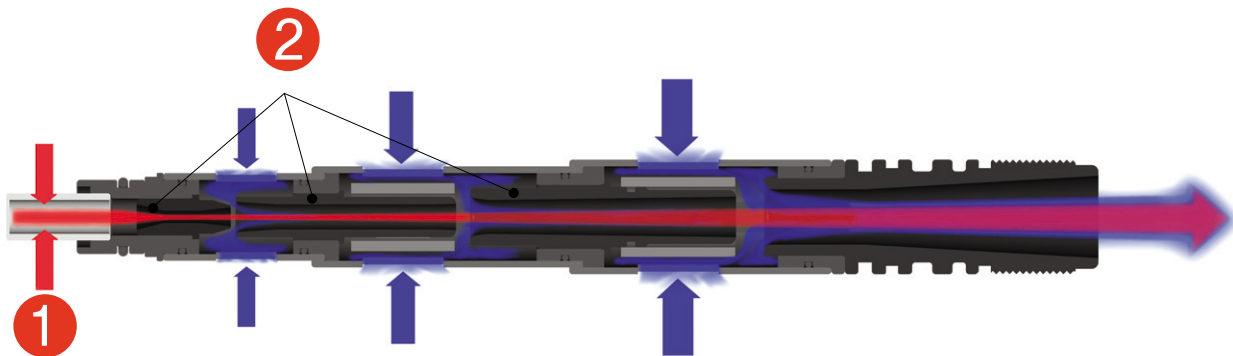
ACCESSORIES

Page 317

ACCESSORIES

• PRINCIPLE

**PATENT &
PATENT PENDING**



- Vacuum is created with an air-jet system when ① compressed air (3-6bar) passes at high speed through the ② pump nozzles.
- VMECA Vacuum Cartridge is a new and innovative multistage vacuum pump.
 - It is extremely compact in size and very light weight.
 - It is “engineering and design friendly” making it easy to create a vacuum pump and system for a specific application or machine.
- The VMECA Vacuum Cartridge provides a high vacuum flow rate (3x higher) and an extremely quick response time (about 1.5x greater) compared to typical and conventional ejectors.
- The VMECA Vacuum Cartridge operates using compressed air at a pressure of 1.7 ~ 6bar and maintains vacuum despite fluctuations and drops in air pressure.
- The VMECA Vacuum Cartridge design allows the pump to be located near or at the point of use reducing system volume, increasing speed and reducing cycle time. Reduced system volume means fewer connections, fewer potential leaks, and less air to evacuate allowing for an incrementally smaller pump using less compressed air.



Vacuum Equipment / Common Precautions

Be sure to before handling.

Selection & Design



Warning

- ▶ **Safe designs should be developed, which accounts for the possibility of accidents resulting from a drop in vacuum pressure due to power failure or trouble with the air supply, etc.**

If vacuum pressure drops and there is a loss of vacuum pad adsorption force, work pieces being carried may fall, causing human injury or damage to machinery, Safety measures should be implemented such as the installation of drop prevention guides.

- ▶ **Follow vacuum specifications for vacuum switching valves and vacuum breakers.**
If valves are installed in vacuum piping which do not follow vacuum specifications, vacuum leakage will occur, Be certain to use vacuum specification valves.
- ▶ **Select vacuum pumps which have a suitable suction flow rate.**
<When there is a vacuum leak from the work piece or the piping>
If the vacuum pump suction flow rate is too low, this will cause poor adsorption.
<When piping is long or large diameter>
The adsorption response time will increase due to the increased volume of the piping. Select vacuum pumps with a suitable suction flow rate by referring to their technical data.
- ▶ **If the suction flow rate is too high, setting of vacuum switches will become difficult.**
In the case of adsorbing a small work piece of only a few millimeters, if an vacuum pump is selected which has a high suction flow rate, the pressure difference when adsorbing and releasing the work piece is small, and sometimes setting of the vacuum switch becomes difficult. Therefore, an appropriate vacuum pump should be selected.
- ▶ **When two or more pads are piped to one vacuum pump, if one pad releases its work piece, the other pads will also release.**
When one pad is removed from its work piece, there is a drop in vacuum pressure which causes the other pads to release their work pieces also.

- ▶ **Use piping with an adequate effective sectional area.**

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



Caution

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

Mounting



Warning

- ▶ **Do not obstruct the exhaust port of the Vacuum pump.**

If the exhaust port is obstructed when mounted, a vacuum will not be generated.

Piping



Caution

- ▶ **Avoid disorganized piping.**
Piping which is direct and of the shortest possible length should be used for both the vacuum and supply sides, and disorganized piping should be avoided. Unnecessary length increases the piping volume, and thus increases the response time.
- ▶ **Use piping with a large effective sectional area on the exhaust side of the vacuum pump.**
If the exhaust piping is restrictive, there will be a decline in the vacuum pump's performance.
- ▶ **Make sure that there are no crushed areas in the piping due to damage or bending.**

Operating Environment



Warning

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

Maintenance



Warning

- ▶ **Clean suction filters on a regular basis. (Refer to specifications).**

The performance of vacuum pumps will deteriorate due to clogging in filters. Large flow filters should be used, especially in dusty locations.

Pressure and vacuum comparison tables

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 ⁻⁶	7.50062X10 ⁻³	0.145038X10 ⁻³	0.001	0.3X10 ⁻³
1 kpa	1000	0.01	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	68.9476X10 ⁻³	70.3069X10 ⁻³	51.7149	1	6.89476	2.07

1Torr = 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	91.3	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 metres per second (m^3/s)

Common multiple units : liter/min, liter/s, liter/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	0.28×10^{-3}	1	16.6667	0.2778	0.5885
1 l/min	16.67×10^{-6}	0.06	1	0.0167	0.035
1 l/s	1×10^{-3}	3.6	60	1	2.1189
1ft ³ /min	0.472×10^{-3}	1.6992	28.32	0.4720	1

Flow rate 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

Thread Systems

ISO THREAD:

Cylindrical metric thread: designated with the letter M. Example M5.

Cylindrical inch thread (also called Unified thread): designated with the letter UNF Example 10-32UNF.

DRY SEAL THREAD (AMERICAN SYSTEM OF PIPE THREADS):

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

Conical thread is designated NPT. Example: 1/8” NPT

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

BSP THREAD (BRITISH SYSTEM OF PIPE THREADS):

The threads have a 55° profile angle and are dimensioned in inches.

Cylindrical thread is designated with the letter G. Example: G1/8” .

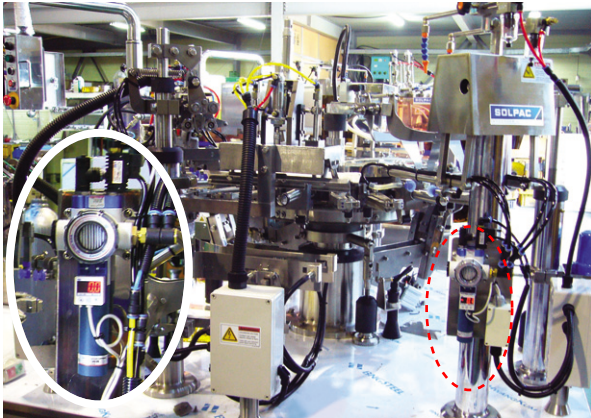
COMPATIBILITY OF DIFFERENT THREAD SYSTEMS:

Please note that some thread size in different thread systems not always fit. See below table.

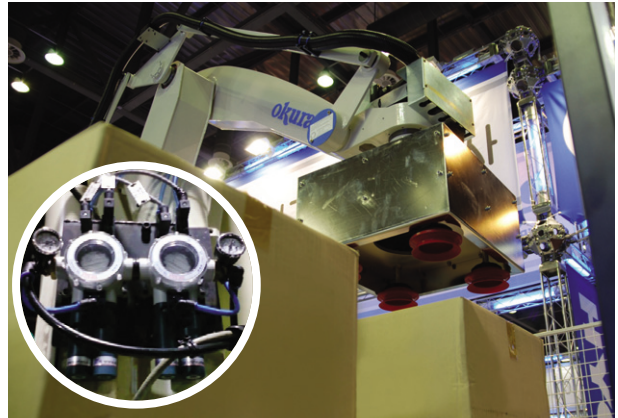
	M5 male	M5 fem.	G1/8" male	G1/8" fem.	G1/4" male	G1/4" fem.	G3/8" male	G3/8" fem.	G1/2" male	G1/2" fem.	G3/4" male	G3/4" fem.	G1" male	G1" fem.	G2" male
10-32UNF fem. or male	+	+++													
1/8" NPSF female			+++												
1/8" NPT fem or male			-	+											
1/4" NPSF female					+										
1/4"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

+++ Fits + Fits short thread - Does not fit

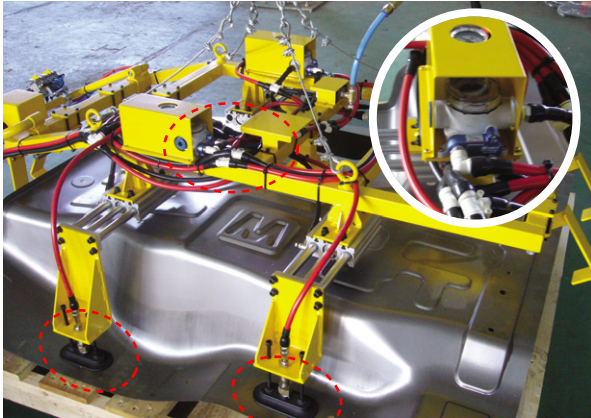
Applications for vtec vacuum equipment



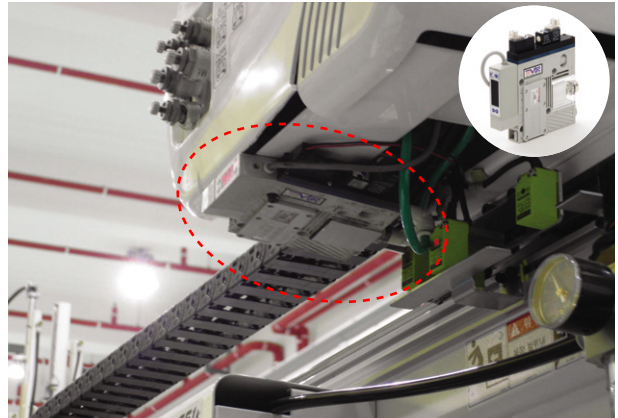
▲ Packaging machine



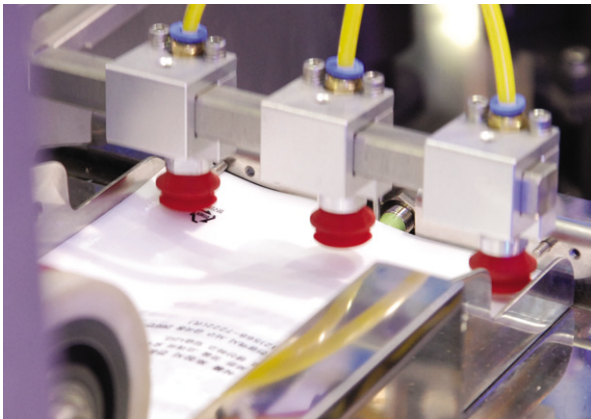
▲ Handling Box for Robotic palletizing



▲ Panel lifting for Automotive industry



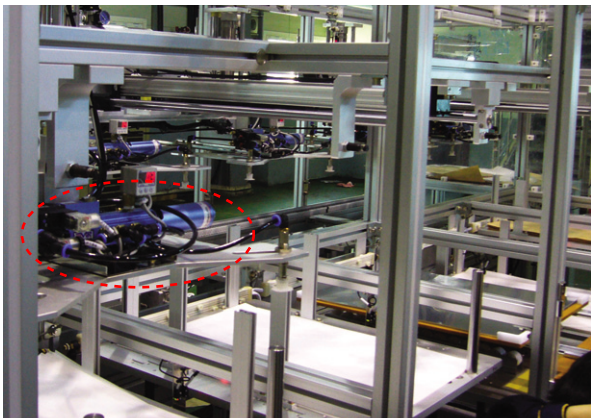
▲ Robot industry



▲ Plastic bag opening



▲ Pick & place for food industry



▲ Thin film feeding

Specifications subject to change without notice.

SUCTION CUPS

VTEC SUCTION CUP TECHNOLOGY

P.11~19



VB series (Bellows) P.20~23



VB-M series (Direct Fitting Bellows) P.24~25



VBF series (Bellows Flat) P.26~29



VBL series (Long Bellows) P.30~33



VU series (Universal) P.34~37



VF series (Flat) P.38~43



VFC series (Flat Curve) P.44~47



VD series (Deep) P.48~49



VS series (Sponge) P.50~51



VOU series (Oval Universal) P.52~53



VOC series (Oval Curved) P.54~55



KPS series (Plastic Bag Opening) P.56~57



NF series (Non-touch Flat) P.58~59



L & BJ series (Level Compensator and Ball Joint and Fitting Connector) P.60~67



Fittings for Suction cups P.68~74



1. Advantages of suction cup

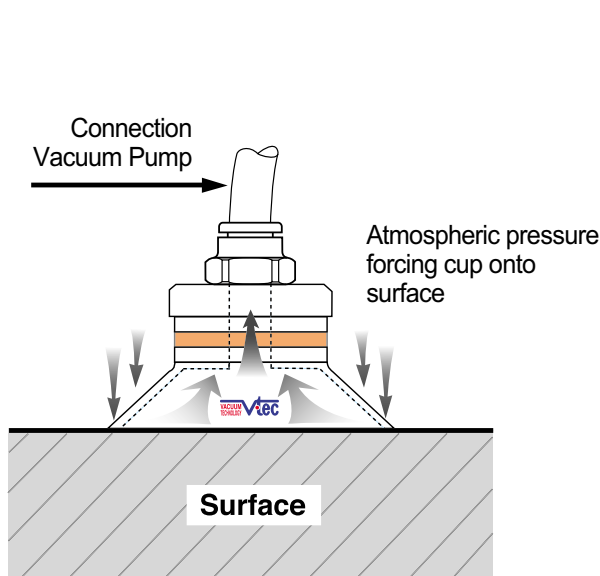
Materials' handling with suction cup is very simple low cost and reliable. It is therefore a solution worth using before considering more complicated handling techniques. Suction cups can lift, and hold objects from a few grams up to several kg.

► Advantages

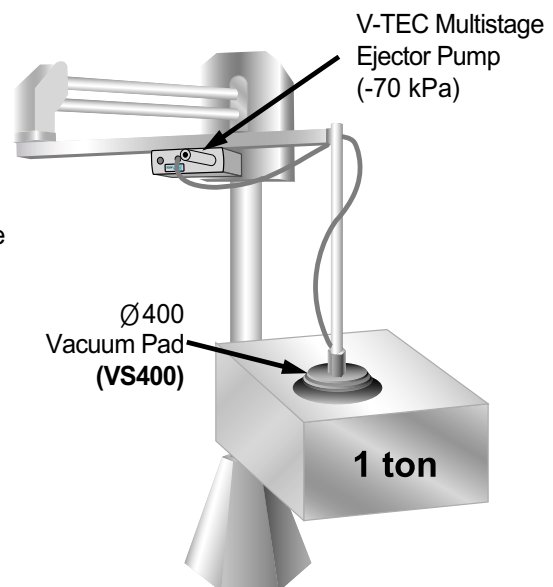
- ✓ Easy installation
- ✓ Low service requirement
- ✓ Low price
- ✓ Does not damage the goods
- ✓ Fast attachment and detachment

2. The principle of suction cup

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



How a suction cup works.



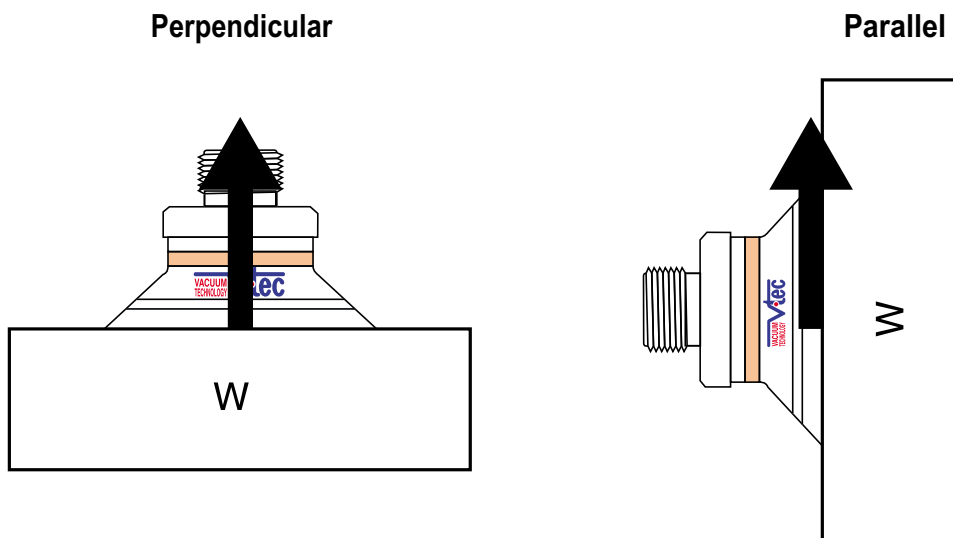
Weights that can be lifted with suction cups.

3. How to select the suction cup

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

- D : Suction cup dia. (mm)
- m : Mass to lift (kg)
- u : Vacuum level (-kPa)
- n : Safety factor (2 or 3)
- s : Quantity of cup

4. Calculating achievable perpendicular / parallel lifting force (-60kPa=-450 mmHg)



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

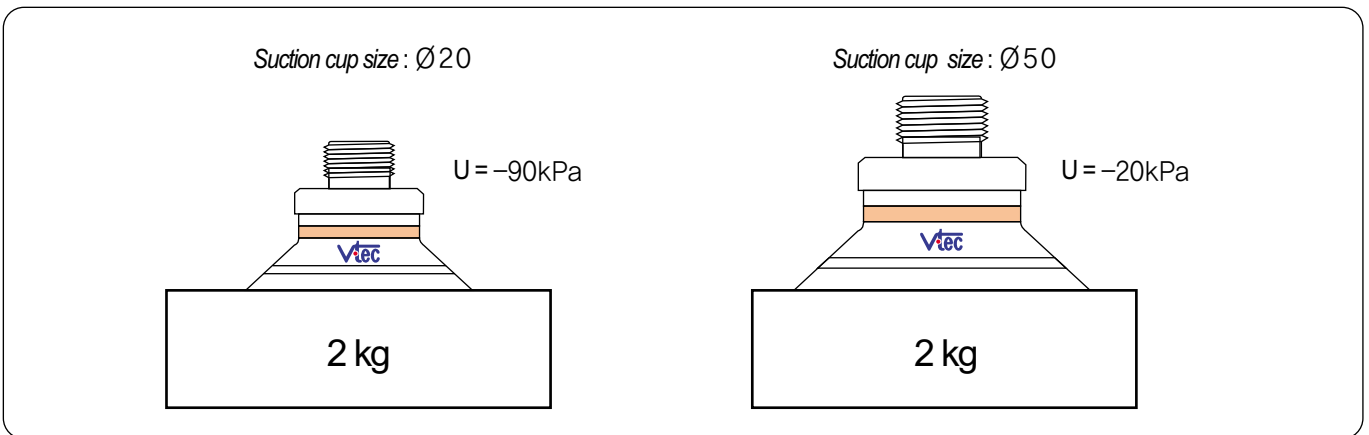
$$W = P \times S \times 0.1 \times \frac{1}{n}$$

5. Recommended vacuum level to use (-60kPa)

There are several reasons why -60 kPa is the optimum vacuum level to use with suction cups. The energy required creating -60 kPa is low in comparison to that required generating -90 kPa. The additional lifting force that can be achieved between these two levels is not that high, considering that it takes approx ten times as much energy to create the -90 kPa level. If a vacuum circuit is designed to run at -90 kPa then clearly there is very little capacity left in the pump performance, thus no margin for error. Lastly suction cups running at -90 kPa adhere to the surface with far more contact force, hence stressing the cup much more, which will result in premature wear of the cup itself.

For example

Object	Vacuum level	Cup size
2kg	-90kPa	Ø20
	-60kPa	Ø30
	-20kPa	Ø50



Lifting force comparison table for cup size

Cup Size (mm)	-60kPa Lifting force(kg) Perpendicular				-60kPa Lifting force(kg) Parallel			
	Safety factor force (kg)		force (kg)		Safety factor force (kg)		force (kg)	
	min	max	min	max	min	max	min	max
Ø2-8	0~0.005	0~0.145	0~0.01	0~0.295	0~0.002	0~0.098	0~0.008	0~0.295
Ø10-15	0~0.17	0~0.43	0~0.34	0~0.86	0~0.14	0~0.23	0~0.44	0~0.71
Ø20-25	0~0.31	0~1.25	0~0.63	0~2.5	0~0.27	0~0.83	0~0.81	0~2.5
Ø30-35	0~0.81	0~2.55	0~1.63	0~5.1	0~0.33	0~1.08	0~1	0~3.26
Ø40	0~1.12	0~2.9	0~2.24	0~5.81	0~0.74	0~1.66	0~2.24	0~5
Ø50-60	0~2.19	0~7.65	0~4.38	0~15.3	0~1.25	0~2.89	0~3.77	0~8.67
Ø75-80	0~8.16	0~10.2	0~16.32	0~20.4	0~3.74	0~6.8	0~11.22	0~20.4
Ø100-115	0~17.5	0~22.9	0~35	0~45.9	0~7.99	0~8.5	0~23.97	0~25.51
Ø150	0~35.0	0~43.3	0~70	0~86.7		0~20.4		0~61.22
Ø200-300	0~96.9	0~219.3	0~193.8	0~438.7	0~45.88		0~137.64	

6. Applications for suction cups

Vtec suction cups are available in a wide range of shapes, sizes, materials and configurations. The standard cups range from 2mm to 400mm in diameter, with lifting forces of up to 1300kg at - 90kPa. Many types of object and materials can be lifted, flat, curved, smooth, coarse, dense and porous. All the cups are manufactured to very high standards, and cups can be ordered separately or complete with fitting.

How to select a suction cup

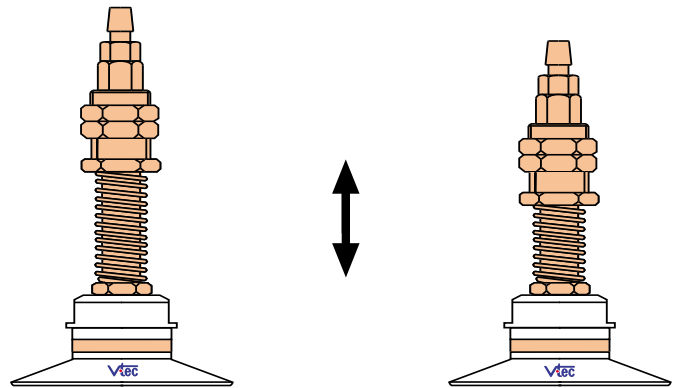
1. Choose the model depending on the shape of object to lift.
2. Choose the size of the cup based on the weight of the object to lift.
3. Choose the material of the cup based on the working environment and surface texture.
4. Select the fitting size to suit the application.
5. Select the accessory depending on the application i.e.. level compensator or ball joint.

Type	Description	Some Applications
VB (Bellows) 20 ~ 23 	The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece	Sheet Veneer Plastic Sheets Thin Film Sheets Cardboard Boxes and Electronic components
VB-M (Direct Fitting Bellows) 24 	Same general advantages to that of the normal bellows cups but can be fitted directly onto a piece of pipe, thus making installation very simple and reducing pad costs to a minimum, very suitable for integration to packaging machines.	Sheet Veneer · Plastic Sheets Cardboard boxes Cardboard Packaging Materials Thin Film Sheets
VBF (Bellows & Flat) 26 ~ 29 	Good lifting force can be achieved with this cup in the vertical plane. Prevent transformation when lifting metal thin plate.	· Vaneer sheets · Sheet metal · Automotive body panels and door · Plastic sheets · plywood · Glass
VBL (Long Bellows) 30 ~ 33 	Similar advantages to that of the normal bellows cups but can cope with an increased degree of height compensation and is particularly good for handling fragile objects	Fragile Objects · Eggs General Foodstuffs · Bread Glass
VU (Universal) 34 ~ 37 	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.	Small Components Semiconductor Chips Packaging Materials Sheet Metal
VF (Flat) 38 ~ 43 	Again good lifting forces can be achieved with this pad; optimum-lifting forces can be achieved with this cup in the horizontal plane, but is also good in the vertical plane.	Sheet Metal Veneer Sheets Plastic Sheet Material Electronic Components
VFC (Flat Curve) 44 ~ 47 	This pad is specifically designed to cope with both flat and curved surfaces, which means that multiple objects can be handled with the same vacuum pad	Automotive Windscreens Shaped Sheet Metal Panels Sheet Metal
VD (Deep flat) 48 ~ 49 	Features and strengths This is best suited to curved or irregular surfaces Also, it is deep and grip around corners and edges.	Plastic sheets Sheet veneer Sheet metal Shaped sheet metal panels
VOU (Oval Universal) 52 ~ 53 	Best suitable for handling long objects With flat and curved surfaces	Semiconductor chips Electronic components Small ampul
VOC (Oval Curved) 54 ~ 55 	This pad is best suitable for handling long objects With flat or curved surfaces. Specially, parallel to the surface of the object it has a thick and durable lip.	Long objects with flat Curved surfaces Shaped sheet metal panels
VS (Sponge) 50 ~ 51 	Used for handling rough and uneven surfaces and when used with ball joint option and level spring option can accommodate very unlevel and uneven surfaces.	Handling thin Film with adjustable support Rough Wood Paving Slabs Masonry Bricks
KPS (Plastic Bag Opening) 56 ~ 57 	Developed to be used for opening plastic bags this pad gives good adhesive to thin plastic and film type materials.	Thin film sheet and plastic bags, Plastic Bag Opening, paper Bag Handling Thin Film Materials
NF (Non-touch Flat) 58 ~ 59 	Non-contact handling item. Safe gripping with mark free. No moving parts.	Circuit boards, CDs and DVDs, Metal, Wood, Packaging, Plastic, Thin products, Film, Paper, Mirrors, Paper-board..

7. Accessories

Level Compensator

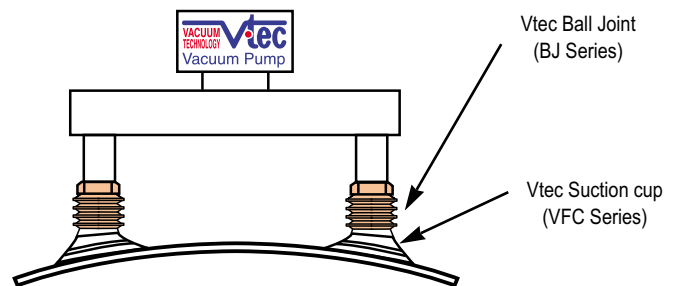
The Vtec level Compensator is used to compensate for differences in height on the surface of the material that is to be lifted. The advantage being a more reliable and less precise pick up position when handling product that may be less consistent in its shape, size and position. The level compensator also provides a degree of shock absorption should this be required. The level compensator come in configurations with varying sizes of spring and stroke.



SUCTION
CUPS

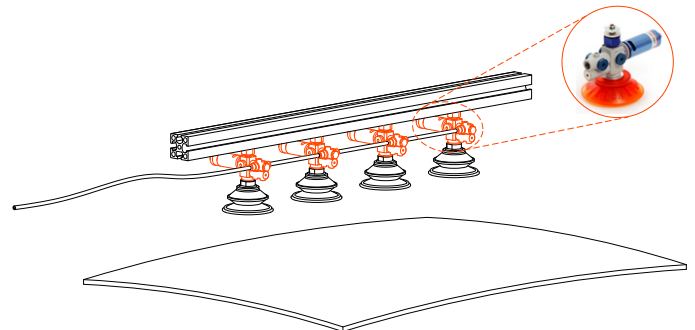
Ball Joints

The Vtec Ball Joint or sometimes referred to as a universal joint is for use when a degree of angular compliance is required, more commonly used with flat type cups which unlike bellows do not allow for much angular compliance as part of their design. The vacuum port is integral through the center of the joint thus providing a neat and compact solution.



Vacuum speeder

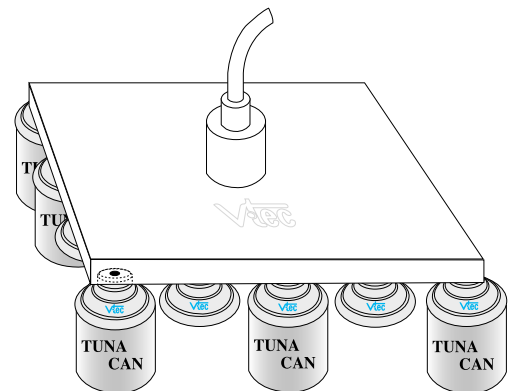
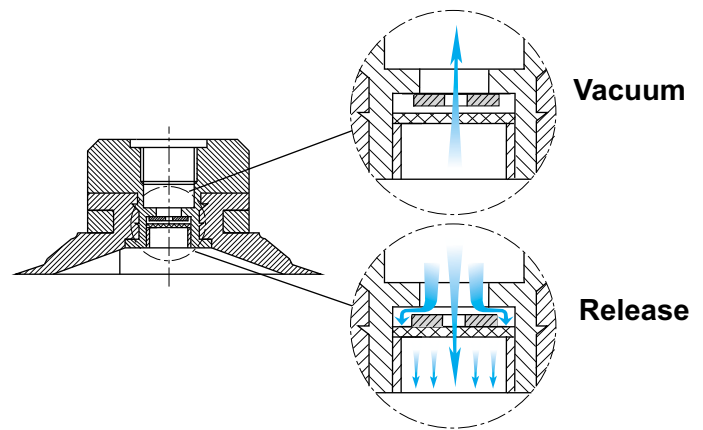
Vacuum speeder is a combination of a vacuum cartridge and suction cup. VSM is available for various mounting options, accessible parts, and interchangeable parts. Due to this it is easily possible to make a compact and simple vacuum system. The vacuum cartridge is located close to the suction point providing you with an extremely quick response time.



7. Accessories

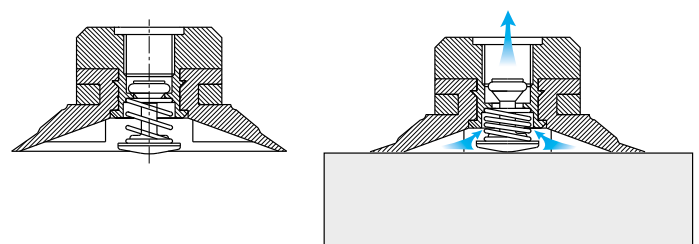
Vacuum Efficiency valve (EV)

Ordered as an integral part of the suction cup, the valve is useful on applications where multiple cups are used and not all cups come into contact with surface to lifted. The valve has a small vacuum port so as not to degradate the vacuum supply if the cup is uncovered whilst still providing enough flow to achieve the required vacuum. When the cup comes in contact with the surface only the volume inside the cup has to be evacuated. When release of the product is required, this can still be done quickly, because as air is forced back through the cup the plate valve opens up and allows full flow through. This valve is only suitable for use with smooth surface non-porous materials.



Button Valve : BV

When the suction cup is not in contact with the object, the valve closes the opening in the fitting. No air can flow through the suction cup and the pump does not need to compensate for leakage. The system is not disturbed and vacuum is maintained up to the fitting. The valve first opens when the suction cup makes contact with the object. The air can then flow through the fitting and vacuum is created in the cup.



8. Material and characteristic of suction cup

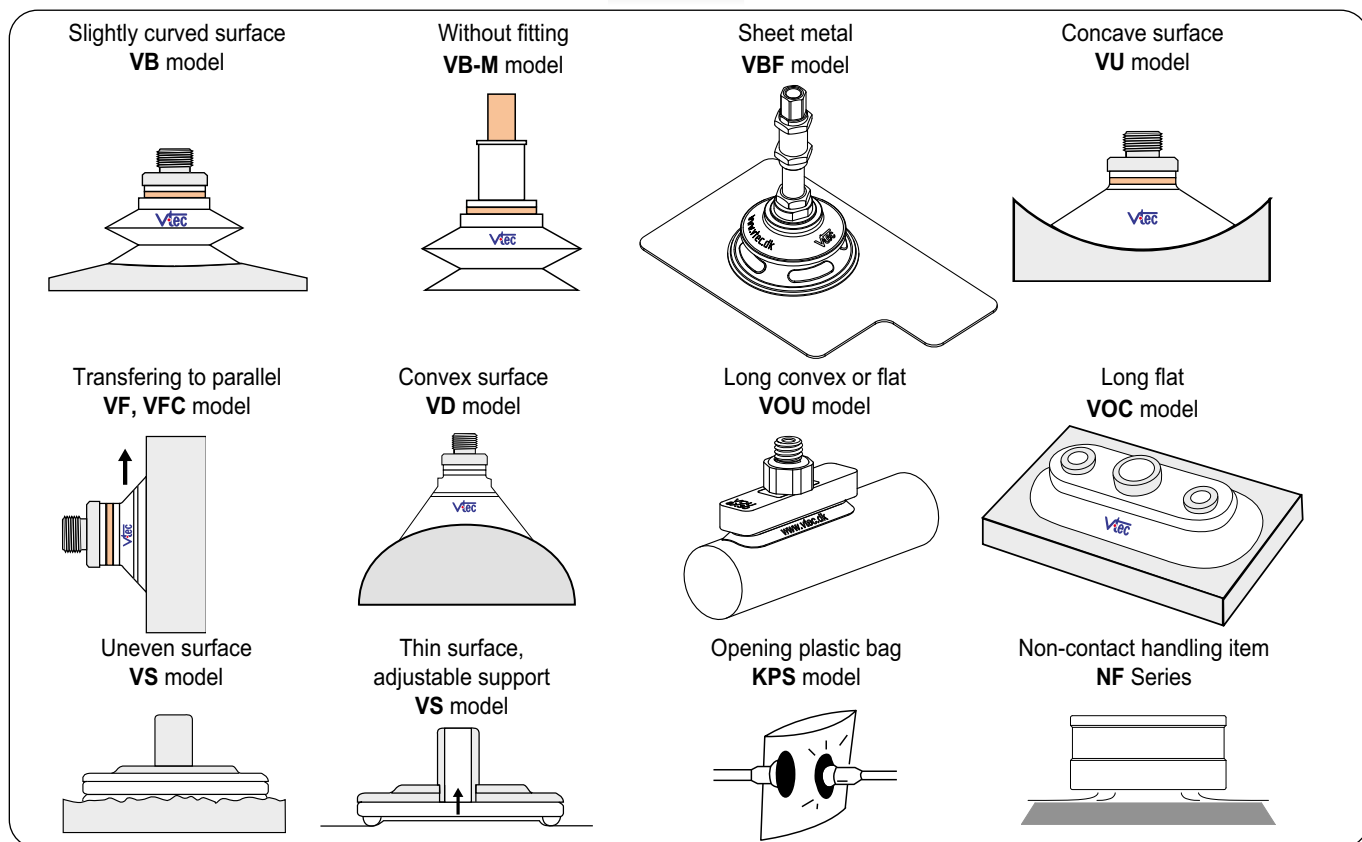
Material	Temperature	Durability	Oil Resistance	Weather & ozone
N - NBR	-20°C to + 110°C	Excellence	Excellence	Very good
S - Silicon, WS-White Silicon	-70°C to + 200°C	Good	unsuitable	Excellence
HS - High Temp. Silicon	-70°C to + 280°C	Good	unsuitable	Excellence
C.S - Conductive (special material)	-45°C to + 90°C	Excellence	Excellence	Very good
U - Urethane	0°C to + 100°C	Excellence	Excellence	Excellence
A - Mark free	-10°C to + 100°C	Excellence	Excellence	Very good
PU- Poly Urethane	-0°C to + 60°C	Excellence	Excellence	Excellence
E - EPDM	0°C to + 150°C	Very good	unsuitable	Excellence

9. How to select suction cup

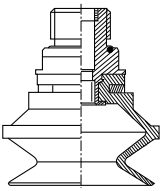

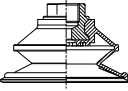
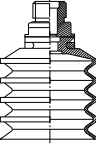
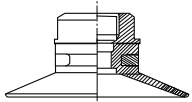
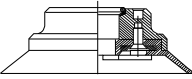
Suction cup	Shape			Requirements									
	Flat	Slightly surface	Concave surface	Smooth surface	Uneven surface	Varying surface levels	Thin flexible materials	Good stability	Mark free	Safety	Parallel lift	Without fitting	Opening plastic bag
VB	★★★★	★★★★		★★★★		★★★★	★★★★	★	★★★★	★★★★	★		★★
VB-M	★★★★	★★★★		★★★★		★★★★	★★★★	★	★★★★	★★★★	★	★★★★	★★
VBF	★★★★	★★★★	★	★★★★		★★★★	★★★★	★★★★	★★★★	★★★★	★★★★		
VBL	★★★★	★★★★		★★★★		★★★★	★★★★			★★			
VU	★★★★	★★★★	★★★★	★★★★				★★		★★★★	★★		★★
VF	★★★★			★★★★				★★★★	★★★★	★★★★	★★★★		
VFC	★★★★	★★★★		★★★★	★			★★★★	★★★★	★★★★	★★★★		★
VD	★★	★★★★		★★★★		★		★★	★★★★	★★★★	★★		
VOU	★★★★	★★	★★	★★★★				★★		★★	★		
VOC	★★★★	★★★★		★★★★		★		★★★★		★★★★	★★★★		
VS	★★★★			★★★★	★★★★		★★★★			★★★★	★		
KPS	★★★★			★★★★								★★★★	★★★★
NF	★★★★	★★★★					★★★★		★★★★				

SUCTION CUPS

★★★★ Excellent ★★ Very good ★ good

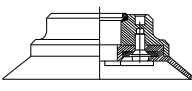
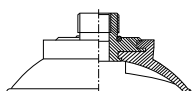
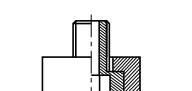
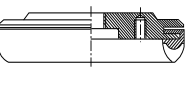
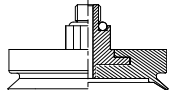
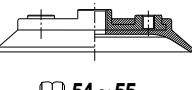
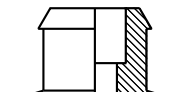


10. Suction cup specifications

Design	Model	Diameter (mm)	Volume (cm ³)	Material						Lifting force (kg) Perpendicular			Lifting force (kg) Parallel		
				N	(WS)	CS	U	(WPU)	E	-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
 20 ~ 23	VB 5	5.6	0.1	•	•	•				0.03	0.08	0.1			
	VB 6X	7	0.1	•	•	•				0.05	0.11	0.14			
	VB 8	8.8	0.2	•	•	•				0.08	0.16	0.25			
	VB 10	11	0.5	•	•	•	•			0.15	0.34	0.5			
	VB 12	12	0.59	•	•	•	•			0.2	0.41	0.62			
	VB 15	15.5	1.1	•	•	•	•	•		0.29	0.6	0.9			
	VB 17	18.5	1.5	•	•	•	•			0.4	0.8	1.0			
	VB 20	22	2.7	•	•	•	•	•		0.6	1.0	1.42			
	VB 30	34	10	•	•	•	•	•		1.22	2.24	2.75			
	VB 40	43	15	•	•	•	•	•		2.24	3.97	5			
	VB 50	53	32	•	•	•	•	•		3.36	6.63	8.36			
	VB 75	78	110	•	•	•	•	•		7.65	17.04	23.06			
VB 110	115	310	•	•	•	•			13.97	35	47.04				
VB 150	155	650	•	•	•	•			30	70	90.1				
 24	VB 20M	22	2.7	•	•	•	•			0.7	1.2	1.6			
	VB 30M	34	10	•	•	•	•			1.5	2.6	3.9			
	VB 50M	53	32	•	•	•	•			3.2	7.9	10.5			
 26 ~ 29	VBF 25	25	2.6					•		1.1	3.2	3.8	0.61	1.37	1.89
	VBF 30	32	6					•		1.77	6.26	9.48	0.86	3.09	7.75
	VBF 40	42	7.2					•		2.5	9.66	12.8	1.18	6.5	11.3
	VBF 50	51.5	11					•		4.18	13.2	16.28	2.09	9.6	14.7
	VBF 60	64	22					•		8.94	16.26	18.54	6.84	12.84	16.92
	VBF 80	84	59.5					•		11.92	21.68	24.72	9.12	17.12	22.56
	VBF 100	103	103.5					•		14.9	27.1	30.9	11.4	21.4	28.2
 30 ~ 33	VBL 15	15.5	1.95	•	•	•	•			0.29	0.6				
	VBL 20	20	4	•	•	•	•			0.03	0.06				
	VBL 30	30	13	•	•	•	•			0.06	0.16				
	VBL 35M	35	21	•	•	•	•			0.08	0.19				
	VBL 40	40	27	•	•	•	•			0.11	0.22				
	VBL 40B	42	26	•	•	•	•			1.03	2.1				
	VBL 50	50	55	•	•	•	•			0.17	0.43				
VOBL 35X90	30X90	43	•	•	•	•			2.5	3.2					
 34 ~ 37	VU 1.5X	1.9	0.0015	•	•	•				0.0008	0.003	0.004			
	VU 2	2.6	0.0025	•	•	•				0.003	0.01	0.0015			
	VU 2X	2.6	0.003	•	•	•				0.003	0.01	0.0015			
	VU 3	3.8	0.01	•	•	•				0.009	0.04	0.06			
	VU 3k	3.5	0.018	•	•	•				0.014	0.06	0.09			
	VU 4	5	0.03	•	•	•				0.02	0.09	0.13	0.02	0.08	0.10
	VU 4X	4.6	0.03	•	•	•				0.02	0.09	0.13	0.02	0.08	0.10
	VU 6	7	0.05	•	•	•				0.05	0.17	0.25	0.03	0.15	0.20
	VU 8	9	0.1	•	•	•				0.1	0.29	0.39	0.1	0.29	0.34
	VU 10	11	0.2	•	•	•	•			0.15	0.44	0.70	0.15	0.44	0.50
	VU 15	16.5	0.5	•	•	•	•			0.35	0.85	1.12	0.35	0.55	0.60
	VU 20	22	1	•	•	•	•			0.6	1.22	1.63	0.6	0.89	1.00
	VU 25	27	1.5	•	•	•	•			0.91	1.98	2.5	0.7	0.95	1.05
VU 30	32	2	•	•	•	•			1.22	2.55	3.06	0.79	1.00	1.12	
VU 40	42	5.5	•	•	•	•			2.04	3.97	5.0	1.42	2.24	2.8	
VU 50	53	12	•	•	•	•			3.57	7.44	9.38	2.04	3.77	4.48	
VU 80	78	32	•	•	•	•			7.77	19.8	25.21	4.53	12.7	16.94	
 38 ~ 43	VF 15	16.5	0.37	•	•	•	•			0.35	0.86	1.12	0.35	0.66	0.76
	VF 20	22	1	•	•	•	•			0.61	1.47	1.93	0.51	0.81	0.86
	VF 25	27	1.1	•	•	•	•	•		0.91	1.98	2.55	0.81	0.91	1.02
	VF 30	32	2	•	•	•	•	•		1.22	2.55	3.16	1.12	1.63	2.04
	VF 40	42	4.8	•	•	•	•	•		2.04	4.08	5.10	1.53	2.55	3.06
	VF 50	53	10	•	•	•	•	•		3.67	7.55	9.79	2.44	4.08	5.10
	VF 50X2	53	10	•	•	•	•	•		3.67	7.55	9.79	2.44	4.08	5.1

* Lifting force : Not considered safety factor.

10. Suction cup specifications

Design	Model	Diameter (mm)	Volume (cm ³)	Material						Lifting force (kg) Perpendicular			Lifting force (kg) Parallel		
				N	(W)S	CS	U	(W)PU	E	-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
 38 ~ 43	VF75	77	20	•	•	•	•	•		8.16	20.40	27.55	6.12	11.22	14.26
	VF 90	92	50					•		10.2	27.84	57.14	14.28	25.51	30.61
	VF 110	112	70	•	•	•	•			14.28	42.85	57.14	14.28	25.51	30.61
	VF 150	152	160	•	•	•	•			30.61	86.73	112.54	25.51	61.22	81.63
	VF 200	200	460	•	•	•	•			76.53	193.87	275.51	38.3	96.9	137.5
	VF 300	304	820	•	•	•	•			163	438	653	135	307	476
 44 ~ 47	VFC 50	50	10	•	•	•	•	•		2.85	6.94	10.2	2.61	6.34	8.2
	VFC 60	60	20	•	•	•	•	•		4.55	11.57	15.3	3.05	7.92	10.7
	VFC 60X	60	20	•	•	•	•			4.55	11.57	15.3	3.05	7.92	10.7
	VFC 75	75	30	•	•	•	•	•		7.65	19.38	25.51	6.19	15.46	20.9
	VFC 75X1	75	30	•	•	•	•			7.65	19.38	25.51	6.19	15.46	20.9
	VFC 75X2	75	30	•	•	•	•			7.65	19.38	25.51	6.19	15.46	20.9
	VFC 90	90	60					•		9.8	24.82	32.65	9.52	21.59	27.89
VFC 100	100	80	•	•	•	•	•		12.75	35.71	46.93	12.24	23.97	28.57	
 48 ~ 49	VD 30	30	4.5	•	•	•	•	•		1.22	2.55	3.06	0.73	1.53	1.83
	VD 40	40	75	•	•	•	•	•		2.04	3.97	5.0	1.22	2.38	3.00
	VD 50	50	13.5	•	•	•	•	•		3.57	7.44	9.38	2.14	4.46	5.62
	VD 60	61	22	•	•	•	•	•		5.50	14	18.5	3.3	8.4	11.1
	VD 70	72	38					•		7.15	18.8	24.9	4.2	11.6	16.2
	VD 85	85	60	•	•	•	•			10	28	39	6.0	16.8	23.4
	VD 85X	85	60	•	•	•	•			10	28	39	6.0	16.8	23.4
	VD 90F	89.5	56					•		9.25	24.36	32.17	7.97	14.42	18.15
 50 ~ 51	VS 30X80	30X80	43						•	2.7	9.1	14			
	VS 35	35	6						•	2.04	5.10	7.14			
	VS 60	60	20						•	6.12	15.3	22.44			
	VS 100	100	55						•	18.36	45.9	67.34			
	VS 150	150	125						•	38	97	138			
	VS 200	200	543						•	76.53	193.87	275.51			
	VS 300	300	1285						•	163.26	438.77	653.06			
	VS 400	400	2285						•	326	876	1300			
 52 ~ 53	VOU4x10	4X10	0.064	•	•	•	•					0.205			
	VOU4x20	4X20	0.094	•	•	•	•					0.347			
	VOU6x10	6X10	0.081	•	•	•	•					0.256			
	VOU6x20	6X20	0.137	•	•	•	•					0.603			
	VOU8x20	8X20	0.17	•	•	•	•					0.818			
	VOU8x30	8X30	0.25	•	•	•	•					1.053			
	VOU10x30	10X30	0.394	•	•	•	•					1.554			
	VOU15x45	15X45	1.584	•	•	•	•					3.271			
	VOU20x60	20X60	3.532	•	•	•	•					6.352			
 54 ~ 55	VOC 11 x 23	11X23	2.0		•					0.61	1.3	1.6	0.6	1.2	1.5
	VOC 35 x 90	35X90	20	•	•	•	•			5	13.4	17.4	4	10.72	13.92
	VOC 35 x 110	35X110	25	•	•	•	•			6.25	16.7	21.7	5	13.36	17.36
	VOC 60 x 140	60X140	52	•	•	•	•			13.4	38	53	10.72	30.4	42.4
	VOC 60 x 180	60X180	67	•	•	•	•			19.1	54.2	75.7	15.28	43.36	60.56
 56 ~ 57	KPS-1	34	14.5	•	•	•	•			1.22	2.24	2.75			
	KPS-2	28	2.0	•	•	•	•			0.7	1.53	1.83			
	KPS-3	13	0.5	•	•	•	•			0.35	0.85	1.12			
	KPS-4	16	1.0	•	•	•	•			0.6	1.22	1.63			
	KPS-5	28	2.0	•	•	•	•			0.7	1.53	1.83			
	KPS-5-15	15	1.1	•	•	•	•			0.4	1.11	1.23			
	KPS-6	30	2.0	•	•	•	•			0.8	1.7	2.05			
	KPS-7	68	20	•	•	•	•			5.5	14	18.5			
	KPS-8	22.5	1.4	•	•	•	•			0.5	1.15	1.25			
	KPS-9	40.5	8	•	•	•	•			1.55	2.8	5.1			
	VU-30-X	30	1.8	•	•	•	•			0.65	1.48	17.8			

* Lifting force : Not considered safety factor.

Specifications subject to change without notice.

www.vmecca.com

VB Series (Bellows)

Features and Strengths

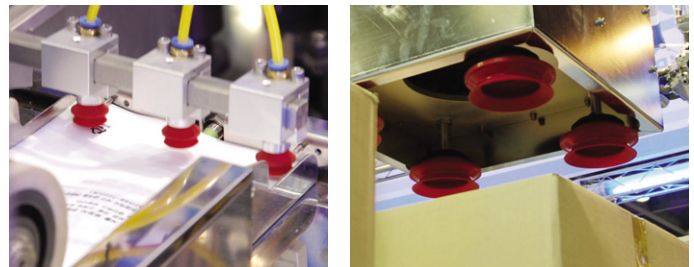
Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks.

The bellows cup is very good at compensating for a degree of difference in level and curvature of the work piece, more angular and level compensation can be achieved by using other **Vtec** cup accessories.



Suitable for Handling

- Sheet Veneer
- Plastic Sheets
- Paper Box handling
- Thin Film Sheets
- Cardboard Boxes and Electronic Components



Order No.

VB30 **PU** **F** - **18F** **EV** - **L1820T** - **BJ 18**

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 21, 60-67.

① Diameter

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

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Special mat'l)
U	- Urethane
A	- Mark Free
• PU	- Poly Urethane*
WPU	- Poly Urethane* (Minimal mark)

*Only for VB15, VB20, VB30, VB40, VB50, VB75

③ Filter

no mark	- Standard
• F	- With filter (PE) VB30, VB40, VB50, VB75, VB110

④ Thread size

M5M	- M5 male (VB5, VB8, VB10, VB12, VB15)
18M	- G1/8" male (VB30, VB40)
14M	- G1/4" male (VB30, VB40, VB50)
38M	- G3/8" male (VB50)
M518MF	- M5 female and G1/8" male (VB17, VB20)
M518MFB*	- M5 female and G1/8" male (VB20)
• 18F(A)	- G1/8" female (VB17, VB20, VB30, VB40, VB50, VB75, VB75B)
18FB*	- G1/8" female (VB30, VB40)
14F(A)	- G1/4" female (VB75, VB75B)
38F(A)	- G3/8" female (VB75, VB75B)
12F(A)	- G1/2" female (VB75, VB75B, VB110, VB110B, VB150)
M5X5F	- M5X5 female (VB17, VB20)
18X5F	- G1/8" X 5 female (VB30, VB40, VB50)

Remark : VB30~150 fittings are including mesh filter.

* Only for silicon material

(A) : AL-Material (Only VB75, VB75B)

⑤ Valves Efficiency valve : EV

no mark	- standard
• EV	- Vacuum efficiency valve (See page : 16) (VB17, VB20, VB30, VB40, VB50)

Accessories order No.

L1820T BJ 18

⑥


⑦

⑥ Level compensator		⑦ Ball joint model
Model	Stroke (mm)	
L506TX, L506TS, L506TM, L506TU	6	● BJ 18
L510LTX, L510LTS, L510LTM, L510LTU	10	
L507T, L507TN	7	
L515T	15	
L510, L510T	10	
L520, L520T, L520TF	20	
L1805F	5	
L525TXN, L525TSN, L525TMN, L525TUN	25	
L1805M, L1805F	5	
L1810T, L1810TS, L1810TSE	10	
L1815T, L1815	15	
● L1820T, L1820TS	20	
L1820TN*	20	
L1830, L1830T, L1830TS	30	
L1850, L1850T	50	
L1230, L1230T	30	BJ 12
L1250, L1250T	50	

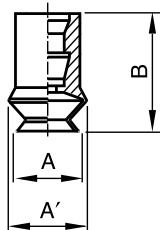
*Not available with Ball Joint (BJ)..

SUCTION
CUPS

Recommended (max.) lifting forces

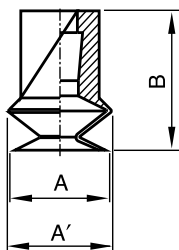
Model	Volume (cm ³)	Lifting Force (kg) – Parallel 		
		-20 kPa	-60 kPa	-90 kPa
VB5	0,05	0,03	0,08	0,10
VB6X	0,09	0,05	0,11	0,14
VB8	0,15	0,08	0,16	0,25
VB10	0,48	0,15	0,34	0,5
VB12	0,59	0,2	0,41	0,62
VB15	1,1	0,29	0,6	0,9
VB17	1,5	0,4	0,8	1
VB20	2,7	0,6	1	1,42
VB30	10	1,22	2,24	2,75
VB40	15	2,24	3,97	5
VB50	32	3,36	6,63	8,36
VB75(B)	110	7,65	17,04	23,06
VB110(B)	310	13,97	35	47,04
VB150	650	30	70	90,1

Dimensional information



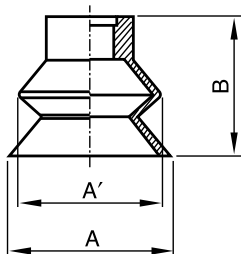
◀ VB6X [mm]

Model	A	A'	B
VB6X	7	9	13.5



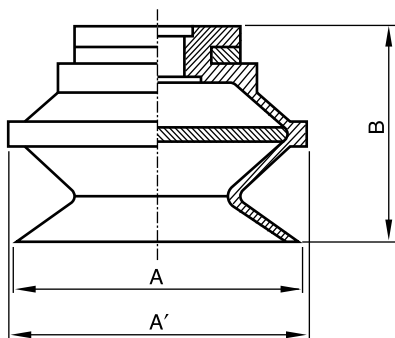
◀ VB5 VB8 VB10 VB12 VB15 [mm]

Model	A	A'	B
VB5	5.8	6.2	9.2
VB8	8.8	9.6	11.9
VB10	11	12	16
VB12	12	14	16.5
VB15	15.5	17.5	19.5



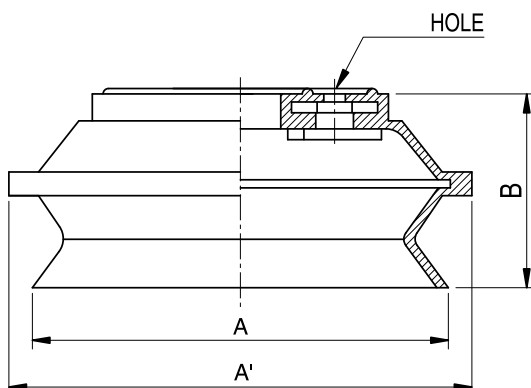
◀ VB17 [mm]

Model	A	A'	B
VB17	18.5	16.6	15.6



◀ VB20 VB30 VB40 VB50 [mm]

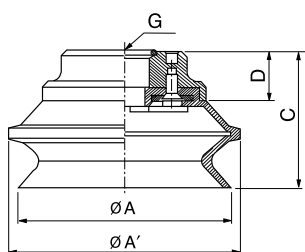
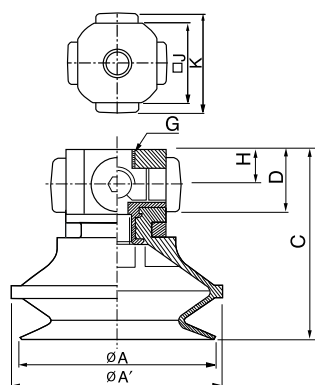
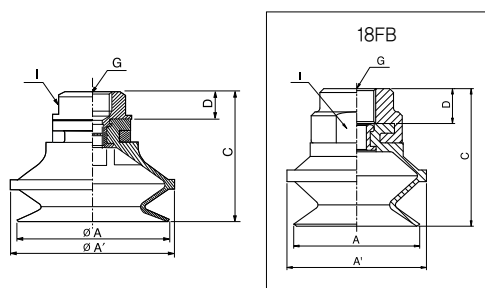
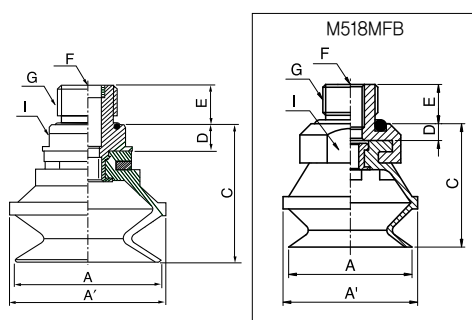
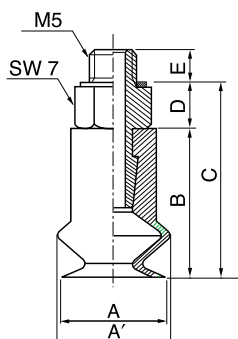
Model	A	A'	B
VB20	22	24	19
VB30	34	36	26
VB40	43	46	28
VB50	53	58	35



◀ VB75 VB110 VB150 [mm]

Model	A	A'	B	HOLE
VB75(B)	78	83	37	4- \varnothing 6.5 P.C.D \varnothing 35
VB110(B)	115	124	54	8- \varnothing 6 P.C.D \varnothing 55
VB150	155	166	71	8- \varnothing 6 P.C.D \varnothing 70.5

Dimensional information



Male thread [mm]

Model	ØA	ØA'	B	C	D	E
VB5-M5M	5.6	6.2	9.2	13.2	4	3.5
VB8-M5M	8.8	9.6	11.9	15.9	4	3.5
VB10-M5M	11	12	16	21	5	4
VB12-M5M	12	14	16.5	21.5	5	4
VB15-M5M	15.5	17.5	19.5	24.5	5	4

Male thread [mm]

Model	ØA	ØA'	C	D	E	F	G	I
VB17-M518MF	18.5	16.6	17.1	1.5	6	M5	G1/8"	SW12
VB20-M518MF	22	24	20.5	1.5	6	M5	G1/8"	SW12
VB20-M518MFB*	22	24	22	3	7	M5	G1/8"	SW16
VB30-18M	34	36	31	5	7	-	G1/8"	SW17
VB30-14M	34	36	32	6	9	-	G1/4"	SW17
VB40-18M	43	46	33	5	7	-	G1/8"	SW17
VB40-14M	43	46	34	6	9	-	G1/4"	SW17
VB50-14M	53	58	41	6	9	-	G1/4"	SW24
VB50-38M	53	58	41	6	10	-	G3/8"	SW24

*Only for silicon material

Female thread [mm]

Model	ØA	ØA'	C	D	G	I
VB17-18F	18.5	16.6	23.6	8	G1/8"	SW15
VB20-18F	22	24	27	8	G1/8"	SW15
VB30-18F	34	36	34	8	G1/8"	SW17
VB30-18FB*	34	36	35	9	G1/8"	SW21
VB40-18F	43	46	36	8	G1/8"	SW17
VB40-18FB*	43	46	37	9	G1/8"	SW21
VB50-18F	53	58	44	9	G1/8"	SW24

*Only for silicon material

Female thread x5 [mm]

Model	ØA	ØA'	C	D	G	H	□J	K
VB17-M5X5F	18.5	16.6	24.6	9	M5X5	5	15	22
VB20-M5X5F	22	24	28	9	M5X5	5	15	22
VB30-18X5F	34	36	44	18	G1/8"X5	10	22	30
VB40-18X5F	43	46	46	18	G1/8"X5	10	22	30
VB50-18X5F	53	58	53	18	G1/8"X5	10	28	36

Female thread [mm]

Model	ØA	ØA'	C	D	G
VB75(B)-18F	78	83	50	18	G1/8"
VB75(B)-14F	78	83	50	18	G1/4"
VB75(B)-38F	78	83	50	18	G3/8"
VB75(B)-12F	78	83	50	18	G1/2"
VB110(B)-12F	115	124	63	15	G1/2"
VB150-12F	155	166	78	14	G1/2"

VB-M Series (Direct Fitting Bellows)

Features and Strengths

Same general advantages to that of the normal bellows cups but can be fitted directly onto a piece of pipe, thus making installation very simple and reducing cup costs to a minimum, very suitable for integration to packaging machines.



Suitable for Handling

- Cardboard
- Packaging Materials
- Thin Film Sheets
- Sheet Veneer
- Plastic Sheets



Order No.

VB30M N F



① Diameter

- VB20M – Ø20
- **VB30M** – Ø30
- VB50M – Ø50

② Material

- **N** – NBR (VB20M, VB30M, VB50M)
- S – Silicon (VB20M, VB30M, VB50M)
- HS – High Temp. Silicon (VB20M, VB30M, VB50M)
- WS – White Silicon (VB20M, VB30M, VB50M)
- CS – Conductive (Special mat'l) (VB20M, VB30M, VB50M)
- U – Urethane (VB20M, VB30M, VB50M)
- A – Mark Free (VB20M, VB30M, VB50M)
- PU – Poly Urethane (VB20M, VB30M, VB50M)
- WPU – Poly Urethane (Minimal mark)(VB20M, VB30M, VB50M)

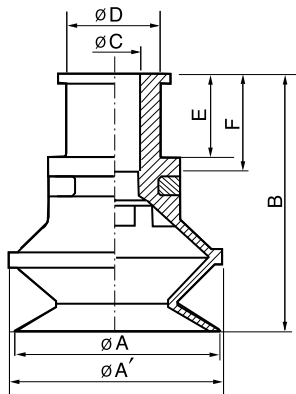
③ Filter

- no mark – Standard
- **F** – With filter(PE) (VB30M, VB50M)

Recommended (max.) lifting forces

Model	Volume (cm ³)	Lifting Force (kg) –Perpendicular		
		–20 kPa	–60 kPa	–90 kPa
VB20M	2.7	0.7	1.2	1.6
VB30M	10	1.5	2.6	3.9
VB50M	32	3.2	7.9	10.5

Dimensional Information



	[mm]						
Model	$\varnothing A$	$\varnothing A'$	$\varnothing C$	$\varnothing D$	E	F	B
VB20M	22	24	6	10	9	10,5	28
VB30M	34	36	8,5	14	14	16	40
VB50M	53	57	12,5	20	17	20	52



▲ Plastic pack opening / VTEC Bellows Cup - VB20M

VBF Series (Bellows & Flat)

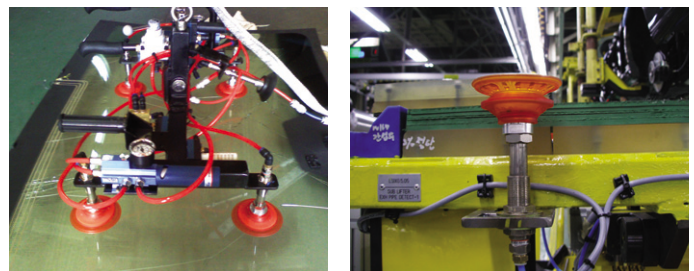
Features and Strengths

- Enhancing the adhesion to the surface
- Good lifting force can be achieved with this cup in the vertical plane
- Prevent transformation when lifting metal thin plate



Suitable for Handling

- Veneer sheets
- Sheet metal
- Automotive panels and door
- Plywood
- Glass



Order No.

VBF100 PU F - 12F - [] - L 1230 - BJ12

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 27, 60-67.

① Diameter

VBF25	- Ø25
VBF30	- Ø32
VBF40	- Ø42
VBF50	- Ø51
VBF60	- Ø64
VBF80	- Ø84
• VBF100	- Ø103

② Material

- **PU** – Poly Urethane
- WPU – White Poly urethane

③ Filter

- No Mark – Standard
- **F** – With Filter(PE)

* Available only VBF 60, 80, 100

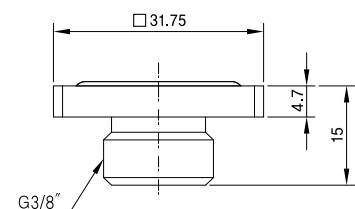
④ Thread Size

18F	- G1/8" female (VBF 25,30,40,50,60,80,100)
14F	- G1/4" female (VBF 25,30,40,50,60,80,100)
38F	- G3/8" female (VBF 25,30,40,50,60,80,100)
• 12F	- G1/2" female (VBF 60,80,100)
14M	- G1/4" male (VBF 25,30,40,50,60,80,100)
M10M	- M10xP1,5 male (VBF 25,30,40,50,60,80)

⑤ Quick Mount Adaptor

- No Mark – Standard
- **QA** – Quick Mount Adaptor**

**Only for G3/8" female and level compensator is not available



Accessories

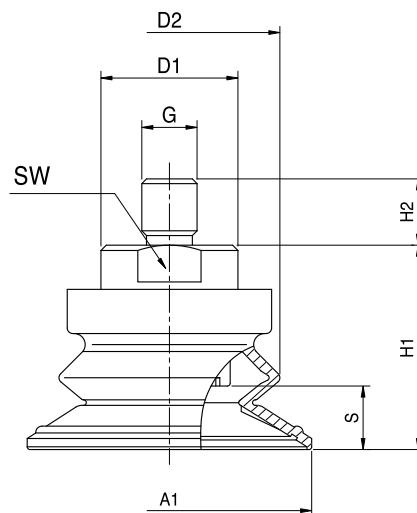
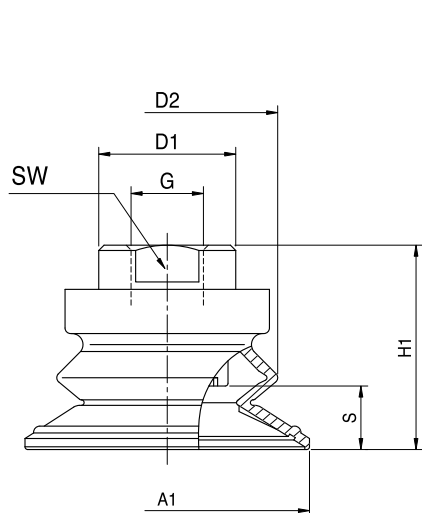
⑥ Level Compensator		⑦ Ball Joint
Level Compensator	Stroke (mm)	Ball Joint
L1805F, L1805M	5	BJ 18
L1810T, L1810TS, L1810TSE, L1810TS-M10F	10	
L1815T, L1815	15	
L1820T, L1820TS	20	
L1830, L1830T, L1830TS	30	
L1850, L1850T	50	
L1820TN (Non-rotate)*	20	
L1230, L1230T	30	BJ 12
L1250, L1250T	50	

*Not available with Ball Joint(BJ)..

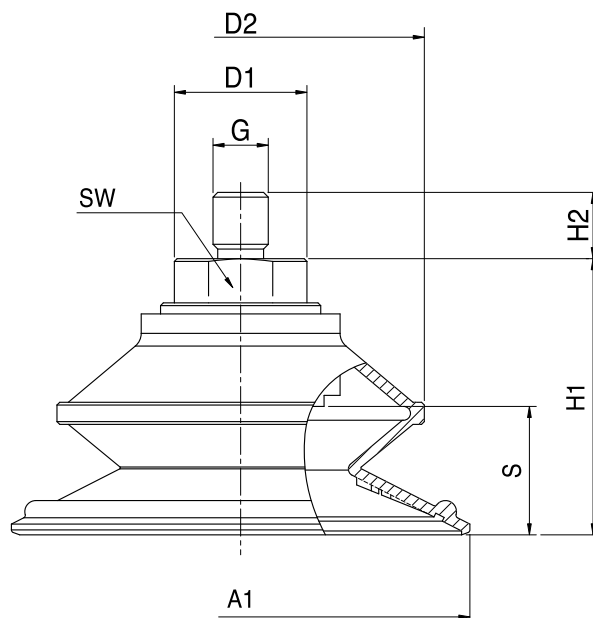
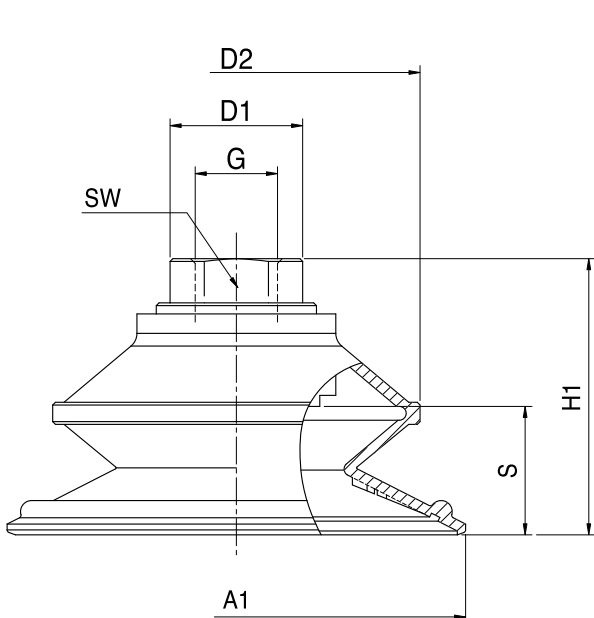
Recommended (max.) lifting force.

Model	Volume (cm ³)	Perpendicular Lifting Force (kg) at Vacuum level			Parallel Lifting Force (kg) at Vacuum level		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VBF 25PU	2,6	1,1	3,2	3,8	0,61	1,37	1,89
VBF 30PU	6	1,77	6,26	9,48	0,86	3,09	7,75
VBF 40PU	7,2	2,5	9,66	12,8	1,18	6,5	11,3
VBF 50PU	11	4,18	13,2	16,28	2,09	9,6	14,7
VBF 60PU	22	8,94	16,26	18,54	6,84	12,84	16,92
VBF 80PU	59,5	11,92	21,68	24,72	9,12	17,12	22,56
VBF 100PU	103,5	14,9	27,1	30,9	11,4	21,4	28,2

Dimensional information



▲ VBF 25PU, VBF 30PU, VBF 40PU, VBF 50PU



▲ VBF 60 PU, VBF 80PU, VBF 100PU

Dimensional information

[Measure unit : mm]

Model	A1	G	H1	H2	SW	S	D1	D2
VBF25PU – 18F	25,5	G1/8" female	25	–	17	6,1	19,5	26,5
VBF25PU – 14F		G1/4" female	25	–	17		19,5	
VBF25PU – 38F		G3/8" female	41	–	17		19,5	
VBF25PU – 14M		G1/4" male	25	10	17		19,5	
VBF25PU – M10M		M10xP1.5 male	25	12	17		19,5	
VBF30PU – 18F	32	G1/8" female	28	–	17	7	19,8	32
VBF30PU – 14F		G1/4" female	28	–	17		19,8	
VBF30PU – 38F		G3/8" female	44	–	17		–	
VBF30PU – 14M		G1/4" male	28	10	17		19,8	
VBF30PU – M10M		M10xP1.5 male	28	12	17		19,8	
VBF40PU – 18F	42	G1/8" female	29	–	17	9	19,8	32
VBF40PU – 14F		G1/4" female	29	–	17		19,8	
VBF40PU – 38F		G3/8" female	45	–	17		–	
VBF40PU – 14M		G1/4" male	29	10	17		19,8	
VBF40PU – M10M		M10xP1.5 male	29	12	17		19,8	
VBF50PU – 18F	51,5	G1/8" female	37	–	22	11,5	24,8	40
VBF50PU – 14F		G1/4" female	37	–	22		24,8	
VBF50PU – 38F		G3/8" female	37	–	22		24,8	
VBF50PU – 14M		G1/4" male	37	10	22		24,8	
VBF50PU – M10M		M10xP1.5 male	37	12	22		24,8	
VBF60PU – 18F	64	G1/8" female	41,5	–	21	15	24	50
VBF60PU – 14F		G1/4" female	41,5	–	21		24	
VBF60PU – 38F		G3/8" female	41,5	–	21		24	
VBF60PU – 12F		G1/2" female	41,5	–	26		29	
VBF60PU – 14M		G1/4" male	41,5	10	21		24	
VBF60PU – M10M		M10xP1.5 male	41,5	12	21		24	
VBF80PU – 18F	84	G1/8" female	49,5	–	21	22,5	24	68
VBF80PU – 14F		G1/4" female	49,5	–	21		24	
VBF80PU – 38F		G3/8" female	49,5	–	21		24	
VBF80PU – 12F		G1/2" female	49,5	–	26		29	
VBF80PU – 14M		G1/4" male	49,5	10	21		24	
VBF80PU – M10M		M10xP1.5 male	49,5	12	21		24	
VBF100PU – 18F	103	G1/8" female	55	–	22	20,5	24	83
VBF100PU – 14F		G1/4" female	55	–	22		24	
VBF100PU – 38F		G3/8" female	55	–	22		24	
VBF100PU – 12F		G1/2" female	55	–	24		27	
VBF100PU – 14M		G1/4" male	55	10	22		24	

VBL Series (Long Bellows)

Features and Strengths

Similar advantages to that of the normal bellows cups but can cope with an increased degree of height compensation and is particularly good for handling fragile objects.

A note of caution, these cups are not suitable for high level vacuum applications.



Suitable for Handling

- Fragile Objects
- General Food Products
- Glass
- Eggs
- Bread



Order No.

VBL20 N F - M518MF EV - L510T

① ② ③ ④ ⑤ ⑥

① Diameter

- VBL15 – Ø15
- **VBL20** – Ø20
- VBL30 – Ø30
- VBL35M – Ø35
- VBL40 – Ø40
- VBL40B – Ø40
- VBL50 – Ø50

② Material

- **N** – NBR
- S – Silicon
- WS – White Silicon
- HS – High Temp. Silicon
- CS – Conductive (Special mat'l)
- U – Urethane
- A – Mark free

④ Thread size

- M5M – M5 male (VBL15)
- 18M – G1/8" male (VBL30, VBL40)
- 14M – G1/4" male (VBL30, VBL40, VBL50)
- 38M – G3/8" male (VBL50)
- **M518MF** – M5 female and G1/8" male (VBL20)
- M518MFB* – M5 female and G1/8" male (VBL20)
- 18F – G1/8" female (VBL20, VBL30, VBL40, VBL50)
- 18FB* – G1/8" female (VBL30, VBL40)
- M5X5F – M5X5 female (VBL20)
- 18X5F – 5XG1/8" female (VBL30, VBL40, VBL50)

▶ See pages 31, 60-67.

③ Filter

- No Mark – Standard
- **F** – With Filter(PE)
VBL30, VBL40
VBL50

⑤ Valves

- no mark – Standard
- **EV** – Vacuum efficiency valve (See page : 16)
(VBL20, VBL30, VBL40, VBL50)

Remark : VBL30, 40, 50 fittings are including mesh filter
* Only for silicon material

VOBL 35X90 WS F - 12F

① ② ③

① Material

- N – NBR
- S – Silicon
- **WS** – White Silicon
- HS – High Temp. Silicon
- CS – Conductive
- U – Urethane
- A – Mark free

② Filter

- No Mark – Standard
- **F** – With Filter(PE)

③ Thread size

- **12F** – G1/2" female




Accessories order No.

L510T

⑥

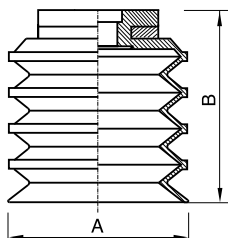
⑥Level compensator	
Model	Stroke
L510	10
• L510T	10
L520	20
L520T, L520TF	20
L1805F	5
L1805M	5
L1810T	10
L1810TS, L1810TSE	10
L1815T, L1815	15
L1820T, L1820TS	20
L1820TN	20
L1830	30
L1830T, L1830TS	30
L1850	50
L1850T	50

Recommended (max.) lifting forces

Model	Volume (cm ³)	Lifting Force (kg) – Perpendicular 	
		-20 kPa	-60 kPa
VBL15	1,95	0,29	0,6
VBL20	4	0,03	0,06
VBL30	13	0,06	0,16
VBL35M	21	0,08	0,19
VBL40	27	0,11	0,22
VBL40B	26	1,03	2,1
VBL50	55	0,17	0,43
VOBL35X90	43	2,5*	3,2*

* Lifting force with PE filter

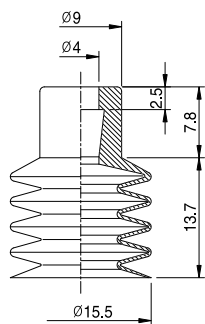
Dimensional Information



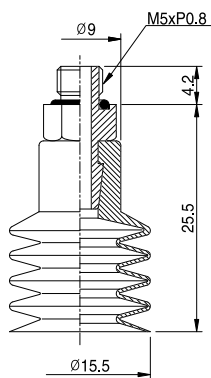
◀ VBL20, VBL30, VBL40, VBL50 [mm]

Model	A	B
VBL20	20	23
VBL30	30	32
VBL40	40	42
VBL50	50	52

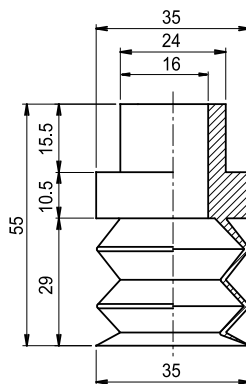
VBL15



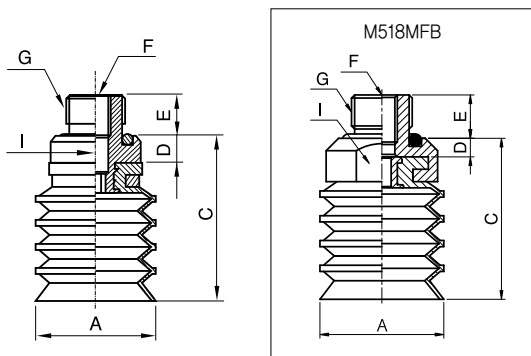
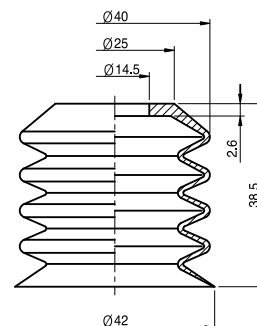
VBL15M5M



VBL35M



VBL40B

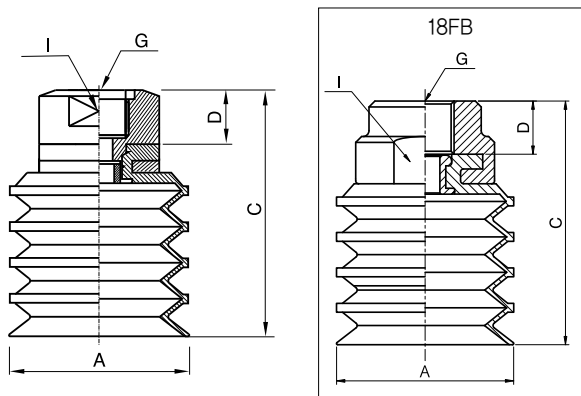


▲ Male thread

Model	A	C	D	E	F	G	I
VBL20-M518MF	20	24.5	1.5	6	M5	G1/8"	SW12.2
VBL20-M518MFB*	20	26	3	7	M5	G1/8"	SW16
VBL30-18M	30	37	5	7	-	G1/8"	SW17
VBL30-14M	30	38	6	9	-	G1/4"	SW17
VBL40-18M	40	47	5	7	-	G1/8"	SW17
VBL40-14M	40	48	6	9	-	G1/4"	SW17
VBL50-14M	50	58	6	9	-	G1/4"	SW24
VBL50-38M	50	58	6	10	-	G3/8"	SW24

* Only for silicon material

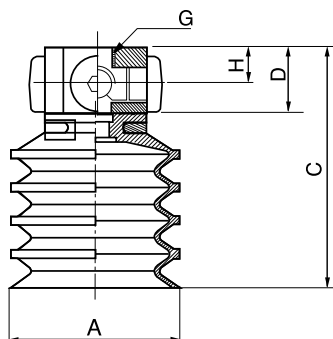
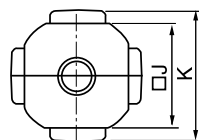
Dimensional Information



Female thread

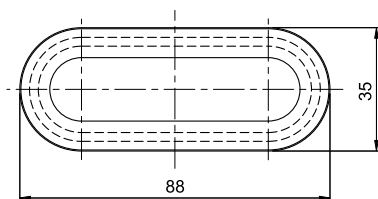
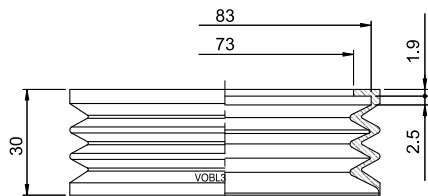
Model	A	C	D	G	I
VBL20-18F	20	31	8	G1/8"	SW15
VBL30-18F	30	40	8	G1/8"	SW17
VBL30-18FB*	30	41	9	G1/8"	SW21
VBL40-18F	40	50	8	G1/8"	SW17
VBL40-18FB*	40	51	9	G1/8"	SW21
VBL50-18F	50	60	9	G1/8"	SW24

* Only for silicon material

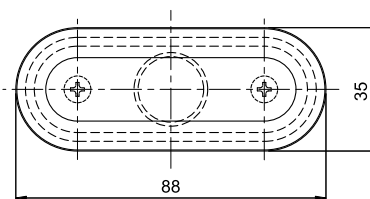
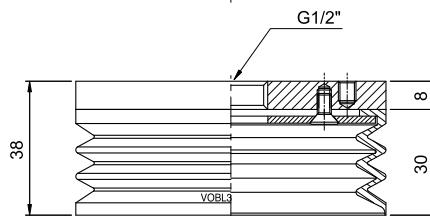
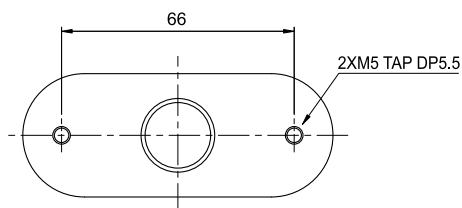


Female thread x 5

Model	A	C	D	G	H	J	K
VBL20-M5x5F	20	32	9	M5x5	5	15	22
VBL30-18x5F	30	50	18	G1/8"x5	10	22	30
VBL40-18x5F	40	60	18	G1/8"x5	10	22	30
VBL50-18x5F	50	70	18	G1/8"x5	10	28	36



VOBL 35X90



VOBL 35X90-12F

VU Series (Universal)

Features and Strengths

Good lifting forces can be achieved with this cup, is best suited to flat stable surfaces, but can cope with a small degree of curvature.

Very small cup are available down to just 1.5mm diameter.



Suitable for Handling

- Small components
- Semiconductor Chips
- Packaging Materials
- Sheet Metal
- Printing Industry
- Paper Box



Order No.

VU40 **N** **18F** - **EV** - **L1820T** **BJ 18**

① ② ③ ④ ⑤ ⑥

► See pages 35, 60-67.

① Diameter

VU1,5X – Ø1,5
VU2 – Ø2
VU2X – Ø2
VU3 – Ø3
VU3K – Ø3,5
VU4 – Ø4
VU4X – Ø4
VU6 – Ø6
VU8 – Ø8
VU10 – Ø10
VU15 – Ø15
VU20 – Ø20
VU25 – Ø25
VU30 – Ø30
• VU40 – Ø40
VU50 – Ø50
VU80 – Ø80

② Material

• N – NBR
S – Silicon
WS – White Silicon
HS – High Temp. Silicon
CS – Conductive (Special mat'l)
U – Urethane
A – Mark free

③ Thread size

M2,5M – M2,5 male (VU2, VU3)
M5M – M5 male (VU2, VU3, VU4, VU6, VU8, VU10, VU15)
18M – G1/8" male (VU40)
14M – G1/4" male (VU40, VU50)
38M – G3/8" male (VU50)
M518MF – M5 female and G1/8" male (VU20, VU25, VU30)
M518MFX* – M5 female and G1/8" male (VU20, VU25, VU30)
• 18F – G1/8" female (VU30, VU40, VU50, VU80)
18FX* – G1/8" female (VU40)
M5X5F – M5X5 female (VU20, VU25, VU30)
18X5F – G1/8"X5 female (VU40, VU50)
8 – Ø8 HOLE (VU80)

Remark : VU40, 50 fittings are including mesh filter.

* Only for silicon material

④ Valves

no mark – standard
• EV – Vacuum efficiency valve (See page :16) (VU20, VU25, VU30, VU40, VU50)

Accessories order No.

L 1820T

BJ 18



⑤

⑥

⑤ Level compensator		⑥ Ball joint model	
Model	Stroke (mm)		
L506TX, L506TS	6	-	
L510LTX, L510LTS	10		
L507T, L507TN	7		
L515T	15		
L510, L510T	10		
L520, L520T	20		
L1805F	5		
L525TXN, L525TSN	25		
L1805M	5		• BJ 18
L1810T, L1810TS, L1810TSE	10		
L1815, L1815T	15		
• L1820T, L1820TS	20		
L1820TN*	20		
L1830, L1830T, L1830TS	30		
L1850, L1850T	50		

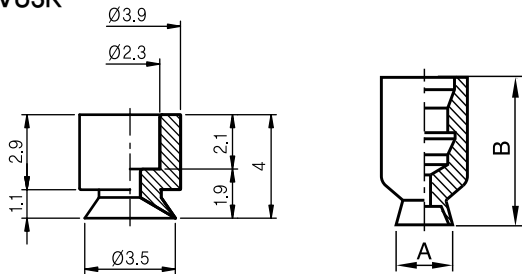
* Not available with Ball Joint(BJ).

Recommended (max.) lifting forces

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			
VU2	0,0025	0,003	0,01	0,015			
VU2X	0,0025	0,003	0,01	0,015			
VU3	0,005	0,009	0,04	0,06			
VU3K	0,018	0,014	0,06	0,09			
VU4	0,03	0,02	0,09	0,13	0,02	0,08	0,10
VU4X	0,03	0,02	0,09	0,13	0,02	0,08	0,10
VU6	0,05	0,05	0,17	0,25	0,03	0,15	0,20
VU8	0,1	0,1	0,29	0,39	0,1	0,29	0,34
VU10	0,18	0,15	0,44	0,7	0,15	0,44	0,50
VU15	0,5	0,35	0,85	1,12	0,35	0,55	0,60
VU20	1,0	0,6	1,22	1,63	0,6	0,89	1,00
VU25	1,5	0,91	1,98	2,5	0,7	0,95	1,05
VU30	2,0	1,22	2,55	3,06	0,79	1,00	1,12
VU40	5,5	2,04	3,97	5	1,42	2,24	2,8
VU50	12,0	3,57	7,44	9,38	2,04	3,77	4,48
VU80	32	7,77	19,8	25,21	4,53	12,7	16,94

Dimensional Information

VU3K



◀ VU1.5X, VU2X, VU4X

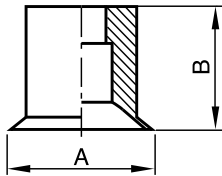
[mm]

Model	A	B
VU1.5X	1.9	12
VU2X	2.6	12
VU4X	4.6	12

◀ VU2, 3, 4, 6, 8, 10, 15

[mm]

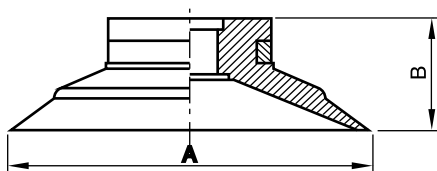
Model	A	B
VU2	2.6	3.5
VU3	3.8	4.5
VU4	5	6.1
VU6	7	6.5
VU8	9	7
VU10	11	10.5
VU15	16.5	11



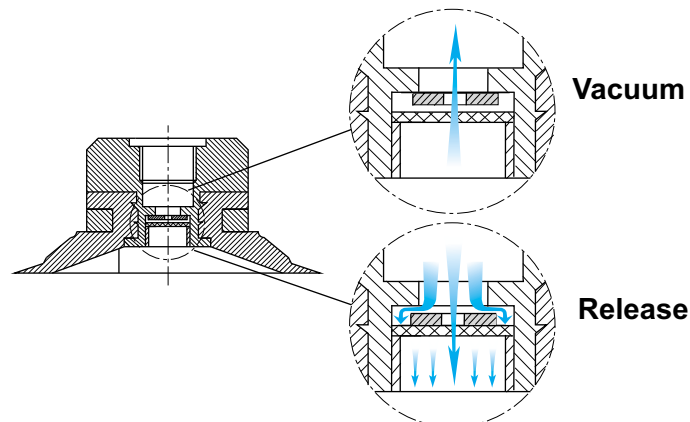
◀ VU20, 30, 40, 50

[mm]

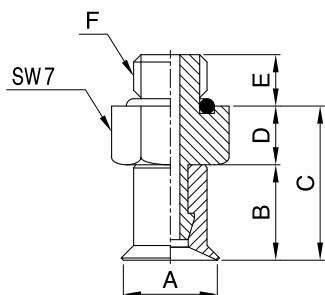
Model	A	B
VU20	22	8
VU25	27	9
VU30	32	9.5
VU40	42	13
VU50	53	17.5



Vacuum Efficiency Valve



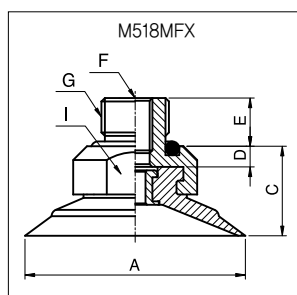
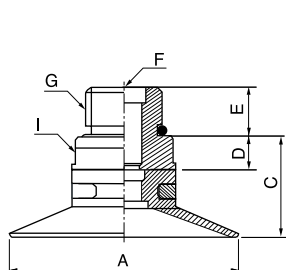
Dimensional Information



◀ Male thread

[mm]

Model	A	B	C	D	E	F
VU2-M2.5M or M5M	2,6	3,5	6/8,1	2,5/4,6	3/4,2	M2,5 or M5
VU3-M2.5M or M5M	3,8	4,5	7/9,1	2,5/4,6	3/4,2	M2,5 or M5
VU4-M5M	5	6,1	10,1	4	3,5	M5
VU6-M5M	7	6,5	10,5	4	3,5	M5
VU8-M5M	9	7	11	4	3,5	M5
VU10-M5M	11	10,5	15,5	5	3,5	M5
VU15-M5M	16,5	11,5	16	5	3,5	M5

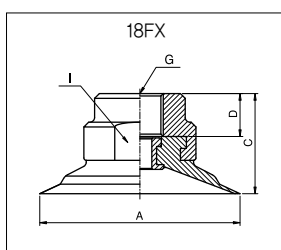
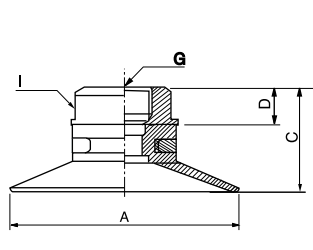


◀ Male thread

[mm]

Model	A	C	D	E	F	G	I
VU20-M518MF	22	9,5	1,5	6	M5	G1/8"	SW12
VU20-M518MFX*	22	11	3	7	M5	G1/8"	SW16
VU25-M518MF	27	10,5	1,5	6	M5	G1/8"	SW12
VU25-M518MFX*	27	12	3	7	M5	G1/8"	SW16
VU30-M518MF	32	11	1,5	6	M5	G1/8"	SW12
VU30-M518MFX*	32	12,5	3	7	M5	G1/8"	SW16
VU40-18M	42	18	5	7	-	G1/8"	SW17
VU40-14M	42	19	6	9	-	G1/4"	SW17
VU50-14M	53	23,5	6	9	-	G1/4"	SW24
VU50-38M	53	23,5	6	10	-	G3/8"	SW24

* For silicone material

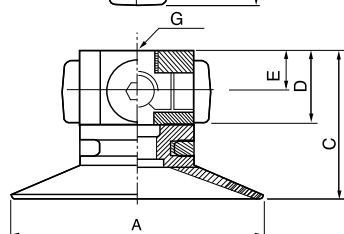
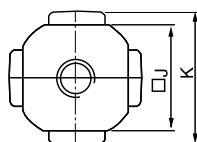
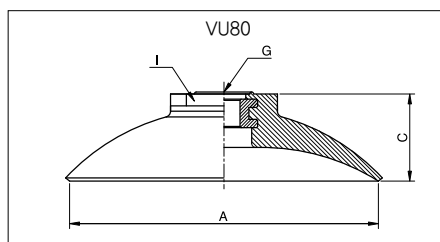


◀ Female thread

[mm]

Model	A	C	D	G	I
VU20-18F	22	16	8	G1/8"	SW15
VU25-18F	27	17	8	G1/8"	SW15
VU30-18F	32	17,5	8	G1/8"	SW15
VU40-18F	42	21	8	G1/8"	SW17
VU40-18FX*	42	22	9	G1/8"	SW21
VU50-18F	53	26,5	9	G1/8"	SW24
VU80-18F	78	21,5	-	G1/8"	SW19
VU80-8	78	21,5	-	Ø8	SW19

* For silicone material



◀ Female thread X5

[mm]

Model	A	C	D	E	G	□J	K
VU20-M5X5F	22	17	9	5	M5X5	15	22
VU25-M5X5F	27	18	9	5	M5X5	15	22
VU30-M5X5F	32	18,5	9	5	M5X5	15	22
VU40-18X5F	42	31	18	10	G1/8" X5	22	30
VU50-18X5F	53	35,5	18	10	G1/8" X5	28	36

VF Series (Flat)

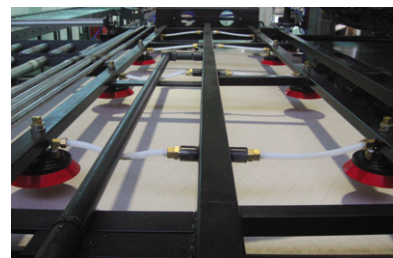
Features and Strengths

Good lifting forces can be achieved with this cup in the horizontal plane, but is also good in the vertical plane. The feet inside the cup provide a good register as well as enhancing the adhesion to the surface.



Suitable for Handling

- Sheet metal
- Plastic
- Veneer Sheets
- Electronic components



Order No.

VF40 **PU - 18F** **BV - L 1820T** **BJ 18**

① ② ③ ④ ⑤ ⑥

▶ See pages 39, 60-67.

① Diameter

VF15	- Ø15
VF20	- Ø20
VF25	- Ø25
VF30	- Ø30
• VF40	- Ø40
VF50	- Ø50
VF50X2	- Ø50
VF75	- Ø75
VF90	- Ø90*
VF110	- Ø110
VF150	- Ø150
VF200	- Ø200
VF300	- Ø300

*Only PU Material

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Special mat'l)
U	- Urethane
A	- Mark free
• PU	- Poly Urethane*
WPU	- Poly Urethane* (Minimal mark)

*Only for VF30, VF40, VF50, VF75, VF90

③ Thread size

M5M	- M5 male (VF15)
18M	- G1/8" male (VF40)
14M	- G1/4" male (VF40, VF50)
38M	- G3/8" male (VF50)
M16M	- M16XP1,0 male (VF50X2)
M518MF	- M5 female and G1/8" male (VF20, VF25, VF30)
M518MFX*	- M5 female and G1/8" male (VF20, VF25, VF30)
• 18F(A)	- G1/8" female (VF20, VF25, VF30, VF40, VF50, VF75, VF90)
18FX*	- G1/8" female (VF40)
14F(A)	- G1/4" female (VF75, VF90)
38F(A)	- G3/8" female (VF75, VF90)
12F(A)	- G1/2" female (VF75, VF90, VF110, VF150, VF200)
M5X5F	- M5X5 female (VF20, VF25, VF30)
18X5F	- G1/8X5 female (VF40, VF50)
34F	- G3/4" female (VF300)

Remark : VF40~200 fittings are including mesh filter.

* Only for silicon material (A) : AL-Material (Only VF75, VF90)

④ Valves

no mark	- Standard
EV	- Vacuum Efficiency Valve (See page : 16) (VF20, VF25, VF30, VF40, VF50)
• BV	- Button Valve (See page : 16) (VF20, VF25, VF30, VF40, VF50, VF75, VF90, VF110, VF150)

Accessories order No.

L 1820T

⑤

BJ 18



⑥

⑤ Level compensator		⑥ Ball joint model	
Model	Stroke (mm)		
L506TX, L506TS	6	-	
L510LTX, L510LTS	10		
L507T, L507TN	7		
L515T	15		
L510, L510T	10		
L520, L520T, L520TF	20		
L1805F	5		
L525TSN	25		
L1805M	5		● BJ 18
L1810T, L1810TS, L1810TSE	10		
L1815, L1815T	15		
● L1820T, L1820TS	20		
L1820TN*	20		
L1830, L1830T, L1830TS	30		
L1850, L1850T	50	BJ 12	
L1230, L1230T	30		
L1250, L1250T	50		

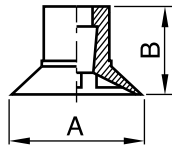
Remark : When apply level compensator into VF300, Use 1/2" level compensator 2pcs or 4pcs
 *Not available with ball joint(BJ).

SUCTION CUPS

Recommended (max.) lifting forces

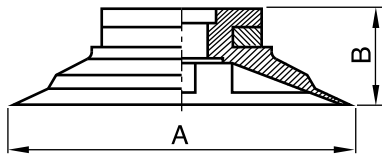
Model	Volume (cm ³)	Lifting Force (kg) - Perpendicular 			Lifting Force (kg) - Parallel 		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VF15	0,037	0,35	0,86	1,12	0,35	0,66	0,76
VF20	1,0	0,61	1,47	1,93	0,51	0,81	0,86
VF25	1,1	0,91	1,98	2,55	0,81	0,91	1,02
VF30	2,0	1,22	2,55	3,16	1,12	1,63	2,04
VF40	4,8	2,04	4,08	5,10	1,53	2,55	3,06
VF50	10	3,67	7,55	9,79	2,44	4,08	5,10
VF50x2	10	3,67	7,55	9,79	2,44	4,08	5,10
VF75	20	8,16	20,40	27,55	6,12	11,22	14,28
VF90	50	10,2	27,83	37,41	8,84	15,98	19,72
VF110	70	14,28	42,58	57,14	14,28	25,51	30,61
VF150	160	30,61	86,73	112,24	25,51	61,22	81,63
VF200	460	76,53	193,87	275,51	38,3	96,9	137,5
VF300	820	163	438	653	135	307	476

Dimensional Information including



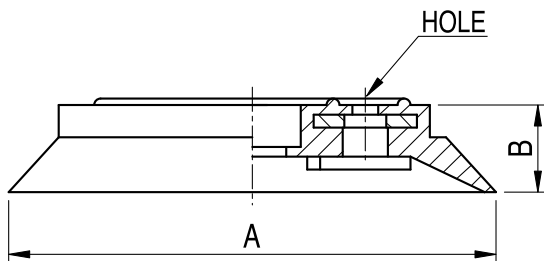
◀ VF15 [mm]

Model	A	B
VF15	16,5	11



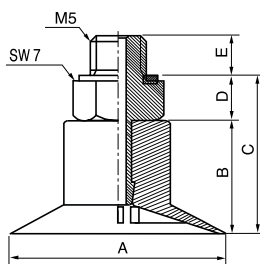
◀ VF20, 25, 30, 40, 50 [mm]

Model	A	B
VF20	22	8
VF25	27	9
VF30	32	10
VF40	42	13
VF50	53	17,5



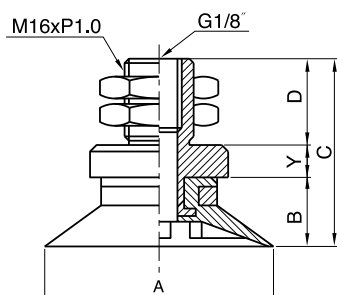
◀ VF75, 90, 110, 150, 200 [mm]

Model	A	B	HOLE
VF75	77	13	4- \varnothing 6.5 P.C.D \varnothing 35
VF90	92	12,5	4- \varnothing 6.5 P.C.D \varnothing 35
VF110	112	20	8- \varnothing 6 P.C.D \varnothing 55
VF150	152	26	8- \varnothing 6 P.C.D \varnothing 70,5
VF200	200	41	-



◀ Male thread [mm]

Model	A	B	C	D	E
VF15-M5-M	16,5	11	16	5	3,5



◀ Male / Female thread [mm]

Model	A	Y	B	C	D
VF50x2	53	7,5	17,5	43,5	20

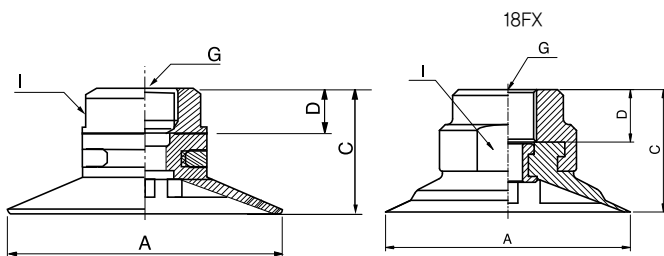
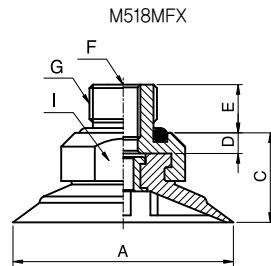
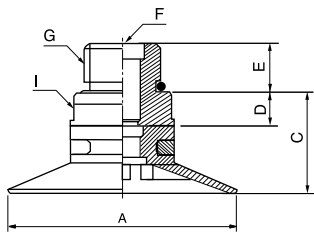
Dimensional Information

◀ Male/Female thread

[mm]

Model	A	C	D	E	F	G	I
VF20-M518MF	22	9,5	1,5	6	M5	G1/8"	SW12
VF20-M518MF*	22	11	3	7	M5	G1/8"	SW16
VF25-M518MF	27	10,5	1,5	6	M5	G1/8"	SW12
VF25-M518MF*	27	12	3	7	M5	G1/8"	SW16
VF30-M518MF	32	11,5	1,5	6	M5	G1/8"	SW12
VF30-M518MF*	32	13	3	7	M5	G1/8"	SW16
VF40-18M	42	18	5	7	-	G1/8"	SW17
VF40-14M	42	19	6	9	-	G1/4"	SW17
VF50-14M	53	22,5	6	10	-	G1/4"	SW24
VF50-38M	53	23,5	6	10	-	G3/8"	SW24

*For silicone material

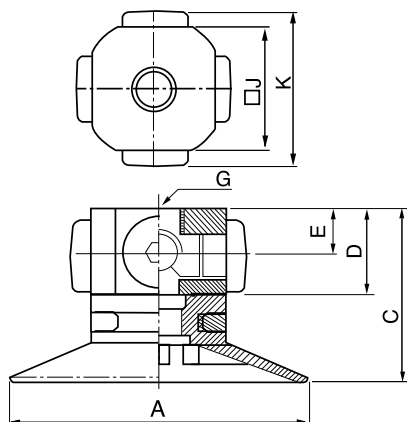


◀ Female thread

[mm]

Model	A	C	D	G	I
VF20-18F	22	16	8	G1/8"	SW15
VF25-18F	27	17	8	G1/8"	SW15
VF30-18F	32	18	8	G1/8"	SW15
VF40-18F	42	21	8	G1/8"	SW17
VF40-18FX*	42	22	9	G1/8"	SW21
VF50-18F	53	26,5	9	G1/8"	SW21

* For silicone material

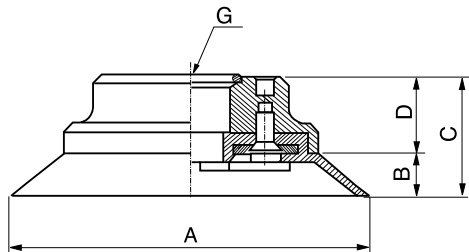


◀ Female thread

[mm]

Model	A	C	D	E	G	□J	K
VF20-M5X5F	22	17	9	5	M5x5	15	22
VF25-M5X5F	27	18	9	5	M5x5	15	22
VF30-M5X5F	32	19	9	5	M5x5	15	22
VF40-18X5F	42	31	18	10	G1/8"X5	22	30
VF50-18X5F	53	35,5	18	10	G1/8"X5	28	36

Dimensional Information

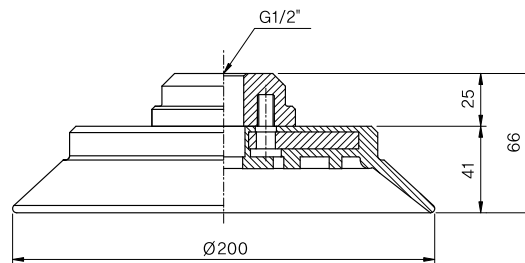


◀ Female thread

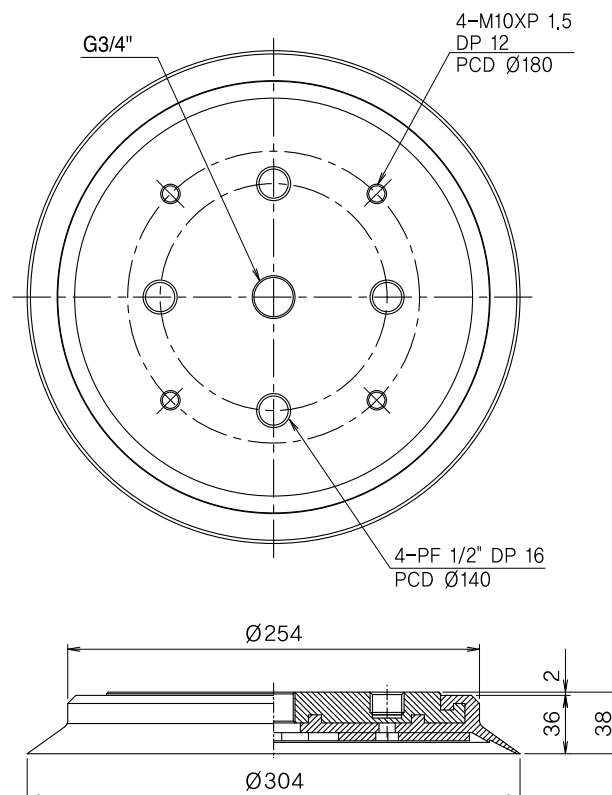
[mm]

Model	A	B	C	D	G
VF75-18F	77	8	26	18	G1/8"
VF75-14F	77	8	26	18	G1/4"
VF75-38F	77	8	26	18	G3/8"
VF75-12F	77	8	26	18	G1/2"
VF90-18F	92	7,5	25,5	18	G1/8"
VF90-14F	92	7,5	25,5	18	G1/4"
VF90-38F	92	7,5	25,5	18	G3/8"
VF90-12F	92	7,5	25,5	18	G1/2"
VF110-12F	112	14	29	15	G1/2"
VF150-12F	152	19	33	14	G1/2"

VF200-12F

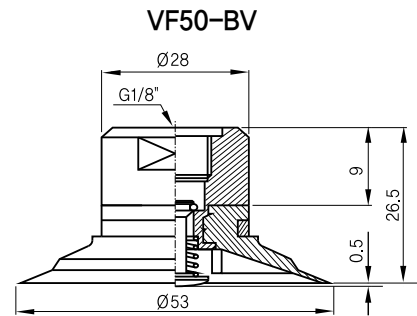
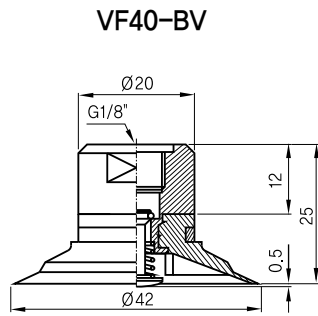
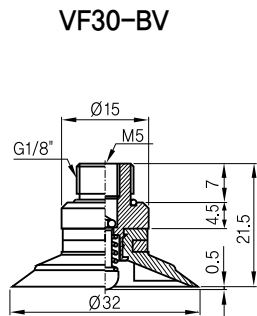


VF300-34F



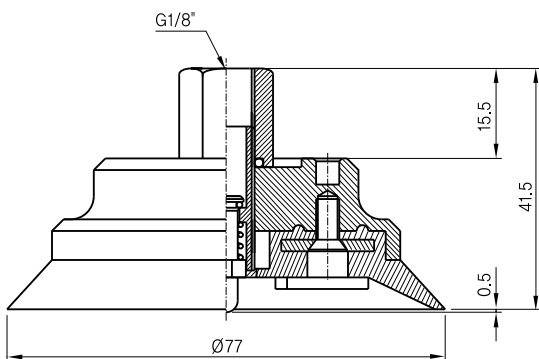
[Measure unit : mm]

Dimensional Information including button valve

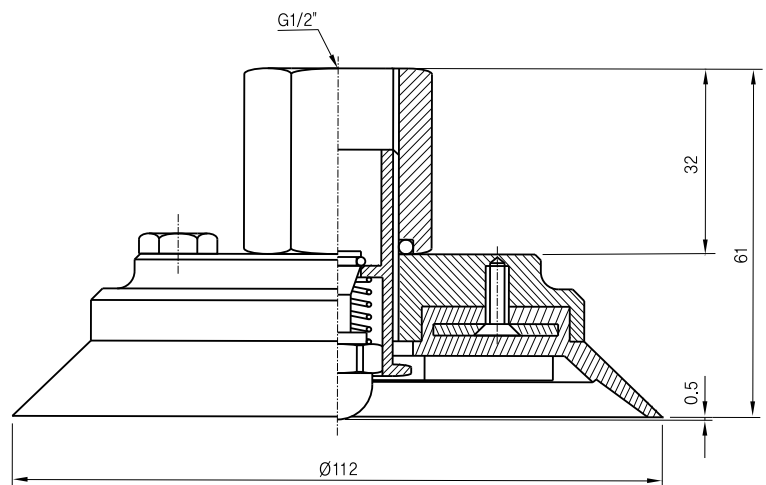


[Measure unit : mm]

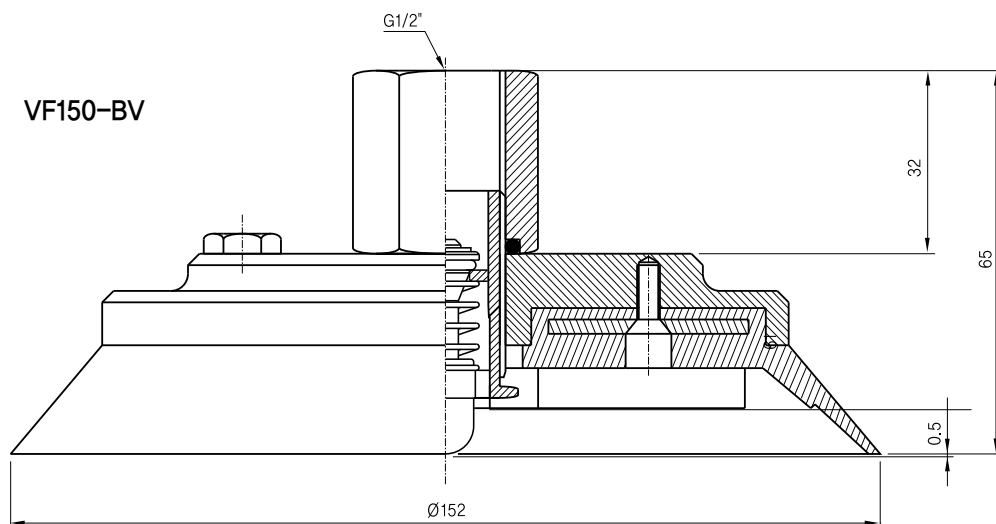
VF75-BV



VF110-BV



VF150-BV



[Measure unit : mm]

VFC Series (Flat Curve)

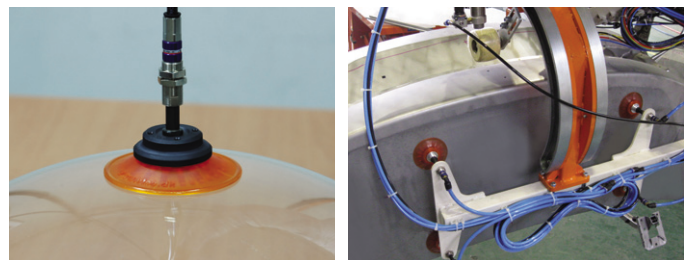
Features and Strengths

This cup is specifically designed to cope with both flat and curved surfaces, which means that multiple objects can be handled with the same suction cup.



Suitable for Handling

- Automotive Windscreens, Roof and Door.
- Sheet Metal
- Shaped Sheet Metal Panels
- TV Cathode ray Tube



Order No.

VFC50 ① PU ② - 1838MF ③ - L1820T ④ BJ 18 ⑤

▶ See pages 45, 60-67.

① Diameter

- **VFC50** – Ø50
- VFC60 – Ø60
- VFC60X1 – Ø60
- VFC75 – Ø75
- VFC75X1 – Ø75
- VFC75X2 – Ø75
- VFC90 – Ø90*
- VFC100 – Ø100

*Only for PU Material

② Material

- N – NBR
- S – Silicon
- WS – White Silicon
- HS – High Temp. Silicon
- CS – Conductive (Special mat'l)
- U – Urethane
- A – Mark free
- **PU** – Poly Urethane*
- WPU – Poly Urethane* (Minimal mark)

*Only for VFC50, VFC60, VFC75, VFC90, VFC100

③ Thread size

- M10M – M10XP1,5 male (VFC60X1, VFC75X1)
- M16M – M16XP1,0 male (VFC75X2)
- **1838MF** – G1/8" female and G3/8" male (VFC50, VFC60, VFC75)
- 18F(A) – G1/8" female (VFC90, VFC100)
- 14F(A) – G1/4" (VFC90, VFC100)
- 38F(A) – G3/8" female (VFC90, VFC100)
- 12F(A) – G1/2" female (VFC90, VFC100)

Remark : VFC90, 100 fittings are including mesh filter.
(A) : AL-Material

Accessories order No.

L 1820T

④

BJ 18



⑤

④ Level compensator		⑤ Ball joint model
Model	Stroke	
L1805M	5	<ul style="list-style-type: none"> • BJ 18
L1810T	10	
L1810TS, L1810TSE	10	
L1815T, L1815	15	
• L1820T, L1820TS	20	
L1820TN*	20	
L1830	30	
L1830T, L1830TS	30	
L1850	50	
L1850T	50	
L1230	30	BJ 12
L1230T	30	
L1250	50	
L1250T	50	

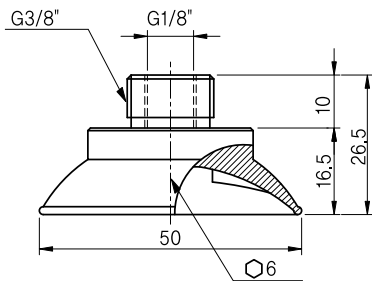
* Not available with ball joint(BJ)

SUCTION CUPS

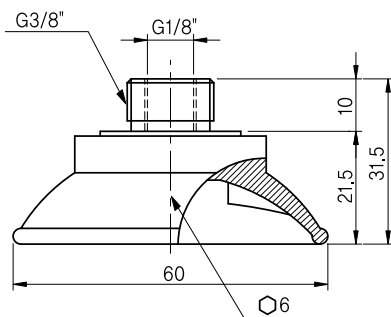
Recommended (max.) lifting forces

Model	Volume (cm ³)	Lifting Force (kg) - Perpendicular 			Lifting Force (kg) - Parallel 		
		-20 kPa	-60kPa	-90kPa	-20 kPa	-60kPa	-90kPa
VFC50	10	2.85	6.94	10.2	2.61	6.34	8.2
VFC60	20	4.55	11.57	15.3	3.05	7.92	10.7
VFC60X1	20	4.55	11.57	15.3	3.05	7.92	10.7
VFC75	30	7.65	19.38	25.51	6.19	15.46	20.9
VFC75X1	30	7.65	19.38	25.51	6.19	15.46	20.9
VFC75X2	30	7.65	19.38	25.51	6.19	15.46	20.9
VFC90	60	9.8	24.82	32.65	9.52	21.59	27.89
VFC100	80	12.75	35.71	46.93	12.24	23.97	28.57

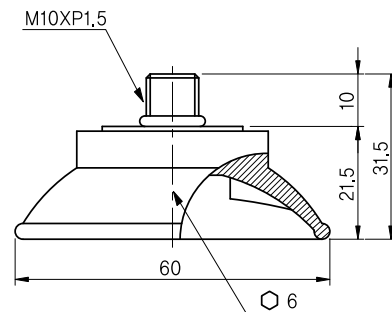
Dimensional Information



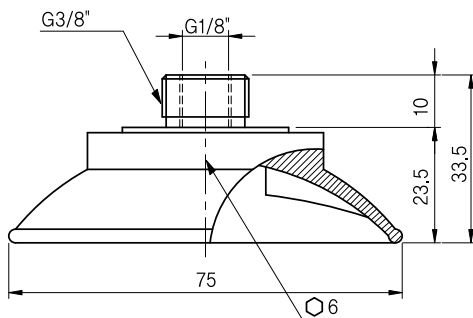
VFC50-1838MF



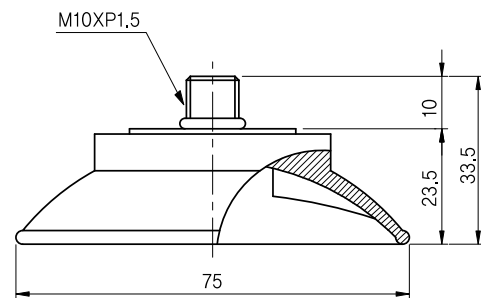
VFC60-1838MF



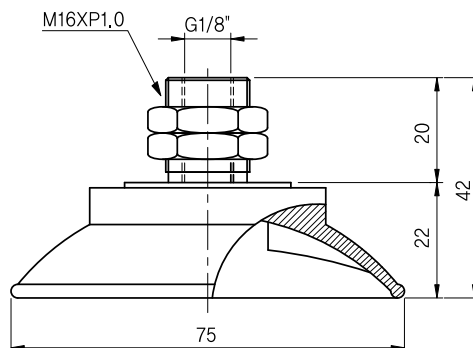
VFC60 X 1



VFC75-1838MF



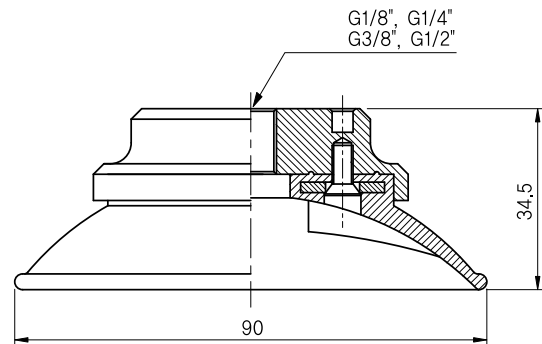
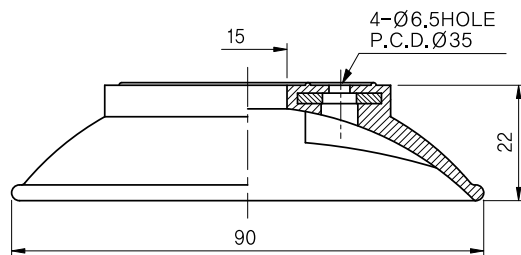
VFC75 X 1



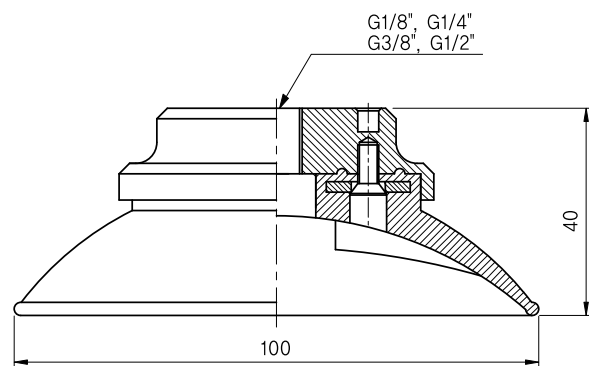
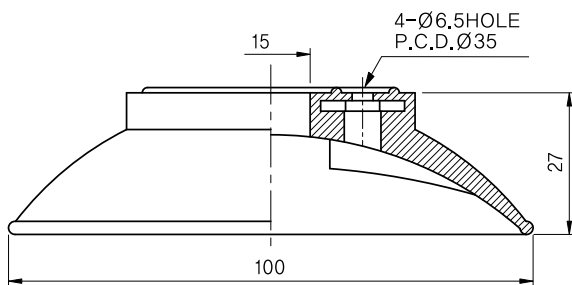
VFC75 X 2

[Measure unit : mm]

Dimensional Information



VFC90



VFC100

[Measure unit : mm]

VD Series (Deep)

Features and Strengths

This cup is best suited to curved or irregular surfaces. Also, it is deep and grip around corners and edges.



Suitable for Handling

- Automotive Roof and Door.
- Sheet metal
- Plastic sheets
- Sheet veneer
- Shaped sheet metal panels



Order No.

VD50 PU - 18F - L 1820T BJ 18

① ② ③ ④ ⑤
 ▶ See pages 60-67.

① Diameter

VD30	- Ø30
VD40	- Ø40
• VD50	- Ø50
VD60	- Ø60
VD70	- Ø70*
VD85	- Ø85
VD85X	- Ø85
VD90F	- Ø90*

*Only for PU material

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Special mat'l)
U	- Urethane
A	- Mark free
• PU	- Poly Urethane*
WPU	- Poly Urethane* (Minimal mark)

*Only for VD30,VD40,VD50, VD60, VD70, VD90F

③ Thread size

M8M	- M8 X P1,25 male (VD30, VD40, VD50, VD60, VD70, VD85)
M10M	- M10 X P1,5 male (VD30, VD40, VD50, VD60, VD70, VD85)
• 18F	- G1/8" female (VD30, VD40, VD50, VD60, VD70, VD85, VD90F)
14F	- G1/4" female (VD90F)
38F	- G3/8" female (VD90F)
12F	- G1/2" female (VD85, VD90F)
H19	- Ø19 Hole (VD90F)

Accessories order No.



L 1820T BJ 18

④ ⑤

④ Level compensator		⑤ Ball joint model
Model	Stroke (mm)	
L1805M	5	• BJ 18
L1810T, L1810TS, L1810TSE	10	
L1815T, L1815	15	
• L1820T, L1820TS	20	
L1820TN*	20	
L1830, L1830T, L1830TS	30	
L1850, L1850T	50	
L1230, L1230T	30	BJ 12
L1250, L1250T	50	

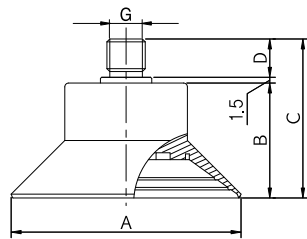
* Not available with ball joint(BJ)

Recommended (max.) lifting forces

Model	Volume (cm ³)	Lifting Force (kg) - Perpendicular 			Lifting Force (kg) - Parallel 		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VD30	4.5	1.22	2.55	3.06	0.73	1.53	1.83
VD40	7	2.04	3.97	5.0	1.22	2.38	3.00
VD50	13.5	3.57	7.44	9.38	2.14	4.46	5.62
VD60	22	5.50	14	18.5	3.3	8.4	11.1
VD70	38	7.15	18.8	24.9	4.2	11.6	16.2
VD85	60	10	28	39	6.0	16.8	23.4
VD85X	68	10	28	39	6.0	16.8	23.4
VD90F	56	9.25	24.36	32.17	7.97	14.42	18.15

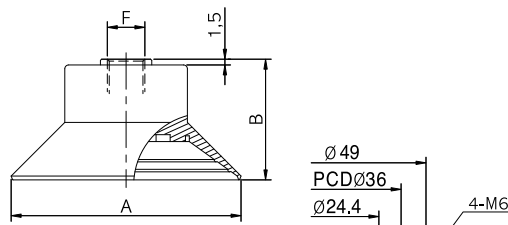
SUCTION CUPS

Dimensional information



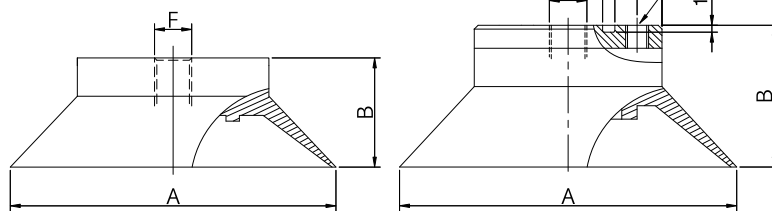
Male thread

Model	A	B	C	D	G
VD30	30	25	35	10	M8xP1.25 or M10xP1.5
VD40	40	25	35	10	M8xP1.25 or M10xP1.5
VD50	50	25	35	10	M8xP1.25 or M10xP1.5
VD60	61	30	41.5	10	M8xP1.25 or M10xP1.5
VD70	72	30	41.5	10	M8xP1.25 or M10xP1.5
VD85	85	28.5	38.5	10	M8xP1.25 or M10xP1.5



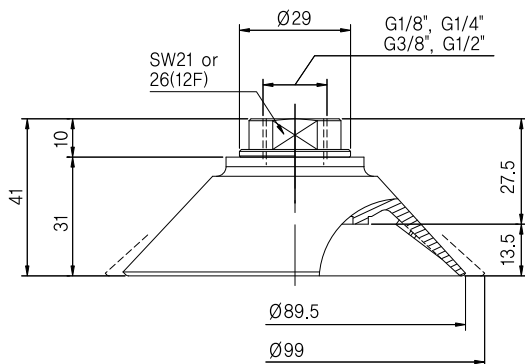
Female thread

Model	A	B	F
VD30	30	25	G1/8"
VD40	40	25	G1/8"
VD50	50	25	G1/8"
VD60	61	30	G1/8"
VD70	72	30	G1/8"

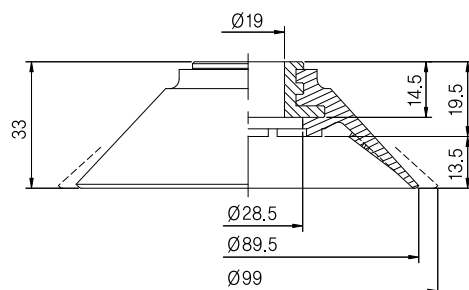


Female thread

Model	A	B	F
VD85	85	28.5	G1/8", G1/2"
VD85X	88	37	G1/8"



▲ VD90F - 18F, 14F, 38F, 12F



▲ VD90F - H19

VS Series (Sponge)

Features and Strengths

Used for handling rough and uneven surfaces and when used with ball joint option and level compensator option can accommodate very unlevel and uneven surfaces.



Suitable for Handling

- Marble
- Paving Slabs
- Bricks
- Rough Wood
- Masonry



Order No.

VS60 **E** **F** **- 18F** **BV** **- L1820T** **BJ 18**

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 60-67.

① Diameter

VS30X80	- Ø30X80
VS35	- Ø35
• VS60	- Ø60
VS100	- Ø100
VS150	- Ø150
VS200	- Ø200
VS300	- Ø300
VS400	- Ø400

② Material

- **E** - EPDM

③ Adjustable support (Handling for thin Film)

- | | |
|------------|---|
| no mark | - standard |
| • F | - with adjustable* support (See page : 17) (VS35, VS60, VS100, VS150) |

* Not available with BV (Button valve)option

④ Thread size

- **18F** - G1/8" female (VS35, VS60)
- 12F - G1/2" female (VS30X80, VS100, VS150, VS200)
- 34F - G3/4" female (VS200, VS300, VS400)

⑤ Valves

- | | |
|-------------|---|
| no mark | - standard |
| • BV | - Button valve (See page : 16page) (VS35, VS60, VS100, VS150) |

Accessories order No.

L 1820T **BJ 18**

⑥ ⑦

⑥ Level Compensator		⑦ Ball joint model
Model	Stroke (mm)	
L1805M	5	• BJ 18
L1810T, L1810TS, L1810TSE	10	
L1815T, L1815	15	
• L1820T, L1820TS	20	
L1820TN*	20	
L1830, L1830T, L1830TS	30	
L1850, L1850T	50	
L1230, L1230T	30	BJ 12
L1250, L1250T	50	

*Not available with ball joint(BJ)

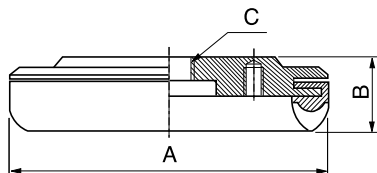
Recommended (max.) lifting forces

Model	Volume (cm ³)	Lifting Force (kg) – Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VS 30X80	43	2.7	9.1	14
VS35	6	2.04	5.1	7.14
VS60	20	6.12	15.3	22.44
VS100	55	18.36	45.9	67.34
VS150	125	38	97	138
VS200	543	76.53	193.87	275.51
VS300	1285	163.26	438.77	653.06
VS400	2285	326	876	1300

Dimensional Information

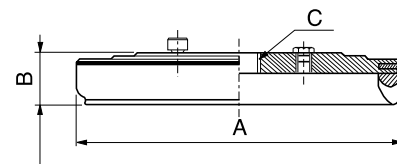
Female thread

VS35, 60, 100, 150



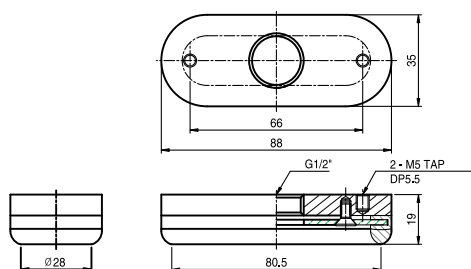
Model	A	B	C
VS35	42,5	15,5	G1/8"
VS60	67,5	15,5	G1/8"
VS100	107,5	19,5	G1/2"
VS150	157,5	19,5	G1/2"

VS200, 300, 400



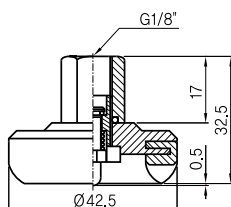
Model	A	B	C
VS200	215	34	G1/2", G3/4"
VS300	315	34	G3/4"
VS400	415	34	G3/4"

VS 30X80

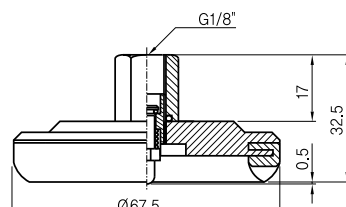


Button valve dimensional Information

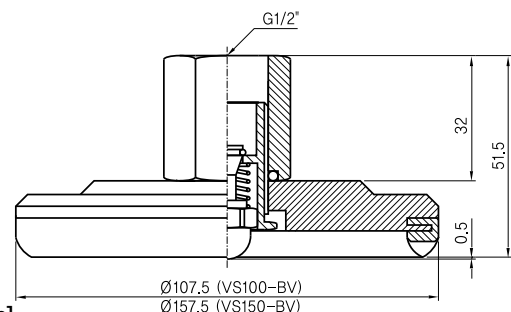
VS35-BV



VS60-BV



VS100-BV, VS150-BV



[Measure unit : mm]

VOU-Series

Features and Strengths

- Best suitable for handling long objects with flat and curved surfaces
- Good lifting forces can be achieved with small size
- Conductive silicon is excellent for handling PCB board or Electronic componets
- Easily mountable without detaching a fitting from the machine (save the maintenance time)



Suitable for Handling

- Semiconductor Chips (PCB board)
- Electronic components
- Small glass cases (e.g. ampule)
- Pipe



Order No.

VOU 15X45 - N F 18F - L 1820TN

①
②
③
④
⑤ ▶ See pages 60-67.

① Suction cup Ø(mm)

- VOU 4 X 10
- VOU 4 X 20
- VOU 6 X 10
- VOU 6 X 20
- VOU 8 X 20
- VOU 8 X 30
- VOU 10 X 30
- **VOU 15 X 45**
- VOU 20 X 60

② Material

- **N** - NBR
- S - Silicon
- WS** - White Silicon
- HS - High Temp. Silicon

③ Filter

- No Mark - Standard
 - **F*** - With mesh filter
- *Only for VOU 15x45
VOU 20x60

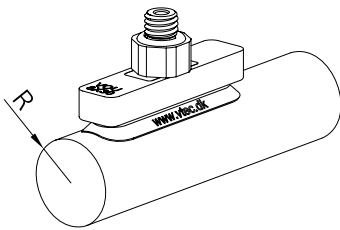
④ Fitting thread

- | | |
|------------------------------|----------------------------|
| M5M - M5 X 0.8 Male | VOU 4X10, 4X20, 6X10, 6X20 |
| M5F - M5 X 0.8 Female | 8X20, 8X30, 10X30 |
| 18M - G1/8" Male | VOU 15X45, 20X60 |
| ● 18F - G1/8" Female | |

⑤ Level Compensator (Accessory)

- | | |
|------------------|---|
| L507TN | - VOU 4X10, 4X20, 6X10, 6X20, 8X20, 8X30, 10X30 |
| ● L1820TN | - VOU 15x45, 20x60 |

Recommended (max.) lifting forces

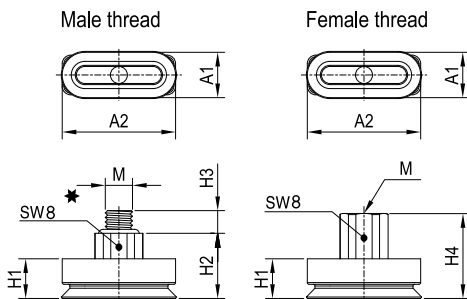


Model	Lifting Force (kg) -Perpendicular	Internal volume (cm ³)	Min.curvature radius R (mm)	Weight ≐ (kg)
VOU 4X10 -...	0,205	0,064	3,5	0,00031
VOU 4X20 -...	0,347	0,094	3,5	0,00036
VOU 6X10 -...	0,256	0,081	4,5	0,00031
VOU 6X20 -...	0,603	0,137	4,5	0,00037
VOU 8X20 -...	0,818	0,17	6,5	0,00037
VOU 8X30 -...	1,053	0,25	6,5	0,00043
VOU 10X30-...	1,554	0,394	8	0,00047
VOU 15X45 -...	3,271	1,584	11	0,022
VOU 20X60 -...	6,352	3,532	17	0,031

SUCTION CUPS

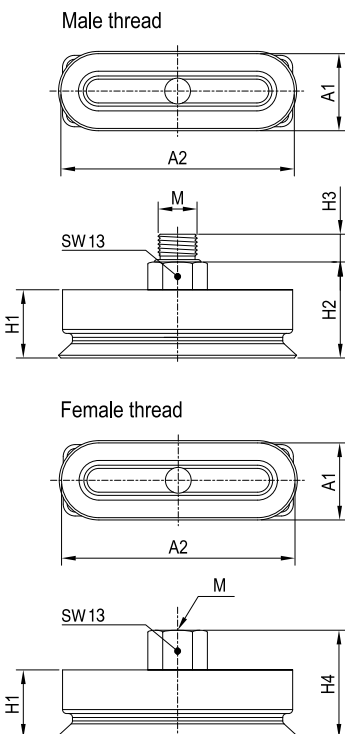
Dimensional information

▼ VOU 4X10 ~ 8X30



Model	A1	A2	H1	H2	H3	H4	M
VOU 4 x 10..M5M	4	10	7	11.5	4	-	M5 x 0.8
VOU 4 x 10..M5F				-	-	15	M5 x 0.8
VOU 4 x 20..M5M	4	20	7	11.5	4	-	M5 x 0.8
VOU 4 x 20..M5F				-	-	15	M5 x 0.8
VOU 6 x 10..M5M	6	10	7	11.5	4	-	M5 x 0.8
VOU 6 x 10..M5F				-	-	15	M5 x 0.8
VOU 6 x 20..M5M	6	20	7	11.5	4	-	M5 x 0.8
VOU 6 x 20..M5F				-	-	15	M5 x 0.8
VOU 8 x 20..M5M	8	20	7	11.5	4	-	M5 x 0.8
VOU 8 x 20..M5F				-	-	15	M5 x 0.8
VOU 8 x 30..M5M	8	30	7	11.5	4	-	M5 x 0.8
VOU 8 x 30..M5F				-	-	15	M5 x 0.8
VOU 10 x 30..M5M	10	30	8.2	12.7	4	-	M5 x 0.8
VOU 10 x 30..M5F				-	-	16.2	M5 x 0.8
VOU 15 x 45..18M	15	45	15.5	23	7	-	G1/8"
VOU 15 x 45..18F				-	-	25.5	G1/8"
VOU 20 x 60..18M	20	60	17.5	25	7	-	G1/8"
VOU 20 x 60..18F				-	-	27.5	G1/8"

▼ VOU 15X45, 20X60



VOC Series (Oval Curved)

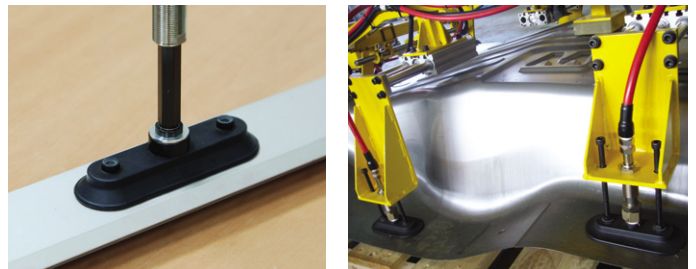
Features and Strengths

This cup is best suitable for handling long objects with flat or curved surfaces. Specially, parallel to the surface of the object it has a thick and durable lip.



Suitable for Handling

- Long Objects with Flat
- Curved Surfaces
- Shaped Sheet Metal Panels
- Automotive Bumper



Order No.

VOC 35x90 N - 38F

①

②

③

① Suction cup Ø(mm)

VOC11x23	- Ø11x23
• VOC35x90	- Ø35x90
VOC35x110	- Ø35x110
VOC60x140	- Ø60x140
VOC60x180	- Ø60x180

② Material

• N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Specil mat'l)
U	- Urethane
A	- Mark free

③ Thread size

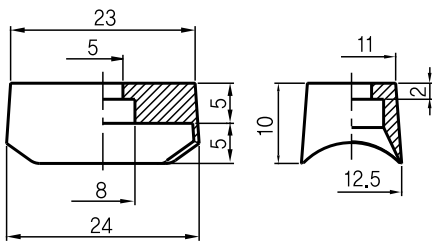
• 38F	- G3/8" female
	(VOC35X90, 35X110)
	VOC60X140, 60X180

Recommended (max.) lifting forces

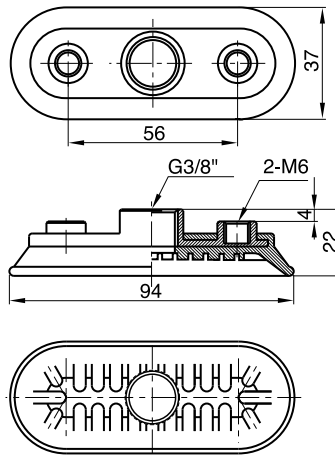
Model	Volume (cm ³)	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VOC 11 X 23	2,0	0,61	1,3	1,6	0,6	1,2	1,5
VOC 35 X 90	20	5	13,4	17,4	4	10,72	13,92
VOC 35 X 110	25	6,25	16,7	21,7	5	13,36	17,36
VOC 60 X 140	52	13,4	38,0	53,0	10,72	30,4	42,4
VOC 60 X 180	67	19,1	54,2	75,7	15,28	43,36	60,56

Dimensional Information

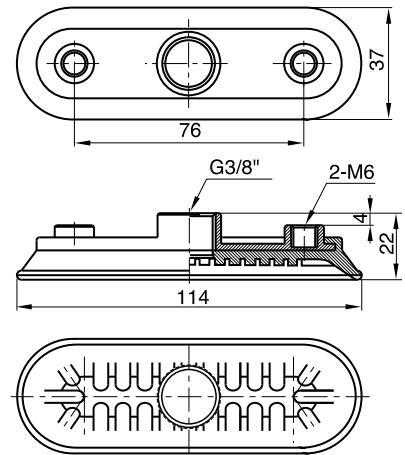
VOC 11x23



VOC 35x90 - 38F

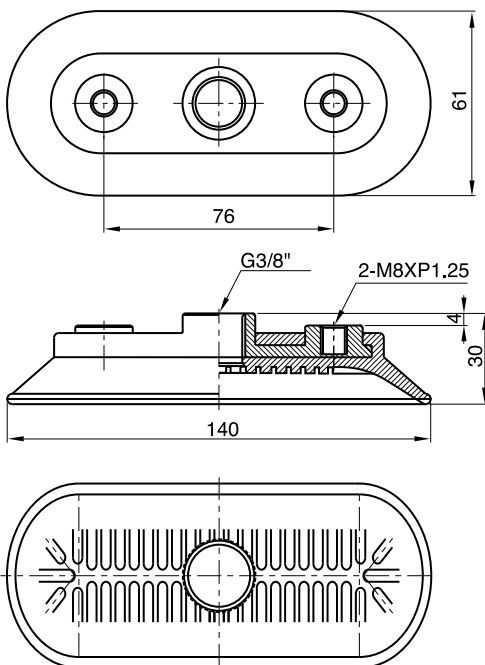


VOC 35x110 - 38F

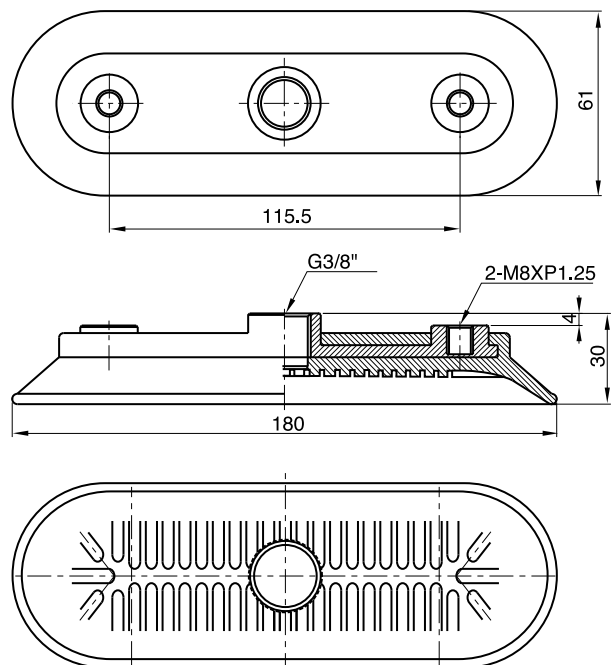


[Measure unit : mm]

VOC 60x140 - 38F



VOC 60x180 - 38F



[Measure unit : mm]

KPS Series (Plastic Bag Opening)

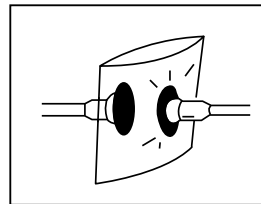
Features and Strengths

Developed to be used for opening plastic bags this cup gives good adhesion to thin plastic and film type materials.



Suitable for Handling

- Plastic Bag Opening
- Thin Film Materials
- Paper Bag Handling



Order No.

KPS-1

U

①

②

① Suction cup Ø

- **KPS-1*** – Ø34
- KPS-2 – Ø28
- KPS-3 – Ø13
- KPS-4 – Ø16
- KPS-5* – Ø28
- KPS-5-15* – Ø15
- KPS-6 – Ø30
- KPS-7 – Ø68
- KPS-8 – Ø25
- KPS-9* – Ø40
- VU-30-X – Ø30

* Gi/8" Female fitting available

② Material

- N – NBR
- S – Silicon
- WS – White Silicon
- HS – High Temp. Silicon
- CS – Conductive (Special mat'l)
- **U** – Urethane

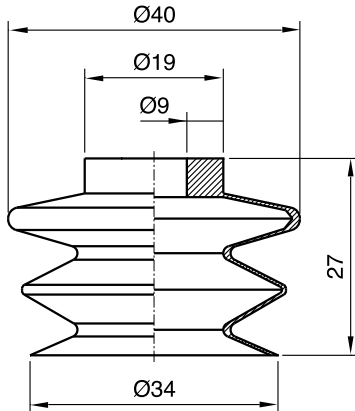
Remark : KPS-8 available only 'S', 'WS', 'HS'

Recommended (max.) lifting forces

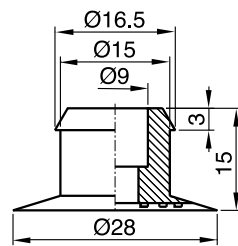
Model	Volume (cm ³)	Lifting Force (kg) – Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
KPS-1	14,5	1,22	2,24	2,75
KPS-2	2,0	0,7	1,53	1,83
KPS-3	0,5	0,35	0,85	1,12
KPS-4	1,0	0,6	1,22	1,63
KPS-5	2,0	0,7	1,53	1,83
KPS-5-15	1,1	0,4	1,11	1,23
KPS-6	2,0	0,8	1,7	2,05
KPS-7	20	5,5	14	18,5
KPS-8	1,4	0,5	1,15	1,25
KPS-9	8	1,55	2,8	5,1
VU-30-X	1,8	0,65	1,48	1,78

Dimensional Information

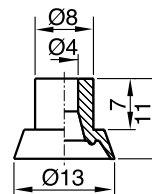
KPS-1



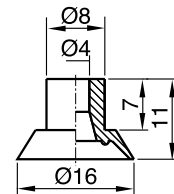
KPS-2



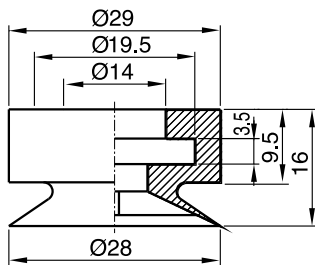
KPS-3



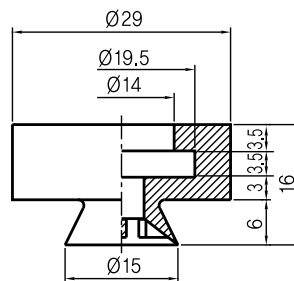
KPS-4



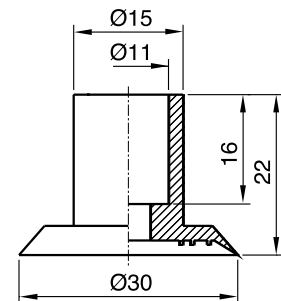
KPS-5



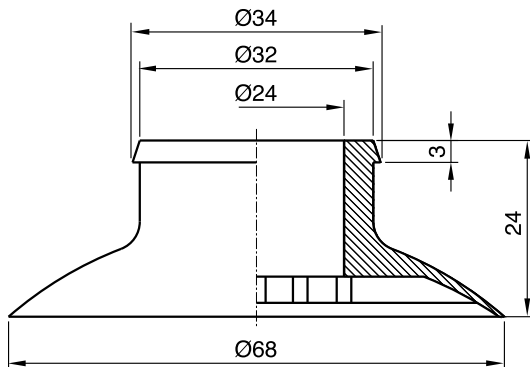
KPS-5-15



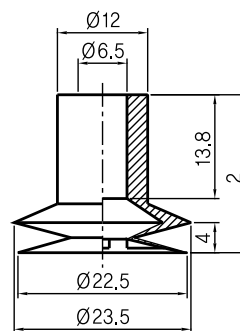
KPS-6



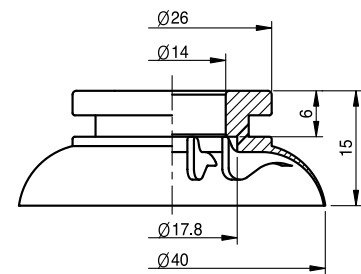
KPS-7



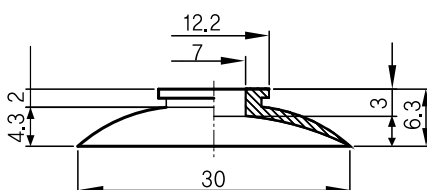
KPS-8



KPS-9



VU-30-X



[Measure unit : mm]

NF Series (Non-touch Flat)

PATENT & PATENT PENDING

Main advantages

- Non-contact handling item
- Integrated Multi-suction system
- Low air consumption
- Large vacuum flow and powerful suction force
- Safe gripping with mark free
- No moving parts
- Excellent gripping with metal sheets with holes.



Application

Circuit boards, Solar cell, CDs and DVDs, Uneven sheet
Wood, Packaging, Plastic, Thin products, Film, Paper,
Mirrors, Paper-board..

Order No.

NF 40 06 A - 18F

① ② ③ ④

① Vacuum pad Ø

- NF 20 – Ø20
- **NF 40** – Ø40
- NF 60 – Ø60

② Vacuum flows

- 06 – standard
- 12 – an extra vacuum flow

③ Material

- **A** – Aluminum
- P – PEEK**

**PEEK
• Excellent electrical insulating properties
• High abrasion Resistance
• Good Lubricity
• Consecutively Operating Temp. : 250°C
• Food Quality

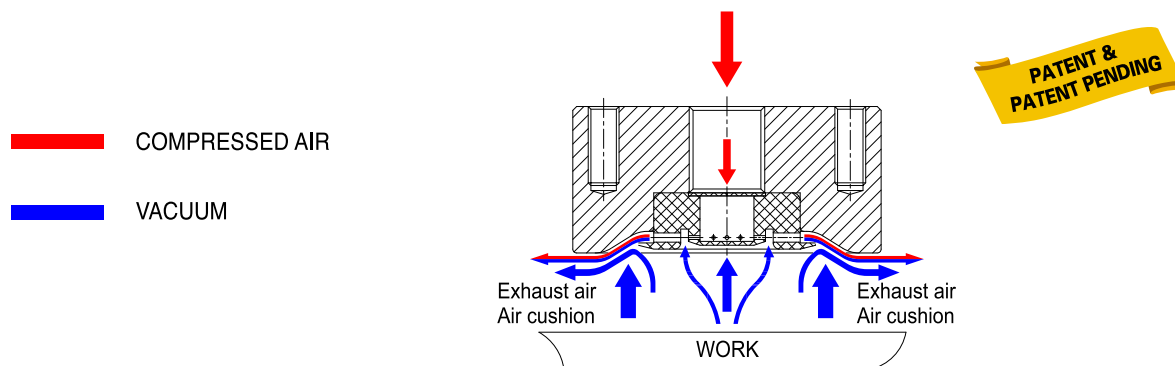
④ Thread size

- M5F – M5XPO,8 female (NF20,..)
- **18F** – G1/8" female (NF40,.., NF60,..)

Technical Data

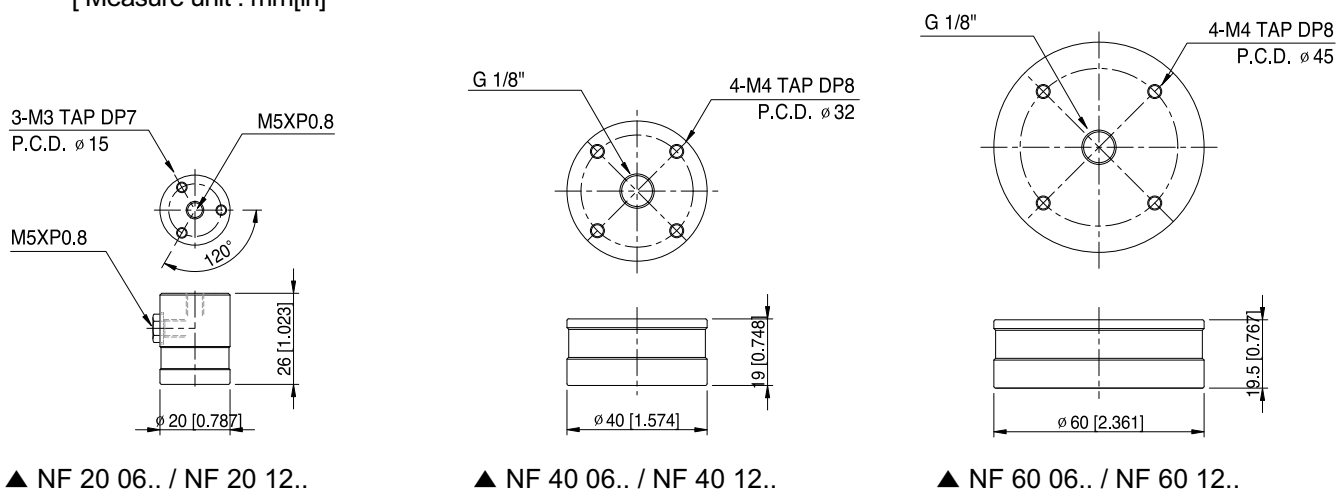
Model	Operating pressure (bar)	Air consumption (NI/m)			Holding force, (kg) at different pressure			Weight (g)
		4 bar	5 bar	6 bar	4 bar	5 bar	6 bar	
NF 20 06	4 ~ 6	75	82	90	0.2	0.22	0.22	Al : 21
NF 20 12		138	166	198	0.2	0.22	0.22	Peek : 11.5
NF 40 06	4 ~ 6	53	68	82	0.29	0.39	0.49	Al : 55
NF 40 12		120	128	135	0.49	0.59	0.68	Peek : 30
NF 60 06	4 ~ 6	105	123	126	0.59	0.79	0.89	Al : 130
NF 60 12		160	190	223	0.99	1.25	1.49	Peek : 70

The principle of VMECA NF PAD

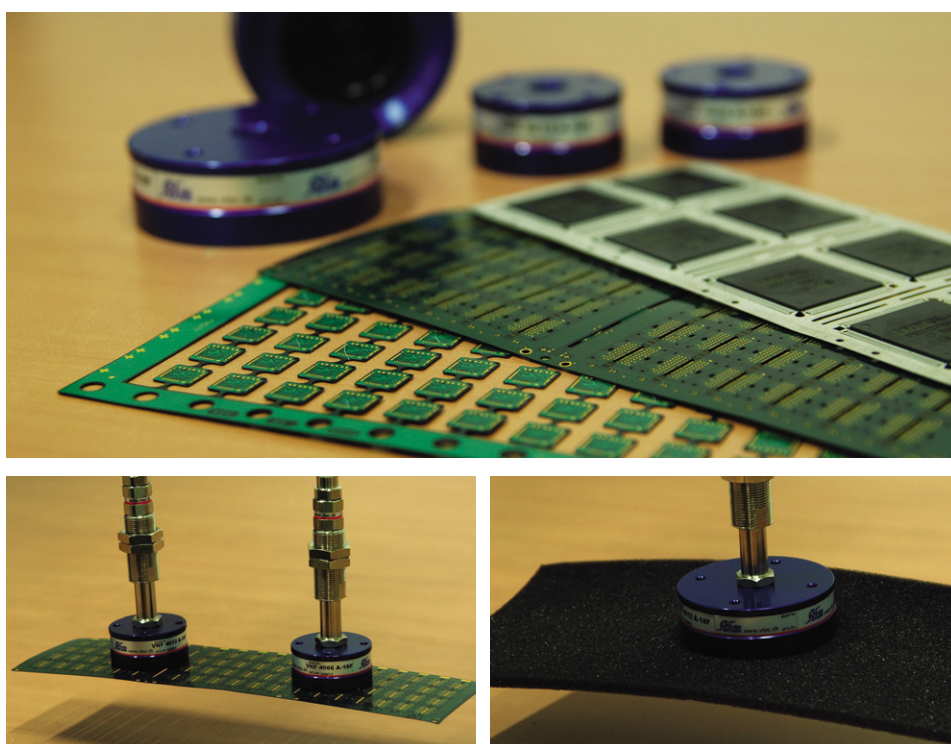


Dimensional information

[Measure unit : mm[in]]



Applications



Level Compensator

Features and Strengths

The Vtec level compensator is used to compensate for differences in height on the surface of the material that is to be lifted. The advantages being a more reliable and less precise pick up position when handling product that may be less consistent in its shape, size and position. The level compensator also provides a degree of shock absorption should this be required. The level compensator comes in configurations with varying sizes of spring and stroke.

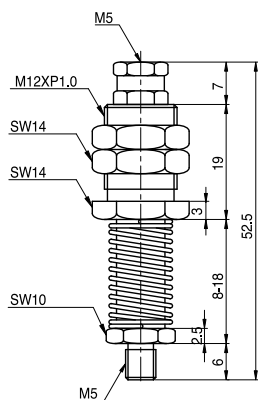


5-Series

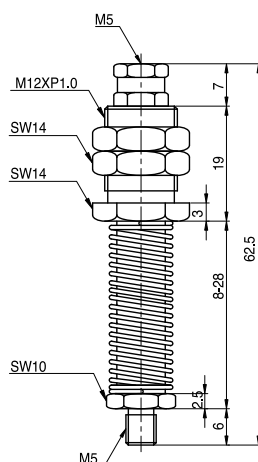
Dimensional Information

Model	Thread Size	Stroke (mm)	Weight (g)
L510T	M5-male	10	30
L520T	M5-male	20	33
L510	M5-male	10	33
L520	M5-male	20	36
L506TX	VB6X, VU1.5X, VU2X, VU4X	6	12
L506TS	VU10, VU15, VF15, VB10, VB12, VB15	6	12
L506TU	VU4, VU6, VU8, VB5, VB8	6	11
L506TM	VU2, VU3	6	11
L510LTX	VB6X, VU1.5X, VU2X, VU4X	10	19.5
L510LTS	VU10, VU15, VF15, VB10, VB12, VB15	10	19.8
L510LTU	VU4, VU6, VU8, VB5, VB8	10	19.2
L510LTM	VU2, VU3	10	19
L507T	M5-female	7	17
L515T	M5-female	15	20
L520TF	M5-female	20	20

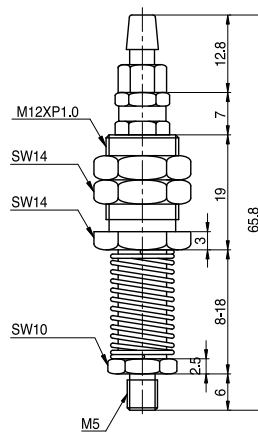
L510T



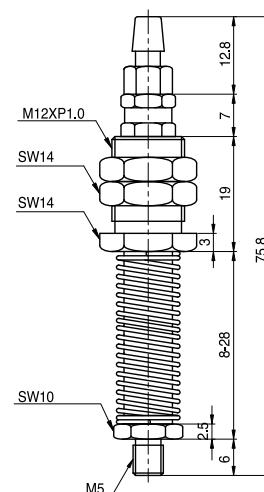
L520T



L510



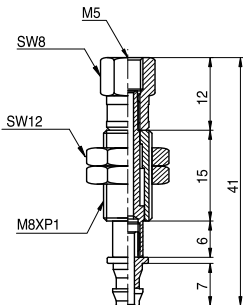
L520



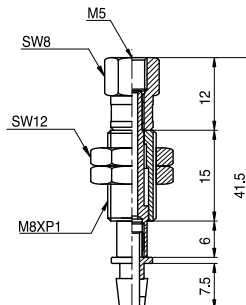
[Measure unit : mm]

Dimensional Information

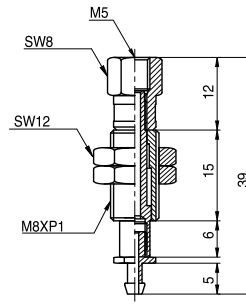
L506TX



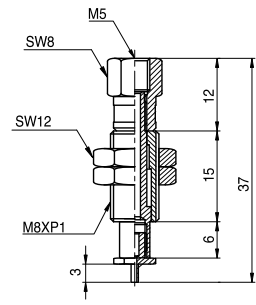
L506TS



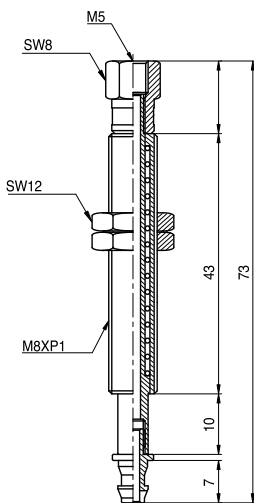
L506TU



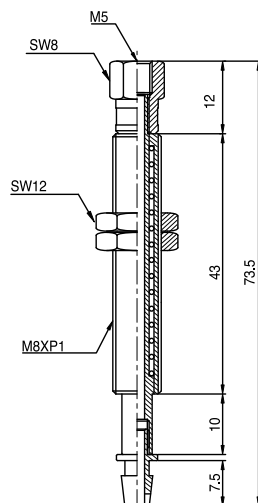
L506TM



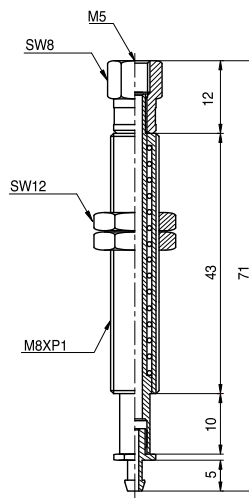
L510LTX



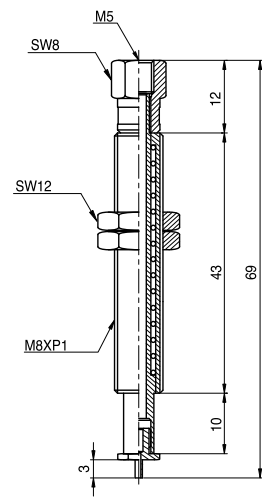
L510LTS



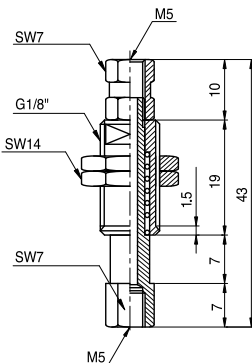
L510LTU



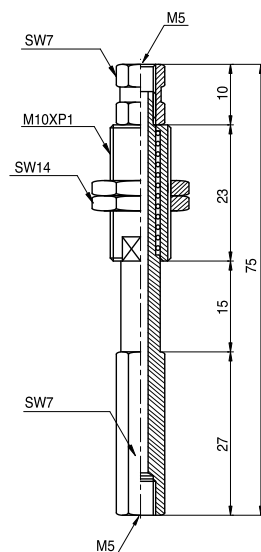
L510LTM



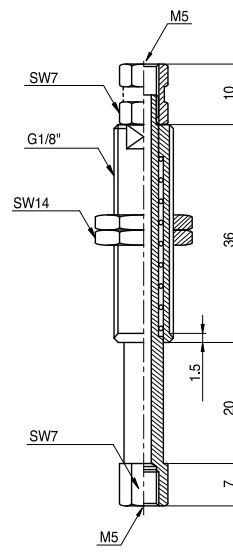
L507T



L515T



L520TF



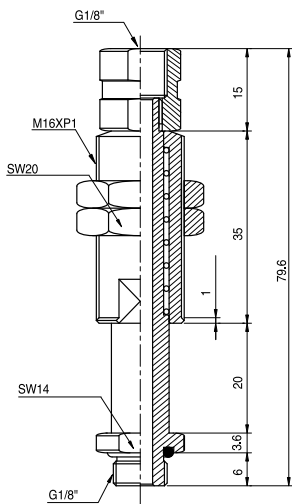
[Measure unit : mm]

SUCTION CUPS

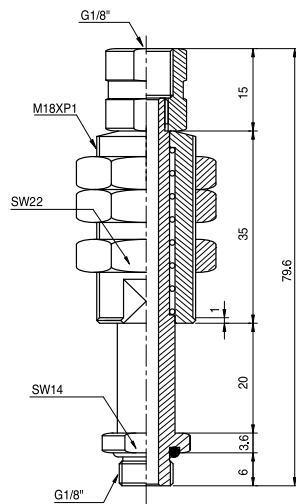
Dimensional Information

SUCTION CUPS

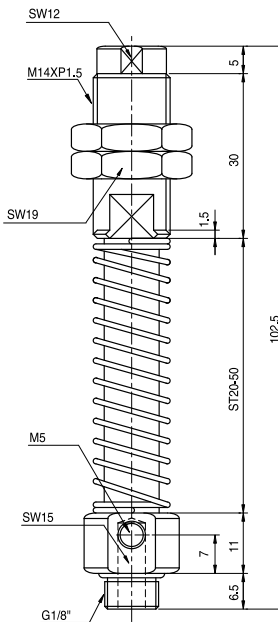
L 1820T



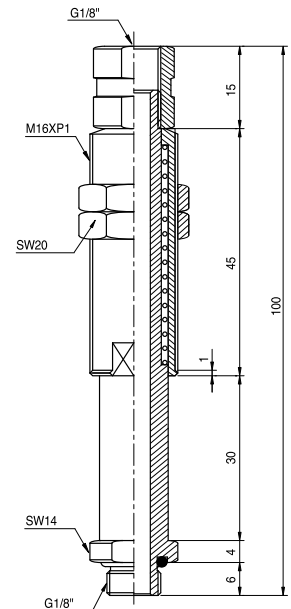
L 1820TS



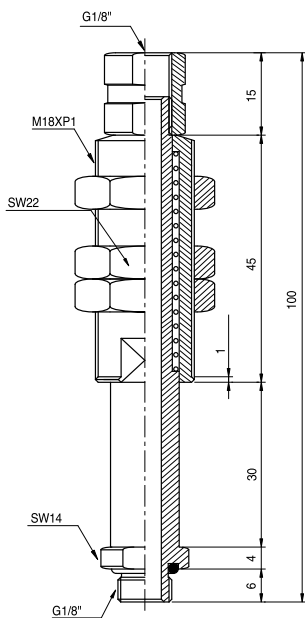
L 1830



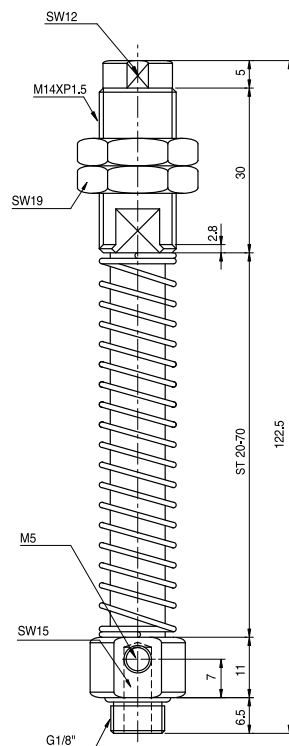
L 1830T



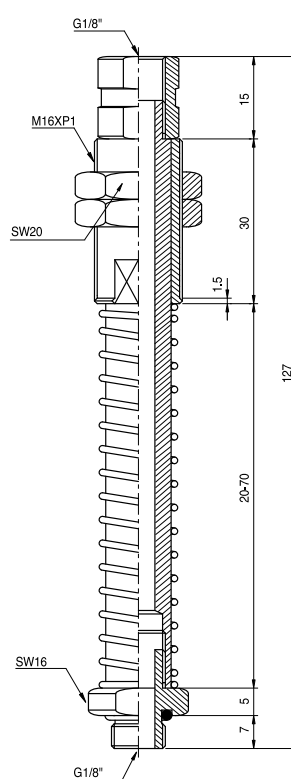
L 1830TS



L 1850



L 1850T



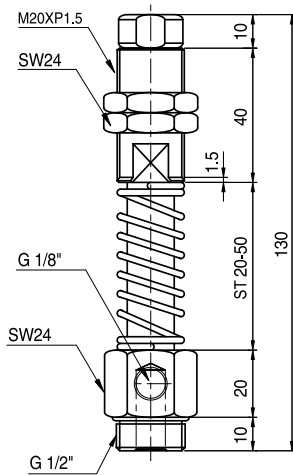
[Measure unit : mm]

12-Series

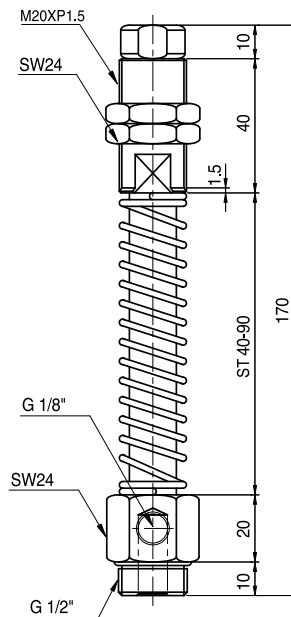
Dimensional Information

Model	Thread Size	Stroke (mm)	Weight (g)
L1230	G 1/2"	30	289
L1250	G 1/2"	50	350
L1230T	G 1/2"	30	241
L1250T	G 1/2"	50	156

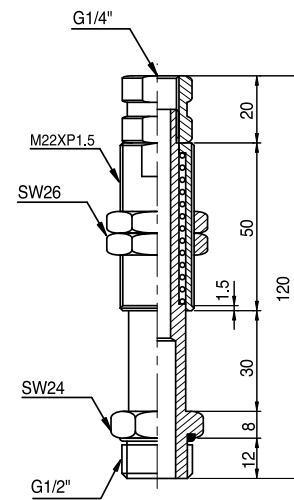
L 1230



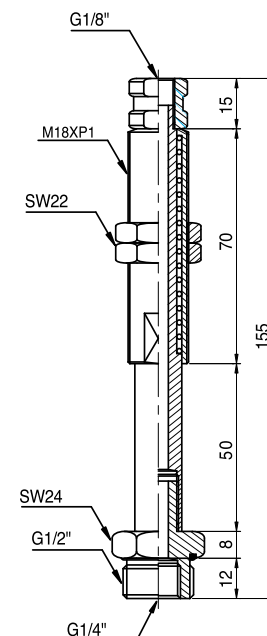
L 1250



L 1230T



L 1250T



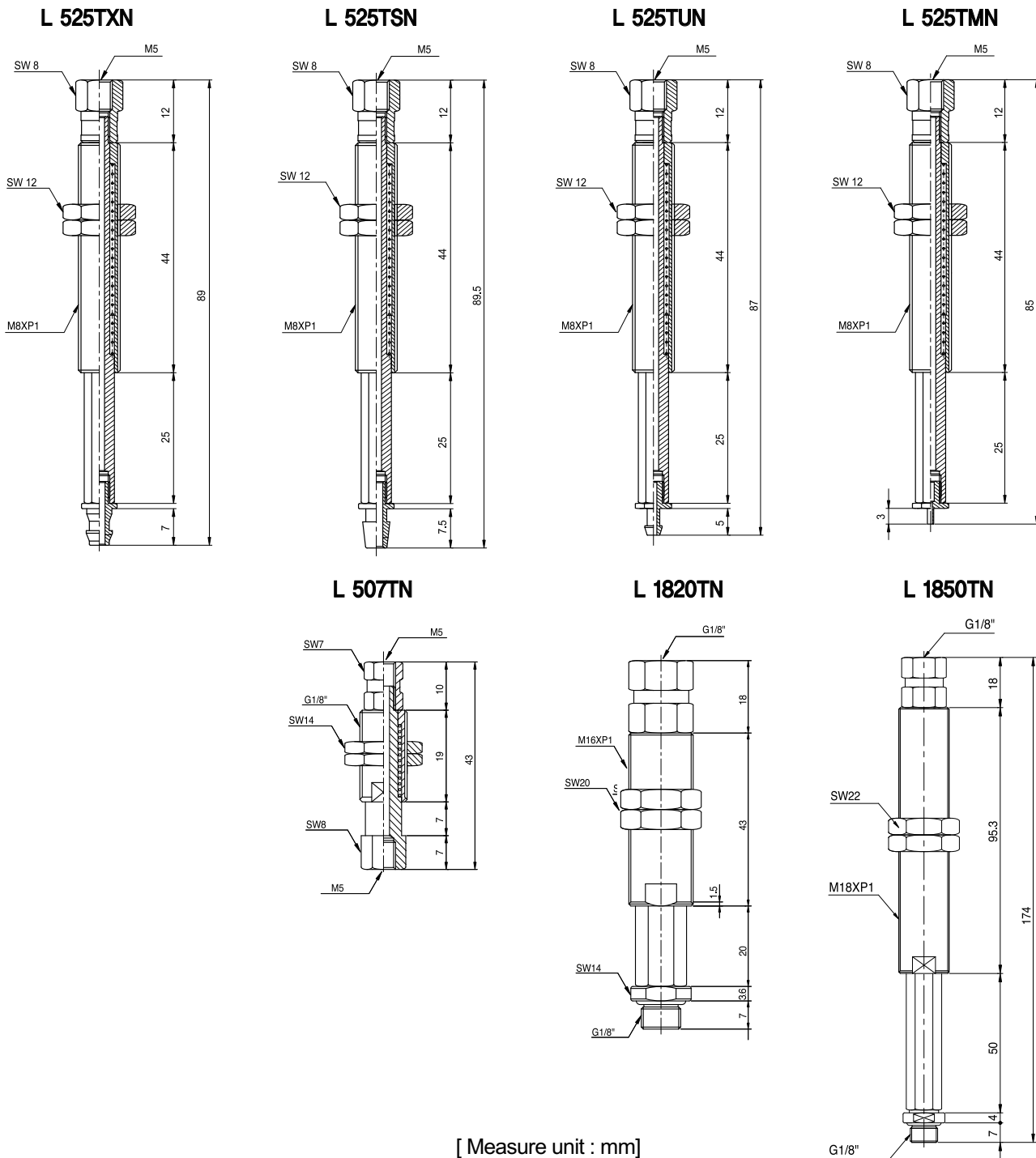
[Measure unit : mm]

■ Non Rotating Level Compensator

Dimensional Information

Model	Thread Size	Stroke (mm)	Weight (g)
L525TXN	VB6X, VU1.5X, VU2X, VU4X	25	20.7
L525TSN	VU10, VU15, VF15, VB10, VB12, VB15	25	20.6
L525TUN	VU4, VU6, VU8, VB5, VB8	25	20.3
L525TMN	VU2, VU3	25	20.1
L507TN	M5-female	7	18
L1820TN	G1/8"-male	20	54
L1850TN	G1/8"-male	50	140

SUCTION CUPS



[Measure unit : mm]

Ball Joints

Features and Strengths

The Vtec Ball Joint or sometimes referred to as a universal joint is for use when a degree of angular compliance is required, more commonly used with flat type cups which unlike bellows do not allow for much angular compliance as part of their design.

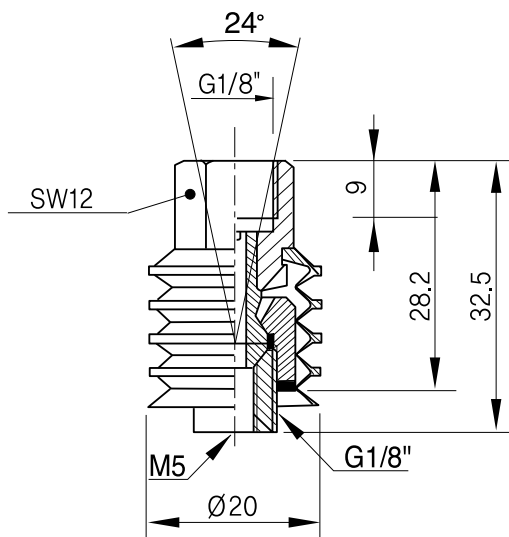
The vacuum port is integral through the centre of the joint thus providing a neat and compact solution.



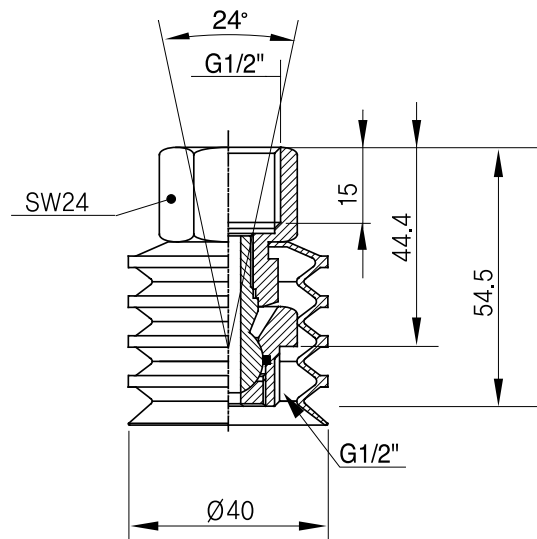
Dimensional Information

Model	Thread Size	Angle	Max. Load (kg)	Weight (g)
BJ 18	G1/8"	±12°	25	19
BJ 12	G1/2"	±12°	50	112

BJ 18



BJ 12



[Measure unit : mm]

Fitting Connector

Features and Strengths

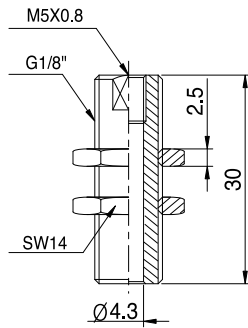
VTEC Fitting Connector is specifically designed to allow an assembled suction cup with fitting to mount easily on a plate. Fitting Connector has various sizes of thread options of vertical or horizontal types for vacuum connection ports. The lightweight aluminum body of the Fitting Connector is essential in making a complete vacuum line for a compact system.



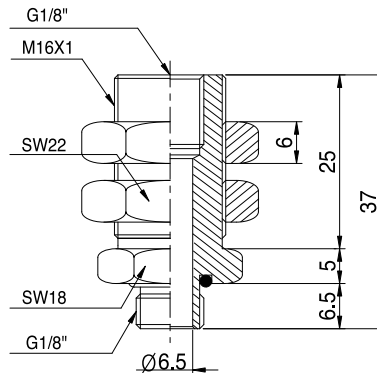
■ 18-Series

Dimensional Information

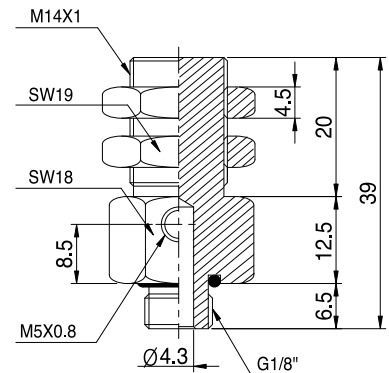
C1800T



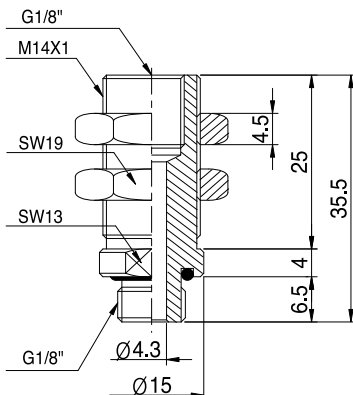
C1816T



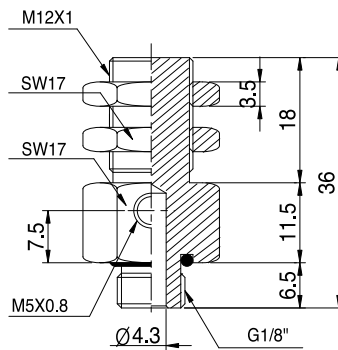
C1814



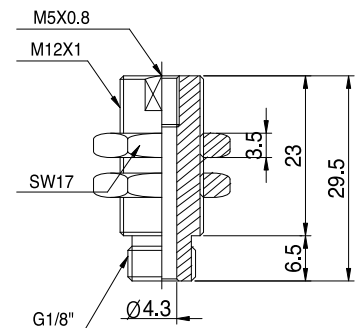
C1814T



C1812



C1812T



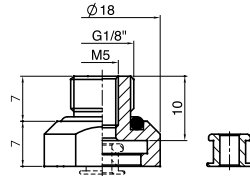
[Measure unit : mm]

Fittings (Option)

M2.5-M		VU2 , VU3	Code No. : 350 000 3000
M2.5-M		VU3K	Code No. : 350 000 3006
M5-M		VU2 , VU3	Code No. : 350 000 3100
M5-M		VU3K	Code No. : 350 000 3106
M5-M		VU4, VU6, VU8 VB5, VB8	Code No. : 350 000 3101
M5-M		VU10, VU15, VF15 VB10, VB12, VB15	Code No. : 350 000 3102
M518-MF		VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20	Code No. Standard - 350 000 3209 Built in mesh-filter - 350 000 5209 Built in efficiency valve - 350 010 4209
M5/18-MFO		VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20	Code No. Standard - 350 000 1209 Built in mesh-filter - 350 000 1109 Built in efficiency valve - 350 010 1209

Fittings (Option)

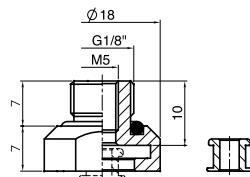
M5/18MFX
(For silicone Mat'l)



VU20, VU25, VU30
VF20, VF25, VF30

Code No. : 350 000 3229

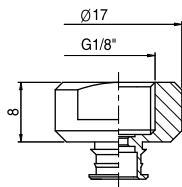
M5/18MFB
(For silicone Mat'l)



VB17
VB20, VBL20

Code No. : 350 000 3239

18-F

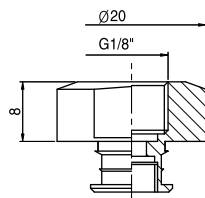


VU20, VU25, VU30
VF20, VF25, VF30
VB17, VB20
VBL20

Code No.

- Standard - 350 000 3310
- Built in mesh-filter - 350 000 4310
- Built in efficiency valve - 350 010 3310

18-F

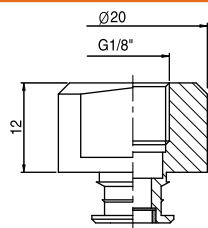


VU40
VF40
VB30, VB40
VBL30, VBL40

Code No.

- Standard (Built in mesh-filter) - 350 000 3311
- Built in efficiency valve - 350 010 3311

18-F

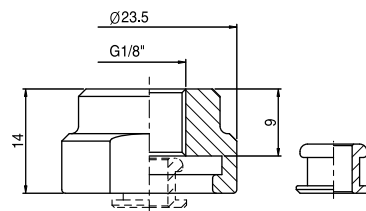


VU40
VF40
VB30, VB40
VBL30, VBL40

Code No.

- Standard (Built in mesh-filter) - 350 000 2311

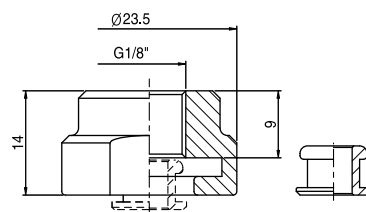
18-FX
(For silicone Mat'l)



VU40, VF40

Code No. : 350 000 3321

18-FB
(For silicone Mat'l)



VB30, VB40
VBL30, VBL40

Code No. : 350 000 3331

Fittings (Option)

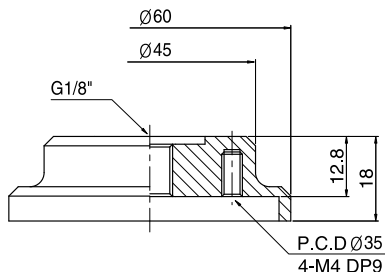
18-F KPS 1		KPS 1	Code No. Standard (Built in mesh-filter) - 350 000 3350
18-F KPS 5		KPS 5, KPS 5-15	Code No. Standard (Built in mesh-filter) - 350 000 3351
18-F KPS 9		KPS 9	Code No. Standard (Built in mesh-filter) - 350 000 3352
18-M		VU40 VF40 VB30, VB40 VBL30, VBL40	Code No. Standard (Built in mesh-filter) - 350 000 2304 Built in efficiency valve - 350 010 2304
18-F		VU50 VF50 VB50 VBL50	Code No. Standard (Built in mesh-filter) - 350 000 1312 Built in efficiency valve - 350 010 1312
18-F		VU50 VF50 VB50 VBL50	Code No. Standard (Built in mesh-filter) - 350 000 3312 Built in efficiency valve - 350 010 3312

Fittings (Option)

14-M		<p>VU40 VF40 VB30, VB40 VBL30, VBL40</p>	<p>Code No. Standard (Built in mesh-filter) - 350 000 3404 Built in efficiency valve - 350 010 3404</p>
14-M		<p>VU50 VF50 VB50 VBL50</p>	<p>Code No. Standard (Built in mesh-filter) - 350 000 3405 Built in efficiency valve - 350 010 3405</p>
38-M		<p>VU50 VF50 VB50 VBL50</p>	<p>Code No. Standard (Built in mesh-filter) - 350 000 3505 Built in efficiency valve - 350 010 3505</p>
5XM5-F		<p>VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20</p>	<p>Code No. Standard - 351 000 3110 Built in mesh-filter - 351 000 4110 Built in efficiency valve - 351 010 3110</p>
5-18-F		<p>VU40 VF40 VB30, VB40 VBL30, VBL40</p>	<p>Code No. Standard (Built in mesh-filter) - 351 000 3311 Built in efficiency valve - 351 010 3311</p>
5-18-F		<p>VU50 VF50 VB50 VBL50</p>	<p>Code No. Standard (Built in mesh-filter) - 351 000 3312 Built in efficiency valve - 351 010 3312</p>

Fittings (Option)

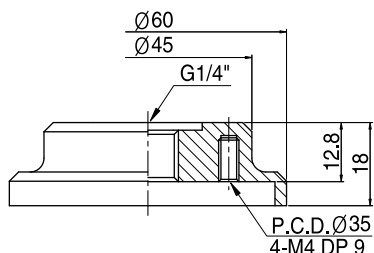
18-F



VB75
VF75
VF90
VFC90
VFC100

Code No.
(PPS) : 350 000 3313
(AL) : 350 000 3323

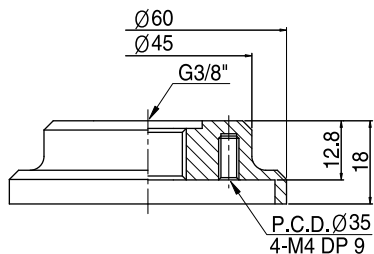
14-F



VB75
VF75
VF90
VFC90
VFC100

Code No.
(PPS) : 350 000 3413
(AL) : 350 000 3423

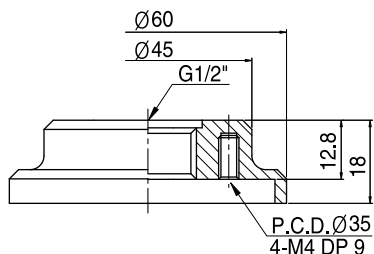
38-F



VB75
VF75
VF90
VFC90
VFC100

Code No.
(PPS) : 350 000 3513
(AL) : 350 000 3523

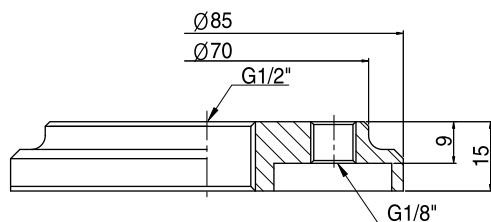
12-F



VB75
VF75
VF90
VFC90
VFC100

Code No.
(PPS) : 350 000 3613
(AL) : 350 000 3623

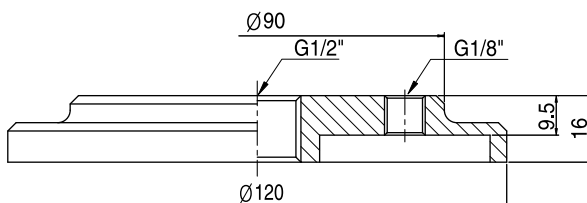
12-F



VB110
VF110

Code No. 350 000 3614

12-F



VB150
VF150

Code No. 350 000 3615

Fittings (Option)

12-F		VF200	Code No. 350 000 3616
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18-F		VS35	Code No. 350 001 3311
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18-F		VS60	Code No. 350 001 3312
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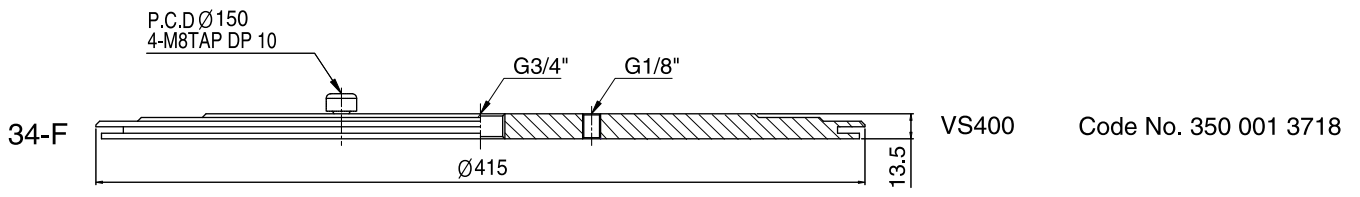
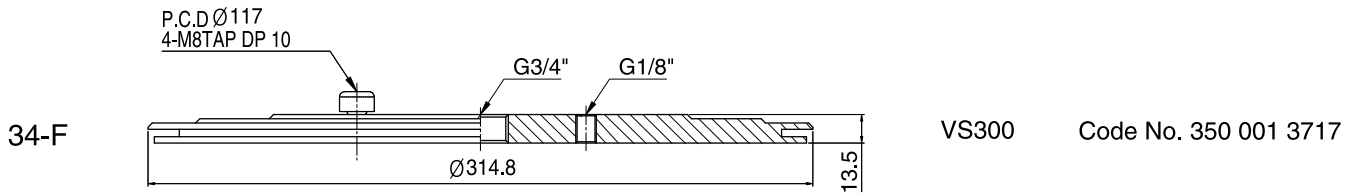
12-F		VS100	Code No. 350 001 3623
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12-F		VS150	Code No. 350 001 3615
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12-F		VS200	Code No. 350 001 3616
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34-F		VS200	Code No. 350 001 3716
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Fittings (Option)



VACUUM SPEEDER

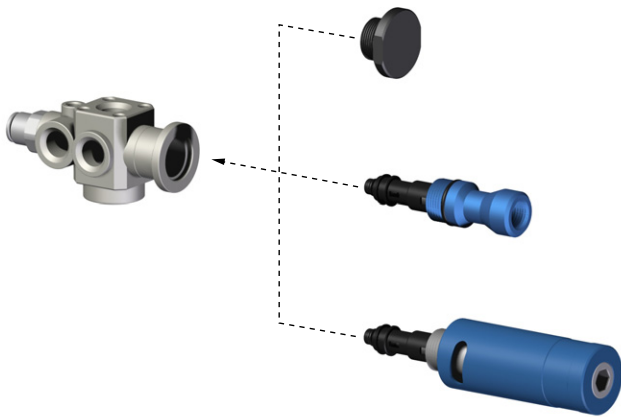
VACUUM SPEEDER



Select Vacuum speeder

• Select Vacuum Cartridge

- Choose the non-return valve option for sealed system applications to prevent immediate loss of vacuum and resulting release of product, etc due to an interrupted air supply.



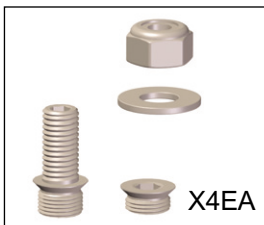
- ▶ Select a VSM (Vacuum Speeder) without a vacuum cartridge when using as a slave to another vacuum source; typically sealed applications or where fast response time is not required.
- ▶ Select a VSM with VMECA 2-stage VC202 Mini cartridge to provide sufficient vacuum flow (up to 41 NI/m) for sealed applications (i.e. sheet metal handling) or for low volume applications (i.e. small vacuum cups). Optional non-return valve available.*
- ▶ Select a VSM with the VMECA 3-stage VC203 cartridge (vacuum flow up to 85 NI/m) for quick response time in high volume, sealed applications (i.e. large vacuum cups) or for non-sealed applications (i.e. cardboard handling) where high vacuum flow is required. Optional non-retrun valve is available.*

• Select mounting and mounting position



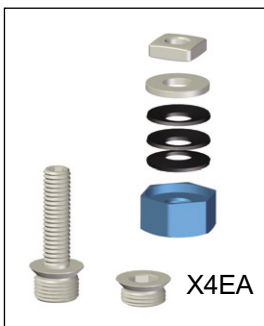
▶ Option “F” - Direct Plate Mounting exm. ①

Mount directly to a plate (top mounting only) using the (4) M4 screws. (5) G1/8 plugs also included.



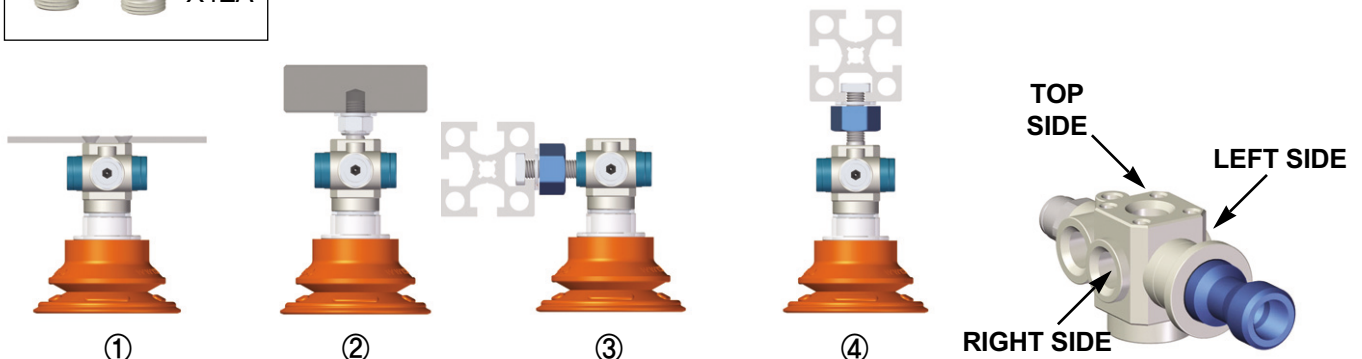
▶ Option “M” - M8 Male Mounting exm. ②

Mount using M8 male fixed at factory in one of 3 specified positions (top, right, left). (4) G1/8 plugs are included. Left and right side mounting provides a lower profile vs. top mounting.



▶ Option “P” - T - Slot Frame Mounting exm. ③, ④

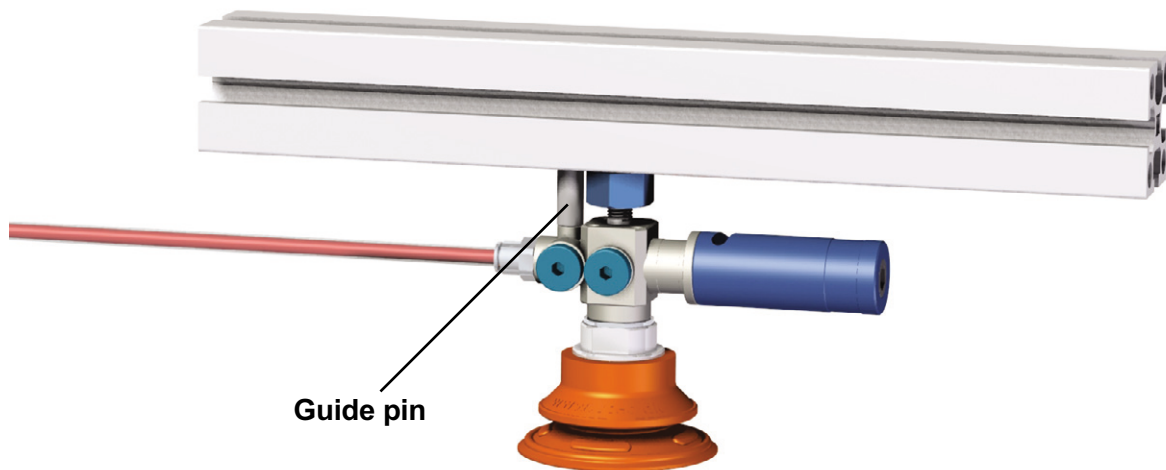
Mount to appropriate t-slot frame in one of (3) positions (top, right, left) using (1) M8 27mm or (1) M6 22mm screw as specified with supplied nut and washers. (4) G1/8 plugs are included. Optional non-return valve is available.”



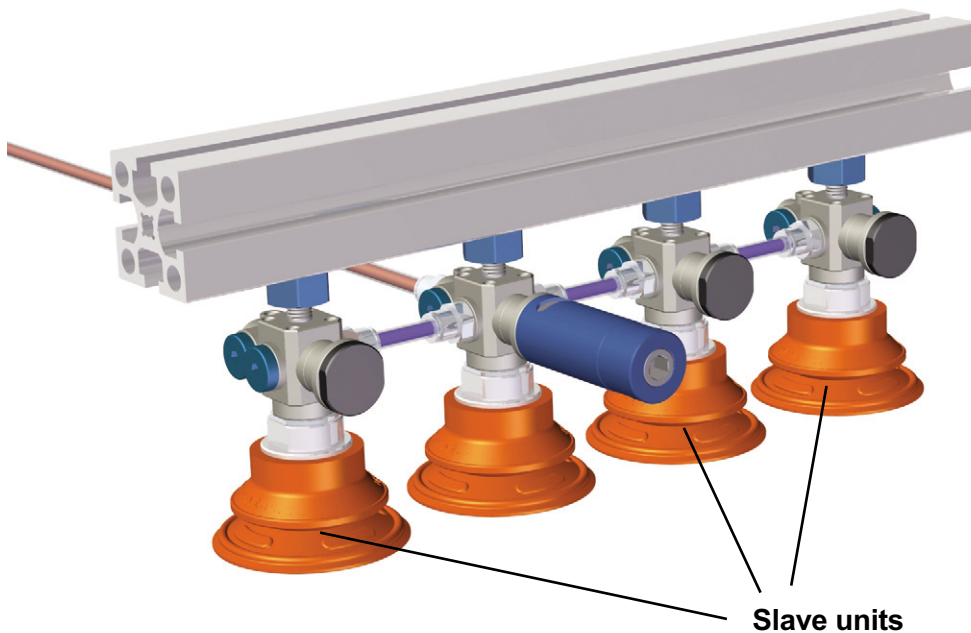
VSM Example

 Compressed air

 Vacuum



- ▲ To prevent the Vacuum Speeder from rotating when mounted in the top position use a guide pin inserted into the M5 port on the top of the VSM and extended into the t-frame slot.

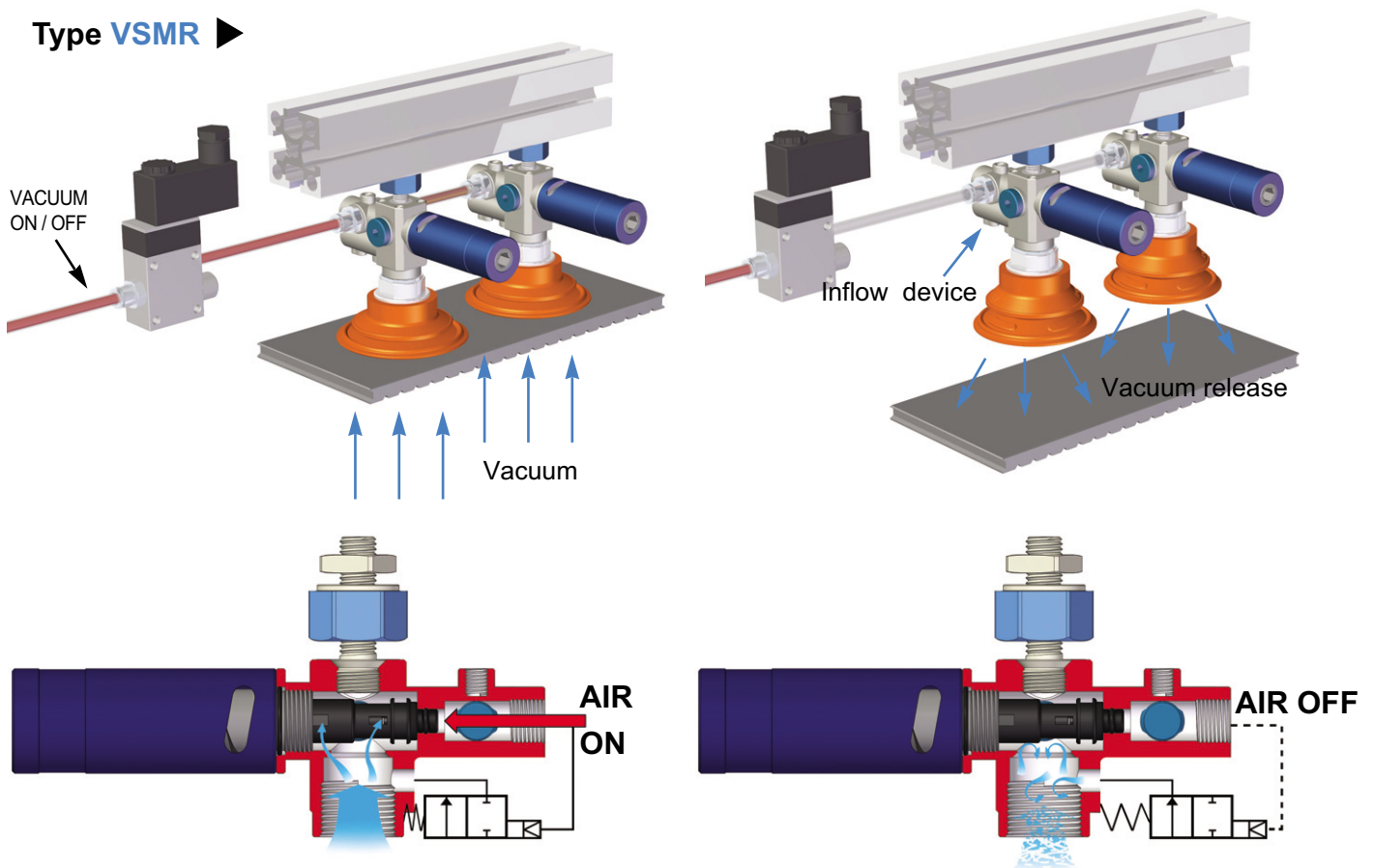


- ▲ Use a VSM (Vacuum Speeder) as a slave unit with vacuum supplied by another VSM in sealed applications or in applications where quick response time is not required.

Example

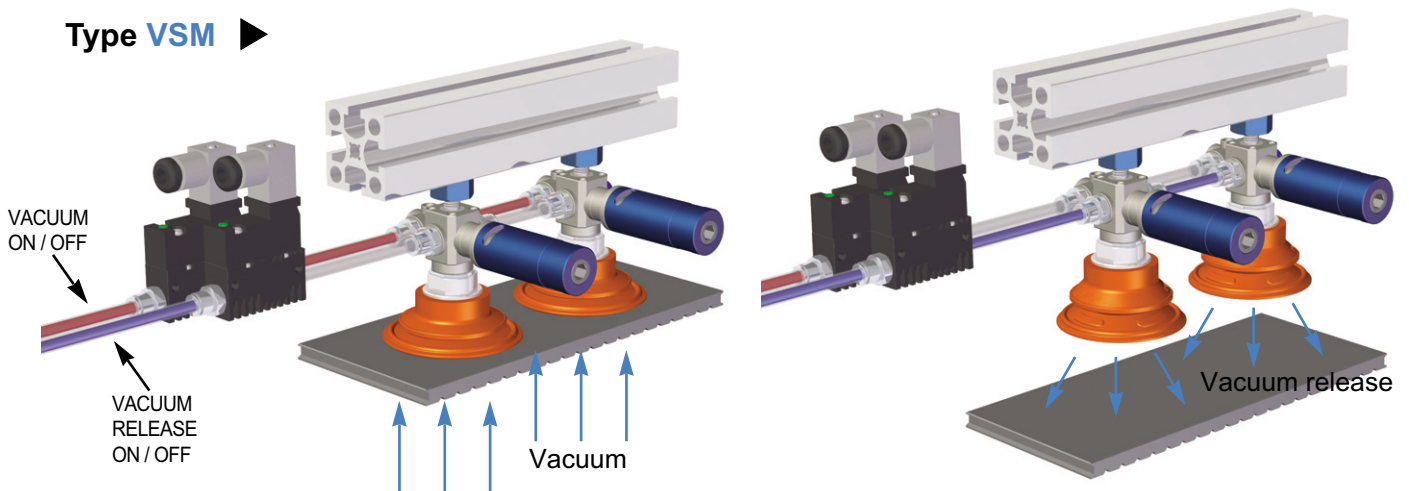
• VACUUM RELEASE

Type VSMR ▶



▲ Automatic faster release (blow-off) by inflow device of outside air is available **without any release control valve or line.** (Type VSMR / Patent pending)

Type VSM ▶



▲ Faster release (blow-off) and efficient cleaning of suction cup filters can be achieved by adding controlled compressed air to extra vacuum ports.

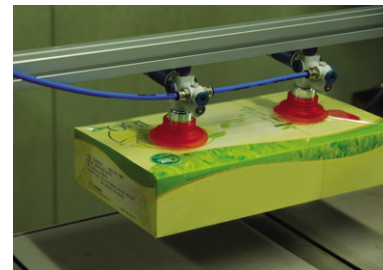
Series VSMR..

- Max. vacuum level : -90kPa (-26.57 inHg)
- Max. flow rate : 85.8 NI/min (3.03 scfm)
- Supply air pressure : 3~6 bar, max 7 bar
(43.5~87psi, max 101.5psi)
- Air consumption : 20~32 NI/min (0.7~1.13 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ +80°C
- Noise level : 55~65 dBA



Main advantages

- Efficient individual and independent point-of-use vacuum.
- Extremely quick response.
- Multiple connection ports available
- Quick release system without release control valve.
- Maintains vacuum despite fluctuations and drops in air pressure.
- VMECA TWOFOLD SILENCER^{PT} assures low noise levels.
(about 30% lower than conventional silencer)



Order No.

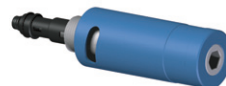
VSMR 203 - PT8..VBF80 PU - 38M



▲ See pages 83-97

① Vacuum cartridge

- **203** - Vacuum cartridge VC203
incl. twofold silencer



- 202 - Vacuum cartridge VC202
incl. holding plug



② Mount and mounting position

- | | | |
|-------|---|--|
| F | - 4x screw M4 top, 5x plug G1/8" (direct mount) | |
| MT8 | - M8 16mm screw top, 4x plug G1/8" incl. mounting kit | |
| ML8 | - M8 16mm screw left, 4x plug G1/8" incl. mounting kit | |
| MR8 | - M8 16mm screw right, 4x plug G1/8" incl. mounting kit | |
| • PT8 | - M8 27mm screw top, 4x plug G1/8" incl. profile kit with jam nut | |
| PL8 | - M8 27mm screw left, 4x plug G1/8" incl. profile kit with jam nut | |
| PR8 | - M8 27mm screw right, 4x plug G1/8" incl. profile kit with jam nut | |
| PT6 | - M6 22mm screw top, 4x plug G1/8" incl. profile kit with jam nut | |
| PL6 | - M6 22mm screw left, 4x plug G1/8" incl. profile kit with jam nut | |
| PR6 | - M6 22mm screw right, 4x plug G1/8" incl. profile kit with jam nut | |



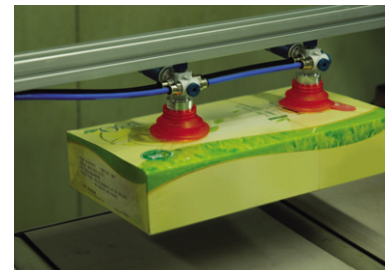
Series VSM..

- Max. vacuum level : -90kPa (-26.57 inHg)
- Max. flow rate : 85.8 NI/min (3.03 scfm)
- Supply air pressure : 3~6 bar, max 7 bar
(43.5~87psi, max 101.5psi)
- Air consumption : 20~32 NI/min (0.7~1.13 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ +80°C
- Noise level : 55~65 dBA



Main advantages

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- Extremely quick response.
- Multiple connection ports available
- Maintains vacuum despite fluctuations and drops in air pressure.
- VMECA TWOFOLD SILENCER^{PT} assures low noise levels.
(about 30% lower than conventional silencer)



Order No.

VSM 203 - PT8..VBF80 PU - 38M

▲ See pages 83-97

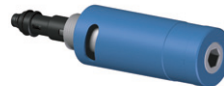
①

②

① Vacuum cartridge

203 - Vacuum cartridge VC203
incl. twofold silencer

203 N - Vacuum cartridge VC203 with non-return valve
incl. twofold silencer



• 202 - Vacuum cartridge VC202
incl. holding plug

202 N - Vacuum cartridge VC202 with non-return valve
incl. holding plug



020 - No vacuum cartridge (slave unit)



② Mount and mounting position

F - 4x screw M4 top, 5x plug G1/8" (direct mount)



MT8 - M8 16mm screw top, 4x plug G1/8" incl. mounting kit

ML8 - M8 16mm screw left, 4x plug G1/8" incl. mounting kit

MR8 - M8 16mm screw right, 4x plug G1/8" incl. mounting kit



• PT8 - M8 27mm screw top, 4x plug G1/8" incl. profile kit with jam nut

PL8 - M8 27mm screw left, 4x plug G1/8" incl. profile kit with jam nut

PR8 - M8 27mm screw right, 4x plug G1/8" incl. profile kit with jam nut

PT6 - M6 22mm screw top, 4x plug G1/8" incl. profile kit with jam nut

PL6 - M6 22mm screw left, 4x plug G1/8" incl. profile kit with jam nut

PR6 - M6 22mm screw right, 4x plug G1/8" incl. profile kit with jam nut



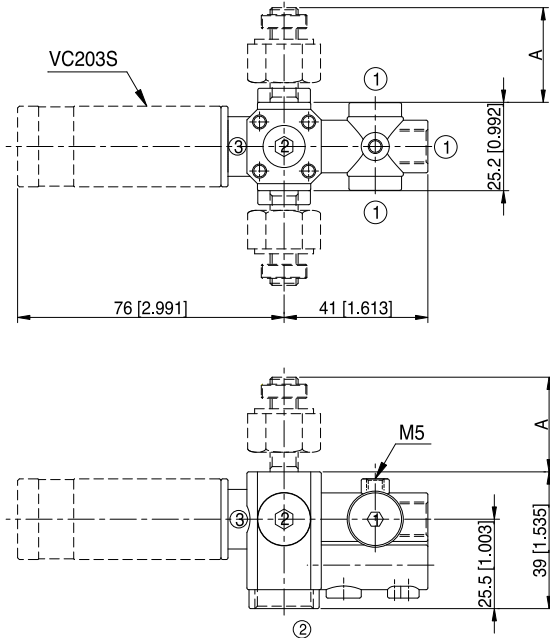
Technical Data

Model	Feed pressure (MPa)	Air consumption (NI/m)	Max. Vacuum level (-kPa)	Suction cup	Time, s/l, evacuate a volume to different vacuum level	
					-20 kPa	-60 kPa
VSMR 203.. VSM 203..	0.314	26	90	VB 30..	0.05	0.09
				VB40..	0.06	0.1
				VB50..	0.07	0.12
				VB75 (B)..	0.15	0.22
				VBF 30..	0.05	0.08
				VBF 40..	0.05	0.09
				VBF 50..	0.06	0.1
				VBF 60..	0.08	0.12
				VBF 80..	0.14	0.18
				VBF 100..	0.17	0.2
				VBL 30..	0.05	0.09
				VBL 40..	0.08	0.12
				VBL 50..	0.1	0.14
				VF 30..	0.04	0.07
				VF 40..	0.04	0.07
				VF 50..	0.05	0.08
				VF 75..	0.06	0.11
				VF 90..	0.07	0.12
				VF 110..	0.11	0.17
				VFC 50..	0.05	0.09
				VFC 60..	0.06	0.11
				VFC 75..	0.08	0.13
				VFC 90..	0.11	0.18
				VFC 100..	0.13	0.2
				VOU 15X45..	0.04	0.07
				VOU 20X60..	0.05	0.08
VOC 35X90..	0.06	0.11				
VOC 35X110..	0.07	0.13				
VOC 60X140..	0.13	0.15				
VOC 60X180..	0.16	0.18				
VSMR 202.. VSM 202..	0.314	26	90	VB 30..	0.06	0.09
				VB 40..	0.07	0.1
				VB 50..	0.08	0.13
				VB 75 (B)..	0.17	0.25
				VBF 30..	0.05	0.08
				VBF 40..	0.05	0.09
				VBF 50..	0.06	0.11
				VBF 60..	0.08	0.13
				VBF 80..	0.16	0.21
				VBF 100..	0.2	0.26
				VBL 30..	0.06	0.1
				VBL 40..	0.08	0.13
				VBL 50..	0.1	0.16
				VF 30..	0.04	0.07
				VF 40..	0.04	0.08
				VF 50..	0.05	0.09
				VF 75..	0.06	0.11
				VF 90..	0.07	0.12
				VF 110..	0.12	0.19
				VFC 50..	0.05	0.09
				VFC 60..	0.06	0.12
				VFC 75..	0.09	0.14
				VFC 90..	0.11	0.2
				VFC 100..	0.14	0.21
				VOU 15X45..	0.04	0.07
				VOU 20X60..	0.05	0.08
VOC 35X90..	0.06	0.12				
VOC 35X110..	0.07	0.14				
VOC 60X140..	0.15	0.2				
VOC 60X180..	0.17	0.22				

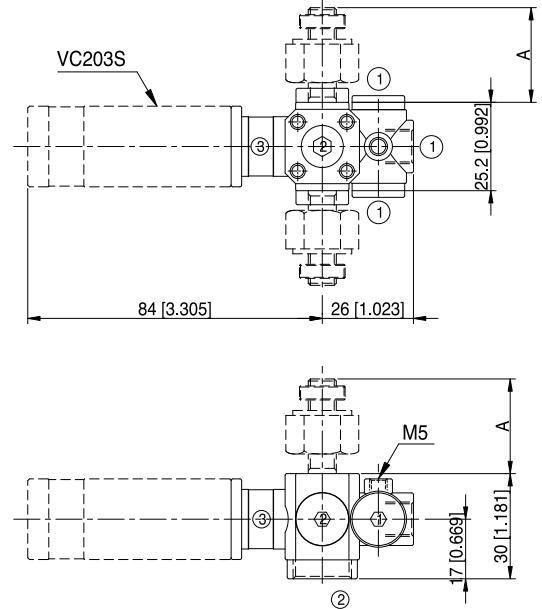
VACUUM SPEEDER

Dimension

▼ VSMR 203..



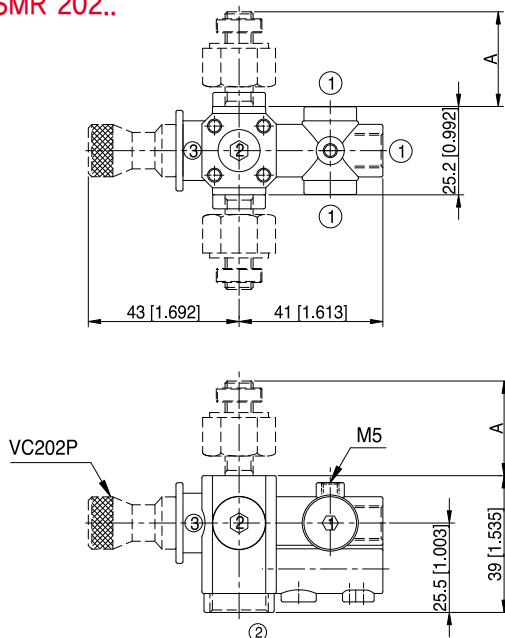
▼ VSM 203..



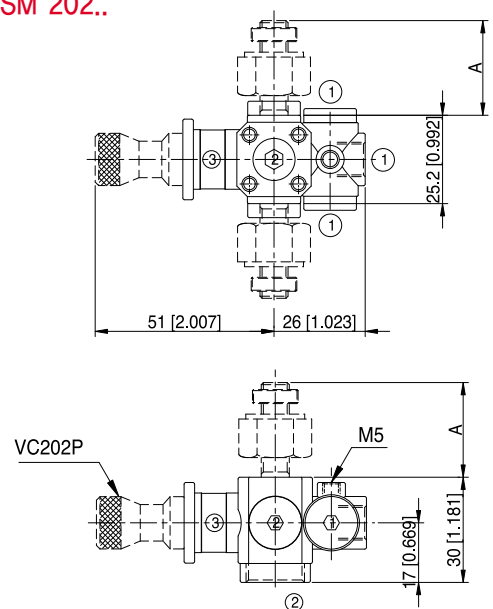
Measure unit : mm [inch]

Mounting	A	
M□8	16	1. Compressed air : 3 x G1/8"
P□8	27	2. Vacuum : 1 x G3/8" and 3 x G1/8"
P□6	22	3. Exhaust

▼ VSMR 202..



▼ VSM 202..

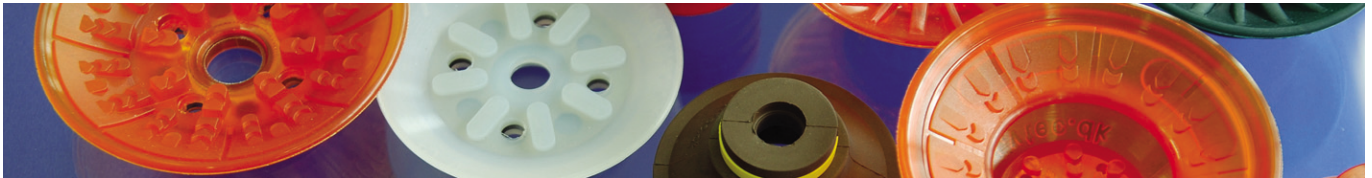


Measure unit : mm [inch]

Mounting	A	
M□8	16	1. Compressed air : 3 x G1/8"
P□8	27	2. Vacuum : 1 x G3/8" and 3 x G1/8"
P□6	22	3. Exhaust

☞ Refer to page 83~97 about dimension of suction cups.

How to select Suction cup



Suction cup	Shape			Requirements							
	Flat	Slightly surface	Concave surface	Smooth surface	Uneven surface	Varying surface levels	Thin flexible materials	Good stability	Safety	Parallel lift	Opening plastic bag
VB	★★	★★★★		★★★★		★★★★	★★★★	★	★★★★	★	★★
VPF	★★★★	★★★★	★	★★★★		★★★★	★★★★	★★★★	★★★★	★★★★	
VBL	★★	★★★★		★★★★		★★★★	★★★★		★★		
VF	★★★★			★★★★				★★★★	★★★★	★★★★	
VFC	★★★★	★★★★		★★★★	★			★★★★	★★★★	★★★★	★
VOU	★★★★	★★	★★	★★★★				★★	★★	★	
VOC	★★★★	★★★★		★★★★		★		★★★★	★★★★	★★★★	

★★★★ Excellent ★★ Very good ★ good



Slightly curved surface
VB model

▶ See page 84

Thin flexible material
VBL model

▶ See page 88

Sheet metal
VPF model

▶ See page 86

Transferring to parallel
VF, VFC model

▶ See page 90, 92

Long convex or flat
VOU model

▶ See page 94

Long flat
VOC model

▶ See page 96

Material and characteristic of suction cup

Material	Durability	Temperature	Oil Resistance	Weather & Ozone
N - NBR	Excellent	-20°C ~ +110°C	Excellent	Very Good
S - Silicon, WS-White Silicon	Good	-70°C ~ +200°C	Unsuitable	Excellent
HS-High Temp. Silicon	Good	-70°C ~ +280°C	Unsuitable	Excellent
C.S - Conducive(Special mat'l)	Excellent	-45°C ~ +90°C	Excellent	Very Good
U - Urethane	Excellent	0°C ~ +100°C	Excellent	Excellent
A - Mark free	Excellent	-10°C ~ +100°C	Excellent	Very Good
PU - Poly Unethane	Excellent	0°C ~ +60°C	Excellent	Excellent
E - EPDM	Very Good	0°C ~ +150°C	Unsuitable	Excellent

• SUCTION CUPS FOR VACUUM SPEEDER

VB Type (Bellows)

Features and Strengths

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, more angular and level compensation can be achieved by using other **Vtec** pad accessories.



Suitable for Handling

- Sheet Veneer
- Plastic sheets
- Paper Box Handling
- Thin Film sheets
- Cardboard Boxes and Electronic Components

Order No.

VSMR 203 - PT8 .. VB50 PU F - 38M

▲ See pages 79, 80

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① Suction cup Ø

VB30	- Ø30
VB40	- Ø40
• VB50	- Ø50
VB75	- Ø75
VB75B	- Ø75

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Special mat'l)
U	- Urethane
A	- Mark free
• PU*	- Poly Urethane
WPU*	- Poly Urethane (Minimal mark)

* Only for VB30, VB40, VB50, VB75

③ Filter

No mark	- Standard
• F	- With Filter(PE) VB30,VB40,VB50 VB75,VB110

④ Thread size

• 38M	- G3/8" male
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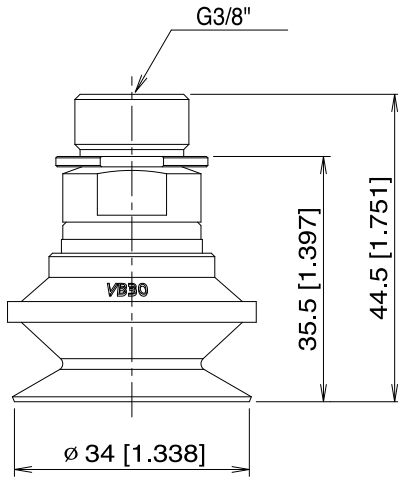
* Remark : Including mesh filter

Technical Data

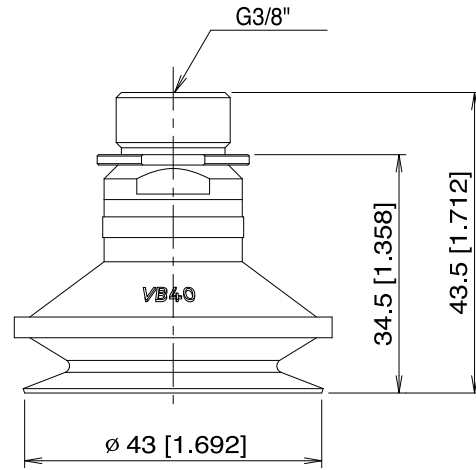
Cup Ø	Air consumption at 0.3 MPa	Lifting Force (kg) - Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VB30	26 NI/m (0,918 scfm)	1,22	2,24	2,75
VB40		2,24	3,97	5
VB50		3,36	6,63	8,36
VB75(B)		7,65	17,04	23,06

Dimension

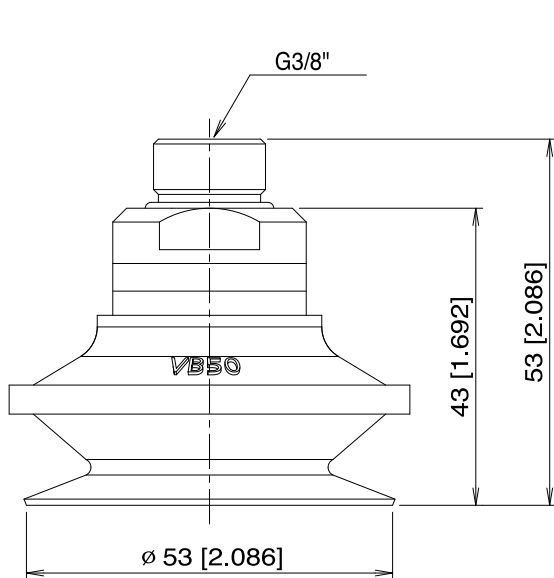
☞ Refer to page 82 about dimension of Vacuum Speeder.



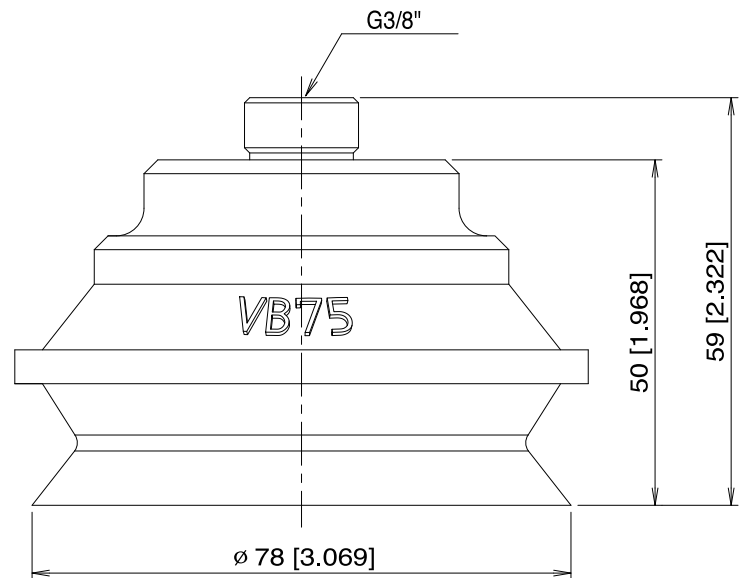
VB30..38M



VB40..38M



VB50..38M



VB75..38M

Measure unit : mm [inch]

VACUUM SPEEDER

• SUCTION CUPS FOR VACUUM SPEEDER

VBF Type (Bellows & Flat)

Features and Strengths

- Enhancing the adhesion to the surface
- Good lifting force can be achieved with this pad in the vertical plane
- Prevent transformation when lifting metal thin plate



Suitable for Handling

- Veneer sheets
- Sheet metal
- Automotive panels and door
- Plywood
- Glass

Order No.

VSMR 203 - PT8 .. **VBF80** **PU** **F** - **38M**

▲ See pages 79, 80

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① Suction cup Ø

VBL25 - Ø25

VBF30 - Ø32

VBF40 - Ø42

VBF50 - Ø51

VBF60 - Ø64

• **VBF80** - Ø84

VBF100 - Ø103

② Material

• **PU** - Poly Urethane

WPU - Poly Urethane (Minimal mark)

③ Filter

No mark - Standard

• **F** - With Filter(PE)
VBF60, VBF80
VBF100

④ Thread size

• **38M** - G3/8" male

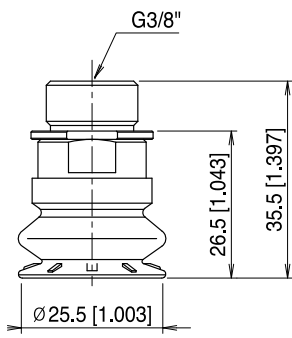
* Remark : Including mesh filter

Technical Data

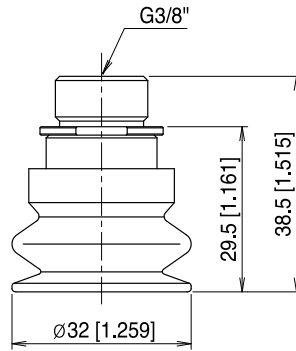
Cup Ø	Air consumption at 0.3 MPa	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VBF 25	26 Nl/m (0,918 scfm)	1,1	3,2	3,8	0,61	1,37	1,89
VBF 30		1,77	6,26	9,5	0,86	3,08	7,71
VBF 40		2,49	9,66	12,8	1,17	6,48	11,29
VBF 50		4,2	13,2	16,3	2,08	9,79	14,7
VBF 60		8,94	16,26	18,54	6,84	12,84	16,92
VBF 80		11,92	21,68	24,72	9,12	17,12	22,56
VBF 100		14,9	27,1	30,9	11,4	21,4	28,2

Dimension

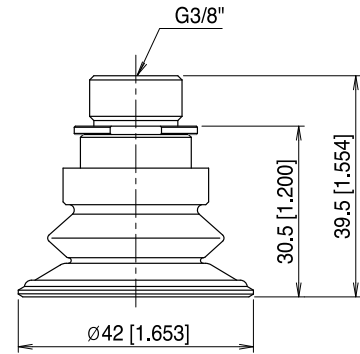
Refer to page 82 about dimension of Vacuum Speeder.



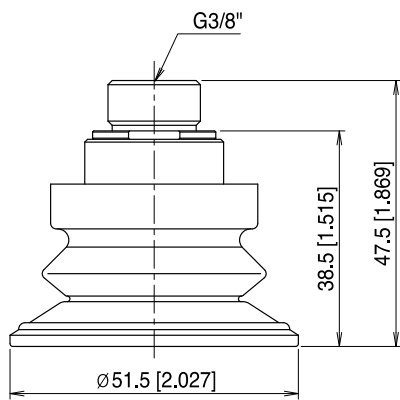
VBF25 P(U) - 38M



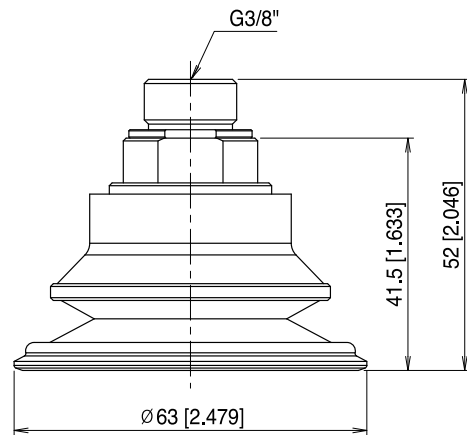
VBF30 P(U) - 38M



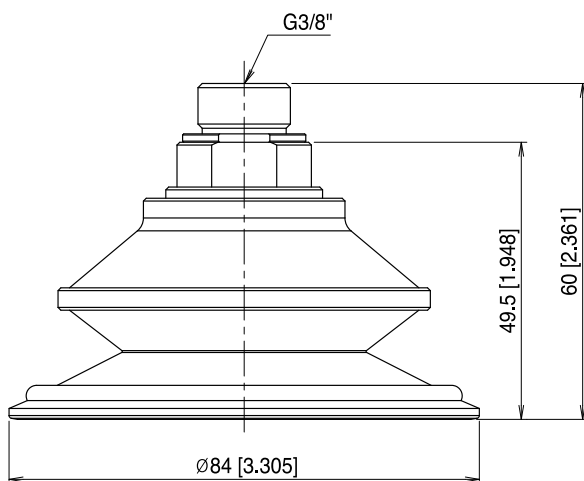
VBF30 P(U) - 38M



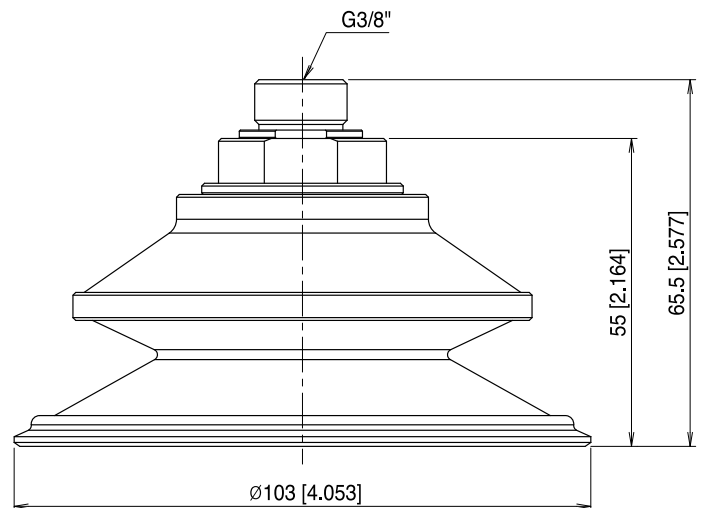
VBF50 P(U) - 38M



VBF60 P(U) - 38M



VBF80 P(U) - 38M



VBF100 P(U) - 38M

Measure unit : mm [inch]

VACUUM
SPEEDER

• SUCTION CUPS FOR VACUUM SPEEDER

VBL Type (Long Bellows)

Features and Strengths

Similar advantages to that of the normal bellows cups but can cope with an increased degree of height compensation and is particularly good for handling fragile objects.

A note of caution, these cups are not suitable for high level vacuum applications.



Suitable for Handling

- Fragile Objects
- Eggs
- General Food Products
- Bread
- Glass

Order No.

VSMR 203 - PT8 .. VBL50 N F - 38M

▲ See pages 79, 80

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① Suction cup Ø

VBL30 - Ø30

VBL40 - Ø40

- VBL50 - Ø50

② Material

- N - NBR

S - Silicon

WS - White Silicon

HS - High Temp. Silicon

CS - Conductive (Special mat'l)

U - Urethane

A - Mark free

③ Filter

No mark - Standard

- F - With Filter(PE)
VBL30, VBL40
VBL50

④ Thread size

- 38M - G3/8" male

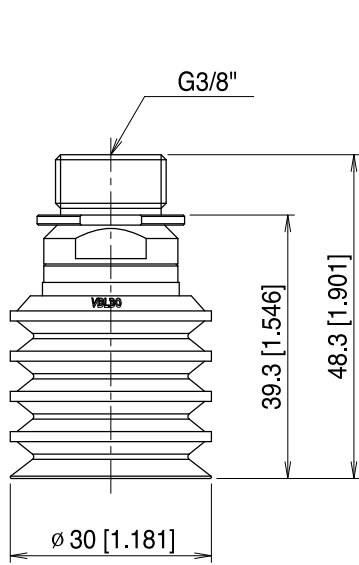
* Remark : Including mesh filter

Technical Data

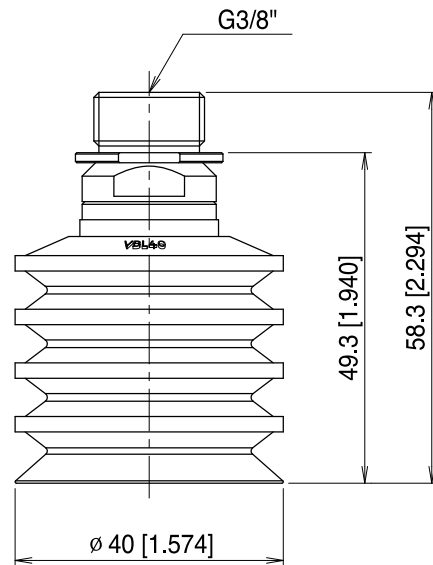
Cup Ø	Air consumption at 0.3 MPa	Lifting Force (kg) - Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VBL30	26 NI/m (0,918 scfm)	0,06	0,16	-
VBL40		0,11	0,22	-
VBL50		0,17	0,43	-

Dimension

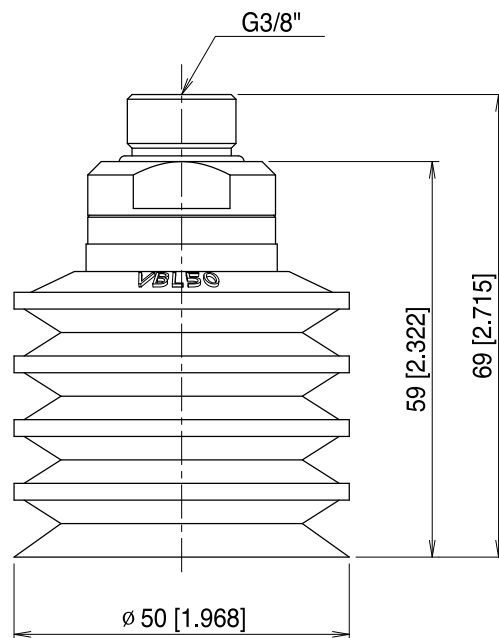
☞ Refer to page 82 about dimension of Vacuum Speeder.



VBL30..38M



VBL40..38M



VBL50..38M

Measure unit : mm [inch]

VACUUM
SPEEDER

• SUCTION CUPS FOR VACUUM SPEEDER

VF Type (Flat)

Features and Strengths

Again good lifting forces can be achieved with this cup in the horizontal plane, but is also good in the vertical plane.

The feet inside the pad provide a good register as well as enhancing the adhesion to the surface.



Suitable for Handling

- Sheet metal
- Plastic
- Veneer sheets
- Electronic components

Order No.

VSMR 203 - PT8 .. VF 75 PU - 38M

▲ See pages 79, 80

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① Suction cup Ø

VF30	- Ø30
VF40	- Ø40
VF50	- Ø50
• VF75	- Ø75
VF90*	- Ø90*
VF110	- Ø110

* Only PU material

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
HS	- High Temp. Silicon
CS	- Conductive (Special mat'l)
U	- Urethane
A	- Mark free
• PU	- Poly Urethane*
WPU	- Poly Urethane (Minimal mark)*

* Only for VF30, VF40, VF50, VF75, VF90

③ Thread size

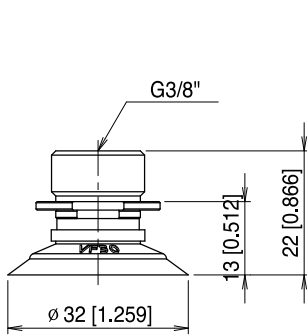
- 38M - G3/8" male
- * Remark : Including mesh filter

Technical Data

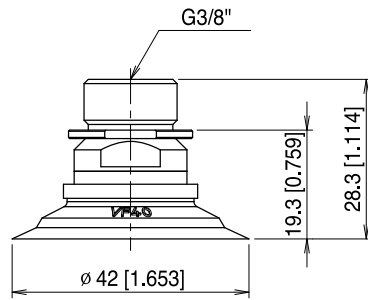
Cup Ø	Air consumption at 0.3MPa	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VF30	26 NI/m (0,918 scfm)	1,22	2,55	3,16	1,12	1,63	2,04
VF40		2,04	4,08	5,10	1,53	2,55	3,06
VF50		3,67	7,55	9,79	2,44	4,08	5,10
VF75		8,16	20,40	27,55	6,12	11,22	14,28
VF90		10,2	27,83	37,41	8,84	15,98	19,72
VF110		14,28	42,58	57,14	14,28	25,51	30,61

Dimension

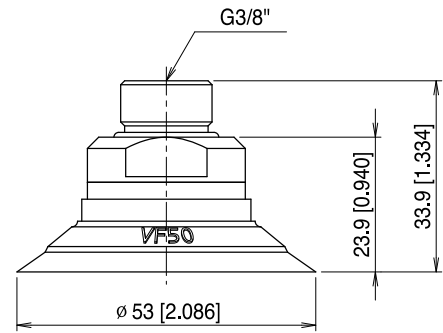
☞ Refer to page 82 about dimension of Vacuum Speeder.



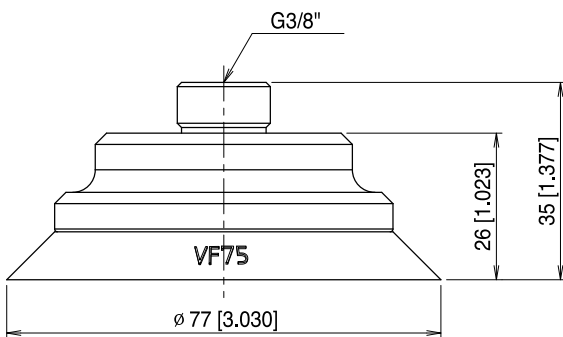
VF30..38M



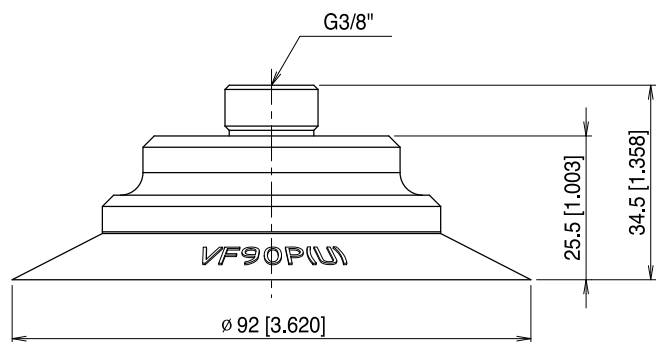
VF40..38M



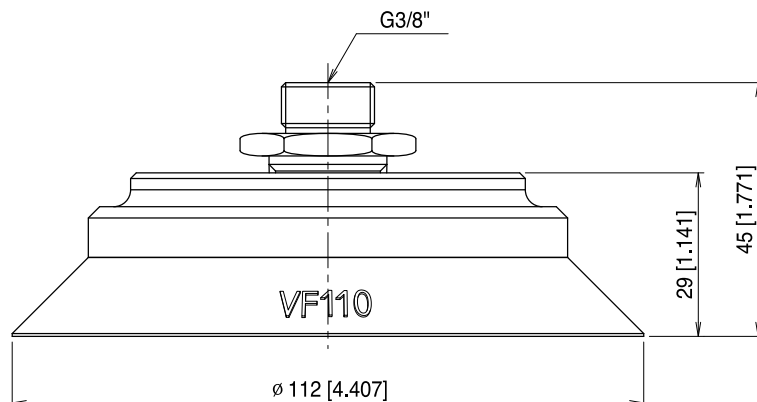
VF50..38M



VF75..38M



VF90 P(U)..38M



VF110..38M

Measure unit : mm [inch]

VACUUM
SPEEDER

• SUCTION CUPS FOR VACUUM SPEEDER

VFC Type (Flat Curve)

Features and Strengths

This cup is specifically designed to cope with both flat and curved surfaces, which means that multiple objects can be handled with the same suction cup.



Suitable for Handling

- Automotive Windscreens, Roof and Door.
- Sheet Metal
- Shaped Sheet Metal Panels
- TV Cathodray Tube

Order No.

VSMR 203 - PT8 .. VFC 50 PU - 38M

▲ See pages 79, 80

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① Suction cup Ø

- VFC50 - Ø50
- VFC60 - Ø60
- VFC75 - Ø75
- VFC90 - Ø90*
- VFC100 - Ø100

* Only for PU Material

② Material

- N - NBR
- S - Silicon
- WS - White Silicon
- HS - High Temp. Silicon
- CS - Conductive (Special mat'l)
- U - Urethane
- A - Mark free
- PU - Poly Urethane
- WPU - Poly Urethane (Minimal mark)

③ Thread size

- 38M - G3/8" male

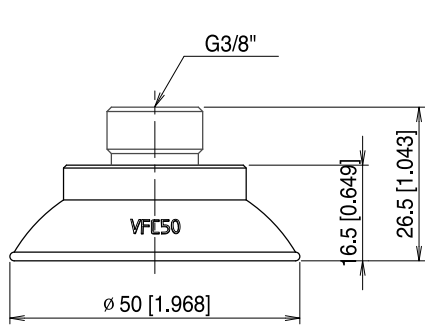
* Remark : Including mesh filter

Technical Data

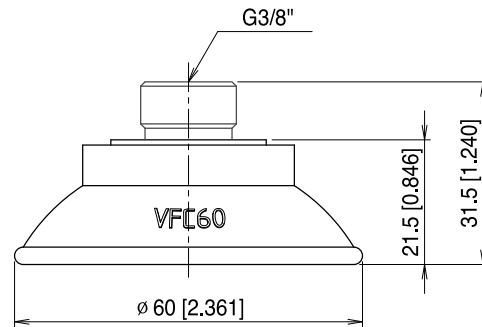
Cup Ø	Air consumption at 0.3MPa	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VFC50	26 Nl/m (0,918 scfm)	2,85	6,94	10,2	2,61	6,34	8,2
VFC60		4,55	11,57	15,3	3,05	7,92	10,7
VFC75		7,65	19,38	25,51	6,19	15,46	20,9
VFC90		9,8	24,82	32,65	9,52	21,59	27,89
VFC100		12,75	35,71	46,93	12,24	23,97	28,57

Dimension

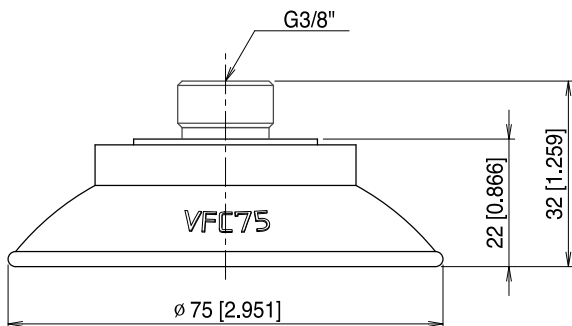
Refer to page 82 about dimension of Vacuum Speeder.



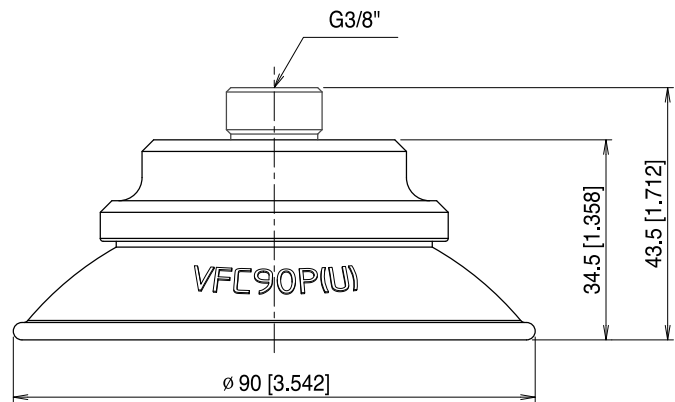
VFC50..38M



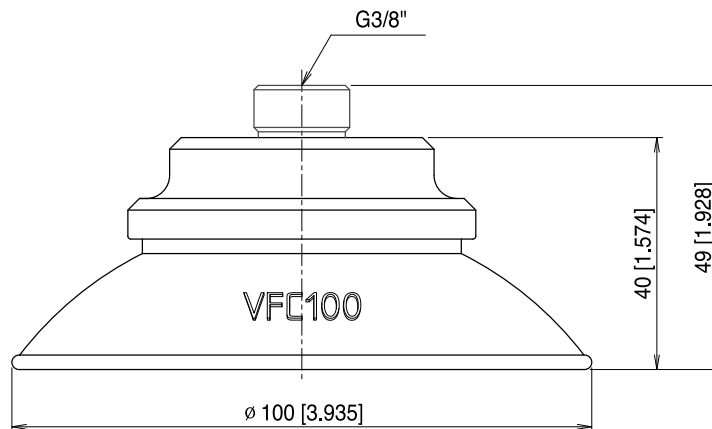
VFC60..38M



VFC75..38M



VFC90 P(U)..38M



VFC100..38M

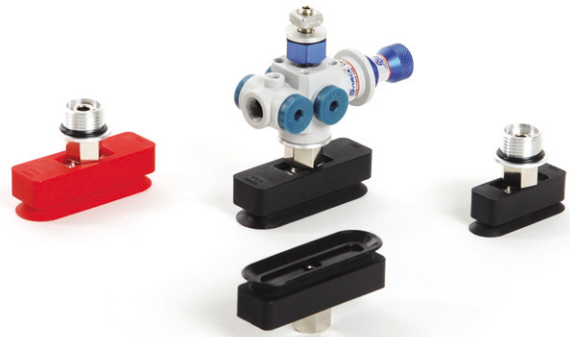
Measure unit : mm [inch]

VACUUM
SPEEDER

• SUCTION CUPS FOR VACUUM SPEEDER VOU Type (Oval Universal)

Features and Strengths

- Best sitalbe for handling long objects with flat and curved surfaces
- Good lifting forces can be achieved with small size
- Conductive silicon is excellent for handling PCB board or Electronic componets
- Easily mountable without detach a fitting from the machine (save the maintenance time)



Suitable for Handling

- Semiconductor chips (PCB board)
- Electronic components
- Small glass cases (e.g.ampule)
- Pipe

Order No.

VSMR 203 - PT8 .. VOU 20X60 N F - 38M

▲ See pages 79, 80

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① Suction cup Ø

- VOU 15X45
- **VOU 20X60**

② Material

- **N** – NBR
- S – Silicon
- WS – White Silicon
- HS – High Temp. Silicon

③ Filter

- **F** – With mesh filter
- * Required option

④ Thread size

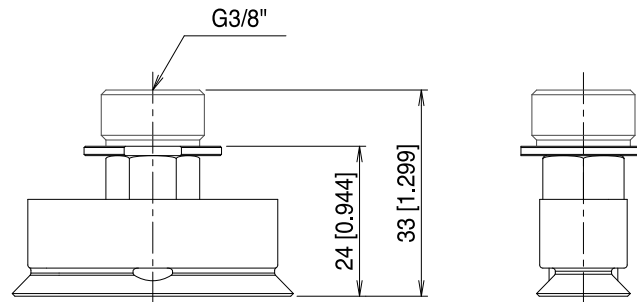
- **38M** – G3/8" male

Technical Data

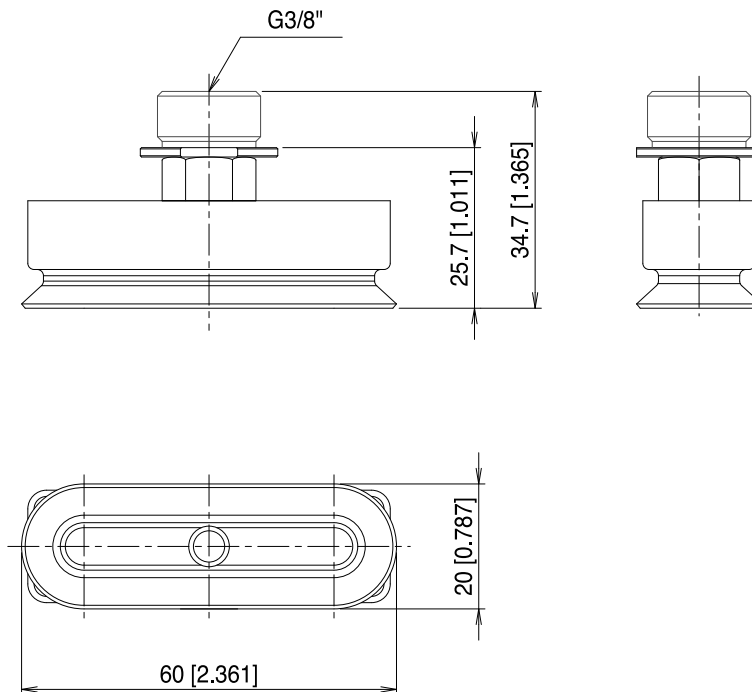
Cup Ø	Air consumption at 0.3MPa	Lifting Force (kg) – Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
VOU 15X45	26 NI/m	1	2.08	3.27
VOU 20X60	(0,918 scfm)	2,04	4,8	6,35

Dimension

☞ Refer to page 82 about dimension of Vacuum Speeder.



VOU 15X45..38M



VOU 20X60..38M

Measure unit : mm [inch]

• SUCTION CUPS FOR VACUUM SPEEDER VOC Type (Oval Curve)

Features and Strengths

This cup is best suitable for handling long objects with flat or curved surfaces. Specially, parallel to the surface of the object it has a thick and durable lip.



Suitable for Handling

- Long Objects with Flat
- Curved Surfaces
- Shaped Sheet Metal Panels
- Automotive Bumper

Order No.

VSMR 203 - PT8 .. VOC 35X 90 N - 38M

▲ See pages 79, 80

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① Suction cup Ø

- **VOC 35X90** – Ø35X90
- VOC 35X110 – Ø35X110
- VOC 60X140 – Ø60X140
- VOC 60X180 – Ø60X180

② Material

- **N** – NBR
- S – Silicon
- WS – White Silicon
- HS – High Temp. Silicon
- CS – Conductive (Special mat'l)
- U – Urethane
- A – Mark free

③ Thread size

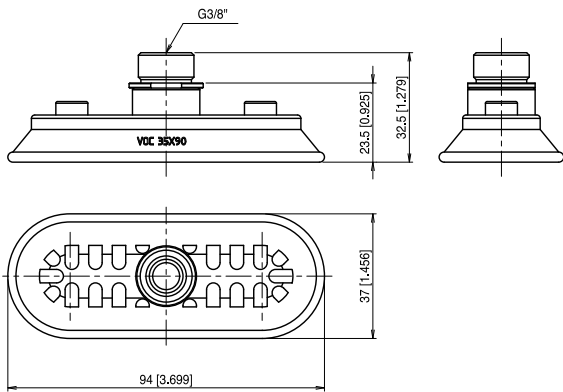
- **38M** – G3/8" male
- * Remark : Including mesh filter

Technical Data

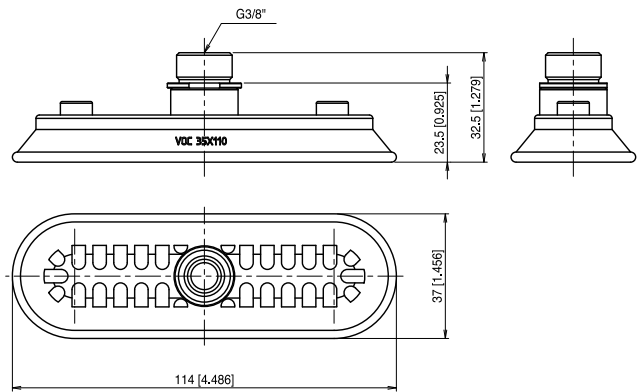
Cup Ø	Air consumption at 0.3MPa	Lifting Force (kg) – Perpendicular			Lifting Force (kg) – Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
VOC 35X90	26 NI/m (0,918 scfm)	5	13,4	17,4	4	10,72	13,92
VOC 35X110		6,25	16,7	21,7	5	13,36	17,36
VOC 60X140		13,4	38	53	10,72	30,4	42,4
VOC 60X180		19,1	54,2	75,7	15,28	43,36	60,56

Dimension

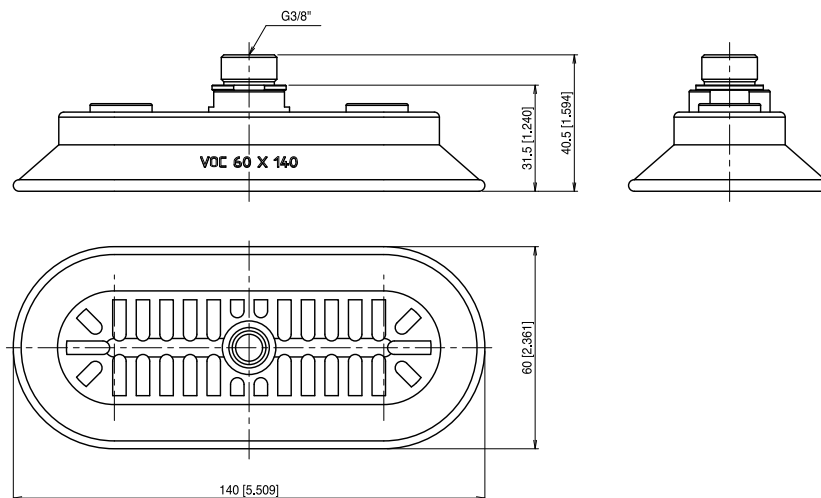
☞ Refer to page 82 about dimension of Vacuum Speeder.



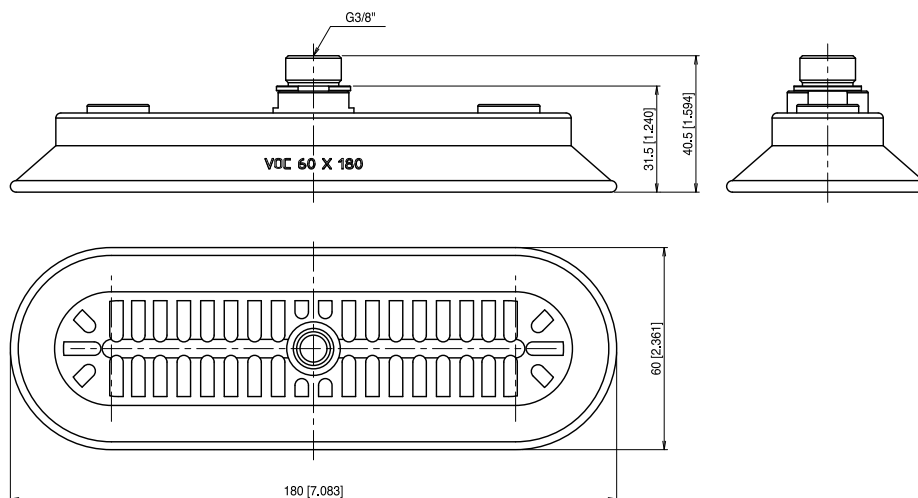
VOC 35X90..38M



VOC 35X110..38M



VOC 60 X140..38M



VOC 60X180..38M

Measure unit : mm [inch]

VACUUM SPEEDER

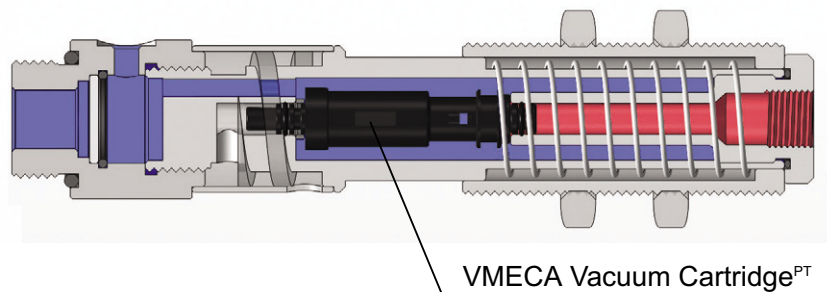
Series VCS 202..

- Max. vacuum level** : -90kPa (-26.57 inHg)
- Max. flow rate** : 41.3 NI/min (1.45 scfm)
- Supply air pressure** : 4~6 bar, max 7 bar
(58~87psi, max 101.5psi)
- Air consumption** : 416 NI/min (14.6 scfm)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ +80°C
- Noise level** : 55~65 dBA



Main advantages

- VMECA Cartridge^{PT} with silencer built into level compensator.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Low air consumption (Save energy)
- Compensate for differences in height on the surface of the material.
- VMECA Vacuum Cartridge mounted close to work (Fast response time).
- Very Compact size.
- Easily mountable and interchangeable vacuum cartridge.



Order No.

VCS 202 - 18M 20

① ②

- ① Thread
- 18M – G1/8" Male
 - 38M – G3/8" Male
 - 12M – G1/2" Male

- ② Stroke
- 20 – 20mm

Performance Data

Vacuum flow, NI/m, at different vacuum level -kPa

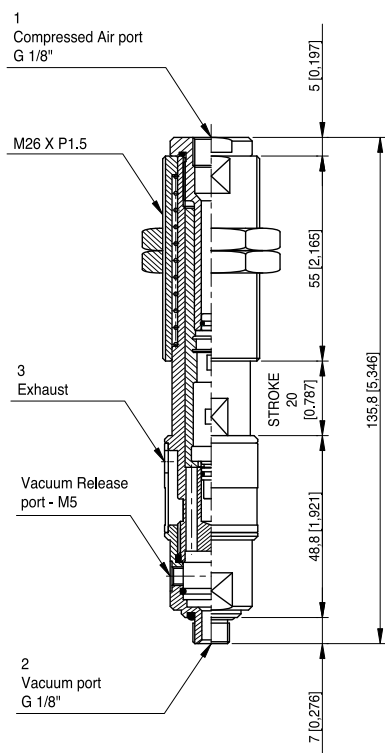
MAX. Vacuum (-kPa)	Feed pressure (MPa)	0	10	20	30	40	50	60	70	80	90
50	0.17	35	25.4	12.8	8.3	4	-	-	-	-	-
65	0.22	38.8	29.5	17	11.5	8	5.2	1.4	-	-	-
90	0.314	41.3	36.9	26	15.8	11	8.9	6.6	3.9	2	-
85	0.4	40	42.7	31	23	14.1	7.6	6.4	3.9	1.3	-

Time, s/l, to evacuate a volume to different vacuum level -kPa

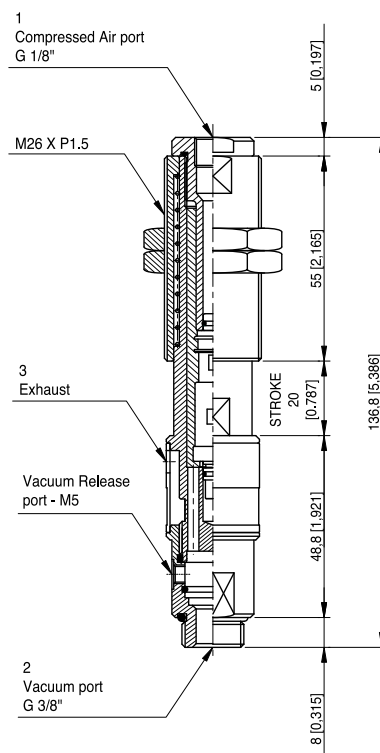
Feed pressure (MPa)	Air consumption (NI/m)	10	20	30	40	50	60	70	80	90
0.17	17	0.26	0.59	1.29	2.56	-	-	-	-	-
0.22	20	0.18	0.48	0.95	1.55	2	2.5	-	-	-
0.314	26	0.15	0.37	0.61	1.5	1.5	2	3.8	6.2	-
0.4	32	0.14	0.39	0.59	0.9	1.2	1.8	3.2	6.9	-

Dimensional information

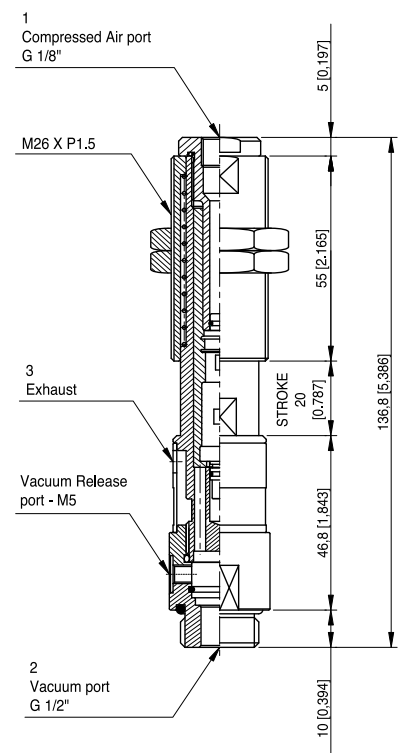
▼ VCS202-18M20



▼ VCS202-38M20



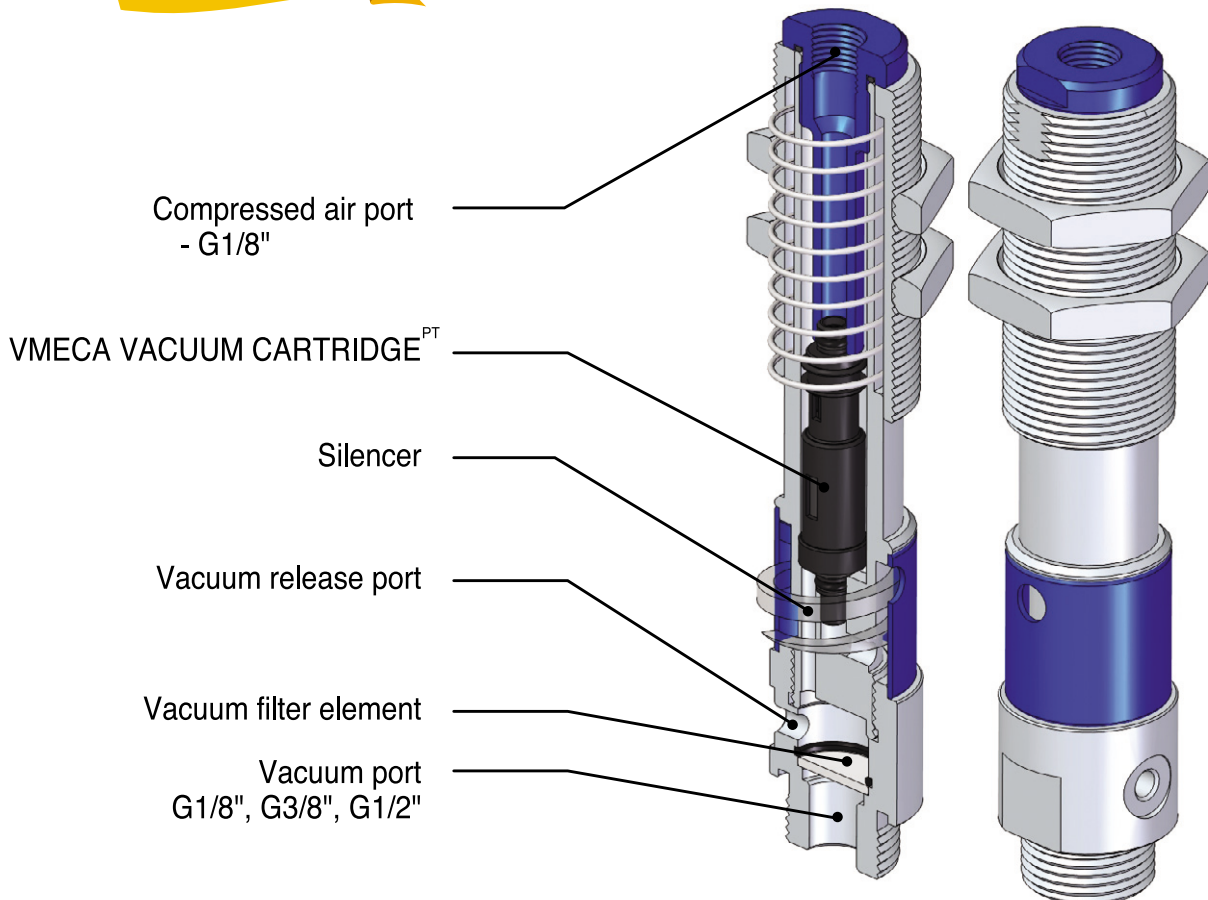
▼ VCS202-12M20



Measure unit : mm [inch]

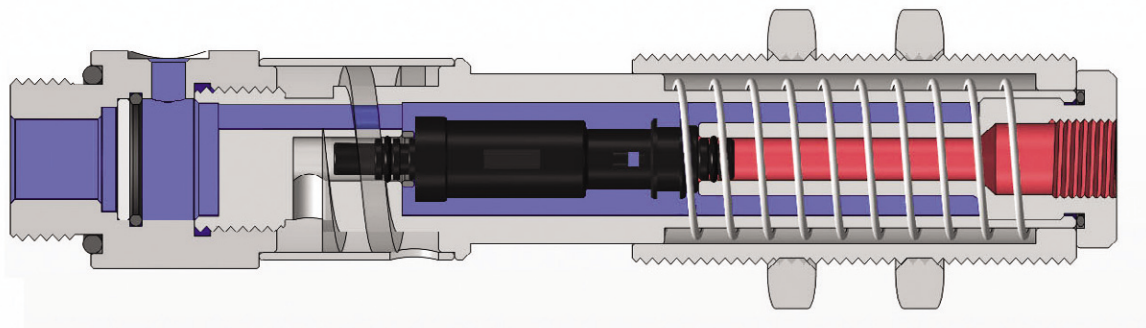
Constructions

**PATENT &
PATENT PENDING**



Features

- VMECA Vacuum speeder operates at 3~6bar(43.5~87 psi) air pressure and maintains vacuum -90 kPa (-26.5 inHg) in low pressure of fluctuating pressure situations.
- Extremely fast response (increased speed).
- VMECA Vacuum cartridge^{PT} with silencer built into the body of a level compensator.
- Small size and easy to mount.
- Low energy consumption and noise level.
- No maintenance expected or required.

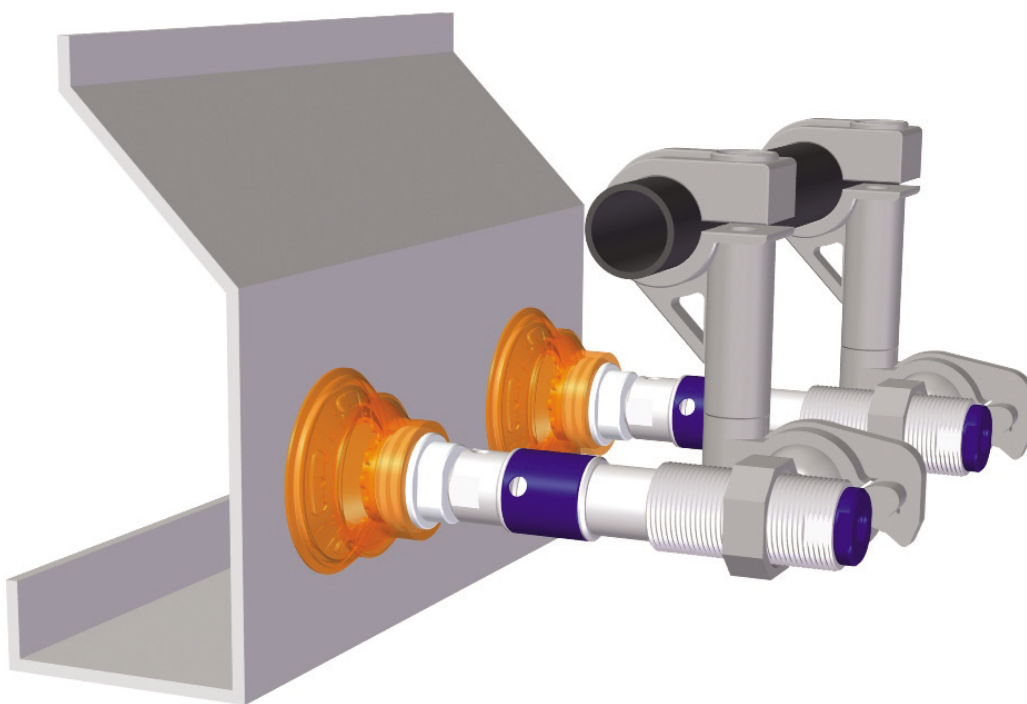


■ Vacuum Zone

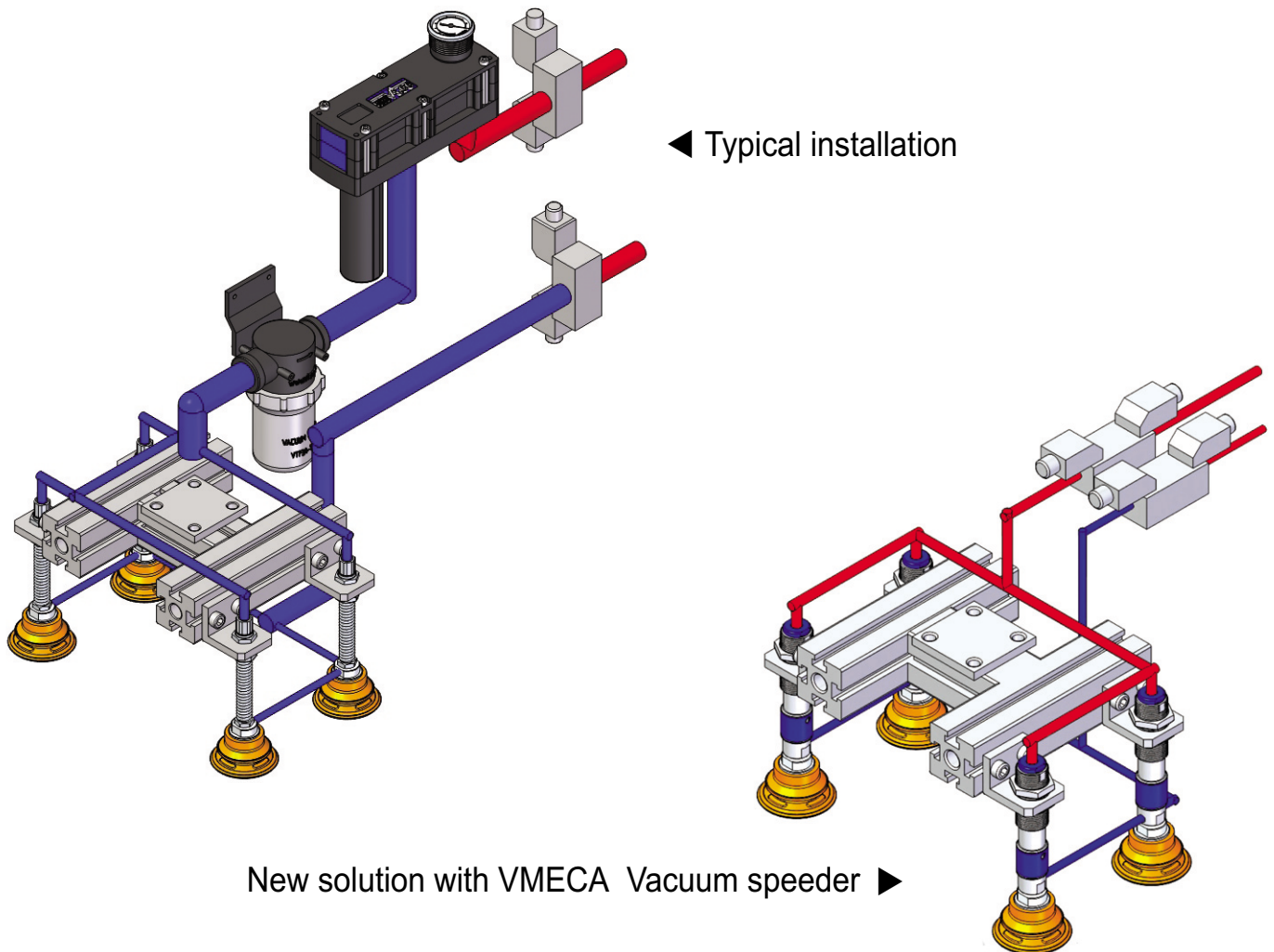
■ Compressed-air feed zone

The vacuum cartridge is built into the body of the level compensator. System plumbing is virtually eliminated and vacuum is created directly at the point of use. Quicker response and faster cycle times with minimum compressed air usage are the result. Additionally, the VMECA Vacuum Speeder offers all the height compensating and shock absorbing qualities of a conventional level spring.

VACUUM
SPEEDER



The VMECA Vacuum speeder offers the convenience of an extremely compact, point-of-use vacuum pump.



Features

- VMECA Vacuum Cartridge^{PT} with silencer built into the body of a level compensator.
- Point-of-use design eliminates system plumbing.
- Individual and independent vacuum improves safety and reliability of operation
- Low energy consumption.
- Fast response and cycle times - as much as 60% faster than typical, conventional ejectors.

VACUUM PUMPS

VTEC VACUUM PUMP TECHNOLOGY

P.105~121



Midi Turtle Pump P.122~141



Mega Turtle Pump P.122~131
P.144~153



V-Pump P.156~165



MD-Pump P.168~177



Premium Pump P.180~193



Mini Keyboard Pump P.196~199



Midi Keyboard Pump P.200~211



Mega Keyboard Pump P.212~223



Mini Pump P.226~231



One-Line Pump P.232~235



Minimultiple Pump P.236~241



Midimultiple Pump P.242~247



Duplex Pump P.248~255



Conveying Pump P.256~259



L-Class Pump P.262~265

VL-Class Pump P.266~269

M-Class Pump P.270~273

X-Class Pump P.274~277

H-Class Pump P.286~289



MM-Midiflex Pump P.278~281

MX-Midiflex Pump P.282~285

H-Midiflex Pump P.286~291



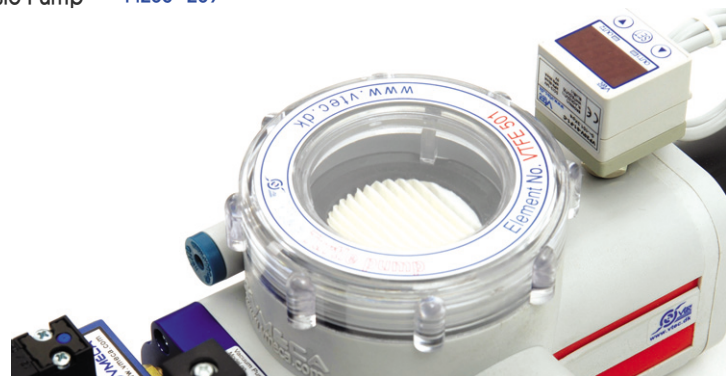
L-Maxflex Pump P.292~297

M-Maxflex Pump P.298~303



Mega Pump P.304~309

VACUUM PUMPS



How to select the 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 of 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)

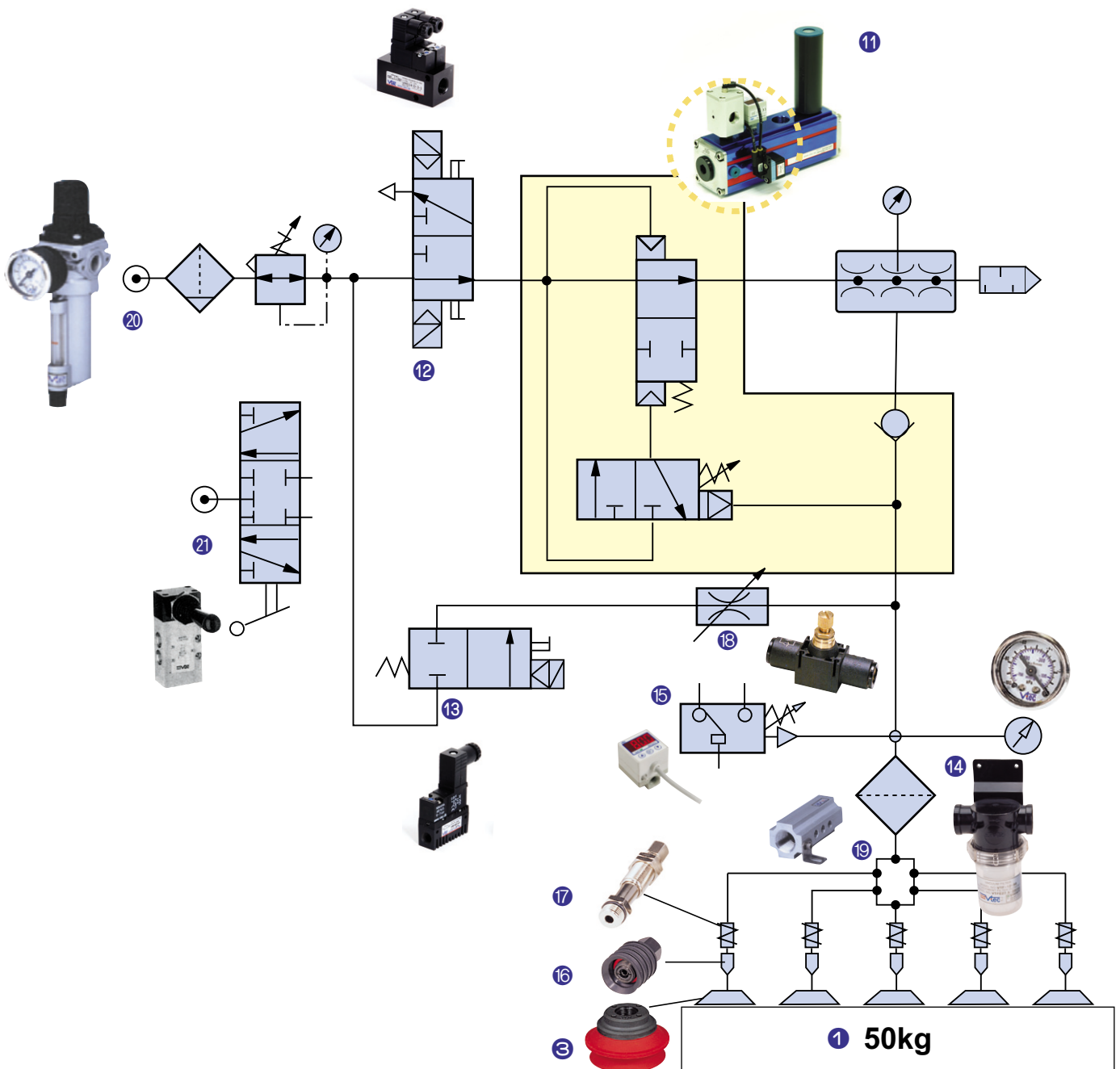
AS-KIT (Air saving system)

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 an Air saving system as option.

The example for vacuum system

EX) If, you have to move in packing box (50kg) with suction cup and suction time-within 0.3sec using to the condition as follows :

Condition : air pipe length=3m, air pipe(hose) inner diameter=6mm, Quantity of suction cup ; 5 pcs
What is proper vacuum pump & suction cup model?



① Moving weight (kg)	: 50
② Suction time	: 0.3 second
③ Selected suction cup	: VB75(B) Pu-12F
④ Suction cup material	: PU
⑤ Suction cup quantity (Pcs)	: 5
⑥ Diameter of suction cup (mm)	: 75
⑦ Air vacuum hose length (m)	: 3
⑧ Inner diameter of air hose (mm)	: 6
⑨ Volume of suction cup (NI)	: 0.55
⑩ Volume of vacuum air hose (NI)	: 0.085
⑪ Selected vacuum Pump	: VTM 50L - 1834 - AS
⑫ Air supply control valve	: VMS14D-3-2
⑬ Vacuum release control valve	: VMS18D-3-2
⑭ Selected vacuum filter (You can to be select to size of a vacuum filter according to capability of infected material.)	: VTF 34 - 2
⑮ Vacuum switch (transiton singal for next movement)	: VP20C..
⑯ Ball joint (to use in curve or uneven objects)	: BJ 12
⑰ Level spring (to use to compensater differences in level)	: L1230T
⑱ Needle valve (vacuum level controlling valve)	
⑲ Vacuum manifold	: VTDC34-14X5
⑳ Air filter / regulator (remove to dust, water, rust, etc.)	
㉑ Hand valve (using to manual)	

▶ HOW TO SELECT SUCTION CUP SIZE

$$D = 113 \times \sqrt{\frac{MXN}{UXS}} = 113 \times \sqrt{\frac{50 \times 2}{60 \times 5}} = 65.2 \text{ mm}$$

D = diameter size of suction cup (mm)
 M = weight (kg)
 U = vacuum level (-kPa, %)
 N = safety factor (2)
 S = quantity of suction cup

★ VB75 = (You are desirable to select a little big size suction cup than the actual they size)

▶ WHAT IS PROPER SUCTION CUP SIZE

VB75 (110cm³) = 0.11ℓ X 5 (Pcs) = 0.55ℓ (※Please refer to page 18.19 for the Volume of suction cup)

• 0.55 ℓ (Quantity of vacuum pad : 5 Pcs)

▶ AIR PIPE, SUCTION CUP & VACUUM FILTER

$$\bullet V = \frac{\pi X d^2 X L}{4} \times \frac{1}{1000} = \frac{3.14 X 0.6^2 X 300}{4} \times \frac{1}{1000} \approx 0.085 \ell$$

V = Capacity (liter)
 d = inside diameter of air pipe (cm)
 L = the length of air pipe (cm)

• Filter (VTF34-2) : 160cm³ = 0.16ℓ

■ Needed vacuum capacit = the capacity of suction cup + the capacity of air pipe + the vacuum filter

$$0.795 \ell = 0.55 \ell + 0.085 \ell + 0.16 \ell$$

▶ THE SELECTION OF VACUUM PUMP

VTM25L : 0.795(ℓ) X 0.66 = 0.53

VTM50L : 0.795(ℓ) X 0.33 = 0.27

VTM75L : 0.795(ℓ) X 0.248 = 0.20

VTM100L : 0.795(ℓ) X 0.166 = 0.13

★ VTM50L or VTM75L



Because when there is a vacuum leak from the work piece or the piping and a drop in vacuum pressure which causes the air pressure drop.

AS - KIT

Air Saving

Has anyone ever told you that air is free? Well, think again because compressed air still uses energy and costs money to use it. VMECA / VTEC 's ongoing principle on saving air and giving you the highest performance have always been our standard.

Air Saving Kit

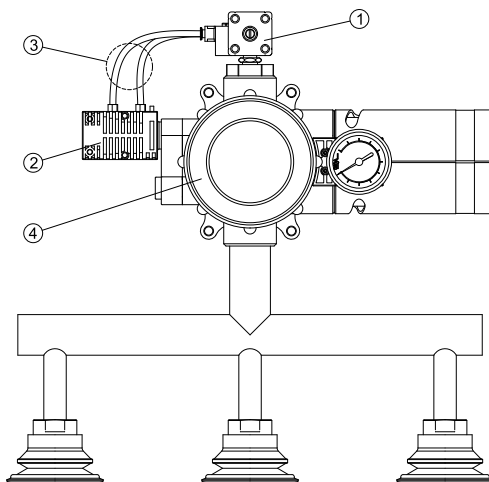
VMECA / VTEC have always offered various ranges of compressed air-driven vacuum pumps in the market.

VMECA / VTEC ensures the best solutions to customers by offering the most efficient products in the market.

VMECA / VTEC 's Air Saving-Kit(AS-Kit) effectively prevents compressed air loss. Air Saving-Kit is a pneumatic control system that cuts off the vacuum pump once the desired vacuum level has been achieved, thus minimizing the energy (compressed air) consumption of the vacuum pump.



In case the vacuum level drops below the working level (required vacuum level), then the Air Saving-Kit reactivates the vacuum pump allowing for safe handling of product. The Air Saving-Kit is the most suitable in sealed systems (applications).

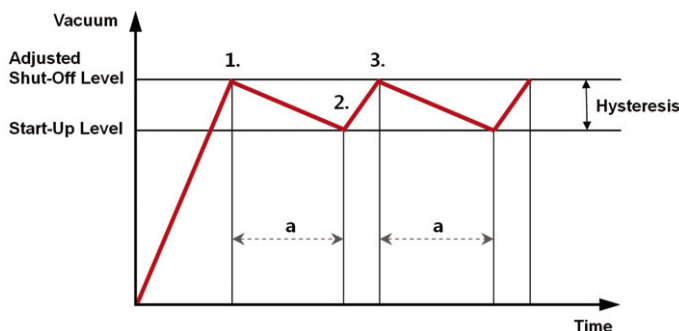


AS - Kit - Turtle Pump

- ① Pneumatical vacuum switch, VPS-01 NC
- ② Pneumatical Air ON/OFF Valve, 1/4 "
- ③ Hose of Poly-Urethane, D=4/1.5
- ④ Turtle Vacuum pump, Non-return type

Function

A vacuum control valve shuts off the flow of compressed air to the pump when the pre-set vacuum level is reached (1). The vacuum level is set by a screw. Because of minor leakage in a vacuum system the vacuum level drops and after a while the start up level of the valve is reached (2). Then the pump will start and work until the shut off level is reached again (3), etc. (the section (a) is possible to be changed depending on the level of airtight.)



AS - KIT

- AS - Kit Products line-up



VACUUM PUMPS



Pump Characteristics

	Model	MAX. Vacuum - kPa (-inHg)	Supply Air pressure (MPa)	Max. Vacuum Flow (NI/m)	Air consumption (NI/m)	Noise level (dBA)	Min. hose inner ø (within 2m)		
							Air supply	Vacuum	Exhaust
132 ~ 137	VTC 3021	75 (22.15)	0.22	164	97	50 ~60	6	8	10
		93 (27.46)	0.3	170	118				
		93 (27.46)	0.4	171	152				
132 ~ 137	VTC 3031	75 (22.15)	0.22	302	97		6	8	10
		93 (27.46)	0.3	338	118				
		93 (27.46)	0.4	341	152				
134 ~ 137	VTCL 3021	60 (17.72)	0.4	188	70		6	8	10
		70 (20.67)	0.5	195	85				
		75 (22.15)	0.6	200	104				
134 ~ 137	VTCL 3031	60 (17.72)	0.4	302	70		6	8	10
		70 (20.67)	0.5	344	85				
		75 (22.15)	0.6	362	104				
138 ~ 143	VTC 3022	75 (22.15)	0.22	328	194	60~65	8	12	18
		93 (27.46)	0.3	340	236				
		93 (27.46)	0.4	342	304				
138 ~ 143	VTC 3032	75 (22.15)	0.22	604	194		8	12	18
		93 (27.46)	0.3	676	236				
		93 (27.46)	0.4	682	304				
140 ~ 143	VTCL 3022	60 (17.72)	0.4	376	140		6	12	18
		70 (20.67)	0.5	390	170				
		75 (22.15)	0.6	400	208				
140 ~ 143	VTCL 3032	60 (17.72)	0.4	604	140		6	12	18
		70 (20.67)	0.5	688	170				
		75 (22.15)	0.6	724	208				
144 ~ 153	VTC 3122	75 (22.15)	0.22	328	194	60 ~65	8	15	15
		93 (27.46)	0.3	340	236				
		93 (27.46)	0.4	342	304				
144 ~ 153	VTC 3123	75 (22.15)	0.22	492	291		10	19	22
		93 (27.46)	0.3	510	354				
		93 (27.46)	0.4	513	456				
144 ~ 153	VTC 3124	75 (22.15)	0.22	656	388		10	22	32
		93 (27.46)	0.3	680	472				
		93 (27.46)	0.4	684	608				
144 ~ 153	VTC 3132	75 (22.15)	0.22	604	194		8	15	15
		93 (27.46)	0.3	676	236				
		93 (27.46)	0.4	682	304				
144 ~ 153	VTC 3133	75 (22.15)	0.22	902	291	10	19	22	
		93 (27.46)	0.3	1014	354				
		93 (27.46)	0.4	1023	456				
144 ~ 153	VTC 3134	75 (22.15)	0.22	1208	388	10	22	32	
		93 (27.46)	0.3	1352	472				
		93 (27.46)	0.4	1364	608				
148 ~ 153	VTCL 3122	60 (17.72)	0.4	376	140	8	15	15	
		70 (20.67)	0.5	390	170				
		75 (22.15)	0.6	400	208				
148 ~ 153	VTCL 3123	60 (17.72)	0.4	564	210	10	19	22	
		70 (20.67)	0.5	585	255				
		75 (22.15)	0.6	600	312				
148 ~ 153	VTCL 3124	60 (17.72)	0.4	752	280	10	22	32	
		70 (20.67)	0.5	780	340				
		75 (22.15)	0.6	800	416				
148 ~ 153	VTCL 3132	60 (17.72)	0.4	604	140	8	15	15	
		70 (20.67)	0.5	688	170				
		75 (22.15)	0.6	724	208				
148 ~ 153	VTCL 3133	60 (17.72)	0.4	906	210	10	19	22	
		70 (20.67)	0.5	1032	255				
		75 (22.15)	0.6	1086	312				
148 ~ 153	VTCL 3134	60 (17.72)	0.4	1208	280	10	22	32	
		70 (20.67)	0.5	1376	340				
		75 (22.15)	0.6	1448	416				

Pump Characteristics

	Model	MAX. Vacuum -kPa (-inHg)	Supply Air pressure (MPa)	Max. Vacuum Flow (l/m)	Air consumption (l/m)	Noise level (dBA)	Min. hose inner ø (within 2m)				
							Air supply	Vacuum	Exhaust		
159 ~ 165	VS 144	75 (22.15)	0.22	302	97	50 ~ 60	6	8	10		
		93 (27.46)	0.3	338	118						
		93 (27.46)	0.4	341	152						
159 ~ 165	VS 146	75 (22.15)	0.22	302	97		50 ~ 60	6	8	10	
		93 (27.46)	0.3	338	118						
		93 (27.46)	0.4	341	152						
159 ~ 165	VS 148	75 (22.15)	0.22	302	97			50 ~ 60	6	8	10
		93 (27.46)	0.3	338	118						
		93 (27.46)	0.4	341	152						
161 ~ 165	VLS 144	60 (17.72)	0.4	302	70	50 ~ 60			6	8	10
		70 (20.67)	0.5	344	85						
		75 (22.15)	0.6	362	104						
161 ~ 165	VLS 146	60 (17.72)	0.4	302	70		50 ~ 60		6	8	10
		70 (20.67)	0.5	344	85						
		75 (22.15)	0.6	362	104						
161 ~ 165	VLS 148	60 (17.72)	0.4	302	70			50 ~ 60	6	8	10
		70 (20.67)	0.5	344	85						
		75 (22.15)	0.6	362	104						
171 ~ 177	MD 302	75 (22.15)	0.22	164	97	50 ~ 60			6	8	10
		93 (27.46)	0.3	170	118						
		93 (27.46)	0.4	171	152						
171 ~ 177	MD 303	75 (22.15)	0.22	302	97		50 ~ 60		6	8	10
		93 (27.46)	0.3	338	118						
		93 (27.46)	0.4	341	152						
173 ~ 177	MDL 302	60 (17.72)	0.4	188	70			50 ~ 60	6	8	10
		70 (20.67)	0.5	195	85						
		75 (22.15)	0.6	200	104						
173 ~ 177	MDL 303	60 (17.72)	0.4	302	70	50 ~ 60			6	8	10
		70 (20.67)	0.5	344	85						
		75 (22.15)	0.6	362	114						
184 ~ 193	PM 303 X 1	75 (22.15)	0.22	302	97		60 ~ 65		8	12	12
		93 (27.46)	0.3	338	118						
		93 (27.46)	0.4	341	158						
184 ~ 193	PM 303 X 2	75 (22.15)	0.22	604	194			60 ~ 65	8	15	15
		93 (27.46)	0.3	676	236						
		93 (27.46)	0.4	682	304						
184 ~ 193	PM 303 X 3	75 (22.15)	0.22	902	291	60 ~ 65			10	19	22
		93 (27.46)	0.3	1014	354						
		93 (27.46)	0.4	1023	456						
184 ~ 193	PM 303 X 4	75 (22.15)	0.22	1208	388		60 ~ 65		10	22	32
		93 (27.46)	0.3	1352	472						
		93 (27.46)	0.4	1364	608						
188 ~ 193	PML 303 X 1	60 (17.72)	0.4	302	70			60 ~ 65	8	12	12
		70 (20.67)	0.5	344	85						
		75 (22.15)	0.6	362	104						
188 ~ 193	PML 303 X 2	60 (17.72)	0.4	604	140	60 ~ 65			8	15	15
		70 (20.67)	0.5	688	170						
		75 (22.15)	0.6	724	208						
188 ~ 193	PML 303 X 3	60 (17.72)	0.4	906	210		60 ~ 65		10	19	22
		70 (20.67)	0.5	1032	255						
		75 (22.15)	0.6	1086	312						
188 ~ 193	PML 303 X 4	60 (17.72)	0.4	1208	280			60 ~ 65	10	22	32
		70 (20.67)	0.5	1376	340						
		75 (22.15)	0.6	1448	416						

VACUUM PUMPS

Pump Characteristics

	Model	MAX. Vacuum -kPa (-inHg)	Supply Air pressure (bar)	Max. Vacuum Flow (Nl/m)	Air consumption (Nl/m)	Capacity equivalent to electricity motor pump size(kw)	Noise level (dBA)	Min. hose inner ø (within 2m)		
								Air supply	Vacuum	Exhaust
196 - 199	VKX5	92 (27.17)	3-6	23	13-22	0.03	50-65	>2	>2	
	VKM5	85 (25.1)	3-6	26	12-21	0.03		>2	>2	
200 - 211	VKM61	85 (25.1)	3-6	37	15-21	0.05	50-65	>4-10	>6	>10
	VKM62		3-6	74	30-42	0.1		>4-10	>6	>10
200 - 211	VKX61	92 (27.17)	3-6	31	21.6-24	0.05	50-65	>4-10	>6	>10
	VKX62		3-6	62	43.2-48	0.1		>4-10	>6	>10
212 - 223	VKX73	92 (27.17)	3-6	94	49-66	0.15	50-65	>4-10	>8	>12
	VKX74		3-6	109	66-88	0.2		>4-10	>8	>12
212 - 223	VKM73	85 (25.1)	3-6	111	40-58	0.15	50-65	>4-10	>8	>12
	VKM74		3-6	135	54-78	0.2		>4-10	>8	>12
232 - 235	VTOM5-(N)Stack	85 (25.1)	5.5	27XN	15 X N-21 X N	0.05 X N	50-65	>8-10	>2.5	>10
	VTOM10-(N)Stack		5.5	35XN	30 X N-42 X N	0.1 X N		>8-10	>4	>12
232 - 235	VTOM5-(N)Stack	92 (27.17)	5.5	24XN	21.6 X N-24 X N	0.05 X N	50-65	>8-10	>2.5	>10
	VTOM10-(N)Stack		5.5	32XN	43.2 X N-48 X N	0.1 X N		>8-10	>4	>12
236 - 241	VTM5-(N)Stack	85 (25.1)	5.5	27XN	15 X N-21 X N	0.05 X N	50-65	>8-10	>2.5	>10
	VTM10-(N)Stack		5.5	35XN	30 X N-42 X N	0.1 X N		>8-10	>4	>12
242 - 247	VTM10X(N)B(BA,...NC)	85 (25.1)	5.5	74	30 X N-42 X N	0.1	50-65	>8-10	>8	>10x(N)
	VTM20X(N)B(BA,...NC)		5.5	149	60 X N-84 X N	0.2		>8-10	>10	>12x(N)
	VTM30X(N)B(C,...NC)		5.5	220	90 X N-126 X N	0.3		>8-10	>12	>12x(N)
226 - 231	VTM5-A(B,...NC)	85 (25.1)	5.5	37	15-25	0.05	50-65	>2	>5	>8
	VTM10-A(B,...NC)		5.5	74	30-42	0.1		>2	>8	>10
	VTM20-B(C,...NC)		5.5	149	60-84	0.2		>4	>10	>12
	VTM30-B(C,...NC)		5.5	220	90-126	0.3		>6	>12	>15
248 - 255	VTM20KD	85 (25.1)	5.5	149	60-84	0.2	50-65	>4	>10	>12
	VTM30KD		5.5	220	90-126	0.3		>6	>10	>15
	VTM40KD		5.5	292	120-168	0.4		>6	>12	>15
	VTM50KD		5.5	341	150-216	0.5		>8	>12	>18
	VTM60KD		5.5	390	180-252	0.6		>8	>15	>18
262 - 265	VTM25L	91 (26.87)	3.4	365	114	0.25	50-65	>4	>12	>12
	VTM50L		3.4	622	228	0.5		>6	>15	>15
	VTM75L		3.4	841	342	0.75		>8	>19	>22
	VTM100L		3.4	1060	456	1.0		>8	>19	>22
	VTM125L		3.4	1195	570	1.25		>10	>25	>32
266 - 269	VTM150L	80 (23.62)	3.4	1370	684	1.5	50-65	>10	>25	>32
	VTL25		6	379	78-105	0.25		>4	>12	>12
	VTL50		6	650	156-210	0.5		>6	>15	>15
	VTL75		6	820	234-315	0.75		>8	>19	>22
	VTL100		6	990	312-420	1		>8	>19	>22
	VTL125		6	1090	390-528	1.25		>10	>25	>32
	VTL150		6	1303	468-630	1.5		>10	>25	>32
VTL175	6	1682	546-735	1.75	>10	>32	>40			
270 - 273	VTL200	92 (27.17)	6	2061	624-840	2	50-65	>10	>32	>40
	VTM25		5.8	389	78-108	0.25		>4	>12	>12
	VTM50		5.8	647	150-210	0.5		>6	>15	>15
	VTM75		5.8	890	228-318	0.75		>8	>19	>22
	VTM100		5.8	1100	300-420	1		>8	>19	>22
	VTM125		5.8	1200	378-528	1.25		>8	>25	>32
	VTM150		5.8	1380	450-630	1.5		>10	>25	>32
VTM175	5.8	1490	528-738	1.75	>10	>32	>40			
VTM200	5.8	1580	600-840	2	>10	>32	>40			

Pump Characteristics

Model	MAX. Vacuum -kPa (-inHg)	Supply Air pressure (bar)	Max. Vacuum Flow (Nl/m)	Air consumption (Nl/m)	Capacity equivalent to electricity motor pump size(kw)	Noise level (dBA)	Min. hose inner ø (within 2m)		
							Air supply	Vacuum	Exhaust
VTMM100	92 (27.17)	5.8	1290	300-420	1	55-65	>8	>19	>22
VTMM150		5.8	1740	450-630	1.5		>10	>25	>32
VTMM200		5.8	2150	600-780	2		>10	>32	>40
VTMM200F		5.8	2200	600-780	2		>10	>32	>40
VTM150LEF	91 (26.87)	3.4	1680	684	1.5	55-68	>8	>25	>32
VTM200LEF		3.4	2100	912	2		>10	>32	>40
VTM300LEF		3.4	2600	1368	3		>12	>40	>60
VTM400LEF		3.4	3180	1824	4		>12	>40	>60
VTM500LEF		3.4	4200	2280	5		>14	>45	>70
VTM600LEF		3.4	5010	2736	6		>14	>50	>70
VTM800LEF	3.4	6100	3648	8	>15	>50	>75		
VTMM200EF	92 (27.17)	6	2200	600-780	2	55-68	>10	>32	>40
VTMM300EF		6	3300	900-1260	3		>12	>40	>60
VTMM400EF		6	4400	1200-1680	4		>12	>40	>60
VTMM500EF		6	5500	1500-2100	5		>14	>45	>70
VTMM600EF		6	6600	1800-2520	6		>14	>50	>70
VTMM800EF		6	8800	2400-3360	8		>15	>50	>75
VTMM1000EF	6	11000	3000-4200	10	>18	>65	>95		
VTML200	92 (27.17)	6	2410	600-780	2	68-76	>10	>32	>40
VTML400		6	4820	1200-1680	4		>12	>40	>60
VTML600		6	7230	1800-2520	6		>14	>50	>70
VTML800		6	9640	2400-3360	8		>15	>50	>75
VTML1000		6	12050	3000-4140	10		>18	>65	>90
VTML1200	6	14460	3600-4920	12	>20	>75	>100		
VTX5-(N)Stack	92 (27.17)	6	24xN	21,6xN-24xN	0.05xN	55-65	>8-10	>2.5	>12
VTX10-(N)Stack	6	32xN	43,2xN-48xN	0.1xN	>8-10		>4	>12	
VTX10x(N-B(BA,...NC))	92 (27.17)	5.3	62	43,2xN-48xN	0.1	50-65	>8-10	>8	>10xN
VTX20x(N-B(BA,...NC))		5.3	124	86,4xN-96xN	0.2		>8-10	>10	>12xN
VTX30x(N-B(BA,...NC))		5.3	185	129,6xN-144xN	0.3		>8-10	>12	>12xN
VTX5-A(B,...NC)	92 (27.17)	5.3	32	21,6-24	0.05	50-68	>2	>5	>8
VTX10-A(B,...NC)		5.3	62	43,2-48	0.1		>2	>8	>10
VTX20-B(C,...NC)		5.3	124	86,4-96	0.2		>4	>10	>12
VTX30-B(C,...NC)	92 (27.17)	5.3	185	129,6-144	0.3	55-65	>6	>12	>15
VTX20KD		5.3	124	86,4-96	0.2		>4	>10	>12
VTX30KD		5.3	185	129,6-144	0.3		>6	>10	>15
VTX40KD		5.3	247	172,8-192	0.4		>6	>12	>15
VTX50KD		5.3	290	216-240	0.5		>6	>12	>18
VTX60KD		5.3	332	259,2-288	0.6		>6	>15	>18
VTX25	97 (28.64)	6	185	150-210	0.4	55-65	>4	>12	>12
VTX50		6	365	228-318	0.8		>6	>15	>15
VTX75		6	521	300-420	1.2		>8	>19	>22
VTMX100	97 (28.64)	6	695	504-600	1	63-68	>8	>19	>22
VTMX200		6	1037	756-900	2		>8	>25	>32
VTMX300		6	1355	1008-1200	3		>10	>32	>40
VTH50	100.8 (29.76)	6	185	120-156	0.3	60-65	>6	>12	>12
VTH150		6	521	420-456	0.9		>8	>15	>15
VTH300		6	1042	870-912	1.2		>10	>19	>22

VACUUM PUMPS

Vacuum flow (Nm³/m) at different vacuum level (-kPa)

Model	MAX. Vacuum -kPa (-inHg)	Feed pressure (MPa) (-kPa) (-inHg)	0	10	20	30	40	50	60	70	80	90
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
132 ~ 137 VTC 3021	75 (22.15)	0.22	164	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	170	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	171	154	127.5	94	69	43	23.3	17.3	6.9	2.1
132 ~ 137 VTC 3031	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
134 ~ 137 VTCL 3021	60 (17.72)	0.4	188	158	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	195	176	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	200	183	154	100	52	38	32	22	-	-
134 ~ 137 VTCL 3031	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
138 ~ 143 VTC 3022	75 (22.15)	0.22	328	245	176	106	62.8	57	33	9.2	-	-
	93 (27.46)	0.3	340	304	212	128	66	64	44	33	12.8	3.8
	93 (27.46)	0.4	342	308	255	188	138	86	46.6	34.6	13.8	4.2
138 ~ 143 VTC 3032	75 (22.15)	0.22	604	245	176	106	62.8	57	33	9.2	-	-
	93 (27.46)	0.3	676	304	212	128	66	64	44	33	12.8	3.8
	93 (27.46)	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2
140 ~ 143 VTCL 3022	60 (17.72)	0.4	376	316	220	140	92	56	13.6	-	-	-
	70 (20.67)	0.5	390	352	260	164	100	75	46	23.8	-	-
	75 (22.15)	0.6	400	366	308	200	104	76	64	44	-	-
140 ~ 143 VTCL 3032	60 (17.72)	0.4	604	352	220	140	92	56	13.6	-	-	-
	70 (20.67)	0.5	688	392	260	164	100	75	46	23.8	-	-
	75 (22.15)	0.6	724	415	308	200	104	76	64	44	-	-
144 ~ 153 VTC 3122	75 (22.15)	0.22	328	245	176	106	62.8	57	33	9.2	-	-
	93 (27.46)	0.3	340	304	212	128	66	64	44	33	12.8	3.8
	93 (27.46)	0.4	342	308	255	188	138	86	46.6	34.6	13.8	4.2
144 ~ 153 VTC 3123	75 (22.15)	0.22	492	367	264	159	94	86	50	14	-	-
	93 (27.46)	0.3	510	456	318	192	99	96	66	50	19	6
	93 (27.46)	0.4	513	462	383	282	207	129	70	52	21	6.3
144 ~ 153 VTC 3124	75 (22.15)	0.22	656	490	352	212	126	114	66	18	-	-
	93 (27.46)	0.3	680	608	424	256	132	128	88	66	26	7.6
	93 (27.46)	0.4	684	616	510	376	276	172	93	69	28	8.4
144 ~ 153 VTC 3132	75 (22.15)	0.22	604	245	176	106	62.8	57	33	9.2	-	-
	93 (27.46)	0.3	676	304	212	128	66	64	44	33	12.8	3.8
	93 (27.46)	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2
144 ~ 153 VTC 3133	75 (22.15)	0.22	902	368	264	159	94	86	50	14	-	-
	93 (27.46)	0.3	1014	456	318	192	99	96	66	50	19	6
	93 (27.46)	0.4	1023	462	383	282	207	129	70	52	21	6.3
144 ~ 153 VTC 3134	75 (22.15)	0.22	1208	490	352	212	126	114	66	18	-	-
	93 (27.46)	0.3	1352	608	424	256	132	128	88	66	26	7.6
	93 (27.46)	0.4	1364	616	510	376	276	172	93	69	28	8.4
148 ~ 153 VTCL 3122	60 (17.72)	0.4	376	316	220	140	92	56	13.6	-	-	-
	70 (20.67)	0.5	390	352	260	164	100	75	46	23.8	-	-
	75 (22.15)	0.6	400	366	308	200	104	76	64	44	-	-
148 ~ 153 VTCL 3123	60 (17.72)	0.4	564	474	330	210	138	84	20.4	-	-	-
	70 (20.67)	0.5	585	528	390	246	150	112.5	69	33.9	-	-
	75 (22.15)	0.6	600	549	462	300	156	114	96	66	-	-
148 ~ 153 VTCL 3124	60 (17.72)	0.4	752	632	440	280	184	112	27.2	-	-	-
	70 (20.67)	0.5	780	704	520	328	200	150	92	45.2	-	-
	75 (22.15)	0.6	800	732	616	400	208	152	128	88	-	-
148 ~ 153 VTCL 3132	60 (17.72)	0.4	604	344	220	140	92	56	13.6	-	-	-
	70 (20.67)	0.5	688	392	260	164	100	75	46	23.8	-	-
	75 (22.15)	0.6	724	415	308	200	104	76	64	44	-	-
148 ~ 153 VTCL 3133	60 (17.72)	0.4	906	516	330	210	138	84	20.4	-	-	-
	70 (20.67)	0.5	1032	588	390	246	150	112.5	69	34	-	-
	75 (22.15)	0.6	1086	621	462	300	156	114	96	66	-	-
148 ~ 153 VTCL 3134	60 (17.72)	0.4	1208	688	440	280	184	112	27	-	-	-
	70 (20.67)	0.5	1376	784	520	328	200	150	92	45	-	-
	75 (22.15)	0.6	1448	828	616	400	208	152	128	88	-	-

Vacuum flow (NI/m) at different vacuum level (-kPa)

Model	MAX. Vacuum kPa (-inHg)	Feed pressure (MPa) (-kPa) (-inHg)	0	10	20	30	40	50	60	70	80	90
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
159 ~ 165 VS 144	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
159 ~ 165 VS 146	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
159 ~ 165 VS 148	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
161 ~ 165 VLS 144	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
161 ~ 165 VLS 146	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
161 ~ 165 VLS 148	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
171 ~ 177 MD 302	75 (22.15)	0.22	164	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	170	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	171	154	127.5	94	69	43	23.3	17.3	6.9	2.1
171 ~ 177 MD 303	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
173 ~ 177 MDL 302	60 (17.72)	0.4	188	158	110	70	46	2.8	6.8	-	-	-
	70 (20.67)	0.5	195	176	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	200	183	154	100	52	38	32	22	-	-
173 ~ 177 MDL 303	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
184 ~ 193 PM 303X1	75 (22.15)	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93 (27.46)	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93 (27.46)	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
184 ~ 193 PM 303X2	75 (22.15)	0.22	604	245	176	106	62.8	57	33	9.2	-	-
	93 (27.46)	0.3	676	304	212	128	66	64	44	33	12.8	3.8
	93 (27.46)	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2
184 ~ 193 PM 303X3	75 (22.15)	0.22	902	368	264	159	94	86	50	14	-	-
	93 (27.46)	0.3	1014	456	318	192	99	96	66	50	19	6
	93 (27.46)	0.4	1023	462	383	282	207	129	70	52	21	6.3
184 ~ 193 PM 303X4	75 (22.15)	0.22	1208	490	352	212	126	114	66	18	-	-
	93 (27.46)	0.3	1352	608	424	256	132	128	88	66	26	7.6
	93 (27.46)	0.4	1364	616	510	376	276	172	93	69	28	8.4
188 ~ 193 PML 303X1	60 (17.72)	0.4	302	176	110	70	46	28	6.8	-	-	-
	70 (20.67)	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75 (22.15)	0.6	362	194	154	100	52	38	32	22	-	-
188 ~ 193 PML 303X2	60 (17.72)	0.4	604	344	220	140	92	56	13.6	-	-	-
	70 (20.67)	0.5	688	392	260	164	100	75	46	23.8	-	-
	75 (22.15)	0.6	724	415	308	200	104	76	64	44	-	-
188 ~ 193 PML 303X3	60 (17.72)	0.4	906	516	330	210	138	84	20.4	-	-	-
	70 (20.67)	0.5	1032	588	390	246	150	112.5	69	34	-	-
	75 (22.15)	0.6	1086	621	462	300	156	114	96	66	-	-
188 ~ 193 PML 303X4	60 (17.72)	0.4	1208	688	440	280	184	112	27	-	-	-
	70 (20.67)	0.5	1376	784	520	328	200	150	92	45	-	-
	75 (22.15)	0.6	1448	828	616	400	208	152	128	88	-	-

VACUUM PUMPS

Vacuum flow (Nl/m) at different vacuum levels (-kPa)

Model	MAX. Vacuum -kPa (-inHg)	0	10	20	30	40	50	60	70	80	90	95	99
		0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
196 - 199 VKX5	92 (27.17)	23	12	8	7	6	5	4	2.7	1.2	0.45		
VKM5	85 (25.1)	26	15	12	11	10	8	5.5	2.8	0.7			
200 - 211 VKM61	85 (25.1)	37	26	16	14	10	8	6	2.4	0.66			
VKM62		74	52	31	28	20	16	12	4.8	1.32			
200 - 211 VKX61	92 (27.17)	31	18	9	8	7	5	4	2.7	1.2	0.46		
VKX62		62	36	18	16	13	11	9	5.4	2.4	0.9		
212 - 223 VKX73	92 (27.17)	94	54	27	24	21	17	13.5	9	3.6	1.35		
VKX74		109	72	35	32	27	22	18	12	4.8	1.8		
212 - 223 VKM73	85 (25.1)	111	78	47	42	30	24	18	7.2	1.98			
VKM74		135	99	62	54	40	32	24	9.6	2.64			
232 - 235 VTOM5-(N)Stack	85 (25.1)	27	16	13	12	11	8	6	2.4	0.66 - (N)Stack			
VTOM10-(N)Stack		35	29	25	23	19	16	12	4.8	1.32 - (N)Stack			
232 - 235 VTOX5-(N)Stack	92 (27.17)	24	13	9	8	7	5	4	2.7	1.2	0.45 - (N)Stack		
VTOX10-(N)Stack		32	21	17	15	14	11	9	5.4	2.4	0.9 - (N)Stack		
236 - 241 VTM5-(N)Stack	85 (25.1)	27	16	13	12	11	8	6	2.4	0.66 - (N)Stack			
VTM10-(N)Stack		35	29	25	23	19	16	12	4.8	1.32 - (N)Stack			
242 - 247 VTM10X(N)B(BA,...NC)	85 (25.1)	74	52	31	28	20	16	12	4.8	1.32 - (N)Stack			
VTM20X(N)B(BA,...NC)		149	99	62	54	40	32	22	10.5	2.7 - (N)Stack			
VTM30X(N)B(C,...NC)		220	147	92	73	60	47	32	16	4.1 - (N)Stack			
226 - 231 VTM5-A(B,...NC)	85 (25.1)	37	26	16	14	10	8	6	2.4	0.66			
VTM10-A(B,...NC)		74	52	31	28	20	16	12	4.8	1.32			
VTM20-B(C,...NC)		149	99	62	54	40	32	22	10.5	2.7			
VTM30-B(C,...NC)		220	147	92	73	60	47	32	16	4.1			
248 - 255 VTM20KD	85 (25.1)	149	99	62	54	40	32	22	10.5	2.7			
VTM30KD		220	147	92	73	60	47	32	16	4.1			
VTM40KD		292	200	110	93	80	63	43	21	5.4			
VTM50KD		341	228	135	115	100	79	60	24	6.6			
VTM60KD		390	256	259	137	119	94	64	32	8.5			
262 - 265 VTM25L	91 (26.87)	365	169	124	76	43	33	25	17	7	0.8		
VTM50L		622	327	236	149	83	65	49	33	14	1.6		
VTM75L		841	481	354	221	122	97	73	49	21	2.4		
VTM100L		1060	634	449	293	161	129	96	64	27	3.2		
VTM125L		1195	789	522	360	193	152	120	80.6	33.3	3.8		
VTM150L		1370	937	589	418	237	187	144	97.2	39.6	4.32		
266 - 269 VTL25	80 (23.62)	379	200	139	94	51	40	28	18				
VTL50		650	374	266	176	102	77	56	36				
VTL75		820	490	370	245	138	116	92	49				
VTL100		990	607	473	323	197	152	109	69				
VTL125		1090	750	547	390	241	192	138	87				
VTL150		1303	907	614	456	282	228	162	102				
VTL175		1682	1060	678	515	314	267	189	118				
VTL200		2061	1217	729	574	363	294	218	134				
270 - 273 VTM25	90 (26.57)	389	220	149	74	37	27	18	10	5	0.8		
VTM50		647	400	279	146	73	54	36	20	10	1.6		
VTM75		890	600	366	220	110	82	54	30	15	2.4		
VTM100		1100	750	453	291	146	109	72	40	20	3.2		
VTM125		1200	900	530	356	182	135	90	50	25	4		
VTM150		1380	1020	597	416	218	162	108	60	30	4.8		
VTM175		1490	1120	654	471	254	189	126	70	35	5.6		
VTM200		1580	1200	701	521	290	216	144	80	40	6.4		

Vacuum flow (Nl/m) at different vacuum levels (-kPa)

Model	MAX. Vacuum -kPa (-inHg)	0	10	20	30	40	50	60	70	80	90	95	99
		0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
VTMM100	90 (26.57)	1290	844	562	291	146	109	72	40	20	3.2		
VTMM150		1740	1206	700	420	216	162	180	60	27	4.5		
VTMM200		2150	1530	1010	520	290	216	144	80	40	6.4		
VTMM200F		2200	1540	1016	528	290	216	144	80	40	6.4		
VTM150LEF	91 (26.87)	1680	838	642	439.2	244.8	190.8	144	97.2	39.6	4.32		
VTM200LEF		2100	1260	900	585.6	326.4	254.4	192	129.6	52.8	5.76		
VTM300LEF		2600	1800	1260	878.4	489.6	381.6	288	194.4	92	8.67		
VTM400LEF		3100	2400	1608	1171	652.8	508.8	384	259.2	105.6	11.52		
VTM500LEF		4200	2950	2020	1464	816	636	480	324	132	14.4		
VTM600LEF		5010	3450	2450	1757	979.2	763.2	576	388.8	158.4	17.28		
VTM800LEF	6100	4200	3340	2342	1306	1018	768	518.4	211.2	23			
VTMM200EF	92 (27.17)	2200	1540	1016	528	290	216	144	80	40	6.4		
VTMM300EF		3300	2310	1781	793	435	324	216	120	60	9.6		
VTMM400EF		4400	3080	2036	1058	580	432	288	160	80	12.8		
VTMM500EF		5500	3850	2545	1323	725	540	360	200	100	16		
VTMM600EF		6600	4620	3055	1588	870	648	432	240	120	19.2		
VTMM800EF		8800	6164	4076	2119	1160	864	576	320	160	25.6		
VTMM1000EF	11000	7700	5090	2646	1450	1080	720	400	200	32			
VTML200	92 (27.17)	2410	1688	1116	580	290	216	144	80	40	6.4		
VTML400		4820	3376	2232	1160	580	432	288	160	80	12.8		
VTML600		7230	5064	3348	1740	870	648	432	240	120	19.2		
VTML800		9640	6752	4464	2320	1160	864	576	320	160	25.6		
VTML1000		12050	8440	5580	2900	1450	1080	720	400	200	32		
VTML1200		14460	10128	6696	3480	1740	1296	864	480	240	38.4		
VTX5-(N)Stack	92 (27.17)	24	13	9	8	7	5	4	2.7	1.2	0.45	- (N)Stack	
VTX10-(N)Stack		32	21	17	15	14	11	9	5.4	2.4	0.9	- (N)Stack	
VTX10x(N-B(BA,...NC))	92 (27.17)	62	36	18	16	14	11	9	6	2.4	0.9	- (N)Stack	
VTX20x(N-B(BA,...NC))		124	72	35	32	27	22	18	12	4.8	1.8	- (N)Stack	
VTX30x(N-B(BA,...NC))		185	108	52	47	41	33	26	18	7.2	2.7	- (N)Stack	
VTX5-A(B,...NC)	92 (27.17)	32	18	9	8	7	6	5	3	1.2	0.45		
VTX10-A(B,...NC)		62	36	18	16	14	11	9	6	2.4	0.9		
VTX20-B(C,...NC)		124	72	35	32	27	22	18	12	4.8	1.8		
VTX30-B(C,...NC)		185	108	52	47	41	33	26	18	7.2	2.7		
VTX20KD	92 (27.17)	124	72	35	32	27	22	18	12	4.8	1.8		
VTX30KD		185	108	52	47	41	33	26	18	7.2	2.7		
VTX40KD		247	144	69	63	54	44	35	23	9.6	3.6		
VTX50KD		290	171	86	78	66	55	43	29	12	4.5		
VTX60KD		332	198	102	93	78	65	51	34	14.4	5.4		
VTX25		97 (28.64)	185	148	105	66	35	27	21	15	12	4.2	1.5
VTX50	365		292	207	132	69	54	42	30	23	8.4	3	
VTX75	521		424	309	198	102	81	63	45	35	12.6	4.5	
VTMX100	97 (28.64)	695	568	411	260	139	108	84	60	45	17	6	
VTMX200		1037	844	615	398	211	162	126	90	69	26	9	
VTMX300		1355	1096	813	530	289	216	168	120	92	33	12	
VTH50	100.8 (29.76)	185	147	106	66	32	21	15	9.6	7.2	3.6	1.2	0.3
VTH150		521	423	307	198	105	78	54	39	27	7.8	3.6	0.48
VTH300		1042	846	614	396	210	156	108	78	54	15.6	7.2	0.96

VACUUM PUMPS

Time, s/l, evacuate a volume to different vacuum level (-kPa)

Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	(-kPa)		10	20	30	40	50	60	70	80	90
			(-inHg)		2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
132 ~ 137 VTC 3021	75 (22.15)	0.22	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-	-	-
	93 (27.46)	0.3	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8	-	-
	93 (27.46)	0.4	0.26	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5	-	-
132 ~ 137 VTC 3031	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8	-	-
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4	-	-
134 ~ 137 VTCL 3021	60 (17.72)	0.4	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-	-	-
	70 (20.67)	0.5	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-	-	-
	75 (22.15)	0.6	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-	-	-
134 ~ 137 VTCL 3031	60 (17.72)	0.4	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-	-	-
	70 (20.67)	0.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-	-	-
	75 (22.15)	0.6	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-	-	-
138 ~ 143 VTC 3022	75 (22.15)	0.22	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-	-	-
	93 (27.46)	0.3	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01	-	-
	93 (27.46)	0.4	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75	-	-
138 ~ 143 VTC 3032	75 (22.15)	0.22	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-	-	-
	93 (27.46)	0.3	0.01	0.032	0.055	0.15	0.22	0.33	0.48	0.78	1.98	-	-
	93 (27.46)	0.4	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72	-	-
140 ~ 143 VTCL 3022	60 (17.72)	0.4	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-	-	-
	70 (20.67)	0.5	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-	-	-
	75 (22.15)	0.6	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-	-	-
140 ~ 143 VTCL 3032	60 (17.72)	0.4	0.013	0.037	0.073	0.14	0.19	0.45	-	-	-	-	-
	70 (20.67)	0.5	0.009	0.032	0.06	0.128	0.16	0.25	0.43	-	-	-	-
	75 (22.15)	0.6	0.008	0.03	0.047	0.098	0.15	0.2	0.32	-	-	-	-
144 ~ 153 VTC 3122	75 (22.15)	0.22	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-	-	-
	93 (27.46)	0.3	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01	-	-
	93 (27.46)	0.4	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75	-	-
144 ~ 153 VTC 3123	75 (22.15)	0.22	0.01	0.04	0.07	0.13	0.16	0.24	0.54	-	-	-	-
	93 (27.46)	0.3	0.009	0.03	0.06	0.1	0.13	0.21	0.26	0.4	1.27	-	-
	93 (27.46)	0.4	0.008	0.019	0.03	0.033	0.08	0.16	0.23	0.35	1.17	-	-
144 ~ 153 VTC 3124	75 (22.15)	0.22	0.008	0.03	0.05	0.095	0.12	0.18	0.4	-	-	-	-
	93 (27.46)	0.3	0.007	0.025	0.048	0.08	0.1	0.16	0.2	0.3	0.95	-	-
	93 (27.46)	0.4	0.006	0.015	0.023	0.025	0.06	0.12	0.17	0.26	0.87	-	-
144 ~ 153 VTC 3132	75 (22.15)	0.22	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-	-	-
	93 (27.46)	0.3	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98	-	-
	93 (27.46)	0.4	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72	-	-
144 ~ 153 VTC 3133	75 (22.15)	0.22	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-	-	-
	93 (27.46)	0.3	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27	-	-
	93 (27.46)	0.4	0.004	0.01	0.02	0.03	0.06	0.14	0.02	0.33	1.13	-	-
144 ~ 153 VTC 3134	75 (22.15)	0.22	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-	-	-
	93 (27.46)	0.3	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95	-	-
	93 (27.46)	0.4	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85	-	-
148 ~ 153 VTCL 3122	60 (17.72)	0.4	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-	-	-
	70 (20.67)	0.5	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-	-	-
	75 (22.15)	0.6	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-	-	-
148 ~ 153 VTCL 3123	60 (17.72)	0.4	0.012	0.029	0.057	0.097	0.127	0.27	-	-	-	-	-
	70 (20.67)	0.5	0.009	0.028	0.05	0.083	0.1	0.13	0.26	-	-	-	-
	75 (22.15)	0.6	0.009	0.027	0.04	0.06	0.09	0.12	0.2	-	-	-	-
148 ~ 153 VTCL 3124	60 (17.72)	0.4	0.01	0.025	0.04	0.07	0.09	0.02	-	-	-	-	-
	70 (20.67)	0.5	0.0067	0.02	0.037	0.065	0.075	0.1	0.2	-	-	-	-
	75 (22.15)	0.6	0.006	0.02	0.03	0.055	0.073	0.09	0.15	-	-	-	-
148 ~ 153 VTCL 3132	60 (17.72)	0.4	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-	-	-
	70 (20.67)	0.5	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-	-	-
	75 (22.15)	0.6	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-	-	-
148 ~ 153 VTCL 3133	60 (17.72)	0.4	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-	-	-
	70 (20.67)	0.5	0.0085	0.028	0.05	0.08	0.01	0.13	0.26	-	-	-	-
	75 (22.15)	0.6	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-	-	-
148 ~ 153 VTCL 3134	60 (17.72)	0.4	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-	-	-
	70 (20.67)	0.5	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-	-	-
	75 (22.15)	0.6	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-	-	-

Time, s/l, evacuate a volume to different vacuum level (-kPa)

Model	MAX. Vacuum kPa (-inHg)	Feed pressure (MPa) (-kPa) (-inHg)	10	20	30	40	50	60	70	80	90
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
159 ~ 165 VS 144	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
159 ~ 165 VS 146	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
159 ~ 165 VS 148	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
161 ~ 165 VLS 144	60 (17.72)	0.4	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
161 ~ 165 VLS 146	60 (17.72)	0.4	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
161 ~ 165 VLS 148	60 (17.72)	0.4	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
171 ~ 177 MD 302	75 (22.15)	0.22	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-
	93 (27.46)	0.3	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5
171 ~ 177 MD 303	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
173 ~ 177 MDL 302	60 (17.72)	0.4	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-
173 ~ 177 MDL 303	60 (17.72)	0.4	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
184 ~ 193 PM 303X1	75 (22.15)	0.22	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	93 (27.46)	0.3	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	93 (27.46)	0.4	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
184 ~ 193 PM 303X2	75 (22.15)	0.22	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	93 (27.46)	0.3	0.01	0.032	0.055	0.15	0.22	0.33	0.48	0.78	1.98
	93 (27.46)	0.4	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
184 ~ 193 PM 303X3	75 (22.15)	0.22	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	93 (27.46)	0.3	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	93 (27.46)	0.4	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
184 ~ 193 PM 303X4	75 (22.15)	0.22	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	93 (27.46)	0.3	0.004	0.018	0.002	0.07	0.09	0.16	0.2	0.3	0.95
	93 (27.46)	0.4	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85
188 ~ 193 PML 303X1	60 (17.72)	0.4	0.032	0.09	0.17	0.29	0.38	0.8	-	-	-
	70 (20.67)	0.5	0.023	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	75 (22.15)	0.6	0.022	0.07	0.12	0.2	0.28	0.36	0.6	-	-
188 ~ 193 PML 303X2	60 (17.72)	0.4	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	70 (20.67)	0.5	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	75 (22.15)	0.6	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
188 ~ 193 PML 303X3	60 (17.72)	0.4	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	70 (20.67)	0.5	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-
	75 (22.15)	0.6	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
188 ~ 193 PML 303X4	60 (17.72)	0.4	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	70 (20.67)	0.5	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	75 (22.15)	0.6	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-

VACUUM PUMPS

Time, s/l, evacuate a volume to different vacuum level (-kPa)

Model	MAX. Vacuum -kPa (-inHg)	10	20	30	40	50	60	70	80	90	95	99
		2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
196 - 199 VKX5	92 (27.17)	0.26	0.80	1.52	2.4	3.38	4.91	6.89	10.16	19		
VKM5	85 (25.1)	0.22	0.56	1.18	1.58	2.36	3.44	5.27	10.22			
200 - 211 VKM61	85 (25.1)	0.218	0.556	1	1.576	2.356	3.44	5.27	10.216			
VKM62		0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158			
200 - 211 VKX61	92 (27.17)	0.258	0.796	1.516	2.4	3.56	4.91	6.896	10.16	19.19		
VKX62		0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	5.594		
212 - 223 VKX73	92 (27.17)	0.1	0.3	0.57	0.9	1.34	1.84	2.58	3.81	7.2		
VKX74		0.06	0.2	0.38	0.6	0.89	1.23	1.72	2.54	4.8		
212 - 223 VKM73	85 (25.1)	0.08	0.21	0.38	0.59	0.88	1.29	1.98	3.87			
VKM74		0.05	0.14	0.25	0.39	0.59	0.86	1.32	2.58			
232 - 235 VTOM5-(N)Stack	85 (25.1)	0.247	0.628	1.128	1.748	2.529	3.63	5.45	10.4			
VTOM10-(N)Stack		0.177	0.408	0.678	1.018	1.429	1.98	2.89	5.41			
232 - 235 VTOX5-(N)Stack	92 (27.17)	0.277	0.848	1.619	2.688	3.889	5.46	7.45	13.95	20.53		
VTOX10-(N)Stack		0.187	0.508	0.912	1.388	1.989	2.65	3.64	5.29	9.79		
236 - 241 VTM5-(N)Stack	85 (25.1)	0.218	0.556	1	1.576	2.356	3.44	5.27	10.216 / (N)Stack			
VTM10-(N)Stack		0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158 / (N)Stack			
242 - 247 VTM10X(N)B(BA,...NC)	85 (25.1)	0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158 / (N)Stack			
VTM20X(N)B(BA,...NC)		0.054	0.139	0.25	0.394	0.589	0.86	1.317	2.579 / (N)Stack			
VTM30X(N)B(C,...NC)		0.041	0.104	0.186	0.295	0.441	0.647	0.898	1.935 / (N)Stack			
226 - 231 VTM5-A(B,...NC)	85 (25.1)	0.218	0.556	1	1.576	2.356	3.44	5.27	10.216			
VTM10-A(B,...NC)		0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158			
VTM20-B(C,...NC)		0.054	0.139	0.25	0.394	0.589	0.86	1.317	2.579			
VTM30-B(C,...NC)		0.041	0.104	0.186	0.295	0.441	0.647	0.898	1.935			
248 - 255 VTM20KD	85 (25.1)	0.054	0.139	0.25	0.394	0.589	0.86	1.317	2.579			
VTM30KD		0.041	0.104	0.186	0.295	0.441	0.647	0.898	1.935			
VTM40KD		0.027	0.069	0.125	0.197	0.294	0.431	0.658	1.289			
VTM50KD		0.023	0.058	0.104	0.164	0.245	0.359	0.549	1.074			
VTM60KD		0.018	0.046	0.083	0.131	0.196	0.286	0.439	0.859			
262 - 265 VTM25L	91 (26.87)	0.02	0.056	0.12	0.24	0.425	0.66	1.02	1.64	4.6		
VTM50L		0.013	0.032	0.062	0.12	0.212	0.33	0.51	0.82	2.3		
VTM75L		0.01	0.024	0.047	0.09	0.159	0.248	0.383	0.621	1.73		
VTM100L		0.007	0.016	0.031	0.06	0.106	0.165	0.255	0.41	1.15		
VTM125L		0.0061	0.0147	0.0302	0.053	0.089	0.143	0.215	0.36	1.01		
VTM150L		0.0051	0.0134	0.0294	0.046	0.071	0.115	0.175	0.31	0.87		
266 - 269 VTL25	80 (23.62)	0.017	0.045	0.09	0.18	0.34	0.53	0.85				
VTL50		0.012	0.027	0.05	0.1	0.18	0.27	0.43				
VTL75		0.008	0.021	0.04	0.08	0.13	0.20	0.32				
VTL100		0.0069	0.015	0.03	0.05	0.09	0.14	0.22				
VTL125		0.0058	0.014	0.026	0.044	0.076	0.118	0.19				
VTL150		0.0049	0.013	0.022	0.037	0.062	0.095	0.15				
VTL175		0.0047	0.012	0.021	0.035	0.057	0.087	0.14				
VTL200		0.0043	0.011	0.019	0.033	0.051	0.078	0.12				
270 - 273 VTM25	90 (26.57)	0.019	0.048	0.110	0.239	0.416	0.686	1.122	1.91	4.210		
VTM50		0.012	0.030	0.066	0.125	0.209	0.345	0.593	1.05	2.190		
VTM75		0.009	0.023	0.050	0.094	0.157	0.259	0.445	0.788	1.644		
VTM100		0.006	0.015	0.033	0.063	0.105	0.173	0.297	0.526	1.097		
VTM125		0.0055	0.0143	0.0311	0.055	0.092	0.151	0.260	0.460	1.960		
VTM150		0.0052	0.0135	0.0296	0.047	0.078	0.129	0.223	0.394	0.823		
VTM175		0.0050	0.0127	0.0279	0.039	0.065	0.108	0.186	0.329	0.686		
VTM200		0.0048	0.0113	0.0258	0.027	0.054	0.090	0.153	0.274	0.67		

Time, s/l, evacuate a volume to different vacuum level (-kPa)

Model	MAX. Vacuum -kPa (-inHg)	10	20	30	40	50	60	70	80	90	95	99
		2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
VTMM100	92 (27.17)	0.0053	0.0144	0.031	0.063	0.105	0.173	0.297	0.526	1.097		
VTMM150		0.0046	0.011	0.025	0.047	0.078	0.129	0.223	0.394	0.823		
VTMM200		0.0032	0.0076	0.0165	0.029	0.054	0.090	0.153	0.274	0.67		
VTMM200F		0.0031	0.0075	0.0164	0.029	0.054	0.090	0.153	0.274	0.67		
VTM150LEF	91 (26.87)	0.0033	0.009	0.02	0.04	0.071	0.11	0.17	0.31	0.87		
VTM200LEF		0.00250	0.007	0.015	0.03	0.053	0.083	0.128	0.21	0.58		
VTM300LEF		0.0017	0.005	0.01	0.02	0.035	0.055	0.085	0.16	0.44		
VTM400LEF		0.0013	0.004	0.008	0.015	0.027	0.041	0.064	0.11	0.29		
VTM500LEF		0.001	0.003	0.006	0.012	0.021	0.033	0.051	0.09	0.26		
VTM600LEF		0.0008	0.0023	0.005	0.01	0.018	0.028	0.043	0.08	0.22		
VTM800LEF		0.0006	0.0018	0.004	0.008	0.013	0.021	0.032	0.05	0.15		
VTMM200EF	92 (27.17)	0.0031	0.0075	0.0164	0.029	0.054	0.090	0.153	0.274	0.67		
VTMM300EF		0.0023	0.0056	0.0123	0.022	0.041	0.068	0.115	0.206	0.503		
VTMM400EF		0.0015	0.0038	0.0082	0.014	0.027	0.045	0.076	0.137	0.335		
VTMM500EF		0.0013	0.0033	0.0072	0.013	0.024	0.040	0.067	0.120	0.294		
VTMM600EF		0.0012	0.0028	0.0062	0.011	0.021	0.034	0.057	0.103	0.252		
VTMM800EF		0.0008	0.0019	0.0041	0.007	0.014	0.022	0.038	0.068	0.168		
VTMM1000EF		0.0007	0.0016	0.0036	0.006	0.012	0.018	0.031	0.057	0.147		
VTML200	92 (27.17)	0.0021	0.0055	0.0124	0.029	0.054	0.090	0.153	0.274	0.67		
VTML400		0.0011	0.0027	0.0062	0.014	0.027	0.045	0.076	0.137	0.335		
VTML600		0.0009	0.0021	0.0047	0.011	0.021	0.034	0.057	0.103	0.252		
VTML800		0.0006	0.0014	0.0031	0.007	0.014	0.023	0.038	0.068	0.168		
VTML1000		0.0005	0.0012	0.0026	0.006	0.012	0.018	0.031	0.057	0.147		
VTML1200		0.0004	0.0009	0.0021	0.005	0.009	0.014	0.024	0.045	0.125		
VTX5-(N)Stack	92 (27.17)	0.258	0.796	1.516	2.4	3.56	4.91	6.896	10.16	19.19	(N)Stack	
VTX10-(N)Stack		0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.594	(N)Stack	
VTX10x(N-B(BA,...NC))	92 (27.17)	0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.594	(N)Stack	
VTX20x(N-B(BA,...NC))		0.064	0.199	0.379	0.6	0.89	1.227	1.722	2.54	4.797	(N)Stack	
VTX30x(N-B(BA,...NC))		0.048	0.149	0.284	0.44	0.673	0.917	1.287	1.906	3.595	(N)Stack	
VTX5-A(B,...NC)	92 (27.17)	0.258	0.796	1.156	2.4	3.56	4.91	6.896	10.16	19.19		
VTX10-A(B,...NC)		0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.594		
VTX20-B(C,...NC)		0.064	0.199	0.379	0.6	0.89	1.227	1.722	2.54	4.797		
VTX30-B(C,...NC)		0.048	0.149	0.284	0.44	0.673	0.917	1.287	1.906	3.595		
VTX20KD	92 (27.17)	0.064	0.199	0.379	0.6	0.89	1.227	1.722	2.54	4.797		
VTX30KD		0.048	0.149	0.284	0.44	0.673	0.917	1.287	1.906	3.595		
VTX40KD		0.032	0.099	0.189	0.29	0.445	0.613	0.858	1.273	2.398		
VTX50KD		0.027	0.083	0.158	0.25	0.371	0.511	0.714	1.016	1.999		
VTX60KD		0.021	0.067	0.126	0.20	0.297	0.409	0.569	0.848	1.599		
VTX25	97 (28.64)	0.028	0.068	0.134	0.26	0.49	0.736	1.126	1.598	2.7	3.76	
VTX50		0.014	0.035	0.067	0.13	0.25	0.368	0.563	0.799	1.35	1.88	
VTX75		0.011	0.023	0.046	0.095	0.167	0.246	0.376	0.533	0.9	1.264	
VTMX100	97 (28.64)	0.0093	0.017	0.036	0.064	0.123	0.184	0.272	0.397	0.674	0.948	
VTMX200		0.0064	0.012	0.024	0.047	0.082	0.123	0.186	0.256	0.448	0.631	
VTMX300		0.0049	0.009	0.018	0.031	0.061	0.092	0.141	0.197	0.336	0.473	
VTH50	100.8 (29.76)	0.029	0.07	0.12	0.25	0.55	0.92	1.446	2.2	3.39	4.986	9.18
VTH150		0.011	0.025	0.05	0.097	0.17	0.272	0.41	0.6	1.17	1.82	3.586
VTH300		0.006	0.013	0.025	0.048	0.085	0.136	0.205	0.3	0.585	0.91	1.798





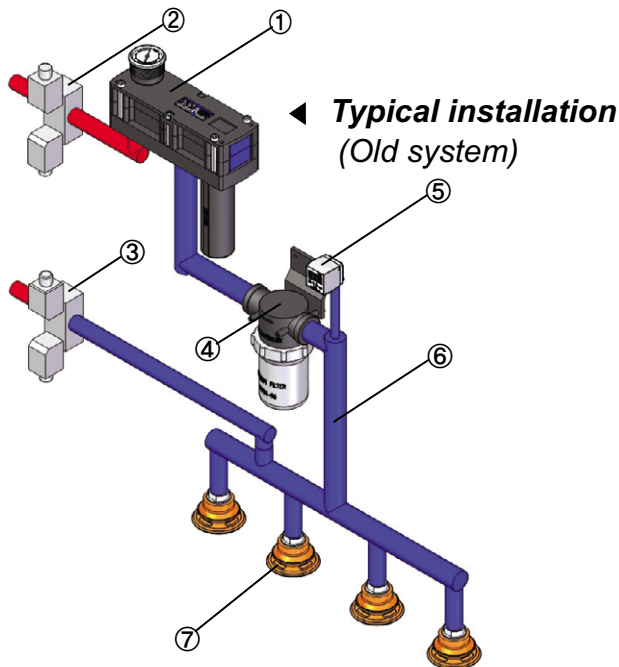
TURTLE PUMPS



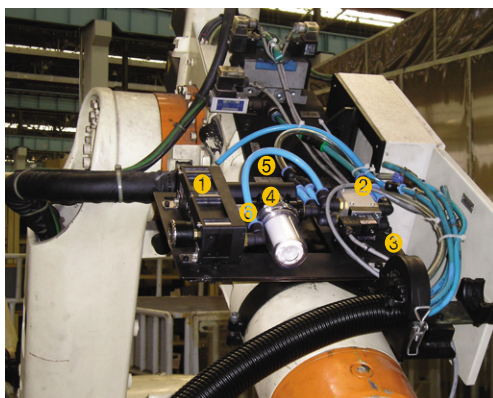


Effective cost saving with VMECA improved system

VMECA® Turtle pump with integral vacuum filter and silencer can be combined with the optional vacuum On/Off control valve, vacuum release valve and vacuum switch to create an optimal vacuum solution for many applications. The VMECA® Turtle pump and optional components, due to the compact design and size, can be mounted close to the point of use reducing system volume and maintenance while improving cycle time.

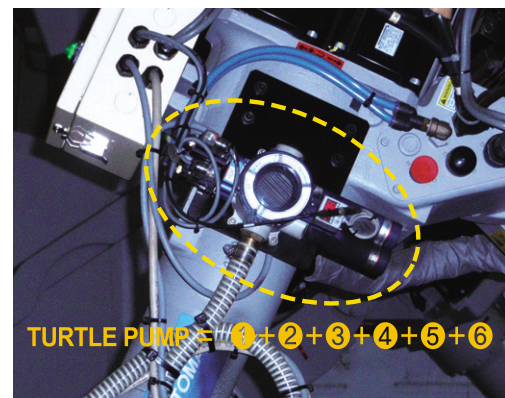
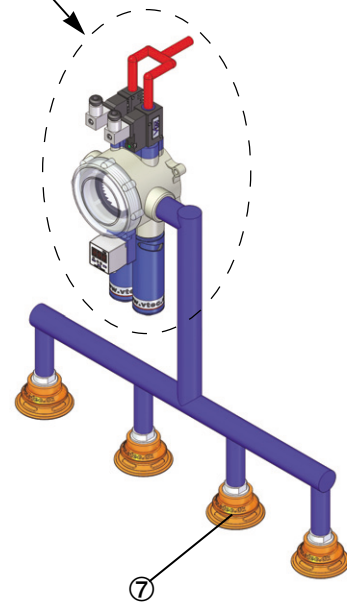


- ① Vacuum pump
- ② Air control valve
- ③ Vacuum release control valve
- ④ Vacuum filter
- ⑤ Vacuum switch
- ⑥ Vacuum pipe line
- ⑦ Suction cup



▼ **VMECA® Improved system (New solution with Turtle Pump)**

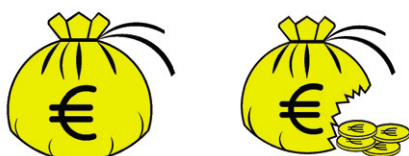
①+②+③+④+⑤+⑥



If each items goes through under the process same as below?

Select model → Quotation → PO → Store in → Q.C → Installation → Payment
 (Technical dept) (Purchase dept.) (Inventory) (QC dept.) (assembly dept.) (Account)

High installation and maintenance **Costs !!**



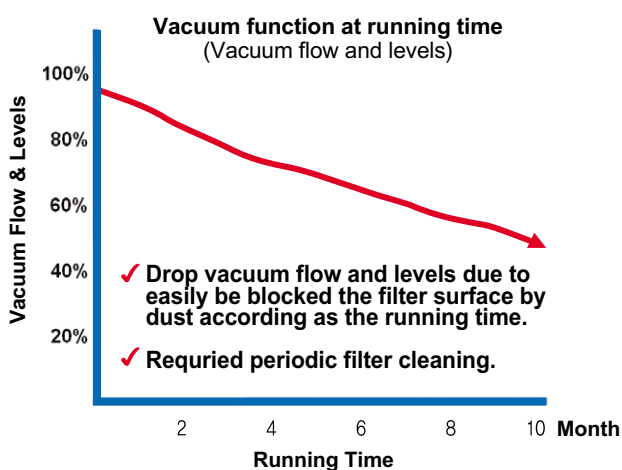
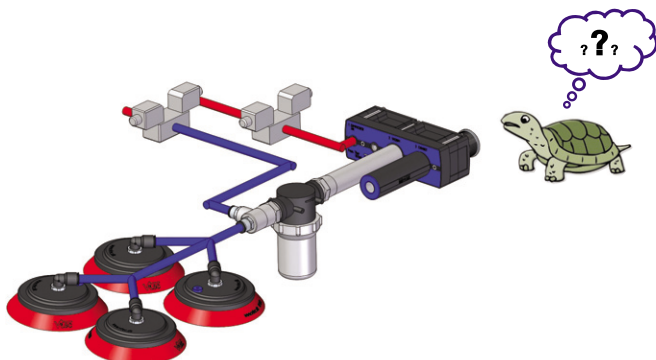
Very LOW installation and maintenance **Costs !!** 🎵 🎵 🎵



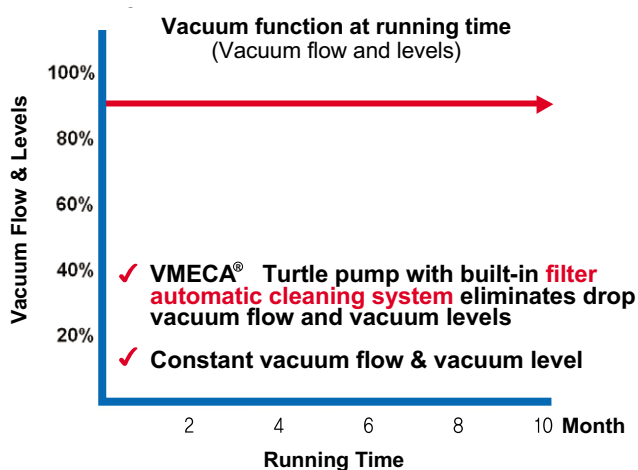
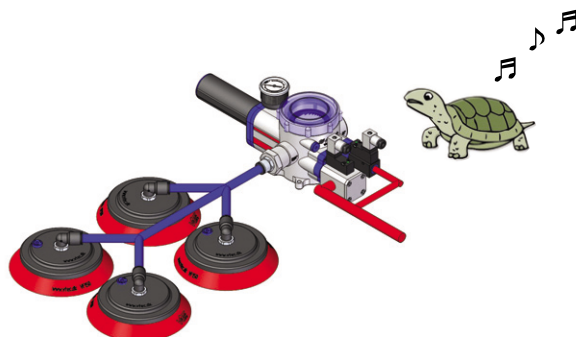


Comparison of Vacuum Efficiency

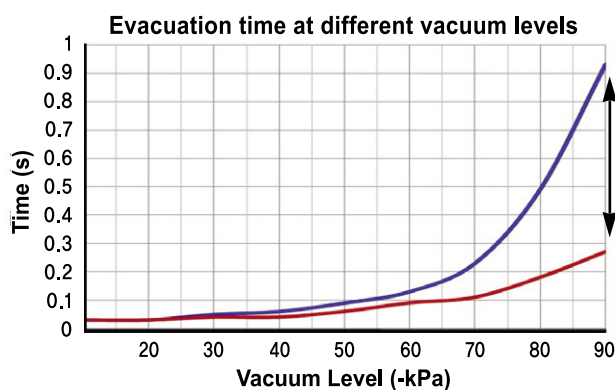
▼ Typical installation (Old system)



▼ VMECA® Improved system (New solution with Turtle Pump)



Comparison of Evacuation time at different Vacuum levels



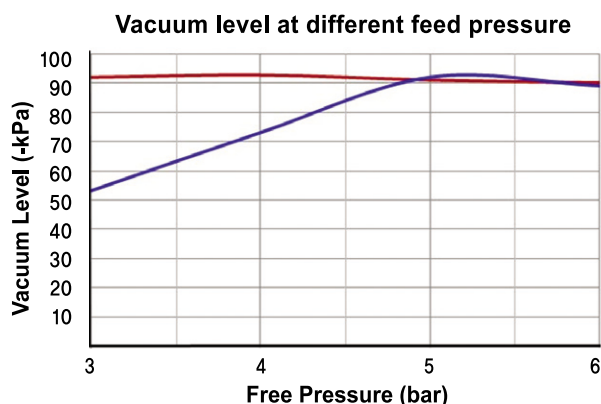
■ Typical installation (Old System)

■ VMECA® Improved System
VTC3031.. Quick evacuation time by minimizing vacuum area with all-in-one system

About 3 times faster !!



Comparison of Vacuum level at different feed pressure



■ VMECA® Improved System
■ Typical installation (Old System)

• High operational reliability despite fluctuating or low compressed air pressure (Vacuum level $\pm 2\%$)



Enable to decide the series of VMECA TURTLE PUMP the performance you need.

MIDI 3031 Series



► **VTC Series**

High vacuum level (-92 kPa) at **low compressed air pressure** (3~6 bar).

High vacuum flow rate to compensate for fluctuating or low compressed air pressure.

Suitable for sealed system applications such as lifting metal sheets or glass plate.

► **VTCL Series**

Extra high vacuum flow rate and suitable for **non-sealed system** applications.

Vacuum level of -75 kPa at a compressed air pressure of 6 bar.

Enable to decide the series of VMECA TURTLE PUMP the performance you need.

MIDI 3032 Series



► **VTC Series**

High vacuum level (-92 kPa) at **low compressed air pressure** (3~6 bar).

High vacuum flow rate to compensate for fluctuating or low compressed air pressure.

Suitable for sealed system applications such as lifting metal sheets or glass plate.

► **VTCL Series**

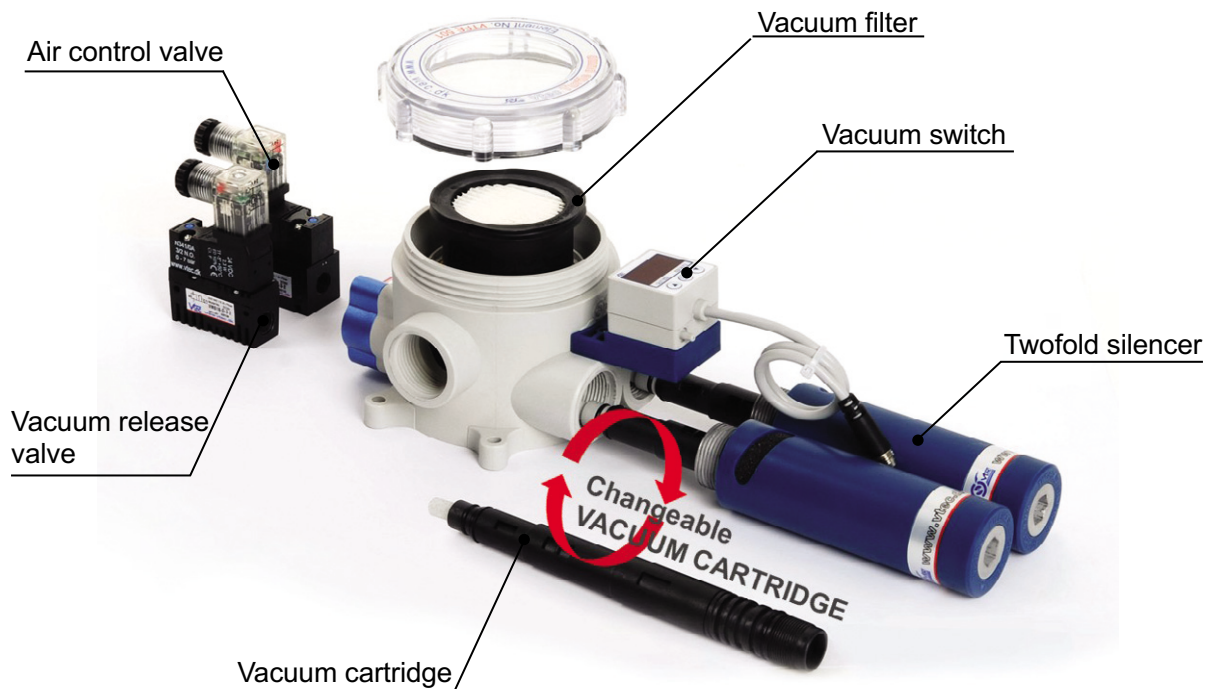
Extra high vacuum flow rate and suitable for **non-sealed system** applications.

Vacuum level of -75 kPa at a compressed air pressure of 6 bar.

Structure and Main advantage of Midi Turtle Pump

The VMECA Turtle Pump is recommended for applications requiring a compact, complete and easy to install, minimal maintenance.

MIDI



- ✓ **Patented design**
- ✓ **All-in-one compact design**
- ✓ **Light weight**
- ✓ **Multi vacuum ports**
- ✓ **Vacuum filter self cleaning system**
 - Eliminates periodic maintenance
- ✓ **VMECA Vacuum Cartridge**
 - High vacuum flow rate
 - High operational reliability despite fluctuating or low compressed air pressure
- ✓ **Twofold silencer**
 - Designed specially assure low noise level

Structure and Main advantage of Mega Turtle Pump

MEGA

■ **VMECA® vacumm filter**

- Prevents dust coming into the pump
- Pleated media for high dirt holding capacity
- Moisture, oil resistant
- Washable

■ **VMECA® air control valve**

- Single or Double solenoid valve

■ **VMECA® vacuum gauge or sensor**

- Indicates vacuum level
- Digital output signal when set vacuum level is achieved

■ **VMECA® free-flow silencer**

- Assures low noise level
- Free air flow design to minimize vacuum loss due to back flow
- No dust collection

■ **VMECA® vacumm release control valve**

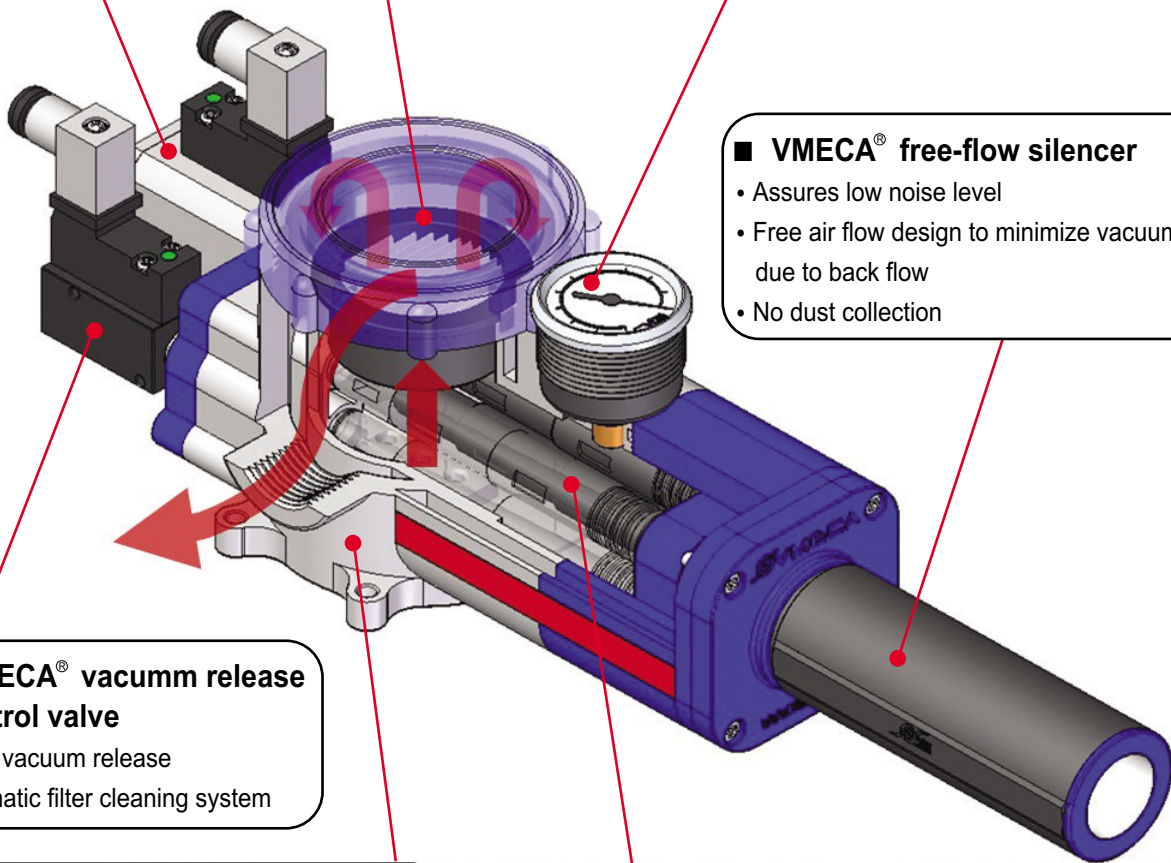
- Quick vacuum release
- Automatic filter cleaning system

■ **Body**

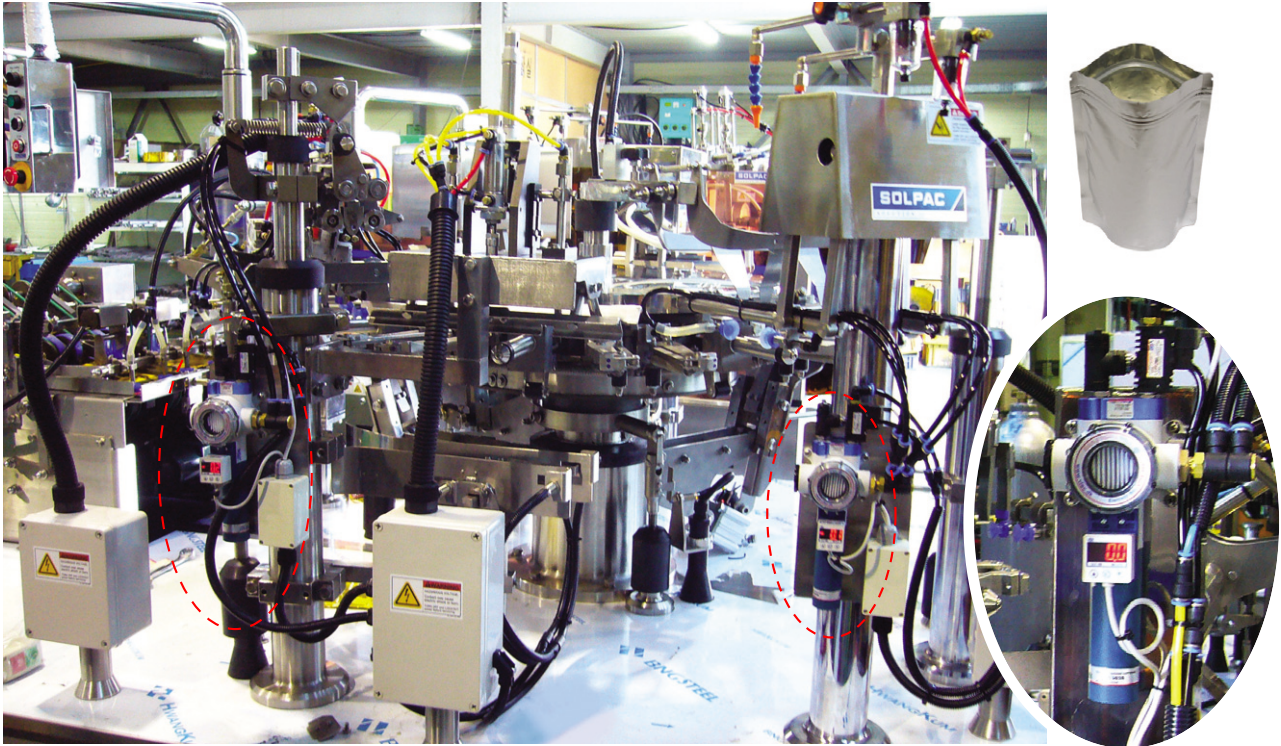
- Durable engineering plastic material
- Corrosion resistant
- Light weight
- Two vacuum ports : 3/4" and 1"

■ **VMECA® patented Vacuum Cartridge System**

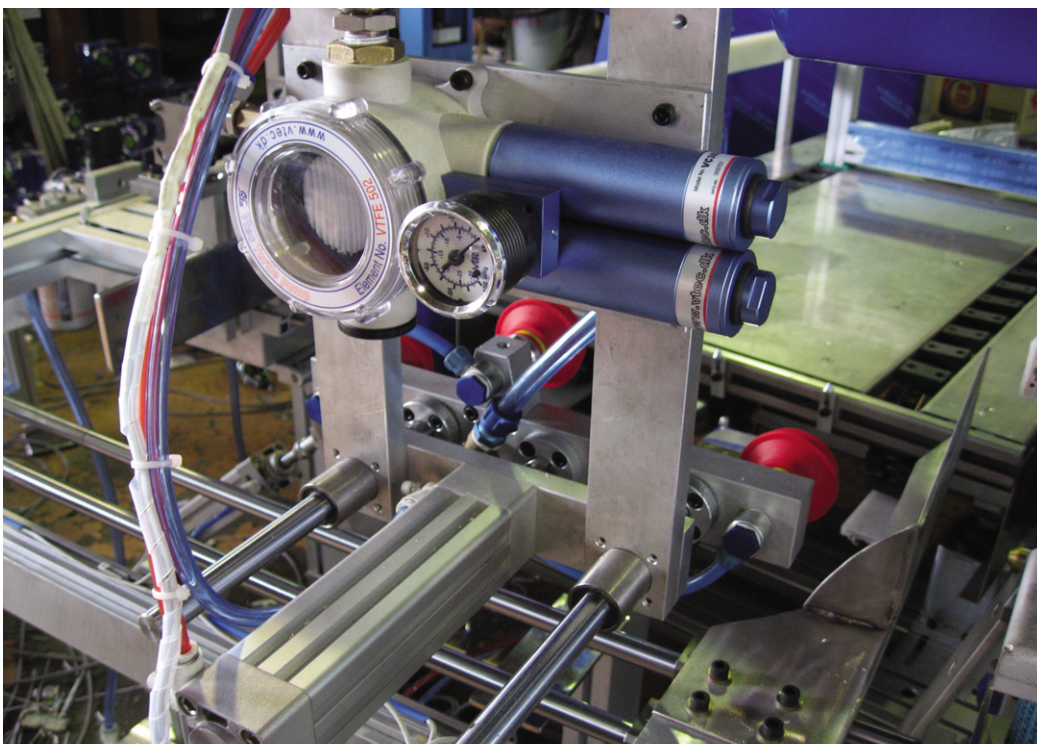
- Multiple Vacuum cartridge available up to 4 pcs
- High operational reliability despite fluctuating or low compressed air pressure
- Air-Saving (AS) kit available to minimize energy consumption (about 20times less)
- Easily mountable and interchangeable vacuum cartridge



APPLICATIONS



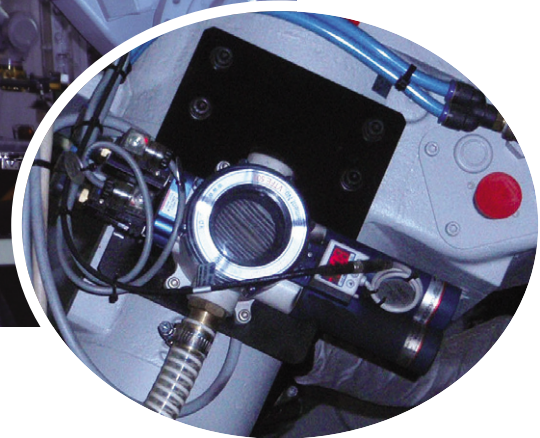
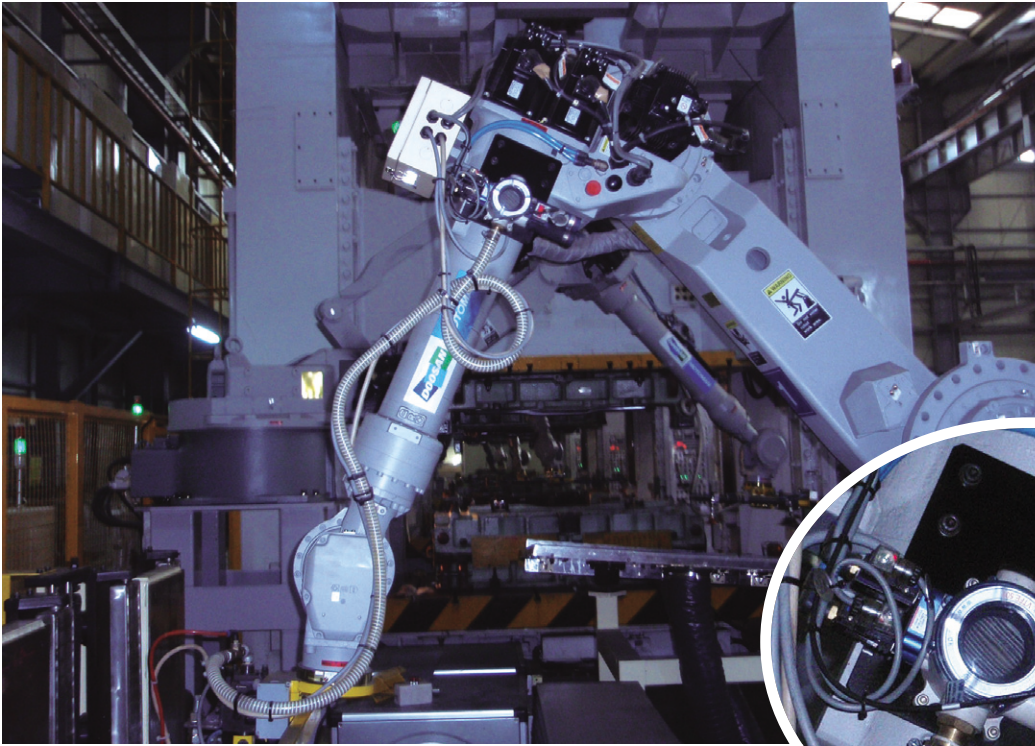
▲ Rotary Packaging machine (VTC3031)



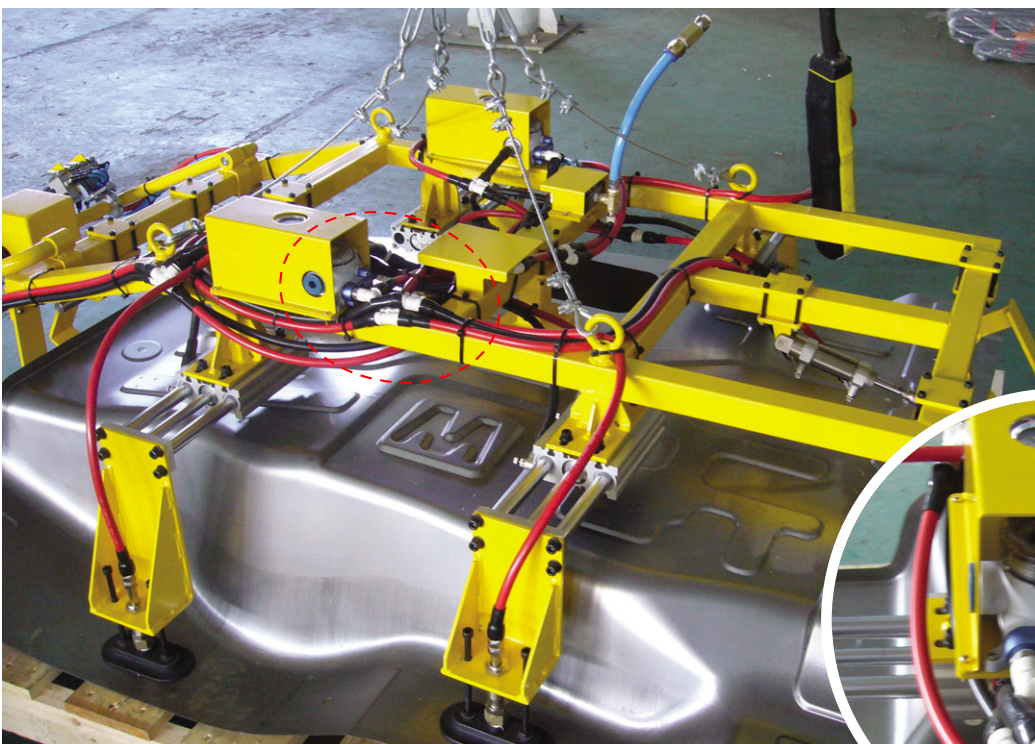
▲ Packaging machine : Carton boxes opening (VTC3032)



APPLICATIONS



▲ Robot Arm : Automobile Press stamping line (VTC3031)



▲ Automobile Fuel Tank lifting (VTC3031 X 2 pcs)



VACUUM PUMPS

VTC 3031/3021 Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 341 NI/min (12.04 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 97~152 NI/min (3.43~5.37 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main advantages

- Patented design.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Integrated high dirt holding capacity pleated filter.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Optional Air-Saving(AS) kit available to minimize energy consumption.
- Optional factory installed Air control/Vacuum release valves and Vacuum switch available.
- Compact size and light weight.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VTC 3031 - 2 - AS - A3 R3 - CL - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model

VTC 3021 - Two stage nozzle

- **VTC 3031(P)** - Three stage nozzle

※ Remark...(P)

↳ G3/8"Exhaust Port

② Filter element & Connection port

Material	Connection port
• 2 Polyester (PE)	BSP Thread(G)

③ Air saving kit (108)

No mark - Standard

- **AS** - Air saving kit

④ Voltage of air supply control valve

A1 - AC110V

A2 - AC220V

- **A3** - DC24V

D1* - AC110V

D2* - AC220V

D3* - DC24V

* D. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Voltage of vacuum release control valve

R1 - AC110V

R2 - AC220V

- **R3** - DC24V

⑥ Solenoid Terminal

DN - DIN type without lead wire

DL - DIN type with lamp without lead wire

- **CL*** - Connector type with lamp & 0.3 m lead wire

2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)

3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ **About 'BUS cable'** (340, 341)

⑦ Vacuum switch

No mark - Vacuum gauge.

- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.

SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.

SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

No mark - Standard

- **N** - Non-return valve.

⑨ Sealing

No mark - Standard

- **V** - Viton[®]

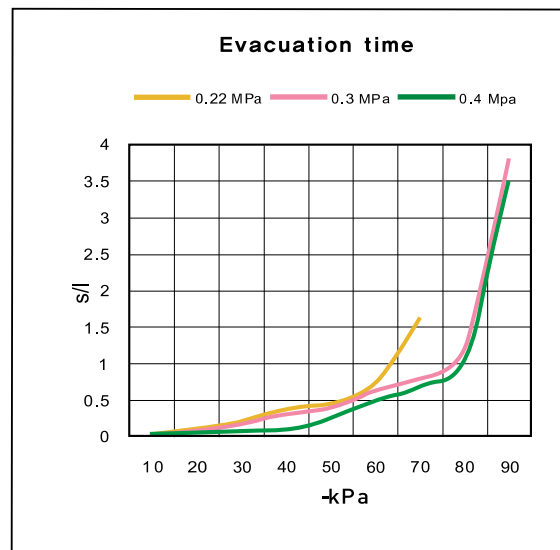
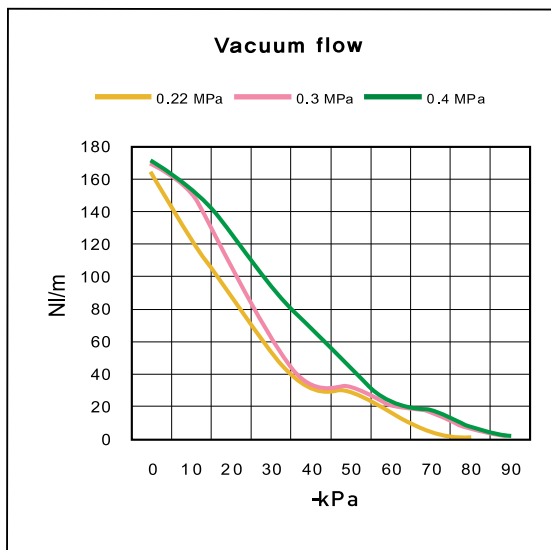
E - EPDM

Performance Data

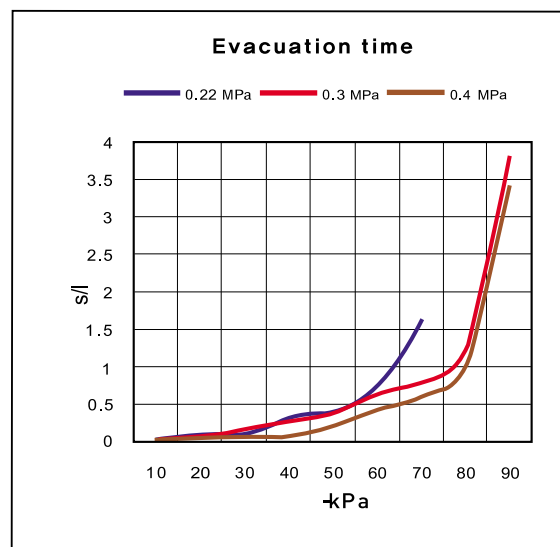
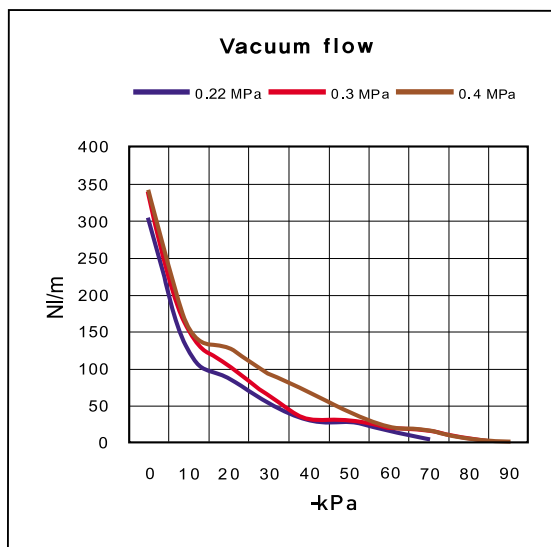
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow (NI/min) at different vacuum level -kPa(-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTC3021..	75	0.22	164	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	170	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	171	154	127.5	94	69	43	23.3	17.3	6.9	2.1
VTC3031..	75	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum level -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
VTC3021..	0.22	97	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-	
	0.3	118	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8	
	0.4	152	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5	
VTC3031..	0.22	97	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-	
	0.3	118	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8	
	0.4	152	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4	

▼ VTC-3021..



▼ VTC-3031..



VACUUM PUMPS

VTCL 3031/3021 Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 362 NI/min (12.79 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 70~104 NI/min (2.47~3.67 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main advantages

- Patented design.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Integrated high dirt holding capacity pleated filter.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Optional Air-Saving(AS) kit available to minimize energy consumption.
- Optional factory installed Air control/Vacuum release valves and Vacuum switch available.
- Compact size and light weight.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VTCL 3031 - 2 - AS - A3 R3 - CL - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model

VTCL 3021 - Two stage nozzle

- **VTCL 3031(P)** - Three stage nozzle

※ Remark...(P)

↳ G3/8"Exhaust Port

② Filter element & Connection port

Material	Connection port
• 2 Polyester (PE)	BSP Thread(G)

③ Air saving kit (108)

No mark - Standard

- **AS** - Air saving kit

④ Voltage of air supply control valve

A1 - AC110V

A2 - AC220V

- **A3** - DC24V

D1* - AC110V

D2* - AC220V

D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Voltage of vacuum release control valve

R1 - AC110V

R2 - AC220V

- **R3** - DC24V

⑥ Solenoid Terminal

DN - DIN type without lead wire

DL - DIN type with lamp without lead wire

- **CL*** - Connector type with lamp & 0.3 m lead wire

2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)

3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ **About 'BUS cable'** (340, 341)

⑦ Vacuum switch

No mark - Vacuum gauge.

- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.

SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.

SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

No mark - Standard

- **N** - Non-return valve.

⑨ Sealing

No mark - Standard

- **V** - Viton®

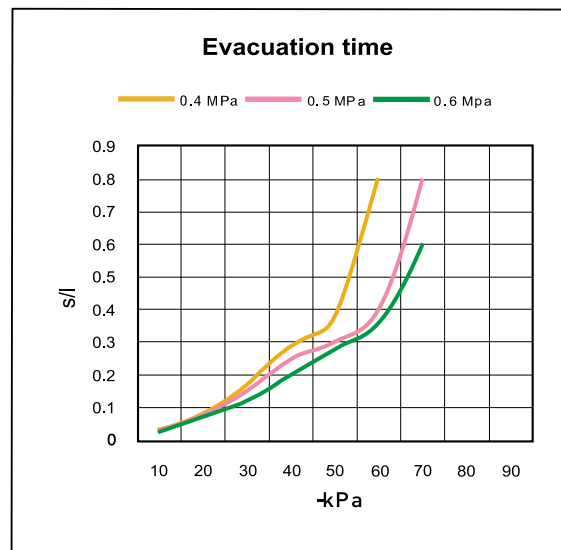
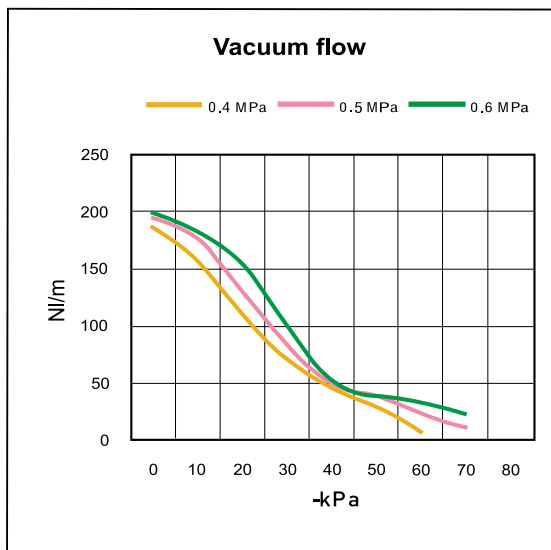
E - EPDM

Performance Data

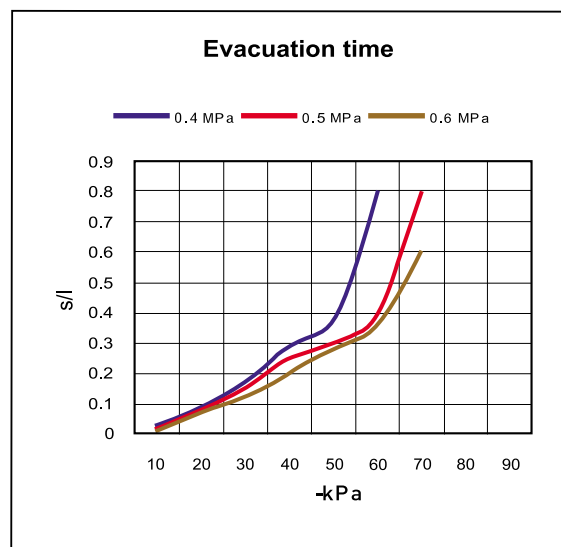
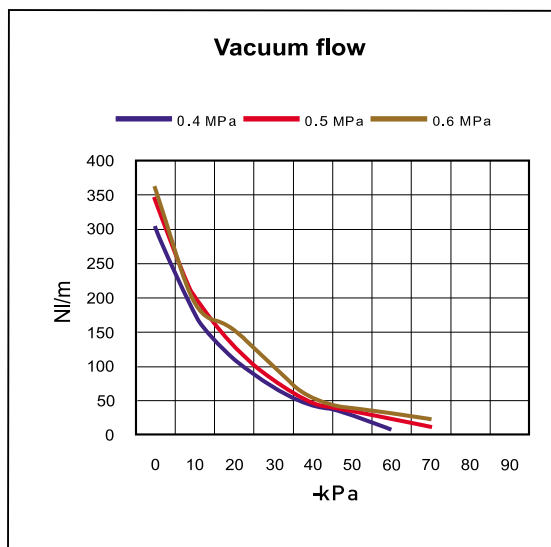
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow (NI/min) at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTCL3021..	60	0.4	188	158	110	70	46	28	6.8	-	-	-
	70	0.5	195	176	130	82	50	37.5	23	11.3	-	-
	75	0.6	200	183	154	100	52	38	32	22	-	-
VTCL3031..	60	0.4	302	176	110	70	46	28	6.8	-	-	-
	70	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75	0.6	362	194	154	100	52	38	32	22	-	-

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
VTCL3021..	0.4	70	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-	
	0.5	85	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	0.6	104	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-	
VTCL3031..	0.4	70	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-	
	0.5	85	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	0.6	104	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-	

▼ VTCL-3021..



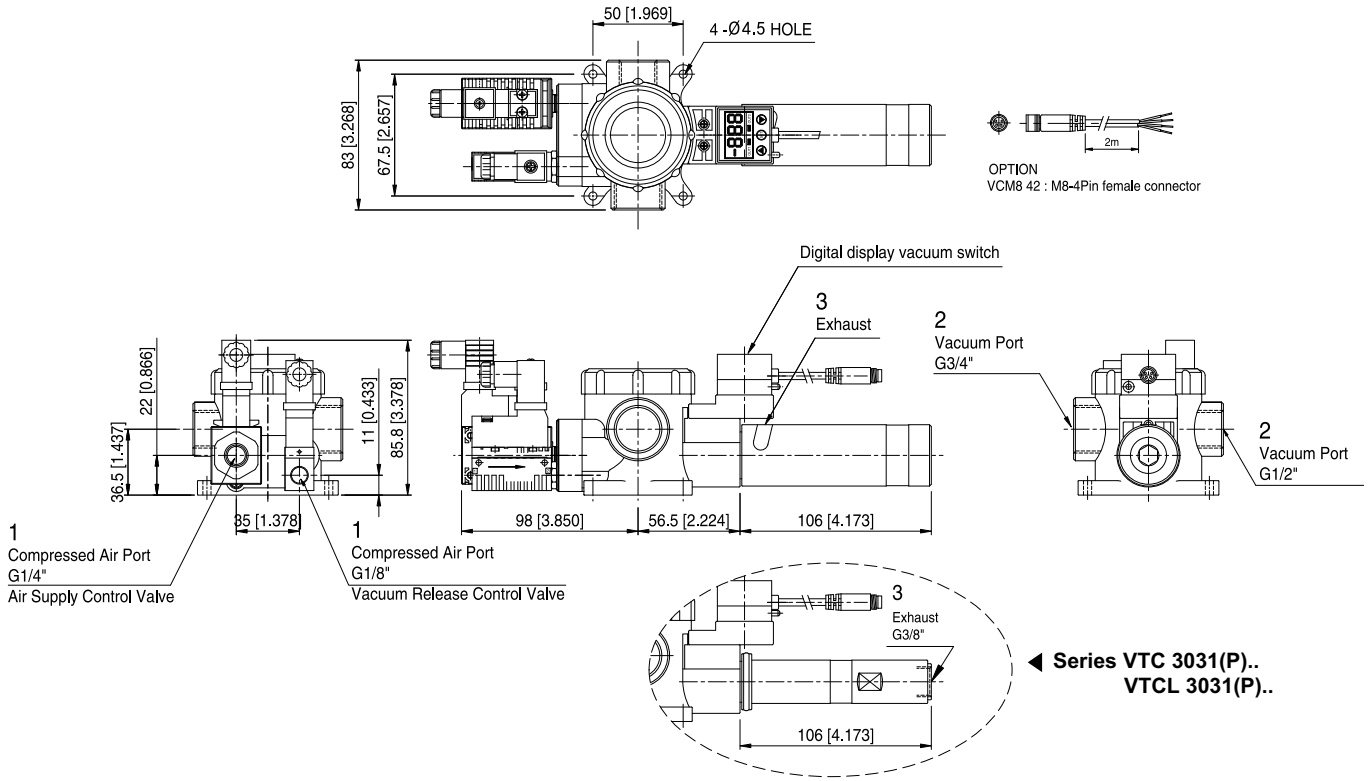
▼ VTCL-3031..



VACUUM PUMPS

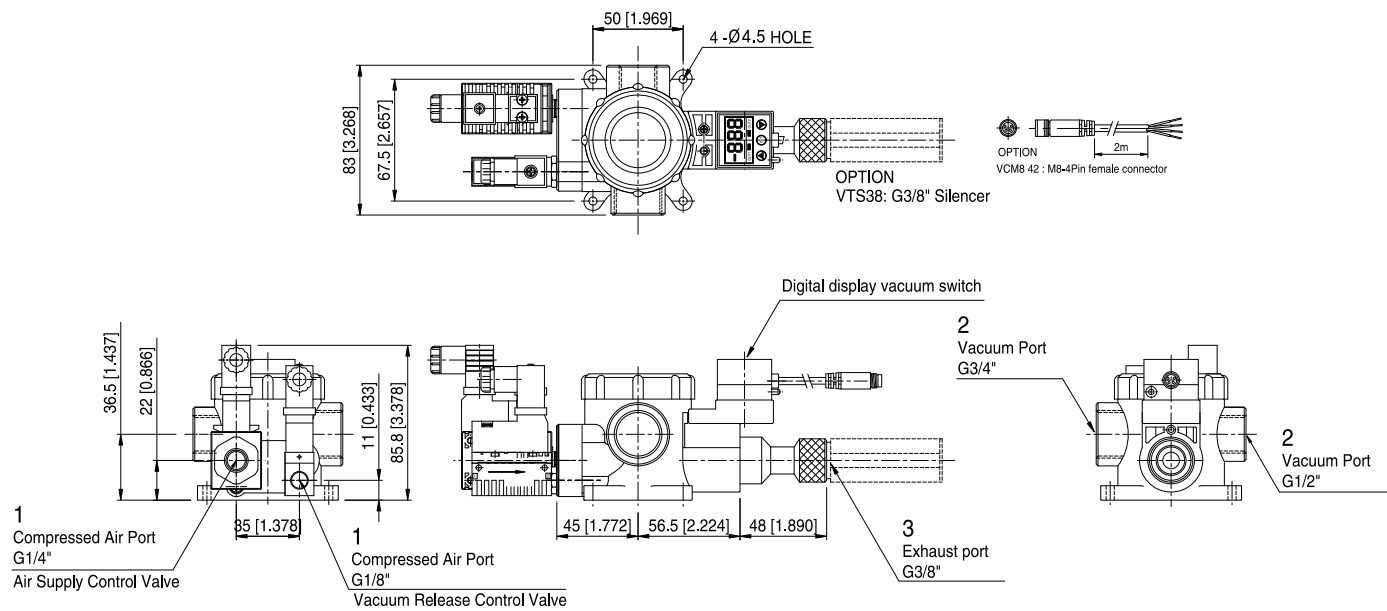
Dimensional Information

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch
Series VTC 3031.. / VTCL 3031..



Measure unit : mm [in]

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch
Series VTC 3021.. / VTCL 3021..

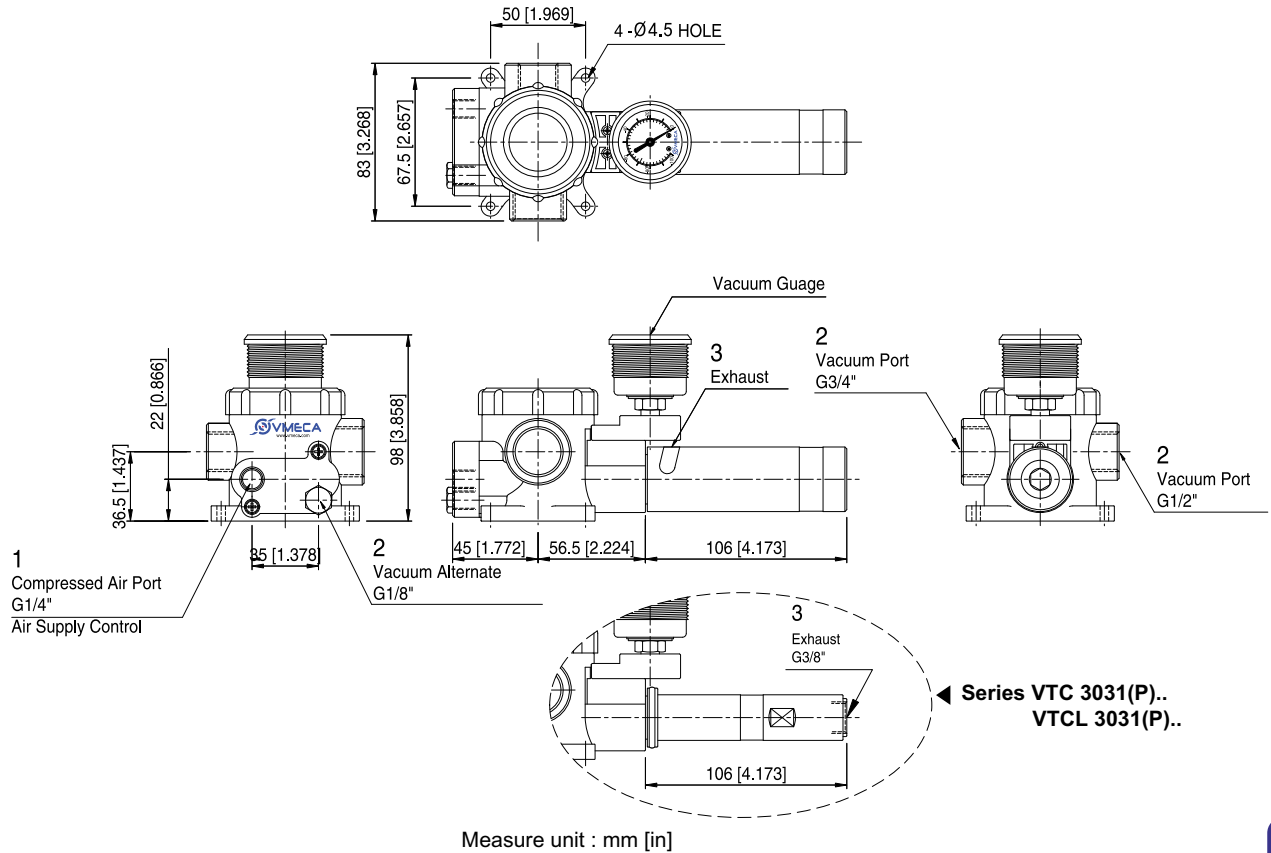


Measure unit : mm [in]

Dimensional Information

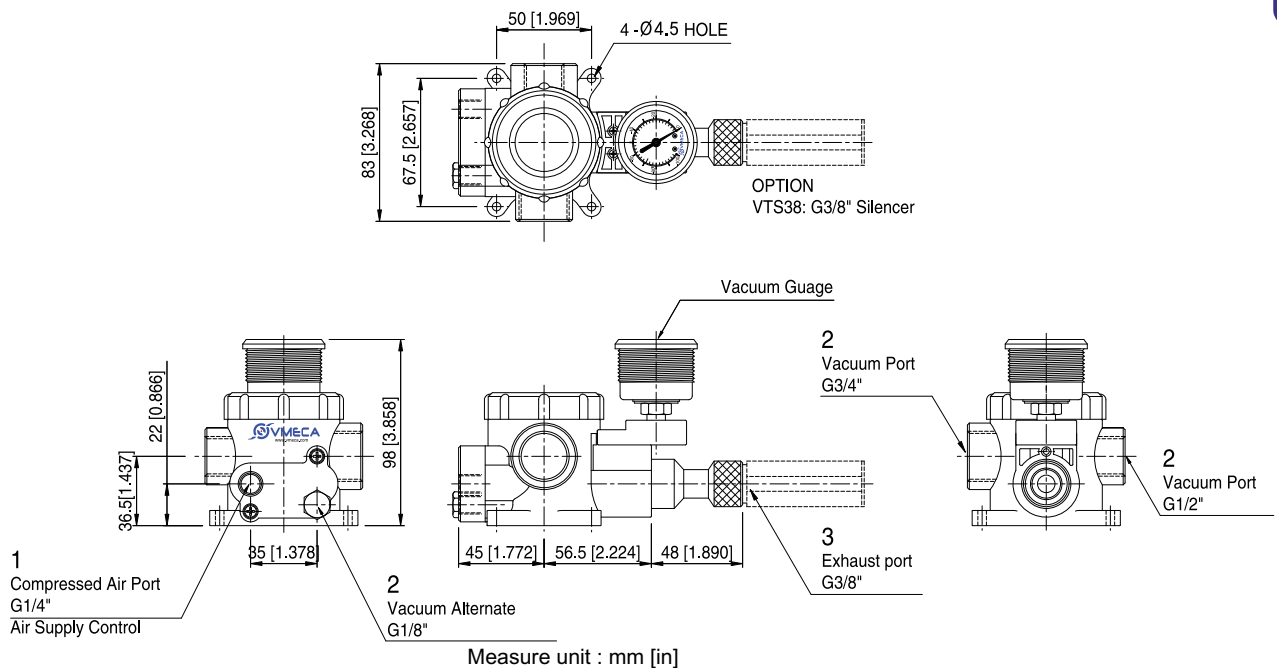
Standard

Series VTC 3031.. / VTCL 3031..



Standard

Series VTC 3021.. / VTCL 3021..



VACUUM PUMPS

VTC 3032 / 3022 Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 688 NI/min (24.3 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 194~304 NI/min (6.85~10.74 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main advantages

- Patented design.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Integrated high dirt holding capacity pleated filter.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Optional Air-Saving(AS) kit available to minimize energy consumption.
- Optional factory installed Air control/Vacuum release valves and Vacuum switch available.
- Compact size and light weight.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VTC 3032 - 2 - AS - A3 R3 - CL - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model

VTC 3022 - Two stage nozzle

- **VTC 3032(P)** - Three stage nozzle

※ Remark...(P)

↳ G3/8"Exhaust Port

② Filter element & Connection port

Material	Connection port
• 2 Polyester (PE)	BSP Thread(G)

③ Air saving kit (108)

No mark - Standard

- **AS** - Air saving kit

④ Voltage of air supply control valve

A1 - AC110V

A2 - AC220V

- **A3** - DC24V

D1* - AC110V

D2* - AC220V

D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Voltage of vacuum release control valve

R1 - AC110V

R2 - AC220V

- **R3** - DC24V

⑥ Solenoid Terminal

DN - DIN type without lead wire

DL - DIN type with lamp without lead wire

- **CL*** - Connector type with lamp & 0.3 m lead wire

2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)

3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑦ Vacuum switch

No mark - Vacuum gauge.

- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.

SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.

SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S...(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

No mark - Standard

- **N** - Non-return valve.

⑨ Sealing

No mark - Standard

- **V** - Viton®

E - EPDM

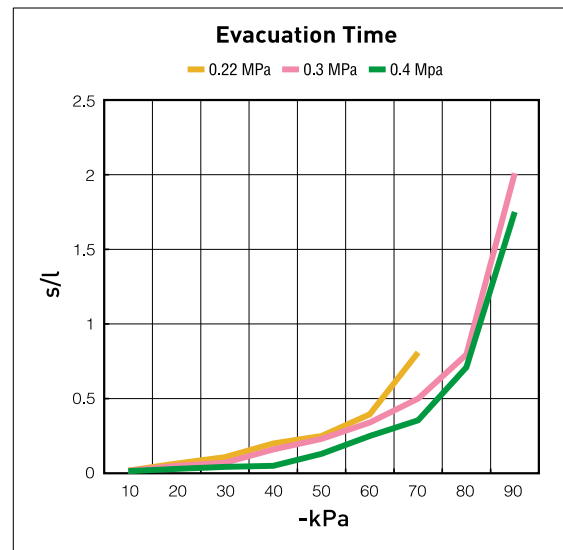
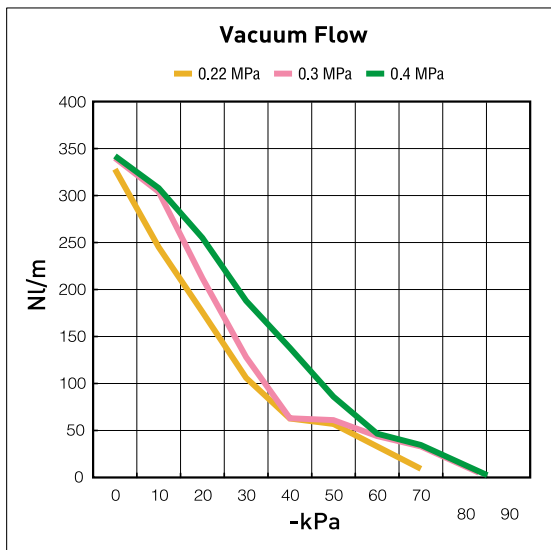


Performance Data

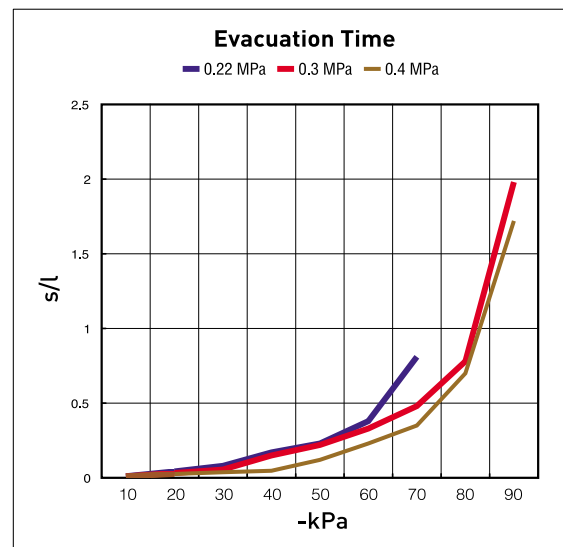
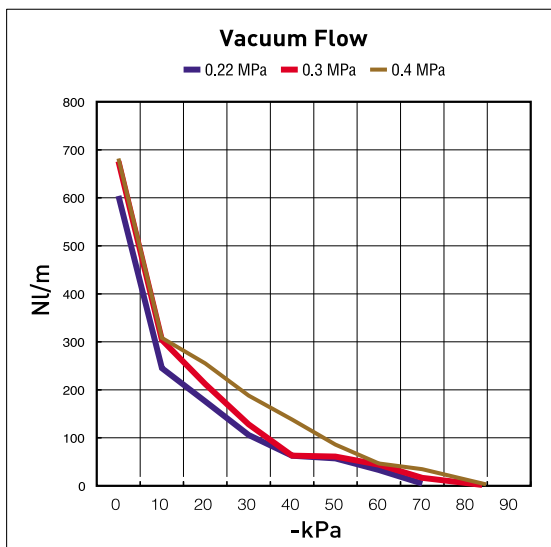
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTC3022..	75	0.22	328	245	176	106	62.8	57	33	92	-	-
	93	0.3	340	304	212	128	66	64	44	33	12.8	3.8
	93	0.4	342	308	255	188	138	86	46.6	34.6	13.8	4.2
VTC3032..	75	0.22	604	245	176	106	62.8	57	33	92	-	-
	93	0.3	676	304	212	128	66	64	44	33	12.8	3.8
	93	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
VTC3022..	0.22	194	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-	
	0.3	236	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01	
	0.4	304	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75	
VTC3032..	0.22	194	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-	
	0.3	236	0.01	0.032	0.055	0.15	0.22	0.33	0.48	0.78	1.98	
	0.4	304	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72	

▼ VTC-3022..



▼ VTC-3032..



VACUUM PUMPS

VTCL 3032 / 3022 Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 724 NI/min (25.57 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 140~208 NI/min (4.94~7.35 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main advantages

- Patented design.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Integrated high dirt holding capacity pleated filter.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Optional Air-Saving(AS) kit available to minimize energy consumption.
- Optional factory installed Air control/Vacuum release valves and Vacuum switch available.
- Compact size and light weight.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VTCL 3032 - 2 - AS - A3 R3 - CL - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model

VTCL 3022 - Two stage nozzle

- **VTCL 3032(P)** - Three stage nozzle

※ Remark...(P)

↳ G3/8"Exhaust Port

② Filter element & Connection port

Material	Connection port
• 2 Polyester (PE)	BSP Thread(G)

③ Air saving kit (108)

No mark - Standard

- **AS** - Air saving kit

④ Voltage of air supply control valve

A1 - AC110V

A2 - AC220V

- **A3** - DC24V

D1* - AC110V

D2* - AC220V

D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Voltage of vacuum release control valve

R1 - AC110V

R2 - AC220V

- **R3** - DC24V

⑥ Solenoid Terminal

DN - DIN type without lead wire

DL - DIN type with lamp without lead wire

- **CL*** - Connector type with lamp & 0.3 m lead wire

2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)

3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ **About 'BUS cable'** (340, 341)

⑦ Vacuum switch

No mark - Vacuum gauge.

- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.

SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.

SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

No mark - Standard

- **N** - Non-return valve.

⑨ Sealing

No mark - Standard

- **V** - Viton®

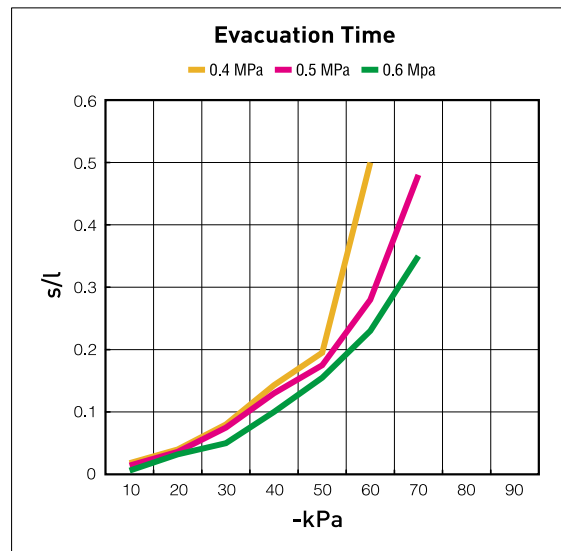
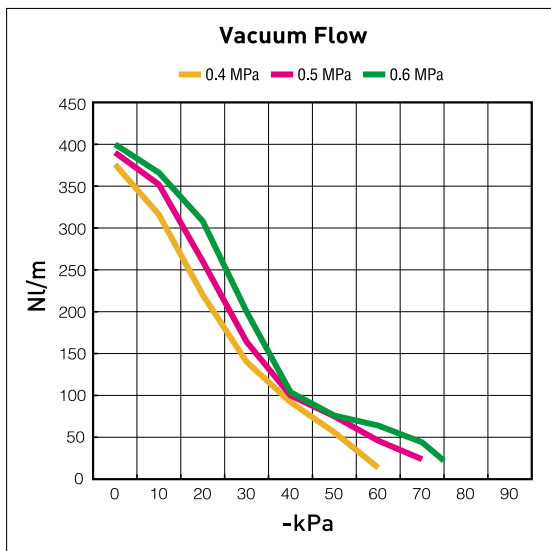
E - EPDM

Performance Data

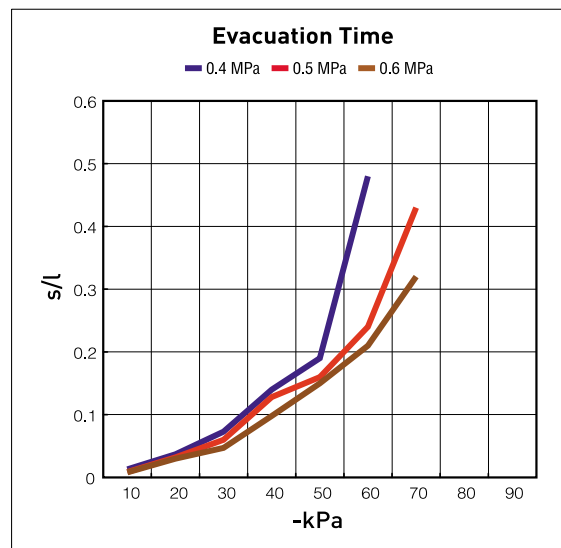
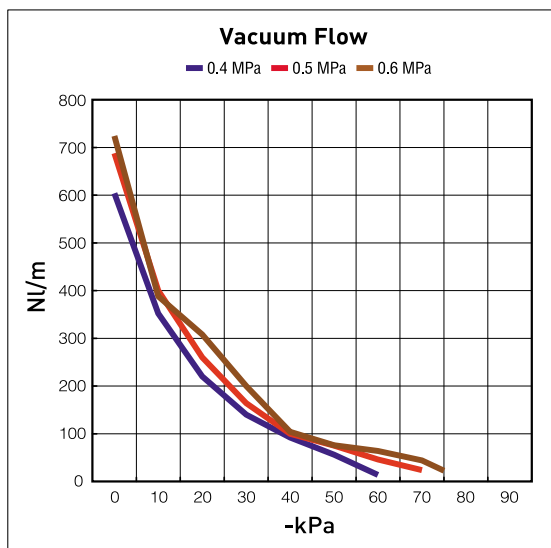
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTCL3022..	60	0.4	376	316	220	140	92	56	13.6	-	-	-
	70	0.5	390	352	260	164	100	75	46	23.8	-	-
	75	0.6	400	366	308	200	104	76	64	44	-	-
VTCL3032..	60	0.4	604	352	220	140	92	56	13.6	-	-	-
	70	0.5	688	392	260	164	100	75	46	23.8	-	-
	75	0.6	724	415	308	200	104	76	64	44	-	-

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
VTCL3022	0.4	140	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-	
	0.5	170	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-	
	0.6	208	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-	
VTCL3032	0.4	140	0.013	0.037	0.073	0.14	0.19	0.45	-	-	-	
	0.5	170	0.009	0.032	0.06	0.128	0.16	0.25	0.43	-	-	
	0.6	208	0.006	0.03	0.047	0.098	0.15	0.2	0.32	-	-	

▼ VTCL-3022..



▼ VTCL-3032..

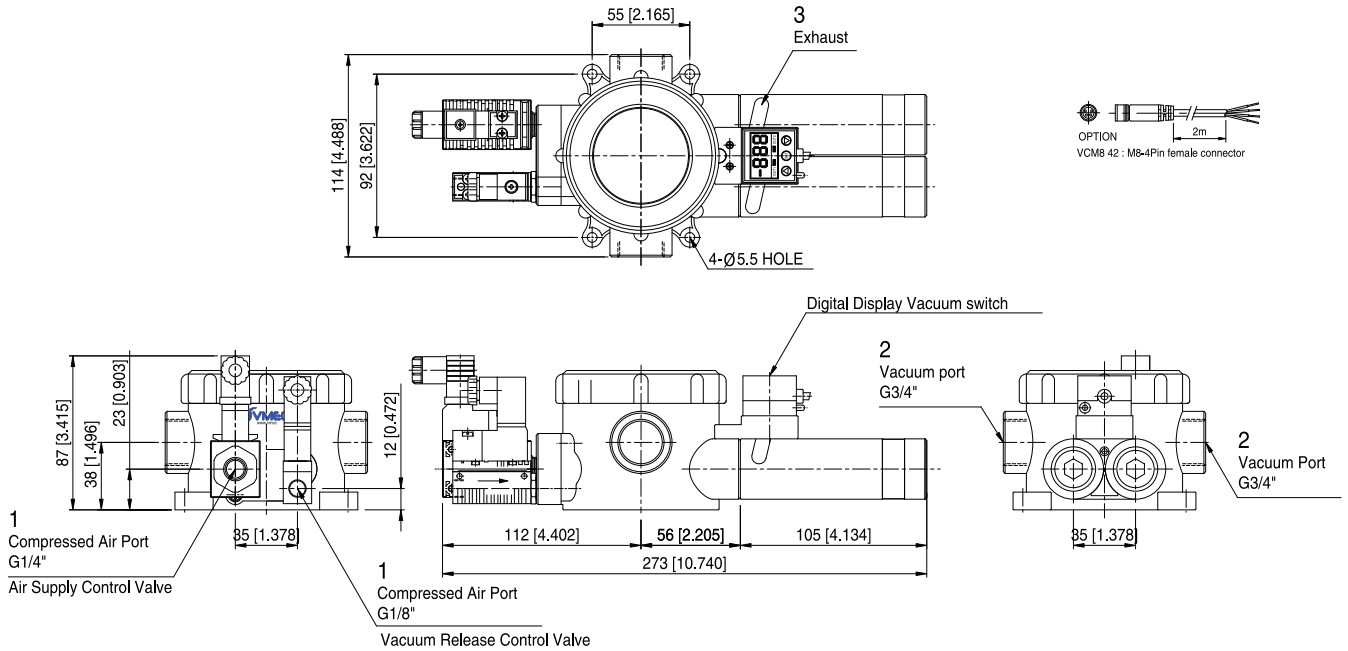


VACUUM PUMPS

Dimensional Information

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch

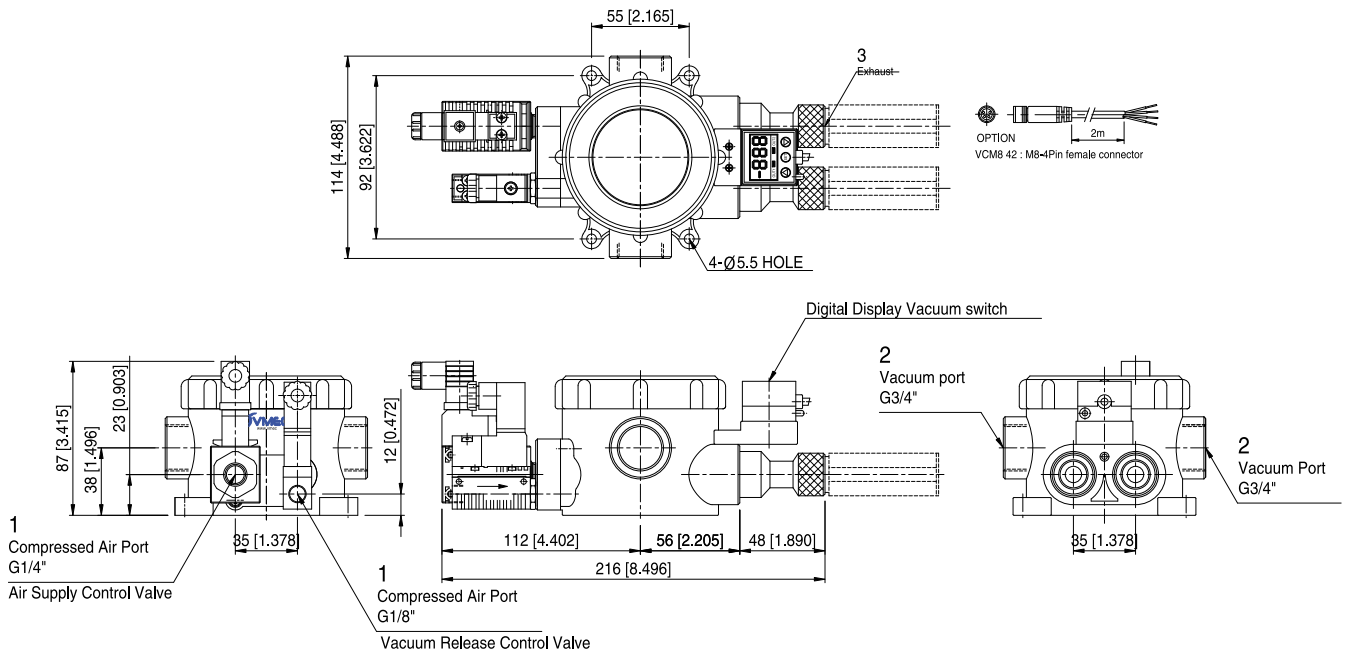
VTC 3032.. / VTCL 3032..



Measure unit : mm [in]

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch

VTC 3022.. / VTCL 3022..

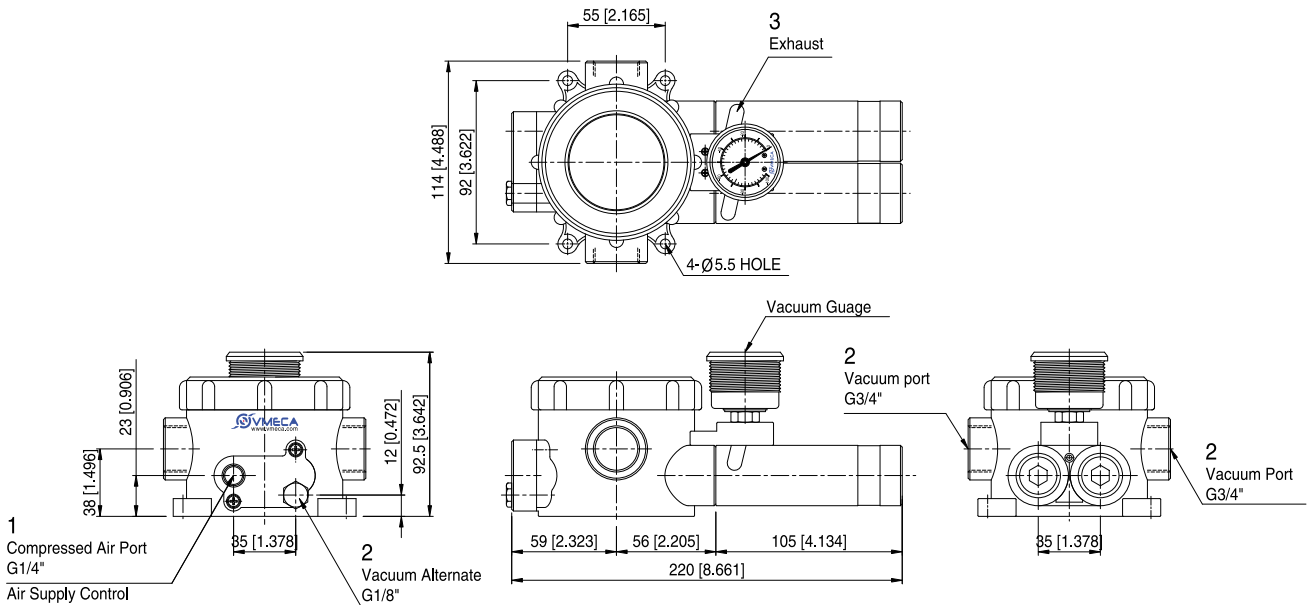


Measure unit : mm [in]

Dimensional Information

Standard

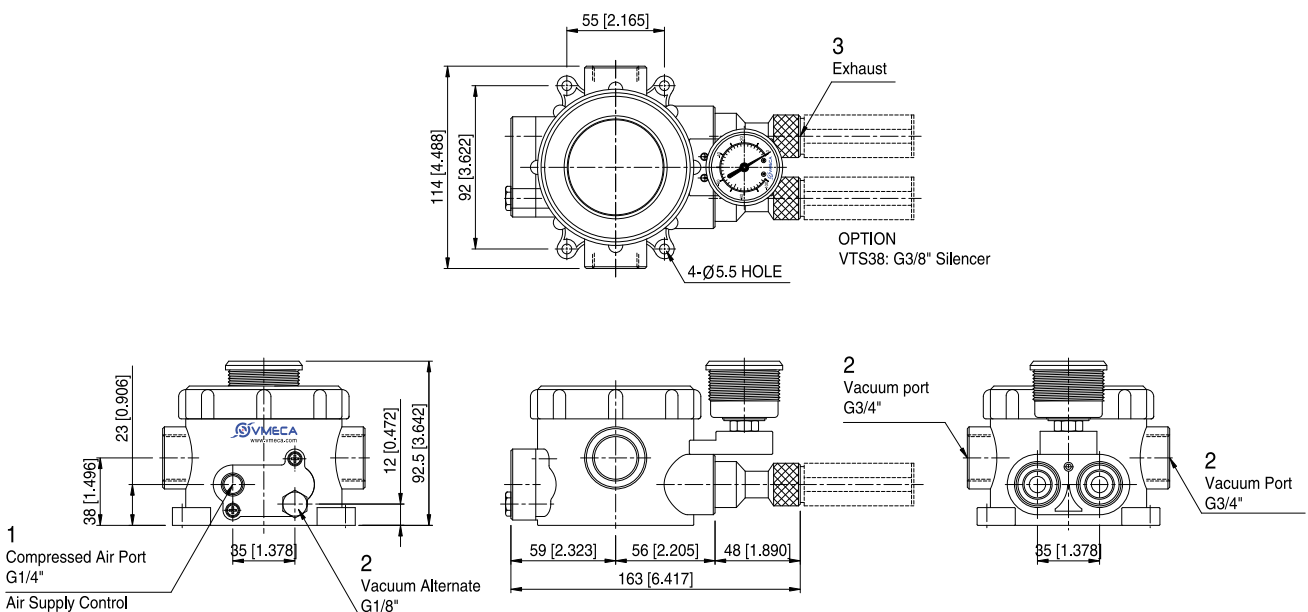
VTC 3032.. / VTCL 3032..



Measure unit : mm [in]

Standard

VTC 3022.. / VTCL 3022..



Measure unit : mm [in]

VTC Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 1,364 NI/min (48.17 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 194~608 NI/min (6.85~21.47 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 60~65 dBA



Main advantages

- Patented design.
- High vacuum flow and vacuum level.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Intergrated high dirt holding capacity pleated filter.
- Automatic vacuum filter cleaning system.
- Compact size and light weight.
- Minimize energy consumption with AS-KIT (Air-saving kit)
- Air control / Vacuum release valves and Vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge
- Long life time.



▲ BUS Cable

Order No.

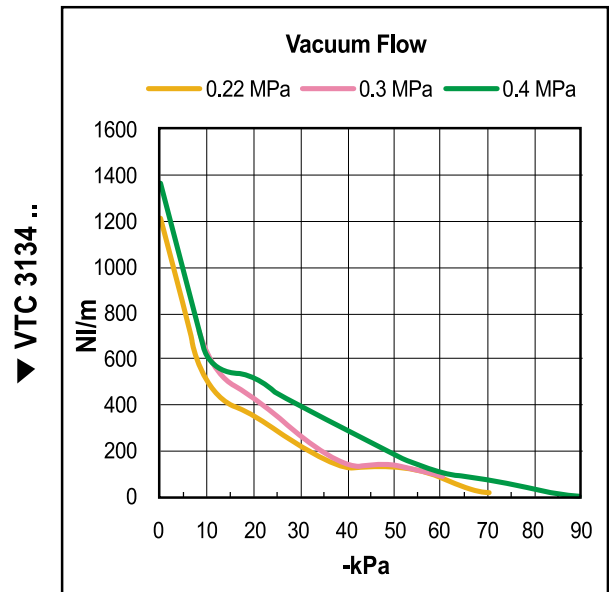
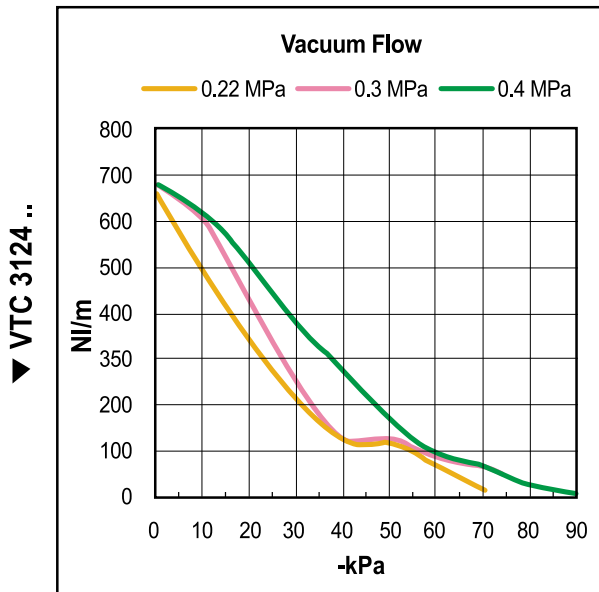
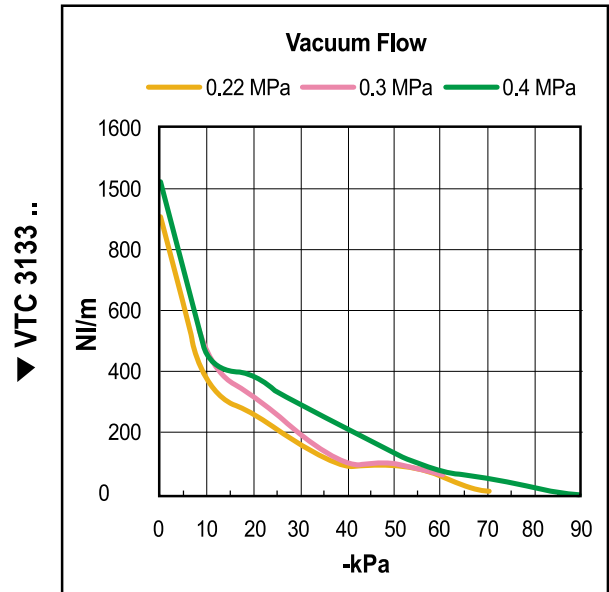
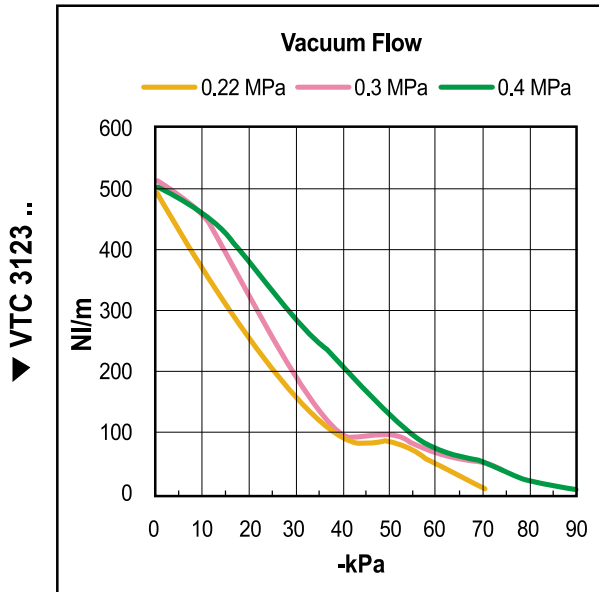
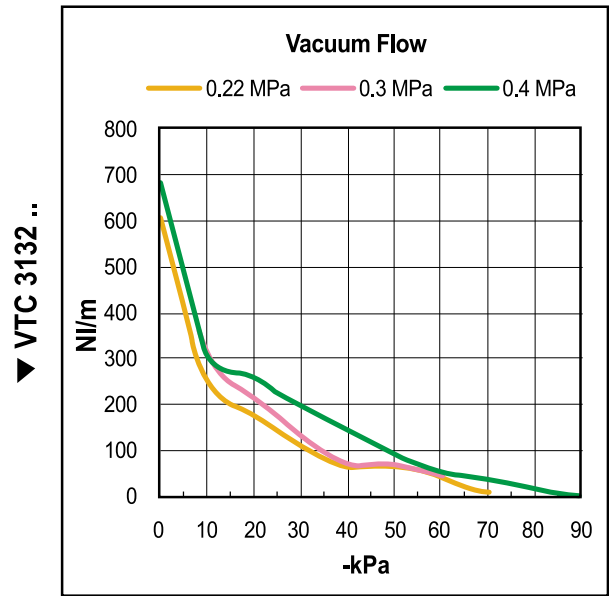
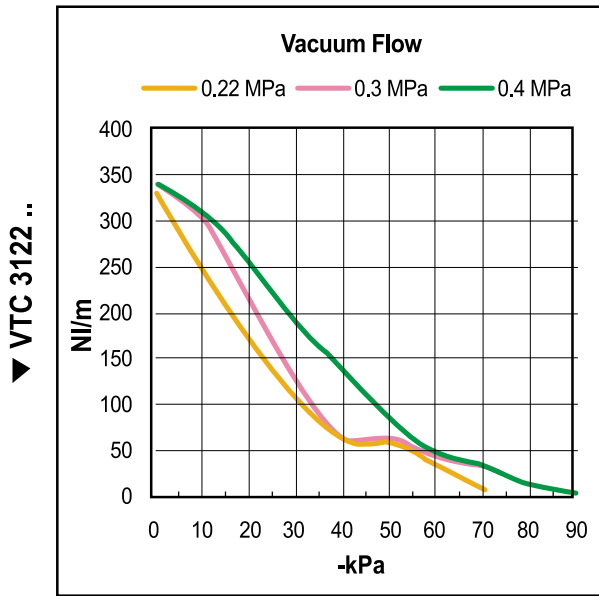
VTC 3134 - 2 - AS - A3 R3 - CL - S2 N V

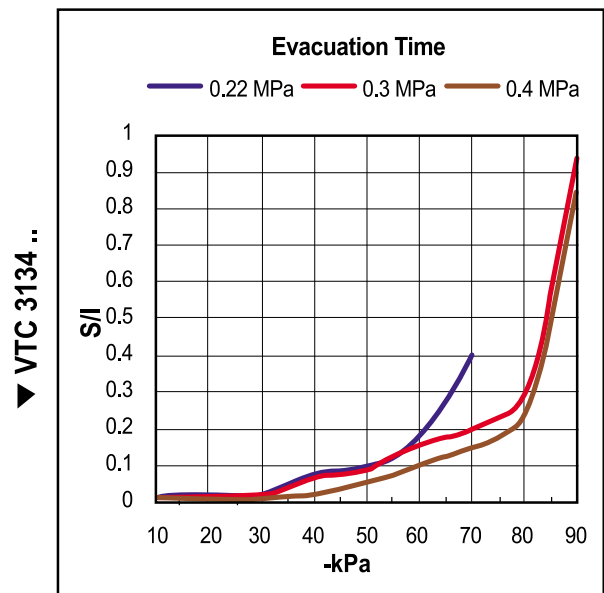
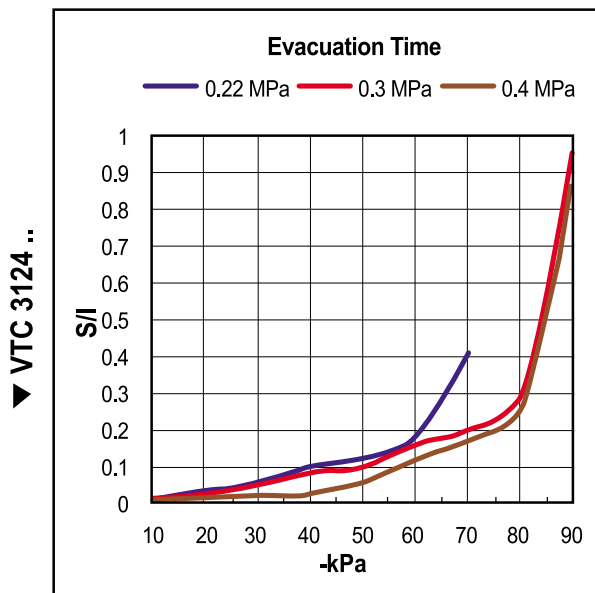
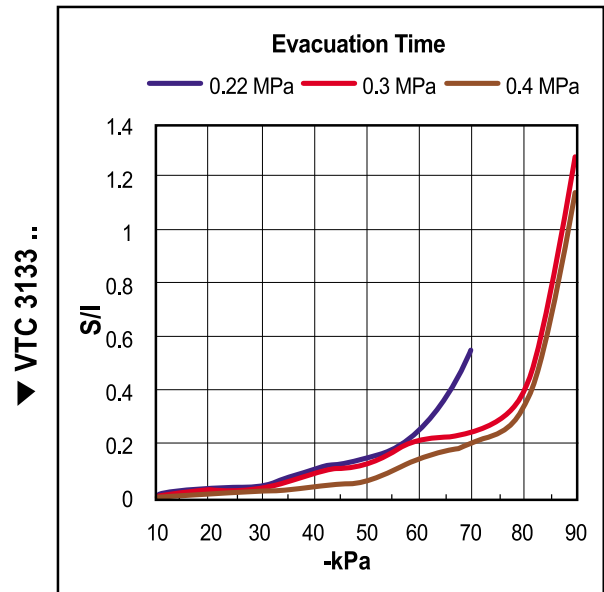
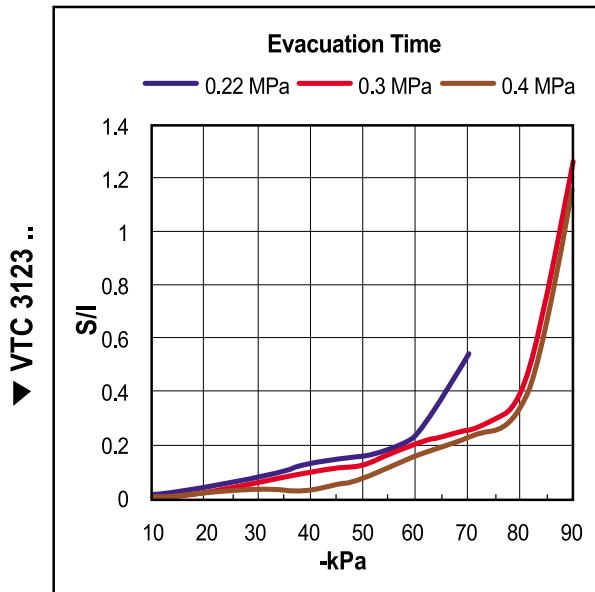
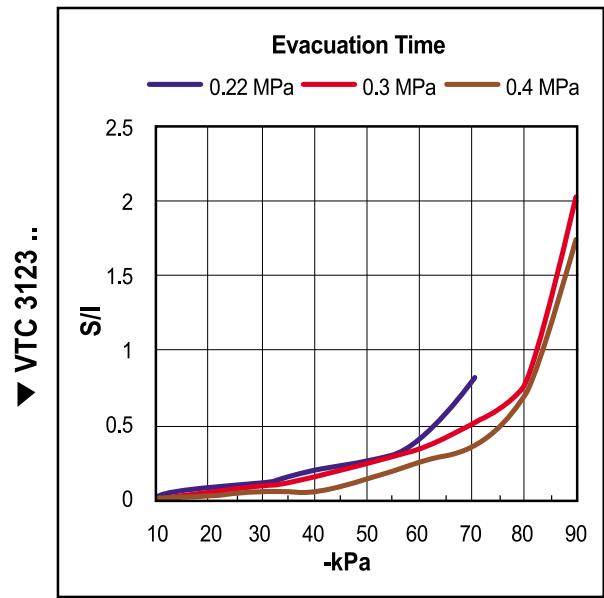
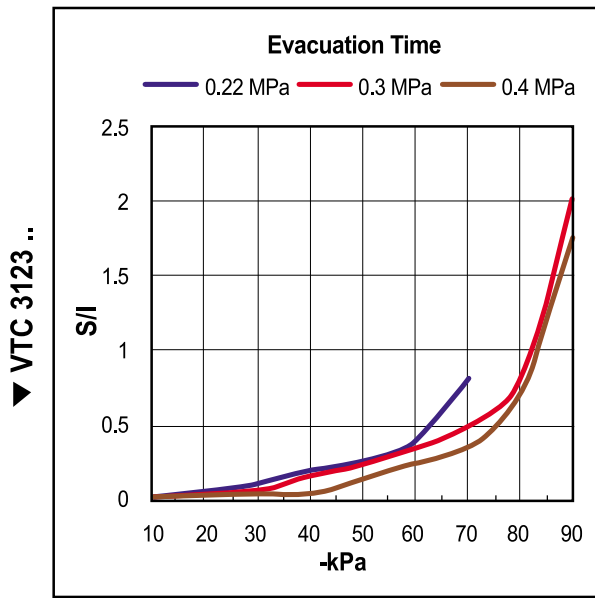
	①	②	③	④	⑤	⑥	⑦	⑧	⑨						
① Series	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">VTC3122 - 2 stage nozzle x 2 ea</td> <td style="width: 20%;">VTC3123 - 2 stage nozzle x 3 ea</td> <td style="width: 20%;">VTC3124 - 2 stage nozzle x 4 ea</td> <td style="width: 20%;">VTC3132 - 3 stage nozzle x 2 ea</td> <td style="width: 20%;">VTC3133 - 3 stage nozzle x 3 ea</td> <td style="width: 20%;">VTC3134 - 3 stage nozzle x 4 ea</td> </tr> </table>									VTC3122 - 2 stage nozzle x 2 ea	VTC3123 - 2 stage nozzle x 3 ea	VTC3124 - 2 stage nozzle x 4 ea	VTC3132 - 3 stage nozzle x 2 ea	VTC3133 - 3 stage nozzle x 3 ea	VTC3134 - 3 stage nozzle x 4 ea
VTC3122 - 2 stage nozzle x 2 ea	VTC3123 - 2 stage nozzle x 3 ea	VTC3124 - 2 stage nozzle x 4 ea	VTC3132 - 3 stage nozzle x 2 ea	VTC3133 - 3 stage nozzle x 3 ea	VTC3134 - 3 stage nozzle x 4 ea										
② Filter element & Connection port	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Material</th> <th style="width: 85%;">Connection port</th> </tr> </thead> <tbody> <tr> <td>2 Polyester (PE)</td> <td>BSP Thread(G)</td> </tr> </tbody> </table>									Material	Connection port	2 Polyester (PE)	BSP Thread(G)		
Material	Connection port														
2 Polyester (PE)	BSP Thread(G)														
③ Air saving kit (108)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">No mark - Not attached</td> <td style="width: 50%;">AS - Attached</td> </tr> </table>									No mark - Not attached	AS - Attached				
No mark - Not attached	AS - Attached														
④ Voltage of air supply control valve	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">A1 - AC110V</td> <td style="width: 20%;">A2 - AC220V</td> <td style="width: 20%;">A3 - DC24V</td> <td style="width: 20%;">D1* - AC110V</td> <td style="width: 20%;">D2* - AC220V</td> <td style="width: 20%;">D3* - DC24V</td> </tr> </table> <p>* D. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥</p>									A1 - AC110V	A2 - AC220V	A3 - DC24V	D1* - AC110V	D2* - AC220V	D3* - DC24V
A1 - AC110V	A2 - AC220V	A3 - DC24V	D1* - AC110V	D2* - AC220V	D3* - DC24V										
⑤ Voltage of vacuum release control valve	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">R1 - AC110V</td> <td style="width: 20%;">R2 - AC220V</td> <td style="width: 20%;">R3 - DC24V</td> </tr> </table>									R1 - AC110V	R2 - AC220V	R3 - DC24V			
R1 - AC110V	R2 - AC220V	R3 - DC24V													
⑥ Solenoid Terminal	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">DN - DIN type without lead wire</td> <td style="width: 20%;">DL - DIN type with lamp without lead wire</td> <td style="width: 20%;">CL* - Connector type with lamp & 0.3 m lead wire</td> <td style="width: 20%;">2B* - DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)</td> <td style="width: 20%;">3B* - DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)</td> </tr> </table> <p>* Can not available with double solenoid valve ※ Remark CL : Available only with DC24V 3B : Available only with DC24V Available only with 'S2' or 'S2P', section ⑦ ⓘ About 'BUS cable' (340, 341)</p>									DN - DIN type without lead wire	DL - DIN type with lamp without lead wire	CL* - Connector type with lamp & 0.3 m lead wire	2B* - DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)	3B* - DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)	
DN - DIN type without lead wire	DL - DIN type with lamp without lead wire	CL* - Connector type with lamp & 0.3 m lead wire	2B* - DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)	3B* - DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)											
⑦ Vacuum switch	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">No mark - Vacuum gauge.</td> <td style="width: 50%;">S2(P) - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.</td> </tr> <tr> <td>SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.</td> <td>SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.</td> </tr> </table> <p>※ Remark: ① S..(P) Output type :PNP open collector ② VCM8 42 : M8-4Pin connector wire. Only for type S2 or S2(P).</p>									No mark - Vacuum gauge.	S2(P) - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.	SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.	SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.		
No mark - Vacuum gauge.	S2(P) - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.														
SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.	SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.														
⑧ Non-return valve	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">No mark - Standard</td> <td style="width: 50%;">N - Non-return valve.</td> </tr> </table>									No mark - Standard	N - Non-return valve.				
No mark - Standard	N - Non-return valve.														
⑨ Sealing	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">No mark - Standard</td> <td style="width: 50%;">V - Viton®</td> </tr> <tr> <td>E - EPDM</td> <td></td> </tr> </table>									No mark - Standard	V - Viton®	E - EPDM			
No mark - Standard	V - Viton®														
E - EPDM															

Performance Data

Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTC 3122	75	0.22	328	245	176	106	62.8	57	33	9.2	-	-
	93	0.3	340	304	212	128	66	64	44	33	12.8	3.8
	93	0.4	342	308	255	188	138	86	46.6	34.6	13.8	4.2
VTC 3123	75	0.22	492	367	264	159	94	86	50	14	-	-
	93	0.3	510	456	318	192	99	96	66	50	19	6
	93	0.4	513	462	383	282	207	129	70	52	21	6.3
VTC 3124	75	0.22	656	490	352	212	126	114	66	18	-	-
	93	0.3	680	608	424	256	132	128	88	66	26	7.6
	93	0.4	684	616	510	376	276	172	93	69	28	8.4
VTC 3132	75	0.22	604	245	176	106	62.8	57	33	9.2	-	-
	93	0.3	676	304	212	128	66	64	44	33	12.8	3.8
	93	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2
VTC 3133	75	0.22	902	368	264	159	94	86	50	14	-	-
	93	0.3	1014	456	318	192	99	96	66	50	19	6
	93	0.4	1023	462	383	282	207	129	70	52	21	6.3
VTC 3134	75	0.22	1208	490	352	212	126	114	66	18	-	-
	93	0.3	1352	608	424	256	132	128	88	66	26	7.6
	93	0.4	1364	616	510	376	276	172	93	69	28	8.4

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)								
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTC 3122	0.22	194	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-
	0.3	236	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01
	0.4	304	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75
VTC 3123	0.22	291	0.01	0.04	0.07	0.13	0.16	0.24	0.54	-	-
	0.3	354	0.009	0.03	0.06	0.1	0.13	0.21	0.26	0.4	1.27
	0.4	456	0.008	0.019	0.03	0.033	0.08	0.16	0.23	0.35	1.17
VTC 3124	0.22	388	0.008	0.03	0.05	0.095	0.12	0.18	0.4	-	-
	0.3	472	0.007	0.025	0.048	0.08	0.1	0.16	0.2	0.3	0.95
	0.4	608	0.006	0.015	0.023	0.025	0.06	0.12	0.17	0.26	0.87
VTC 3132	0.22	194	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	0.3	236	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98
	0.4	304	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
VTC 3133	0.22	291	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	0.3	354	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	0.4	456	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
VTC 3134	0.22	388	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	0.3	472	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95
	0.4	608	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85





VACUUM PUMPS

VTCL - Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 1,448 NI/min (51.13 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 140~416 NI/min (4.94~14.69 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 60~65 dBA



Main advantages

- Patented design.
- High vacuum flow and vacuum level.
- High operational reliability despite fluctuating or low compressed-air pressure.
- Intergrated high dirt holding capacity pleated filter.
- Automatic vacuum filter cleaning system.
- Compact size and light weight.
- Minimize energy consumption with AS-KIT (Air-saving kit)
- Air control / Vacuum release valves and Vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge
- Long life time.



▲ BUS Cable

Order No.

VTCL 3134 - 2 - AS - A3 R3 - CL - S2 N V

① Series

- VTCL3122 - 2 stage nozzle x 2 ea
- VTCL3123 - 2 stage nozzle x 3 ea
- VTCL3124 - 2 stage nozzle x 4 ea
- VTCL3132 - 3 stage nozzle x 2 ea
- VTCL3133 - 3 stage nozzle x 3 ea
- **VTCL3134** - 3 stage nozzle x 4 ea

② Filter element & Connection port

Material	Connection port
• 2 Polyester (PE)	BSP Thread(G)

③ Air saving kit (108)

- No mark - Not attached
- **AS** - Attached

④ Voltage of air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - DC24V
- D1* - AC110V
- D2* - AC220V
- D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Voltage of vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑥ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑦ Vacuum switch

- No mark - Vacuum gauge.
- **S2(P)** - Digital display output 2points, No analog supply
M8-4Pin Connector type 0.3m lead wire.
- SG2(P) - Digital display output 2 points, No analog supply
Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital display output 2 points, Analog supply
Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

- No mark - Standard
- **N** - Non-return valve.

⑨ Sealing

- No mark - Standard
- **V** - Viton®
- E** - EPDM

Performance Data

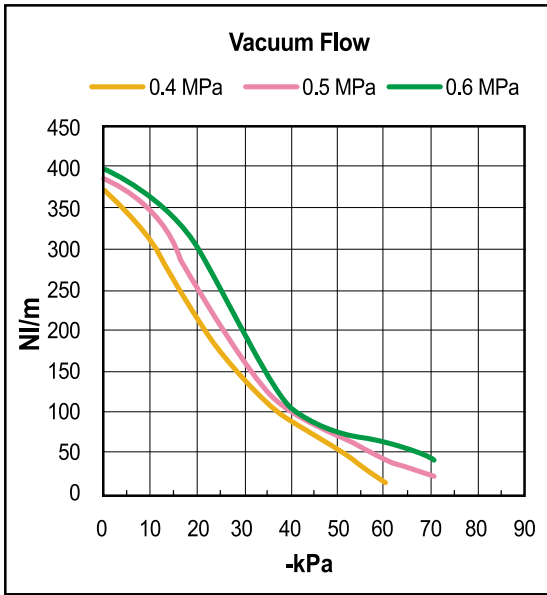
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTCL 3122	60	0.4	376	316	220	160	92	56	13.6	-	-	-
	70	0.5	390	352	260	164	100	75	46	23.8	-	-
	75	0.6	400	366	308	200	104	76	64	44	-	-
VTCL 3123	60	0.4	564	474	330	210	138	84	20.4	-	-	-
	70	0.5	585	528	390	246	150	112.5	69	33.9	-	-
	75	0.6	600	549	462	300	156	114	96	66	-	-
VTCL 3124	60	0.4	752	632	440	280	184	112	27.2	-	-	-
	70	0.5	780	704	520	328	200	150	92	45.2	-	-
	75	0.6	800	732	616	400	208	152	128	88	-	-
VTCL 3132	60	0.4	604	344	220	140	92	56	13.6	-	-	-
	70	0.5	688	392	260	164	100	75	46	23.8	-	-
	75	0.6	724	415	308	200	104	76	64	44	-	-
VTCL 3133	60	0.4	906	516	330	210	138	84	20.4	-	-	-
	70	0.5	1032	588	390	246	150	112.5	69	34	-	-
	75	0.6	1086	621	462	300	156	114	96	66	-	-
VTCL 3134	60	0.4	1208	688	440	280	184	112	27	-	-	-
	70	0.5	1376	784	520	328	200	150	92	45	-	-
	75	0.6	1448	828	616	400	208	152	128	88	-	-

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)								
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VTCL 3122	0.4	140	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-
	0.5	170	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-
	0.6	208	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-
VTCL 3123	0.4	210	0.012	0.029	0.057	0.097	0.127	0.27	-	-	-
	0.5	255	0.009	0.028	0.05	0.083	0.1	0.13	0.26	-	-
	0.6	312	0.009	0.027	0.04	0.06	0.09	0.12	0.2	-	-
VTCL 3124	0.4	280	0.01	0.025	0.04	0.07	0.09	0.2	-	-	-
	0.5	340	0.0067	0.02	0.037	0.065	0.075	0.1	0.2	-	-
	0.6	416	0.006	0.02	0.03	0.055	0.073	0.09	0.15	-	-
VTCL 3132	0.4	140	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	0.5	170	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	0.6	208	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
VTCL 3133	0.4	210	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	0.5	255	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-
	0.6	312	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
VTCL 3134	0.4	280	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	0.5	340	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	0.6	416	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-

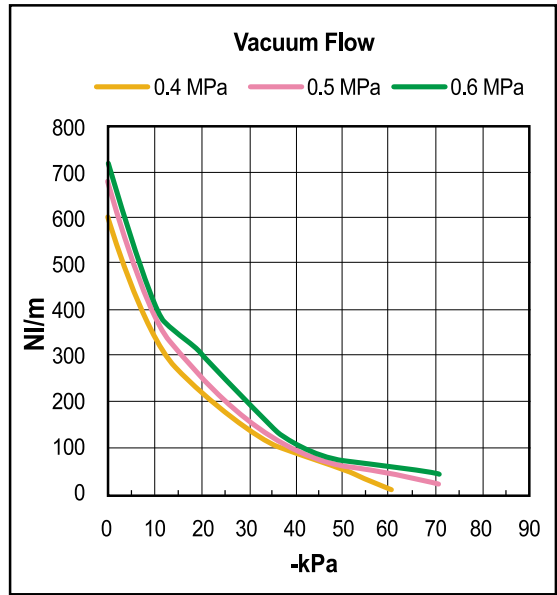
VACUUM PUMPS



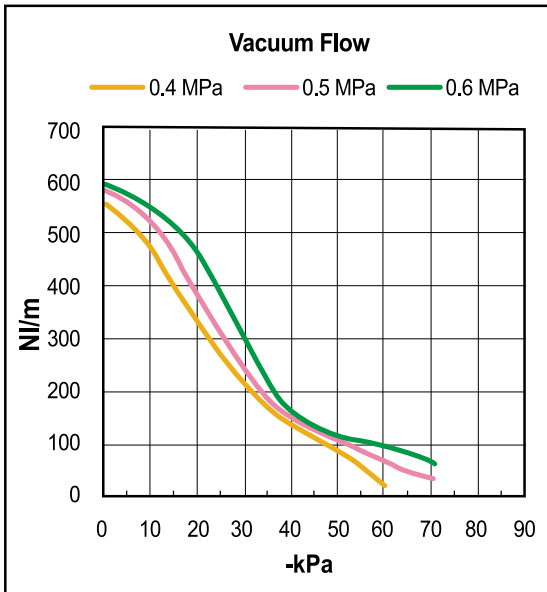
▼ VTCL 3122 ..



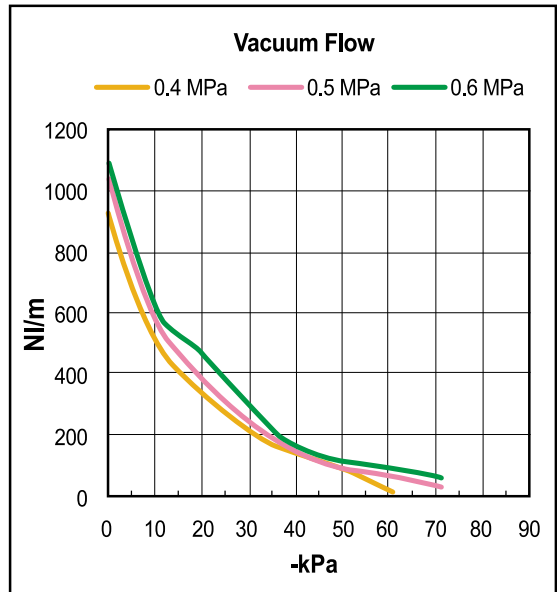
▼ VTCL 3132 ..



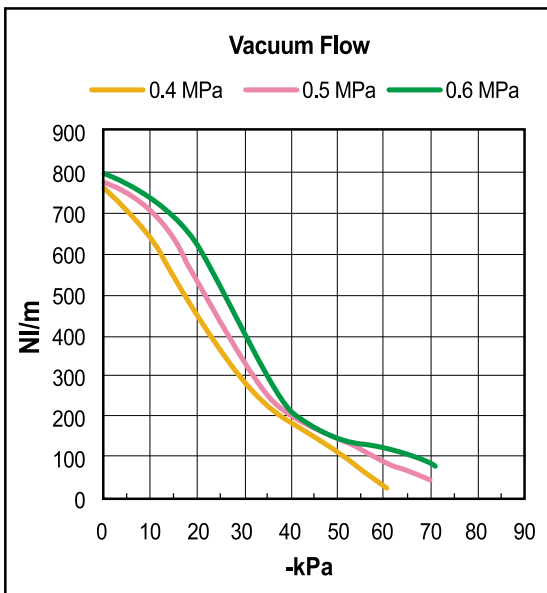
▼ VTCL 3123 ..



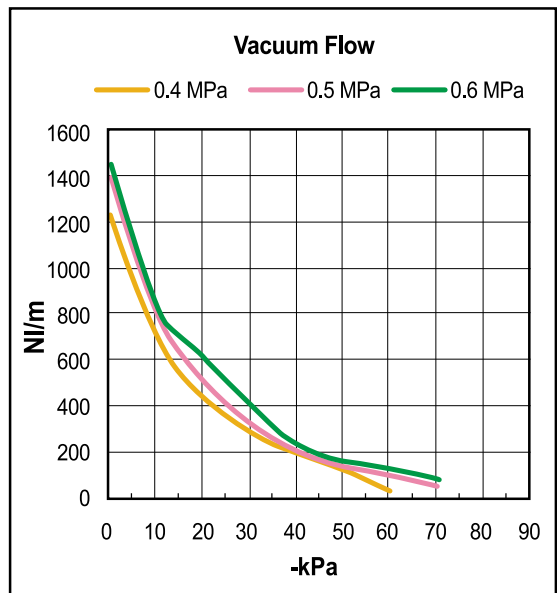
▼ VTCL 3133 ..



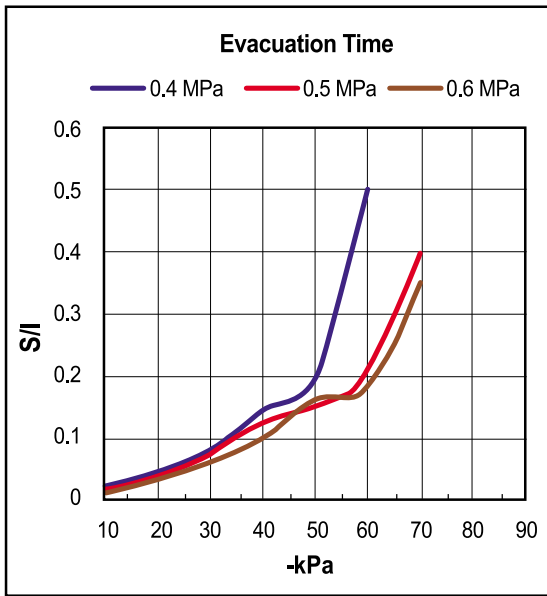
▼ VTCL 3124 ..



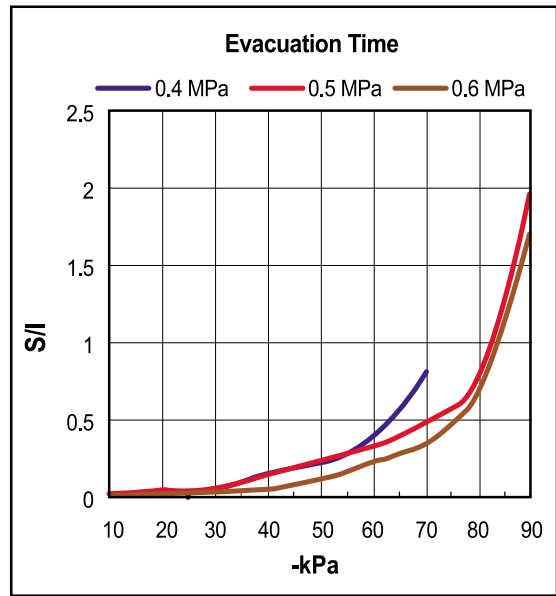
▼ VTCL 3134 ..



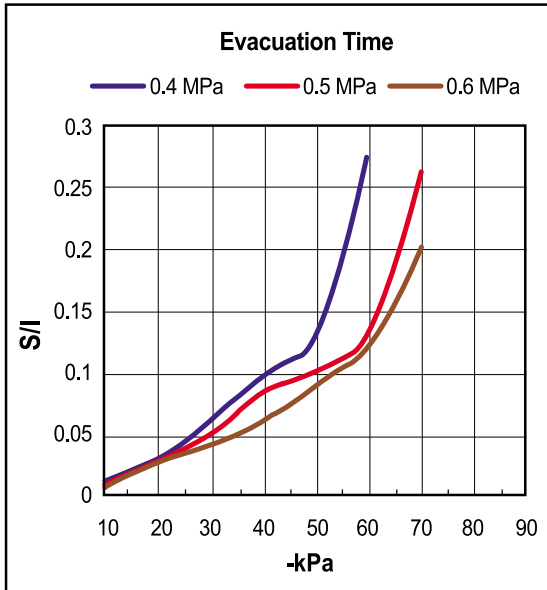
▼ VTCL 3122 ..



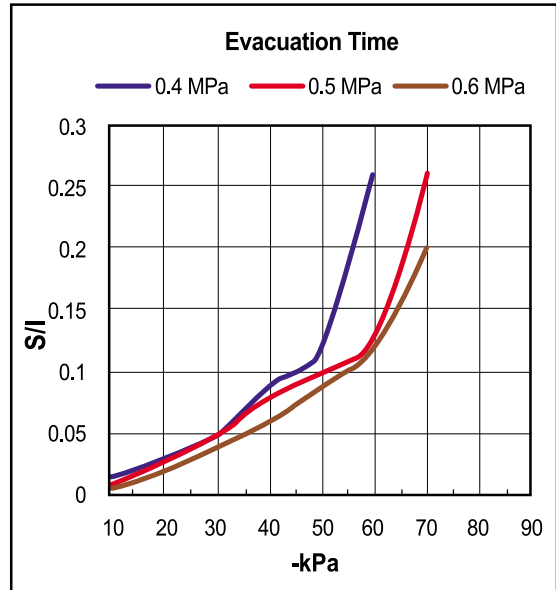
▼ VTCL 3132 ..



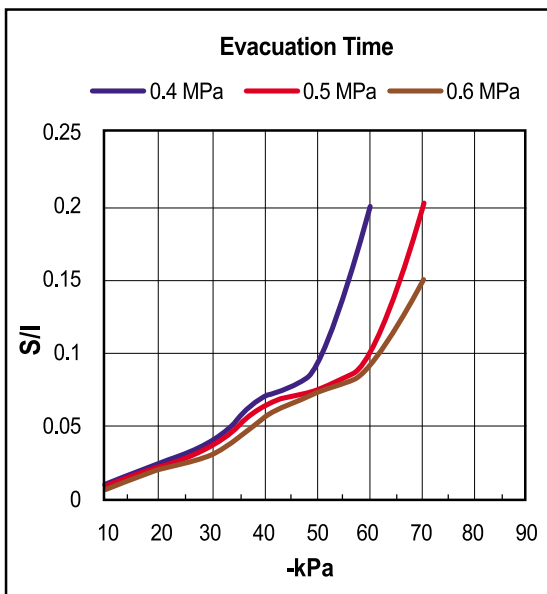
▼ VTCL 3123 ..



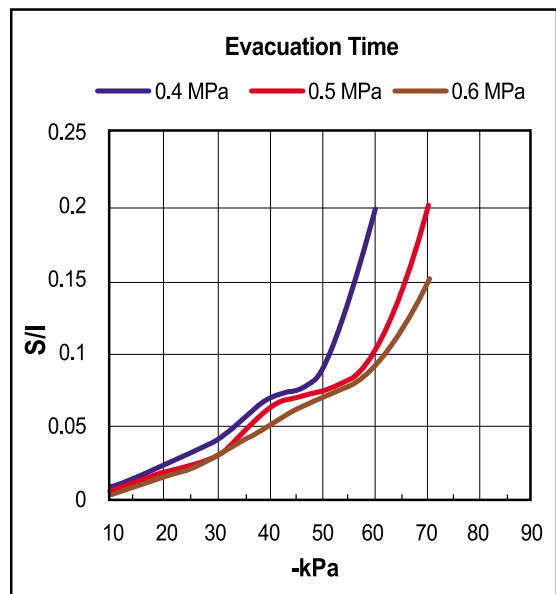
▼ VTCL 3133 ..



▼ VTCL 3124 ..



▼ VTCL 3134 ..

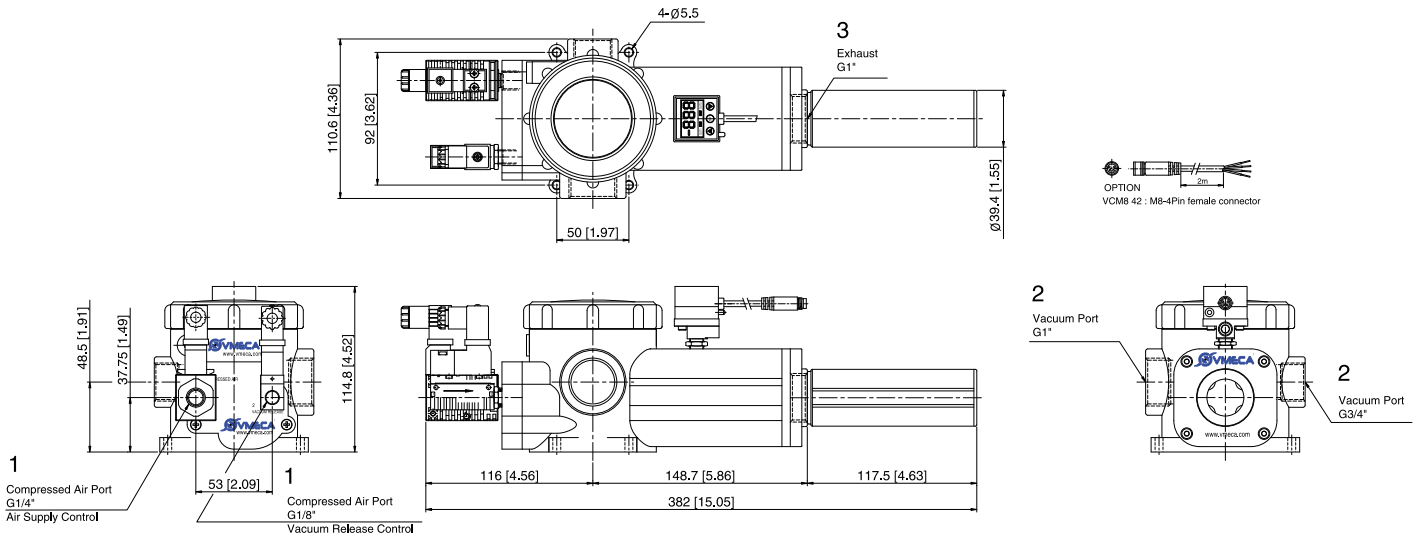


VACUUM PUMPS

Dimensional Information

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch

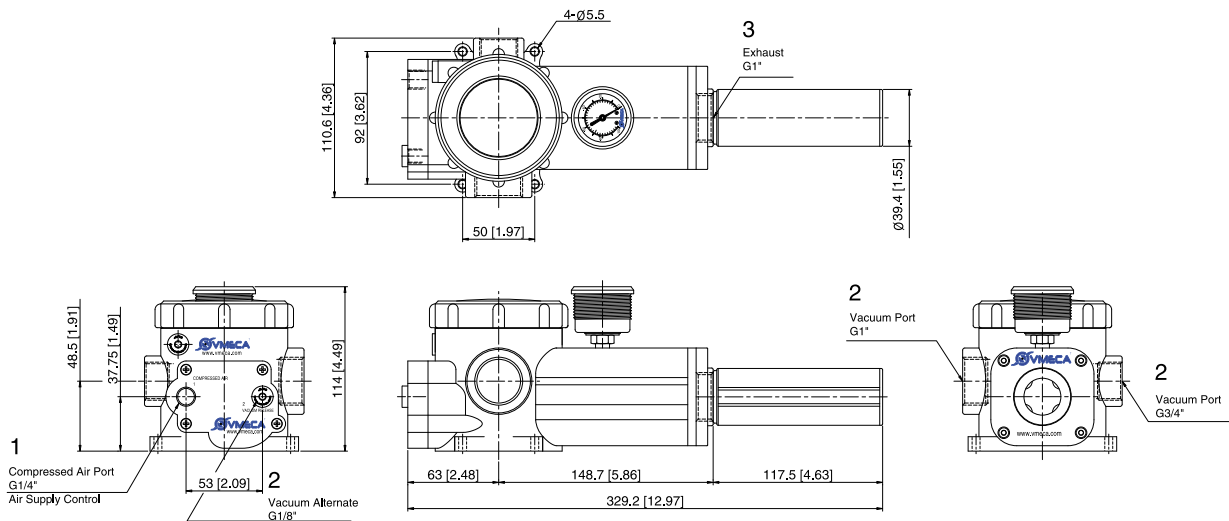
▼ Series VTC 313().. / VTCL 313()..



Measure unit : mm [in]

Standard

▼ Series VTC 313().. / VTCL 313()..

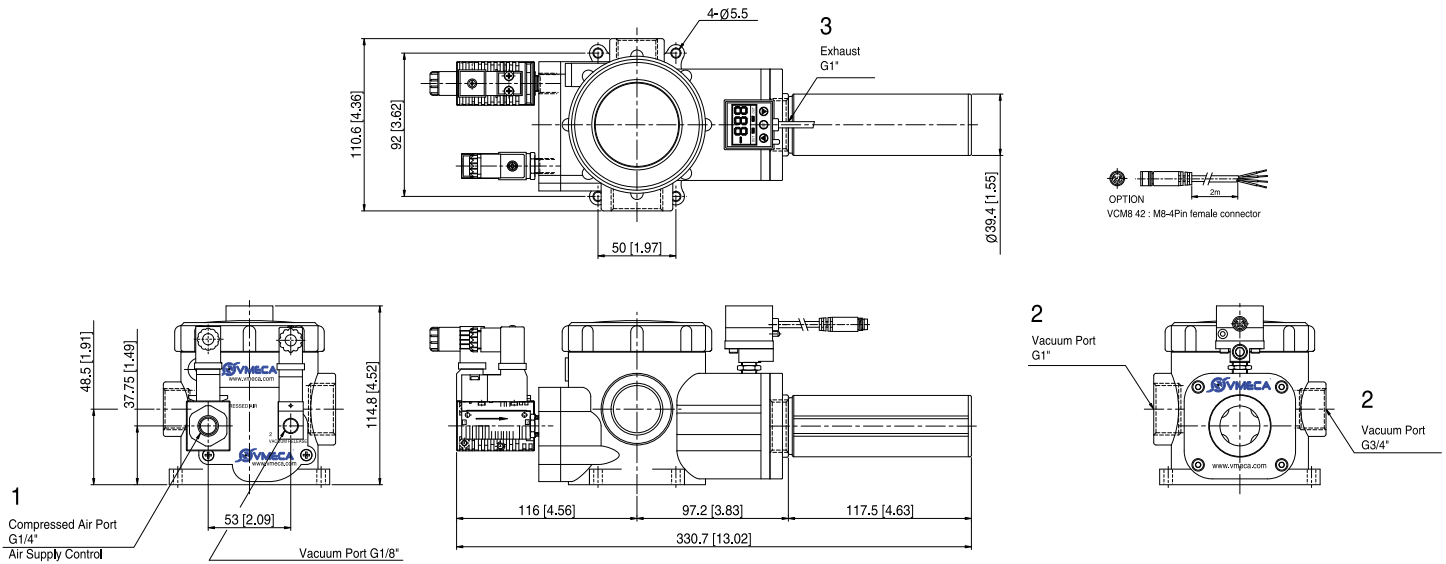


Measure unit : mm [in]

Dimensional Information

With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch

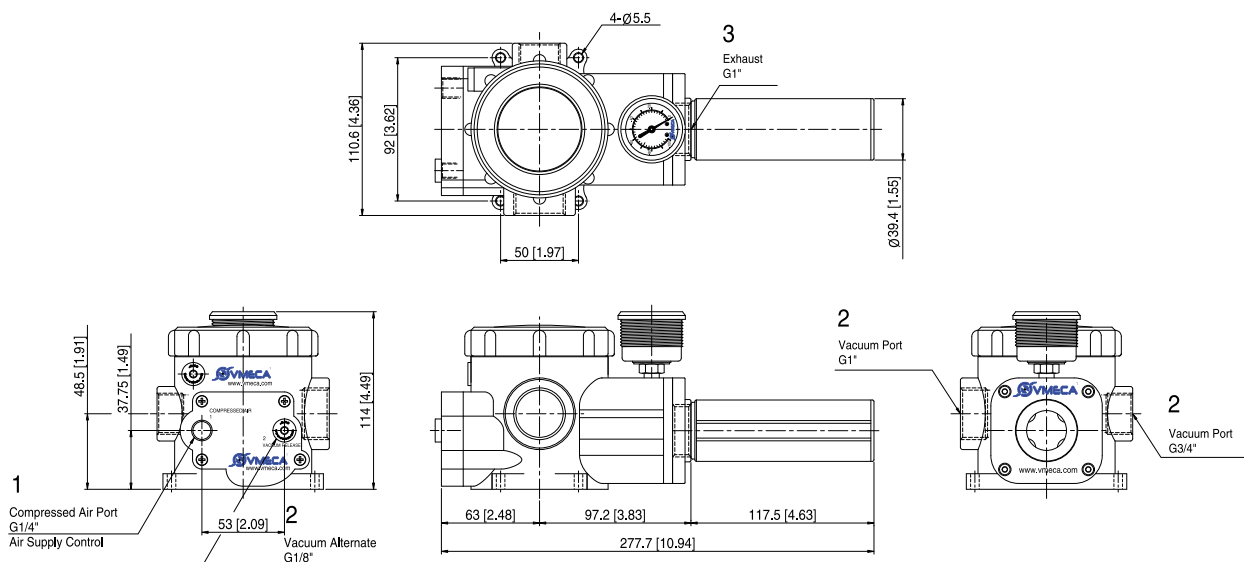
▼ Series VTC 312().. / VTCL 312()..



Measure unit : mm [in]

Standard

▼ Series VTC 312().. / VTCL 312()..

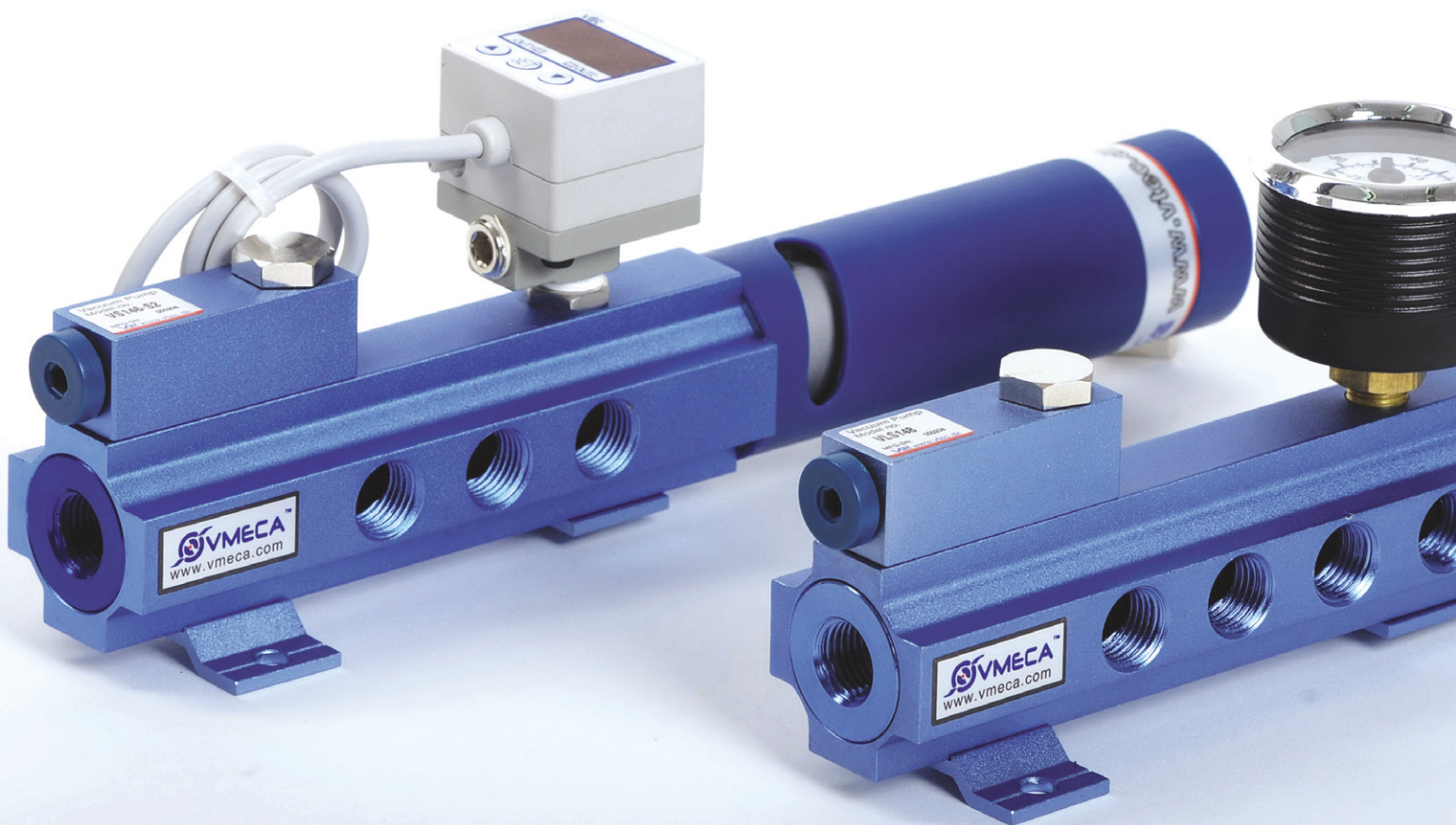


Measure unit : mm [in]

VACUUM PUMPS



V-PUMPS



Enable to decide the series of VMECA V-PUMP the performance you need.



► VS Series

High vacuum level (-93 kPa) at low compressed inlet air pressure (3~6 bar).

High vacuum flow rate to compensate for fluctuating or low compressed air pressure.

Suitable for sealed system applications such as lifting metal sheets of glass plate.

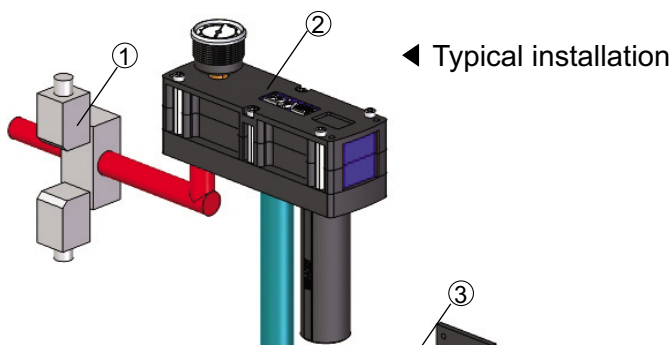
► VLS Series

Vacuum level (-75 kPa) at general inlet air pressure (6 bar)

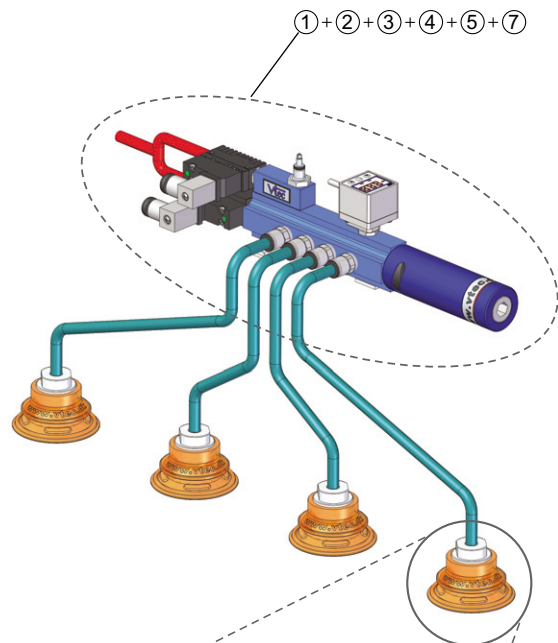
Extra high vacuum flow rate and suitable for non-sealed system application.

The VMECA® V-PUMP's features

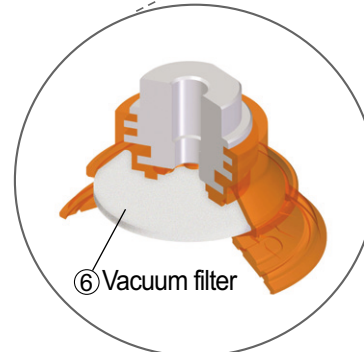
- Multiple connection alternatives up to 8 ports.
- Minimum installation space.
- Lower capital cost.
- Faster response time.
- Easy to install.
- Easy to maintain and repair.
- Long life time.



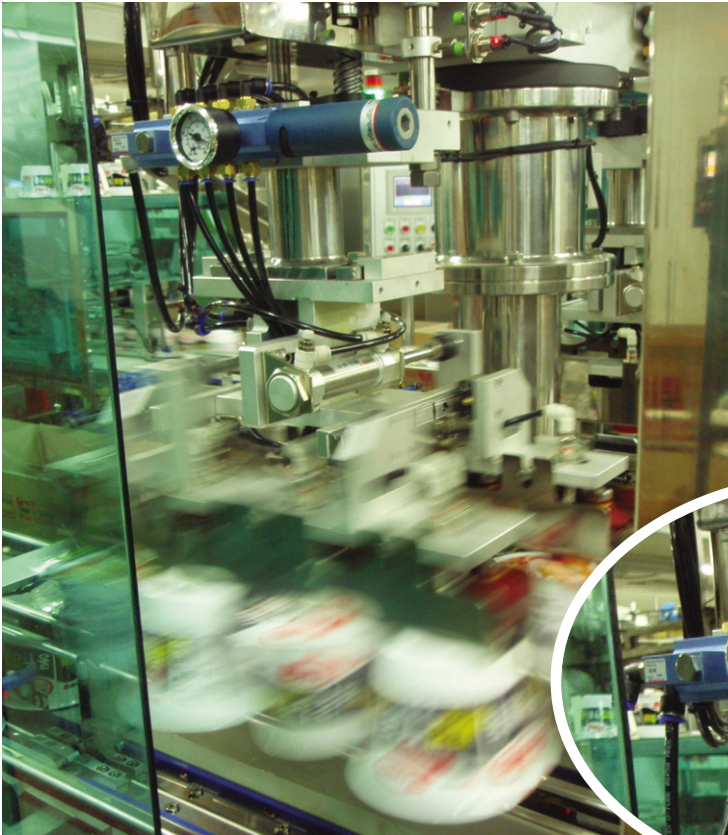
▼ New solution with VMECA V-PUMP



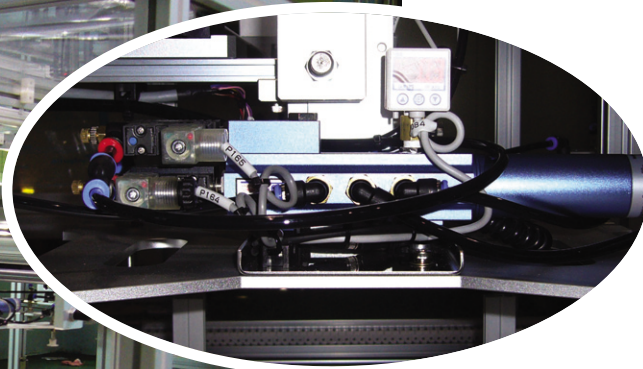
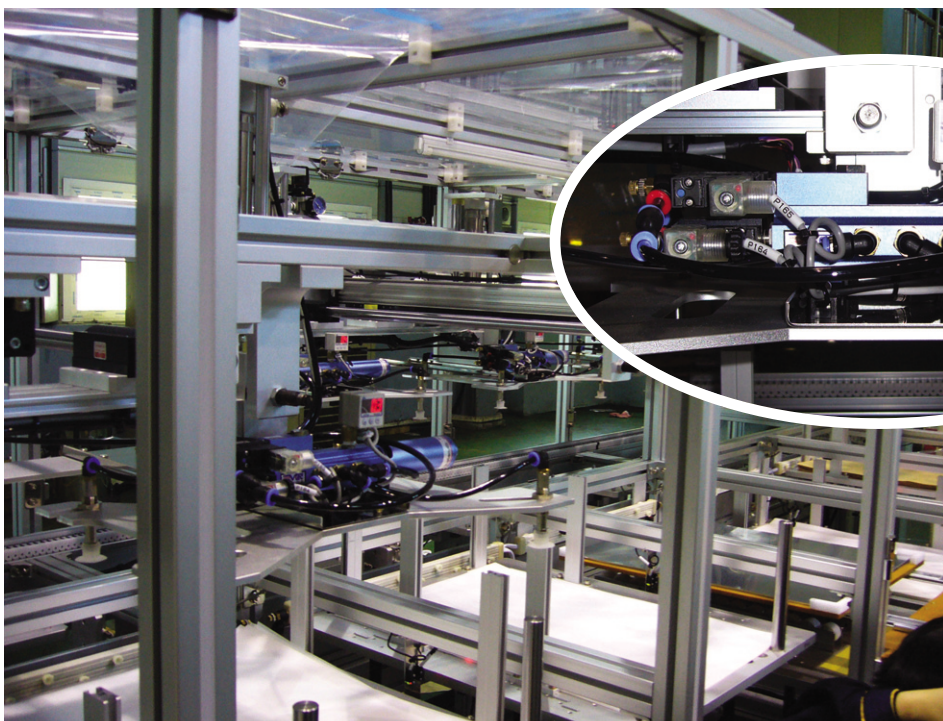
- ① Air control valve
- ② Vacuum pump
- ③ Digital Vacuum switch
- ④ Main vacuum pipe line
- ⑤ Vacuum release control valve
- ⑥ Vacuum filter
- ⑦ Distributor (Manifold)



APPLICATIONS



▲ Cup noodle Packaging machine (VS148..)



▲ Thin Film loading (VS146..)

VS - Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 341 NI/min (12.04 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 97~152 NI/min (3.43~5.37 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main advantages

- High operational reliability despite fluctuating.
- Quick response time.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Easy to distribute vacuum. (Multiple connection alternatives up to 9 ports.)
- Optional Air-Saving(AS)kit available to minimize energy consumption.
- Optional factory installed air control/vacuum release valves and vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VS 144 - AS - A3 R3 - CL A - S2 N V

①
②
③
④
⑤
⑥
⑦
⑧
⑨

① Vacuum Port

- **144** - G1/4" X 4EA
- 146 - G1/4" X 6EA
- 148 - G1/4" X 8EA

② Air saving kit (108)

No mark - Standard

- **AS** - Air saving kit attached

③ Voltage of air supply control valve

A1 - AC110V

A2 - AC220V

- **A3** - DC24V

D1* - AC110V

D2* - AC220V

D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑤

④ Voltage of vacuum release control valve

R1 - AC110V

R2 - AC220V

- **R3** - DC24V

⑤ Solenoid Terminal

DN - DIN type without lead wire

DL - DIN type with lamp without lead wire

- **CL*** - Connector type with lamp & 0.3 m lead wire

2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)

3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑥ Vacuum release flow adjust

No mark - Standard

- **A** - Attached

⑦ Vacuum switch

No mark - Vacuum gauge.

- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.

SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.

SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire. Only for type S2 or S2(P).

⑧ Non-return valve

No mark - Standard

- **N** - Non-return valve.

⑨ Sealing

No mark - Standard

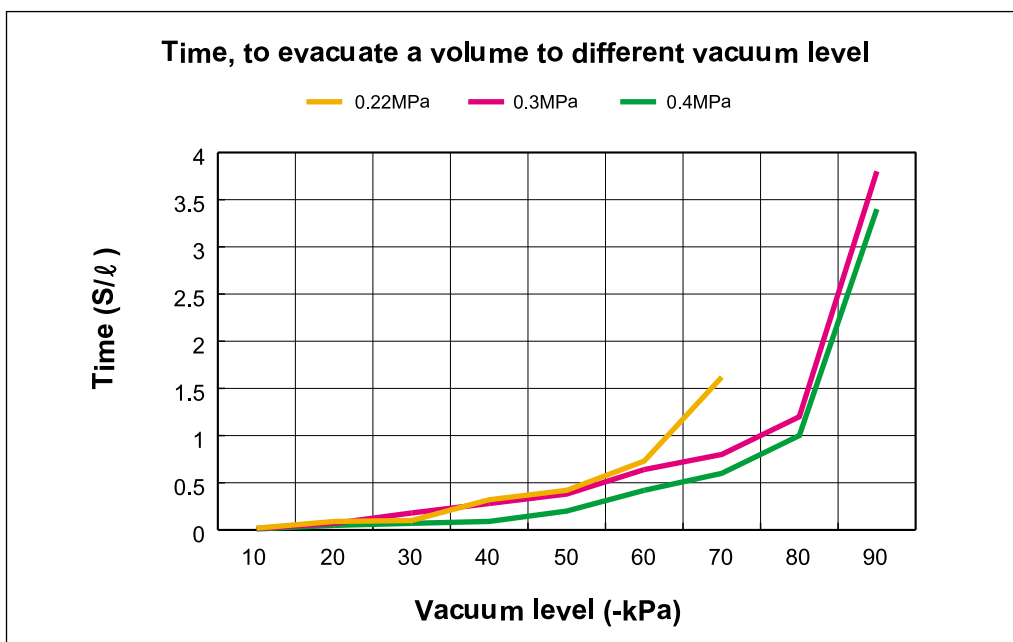
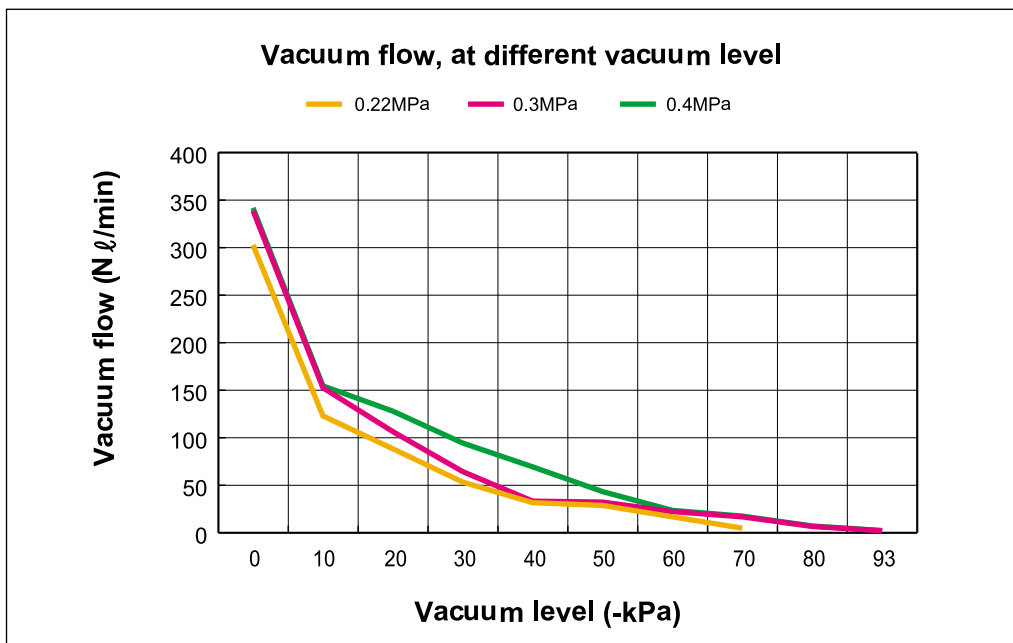
- **V** - Viton®

E - EPDM

Performance Data

Series	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VS	75	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1

Series	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)								
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VS	0.22	97	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	0.3	118	0.015	0.07	0.18	0.28	0.38	0.64	0.8	12	3.8
	0.4	152	0.01	0.48	0.07	0.09	0.2	0.42	0.8	1	3.4



VLS-Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 362 NI/min (12.79 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 70~104 NI/min (2.47~3.67 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main Advantages

- High operational reliability despite fluctuating.
- Quick response time.
- VMECA Twofold Silencer^{PT} assures low noise levels.
- Easy to distribute vacuum. (Multiple connection alternatives up to 8 ports.)
- Optional Air-Saving(AS) kit available to minimize energy consumption.
- Optional factory installed air control/vacuum release valves and vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge.

Order No.

VLS 144 - AS - A3 R3 - CL A - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Vacuum Port

- **144** - G1/4" X 4EA
- 146 - G1/4" X 6EA
- 148 - G1/4" X 8EA

② Air saving kit (108)

- No mark - Standard
- **AS** - Air saving kit attached

③ Voltage of air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - DC24V
- D1* - AC110V
- D2* - AC220V
- D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑤

④ Voltage of vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑤ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑥ Vacuum release flow adjust

- No mark - Standard
- **A** - Attached

⑦ Vacuum switch (108)

- No mark - Vacuum gauge.
- **S2(P)** - Digital display output 2points, No analog supply
M8-4Pin Connector type 0.3m lead wire.
- SG2(P) - Digital display output 2 points, No analog supply
Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital display output 2 points, Analog supply
Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑧ Non-return valve

- No mark - Standard
- **N** - Non-return valve.

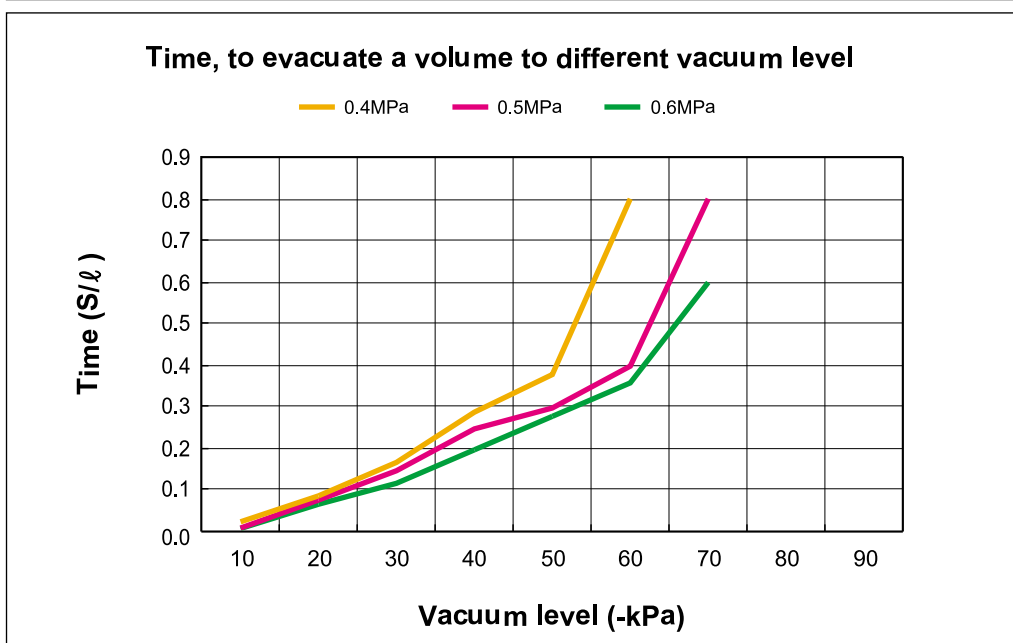
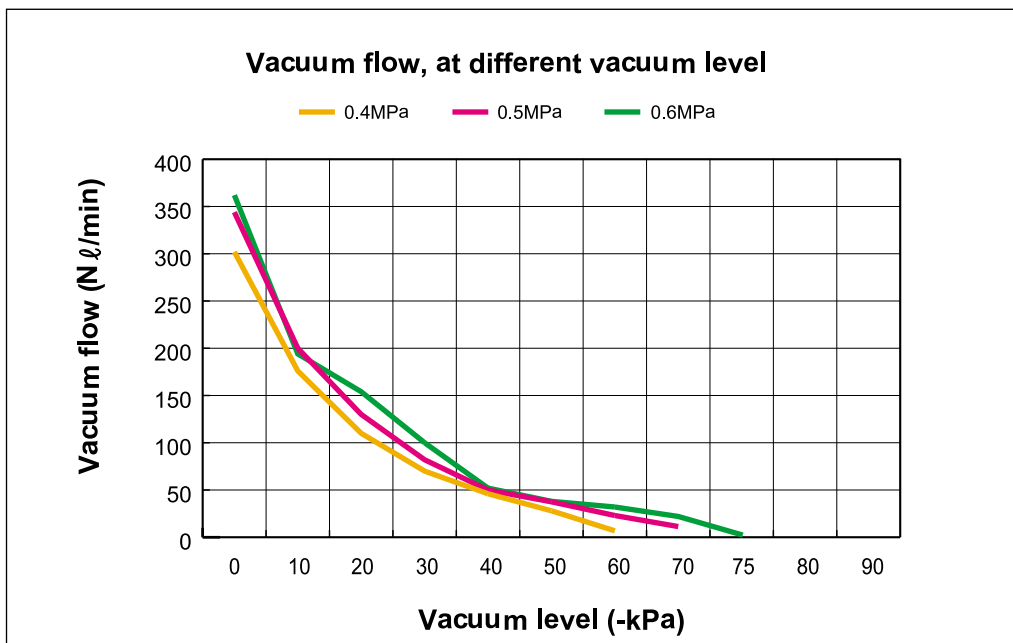
⑨ Sealing

- No mark - Standard
- **V** - Viton[®]
- E** - EPDM

Performance Data

Series	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum level -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VLS	60	0.4	302	176	110	70	46	28	6.8	-	-	-
	70	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75	0.6	362	194	154	100	52	38	32	22	-	-

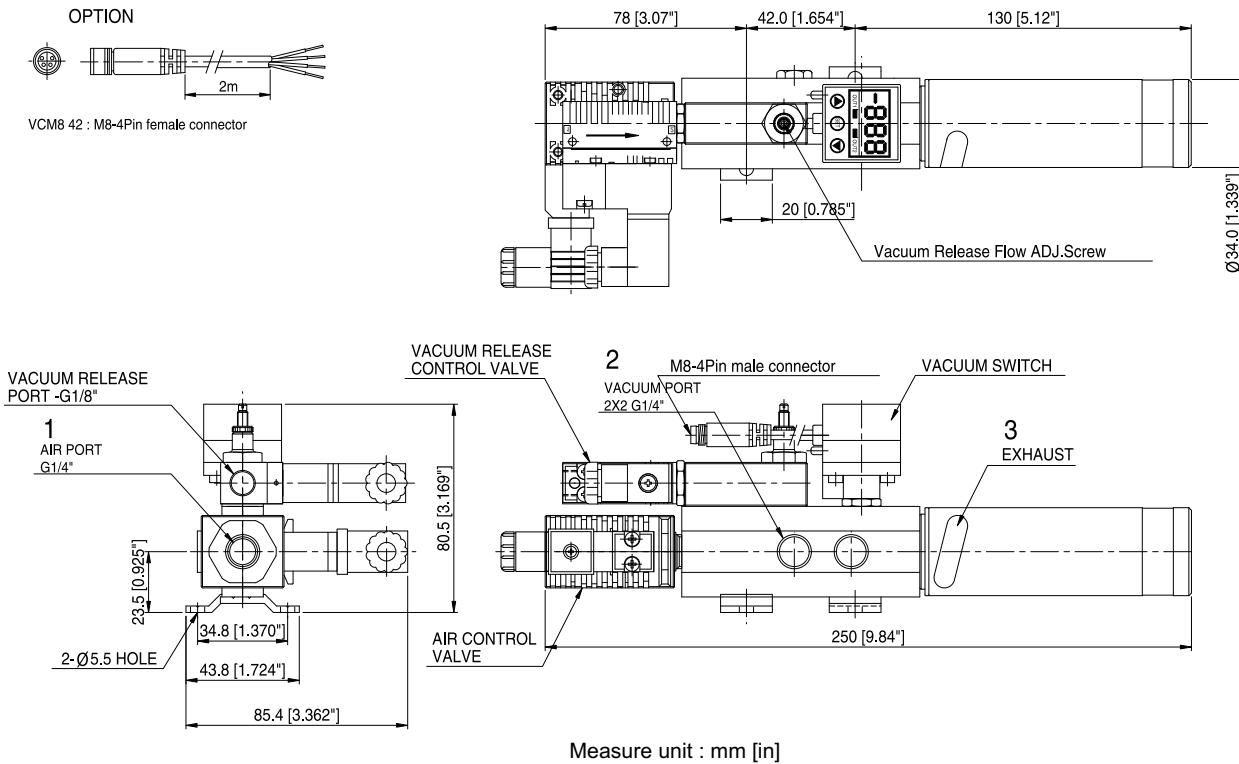
Series	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum level -kPa (-mmHg)								
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
VLS	0.4	70	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	0.5	85	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	0.6	104	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-



Dimensional Information

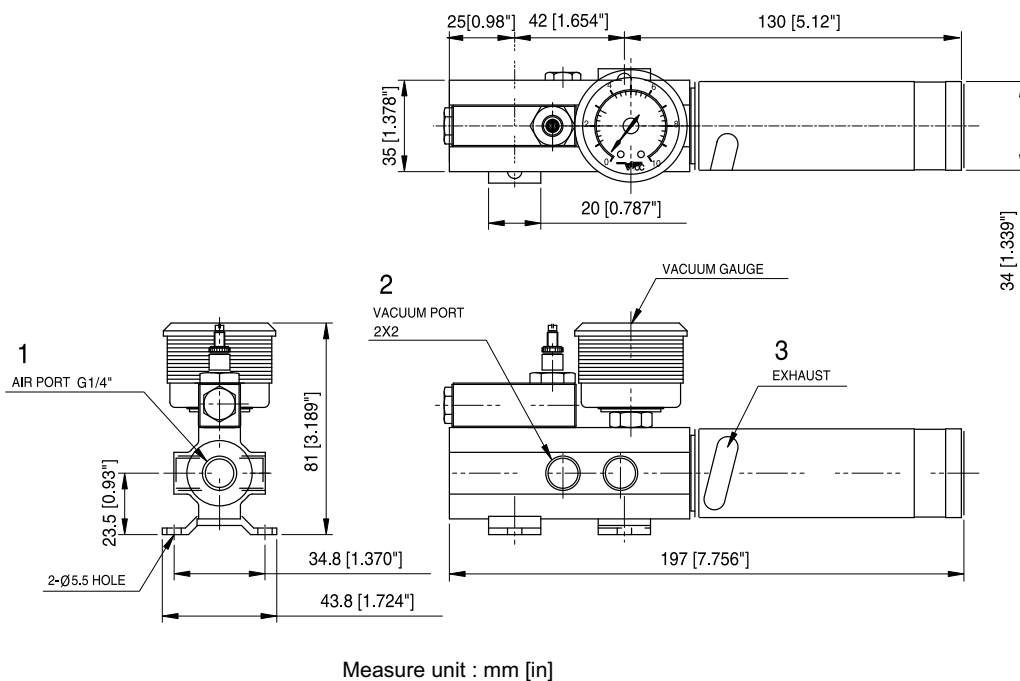
With Vacuum control valve, Vacuum release control valve and Digital Vacuum Switch

▼ Series VS 144.. / VLS 144..



Standard

▼ Series VS 144.. / VLS 144..



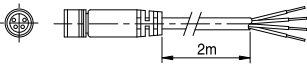
VACUUM PUMPS

Dimensional Information

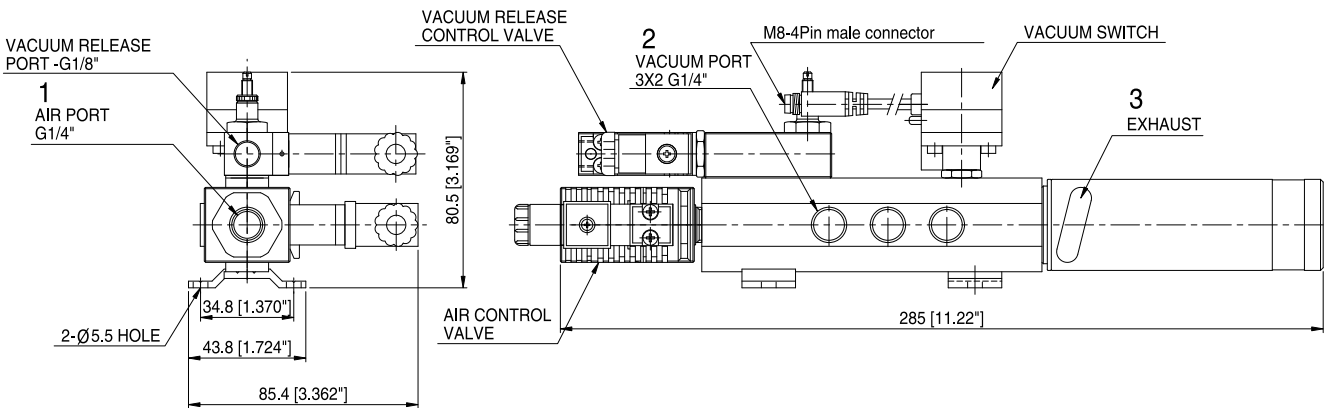
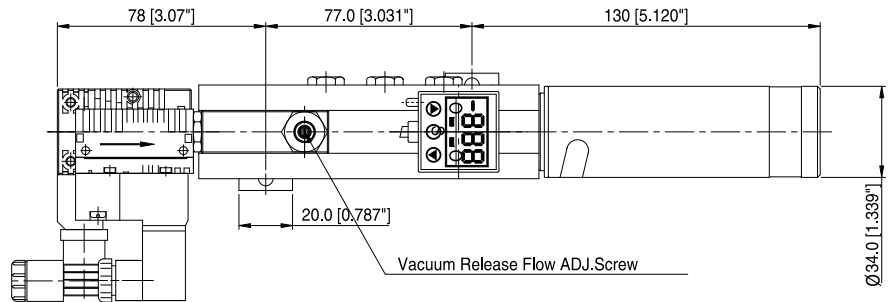
With Vacuum control valve, Vacuum release control valve and Digital Vacuum Switch

▼ Series VS 146.. / VLS 146..

OPTION



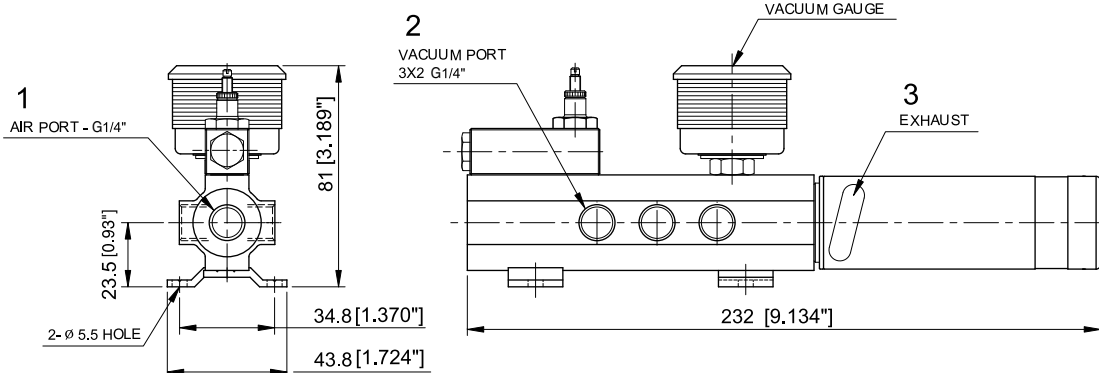
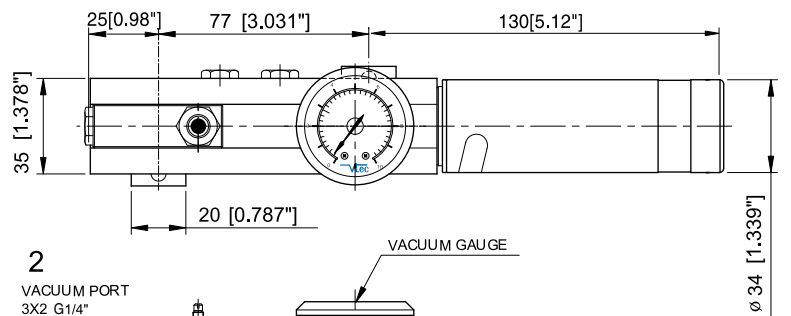
VCM8 42 : M8-4Pin female connector



Measure unit : mm [in]

Standard

▼ Series VS 146.. / VLS 146..



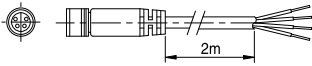
Measure unit : mm [in]

Dimensional Information

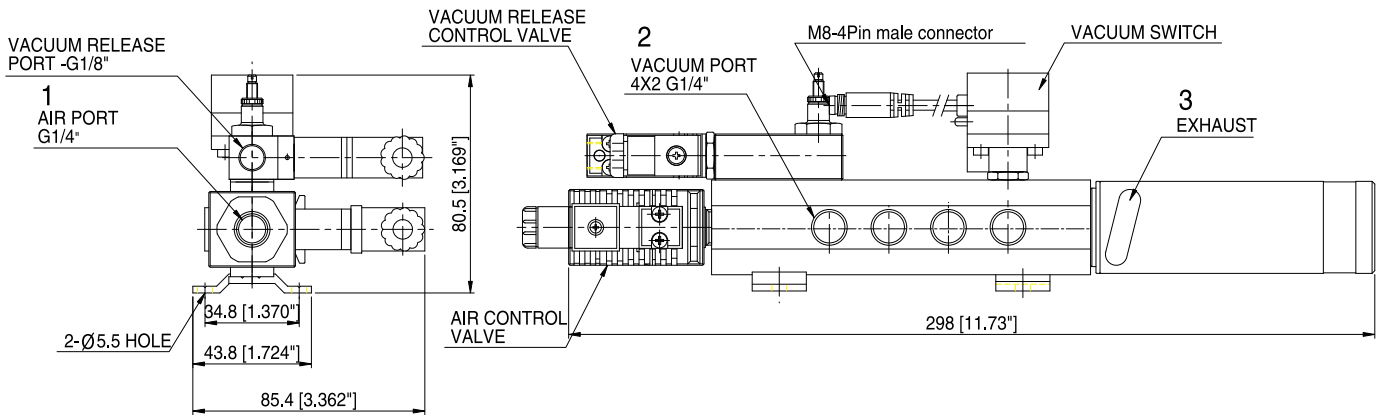
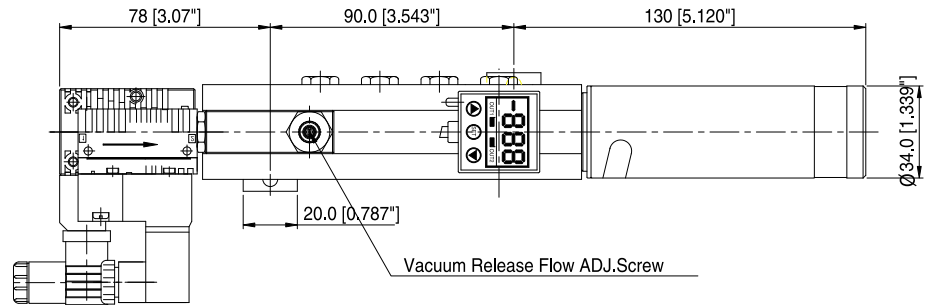
With Vacuum control valve, Vacuum release control valve and Digital Vacuum Switch

▼ Series VS 148.. / VLS 148..

OPTION



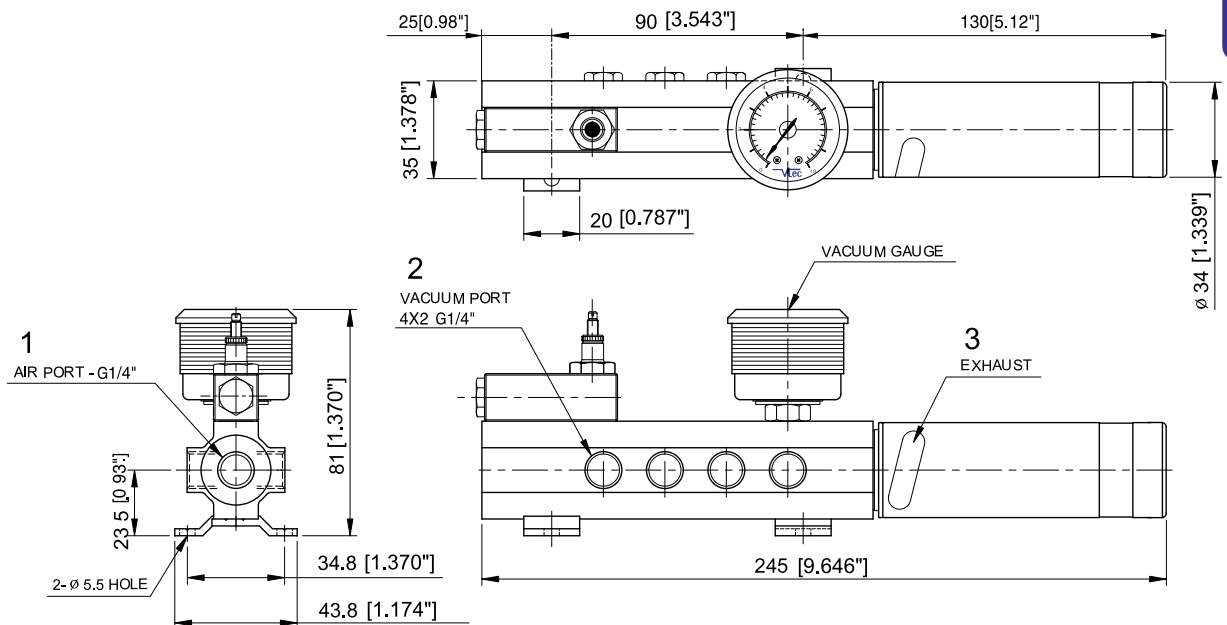
VCM8 42 : M8-4Pin female connector



Measure unit : mm [in]

Standard

▼ Series VS 148.. / VLS 148..



Measure unit : mm [in]

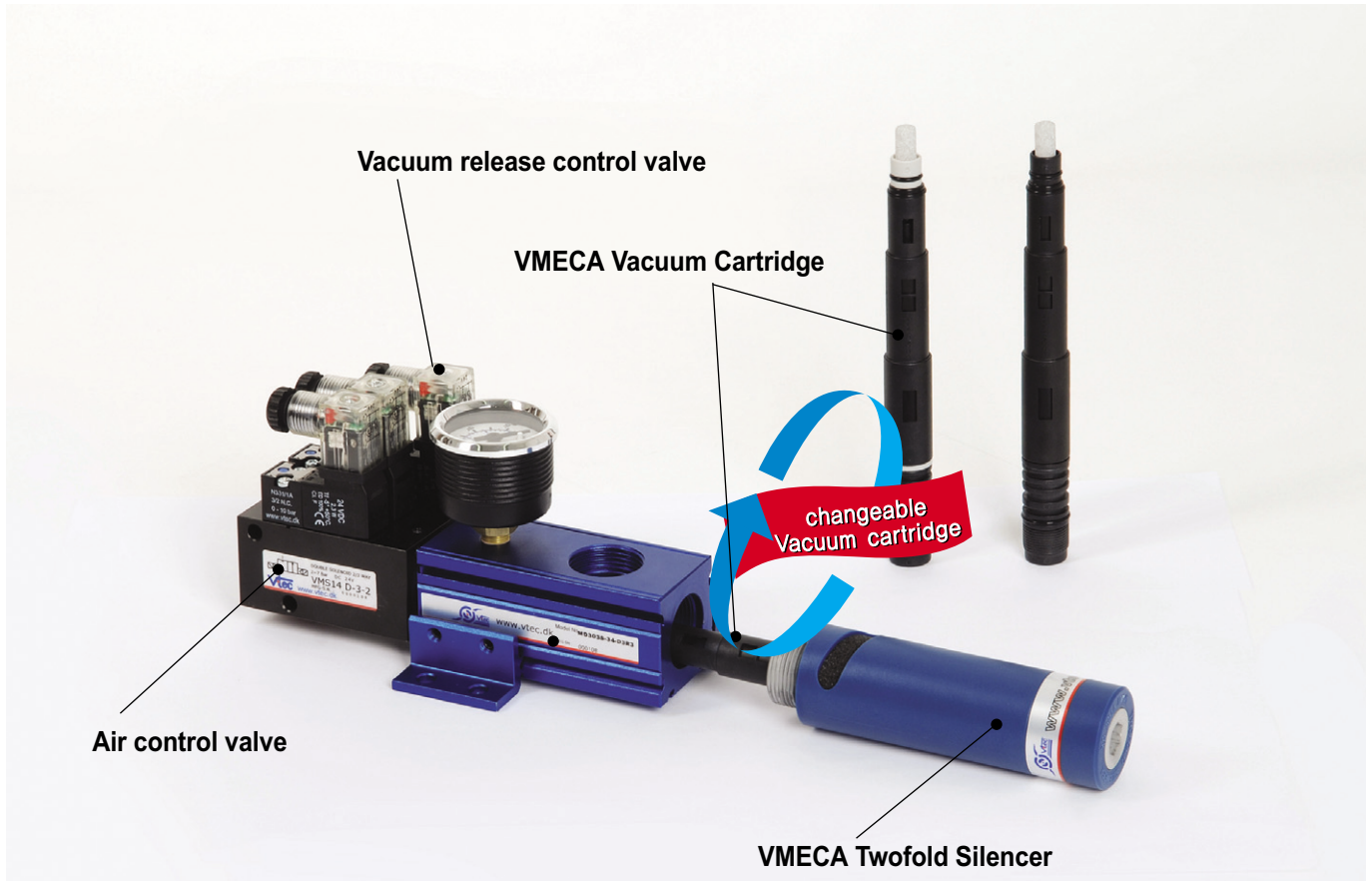
VACUUM PUMPS



MD-PUMPS



Enable to decide the series of VMECA MD-PUMP the performance you need.



► MD Series

High vacuum level (-93 kPa) at low compressed inlet air pressure (3~6 bar).

High vacuum flow rate to compensate for fluctuating or low compressed air pressure.

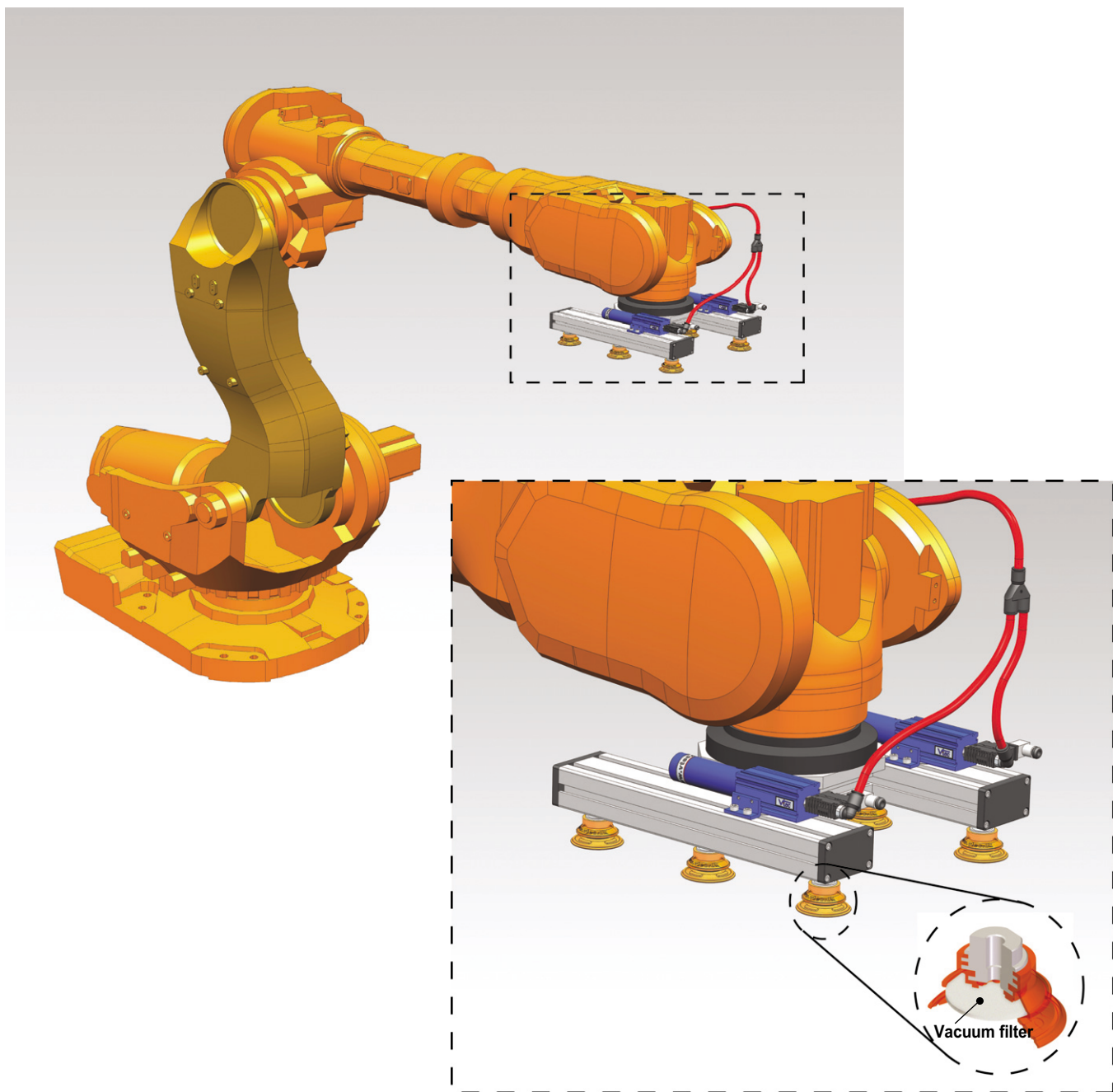
Suitable for sealed system applications such as lifting metal sheets of glass plate.

► MDL Series

Vacuum level (-75 kPa) at general inlet air pressure. (6 bar)

Extra high vacuum flow rate and suitable for non-sealed system application.

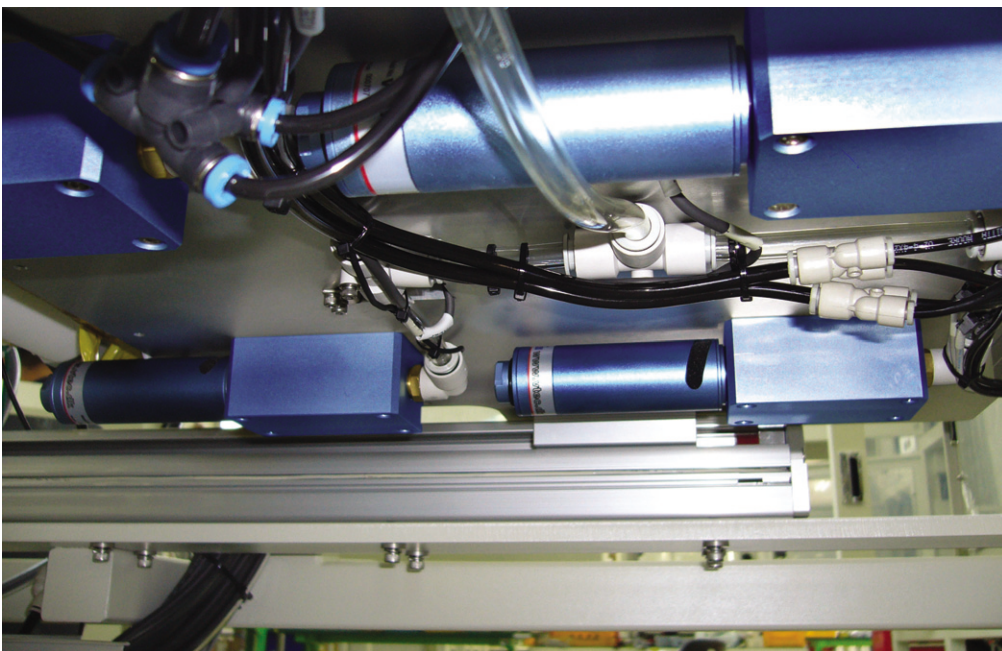
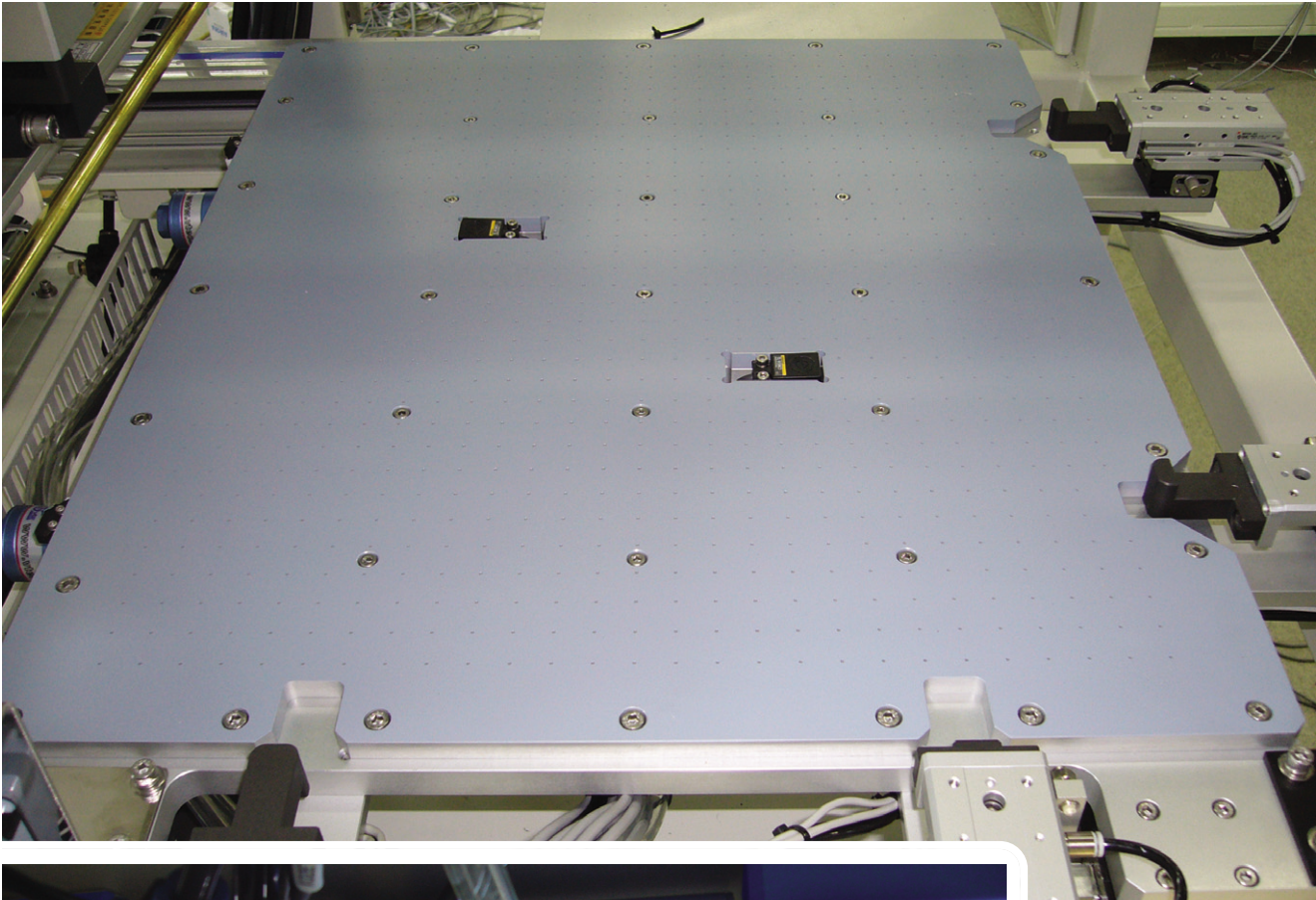
APPLICATIONS



VACUUM PUMPS

Lightweight design of the VMECA MD-PUMP reduces the robot size requirement through direct mount on a robot-controlled gripper and improves the production time mounted close to the point of use.

APPLICATIONS



▲ Circuit Board holding plate

MD-Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 341 NI/min (12.04 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 97~152 NI/min (3.43~5.37 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main Advantages

- Located at or near the point of use thus reducing system volume, increase and reducing cycle time
- Compact in size and light weight
- Maintain vacuum despite fluctuations and drops in air pressure
- VMECA TWOFOLD SILENCER^{PT} assures low noise levels (about 30% lower than conventional silencer)
- Adjustable exhaust direction
- Optional Air-saving kit (AS-KIT) available to minimize energy consumption.
- Optional factory installed air control / vacuum release valves and digital vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge (save the maintenance time)

Order No.

MD 303 S - 34 AS A3 R3 - CL A - S2 - N V
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Model

- **MD 303** - 3 stage nozzle
- MD 302 - 2 stage nozzle

② Exhaust type

- **S*** - Twofold Silencer
 - P - G3/8" port
- *S : Only for MD303..

③ Vacuum port

- **34** - G3/4"
 - H22* - Ø22 Hole
- * H22 : For direct installation

④ Air saving kit (108)

- No mark - Standard
- **AS** - Air saving kit

⑤ Voltage of air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - DC24V
- D1* - AC110V
- D2* - AC220V
- D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑦

⑥ Voltage of vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑦ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve
※ Remark
 CL : Available only with DC24V
 3B : Available only with DC24V
 Available only with 'S2' or 'S2P', section ⑨
☞ About 'BUS cable' (340, 341)

⑧ Vacuum release flow adjust

- No mark - Standard
- **A** - Attached

⑨ Vacuum switch

- No mark - Vacuum gauge.
- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.
- SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)
↳ Output type :PNP open collector
 ② VCM8 42 : M8-4Pin connector wire.
 Only for type S2 or S2(P).

⑩ Non-return valve

- No mark - Standard
- **N** - Non-return valve.

⑪ Sealing

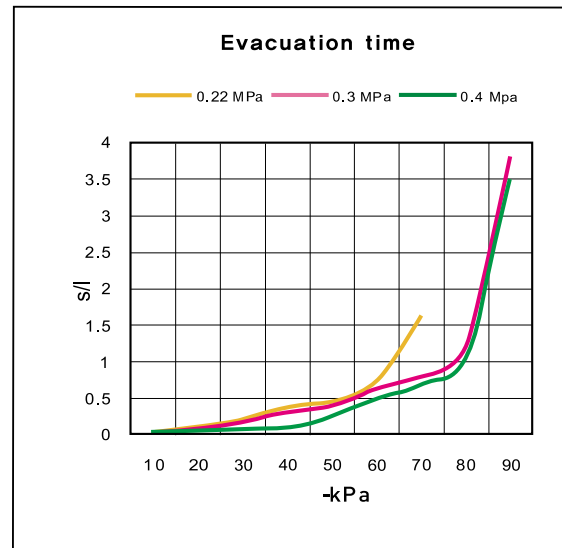
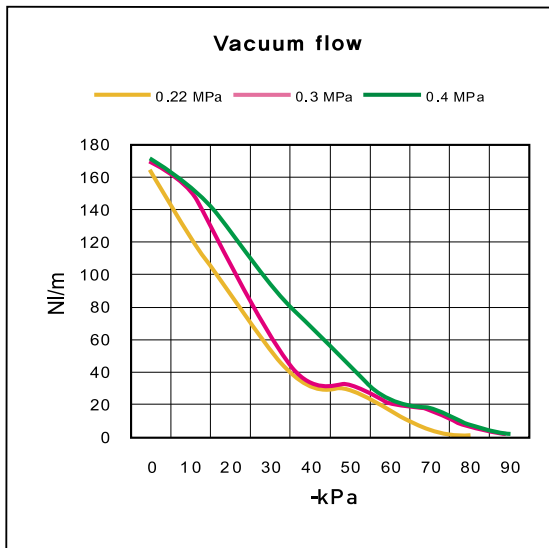
- No mark - Standard
- **V** - Viton®
- E - EPDM

Performance Data

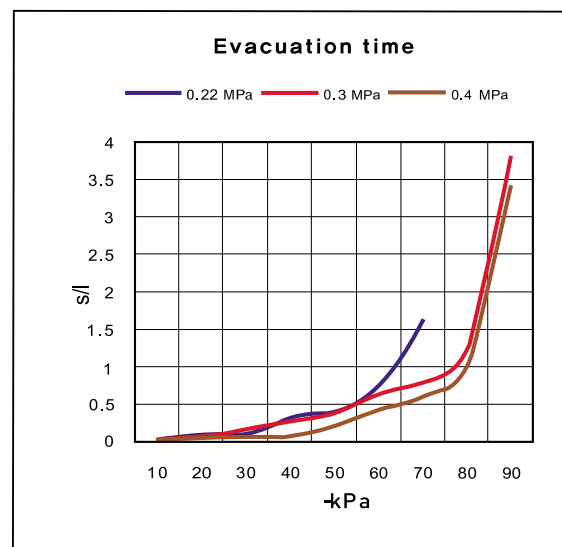
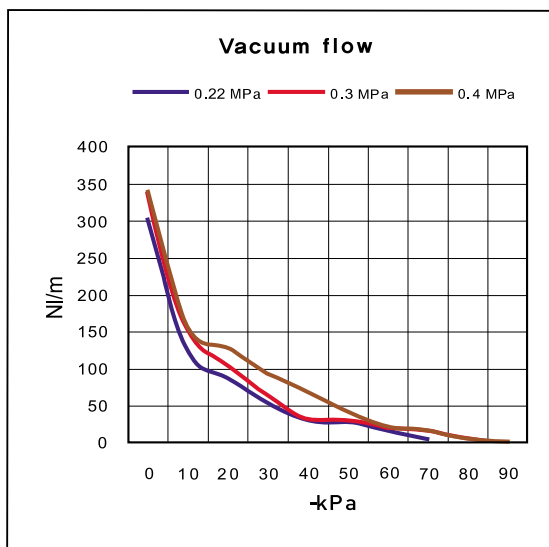
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
MD 302..	75	0.22	164	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	170	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	171	154	127.5	94	69	43	23.3	17.3	6.9	2.1
MD 303..	75	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
MD 302..	0.22	97	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-	
	0.3	118	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8	
	0.4	152	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5	
MD 303..	0.22	97	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-	
	0.3	118	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8	
	0.4	152	0.01	0.048	0.07	0.09	0.2	0.42	1.6	1	3.4	

▼ MD-302..



▼ MD-303..



MDL-Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 362 NI/min (12.79 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 70~104 NI/min (2.47~3.67 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~60 dBA



Main Advantages

- Located at or near the point of use thus reducing system volume, increase and reducing cycle time
- Compact in size and light weight
- Maintain vacuum despite fluctuations and drops in air pressure
- VMECA TWOFOLD SILENCER^{PT} assures low noise levels (about 30% lower than conventional silencer)
- Adjustable exhaust direction
- Optional Air-saving kit (AS-KIT) available to minimize energy consumption.
- Optional factory installed air control / vacuum release valves and digital vacuum switch available.
- Easily mountable and interchangeable vacuum cartridge (save the maintenance time)

Order No.

MDL 303 S - 34 AS A3 R3 - CL A - S2 - N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Model

- **MDL 303** - 3 stage nozzle
- MDL 302 - 2 stage nozzle

② Exhaust type

- **S*** - Twofold Silencer
- P - G3/8" port

*S : Only for MDL303..

③ Vacuum port

- **34** - G3/4"
- H22* - Ø22Hole

* H22 : For direct installation

④ Air saving kit (108)

- No mark - Standard
- **AS** - Air saving kit

⑤ Voltage of air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - DC24V
- D1* - AC110V
- D2* - AC220V
- D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑦

⑥ Voltage of vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑦ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve
 ※ Remark
 CL : Available only with DC24V
 3B : Available only with DC24V
 Available only with 'S2' or 'S2P', section ⑨
 ☞ About 'BUS cable' (340, 341)

⑧ Vacuum release flow adjust

- No mark - Standard
- **A** - Attached

⑨ Vacuum switch

- No mark - Vacuum gauge.
- **S2(P)** - Digital display output 2points, No analog supply M8-4Pin Connector type 0.3m lead wire.
- SG2(P) - Digital display output 2 points, No analog supply Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital display output 2 points, Analog supply Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)
 ↳ Output type :PNP open collector
 ② VCM8 42 : M8-4Pin connector wire.
 Only for type S2 or S2(P).

⑩ Non-return valve

- No mark - Standard
- **N** - Non-return valve.

⑪ Sealing

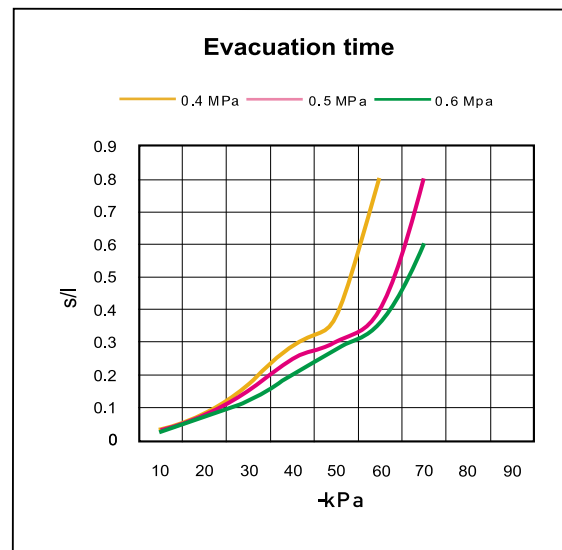
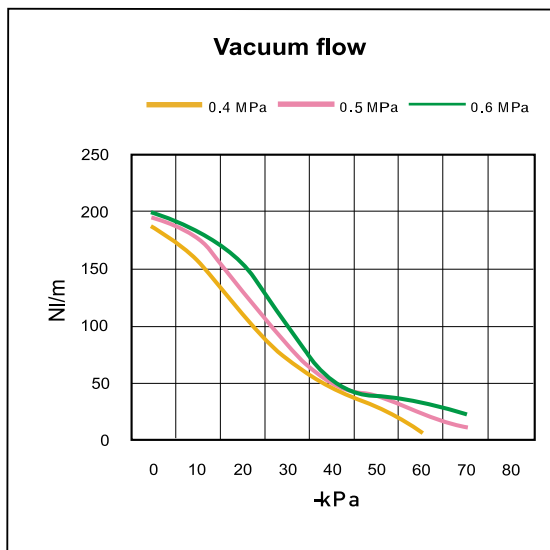
- No mark - Standard
- **V** - Viton®
- E** - EPDM

Performance Data

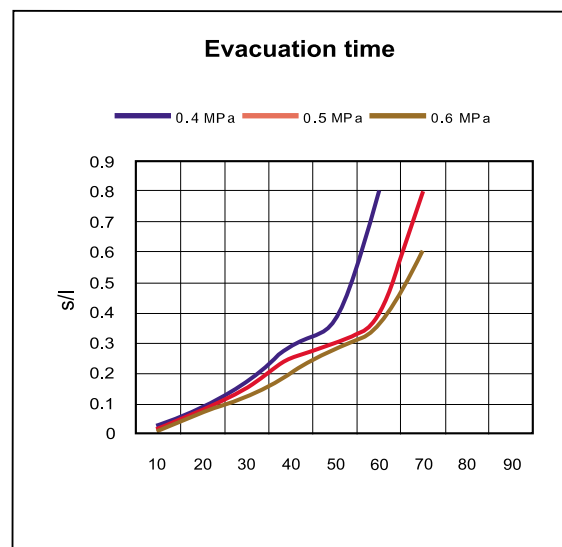
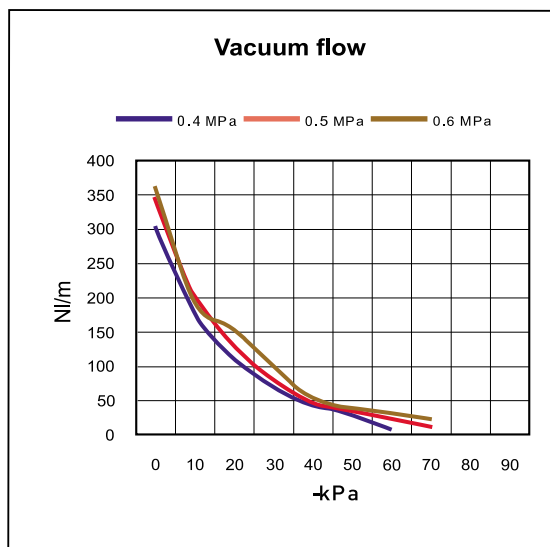
Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)									
			0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
MDL 302..	60	0.4	188	158	110	70	46	28	6.8	-	-	-
	70	0.5	195	176	130	82	50	37.5	23	11.3	-	-
	75	0.6	200	183	154	100	52	38	32	22	-	-
MDL 303..	60	0.4	302	176	110	70	46	28	6.8	-	-	-
	70	0.5	344	200	130	82	50	37.5	23	11.3	-	-
	75	0.6	362	194	154	100	52	38	32	22	-	-

Model	Feed pressure (MPa)	Air consumption (NI/min)	Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)									
			10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)	
MDL 302..	0.4	70	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-	
	0.5	85	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	0.6	104	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-	
MDL 303..	0.4	70	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-	
	0.5	85	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	0.6	104	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-	

▼ MDL-302..



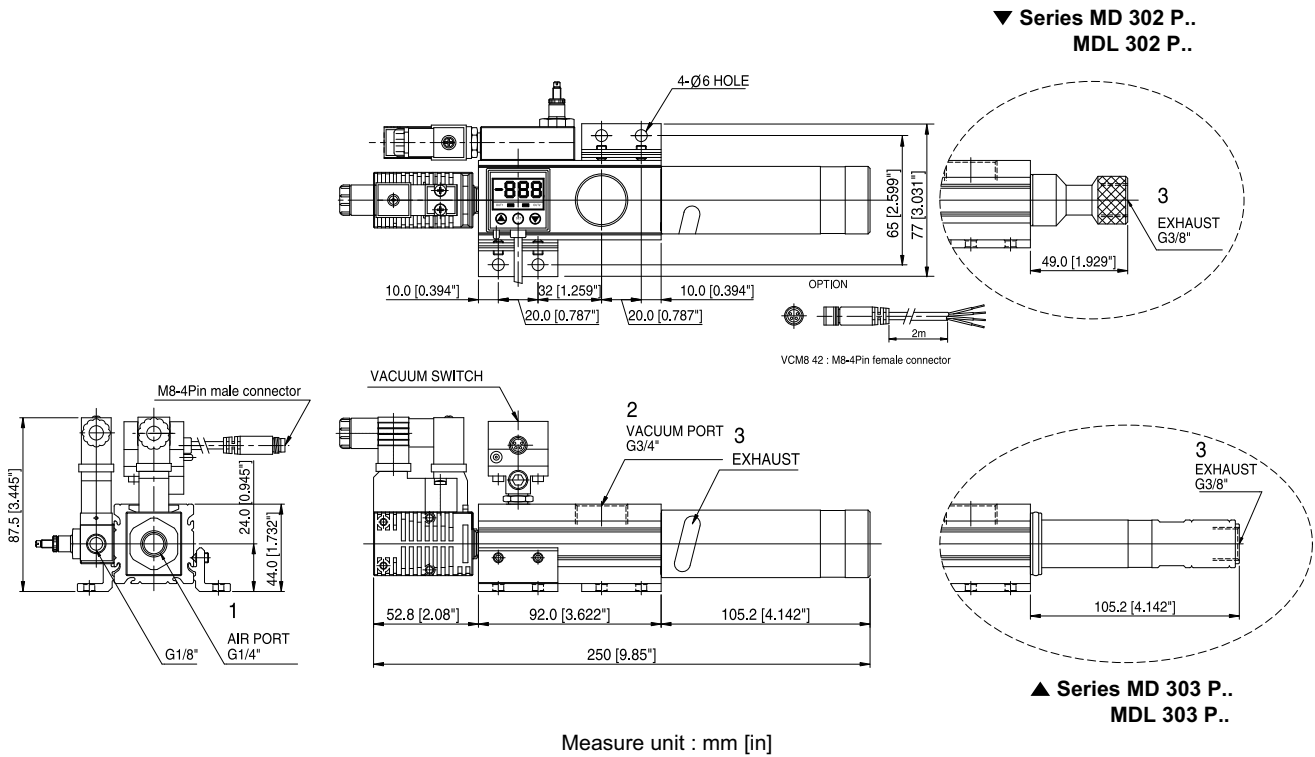
▼ MDL-303..



Dimensional Information

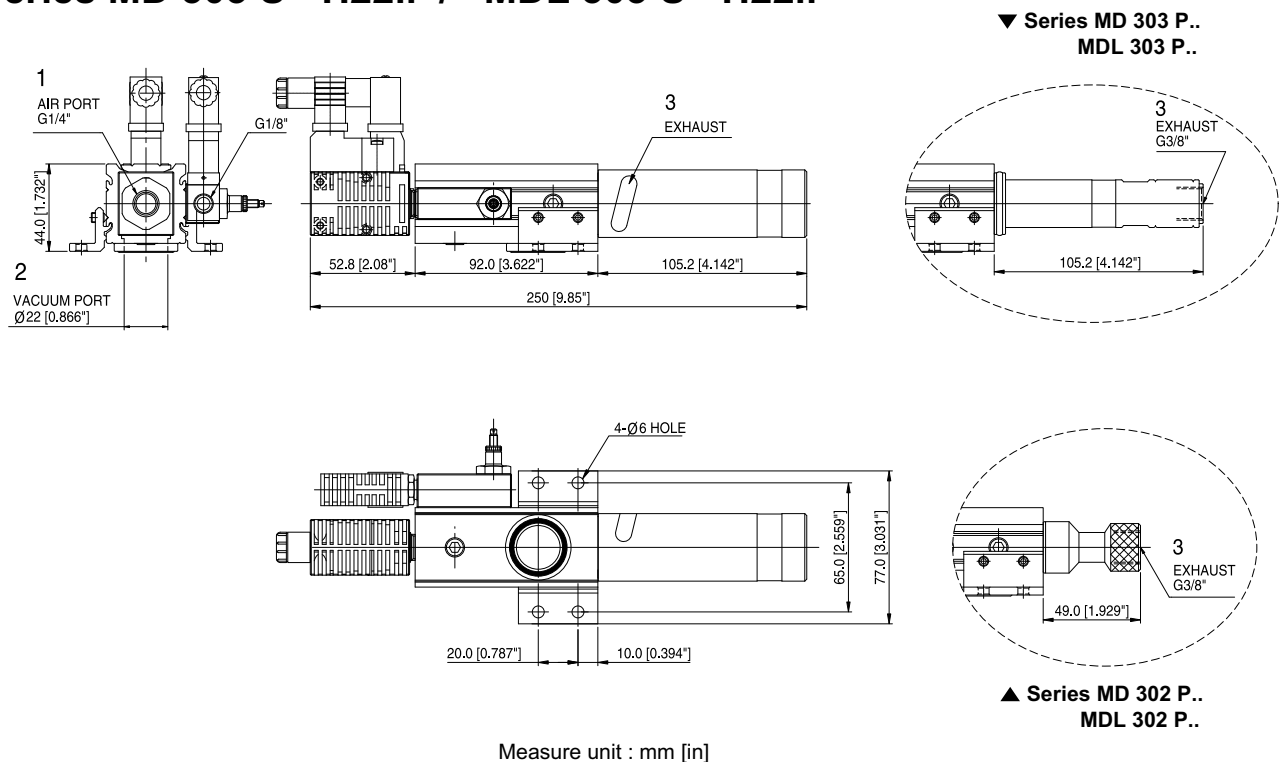
With Air Control valve, Vacuum Release Control valve and Digital Vacuum Switch

▼ Series MD 303 S - 34.. / MDL 303 S - 34..



With Air Control valve, Vacuum Release Control valve

▼ Series MD 303 S - H22.. / MDL 303 S - H22..

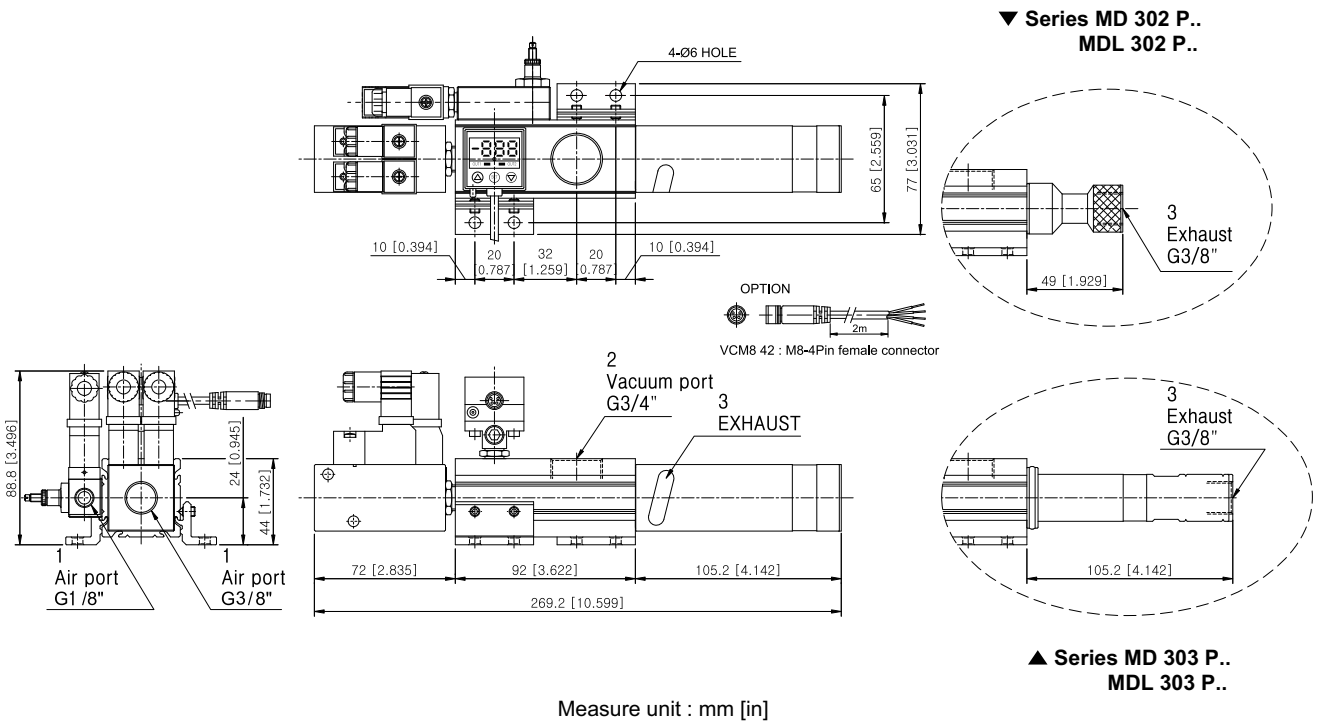


VACUUM PUMPS

Dimensional Information

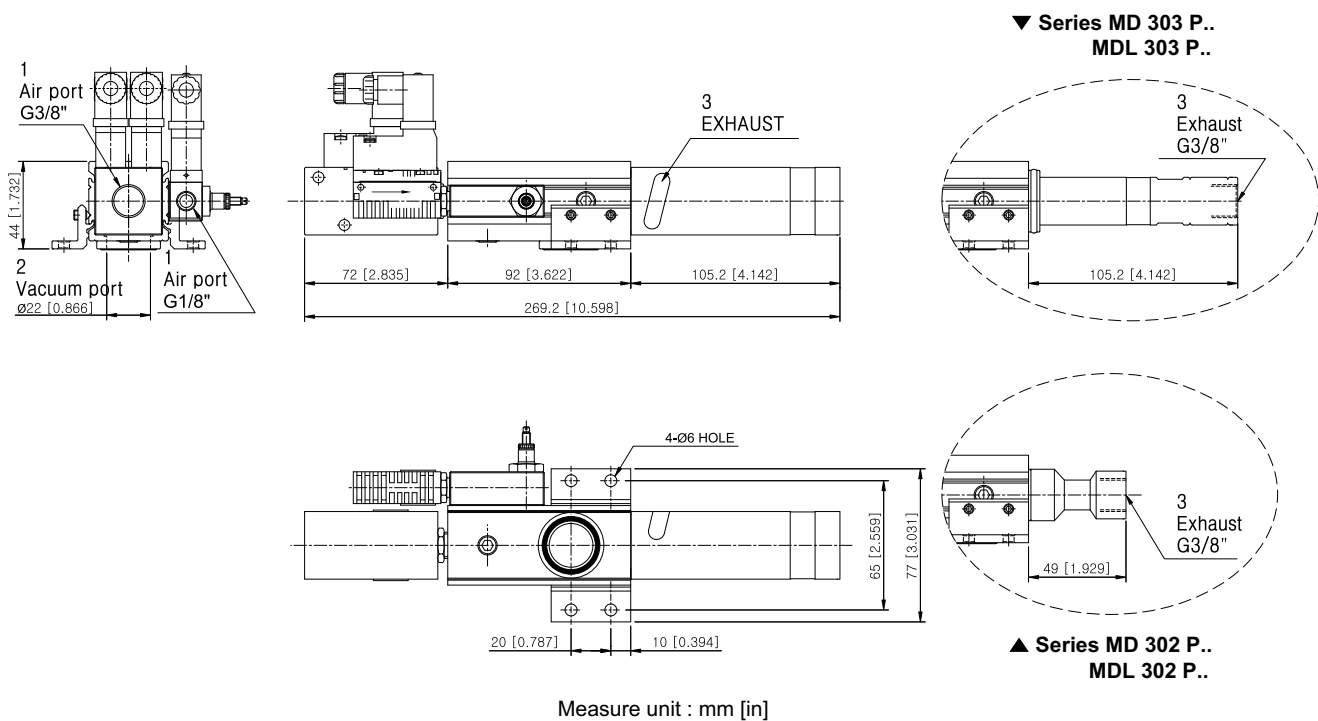
With Air Control valve (Double sol.type), Vacuum Release Control valve and Digital Vacuum Switch

▼ Series MD 303 S - 34.. / MDL 303 S - 34..



With Air Control valve (Double sol.type), Vacuum Release Control valve

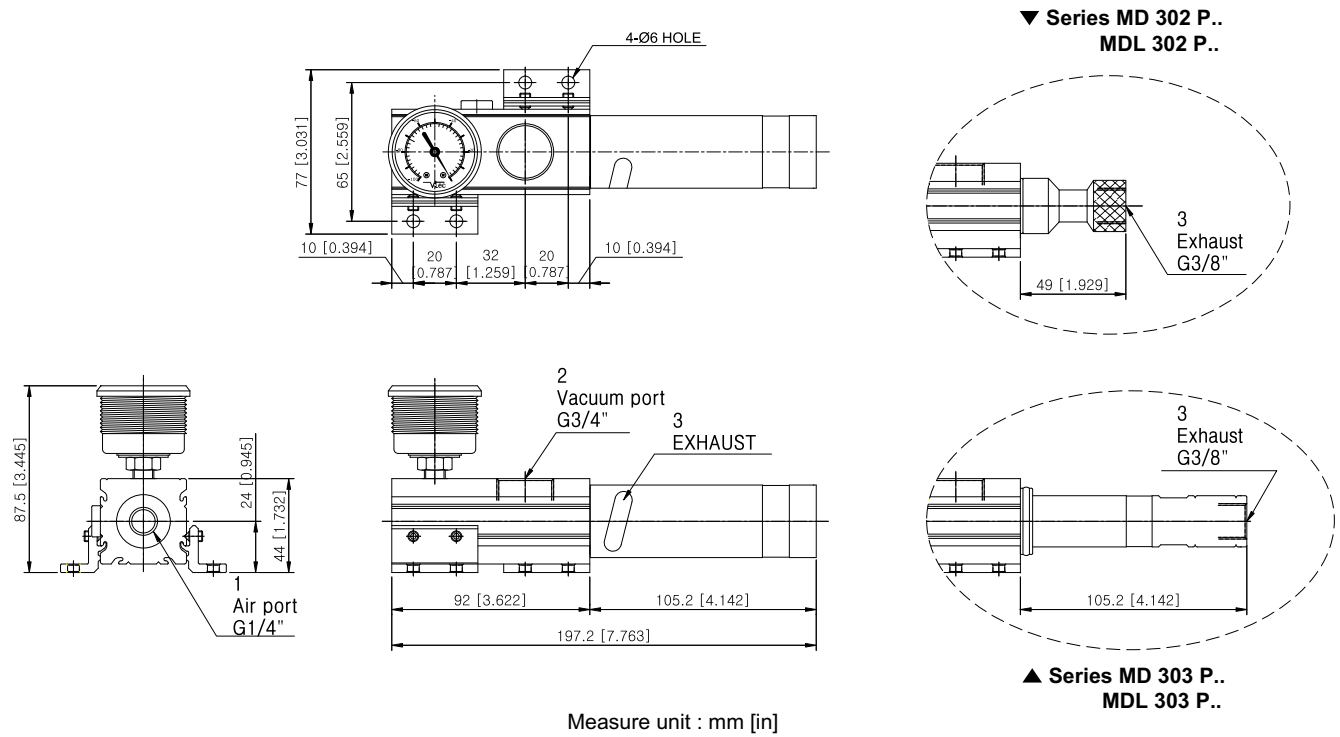
▼ Series MD 303 S - H22.. / MDL 303 S - H22..



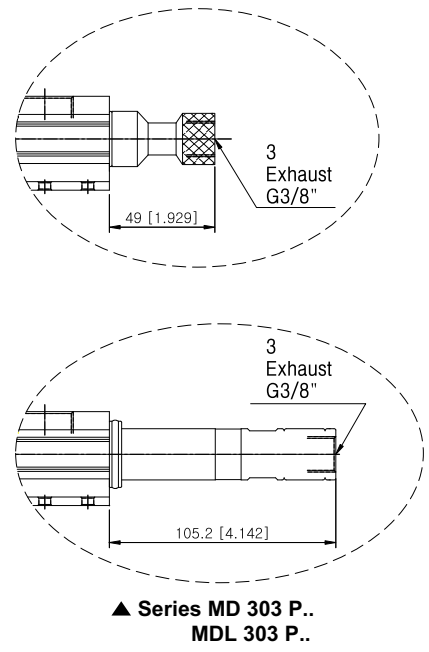
Dimensional Information

Standard

▼ Series MD 303 S - 34.. / MDL 303 S - 34..

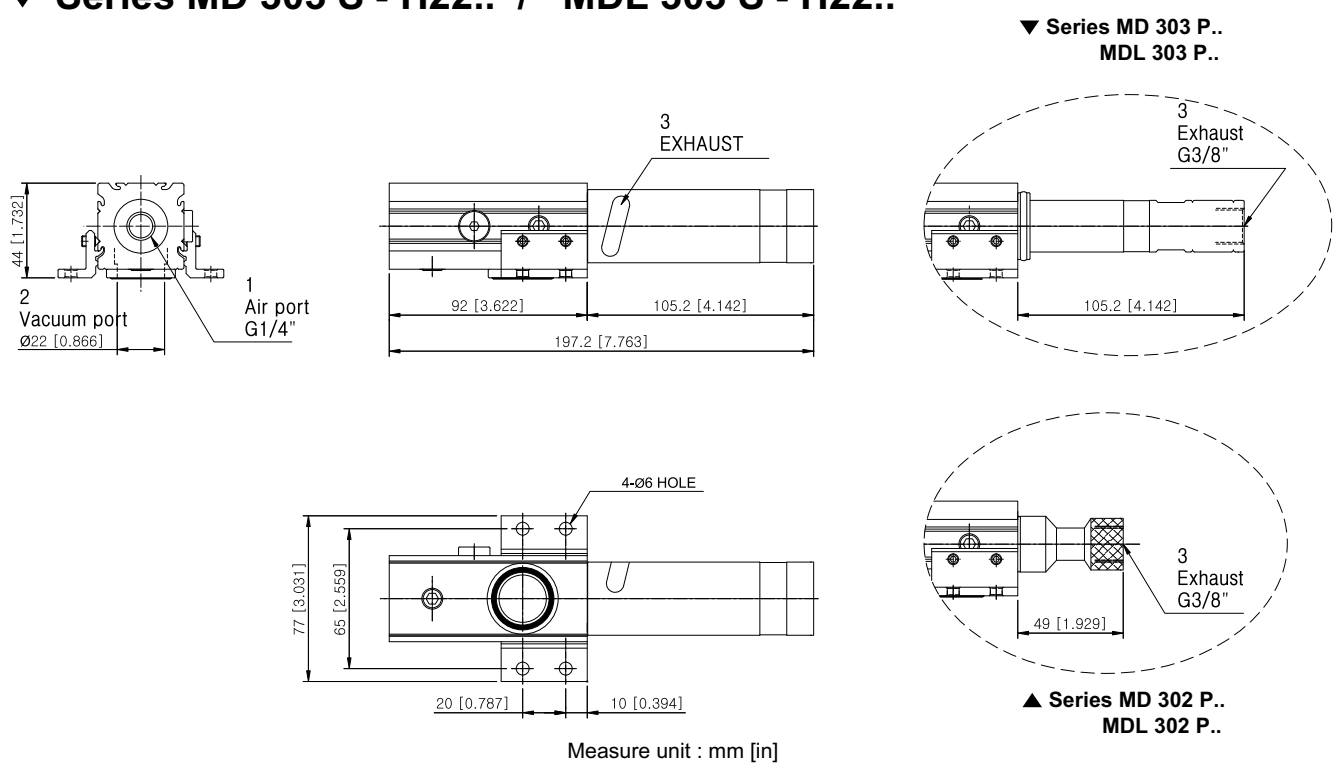


▼ Series MD 302 P.. / MDL 302 P..

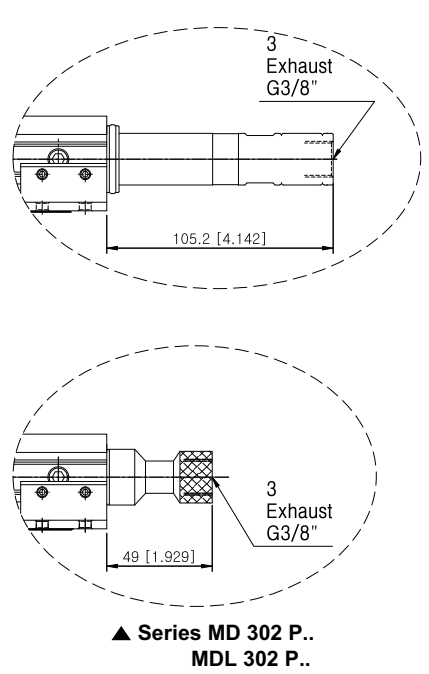


Standard

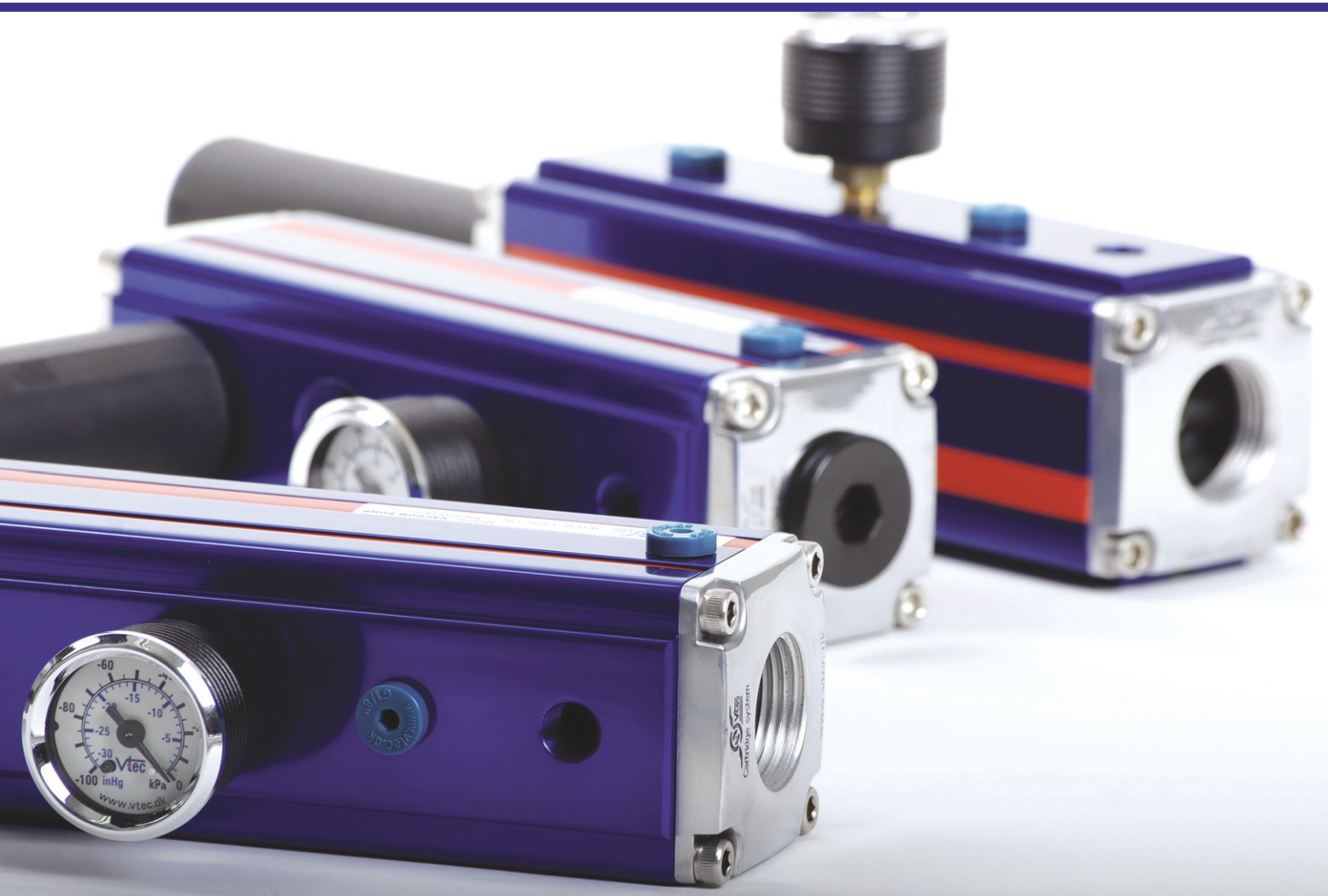
▼ Series MD 303 S - H22.. / MDL 303 S - H22..



▼ Series MD 303 P.. / MDL 303 P..



VACUUM PUMPS



PREMIUM PUMPS



Choose the VMECA PREMIUM PUMP that is right for your application.



► **PM Series**

High vacuum level (-93 kPa) at low compressed air pressure (3~6 bar).

High vacuum flow rate despite fluctuating or low compressed air pressure.

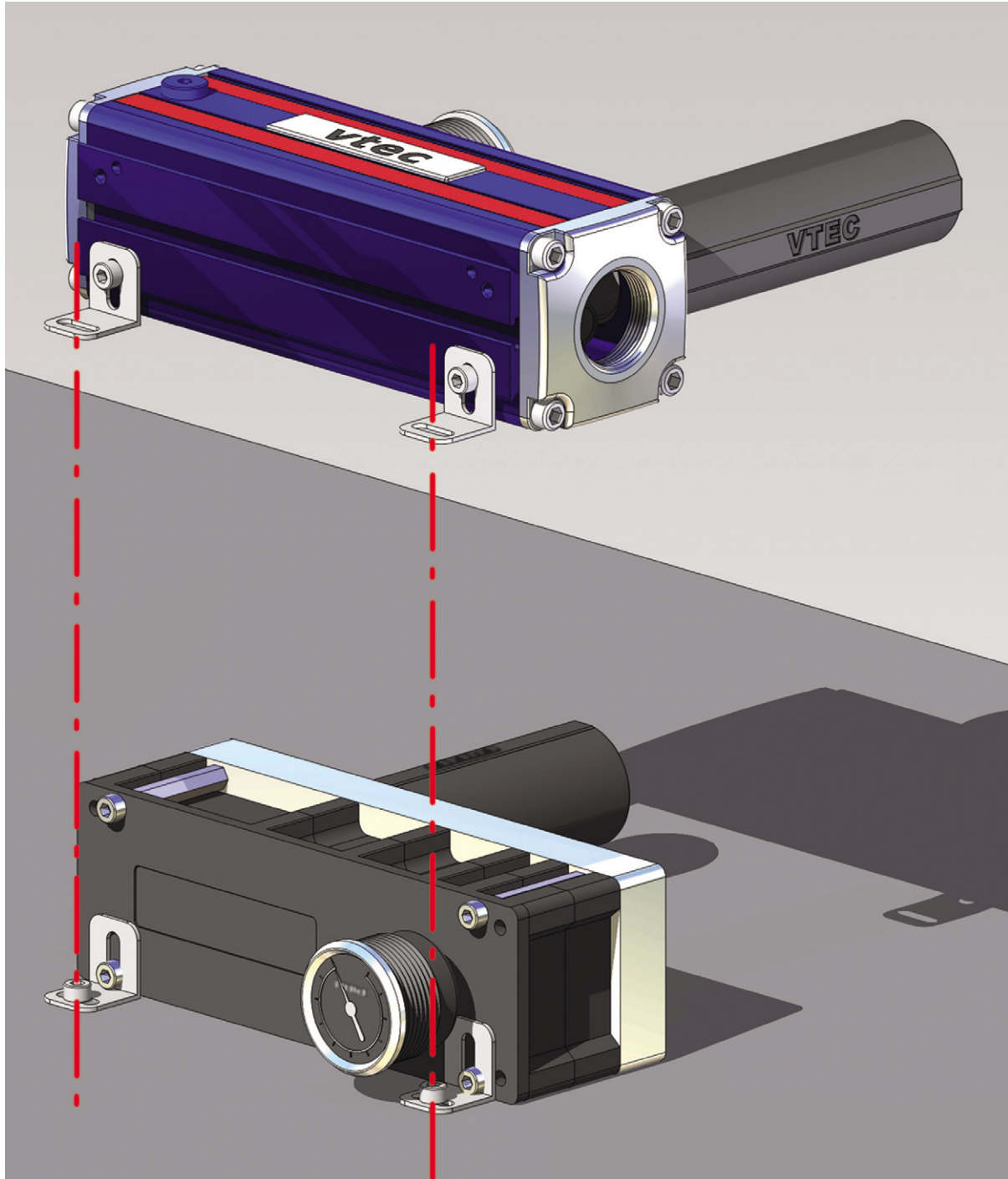
Suitable for sealed system applications such as lifting metal sheets or glass plate.

► **PML Series**

Extra high vacuum flow rate and suitable for non-sealed system applications.

Vacuum level of -75 kPa at a compressed air pressure of 6 bar.

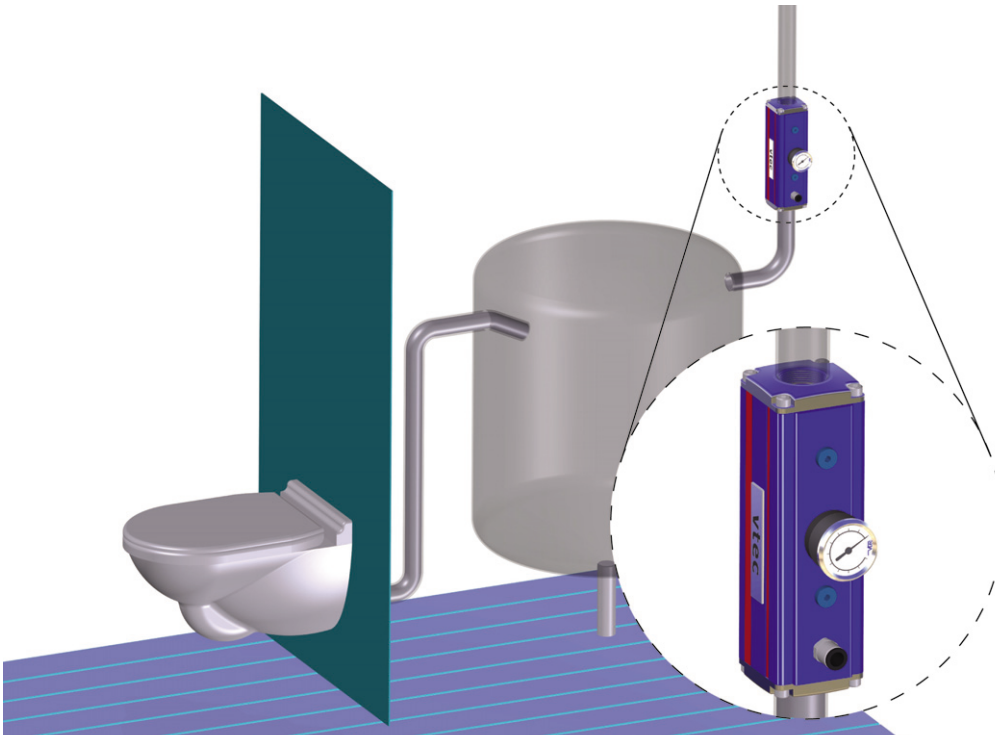
APPLICATIONS



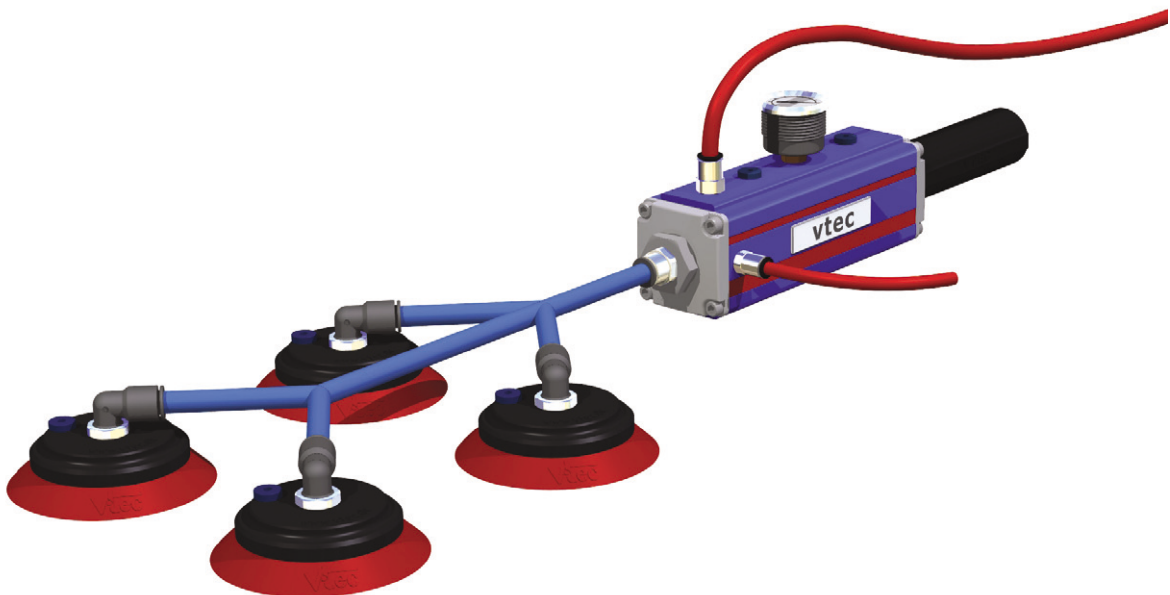
The VMECA PREMIUM VACUUM PUMP can directly replace a Classic Vacuum Pump without changing mounting holes or brackets.

VACUUM PUMPS

APPLICATIONS



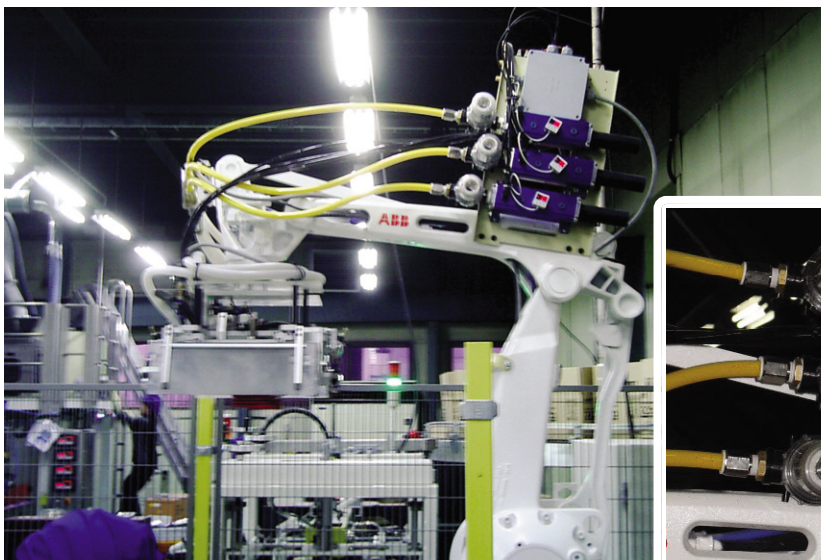
The VMECA PREMIUM VACUUM PUMP can be mounted directly in-line to save space and is suitable for applications requiring high suction flows or evacuation of large volumes of air (i.e. vacuum chamber)



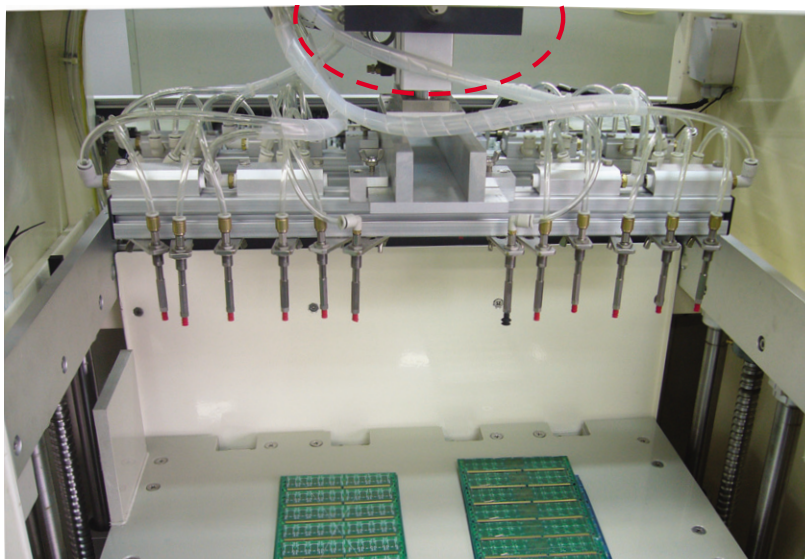
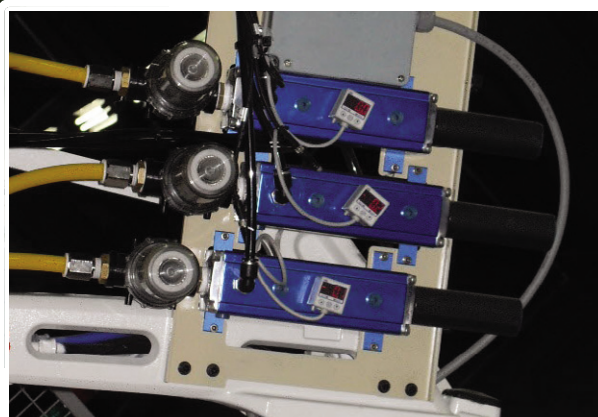
Despite fluctuations and drops in air pressure, the PREMIUM PUMP maintains a high flow rate along with a high and stable vacuum level eliminating lost or interrupted cycles.

This pump is excellent for non-sealed system applications or where large suction cups are used.

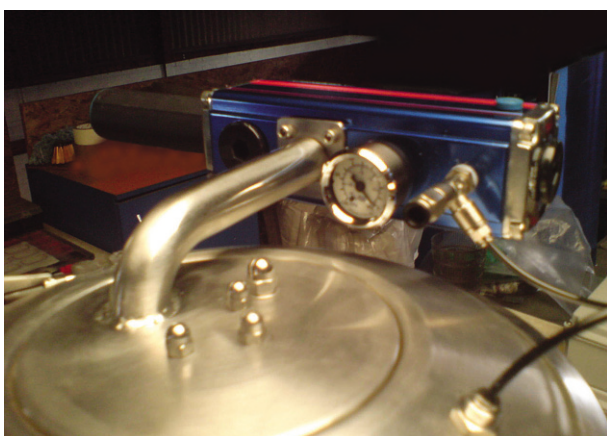
APPLICATIONS



▲ Robot Arm



▲ Circuit board loading



◀ Vacuum conveyor

VACUUM PUMPS

PM-Series

- Max. vacuum level : -93 kPa (-27.46 inHg)
- Max. flow rate : 341~1364 NI/min (12.04~48.17 scfm)
- Supply air pressure : 3 ~ 6 bar, max 7 bar
(43.5~87 psi, max 101.5 psi)
- Air consumption : 97~608 NI/min (3.43~21.47 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 60~65 dBA



Main Advantages

- Maintains vacuum despite fluctuations and drops in air pressure.
- Various connection ports available.
- Fast evacuation time.
- Optional Air-Saving Kit (AS-KIT) available to minimize energy consumption.
- Optional factory installed air control / vacuum release valves and digital vacuum switches available.
- Strong aluminum body.
- Easily mountable and maintainable with interchangeable vacuum cartridge.

Order No.

PM 303X1 A - 34 - B1 - AS - A3 R3 - CL - S2 N V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Model (Vacuum flows)

- **PM303 X 1** - 341 NI/min
- PM303 X 2 - 682 NI/min
- PM303 X 3 - 1023 NI/min
- PM303 X 4 - 1364 NI/min

② Body type

- **A** - Vacuum port on side
- B - Vacuum port on top & side

③ Vacuum port

- **34*** - G3/4"
- 01 - G1"

* 34 : Body type B is available only with vacuum port 34

④ Mounting bracket

- No mark - Not included
- **B1** - 4 Point support
- B2 - 2 Point L-type

⑤ Air saving kit (108)

- No mark - Not included
- **AS** - Air saving kit

⑥ Voltage of air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - DC24V
- D1* - AC110V
- D2* - AC220V
- D3* - DC24V

* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑧

⑦ Voltage of vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑧ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V

3B : Available only with DC24V

Available only with 'S2' or 'S2P', section ⑨

☞ About 'BUS cable' (340, 341)

⑨ Vacuum switch

No mark - Vacuum gauge attached

- **S2(P)** - Digital output 2 points, No analog supply. M8-4Pin male connector. (0.3m lead wire)
- SG2(P) - Digital output 2 points, No analog supply. Grommet type 4-Core 2m lead wire
- SG3(P) - Digital output 2 points, Analog supply. Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire. Only for type S2 or S2(P).

⑩ Non-return valve

No mark - Not included

- **N** - Non-return valve

⑪ Sealing

No mark - NBR

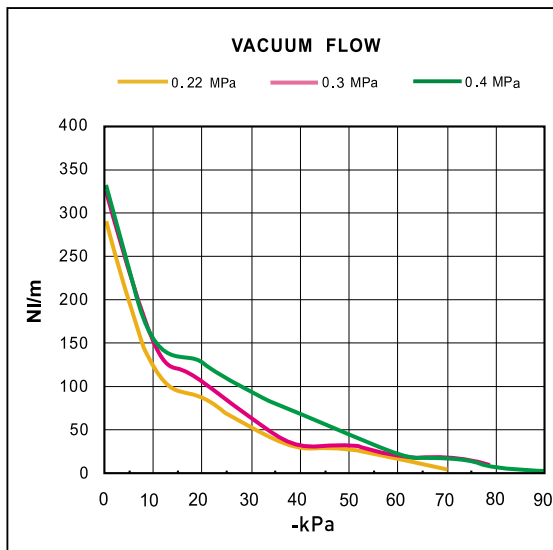
- **V** - Viton®
- E - EPDM

Performance Data

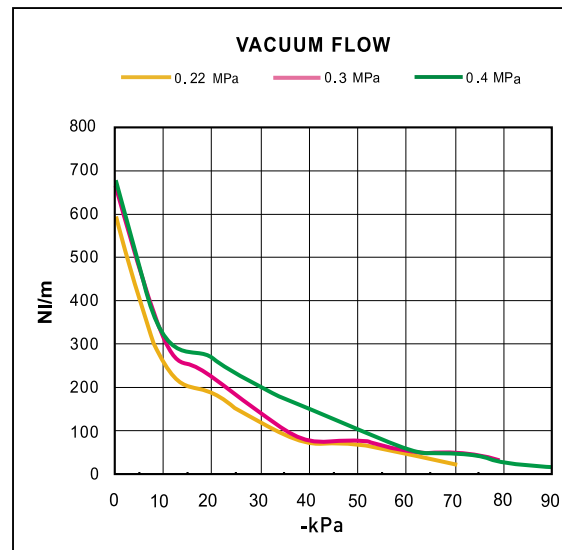
Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)

Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
PM 303X1..	75	0.22	302	122.5	88	53	31.4	28.5	16.5	4.6	-	-
	93	0.3	338	152	106	64	33	32	22	16.5	6.4	1.9
	93	0.4	341	154	127.5	94	69	43	23.3	17.3	6.9	2.1
PM 303X2..	75	0.22	604	245	176	106	62.8	57	33	9.2	-	-
	93	0.3	676	304	212	128	66	64	44	3.3	12.8	3.8
	93	0.4	682	308	255	188	138	86	46.6	34.6	13.8	4.2
PM 303X3..	75	0.22	902	368	264	159	94	86	50	14	-	-
	93	0.3	1014	456	318	192	99	96	66	50	19	6
	93	0.4	1023	462	383	282	207	129	70	52	21	6.3
PM 303X4..	75	0.22	1208	490	352	212	126	114	66	18	-	-
	93	0.3	1352	608	424	256	132	128	88	66	26	7.6
	93	0.4	1364	616	510	376	276	172	93	69	28	8.4

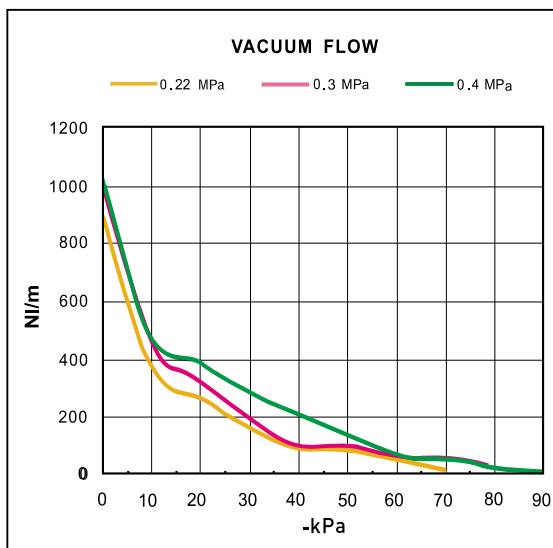
▼ PM 303 X1 ..



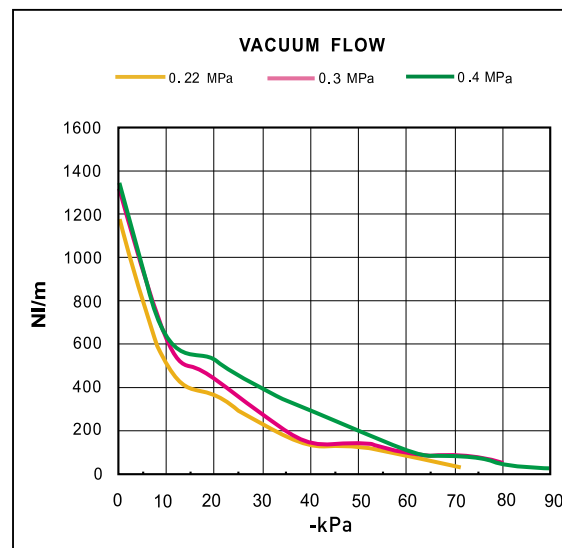
▼ PM 303 X2 ..



▼ PM 303 X3 ..



▼ PM 303 X4 ..



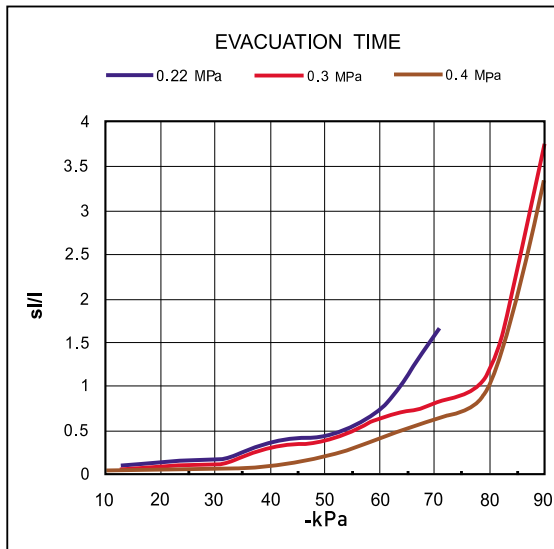
VACUUM PUMPS

Performance Data

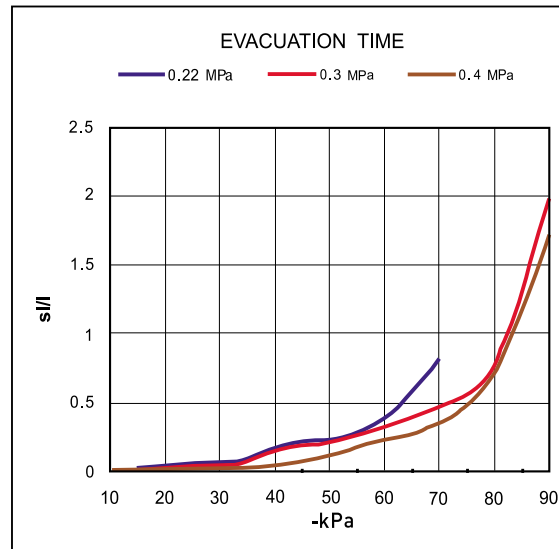
Time, s/l, to evacuate a volume to different vacuum levels -kPa (-mmHg)

Model	Feed pressure (MPa)	Air consumption (NI/min)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
PM 303X1..	0.22	97	0.019	0.009	0.16	0.32	0.42	0.73	1.62	-	-
	0.3	118	0.015	0.07	0.1	0.28	0.38	0.64	0.8	1.2	3.8
	0.4	158	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
PM 303X2..	0.22	194	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	0.3	236	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98
	0.4	304	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
PM 303X3..	0.22	291	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	0.3	354	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	0.4	456	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
PM 303X4..	0.22	388	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	0.3	472	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95
	0.4	608	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85

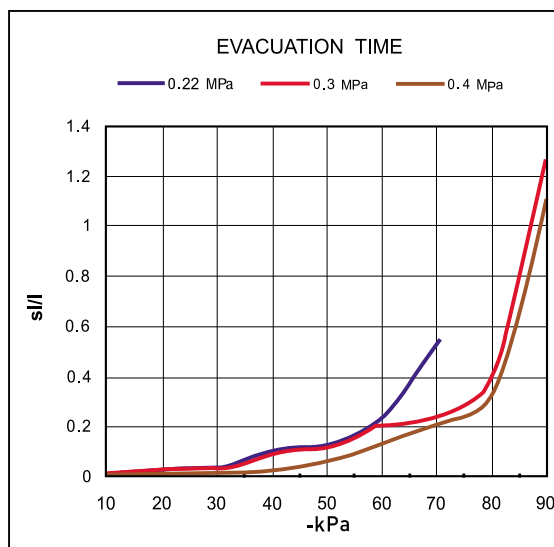
▼ PM 303 X1 ..



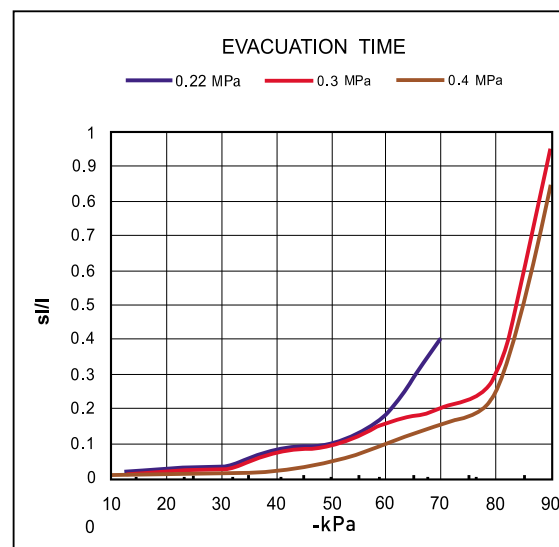
▼ PM 303 X2 ..



▼ PM 303 X3 ..



▼ PM 303 X4 ..

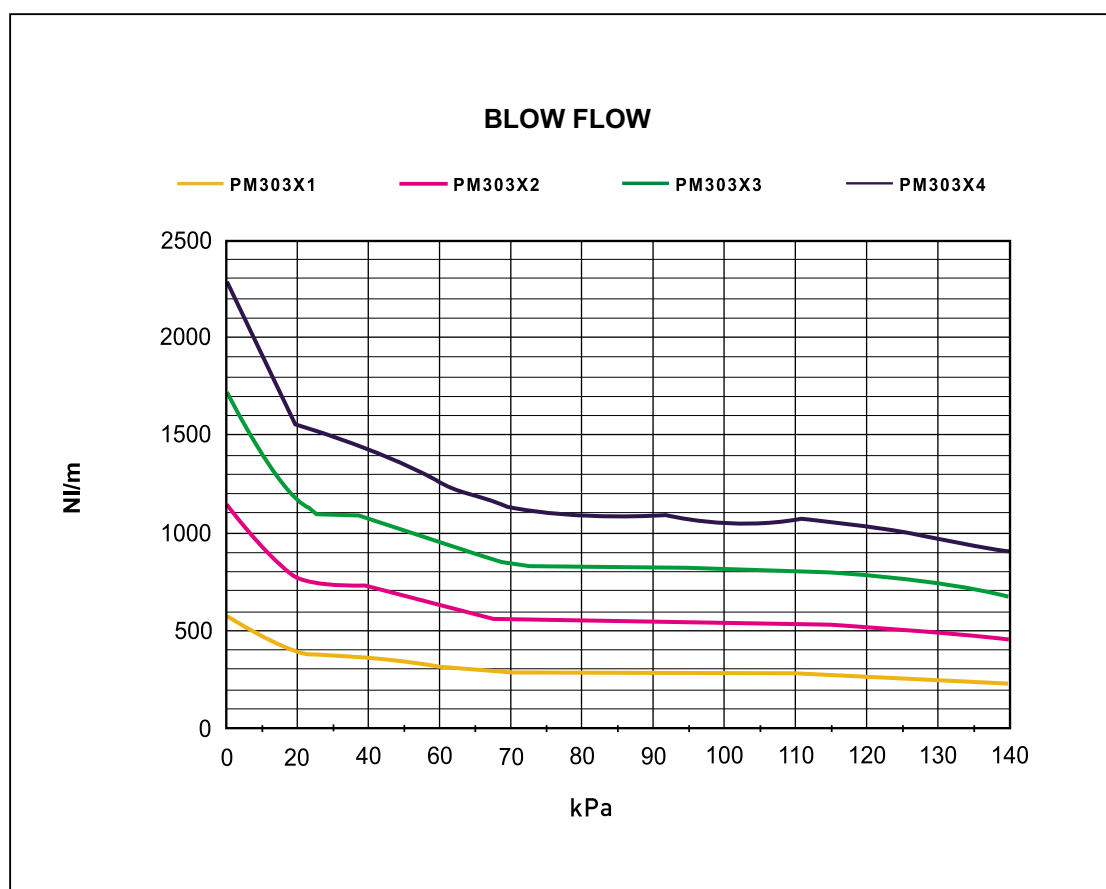


Performance Data

Blow flow, NI/min, at different internal pressure levels kPa (mmHg)

Model	Feed pressure (MPa)	Air consumption (NI/min)	0 (0)	20 (150)	40 (300)	60 (450)	70 (525)	80 (600)	90 (675)	100 (750)	110 (825)	120 (900)	130 (975)	140 (1050)
PM 303X1..	0.6	210	572	387	359	315	280	272	274	271	269	259	242	225
PM 303X2..	0.6	420	1144	774	718	630	560	544	548	542	538	518	484	450
PM 303X3..	0.6	630	1716	1161	1077	945	840	816	822	813	807	777	747	675
PM 303X4..	0.6	840	2288	1548	1436	1260	1120	1088	1096	1084	1076	1036	968	900

* Remark : Choose the 'A' body type (Vacuum port on side) for blowing function.



PML-Series

- Max. vacuum level : -75 kPa (-22.15 inHg)
- Max. flow rate : 362~1448 NI/min (12.78~51.14 scfm)
- Supply air pressure : 4 ~ 6 bar, max 7 bar
(58~87 psi, max 101.5 psi)
- Air consumption : 70~416 NI/min (3.43~21.47 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 60~65 dBA



Main Advantages

- Large vacuum flow rate yet low air consumption.
- Various connection ports available.
- Fast evacuation time.
- Optional Air-Saving Kit (AS-KIT) available to minimize energy consumption.
- Optional factory installed air control / vacuum release valves and digital vacuum switches available.
- Strong aluminum body.
- Easily mountable and maintainable with interchangeable vacuum cartridge.

Order No.

PML 303X1 A - 34 - B1 - AS - A3 R3 - CL - S2 N V
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Model (Vacuum flows)

- **PML303 X 1** - 362 NI/min
- PML303 X 2 - 724 NI/min
- PML303 X 3 - 1086 NI/min
- PML303 X 4 - 1448 NI/min

② Body type

- **A** - Vacuum port on side
- B** - Vacuum port on top & side

③ Vacuum port

- **34*** - G3/4"
- 01** - G1"

* 34 : Body type B is available only with vacuum port 34

④ Mounting bracket

- No mark - Not included
- **B1** - 4 Point support
- B2** - 2 Point L-type

⑤ Air saving kit (108)

- No mark - Not included
- **AS** - Air saving kit

⑥ Voltage of air supply control valve

- A1** - AC110V
- A2** - AC220V
- **A3** - DC24V
- D1*** - AC110V
- D2*** - AC220V
- D3*** - DC24V

* D. : Double solenoid valve is available only with 'DN' or 'DL', section ⑧

⑦ Voltage of vacuum release control valve

- R1** - AC110V
- R2** - AC220V
- **R3** - DC24V

⑧ Solenoid Terminal

- DN** - DIN type without lead wire
- DL** - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3 m lead wire
- 2B*** - DIN type with '2 in 1' BUS cable
(air control v/v + Vacuum release v/v)
- 3B*** - DIN type with '3 in 1' BUS cable
(air control v/v + Vacuum release v/v) + Digital switch

* Can not available with double solenoid valve

※ Remark

CL : Available only with DC24V
 3B : Available only with DC24V
 Available only with 'S2' or 'S2P', section ⑨

☞ About 'BUS cable' (340, 341)

⑨ Vacuum switch

- No mark - Vacuum gauge attached
- **S2(P)** - Digital output 2 points, No analog supply.
M8-4Pin male connector. (0.3m lead wire)
- SG2(P)** - Digital output 2 points, No analog supply.
Grommet type 4-Core 2m lead wire
- SG3(P)** - Digital output 2 points, Analog supply.
Grommet type 5-Core 2m lead wire.

※ Remark: ① S.(P)

↳ Output type :PNP open collector

② VCM8 42 : M8-4Pin connector wire.
Only for type S2 or S2(P).

⑩ Non-return valve

- No mark - Not included
- **N** - Non-return valve

⑪ Sealing

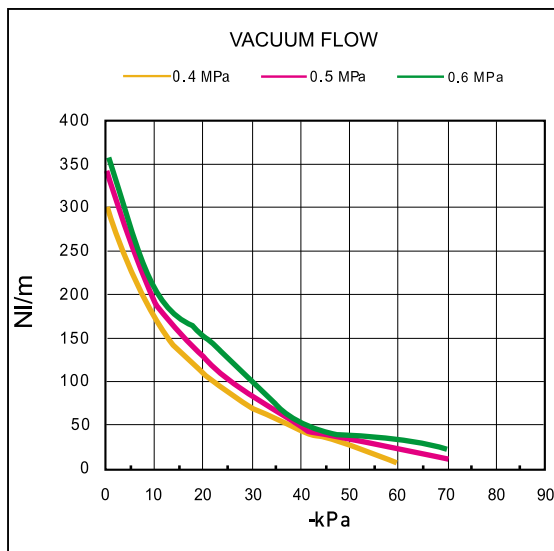
- No mark - NBR
- **V** - Viton®
- E** - EPDM

Performance Data

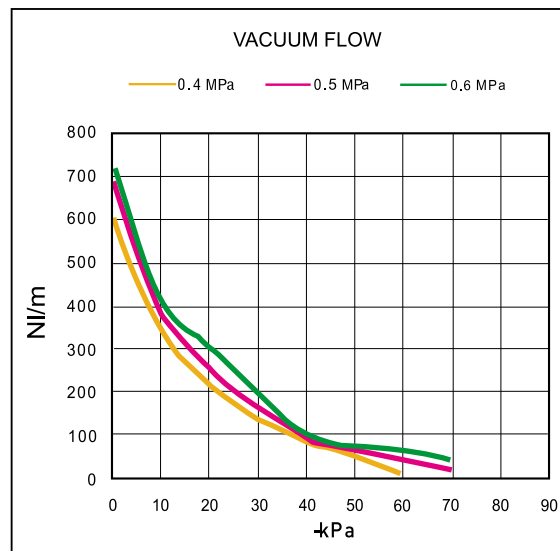
Vacuum flow, NI/min, at different vacuum levels -kPa (-mmHg)

Model	MAX. Vacuum (-kPa)	Feed pressure (MPa)	0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
PML 303X1..	60	0.4	302	172	110	70	46	28	6.8	-	-	-
	70	0.5	344	196	130	82	50	37.5	23	11.3	-	-
	75	0.6	362	207	154	100	52	38	32	22	-	-
PML 303X2..	60	0.4	604	344	220	140	92	56	13.6	-	-	-
	70	0.5	688	392	260	164	100	75	46	23.8	-	-
	75	0.6	724	415	308	200	104	76	64	44	-	-
PML 303X3..	60	0.4	906	516	330	210	138	84	20.4	-	-	-
	70	0.5	1032	588	390	246	150	112.5	69	34	-	-
	75	0.6	1086	621	462	300	156	114	96	66	-	-
PML 303X4..	60	0.4	1208	688	440	280	184	112	27	-	-	-
	70	0.5	1376	784	520	328	200	150	92	45	-	-
	75	0.6	1448	828	616	400	208	152	128	88	-	-

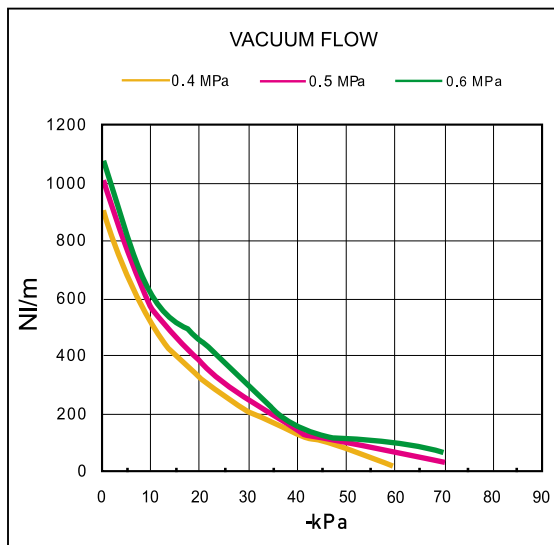
▼ PML 303 X1 ..



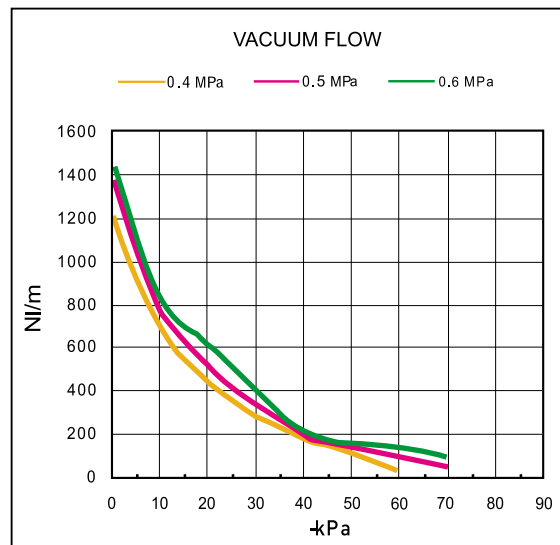
▼ PML 303 X2 ..



▼ PML 303 X3 ..



▼ PML 303 X4 ..



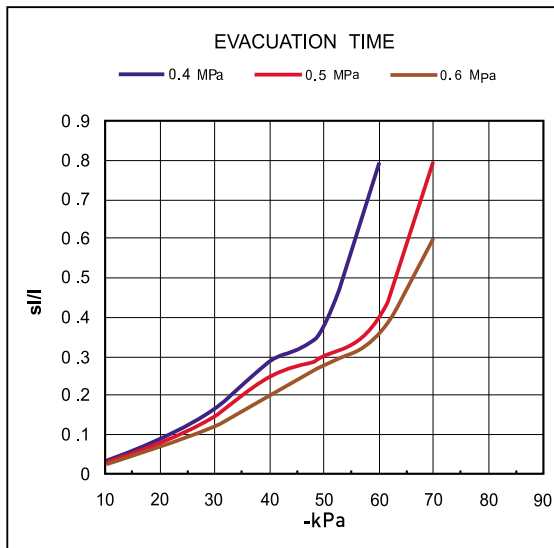
VACUUM PUMPS

Performance Data

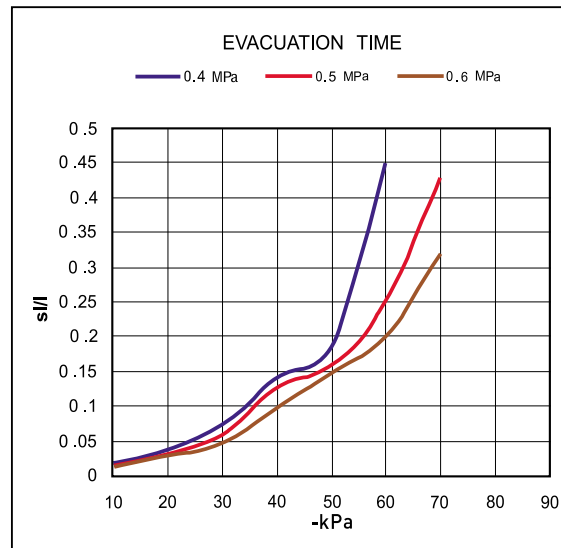
Time, s/l, to evacuate a volume to different vacuum levels -kPa(-mmHg)

Model	Feed pressure (MPa)	Air consumption (NI/min)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)	80 (600)	90 (675)
PML 303X1..	0.4	70	0.032	0.09	0.17	0.29	0.38	0.8	-	-	-
	0.5	85	0.023	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	0.6	104	0.022	0.07	0.12	0.2	0.28	0.36	0.6	-	-
PML 303X2..	0.4	140	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	0.5	170	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	0.6	208	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
PML 303X3..	0.4	210	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	0.5	255	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-
	0.6	312	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
PML 303X4..	0.4	280	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	0.5	340	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	0.6	416	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-

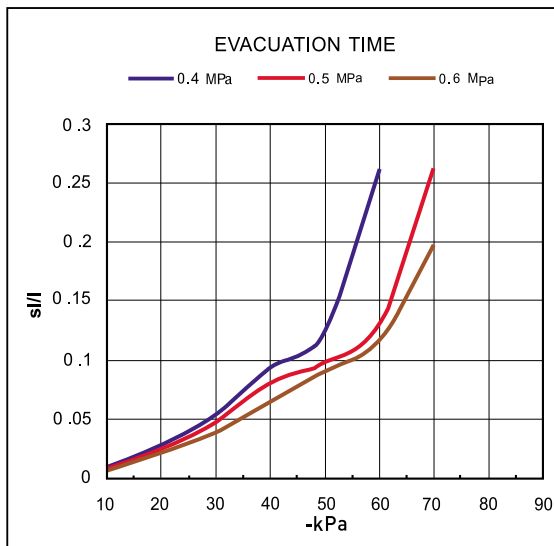
▼ PML 303 X1 ..



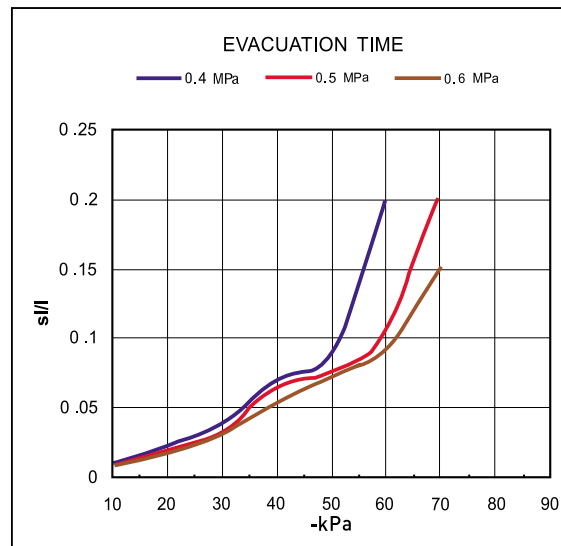
▼ PML 303 X2 ..



▼ PML 303 X3 ..



▼ PML 303 X4 ..

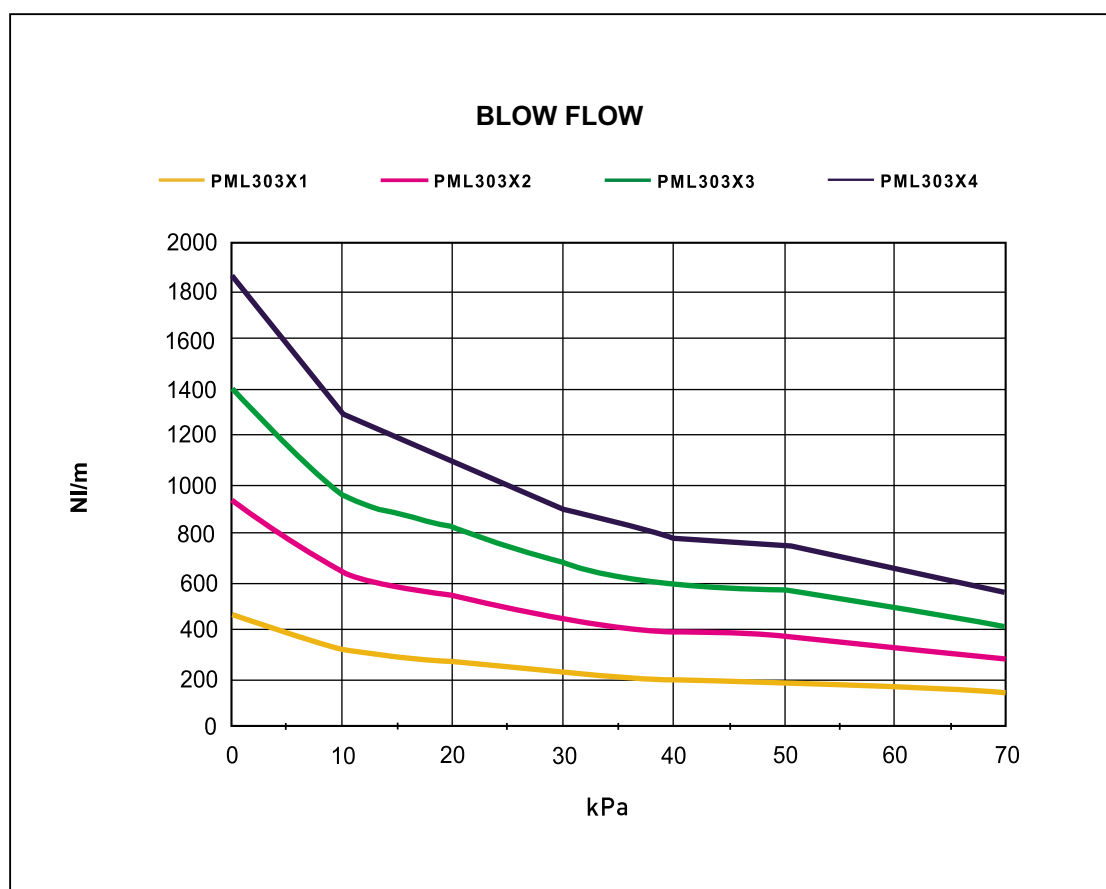


Performance Data

Blow flow, NI/min, at different internal pressure levels kPa (mmHg)

Model	Feed pressure (MPa)	Air consumption (NI/min)	0 (0)	10 (75)	20 (150)	30 (225)	40 (300)	50 (375)	60 (450)	70 (525)
PML 303X1..	0.6	104	470	320	272	225	196	189	165	140
PML 303X2..	0.6	208	940	640	544	450	392	378	330	280
PML 303X3..	0.6	312	1404	966	822	678	589	564	492	416
PML 303X4..	0.6	416	1868	1284	1096	904	784	752	656	556

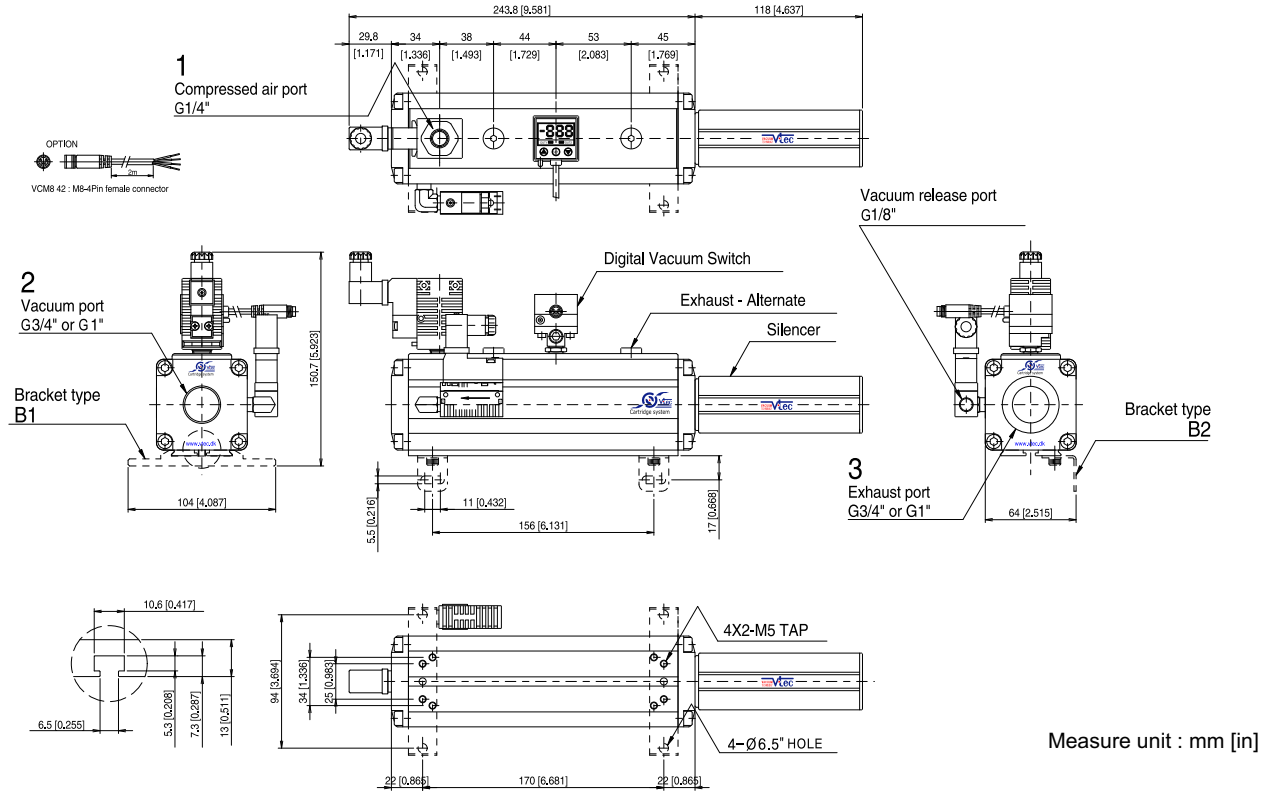
* Remark : Choose the 'A' body type (Vacuum port on side) for blowing function.



Dimensional Information

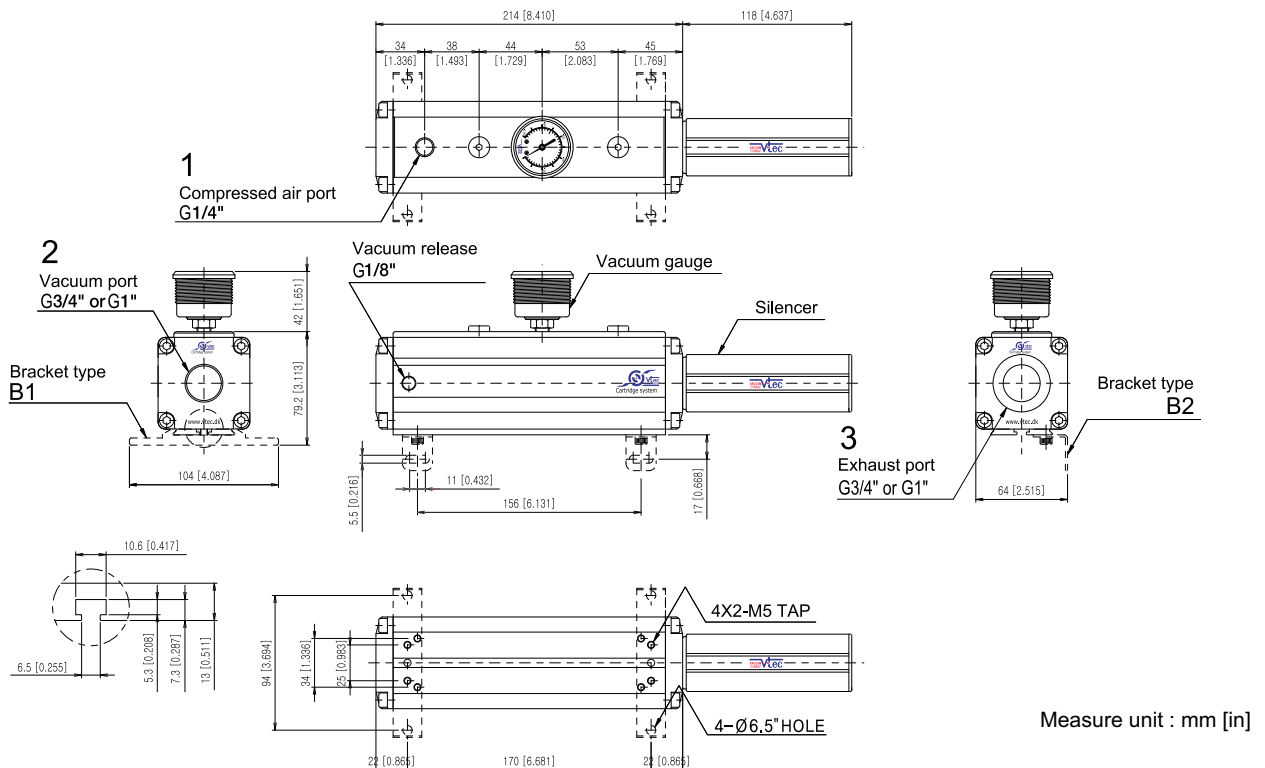
With Air Control valve, Vacuum release control valve, Digital vacuum switch

▼Series PM 303X()..A.. / PML 303X()..A..



Standard

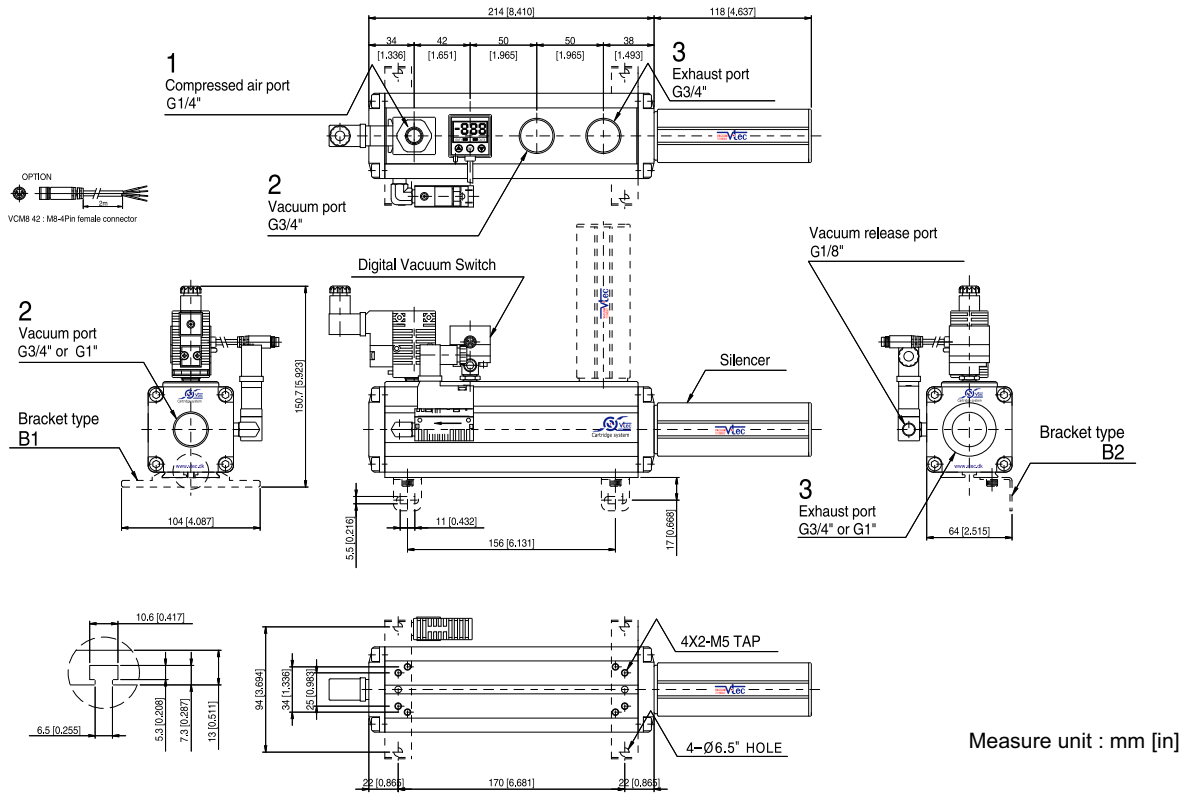
▼Series PM 303X()..A.. / PML 303X()..A..



Dimensional Information

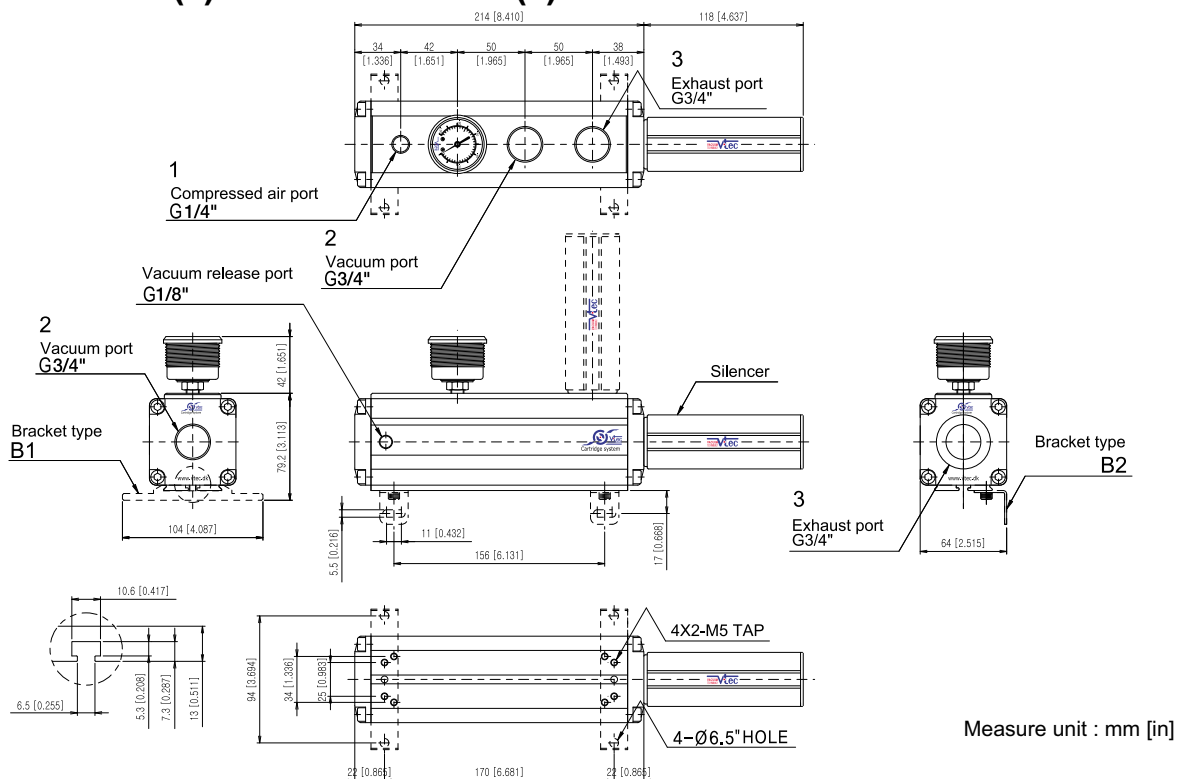
With Air Control valve, Vacuum release control valve, Digital vacuum switch

▼ Series PM 303X()..B.. / PML 303X()..B..



Standard

▼ Series PM 303X()..B.. / PML 303X()..B..



VACUUM PUMPS



KEYBOARD PUMPS



Mini Keyboard Pump

- Max. vacuum level** : VKX pump **-92 kPa** (-27.16 inHg)
VKM pump **-85 kPa** (-25.1 inHg)
- Max. flow rate** : VKX pump **23 NI/min** (0.81 scfm)
VKM pump **26 NI/min** (0.91 scfm)
- Supply air pressure** : **3~6 bar, Max. 7 bar**
(43.5~87 psi, max 101.5 psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C to +80°C
- Noise level** : 50~65 dBA



Main Advantages

- High efficiency Mini vacuum pump (Multi-Nozzle type).
- Available of individual control.
- Long life time and Low noise level.
- Easy to install and Compact size (10mm).
- Lightweight.
- Built-in check valve.
- Integrated Vacuum Pump, Air supply & vacuum release control valve, Vacuum Switch & Filter, Blowing flow control valve and silencer in a body.

Order No.

VKM5 - M6 - A 4 N V

① ② ③ ④ ⑤ ⑥ ⑦

① Model-Vacuum Flow

VKX5	-	23 NI/min
VKM5	-	26 NI/min

② Body type

S	-	single unit
M	-	manifold unit
E	-	manifold unit with central exhaust unit

③ Vacuum Stack

1-1 Stack	•	6-6 Stack
2-2 Stack		7-7 Stack
3-3 Stack		8-8 Stack
4-4 Stack		9-9 Stack
5-5 Stack		10-10 Stack

④ Valves

	Air Supply Control Valve	Vacuum Release Control Valve	Vacuum Switch
• A	⊙ (N.C. : Normal Closed)	⊙ (N.C. : Normal Closed)	⊙
B	⊙ (N.O. : Normal open)	⊙ (N.C. : Normal Closed)	⊙
C	⊙ (N.C. : Normal Closed)	⊙ (N.C. : Normal Closed)	
D	⊙ (N.O. : Normal open)	⊙ (N.C. : Normal Closed)	
E	⊙ (N.C. : Normal Closed)		⊙
F	⊙ (N.O. : Normal open)		⊙
G	⊙ (N.C. : Normal Closed)		
H	⊙ (N.O. : Normal open)		
I		⊙ (N.C. : Normal Closed)	⊙
J			⊙
K		⊙ (N.C. : Normal Closed)	

⑤ Vacuum port

• 4	-	∅4 (O.D: standard)
6	-	∅6 (O.D)

⑥ Non return valve

no mark	-	standard
• N	-	non return valve

⑦ Sealing

no mark	-	standard (NBR)
• V	-	Viton®
E	-	EPDM

※ Remark : A...(P)

➡ Output type : PNP open collector

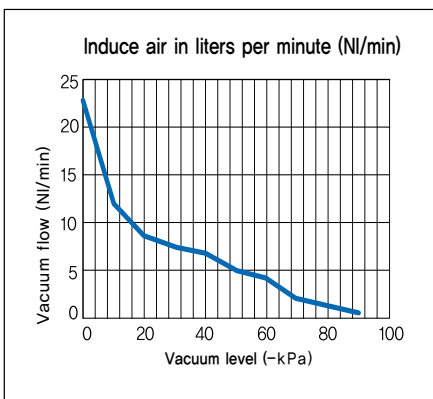
Only DC24V is available for valve
Connector type with 0.3m lead wire & lamp

Characteristics

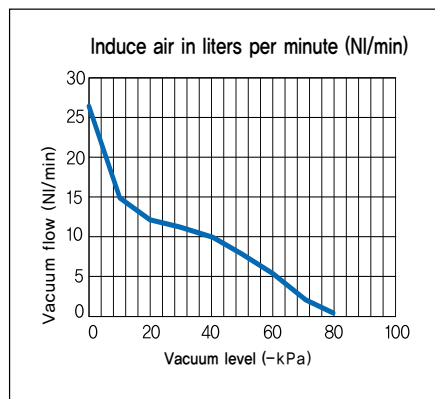
Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)/eachstack	air consumption (NI/m)/ each stack	noise level (dBA)	weight (g) /eachstack
VKX5	92 (27.17)	23	13 ~ 22	50~65	96
VKM5	85 (25.1)	26	12 ~ 21	50~65	96

※ Remark : Manifold unit type weight = 86g X N + 22g (N : stack)

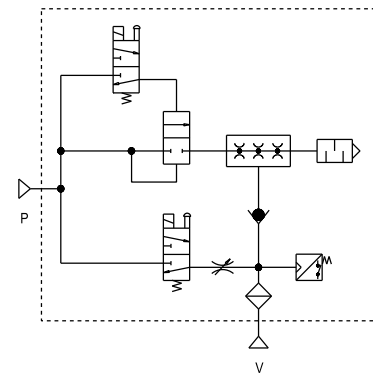
VKX5



VKM5

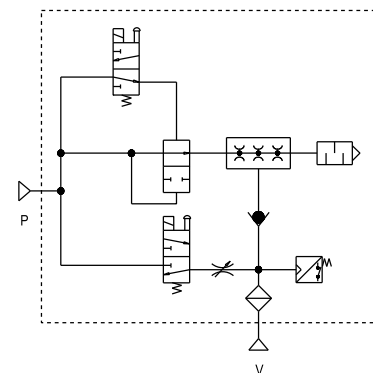


N.C. TYPE

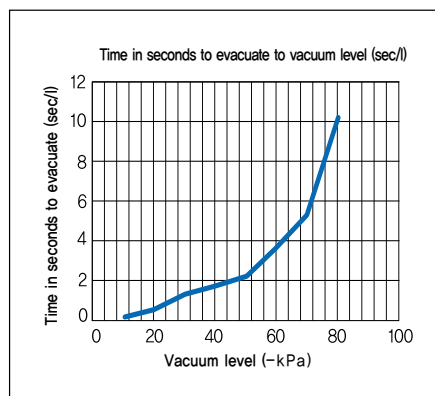
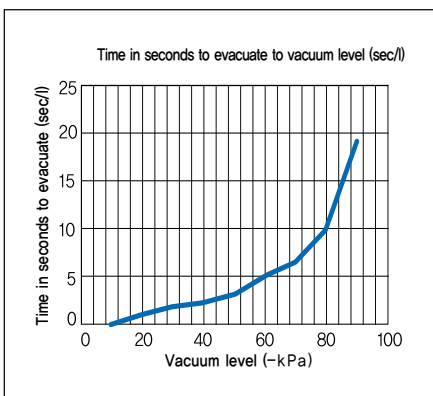


P : Compressed air supply port
v : Vacuum port

N.O. TYPE



P : Compressed air supply port
v : Vacuum port



Induce air in liters per minute (NI/m)

Model	-inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	-kPa	0	10	20	30	40	50	60	70	80	90
VKX5		23	12	8	7	6	5	4	2.7	1.2	0.45
VKM5		26	15	12	11	10	8	5.5	2.8	0.7	

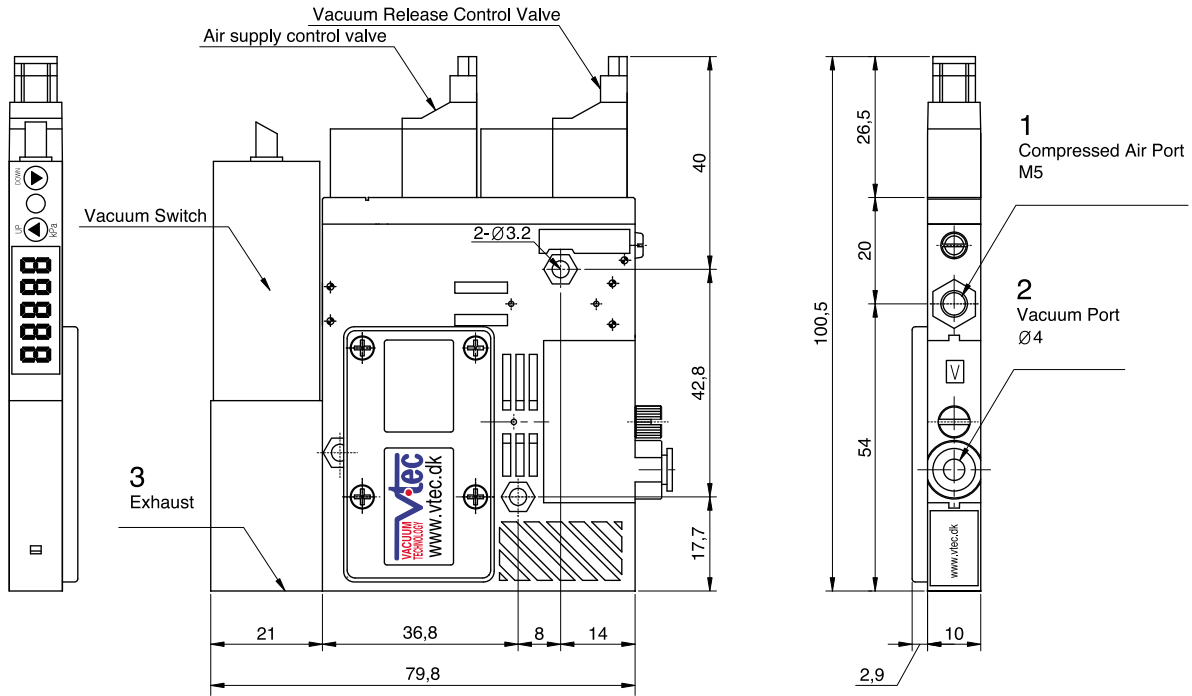
Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	-kPa	10	20	30	40	50	60	70	80	90
VKX5		0.26	0.80	1.52	2.4	3.38	4.91	6.89	10.16	19
VKM5		0.22	0.56	1.18	1.58	2.36	3.44	5.27	10.22	

Dimensional Information

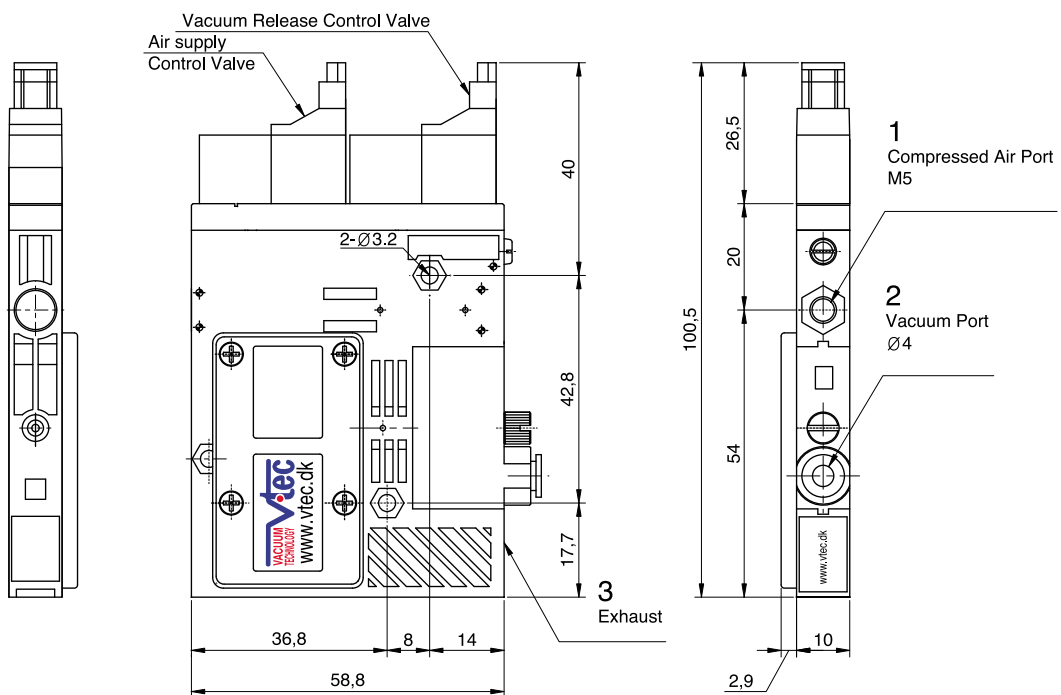
Single unit

Single Unit (A,B - Type)



[Measure unit : mm]

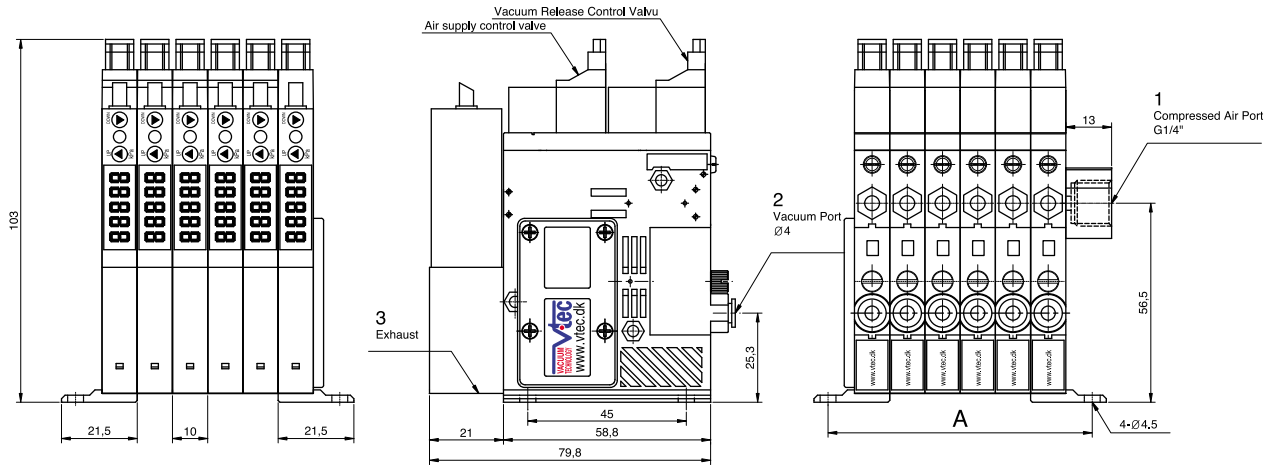
Single Unit (C,D - Type)



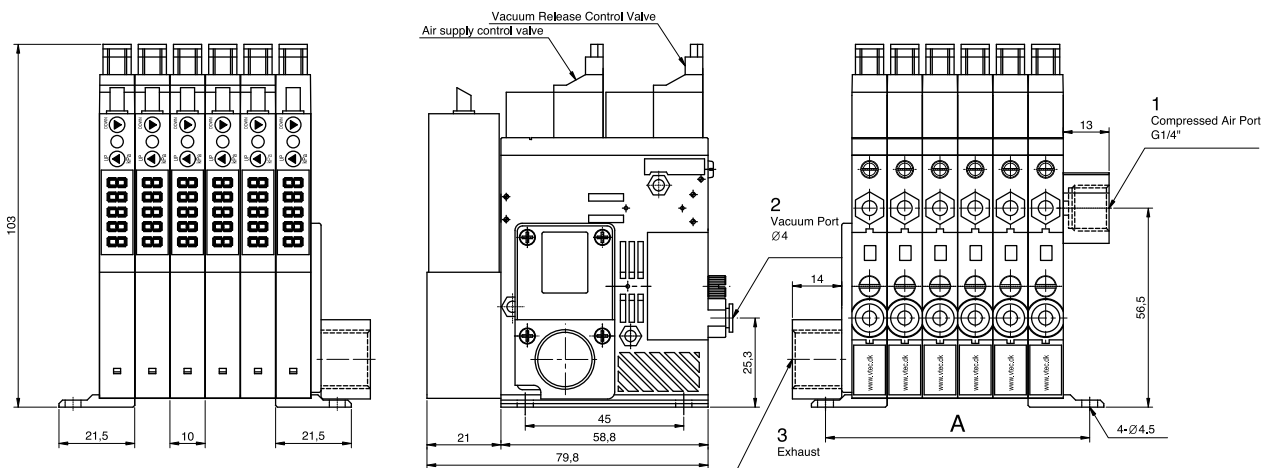
[Measure unit : inch]

Dimensional Information

Manifold unit



Manifold unit with central exhaust unit



[Measure unit : mm]

Stack	A (mm)
2stack	35
3stack	45
4stack	55
5stack	65
6stack	75
7stack	85
8stack	95
9stack	105
10stack	115

VACUUM PUMPS

Midi Keyboard Pump

- Max. vacuum level** : VKX pump **-92 kPa** (-27.16 inHg)
VKM pump **-85 kPa** (-25.1 inHg)
- Max. flow rate** : VKX pump **62 NI/min** (2.19 scfm)
VKM pump **74 NI/min** (2.61 scfm)
- Supply air pressure** : **3~6 bar, Max. 7 bar**
(43.5~87 psi, max 101.5 psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C to +80°C
- Noise level** : 50~65 dBA

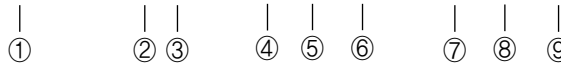


Main Advantages

- High efficiency Midi vacuum pump (Multi-Nozzle type).
- Available of individual control.
- Vacuum filter self cleaning system.
- Long life time and Low noise level.
- Easy to install and Compact size (17mm).
- Lightweight. • Built-in check valve.
- Integrated Vacuum Pump, Air supply & vacuum release control valve, Vacuum Switch & Filter, Blowing flow control valve and silencer in a body.

Order No.

VKM62 - M4 - A 3 3 - C N V



① Model-Vacuum Flow

VKM61	-	37 NI/min
• VKM62	-	74 NI/min
VKX61	-	31 NI/min
VKX62	-	62 NI/min

② Body-type

S	-	Single unit
• M	-	Manifold unit
E	-	Manifold unit with central exhaust unit

③ Vacuum Stack

1 - 1 stack	5 - 5 stack
2 - 2 stack	6 - 6 stack
3 - 3 stack	7 - 7 stack
• 4 - 4 stack	8 - 8 stack

④ Valves

	Air supply control valve	Vacuum release control valve
• A	⊙ (N. C. :Normal Closed)	⊙ (N. C. :Normal Closed)
B	⊙ (N. O. :Normal Open)	⊙ (N. C. :Normal Closed)
C	⊙ (N. C. :Normal Closed)	
D	⊙ (N. O. :Normal Open)	
E		⊙ (N. C. :Normal Closed)
W*	⊙ Double solenoid valve	⊙ (N. C. :Normal Closed)

* Only for DC24V and connector type.

⑤ Voltage

1	-	AC 110V
2	-	AC 220V
• 3	-	DC 24V

⑥ Solenoid Terminal

1*	-	DIN type without lead wire
2*	-	DIN type with lamp without lead wire
• 3	-	Connector type with lamp & 0.3 m lead wire
2B*	-	DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)
3B*	-	DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

3 : Available only with DC24V

3B : Available only with DC24V

Available only with 'C' or 'PC', section ⑦

☞ About 'BUS cable' (☐ 340, 341)

⑦ Vacuum switch

- (P)C - Digital display output 2points, No analog supply M8 4-Pin connector type.
- (P)G - Digital display output 2points, No analog supply 4-Core 2m Grommet lead wire.
- (P)GA - Digital display output 2points, Analog supply 5-Core 2m Grommet lead wire.
- S1 - Mechanical vacuum switch
- S4 - Flashing LED light display NPN output 2points, No analog supply, 4-Core 1m lead wire.
- S5 - Flashing LED light display PNP output 1point, No analog supply, 3-Core 1m lead wire.

※ Remark : (P)..

☞ Output type : PNP open collector

⑧ Non return valve

no mark	-	standard
• N	-	Non return valve

⑨ Sealing

no mark	-	standard (NBR)
• V	-	Viton®
E	-	EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)/ eachstack	air consumption (NI/m)/eachstack	noise level (dBA)	weight (g) eachstack		min hose inner ϕ (within 2m)		
					Connector Valve	DIN Valve	air supply		vacuum
							single unit	manifold unit	
VKX61	92 (27.17)	31	21~24	50~65	213.5	291.5	≥ 4	$\geq 8 \sim 12$	≥ 6
VKX62		62	43~48	50~65	213.5	291.5	≥ 4	$\geq 8 \sim 12$	≥ 6
VKM61	85 (25.1)	37	15~21	50~65	213.5	291.5	≥ 4	$\geq 8 \sim 12$	≥ 6
VKM62		74	30~42	50~65	213.5	291.5	≥ 4	$\geq 8 \sim 12$	≥ 6

※ Remark : Manifold unit type weight = each stack weight X N + 56g (N: stack)

Induce air in liters per minute (NI/m)

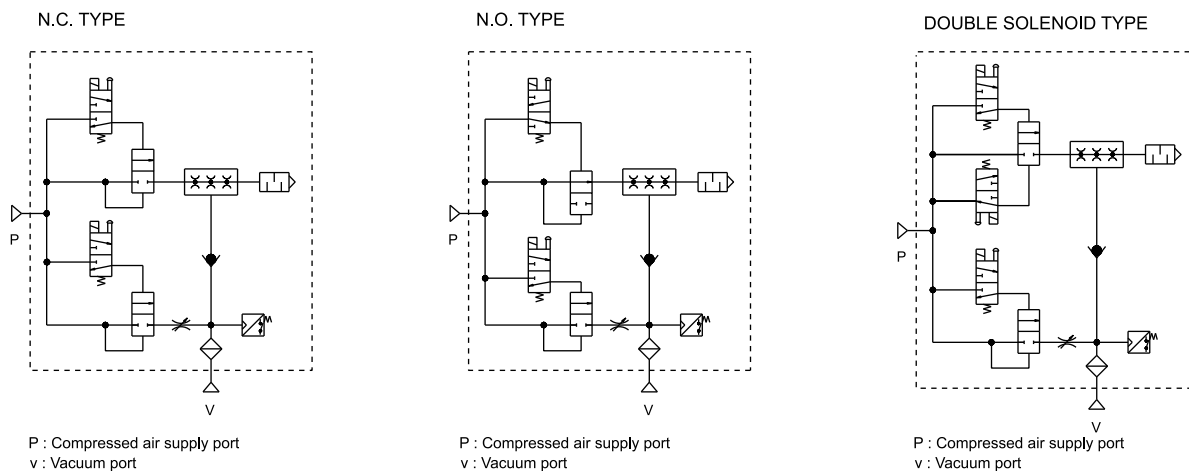
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VKX61x(N)		31	18	9	8	7	5	4	2.7	1.2	0.46
VKX62x(N)		62	36	18	16	13	11	9	5.4	2.4	0.9
VKM61x(N)		37	26	16	14	10	8	6	2.7	0.66	
VKM62x(N)		74	52	31	28	20	16	12	4.8	1.32	

Time in seconds to evacuate to vacuum level (sec/l)

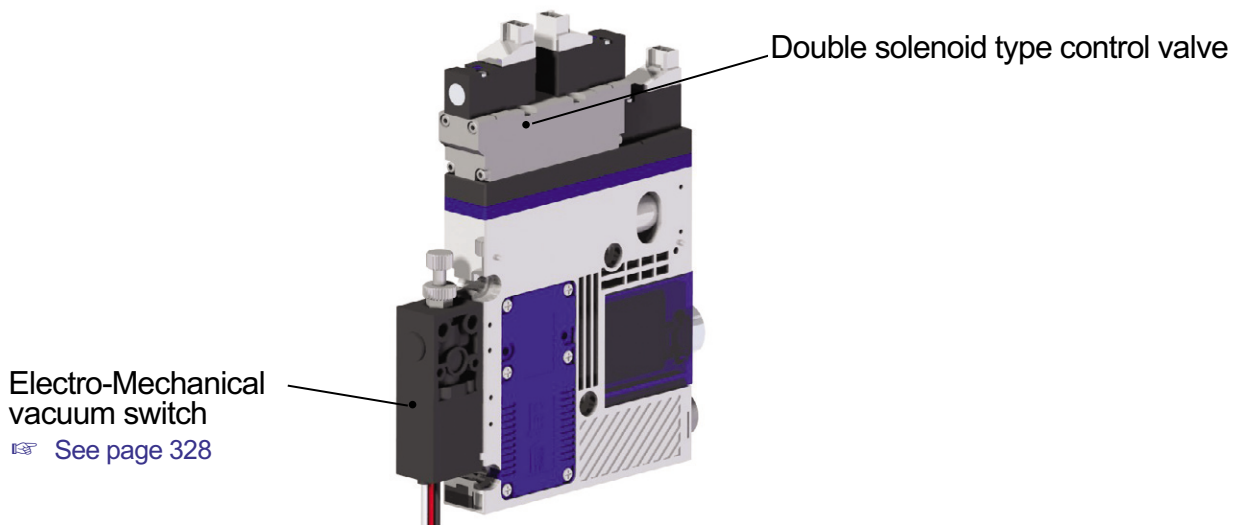
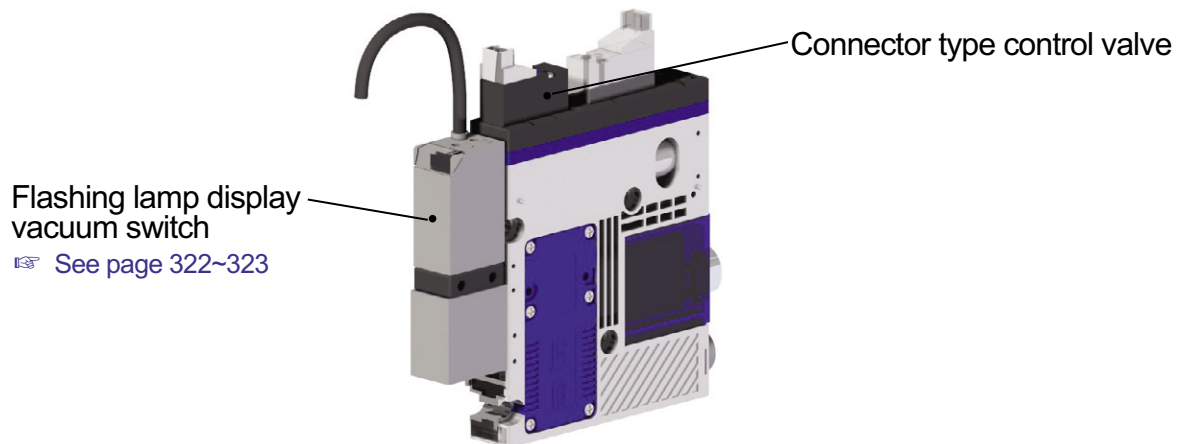
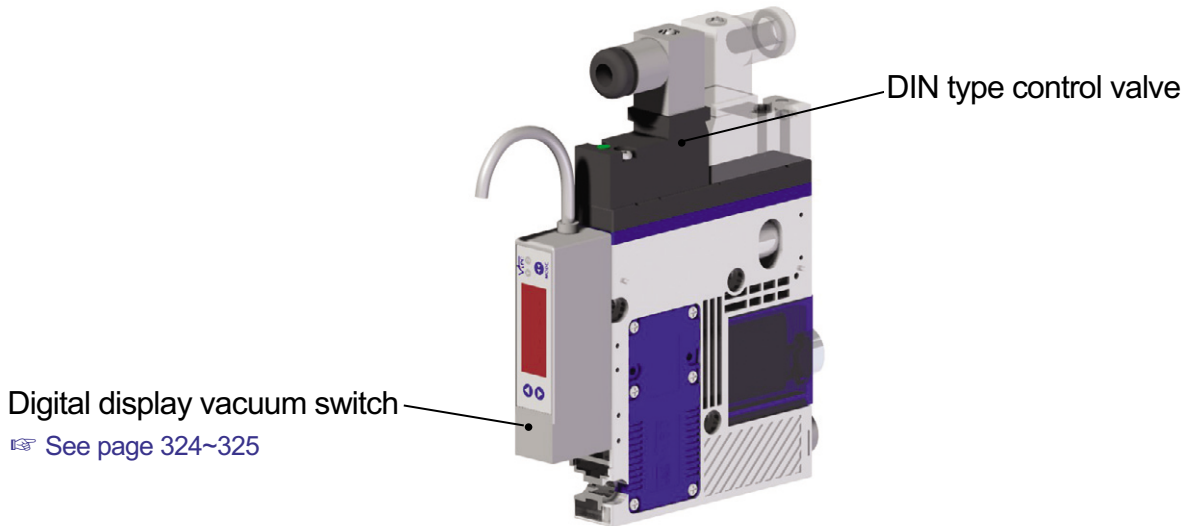
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VKX61		0.258	0.796	1.516	2.4	3.56	4.91	6.896	10.16	19.19
VKX62		0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.549
VKM61		0.218	0.556	1	1.576	2.356	3.44	5.27	10.216	
VKM62		0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158	

VACUUM PUMPS

The composition of the Midi Keyboard pump

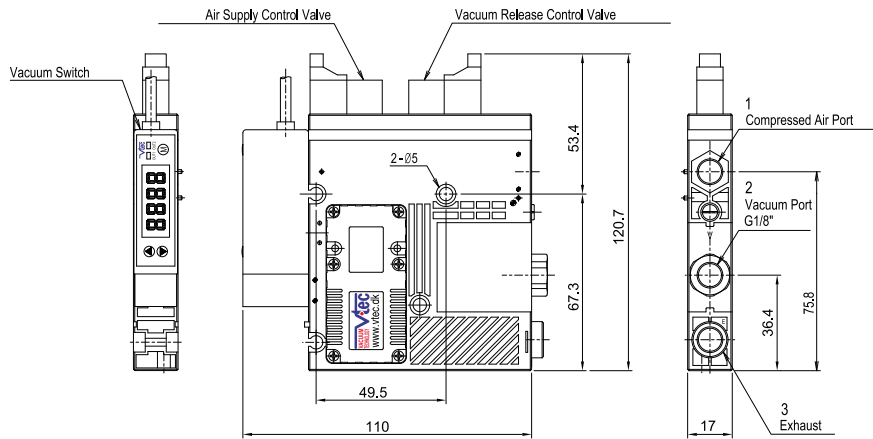


Selectable wide range of valves and switches.

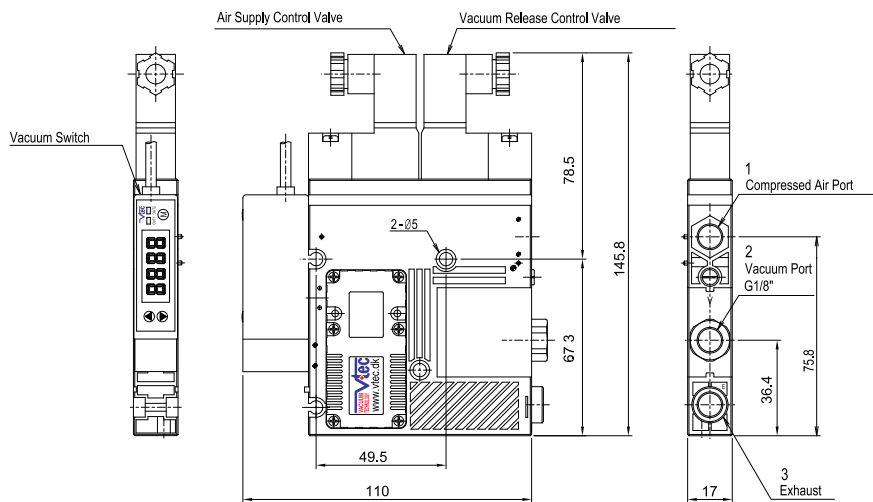


Dimensional Information

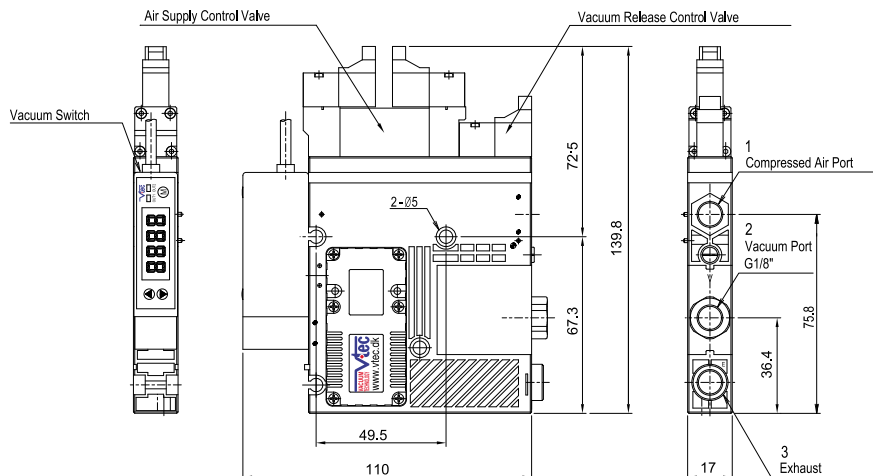
Single unit Control valve Connector type / Digital vacuum switch



Single unit Control valve DIN type / Digital vacuum switch



Single unit Control valve double solenoid type / Digital vacuum switch



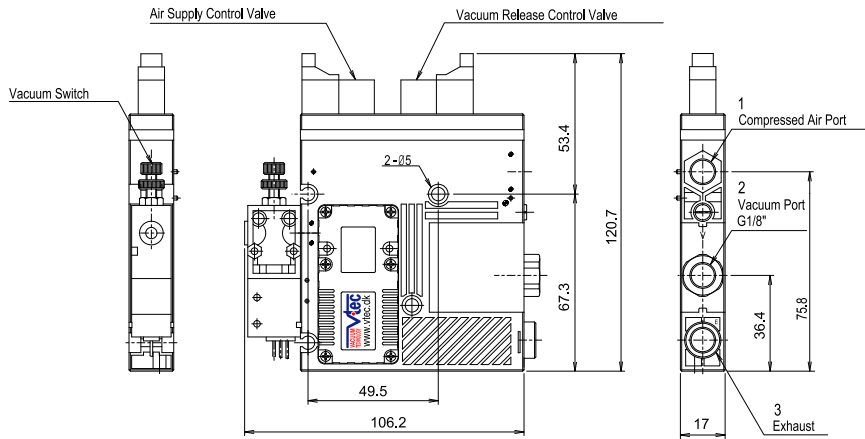
[Measure unit : mm]

VACUUM PUMPS

Dimensional Information

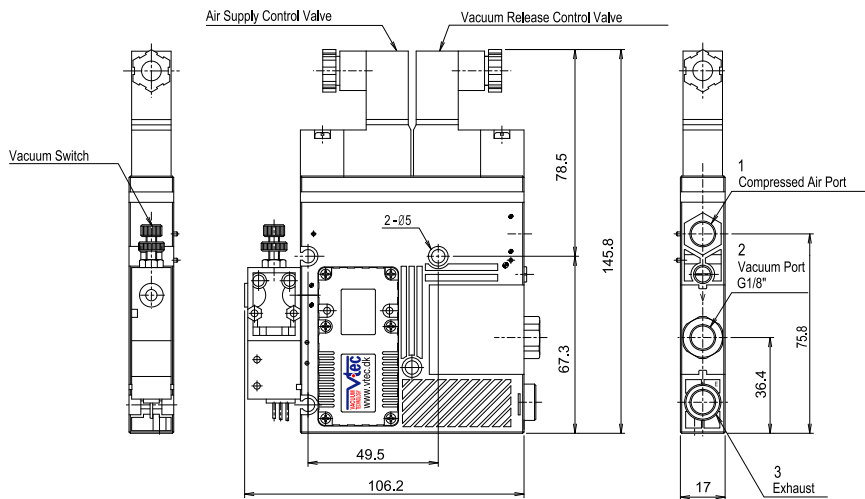
Single unit

Control valve Connector type / Mechanical vacuum switch



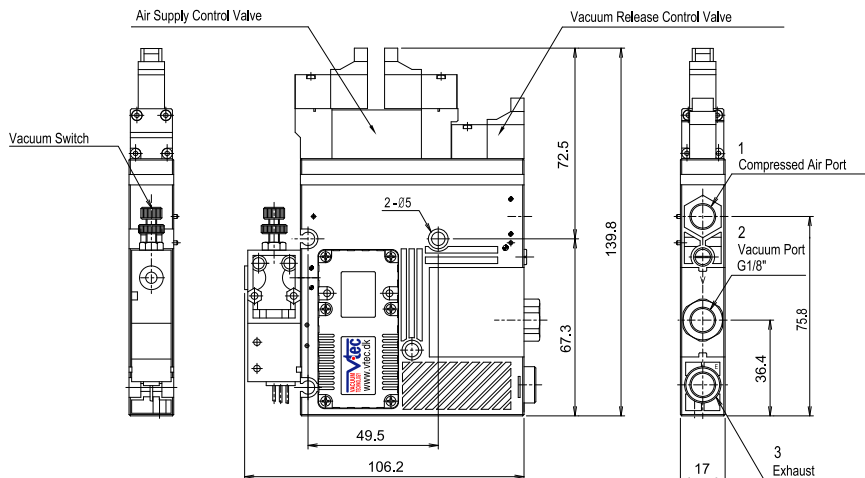
Single unit

Control valve DIN type / Mechanical vacuum switch



Single unit

Control valve double solenoid type / Mechanical vacuum switch

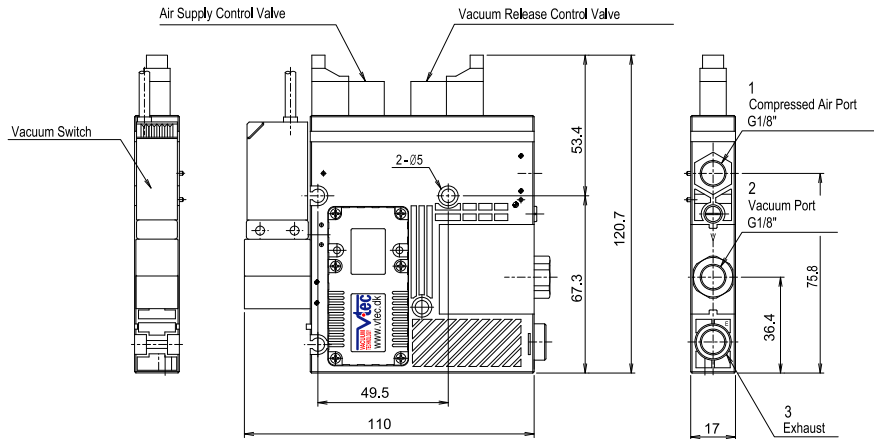


[Measure unit : mm]

Dimensional Information

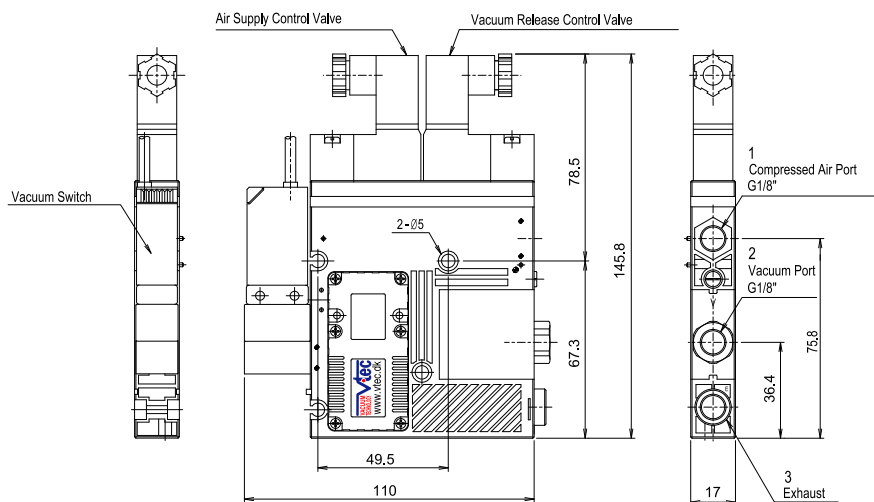
Single unit

Control valve Connector type / Flashing lamp display vacuum switch



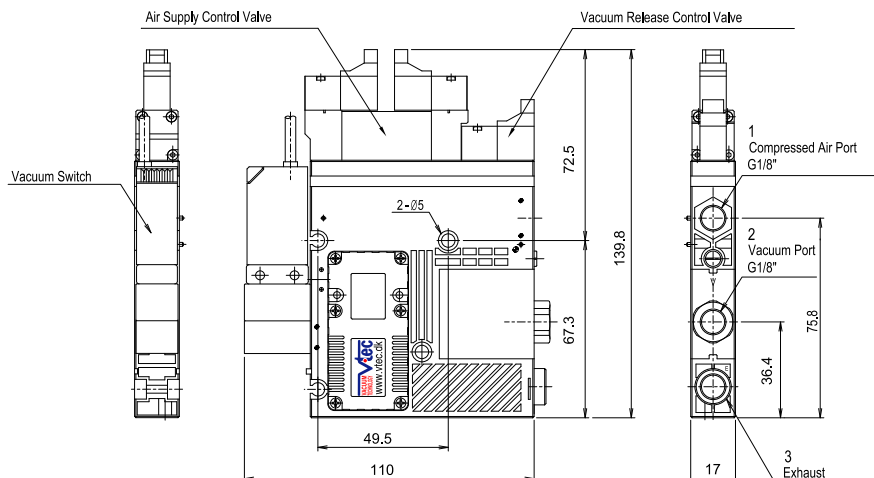
Single unit

Control valve DIN type / Flashing lamp display vacuum switch



Single unit

Control valve double solenoid type / Flashing lamp display vacuum switch

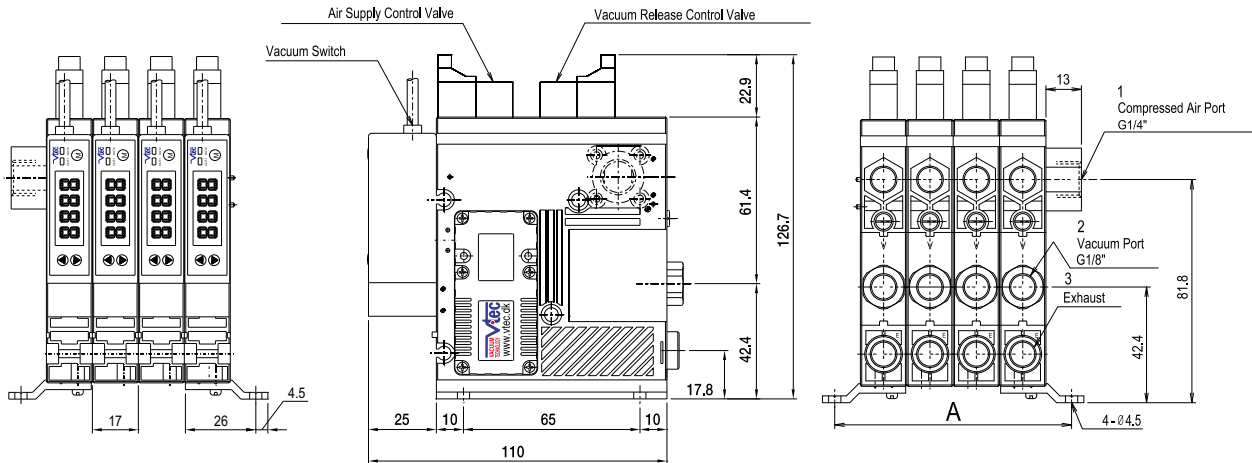


[Measure unit : mm]

VACUUM PUMPS

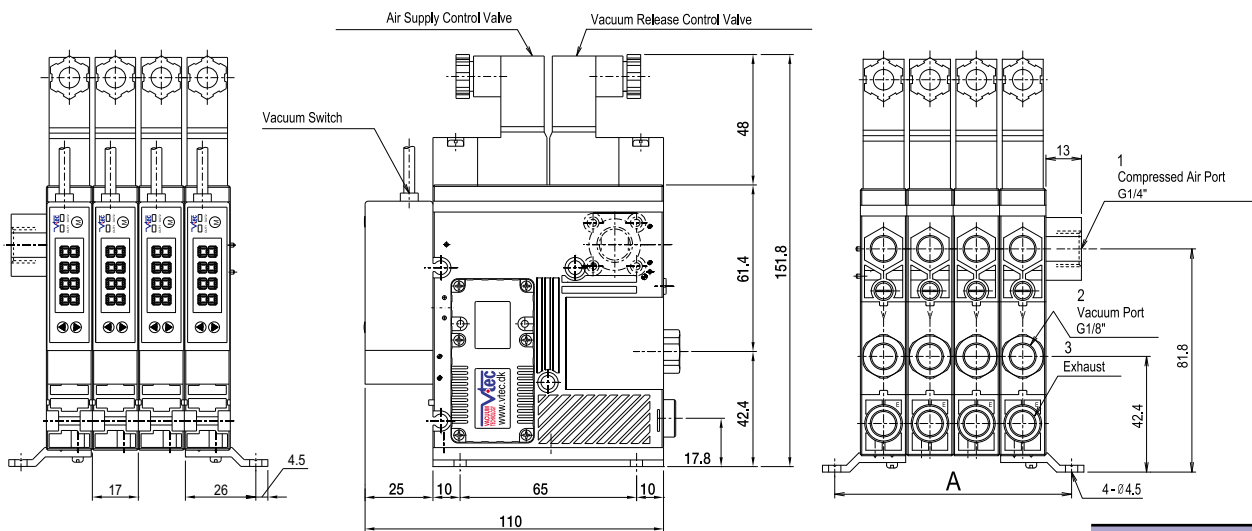
Dimensional Information

Manifold unit Control valve Connector type / Digital vacuum switch

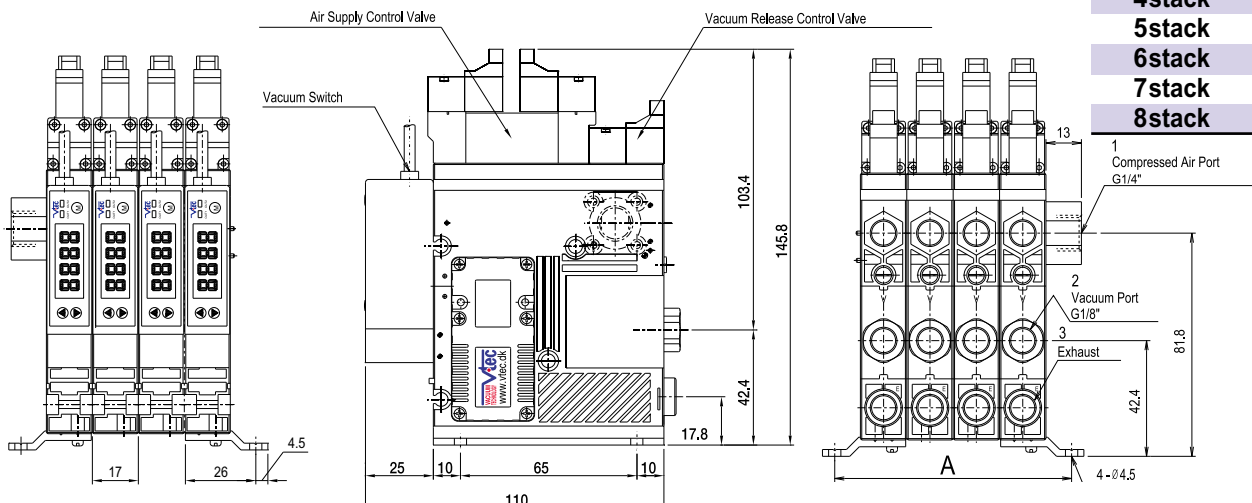


Manifold unit Control valve DIN type / Digital vacuum switch

[Measure unit : mm]



Manifold unit Control valve double solenoid type / Digital vacuum switch

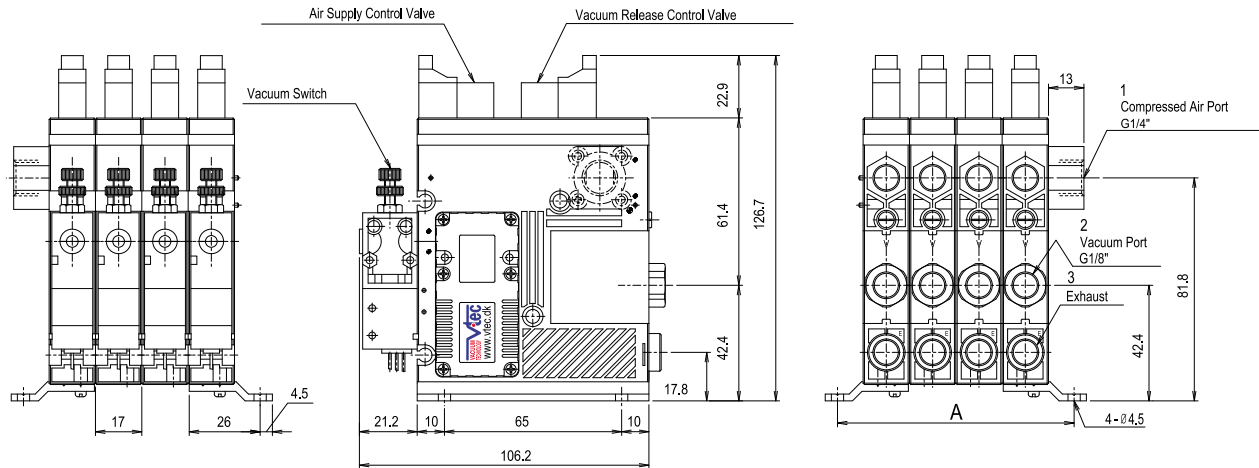


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

Dimensional Information

Manifold unit

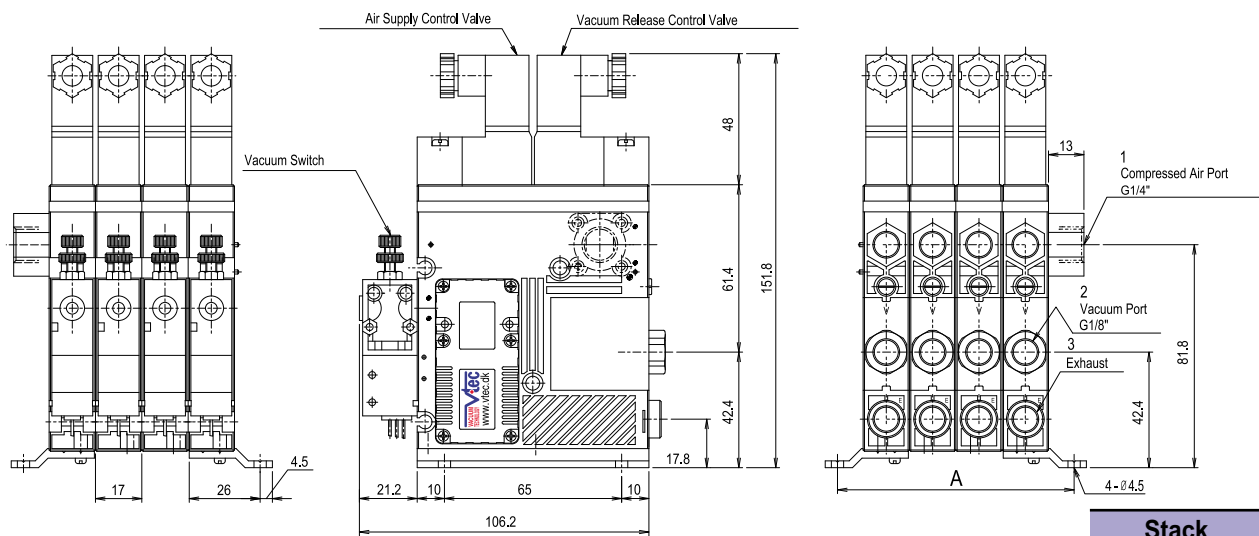
Control valve Connector type / Mechanical vacuum switch



Manifold unit

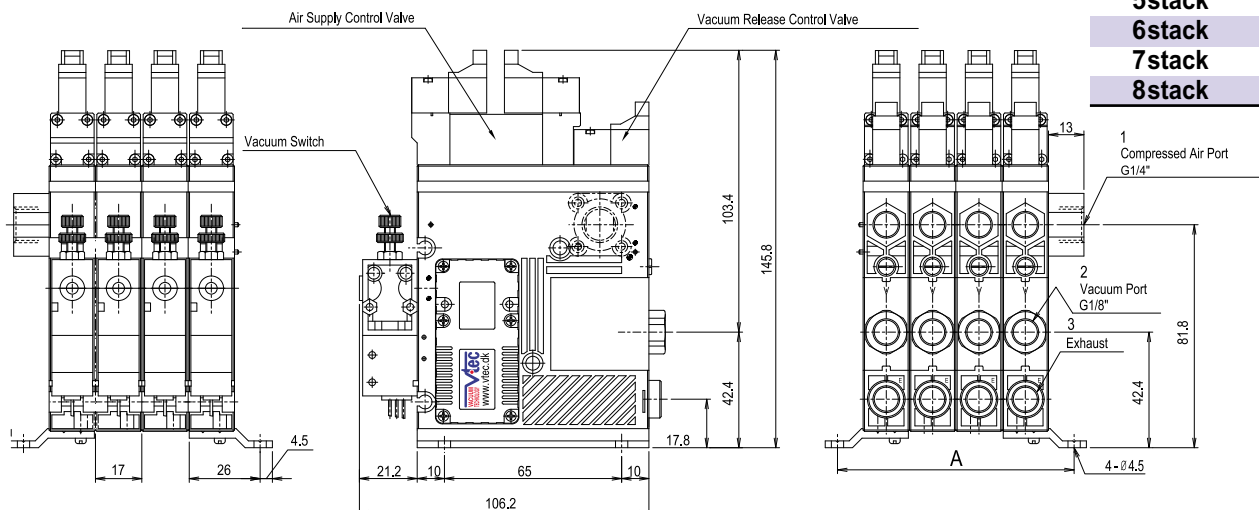
Control valve DIN type / Mechanical vacuum switch

Measure unit : [mm]



Manifold unit

Control valve double solenoid type / Mechanical vacuum switch

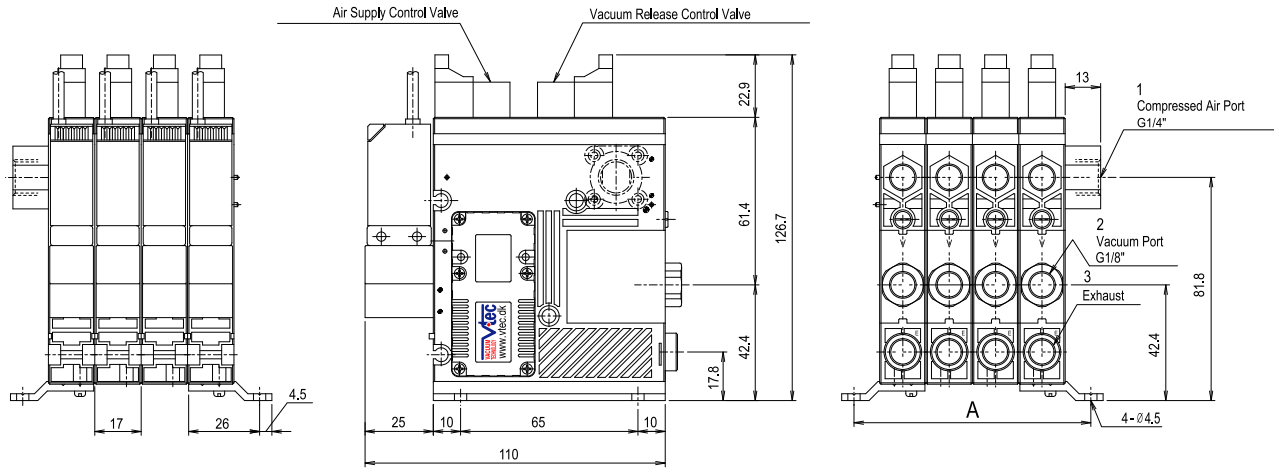


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

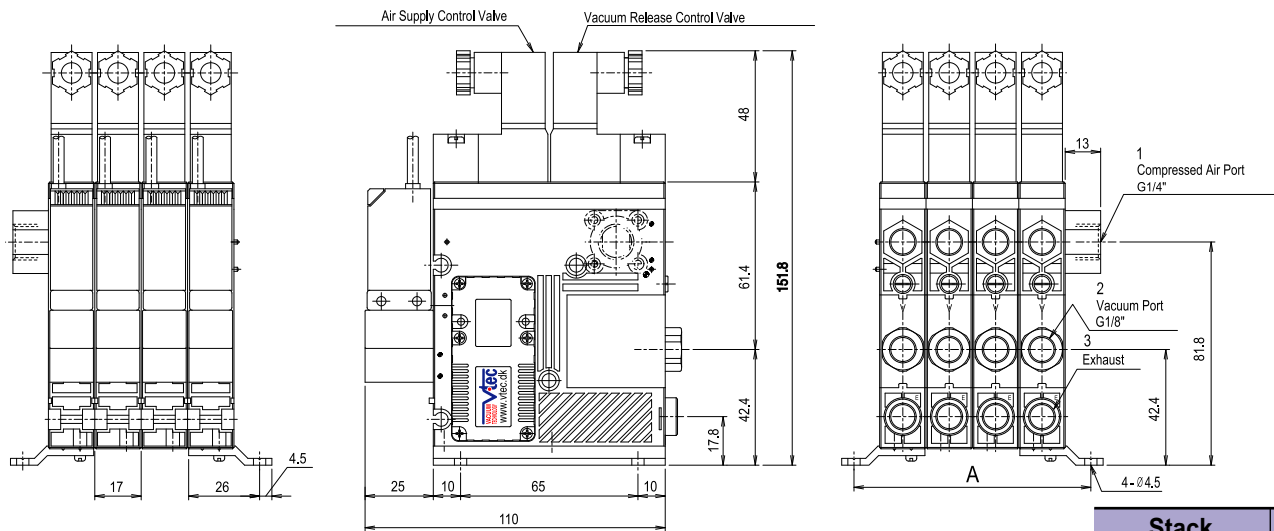
Dimensional Information

Manifold unit Control valve Connector type / Flashing lamp display vacuum switch

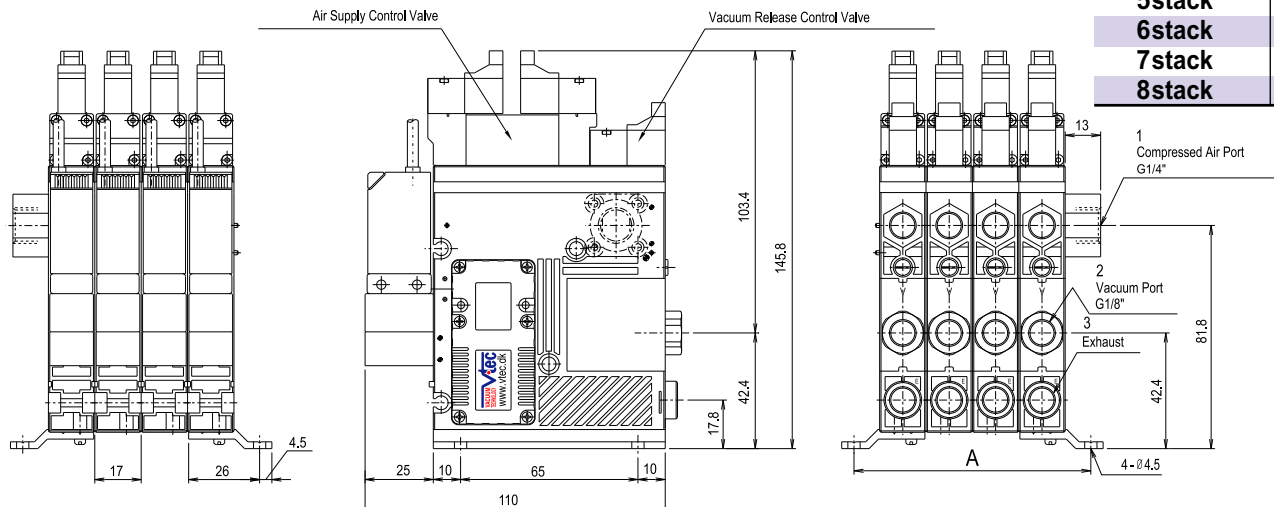


Manifold unit Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : mm]



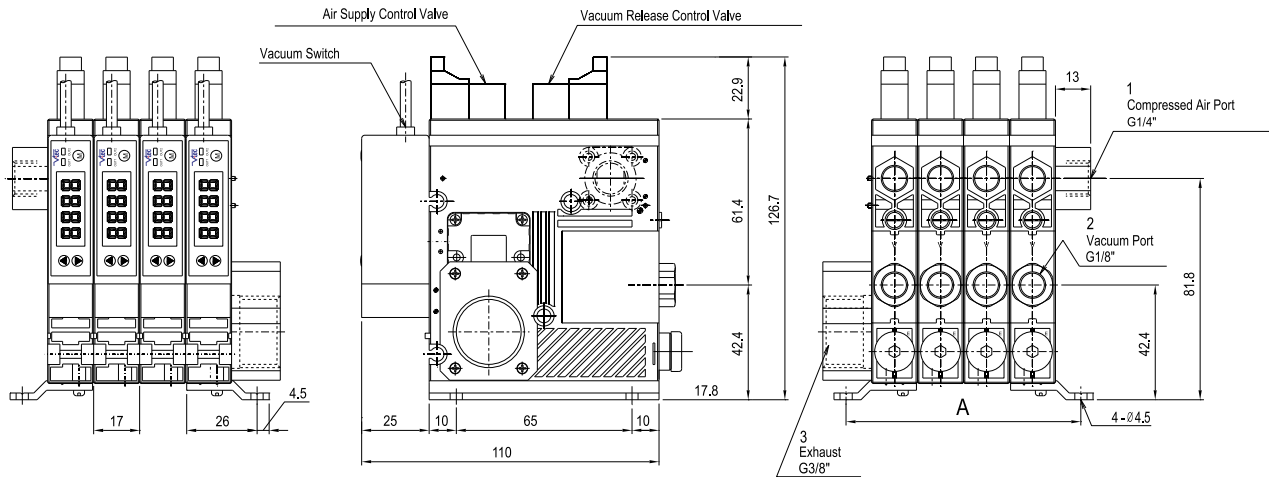
Manifold unit Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

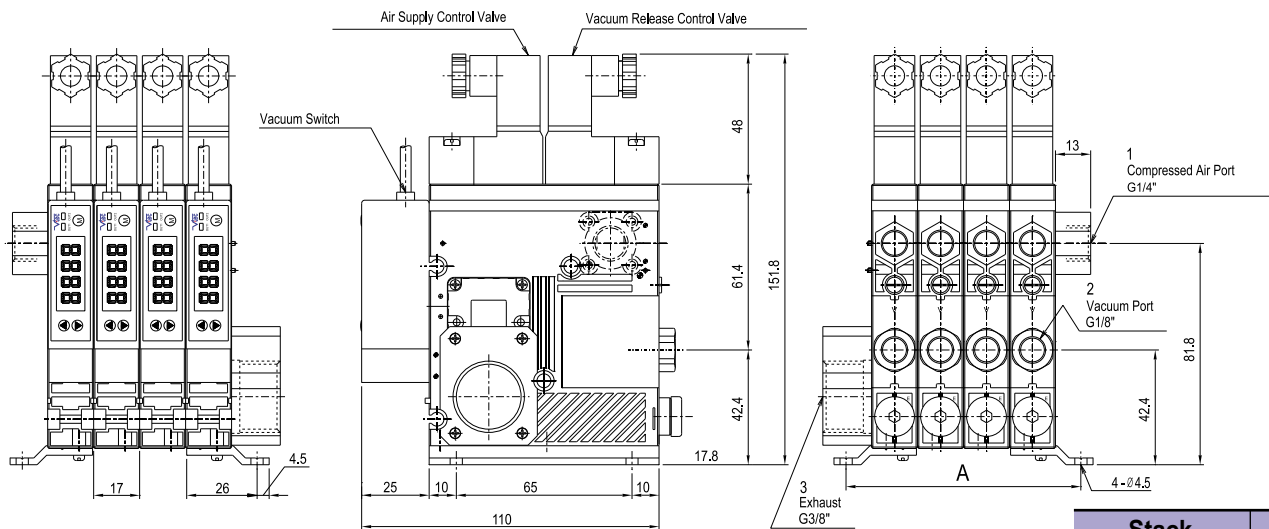
Dimensional Information

Manifold unit with central exhaust Control valve Connector type / Digital vacuum switch

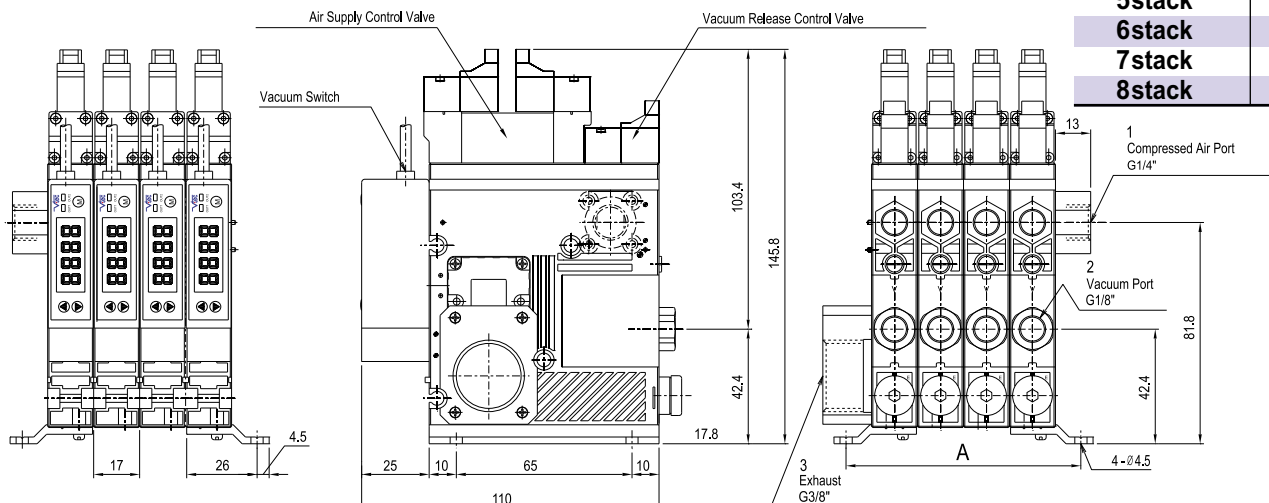


Manifold unit with central exhaust Control valve DIN type / Digital vacuum switch

[Measure unit : mm]



Manifold unit with central exhaust Control valve double solenoid type / Digital vacuum switch



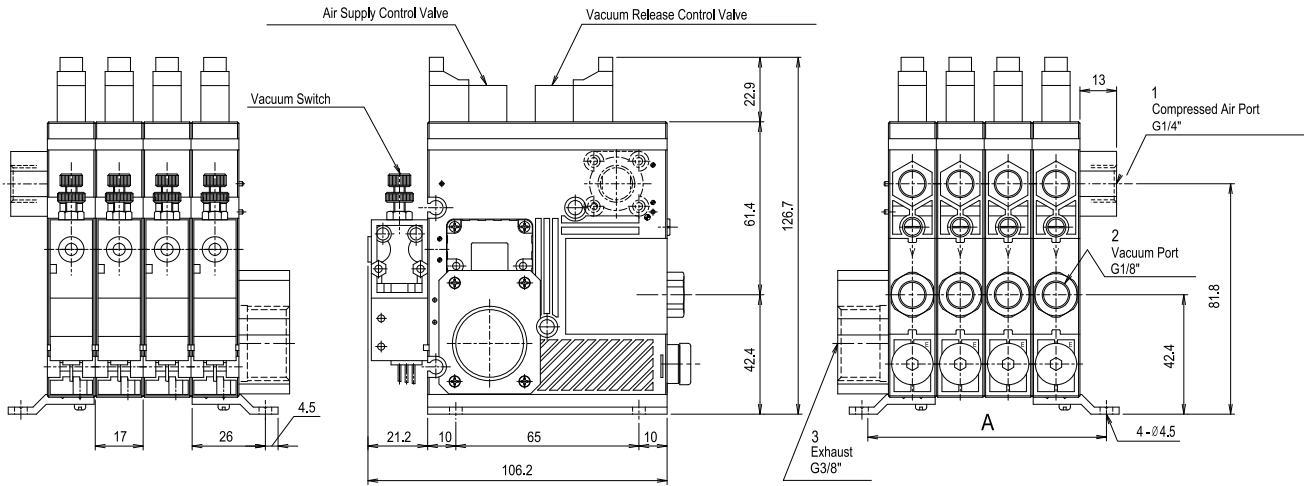
Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

Dimensional Information

Manifold unit with central exhaust

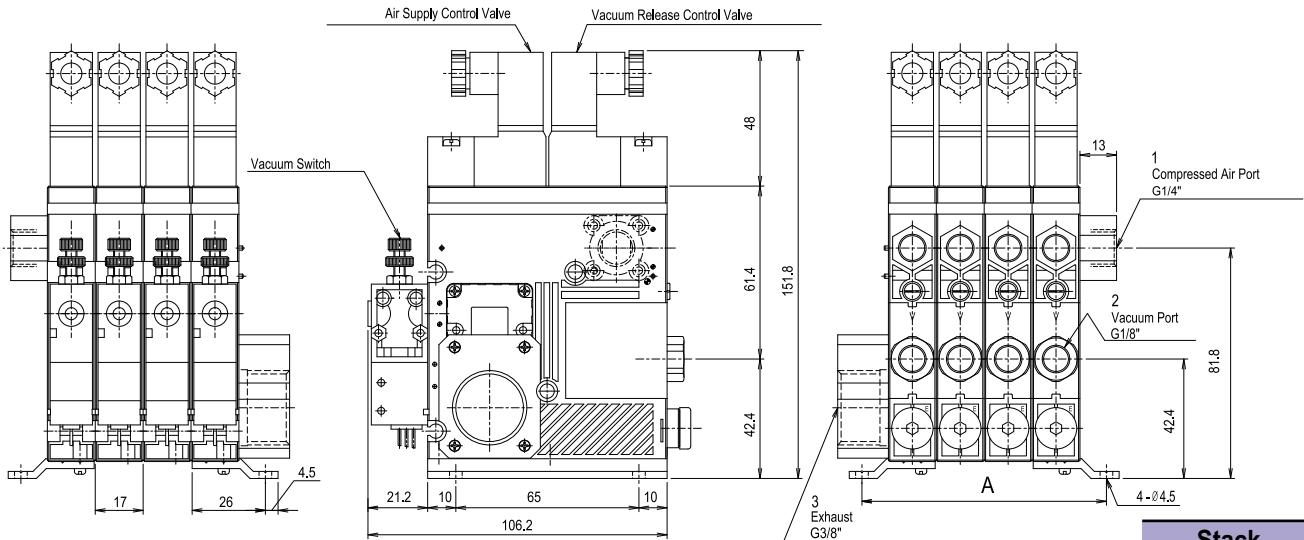
Control valve Connector type / Mechanical vacuum switch



Manifold unit with central exhaust

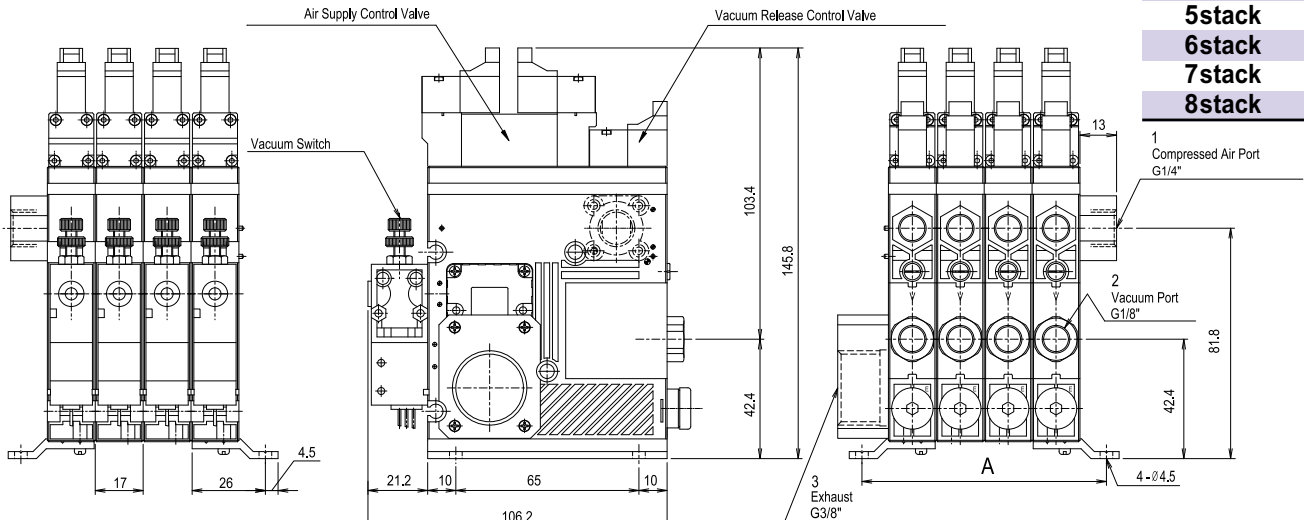
Control valve DIN type / Mechanical vacuum switch

[Measure unit : mm]



Manifold unit with central exhaust

Control valve double solenoid type / Mechanical vacuum switch

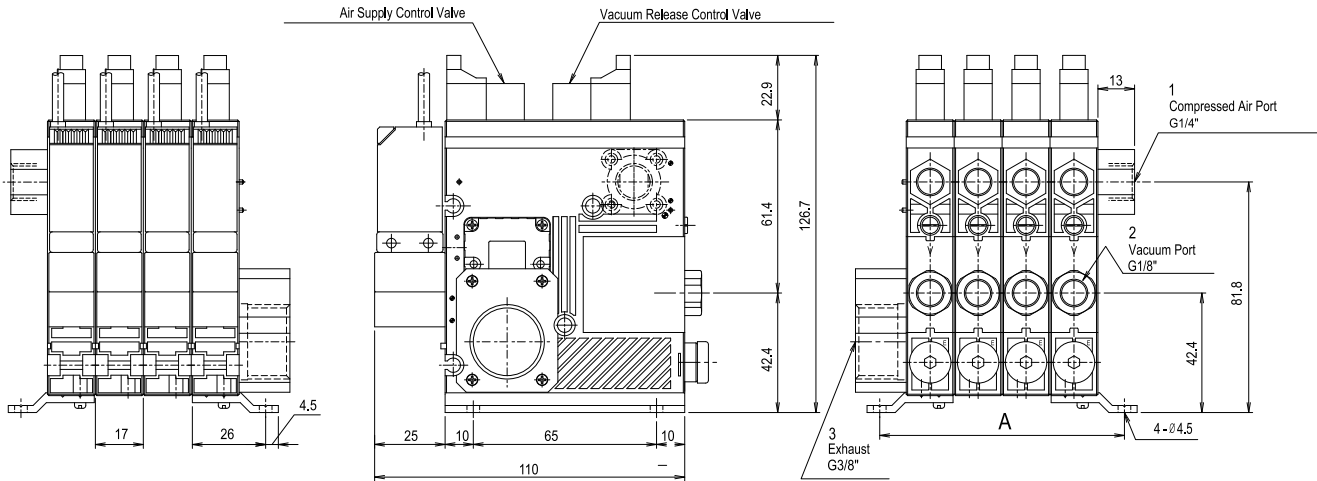


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

Dimensional Information

Manifold unit with central exhaust

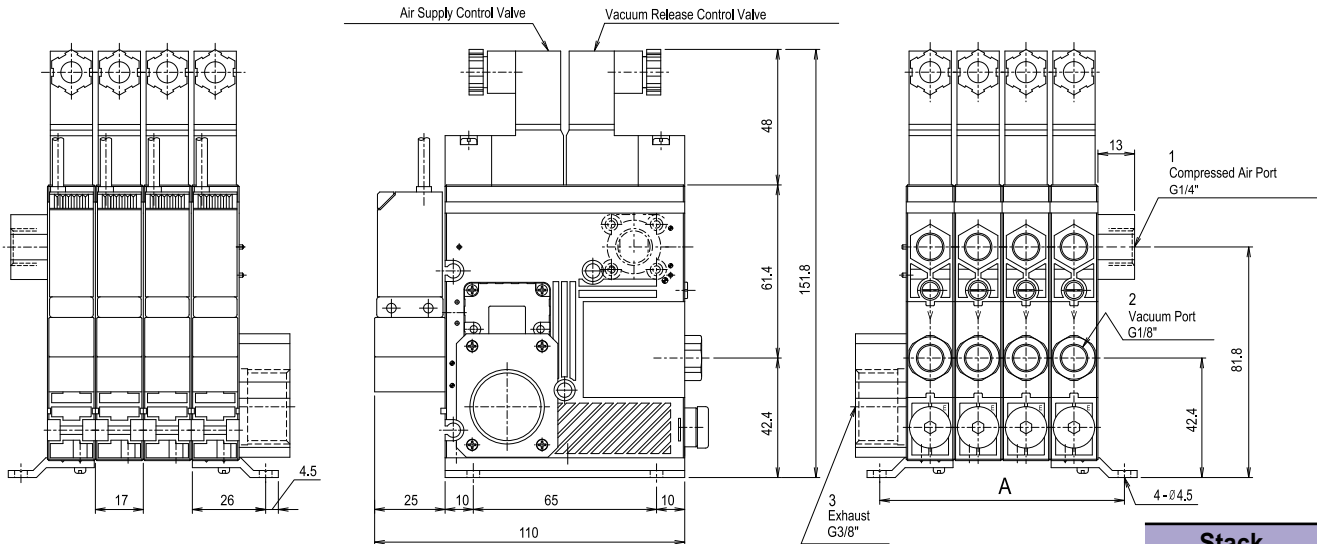
Control valve Connector type / Flashing lamp display vacuum switch



Manifold unit with central exhaust

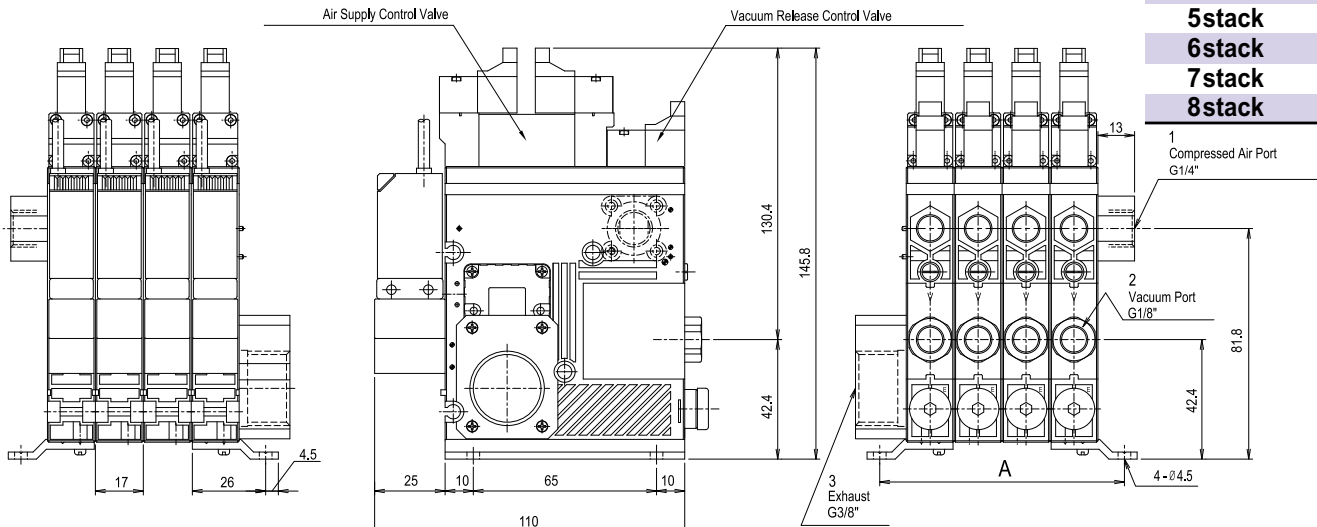
Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : mm]



Manifold unit with central exhaust

Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

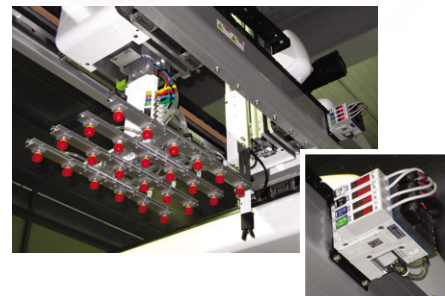
Mega Keyboard Pump

- Max. vacuum level : VKX pump **-92 kPa** (-27.16 inHg)
VKM pump **-85 kPa** (-25.1 inHg)
- Max. flow rate : VKX pump **109 NI/min** (3.85 scfm)
VKM pump **135 NI/min** (4.76 scfm)
- Supply air pressure : **3~6bar, max 7bar**
(43.5~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C to +80°C
- Noise level : 50~65 dBA



Main Advantages

- High efficiency Mega vacuum pump (Multi-Nozzle type).
- Available of individual control.
- Vacuum filter self cleaning system.
- Long life time and Low noise level.
- Easy to install and Compact size (17mm).
- Lightweight.
 - Built-in check valve.
- Integrated Vacuum Pump, Air supply & vacuum release control valve, Vacuum Switch & Filter, Blowing flow control valve and silencer in a body.



Order No.

VKX74 - M4 - W 3 3 - C N V



① Model-Vacuum Flow

VKX73	-	94 NI/min
• VKX74	-	109 NI/min
VKM73	-	111 NI/min
VKM74	-	135 NI/min

② Body-type

S	-	Single unit
• M	-	Manifold unit
E	-	Manifold unit with central exhaust unit

③ Vacuum Stack

1 - 1 stack	5 - 5 stack
2 - 2 stack	6 - 6 stack
3 - 3 stack	7 - 7 stack
• 4 - 4 stack	8 - 8 stack

④ Valves

	Air supply control valve	Vacuum release control valve
A	⊙ (N. C. :Normal Closed)	⊙ (N. C. :Normal Closed)
B	⊙ (N. O. :Normal Open)	⊙ (N. C. :Normal Closed)
C	⊙ (N. C. :Normal Closed)	
D	⊙ (N. O. :Normal Open)	
E		⊙ (N. C. :Normal Closed)
• W*	⊙ Double solenoid valve	⊙ (N. C. :Normal Closed)

* Only for DC24V and connector type.

⑤ Voltage

1	-	AC 110V
2	-	AC 220V
• 3	-	DC 24V

⑥ Solenoid Terminal

1*	-	DIN type without lead wire
2*	-	DIN type with lamp without lead wire
• 3	-	Connector type with lamp & 0.3 m lead wire
2B*	-	DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)
3B*	-	DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark

3 : Available only with DC24V

3B : Available only with DC24V

Available only with 'C' or 'PC', section ⑦

☞ About 'BUS cable' (☞ 340, 341)

⑦ Vacuum switch

- (P)C - Digital display output 2points, No analog supply M8 4-Pin connector type.
- (P)G - Digital display output 2points, No analog supply 4-Core 2m Grommet lead wire.
- (P)GA - Digital display output 2points, Analog supply 5-Core 2m Grommet lead wire.
- S1 - Mechanical vacuum switch
- S4 - Flashing LED light display NPN output 2points, No analog supply, 4-Core 1m lead wire.
- S5 - Flashing LED light display PNP output 1point, No analog supply, 3-Core 1m lead wire.

※ Remark : (P)..

☞ Output type : PNP open collector

⑧ Non return valve

no mark	-	standard
• N	-	Non return valve

⑨ Sealing

no mark	-	standard (NBR)
• V	-	Viton®
E	-	EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)/ eachstack	air consumption (NI/m)/eachstack	noise level (dBA)	weight(g) each stack		min hose inner ϕ (within 2m)		
					Connector Valve	DIN Valve	air supply		vacuum
							single unit	manifold unit	
VKX73	92 (27.17)	94	49 ~ 66	50~65	212	290	≥ 4	$\geq 8 \sim 12$	≥ 8
VKX74		109	66 ~ 88	50~65	212	290	≥ 4	$\geq 8 \sim 12$	≥ 8
VKM73	85 (25.1)	111	40 ~ 58	50~65	212	290	≥ 4	$\geq 8 \sim 12$	≥ 8
VKM74		135	54 ~ 78	50~65	212	290	≥ 4	$\geq 8 \sim 12$	≥ 8

※ Remark : Manifold unit type weight = each stack weight X N + 56g (N: stack)

Induce air in liters per minute (NI/m)

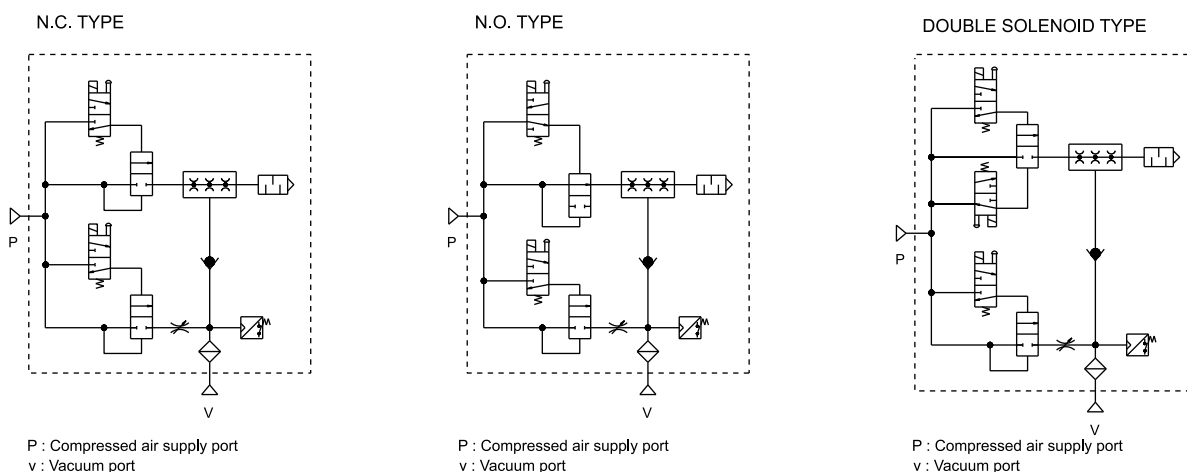
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VKX73		94	54	27	24	21	17	13.5	9	3.6	1.35
VKX74		109	72	35	32	27	22	18	12	4.8	1.8
VKM73		111	78	47	42	30	24	18	7.2	1.98	
VKM74		135	99	62	54	40	32	24	9.6	2.64	

Time in seconds to evacuate to vacuum level (sec/l)

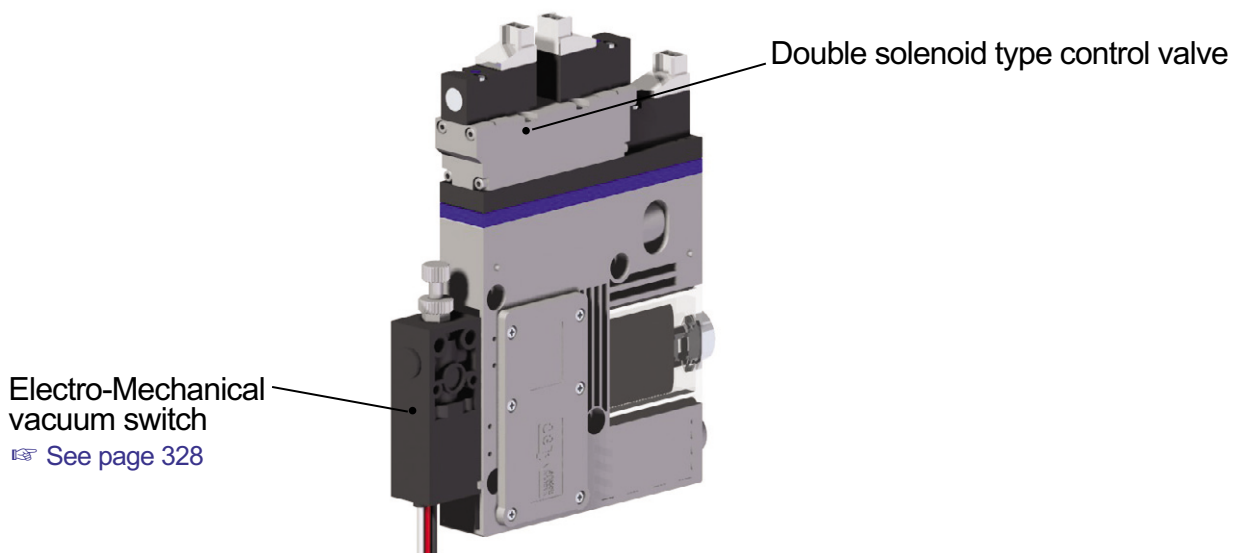
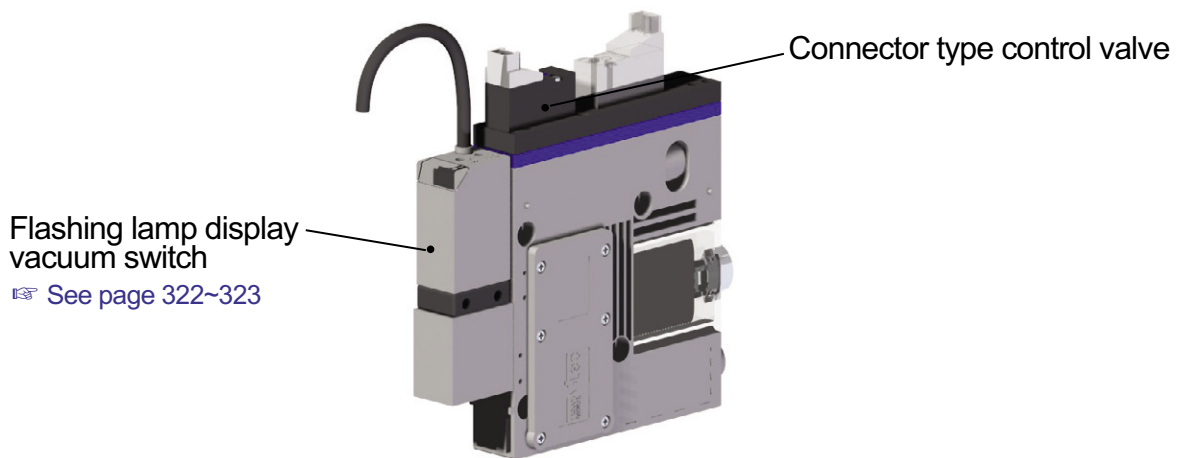
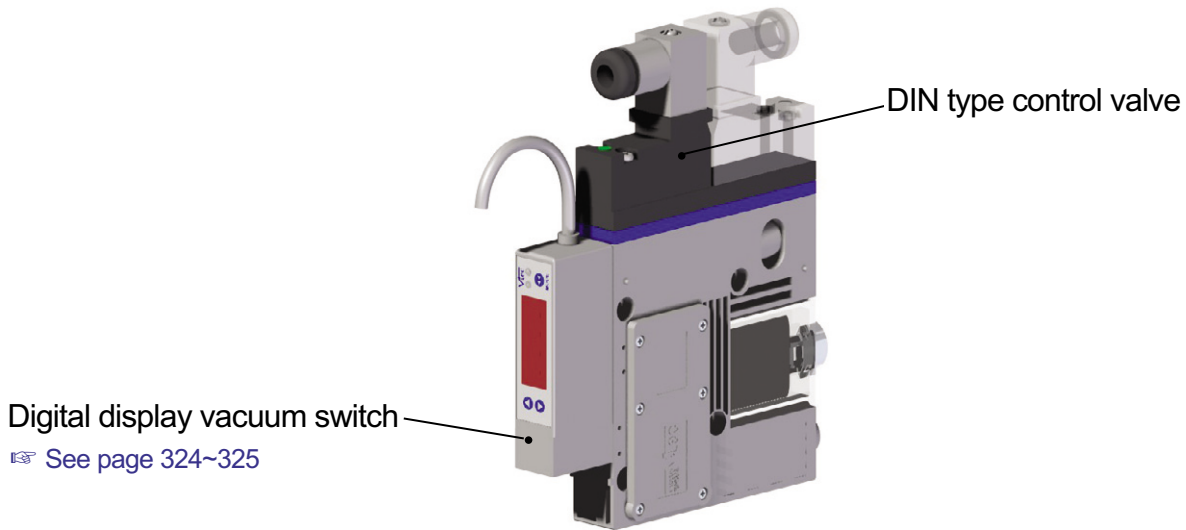
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VKX73		0.1	0.3	0.57	0.9	1.34	1.84	2.58	3.81	7.2
VKX74		0.06	0.2	0.38	0.6	0.89	1.23	1.72	2.54	4.8
VKM73		0.08	0.21	0.38	0.59	0.88	1.29	1.98	3.87	
VKM74		0.05	0.14	0.25	0.39	0.59	0.86	1.32	2.58	

VACUUM PUMPS

The composition of the Mega keyboard pump

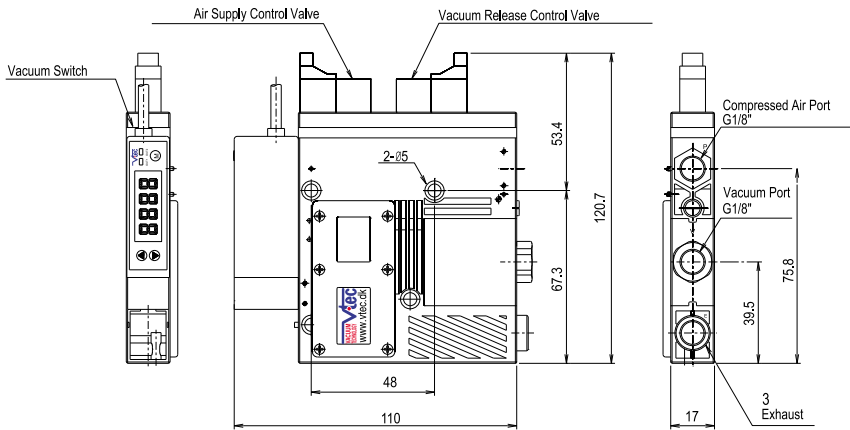


Selectable wide range of valves and switches.

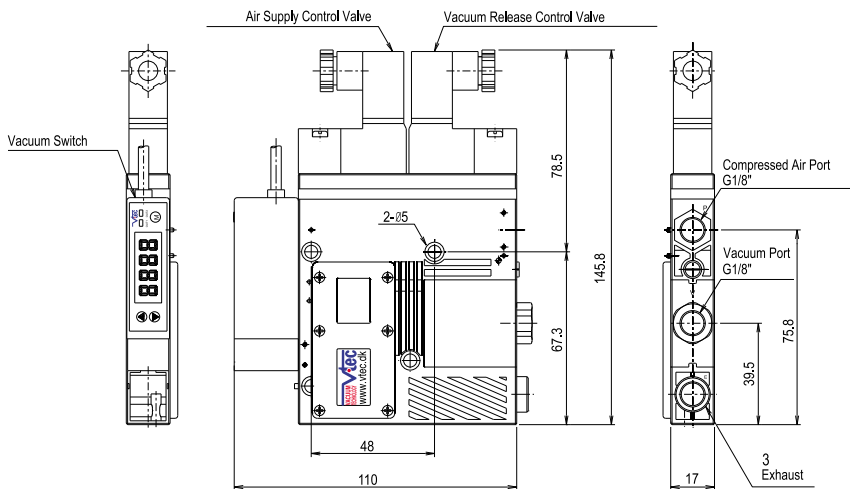


Dimensional Information

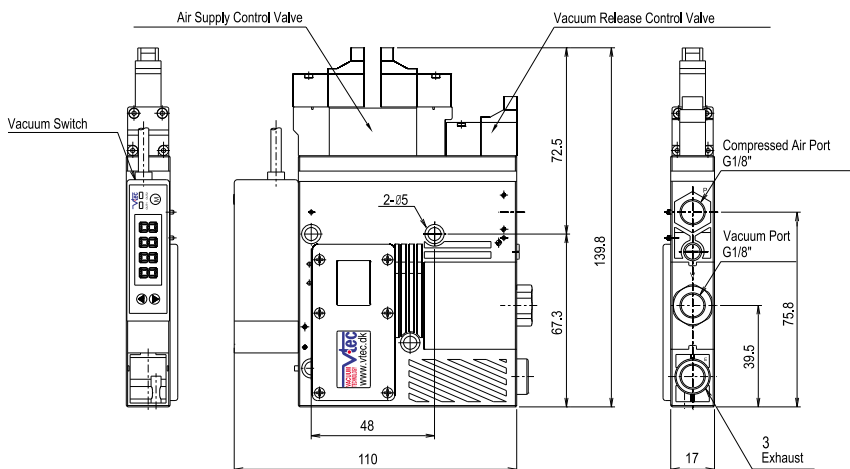
Single unit
Control valve Connector type / Digital vacuum switch



Single unit
Control valve DIN type / Digital vacuum switch



Single unit
Control valve double solenoid type / Digital vacuum switch



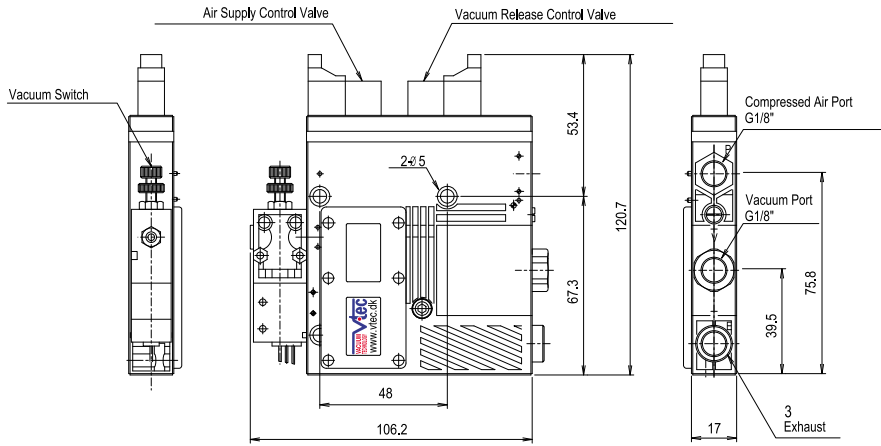
[Measure unit : mm]

VACUUM PUMPS

Dimensional Information

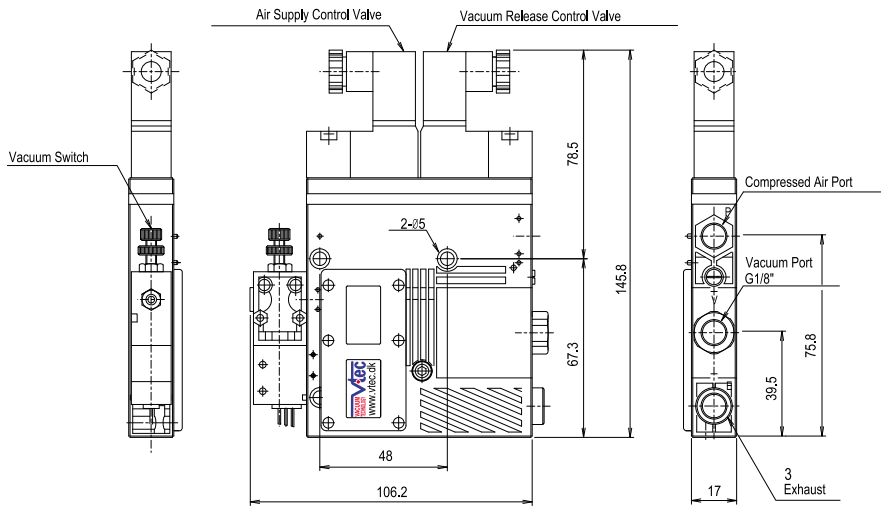
Single unit

Control valve Connector type / Mechanical vacuum switch



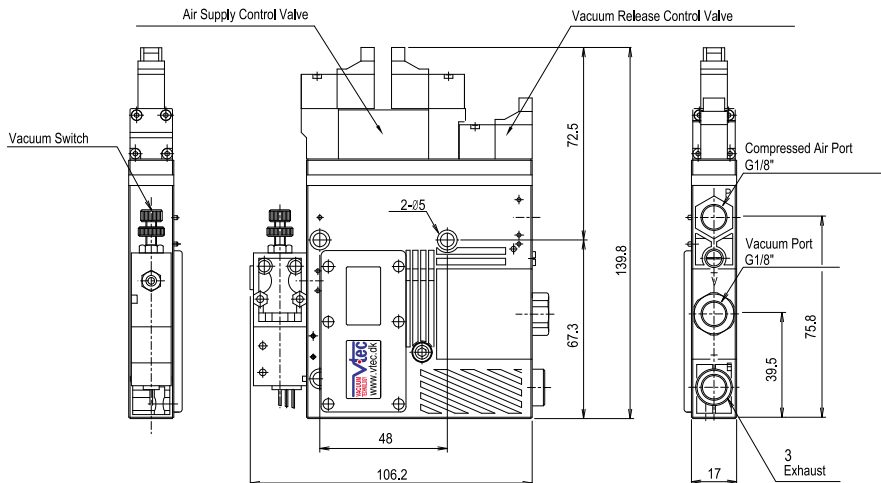
Single unit

Control valve DIN type / Mechanical vacuum switch



Single unit

Control valve double solenoid type / Mechanical vacuum switch

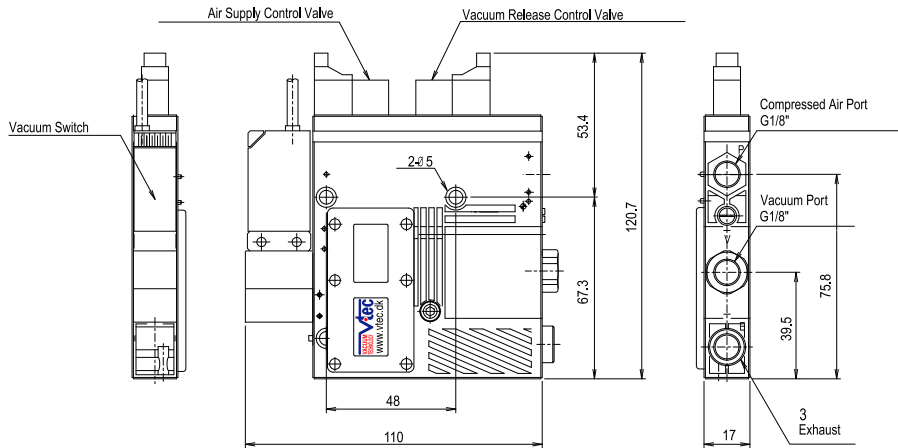


[Measure unit : mm]

Dimensional Information

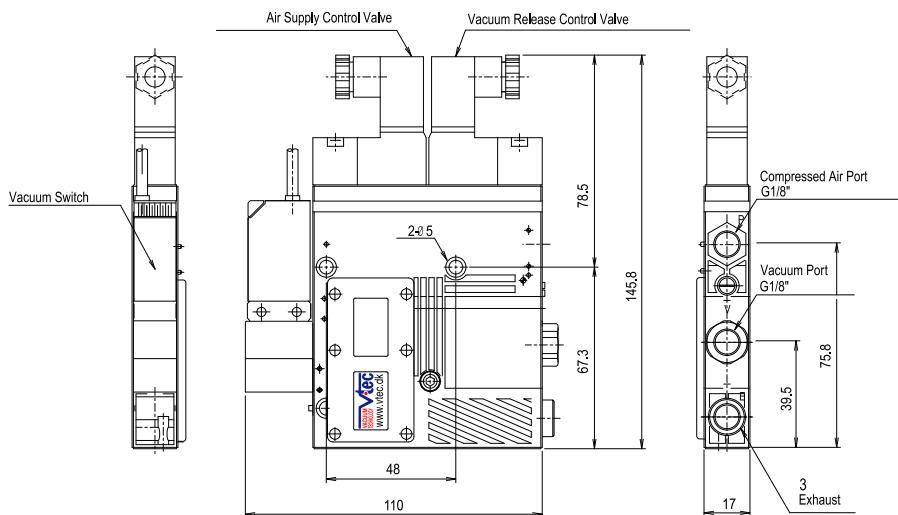
Single unit

Control valve Connector type / Flashing lamp display vacuum switch



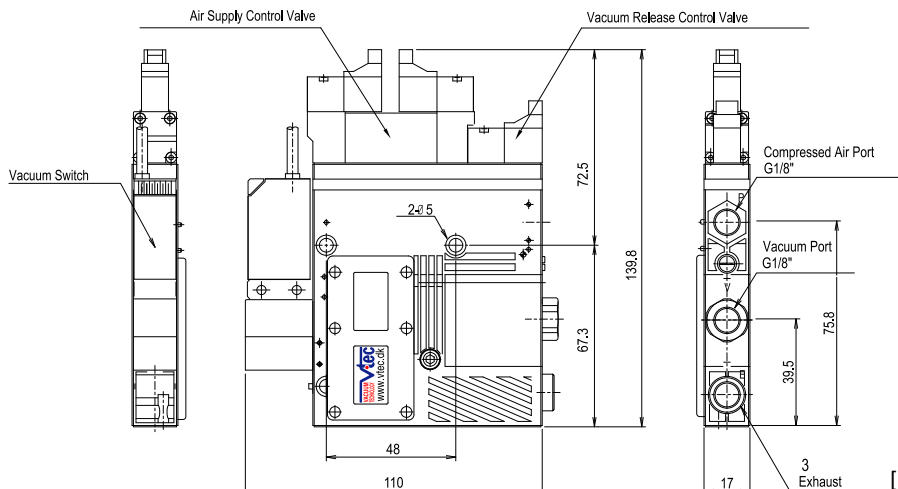
Single unit

Control valve DIN type / Flashing lamp display vacuum switch



Single unit

Control valve double solenoid type / Flashing lamp display vacuum switch



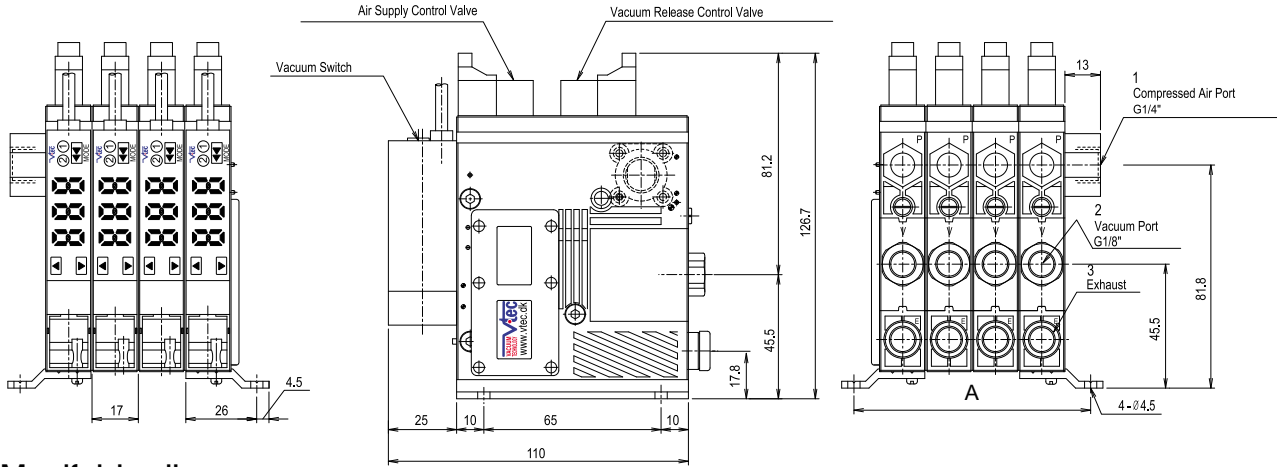
[Measure unit : mm]

VACUUM PUMPS

Dimensional Information

Manifold unit

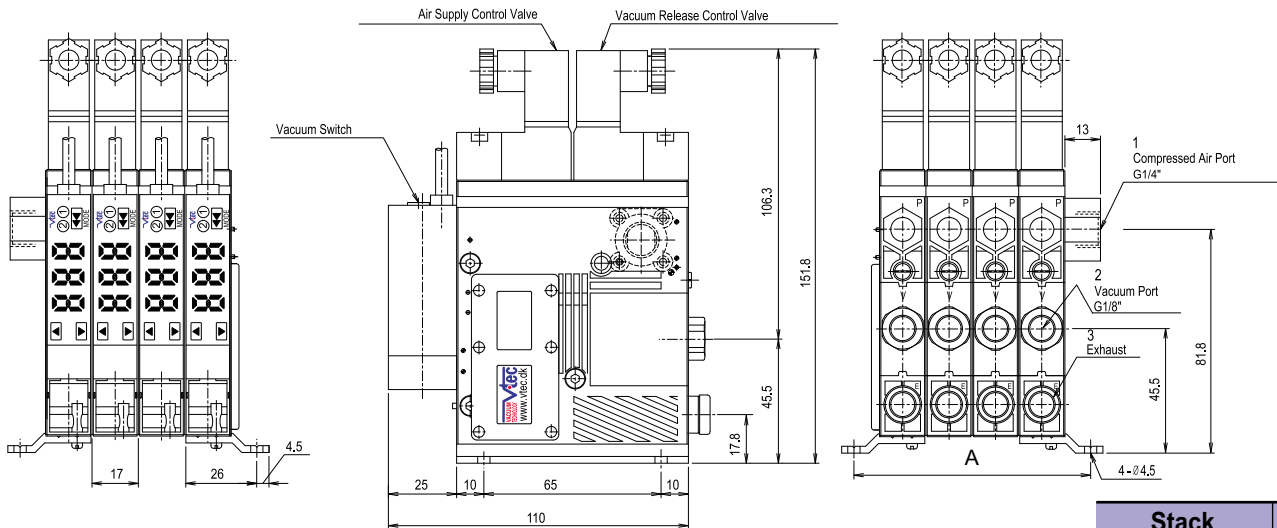
Control valve Connector type / Digital vacuum switch



Manifold unit

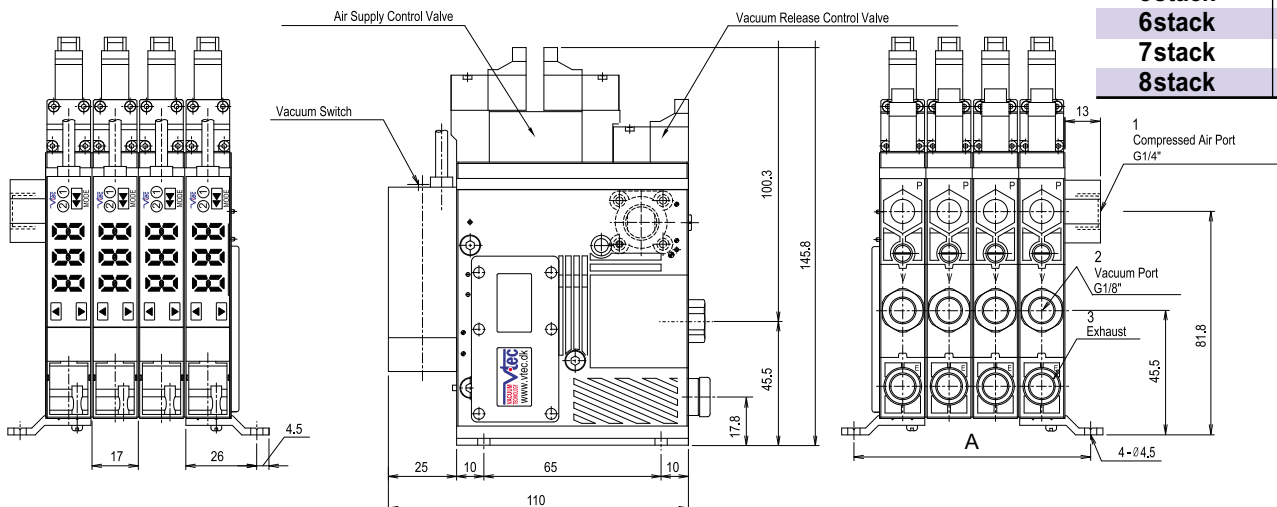
Control valve DIN type / Digital vacuum switch

[Measure unit : mm]



Manifold unit

Control valve double solenoid type / Digital vacuum switch

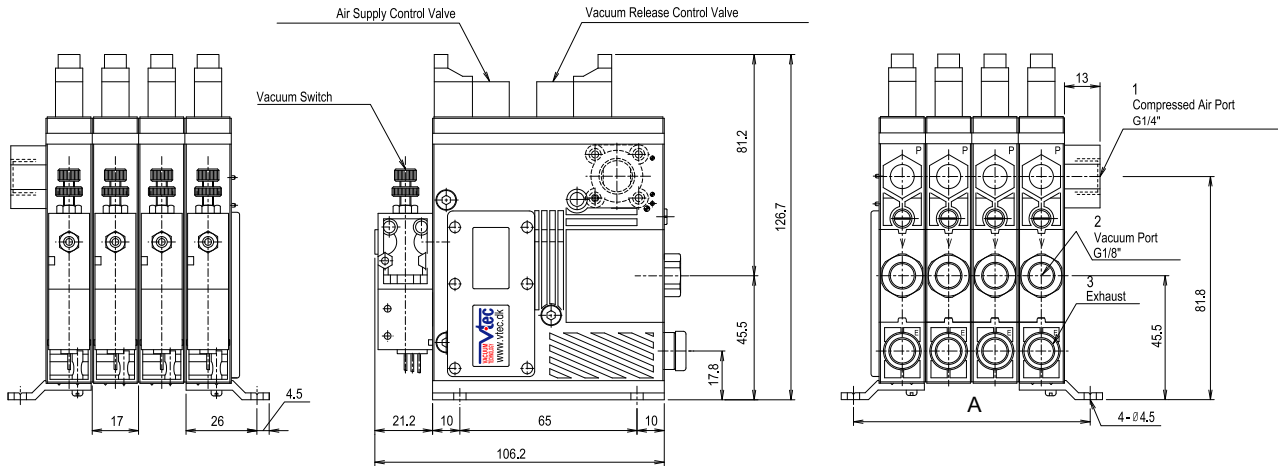


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

Dimensional Information

Manifold unit

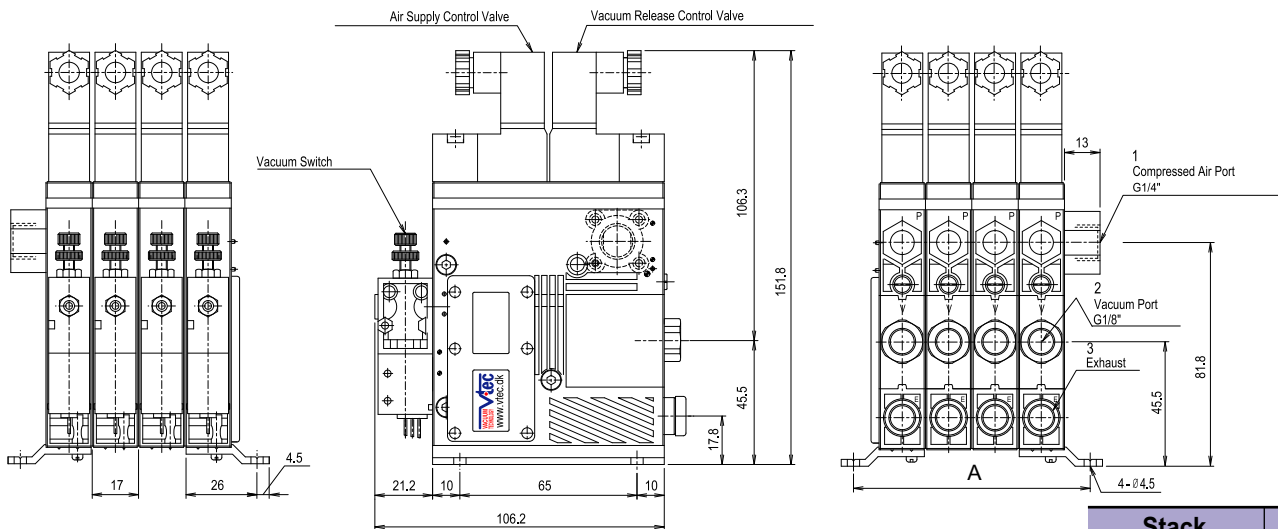
Control valve Connector type / Mechanical vacuum switch



[Measure unit : mm]

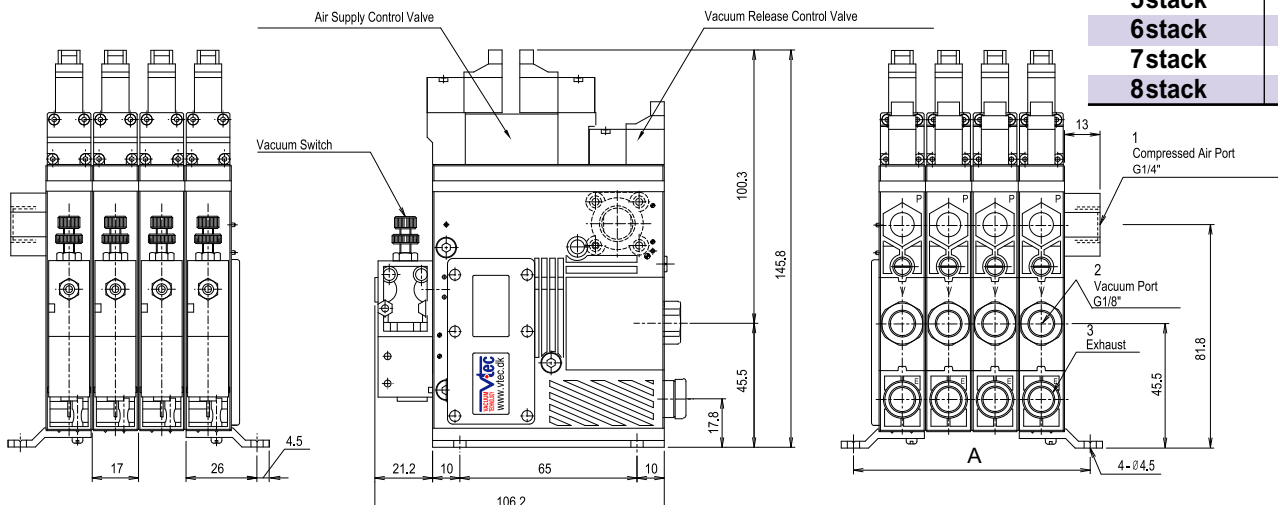
Manifold unit

Control valve DIN type / Mechanical vacuum switch



Manifold unit

Control valve double solenoid type / Mechanical vacuum switch

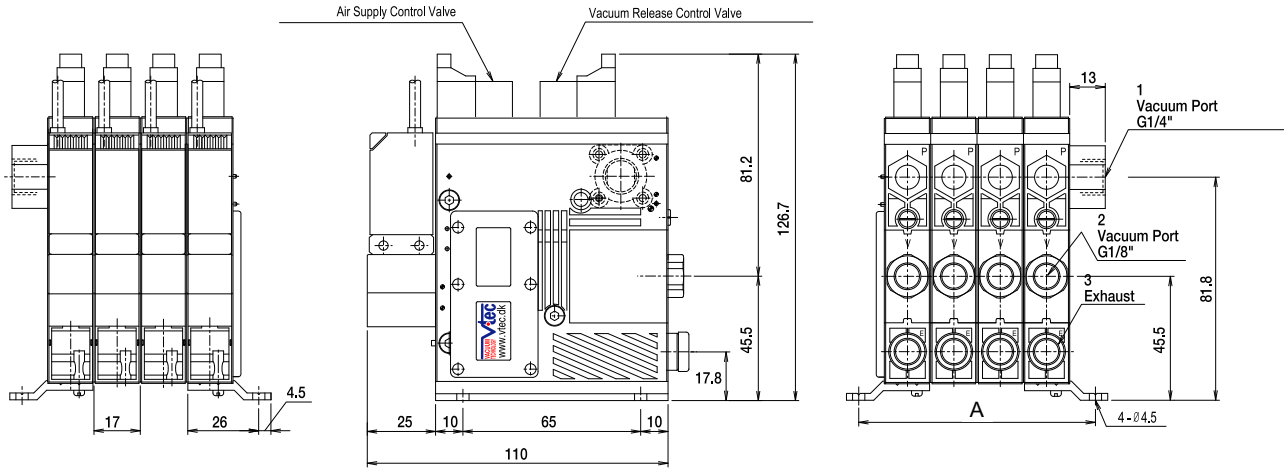


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

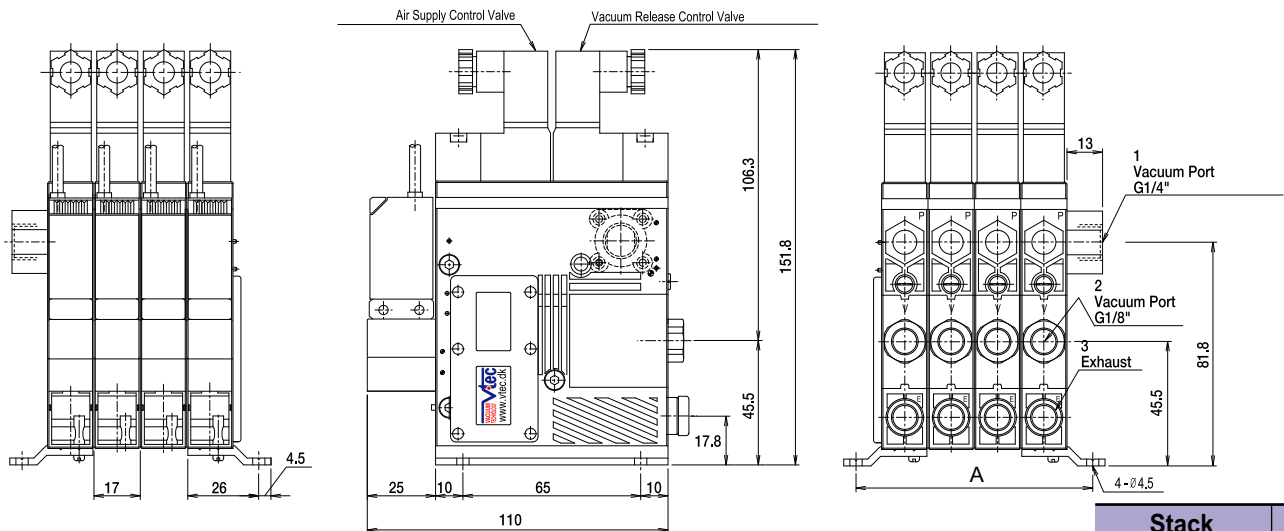
Dimensional Information

Manifold unit Control valve Connector type / Flashing lamp display vacuum

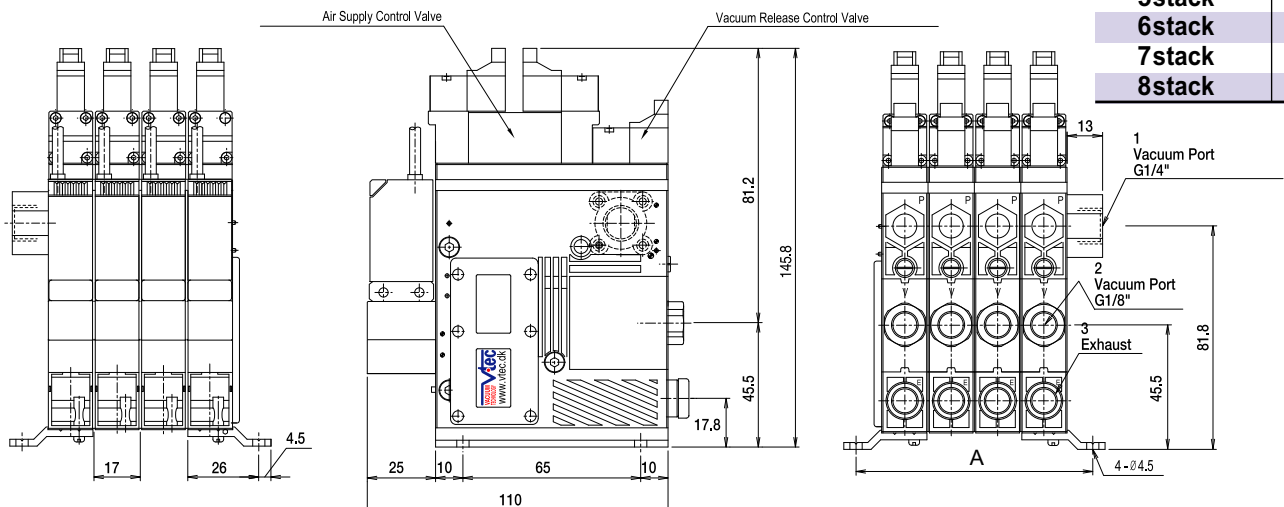


Manifold unit Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : mm]



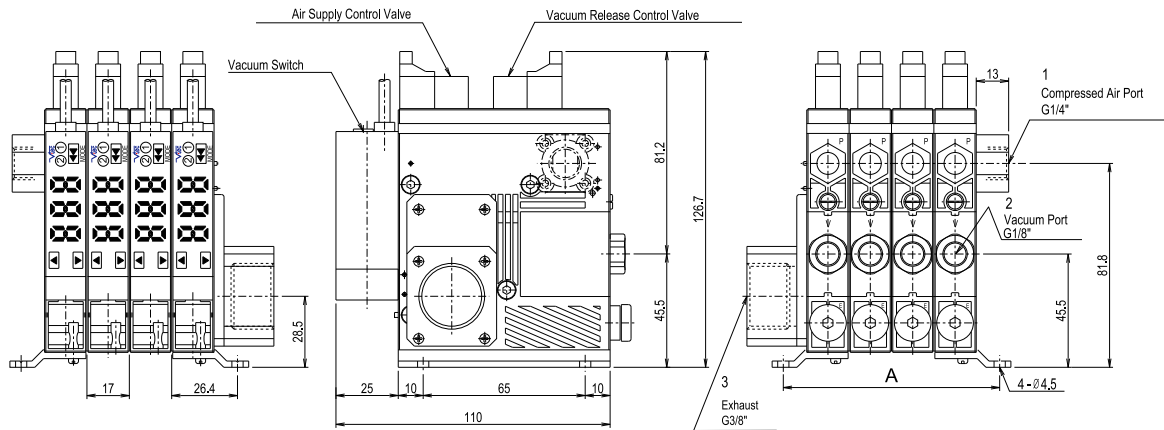
Manifold unit Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

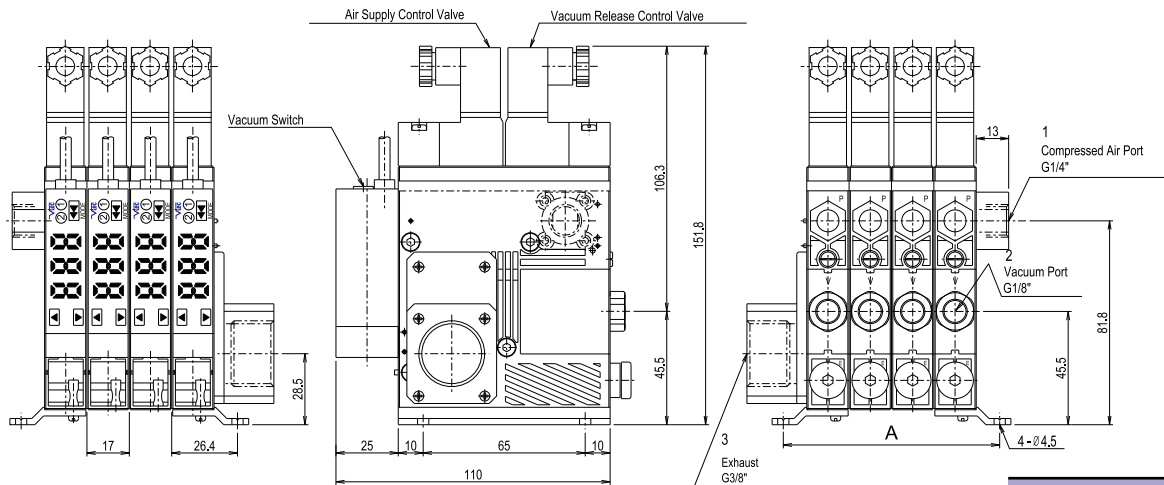
Dimensional Information

Manifold unit with central exhaust
Control valve Connector type / Digital vacuum switch

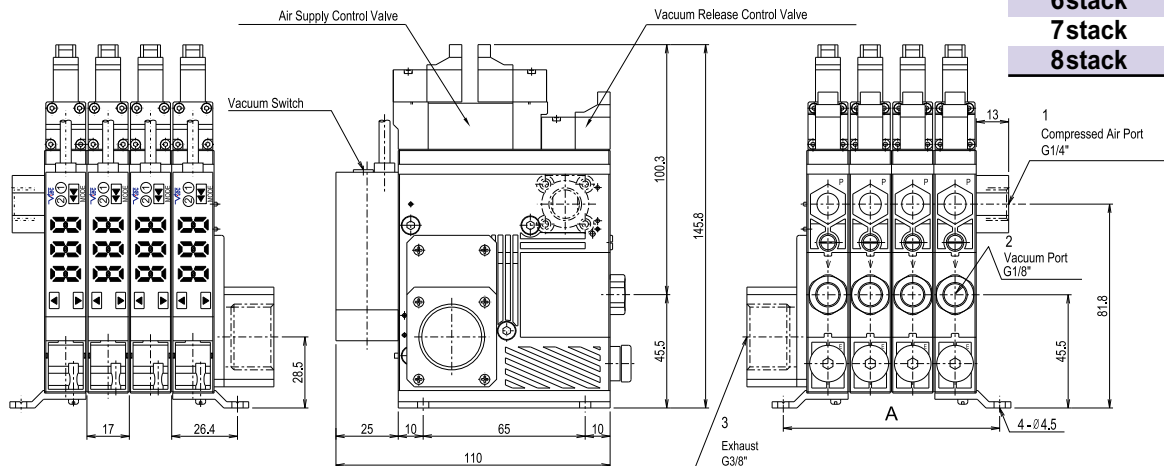


Manifold unit with central exhaust
Control valve DIN type / Digital vacuum switch

[Measure unit : mm]



Manifold unit with central exhaust
Control valve double solenoid type / Digital vacuum switch



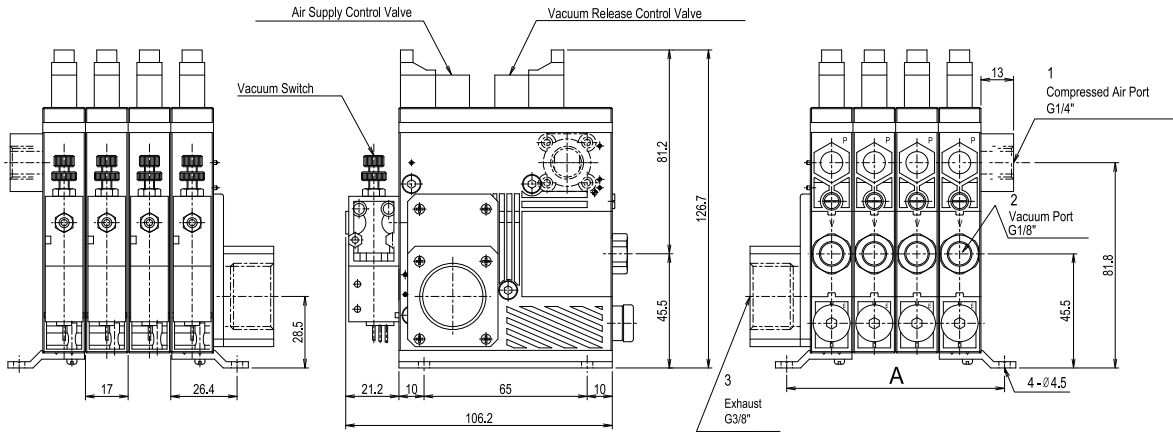
Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

Dimensional Information

Manifold unit with central exhaust

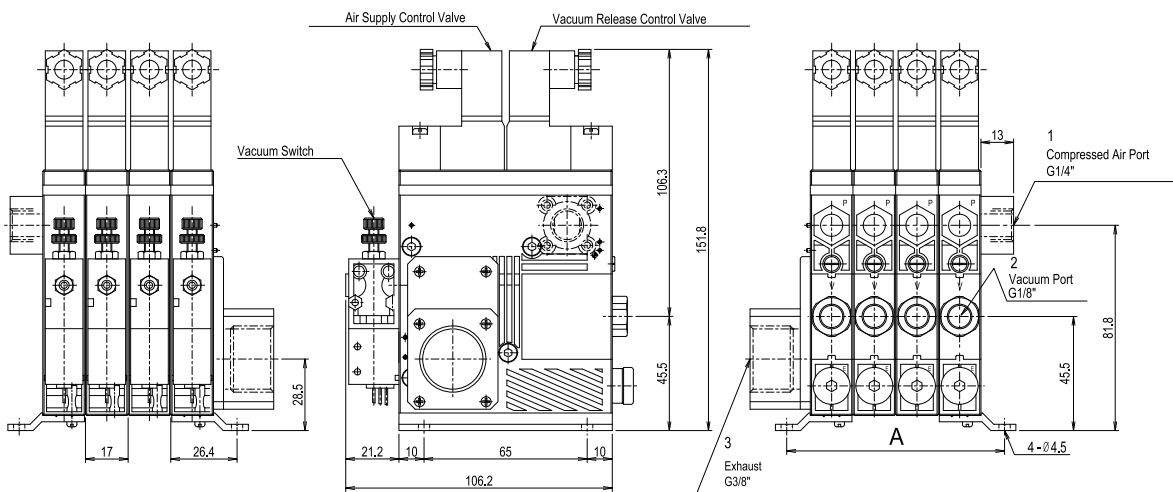
Control valve Connector type / Mechanical vacuum switch



Manifold unit with central exhaust

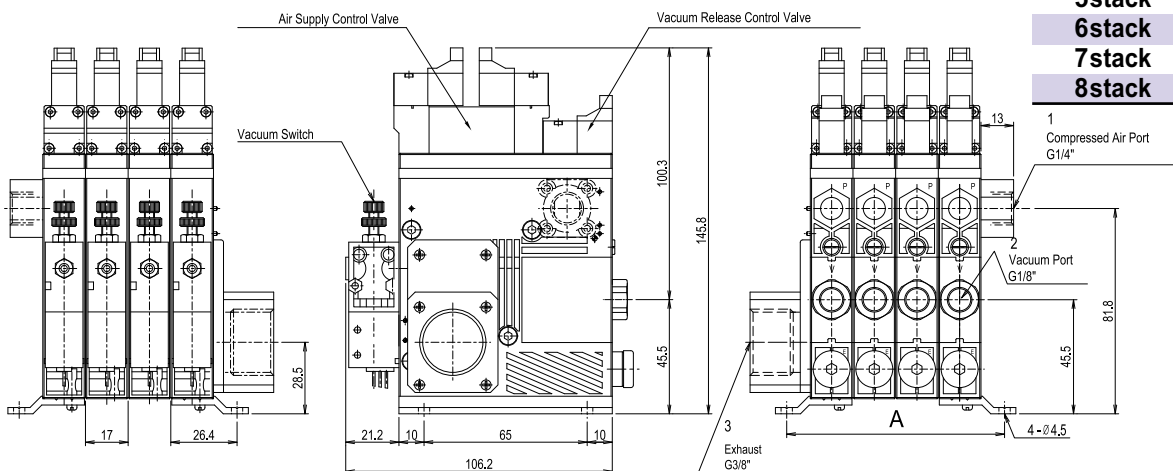
Control valve DIN type / Mechanical vacuum switch

[Measure unit : mm]



Manifold unit with central exhaust

Control valve double solenoid type / Mechanical vacuum switch

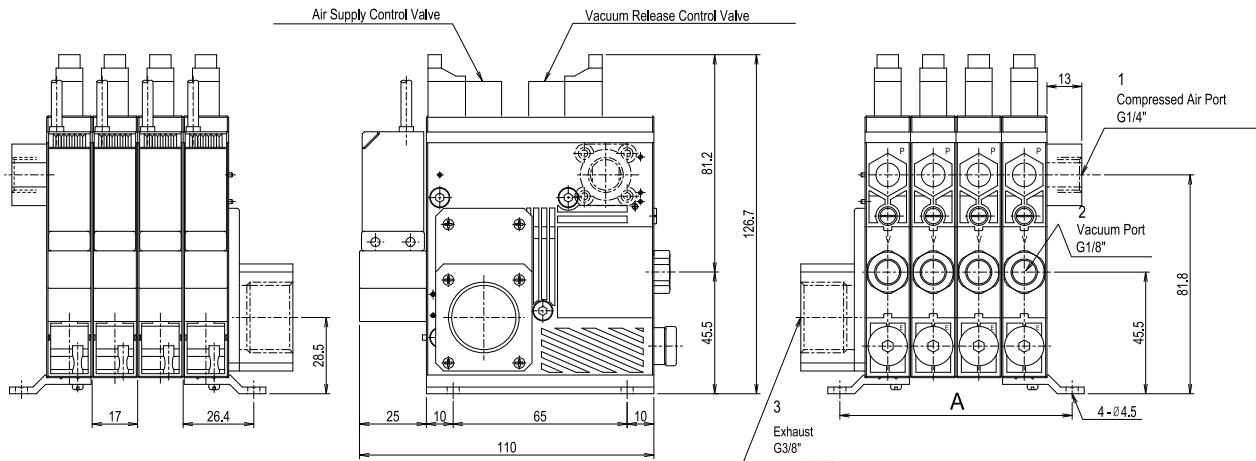


Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

Dimensional Information

Manifold unit with central exhaust

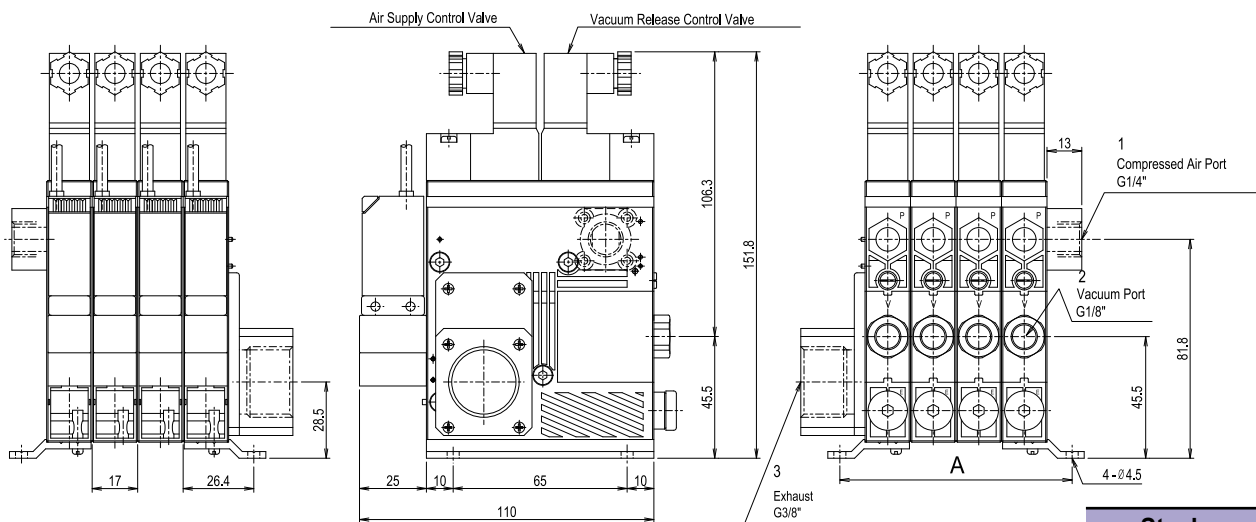
Control valve Connector type / Flashing lamp display vacuum switch



Manifold unit with central exhaust

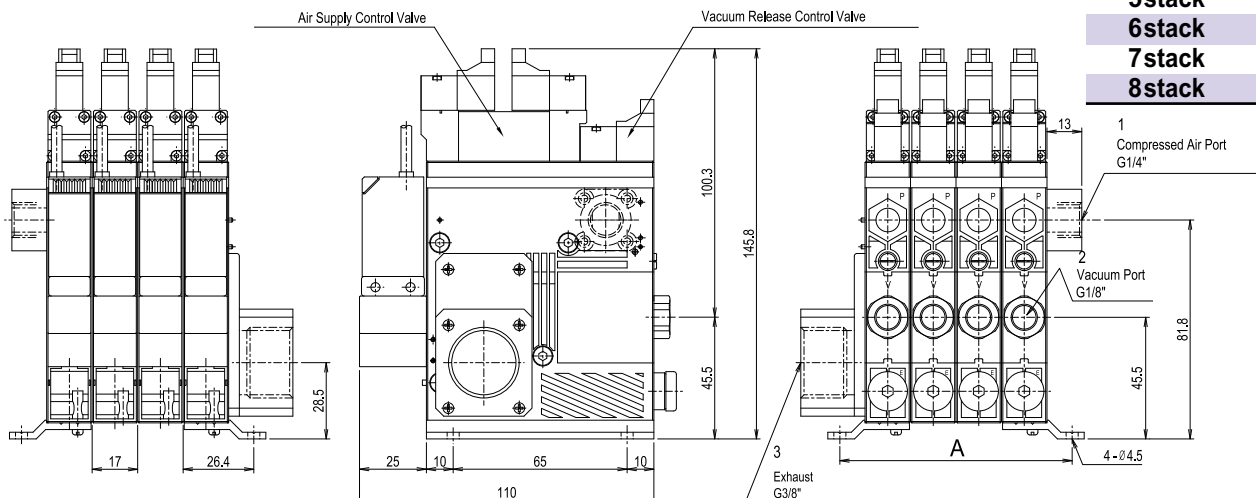
Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : mm]



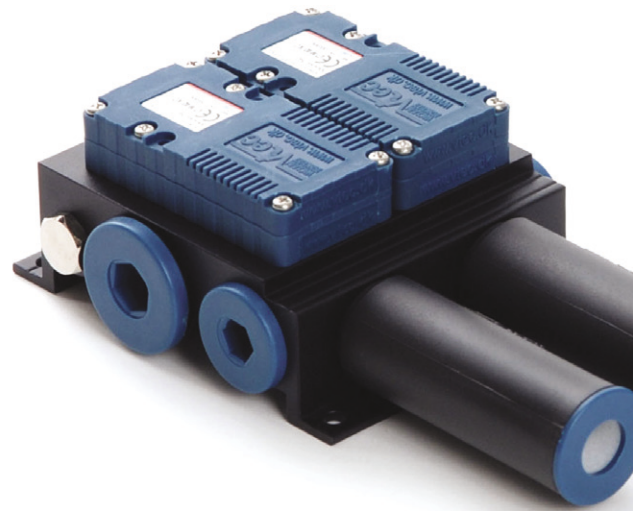
Manifold unit with central exhaust

Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (mm)
2stack	52.8
3stack	69.8
4stack	86.8
5stack	103.8
6stack	120.8
7stack	137.8
8stack	154.8

VACUUM PUMPS

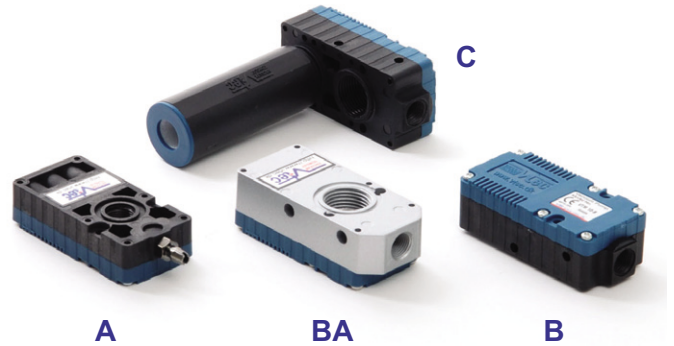


MINI PUMPS



M-Mini Pump

- Max. vacuum level** : -85 kPa (-25.1 inHg)
- Max. flow rate** : 220 NI/min (7.77 scfm)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, Max 101.5 psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C to +80°C
- Noise level** : 50~68 dBA



Main Advantages

These M-Mini range pumps are compact and low weight design. Although they are the smallest of the VTM range they still use a Multi Stage Ejector principal for generating the vacuum, these pumps provide large capacity vacuum flow combined with high grade plastic, making the pumps resilient to most hazardous vapors. Because the pumps are too small they can be mounted locally to the vacuum requirement, even directly onto the back of suction cups if required. Different vacuum port sizes are available with options for an integrally mounted exhaust or a 3/8" detachable versions. The pumps can be specified with a vacuum switch or a quick release module attached directly onto the pump. The pump can have seal materials options of Viton® & EPDM for corrosive and acidic applications.

Order No.

VTM5 - B - A3 CL - S1 - V



- ① **Model** – Capacity equivalent to electricity motor pump size
- **VTM5** – 0.05KW
 - VTM10 – 0.10KW
 - VTM20 – 0.20KW
 - VTM30 – 0.30KW

- ③ **Air supply control valve**
- A1 – AC110V
 - A2 – AC220V
 - **A3** – DC24V

- ④ **Solenoid Terminal**

DN – DIN type without lead wire

DL – DIN type with lamp without lead wire

- **CL*** – Connector type with lamp & 0.3m lead wire

* Available only with DC24V

- ② **Air Supply, Vacuum, Exhaust Port**

	Air	Vacuum	Exhaust
A	M5-Ø6	G1/8"	Internal silencer
NA	M5-Ø6	NPSF1/8"	Internal silencer
• B	G1/8"	G3/8"	Internal silencer
BA	G1/8"	G3/8"	Internal silencer, connection plate-AL
NB	NPSF1/8"	NPSF 3/8"	Internal silencer
BA	NPSF1/8"	NPSF 3/8"	Internal silencer, connection plate-AL
C	G1/8"	G3/8"	External silencer
NC	NPSF1/8"	NPSF 3/8"	External silencer

※ Standard pump model

VTM5 – A, NA, B, BA, NB, NBA, C, NC
VTM10 – A, NA, B, BA, NB, NBA, C, NC

VTM20 – B, BA, NB, NBA, C, NC
VTM30 – B, BA, NB, NBA, C, NC

- ⑤ **Vacuum switch / Quick release module**

- **S1** – Mechanical vacuum switch

Q1 – Quick release module : 12cm³

Q2 – Quick release module : 30cm³

※ **Remark** : Air supply control valve available for vacuum pump B, BA, NB, NBA, C, NC type only.

- ⑥ **Sealing**

No mark – Standard (NBR)

- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM5	85 (25.1)	37	15-21	50 - 65	-	>2	>5	>8
VTM10		74	30-42	55 - 68	-	>2	>8	>10
VTM20		149	60-84	60 - 68	-	>4	>10	>12
VTM30		220	90-126	60 - 68	-	>6	>12	>15

* Remarks : type weight = VTM5-A(B,BA,NBA,C,NC) : 26g(30,56,30,56,42,42)
 VTM10-A(B,BA,NBA,C,NC) : 28g(32,58,32,58,44,44)
 VTM20-B(BA,NB,NBA,C,NC) : 41g(79,41,79,53,53)
 VTM30-B(BA,NB,NBA,C,NC) : 60g(98,60,98,72,72)

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

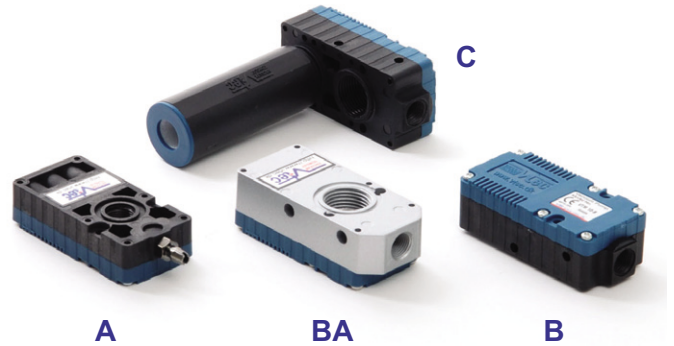
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	0	10	20	30	40	50	60	70	80
VTM5	37	26	16	14	10	8	6	2.4	0.66
VTM10	74	52	31	28	20	16	12	4.8	1.32
VTM20	149	99	62	54	40	32	22	10.5	2.7
VTM30	220	147	92	73	60	47	32	16	4.1

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	10	20	30	40	50	60	70	80
VTM5	0,218	0,556	1	1,576	2,356	3,44	5,27	10,216
VTM10	0,109	0,278	0,5	0,788	1,178	1,72	2,635	5,158
VTM20	0,054	0,139	0,25	0,394	0,589	0,86	1,317	2,579
VTM30	0,041	0,104	0,186	0,295	0,441	0,647	0,898	1,935

X - Mini Pump

- Max. vacuum level** : -92 kPa (-27.17 inHg)
- Max. flow rate** : 185 NI/min (6.53 scfm)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C to +80°C
- Noise level** : 50~68 dBA



Main Advantages

These X-Mini range pumps are a compact and low weight design. Although they are the smallest of the VTX range they still use a Multi Stage Ejector principal for generating the vacuum. The X-Mini has the same external dimensions to that of the M-Mini, however the internal ejector system is different to enable higher levels of vacuum to be achieved. The X-Mini is a pump that bridges the gap between the High Flow VTM range and the High Vacuum VTH Range, giving a balance of the two. The housings are made from high grade plastic, making the pumps resilient to most hazardous vapours. Because the pumps are so small they can be mounted locally to the vacuum requirement, even directly onto the back of suction cups if required. Different vacuum port sizes are available with options for an integrally mounted exhaust or a 3/8" detachable versions. The pumps can be specified with a vacuum switch or a vacuum quick release module attached directly onto the pump. The pump can have seal materials options of Viton® & EPDM for corrosive and acidic applications.

Order No.

VTX5 - B - A3 CL - S1 - V

① ② ③ ④ ⑤ ⑥

① **Model** – Capacity equivalent to electricity motor pump size

• VTX5	- 0.05KW
VTX10	- 0.10KW
VTX20	- 0.20KW
VTX30	- 0.30KW

② **Air Supply, Vacuum, Exhaust Port**

	Air	Vacuum	Exhaust
A	M5-Ø6	G1/8"	Internal silencer
NA	M5-Ø6	NPSF1/8"	Internal silencer
• B	G1/8"	G3/8"	Internal silencer
BA	G1/8"	G3/8"	Internal silencer, connection plate-AL
NB	NPSF1/8"	NPSF 3/8"	Internal silencer
NBA	NPSF1/8"	NPSF 3/8"	Internal silencer, connection plate-AL
C	G1/8"	G3/8"	External silencer
NC	NPSF1/8"	NPSF 3/8"	External silencer

※ Standard pump model
 VTX5 - A, NA, B, BA, NB, NBA, C, NC VTX20 - B, BA, NB, NBA, C, NC
 VTX10 - A, NA, B, BA, NB, NBA, C, NC VTX30 - B, BA, NB, NBA, C, NC

③ **Air supply control valve**

A1	- AC110V
A2	- AC220V
• A3	- DC24V

④ **Solenoid Terminal**

DN	- DIN type without lead wire
DL	- DIN type with lamp without lead wire
• CL*	- Connector type with lamp & 0.3m lead wire

* Available only with DC24V

⑤ **Vacuum switch / Quick release module**

• S1	- Mechanical vacuum switch
Q1	- Quick release module : 12cm ³
Q2	- Quick release module : 30cm ³

※ Remark : Air supply control valve available for vacuum pump B, BA, NB, NBA, C, NC type only.

⑥ **Sealing**

No mark	- Standard (NBR)
• V	- Viton®
E	- EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTX5	92 (27,17)	32	21,6-24	50 - 65	-	>2	>5	>8
VTX10		62	43,2-48	55 - 68	-	>2	>8	>10
VTX20		124	86,4-96	63 - 68	-	>4	>10	>12
VTX30		185	129,6-144	60 - 68	-	>6	>12	>15

* Remarks : type weight = VTX5-A(B,BA,NB,NBA,C,NC) : 26g(30,56,30,56,42,42)
 VTX10-A(B,BA,NBA,C,NC) : 28g(32,58,32,58,44,44)
 VTX20-B(BA,NB,NBA,C,NC) : 41g(79,41,79,53,53)
 VTX30-B(BA,NB,NBA,C,NC) : 60g(98,60,98,72,72)

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

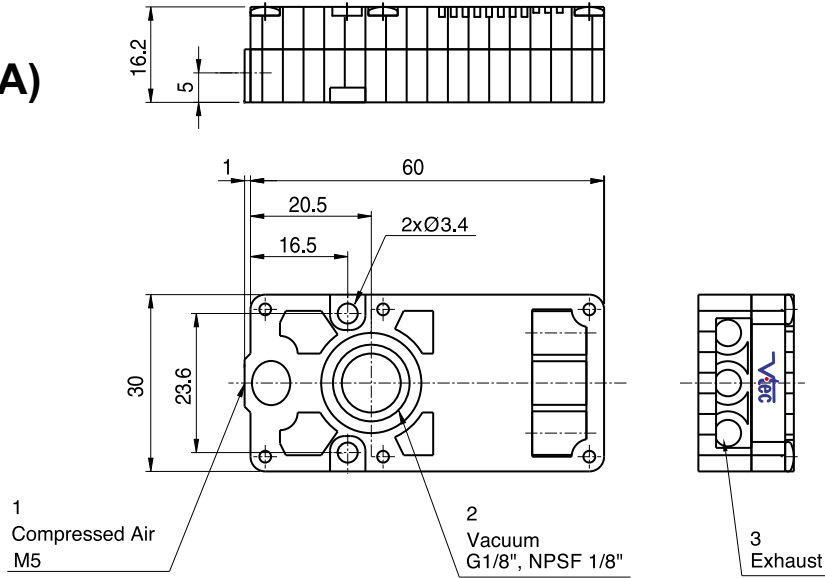
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90
VTX5	32	18	9	8	7	6	5	3	1.2	0.45
VTX10	62	36	18	16	14	11	9	6	2.4	0.9
VTX20	124	72	35	32	27	22	18	12	4.8	1.8
VTX30	185	108	52	47	41	33	26	18	7.2	2.7

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90
VTX5	0,258	0,796	1,156	2,4	3,56	4,91	6,896	10,16	19,19
VTX10	0,129	0,398	0,758	1,2	1,78	2,455	3,445	5,08	9,594
VTX20	0,064	0,199	0,379	0,6	0,89	1,227	1,722	2,54	4,797
VTX30	0,048	0,149	0,284	0,44	0,673	0,917	1,287	1,906	3,595

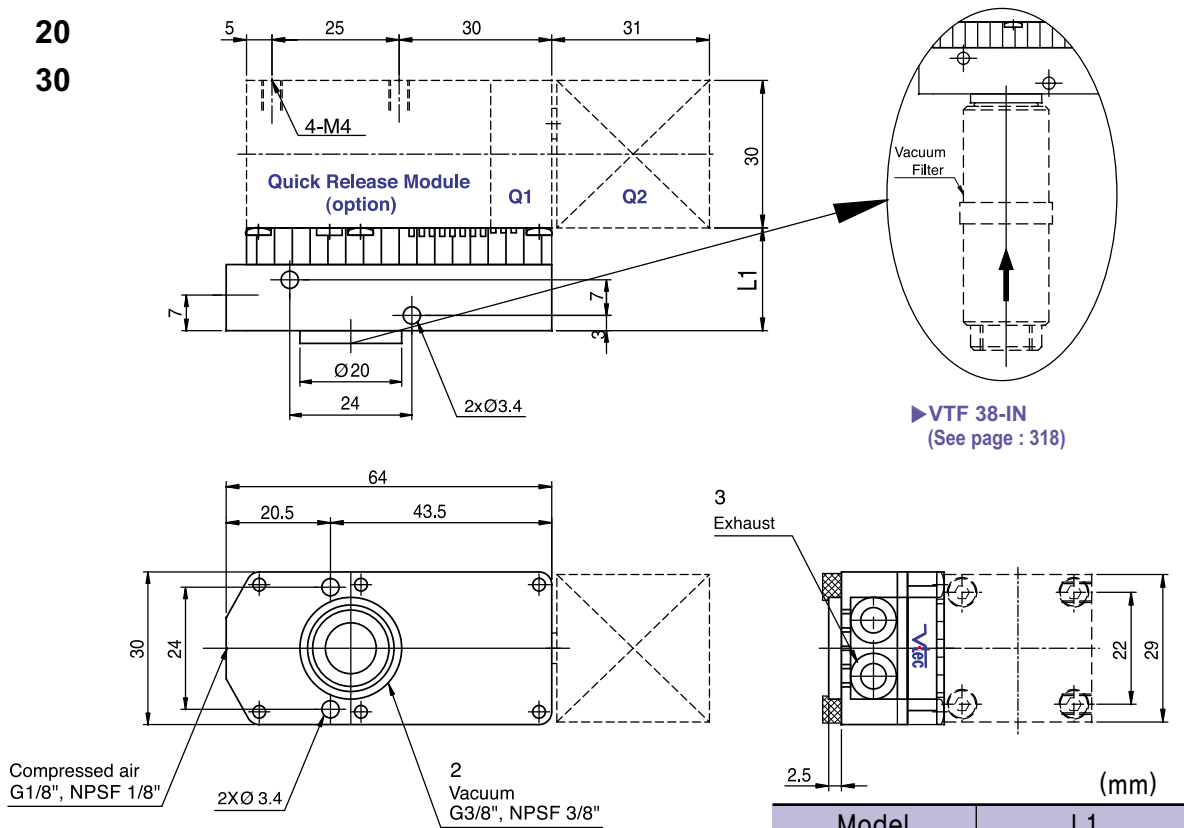
Dimensional Information

**5
VTM(X) (10)-A(NA)**



**5
VTM(X) (10)-B (BA, NB)**

20
30



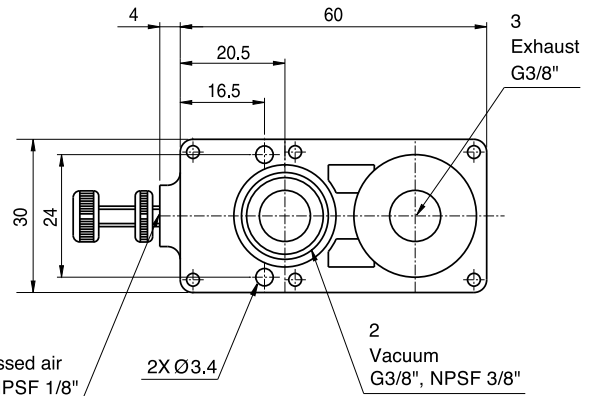
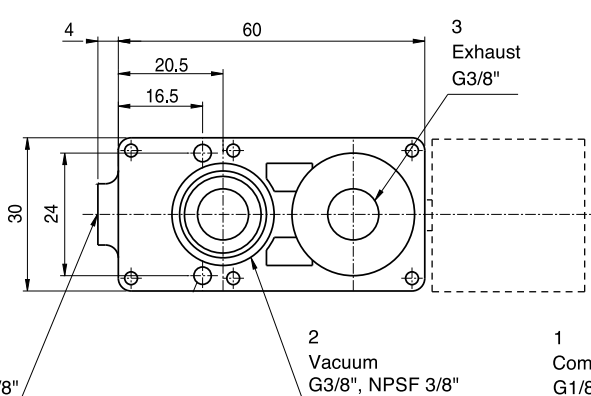
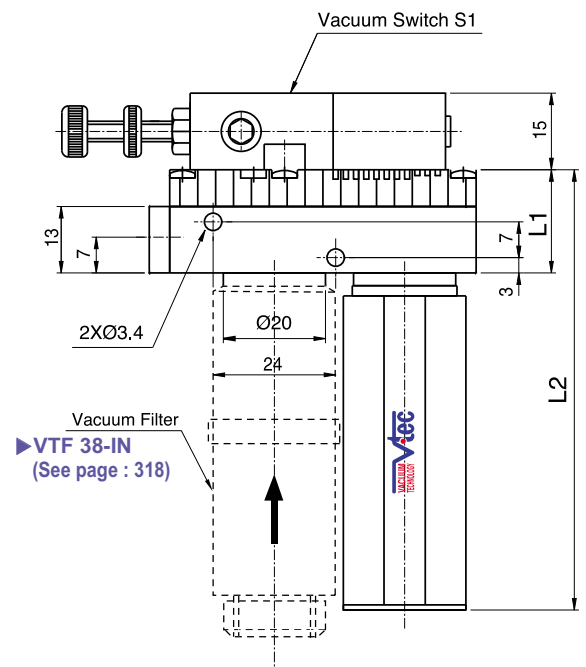
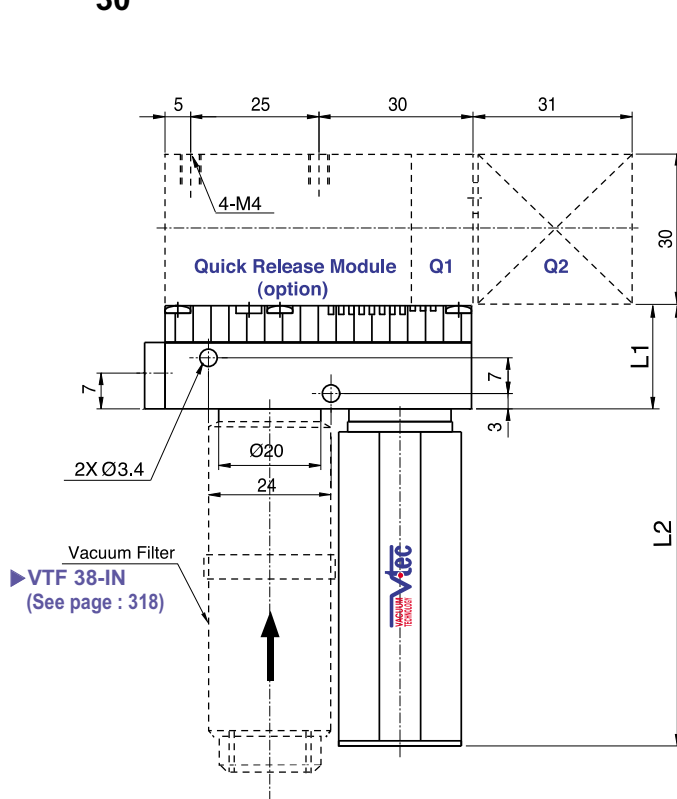
[Measure unit : mm]

Model	L1
VTM(X)5	20.2
VTM(X)10	20.2
VTM(X)20	27.4
VTM(X)30	34.6

Dimensional Information

5
VTM(X) (10)-C (NC)
20
30

with switch S1



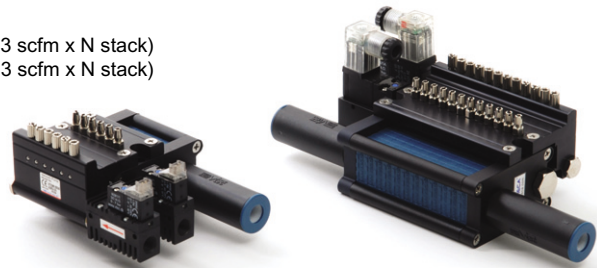
[Measure unit : mm]

	(mm)	
Model	L1	L2
VTM(X)5	20.2	86.2
VTM(X)10	20.2	86.2
VTM(X)20	27.4	93.4
VTM(X)30	34.6	100.6

VACUUM PUMPS

One-Line Pump

- Max. vacuum level** : VTOX pump -92 kPa (-27.17 inHg)
VTOM pump -85 kPa (-25.1 inHg)
- Max. flow rate** : VTOX pump 32 NI/min x N Stack (1.13 scfm x N stack)
VTOM pump 35 NI/min x N Stack (1.23 scfm x N stack)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ 80°C
- Noise level** : 50~65 dBA



This oneline model uses individual pumps to make up the complete unit, each pump is in itself a multi stage ejector unit. Each individual pump can be stacked to together thus creating a modular manifold based system. The advantages of this unit is that it can be operated using just two control valve (as to vacuum and equal vacuum release time to each vacuum pads) whilst retaining individual vacuum lines separate to one another, therefore if any leakage or surface deformation occurs and one pad loses it vacuum, it does not effect the vacuum level in the other pads. Also, it can be used vacuum port for purging work filter cleaning function. It will be achieved long life time vacuum filter & pump. Pumps can be stacked up from 4 - 16 unit depending upon requirements. The pumps can have seal material options of Viton® & EPDM for corrosive and acidic applications.

Main Advantages

- Individual vacuum lines
- Filter cleaning function
- Efficiency and economic
- Can be adjust vacuum release flow
- Compact & long life time

Application

- Semiconductor
- Robotic
- Packaging
- Pick & Place System
- Metal Sheet Handling
- Automotive

Order No.

VTOX5 x 6 - A3 R3 - CL - V



① Model-Vacuum Flow

• VTOX5 - 24 NI/min
VTOX10 - 32 NI/min
VTOM5 - 29 NI/min
VTOM10 - 35 NI/min

② Vacuum Stack

4 - 4 stack	11 - 11 stack
5 - 5 stack	12 - 12 stack
• 6 - 6 stack	13 - 13 stack
7 - 7 stack	14 - 14 stack
8 - 8 stack	15 - 15 stack
9 - 9 stack	16 - 16 stack
10 - 10 stack	

※ Remark :

- VTOX10, VTOM10 maximum stack up to 12 stacks
- VTOX5, VTOM5 : above 12 stack complete with 2 silencer
- VTOX10, VTOM10 : above 6 stack complete with 2 silencer

③ Air supply control valve

A1 - AC110V
A2 - AC220V
• A3 - DC24V

④ Vacuum release control Valves

R1 - AC110V
R2 - AC220V
• R3 - DC24V

⑤ Solenoid Terminal

DN - DIN type without lead wire
DL - DIN type with lamp without lead wire
• CL* - Connector type with lamp & 0.3m lead wire
2B - DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)

* Available only with DC24V

☞ About 'BUS cable' (☞ 340, 341)

⑥ Sealing

no mark - standard (NBR)
• V - Viton®
E - EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)/each stack	air consumption (NI/m)/each stack	noise level (dBA)	weight (g) each stack	min hose inner \varnothing (within 2m)	
						air supply	vacuum
VTOX5	92	24	21,6~24	55~65	37	> 8~10	> 2,5
VTOX10	(27,17)	32	43,2~48	60~65	37	> 8~12	> 2,5
VTOM5	85	27	15~21	55~65	37	> 8~10	> 2,5
VTOM10	(25,1)	35	30~42	60~65	37	> 8~12	> 2,5

※ Remark : unit weight (477g + each stack weight)

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

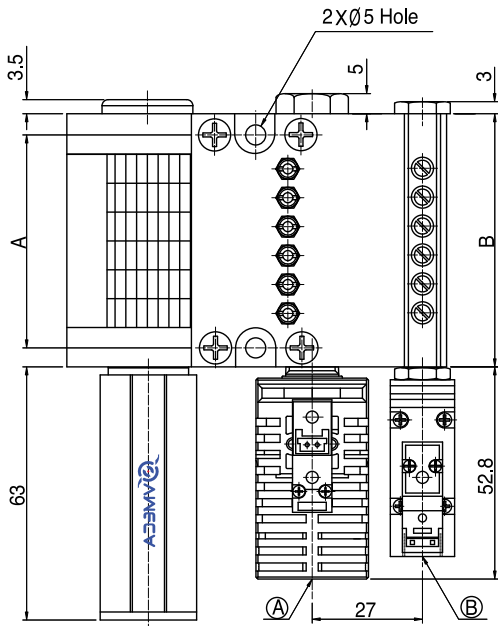
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90
VTOX5	24	13	9	8	7	5	4	2.7	1.2	0.45
VTOX10	32	21	17	15	14	11	9	5.4	2.4	0.9
VTOM5	27	16	13	12	11	8	6	2.4	0.66	
VTOM10	35	29	25	23	19	16	12	4.8	1.32	

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90
VTOX5	0,258	0,796	1,516	2,4	3,38	4,91	6,896	10,16	19,19
VTOX10	0,129	0,398	0,758	1,2	1,78	2,455	3,455	5,08	9,594
VTOM5	0,218	0,556	1,00	1,576	2,356	3,44	5,27	10,216	
VTOM10	0,109	0,278	0,50	0,788	1,178	1,72	2,635	5,158	

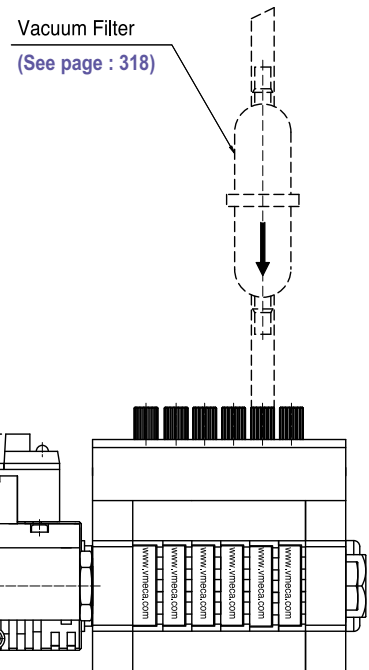
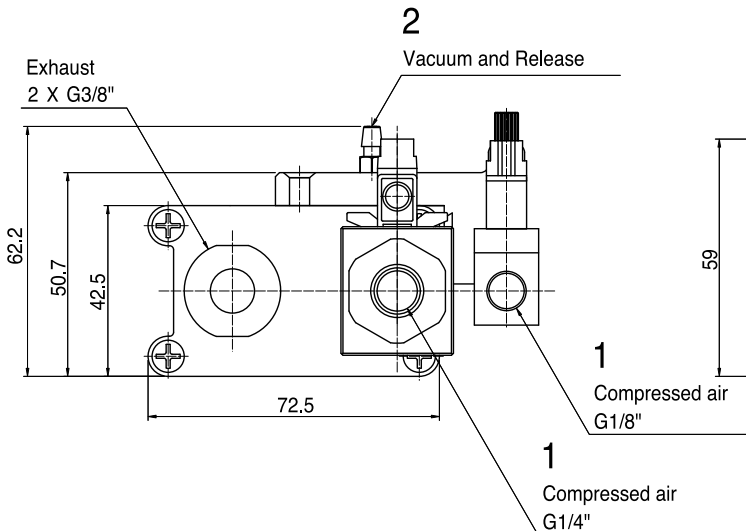
Dimensional Information

VTOX 5
10



VTOX 5,10	(mm)	
	A	B
4 stack	38.3	48.3
5 stack	45.5	55.5
6 stack	53	63
7 stack	60	70
8 stack	67.5	77.5
9 stack	74.8	84.8
10 stack	82	92
11 stack	88.5	98.5
12 stack	96	106
13 stack	103.2	113.2
14 stack	111	121
15 stack	118	128
16 stack	125.2	135.8

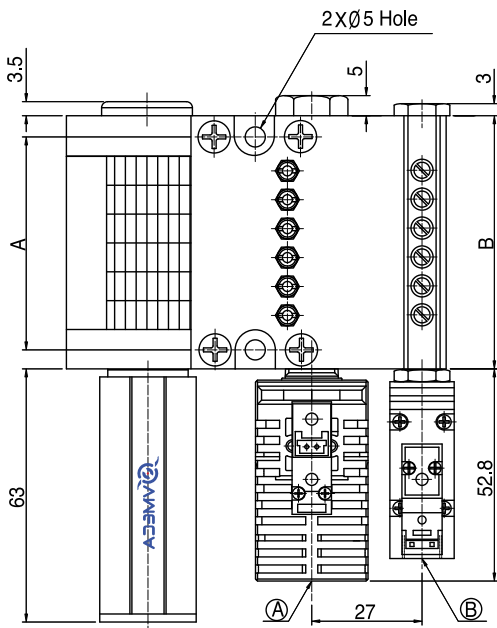
Remark : (A) - Air supply (vacuum) control vavle
(B) - Vacuum release control valve



[Measure unit : inch]

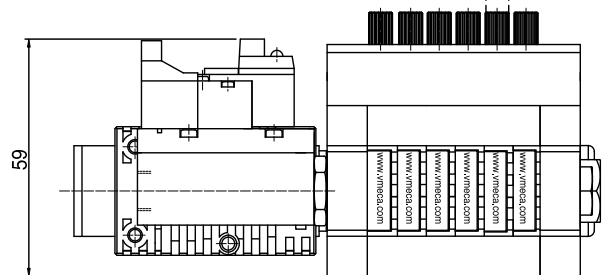
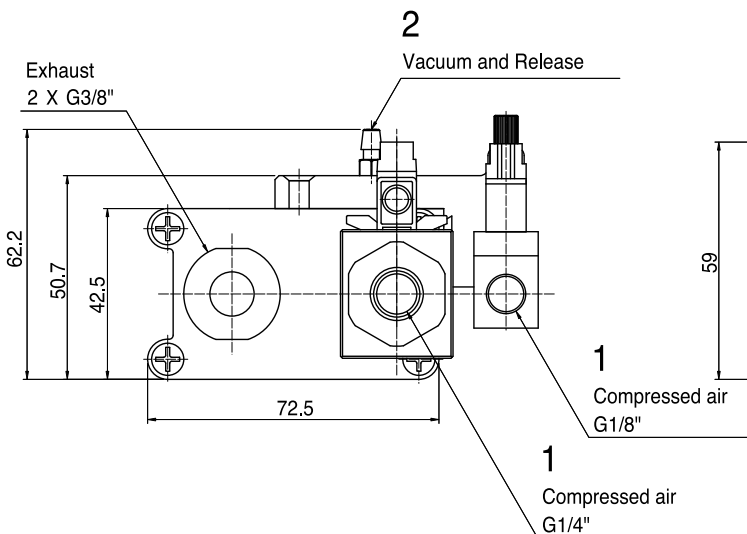
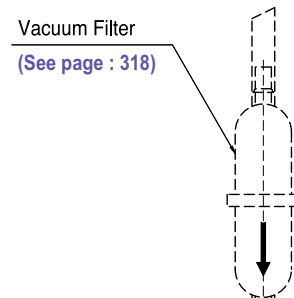
Dimensional Information

**VTOM 5
10**



	(mm)	
VTOM 5,10	A	B
4 stack	38.3	48.3
5 stack	45.5	55.5
6 stack	53	63
7 stack	60	70
8 stack	67.5	77.5
9 stack	74.8	84.8
10 stack	82	92
11 stack	88.5	98.5
12 stack	96	106
13 stack	103.2	113.2
14 stack	111	121
15 stack	118	128
16 stack	125.2	135.8

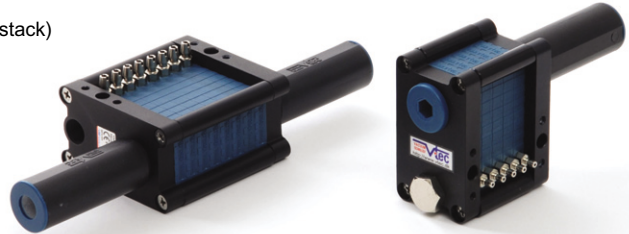
Remark : (A) - Air supply (vacuum) control valve
(B) - Vacuum release control valve



[Measure unit : inch]

M-Minimultiple Pump

- Max. vacuum level** : -85 kPa (-25.1 inHg)
- Max. flow rate** : 35 NI/min x N Stack (1.23 scfm x N stack)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ 80°C
- Noise level** : 50~65 dBA



Main Advantages

This M-Minimultiple model uses individual pumps to make up the complete unit, each pump is in itself a multi stage ejector unit. Each individual pump can be stacked to together thus creating a modular manifold based system.

The advantages of this unit is that it can be operated using just one control valve whilst retaining individual vacuum lines separate to one another, therefore if any leakage or surface deformation occurs and one pad loses it vacuum, it does not effect the vacuum level in the other pads. Pumps can be stacked up from 2 - 16 unit depending upon requirements. The pumps can have seal material options of Viton® & EPDM for corrosive and acidic applications.

Order No.

VTM5 x 6 - A3 CL - 4 - V



① **Model** – Capacity equivalent to electricity motor pump size

- **VTM5** – 0,05KW
- VTM10 – 0,1KW

③ **Air supply control valve**

- A1 – AC110V
- A2 – AC220V
- **A3** – DC24V

⑤ **Vacuum port, inner dia of tube**

- 2 – Ø2
- **4** – Ø4

② **Vacuum stack**

- 2 – 2 stack 10 – 10 stack
- 3 – 3 stack 11 – 11 stack
- 4 – 4 stack 12 – 12 stack
- 5 – 5 stack 13 – 13 stack
- **6** – 6 stack 14 – 14 stack
- 7 – 7 stack 15 – 15 stack
- 8 – 8 stack 16 – 16 stack
- 9 – 9 stack

④ **Solenoid Terminal**

- DN – DIN type without lead wire
- DL – DIN type with lamp without lead wire

- **CL*** – Connector type with lamp & 0,3m lead wire

* Available only with DC24V

⑥ **Sealing**

- No mark – Standard (NBR)
- **V** – Viton®
- E** – EPDM

※ Remark : VTM5 maximum stack up to 16 stack
(above 12 stack complete with 2 Silencer)
VTM10 maximum stack up to 12 stack
(above 6 stack complete with 2 Silencer)

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM5x2stack	85 (25.1)	27x2	30-42	55-60	67	> 2	> 2.5	3/8" x1
VTM5x3stack		27x3	45-63	55-60	80	> 2	> 2.5	3/8" x1
VTM5x4stack		27x4	60-84	55-60	247	> 4	> 2.5	3/8" x1
VTM5x5stack		27x5	75-105	60-65	255	> 4	> 2.5	3/8" x1
VTM5x6stack		27x6	90-126	60-65	281	> 4	> 2.5	3/8" x1
VTM5x7stack		27x7	105-147	60-65	299	> 4	> 2.5	3/8" x1
VTM5x8stack		27x8	120-168	60-65	317	> 6	> 2.5	3/8" x1
VTM5x9stack		27x9	135-189	60-65	335	> 6	> 2.5	3/8" x1
VTM5x10stack		27x10	150-210	60-65	353	> 6	> 2.5	3/8" x1
VTM5x11stack		27x11	165-231	60-65	371	> 6	> 2.5	3/8" x1
VTM5x12stack		27x12	180-252	60-65	389	> 6	> 2.5	3/8" x2
VTM5x13stack		27x13	195-273	60-65	417	> 6	> 2.5	3/8" x2
VTM5x14stack		27x14	210-294	60-65	435	> 8	> 2.5	3/8" x2
VTM5x15stack		27x15	225-315	60-65	453	> 10	> 2.5	3/8" x2
VTM5x16stack		27x16	240-336	60-65	471	> 10	> 2.5	3/8" x2
VTM10x2stack		85 (25.1)	35x2	60-84	55-60	67	> 4	> 4
VTM10x3stack	35x3		90-126	60-65	80	> 4	> 4	3/8" x1
VTM10x4stack	35x4		120-168	60-65	247	> 6	> 4	3/8" x1
VTM10x5stack	35x5		150-210	60-65	255	> 6	> 4	3/8" x1
VTM10x6stack	35x6		180-252	60-65	281	> 6	> 4	3/8" x2
VTM10x7stack	35x7		210-294	60-65	299	> 8	> 4	3/8" x2
VTM10x8stack	35x8		240-336	60-65	327	> 8	> 4	3/8" x2
VTM10x9stack	35x9		270-378	60-65	345	> 10	> 4	3/8" x2
VTM10x10stack	35x10		300-420	60-65	363	> 10	> 4	3/8" x2
VTM10x11stack	35x11		330-462	60-65	381	> 10	> 4	3/8" x2
VTM10x12stack	35x12		360-504	60-65	399	> 10	> 4	3/8" x2

VACUUM PUMPS

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

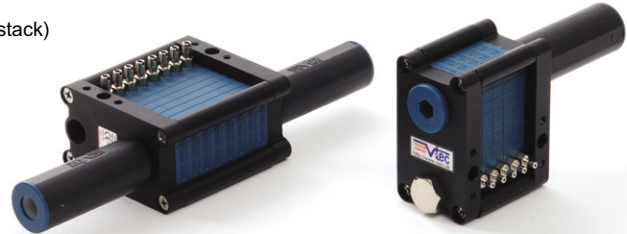
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	0	10	20	30	40	50	60	70	80
VTM5x1stack	27	16	13	12	11	8	6	2.4	0.66
VTM10x1 stack	35	29	25	23	19	16	12	4.8	1.32

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	10	20	30	40	50	60	70	80
VTM5x1stack	0,218	0,556	1	1,576	2,356	3,44	5,270	10,216
VTM10x1 stack	0,109	0,278	0,5	0,788	1,178	1,72	2,635	5,158

X - Minimultiple Pump

- Max. vacuum level** : -92 kPa (-27.17 inHg)
- Max. flow rate** : 32 NI/min x N Stack (1.13scfm x N stack)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ 80°C
- Noise level** : 55~65 dBA



Main Advantages

This X-Minimultiple pump model uses individual pumps to make up the complete unit, each pump is in itself a multi stage ejector unit. The X-Minimultiple pump has the same external dimensions to that of the M-Minimultiple pump, however the internal ejector system is different to enable higher levels of vacuum to be achieved. The X-Minimultiple pump is a pump that bridges the gap between the High Flow VTM pump range and the High Vacuum VTH Range, giving a balance of the two. Each individual pump can be stacked together thus creating a modular manifold based system.

The advantages of this unit is that it can be operated using just one control valve whilst retaining individual vacuum lines separate to one another, therefore if any leakage or surface deformation occurs and one pad loses its vacuum, it does not effect the vacuum level in the other pads. Pumps can be stacked up from 2-16 units depending upon requirements. The pumps can have seal material options of Viton® & EPDM for corrosive and acidic applications.

Order No.

VTX5 x 6 - A3 CL - 4 V

① ② ③ ④ ⑤ ⑥

① **Model** – Capacity equivalent to electricity motor pump size

VTX5	– 0.05KW
VTX10	– 0.1KW

③ **Air supply control valve**

A1	– AC110V
A2	– AC220V
A3	– DC24V

⑤ **Vacuum port, inner dia of tube**

2	– Ø2
4	– Ø4

② **Vacuum stack**

2 – 2 stack	10 – 10 stack
3 – 3 stack	11 – 11 stack
4 – 4 stack	12 – 12 stack
5 – 5 stack	13 – 13 stack
6 – 6 stack	14 – 14 stack
7 – 7 stack	15 – 15 stack
8 – 8 stack	16 – 16 stack
9 – 9 stack	

④ **Solenoid Terminal**

DN	– DIN type without lead wire
DL	– DIN type with lamp without lead wire
CL*	– Connector type with lamp & 0.3m lead wire

⑥ **Sealing**

No mark	– Standard (NBR)
V	– Viton®
E	– EPDM

※ Remark : VTX5 maximum stack up to 16 stack
(above 12 stack complete with 2 Silencer)
VTX10 maximum stack up to 12 stack
(above 6 stack complete with 2 Silencer)

* Available only with DC24V

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTX5x2stack	92 (27,17)	24x2	43,2-48	55-60	67	>2	>2,5	3/8"X1
VTX5x3stack		24x3	64,8-72	55-60	80	>2	>2,5	3/8"X1
VTX5x4stack		24x4	84,4-96	60-63	247	>4	>2,5	3/8"X1
VTX5x5stack		24x5	108-120	60-63	255	>4	>2,5	3/8"X1
VTX5x6stack		24x6	129,6-144	60-63	281	>4	>2,5	3/8"X1
VTX5x7stack		24x7	151,2-168	60-63	299	>4	>2,5	3/8"X1
VTX5x8stack		24x8	172,8-192	60-63	317	>6	>2,5	3/8"X1
VTX5x9stack		24x9	194,4-216	60-63	335	>6	>2,5	3/8"X1
VTX5x10stack		24x10	216-240	60-63	353	>6	>2,5	3/8"X1
VTX5x11stack		24x11	237,6-264	60-63	371	>6	>2,5	3/8"X1
VTX5x12stack		24x12	259,2-288	60-63	389	>6	>2,5	3/8"X2
VTX5x13stack		24x13	280,8-312	60-63	417	>6	>2,5	3/8"X2
VTX5x14stack		24x14	302,4-336	60-63	435	>8	>2,5	3/8"X2
VTX5x15stack		24x15	324-360	60-63	453	>10	>2,5	3/8"X2
VTX5x16stack		24x16	345,6-384	60-63	471	>10	>2,5	3/8"X2
VTX10x2stack		92 (27,17)	32x2	86,4-96	60-63	67	>4	>4
VTX10x3stack	32x3		129,6-144	63-65	80	>4	>4	3/8"X1
VTX10x4stack	32x4		172,8-192	63-65	247	>6	>4	3/8"X1
VTX10x5stack	32x5		216-240	63-65	255	>6	>4	3/8"X1
VTX10x6stack	32x6		259,2-288	63-65	281	>6	>4	3/8"X2
VTX10x7stack	32x7		302,4-336	63-65	299	>6	>4	3/8"X2
VTX10x8stack	32x8		345,6-384	63-65	327	>8	>4	3/8"X2
VTX10x9stack	32x9		388,8-432	63-65	345	>10	>4	3/8"X2
VTX10x10stack	32x10		432-480	63-65	363	>10	>4	3/8"X2
VTX10x11stack	32x11		475,2-528	63-65	381	>10	>4	3/8"X2
VTX10x12stack	32x12		518,4-576	63-65	399	>10	>4	3/8"X2

VACUUM PUMPS

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

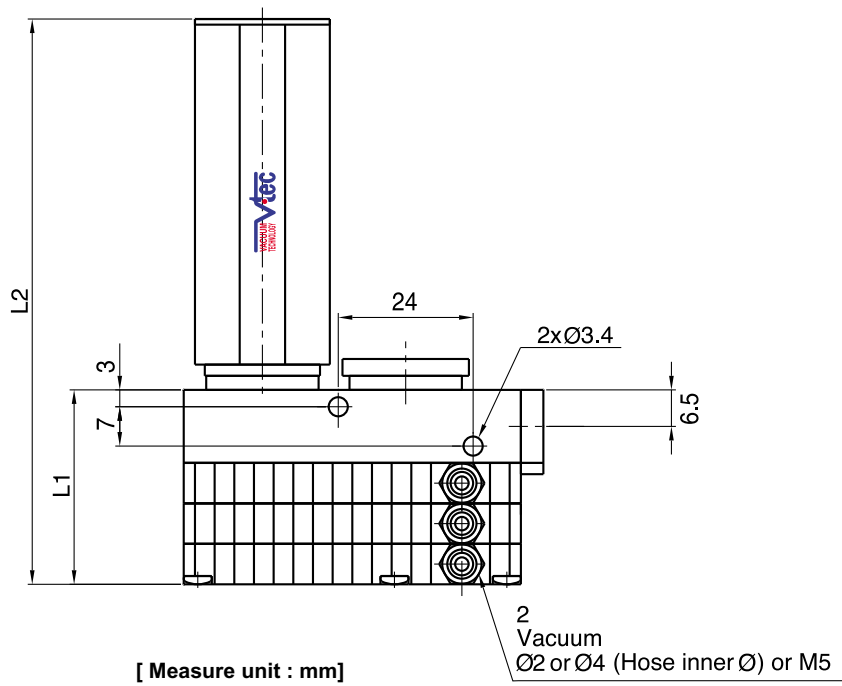
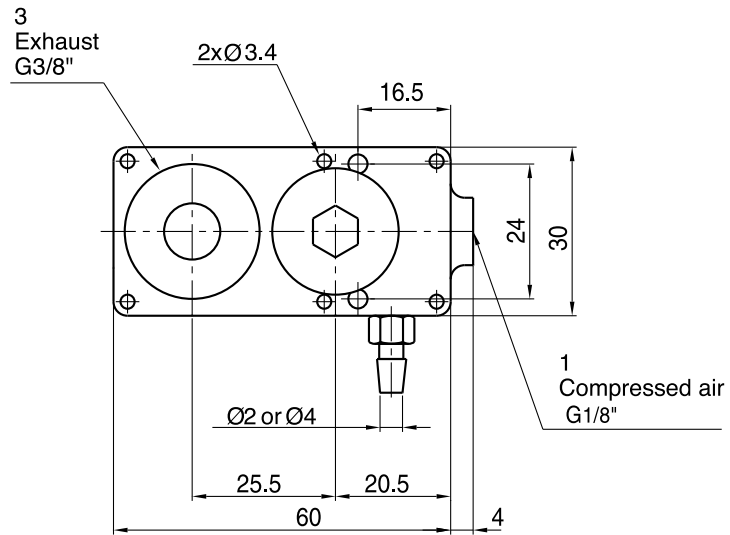
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90	
VTX5x1stack	24	13	9	8	7	5	4	2,7	1,2	0,45	
VTX10x1stack	32	21	17	15	14	11	9	5,4	2,4	0,9	

Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.59	2.95	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90	
VTX5x1stack	0,258	0,796	1,516	2,4	3,56	4,91	6,896	10,16	19,19	
VTX10x1stack	0,129	0,398	0,758	1,2	1,78	2,455	3,445	5,08	9,594	

Dimensional Information

VTM(X) 5 x (2, 3)Stack
10

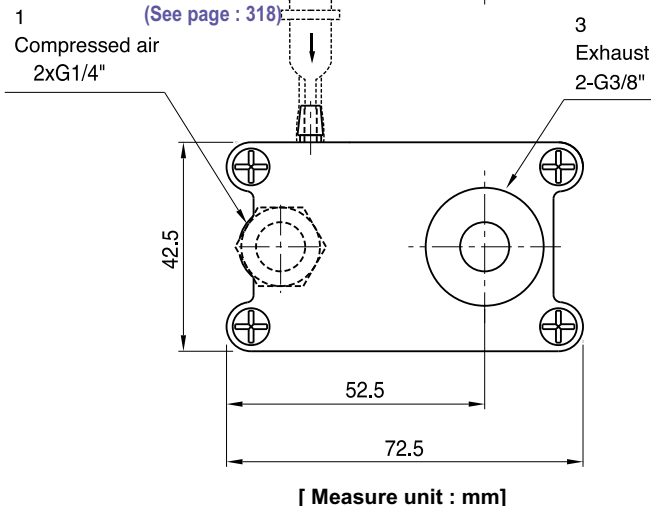
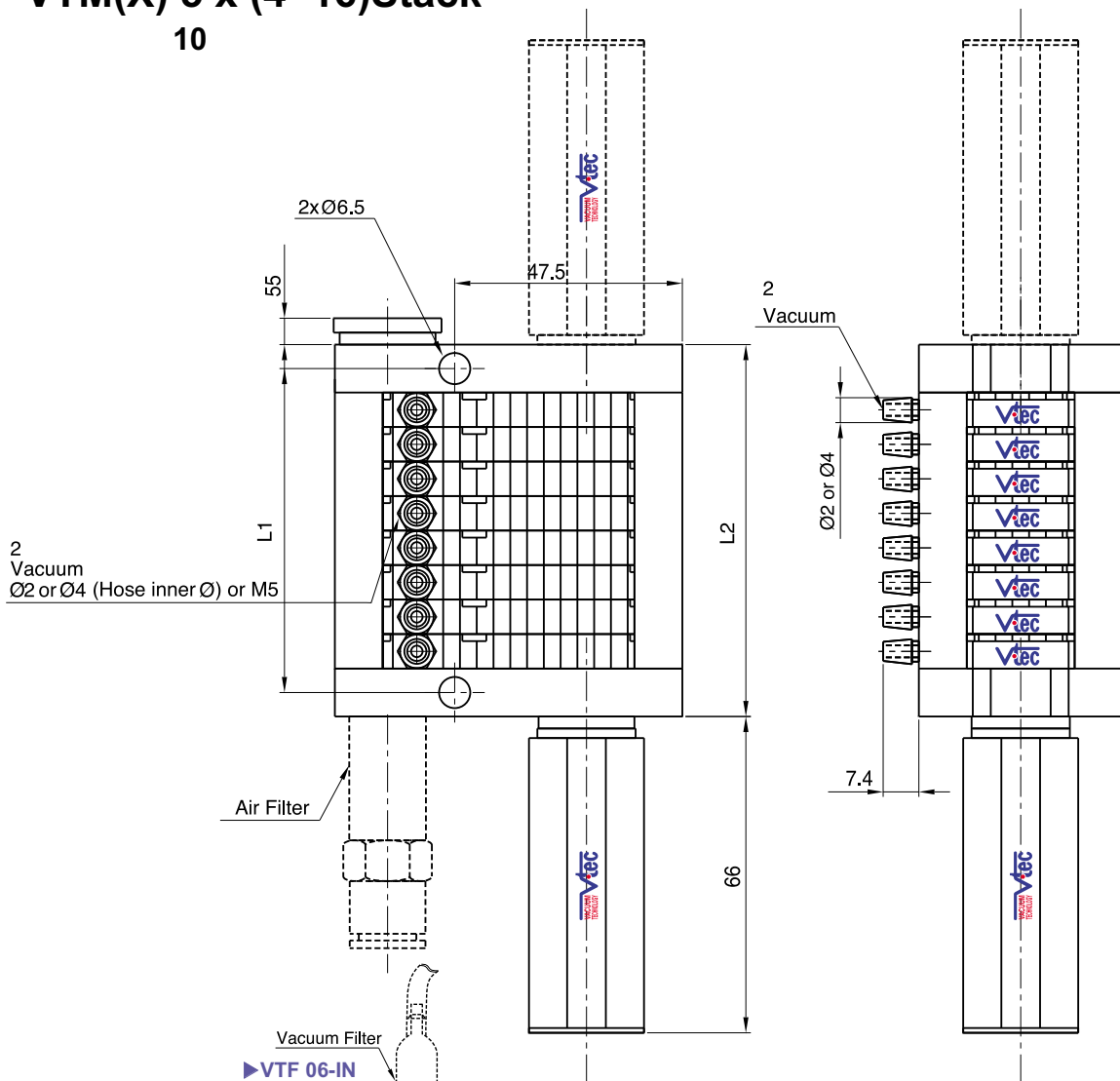


(mm)

	L1	L2
VTM5(10)		
VTX5(10)		
2stack	28	94
3stack	35	101

Dimensional Information

VTM(X) 5 x (4~16)Stack
10



	(mm)	
	L1	L2
VTM5(10) VTX5(10)		
4stack	38,3	48,3
5stack	45,5	55,5
6stack	53	63
7stack	60	70
8stack	67,5	77,5
9stack	74,8	84,8
10stack	82	92
11stack	88,5	98,5
12stack	96	106
13stack	103,2	113,2
14stack	111	121
15stack	118	128
16stack	125,2	135,2

VACUUM PUMPS

M-Midimultiple Pump

- Max. vacuum level : -85 kPa (-25.1 inHg)
- Max. flow rate : 220 NI/min x N Stack
(7.77scfm x N stack)
- Supply air pressure : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 50~65 dBA



Main Advantages

Basically this pump is similar function with mini multiple stack pump. Each individual pump can be stacked up thus creating a modular manifold based system. The advantages of this unit is that it can be operated with one supply air port and activating individual vacuum pump which mounted on the manifold, as the result if any leakage occurs due to product surface deformation of one vacuum pad, it will not affect the vacuum performance in other vacuum pads. This pump can be stacked up from 2stack to 6stacks, depending on the requirment. This pump has sealing option of VITON® and EPDM for corrosive and acidic application. Also, can be integrated vacuum filters directly on the pumps.

Order No.

VTM10 x 6 - B - A3 - CL - V

① ② ③ ④ ⑤ ⑥

① Model – Capacity equivalent to electricity motor pump size

• VTM10	– 0.1KW
VTM20	– 0.2KW
VTM30	– 0.3KW

③ Vacuum port , Exhaust port

	Vacuum	Exhaust
• B	G 3/8"	Internal silencer
BA	G 3/8"	Internal silencer, connection plate-AL
NB	NPSF 3/8"	Internal silencer
NBA	NPSF 3/8"	Internal silencer, connection plate-AL
C	G 3/8"	external silencer
NC	NPSF 3/8"	external silencer

⑤ Solenoid Terminal

DN	– DIN type without lead wire
DL	– DIN type with lamp without lead wire
• CL*	– Connector type with lamp & 0.3m lead wire

* Available only with DC24V

② Vacuum stack

2	– 2 stack
3	– 3 stack
4	– 4 stack
5	– 5 stack
• 6	– 6 stack

④ Air supply control valve

A1	– AC110V
A2	– AC220V
• A3	– DC24V

⑥ Sealing

No mark	– Standard (NBR)
• V	– Viton®
E	– EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)		min hose inner Ø (within 2m)		
					B, NB	C, NC	air supply	vacuum	exhaust
VTM10×2	85 (25.1)	74×2	60–84	50–60	380	393	∅4	∅8	3/8" ×2
VTM10×3		74×3	90–126	50–60	532	545	∅6	∅8	3/8" ×3
VTM10×4		74×4	120–168	55–60	695	708	∅6	∅8	3/8" ×4
VTM10×5		74×5	150–210	60–65	850	863	∅6	∅8	3/8" ×5
VTM10×6		74×6	180–252	60–65	998	1011	∅8	∅8	3/8" ×6
VTM20×2	85 (25.1)	149×2	120–168	50–60	399	412	∅6	∅10	3/8" ×2
VTM20×3		149×3	180–252	55–60	560	573	∅6	∅10	3/8" ×3
VTM20×4		149×4	240–336	60–65	735	748	∅8	∅10	3/8" ×4
VTM20×5		149×5	300–420	60–65	899	912	∅10	∅10	3/8" ×5
VTM20×6		149×6	360–504	60–68	1058	1071	∅10	∅10	3/8" ×6
VTM30×2	85 (25.1)	220×2	180–252	55–60	421	434	∅6	∅12	3/8" ×2
VTM30×3		220×3	270–378	60–65	587	600	∅8	∅12	3/8" ×3
VTM30×4		220×4	360–504	60–65	775	788	∅10	∅12	3/8" ×4
VTM30×5		220×5	450–630	60–68	947	960	∅10	∅12	3/8" ×5
VTM30×6		220×6	540–756	60–68	1116	1129	∅10	∅12	3/8" ×6

* Remarks : BA(NBA)type weight = B type weight+(26g.xstack)

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	0	10	20	30	40	50	60	70	80	
VTM10x1 Stack	74	52	31	28	20	16	12	4,8	1,32	
VTM20x1 Stack	149	99	62	54	40	32	22	10,5	2,7	
VTM30x1 Stack	220	147	92	73	60	47	32	16	4,1	

VACUUM PUMPS

Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	10	20	30	40	50	60	70	80	
VTM10x1 Stack	0.109	0,278	0,5	0,788	1,178	1,72	2,635	5,158	
VTM20x1 Stack	0,054	0,139	0,25	0,394	0,589	0,86	1,317	2,579	
VTM30x1 Stack	0,041	0,104	0,186	0,295	0,441	0,647	0,898	1,935	

X - Midimultiple Pump

- Max. vacuum level** : -92 kPa (-27.17 inHg)
- Max. flow rate** : 185 NI/min x N Stack
(6.53 scfm x N stack)
- Supply air pressure** : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ 80°C
- Noise level** : 50~65 dBA

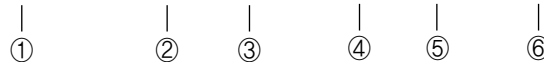


Main Advantages

The X-Midimultiple pump has the same external dimension to X-Midimultiple pump. It enabling it to achieve higher vacuum level. Each individual pump can be stacked up thus creating a modular manifold based system. The advantage of this pump is that it has a bigger vacuum port as the applications requiring large vacuum flow and high vacuum level. If any leakage occurs due to product surface deformation of one vacuum pad, it will not affect the vacuum performance in the other pads. This pump can be stacked up from 2 stacks to 6 stacks. Also, can be specified with an air control solenoid valve and with Viton® or EPDM as seal options.

Order No.

VTX10 x 6 - B - A3 CL - V



① **Model** – Capacity equivalent to electricity motor pump size

• VTX10	– 0,1KW
VTX20	– 0,2KW
VTX30	– 0,3KW

③ **Vacuum port , Exhaust port**

	Vacuum	Exhaust
• B	G 3/8"	Internal silencer
BA	G 3/8"	Internal silencer, connection plate-AL
NB	NPSF 3/8"	Internal silencer
NBA	NPSF 3/8"	Internal silencer, connection plate-AL
C	G 3/8"	External silencer
NC	NPSF 3/8"	External silencer

⑤ **Solenoid Terminal**

DN	– DIN type without lead wire
DL	– DIN type with lamp without lead wire
• CL*	– Connector type with lamp & 0,3m lead wire

* Available only with DC24V

② **Vacuum stack**

2	– 2 stack
3	– 3 stack
4	– 4 stack
5	– 5 stack
• 6	– 6 stack

④ **Air supply control valve**

A1	– AC110V
A2	– AC220V
• A3	– DC24V

⑥ **Sealing**

No mark	– Standard (NBR)
• V	– Viton®
E	– EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)		min hose inner Ø (within 2m)		
					B,NB	C,NC	air supply	vacuum	exhaust
VTX10 x 2	92 (27.17)	62x2	86.4-96	50-60	380	393	>4	>8	3/8" x 2
VTX10 x 3		62x3	129.6-144	50-60	532	545	>6	>8	3/8" x 3
VTX10 x 4		62x4	172.8-192	55-60	695	708	>6	>8	3/8" x 4
VTX10 x 5		62x5	216-240	60-65	850	863	>6	>8	3/8" x 5
VTX10 x 6		62x6	259.2-288	60-65	998	1011	>8	>8	3/8" x 6
VTX20 x 2		92 (27.17)	124x2	172.8-192	50-60	399	412	>6	>10
VTX20 x 3	124x3		259.2-288	55-60	560	573	>6	>10	3/8" x 3
VTX20 x 4	124x4		345.6-384	60-65	735	748	>8	>10	3/8" x 4
VTX20 x 5	124x5		432-480	60-65	899	912	>10	>10	3/8" x 5
VTX20 x 6	124x6		518.4-576	60-65	1058	1071	>10	>10	3/8" x 6
VTX30 x 2	92 (27.17)		185x2	259.2-288	55-60	421	434	>6	>12
VTX30 x 3		185x3	388.8-432	60-65	587	600	>8	>12	3/8" x 3
VTX30 x 4		185x4	518.4-576	60-65	775	788	>10	>12	3/8" x 4
VTX30 x 5		185x5	648-720	60-65	947	960	>10	>12	3/8" x 5
VTX30 x 6		185x6	777.6-864	60-65	1116	1129	>10	>12	3/8" x 6

※ Remarks : BA(NBA) type weight = B type weight + (26g x stack)

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90	
VTX10 x1Stack	62	36	18	16	14	11	9	6	2.4	0.9	
VTX20 x1Stack	124	72	35	32	27	22	18	12	4.8	1.8	
VTX30 x1Stack	185	108	52	47	41	33	26	18	7.2	2.7	

VACUUM PUMPS

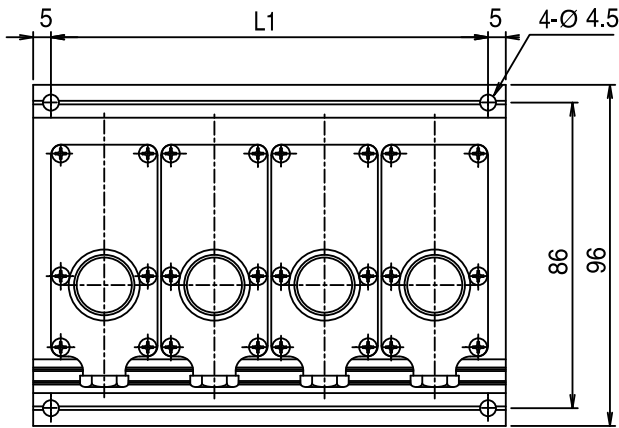
Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90	
VTX10 x1Stack	0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.594	
VTX20 x1Stack	0.064	0.199	0.379	0.6	0.89	1.227	1.722	2.54	4.797	
VTX30 x1Stack	0.048	0.149	0.284	0.44	0.673	0.917	1.287	1.906	3.595	

Dimensional Information

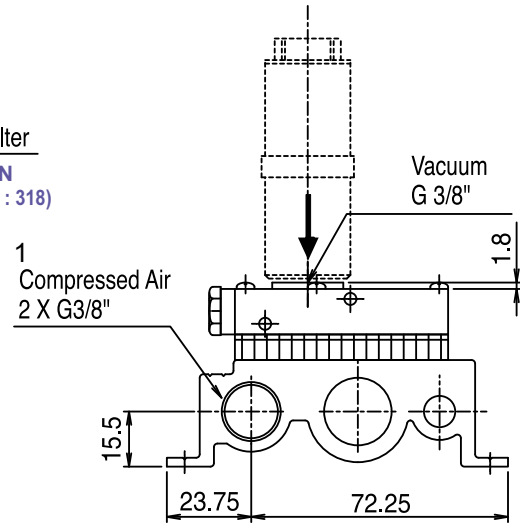
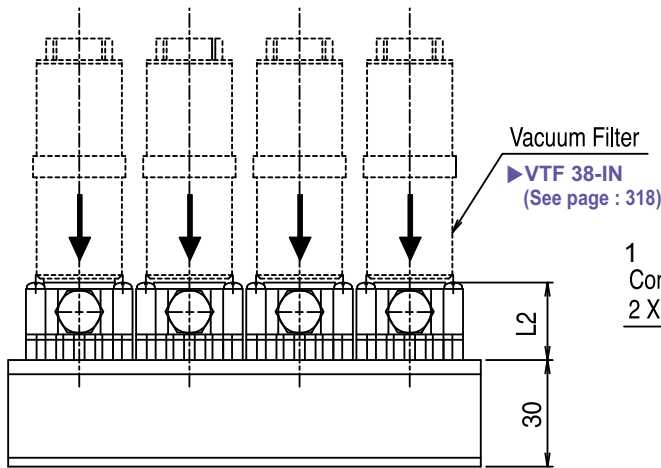
VTM(X) 10 x (2~6)-NB

20 **B**
30



(mm)

Model	L1	L2
VTM(X)10x2-B,NB	61	21.8
VTM(X)10x3-B,NB	92	21.8
VTM(X)10x4-B,NB	123	21.8
VTM(X)10x5-B,NB	154	21.8
VTM(X)10x6-B,NB	185	21.8
VTM(X)20x2-B,NB	61	29
VTM(X)20x3-B,NB	92	29
VTM(X)20x4-B,NB	123	29
VTM(X)20x5-B,NB	154	29
VTM(X)20x6-B,NB	185	29
VTM(X)30x2-B,NB	61	36.2
VTM(X)30x3-B,NB	92	36.2
VTM(X)30x4-B,NB	123	36.2
VTM(X)30x5-B,NB	154	36.2
VTM(X)30x6-B,NB	185	36.2



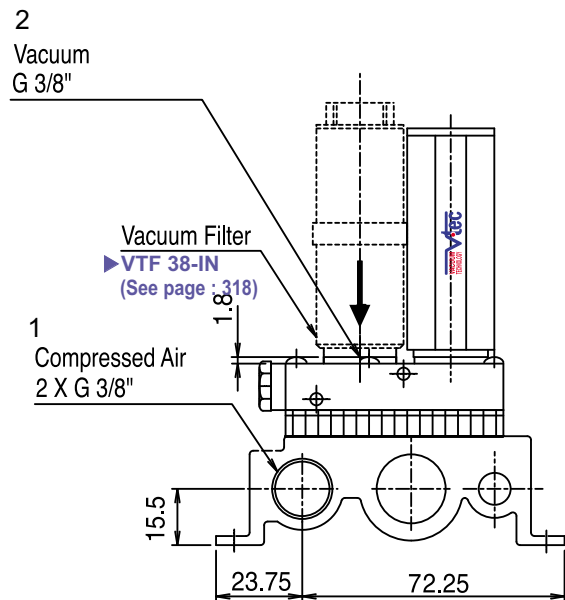
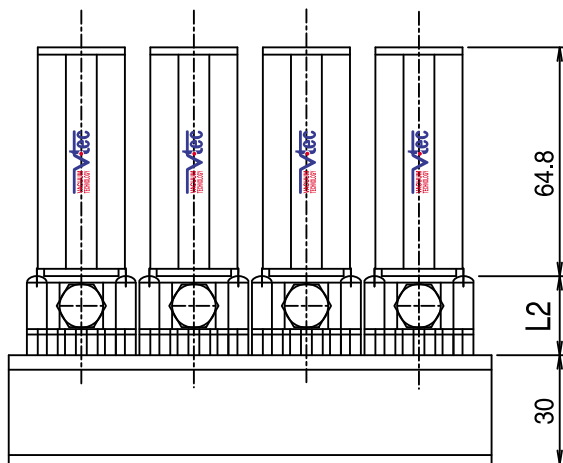
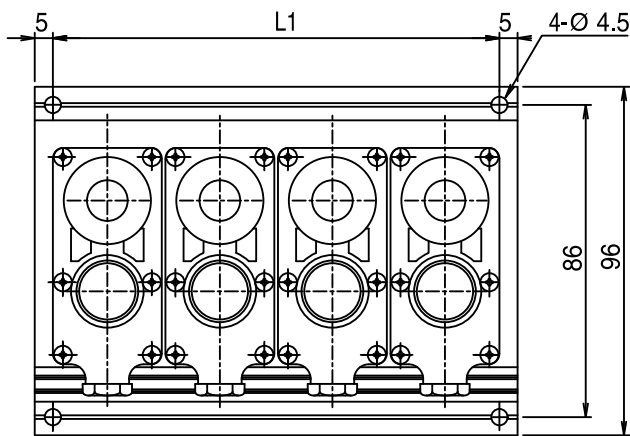
[Measure unit : mm]

Dimensional Information

VTM 10 x (2~6)-NC
 20 C
 30

(mm)

Model	L1	L2
VTM(X)10x2-C,NC	61	21.8
VTM(X)10x3-C,NC	92	21.8
VTM(X)10x4-C,NC	123	21.8
VTM(X)10x5-C,NC	154	21.8
VTM(X)10x6-C,NC	185	21.8
VTM(X)20x2-C,NC	61	29
VTM(X)20x3-C,NC	92	29
VTM(X)20x4-C,NC	123	29
VTM(X)20x5-C,NC	154	29
VTM(X)20x6-C,NC	185	29
VTM(X)30x2-C,NC	61	36.2
VTM(X)30x3-C,NC	92	36.2
VTM(X)30x4-C,NC	123	36.2
VTM(X)30x5-C,NC	154	36.2
VTM(X)30x6-C,NC	185	36.2

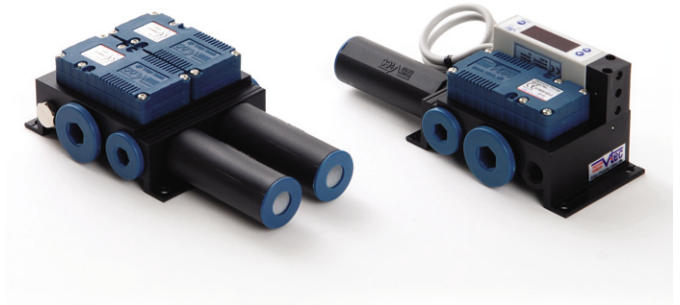


[Measure unit : mm]

VACUUM PUMPS

M-Duplex Pump

- Max. vacuum level : -85 kPa (-25.1 inHg)
- Max. flow rate : 390 NI/min (13.77scfm)
- Supply air pressure : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 57~65 dBA



Main Advantages

M-Duplex pump is similar to the block type in that it uses the components of the mini type multi stage vacuum pump. The pumps are mounted onto a dual station manifold. This manifold enables compact and simple installation. The manifold can accommodate two VTM30 pumps thus producing a VTM60, which gives high flow rates in a compact format. A vacuum switch can be ordered with the unit which piggy backs one of the pumps again for compact and easy installation. There is an option for mounting the exhausts one either side or both on one end of the manifold. There is also the option of connecting vacuum and air supply connections on either side of the manifold block, vacuum connections are BSP 1/2" X2.

Order No.

VTM20KD - C - V



① Model - Capacity equivalent to electricity motor pump size

- **VTM20KD** - 0,2KW
- VTM30KD - 0,3KW
- VTM40KD - 0,4KW
- VTM50KD - 0,5KW
- VTM60KD - 0,6KW

② Vacuum Switch

- **(P)C** - Digital display output 2points, No analog supply M8 4-Pin connector type.
- (P)G - Digital display output 2points, No analog supply 4-Core 2m Grommet lead wire.
- (P)GA - Digital display output 2points, Analog supply 5-Core 2m Grommet lead wire.
- S1 - Mechanical vacuum switch
- S4 - Flashing LED light display NPN output 2points, No analog supply, 4-Core 1m lead wire.
- S5 - Flashing LED light display PNP output 1point, No analog supply, 3-Core 1m lead wire.

※ Remark : (P),
 Output type : PNP open collector

③ Sealing

- No mark - Standard (NBR)
- **V** - Viton®
- E - EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM20KD	85 (25.1)	149	60-84	57 - 58	179	>4	>10	>12
VTM30KD		220	90-126	57 - 58	190	>6	>10	>15
VTM40KD		292	120-168	57 - 60	321	>6	>12	>15
VTM50KD		341	150-216	58 - 63	329	>8	>12	>18
VTM60KD		390	180-252	60 - 65	338	>8	>15	>18

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

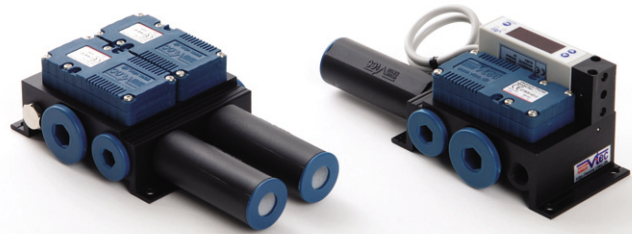
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	0	10	20	30	40	50	60	70	80
VTM20KD	149	99	62	54	40	32	22	10,5	2,7
VTM30KD	220	147	92	73	60	47	32	16	4,1
VTM40KD	292	200	110	93	80	63	43	21	5,4
VTM50KD	341	228	135	115	100	79	60	24	6,6
VTM60KD	390	256	259	137	119	94	64	32	8,5

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.59	5.9	8.85	11.81	14.76	17.71	20.67	23.62
	10	20	30	40	50	60	70	80
VTM20KD	0,054	0,139	0,25	0,394	0,589	0,86	1,317	2,579
VTM30KD	0,041	0,104	0,186	0,295	0,441	0,647	0,898	1,935
VTM40KD	0,027	0,069	0,125	0,197	0,294	0,431	0,658	1,289
VTM50KD	0,023	0,058	0,104	0,164	0,245	0,359	0,549	1,074
VTM60KD	0,018	0,046	0,083	0,131	0,196	0,286	0,439	0,859

X - Duplex Pump

- Max. vacuum level : -92 kPa (-27.17 inHg)
- Max. flow rate : 332 NI/min (11.72 scfm)
- Supply air pressure : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 57~65 dBA



Main Advantages

The Duplex VTX type is similar to the mini block type in that it uses the components of the mini type multi stage vacuum pump. The X-Duplex has the same external dimensions to that of the M-Duplex, however the internal ejector system is different to enable higher levels of vacuum to be achieved. The pumps are mounted onto a dual station manifold.

This manifold enables compact and simple installation. The manifold can accommodate two VTX30 pumps thus producing a X-Duplex 60, which gives higher flow rates in a compact format. A vacuum switch can be ordered with the unit which piggy backs one of the pumps again for compact and easy installation. There is an option for mounting the exhausts one either side, or both on one end of the manifold. There is also the option of connecting.

Order No.

VTX20KD - C - V



① Model – Capacity equivalent to electricity motor pump size

- VTX20KD – 0.2KW
- VTX30KD – 0.3KW
- VTX40KD – 0.4KW
- VTX50KD – 0.5KW
- VTX60KD – 0.6KW

② Vacuum Switch

- (P)C – Digital display output 2points, No analog supply M8 4-Pin connector type.
- (P)G – Digital display output 2points, No analog supply 4-Core 2m Grommet lead wire.
- (P)GA – Digital display output 2points, Analog supply 5-Core 2m Grommet lead wire.
- S1 – Mechanical vacuum switch
- S4 – Flashing LED light display NPN output 2points, No analog supply, 4-Core 1m lead wire.
- S5 – Flashing LED light display PNP output 1point, No analog supply, 3-Core 1m lead wire.

※ Remark : (P).
 Output type : PNP open collector

③ Sealing

- No mark – Standard (NBR)
- V – Viton®
- E – EPDM

Characteristics

Model	max. vacuum -kPa (-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTX20KD	92 (27.17)	124	86,4 – 96	57 – 60	179	>4	>10	>12
VTX30KD		185	129,6 – 144	57 – 63	190	>6	>10	>15
VTX40KD		247	172,8 – 192	60 – 63	321	>6	>12	>15
VTX50KD		290	216 – 240	60 – 65	329	>8	>12	>18
VTX60KD		332	259,2 – 288	60 – 65	338	>8	>15	>18

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90	
VTX20KD	124	72	35	32	27	22	18	12	4.8	1.8	
VTX30KD	185	108	52	47	41	33	26	18	7.2	2.7	
VTX40KD	247	144	69	63	54	44	35	23	9.6	3.6	
VTX50KD	290	171	86	78	66	55	43	29	12	4.5	
VTX60KD	332	198	102	93	78	65	51	34	14,4	5,4	

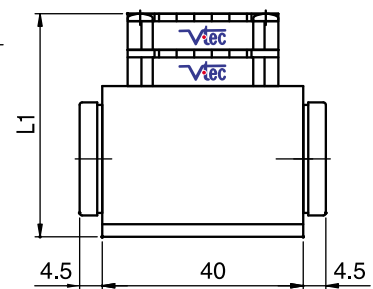
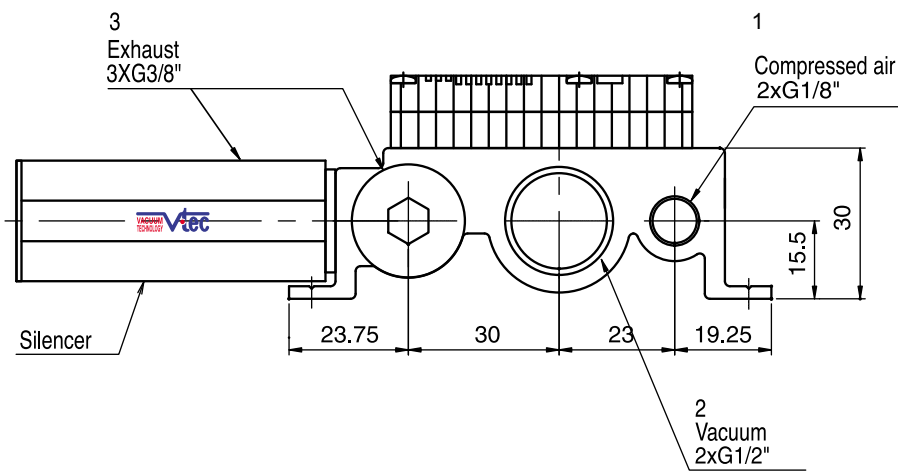
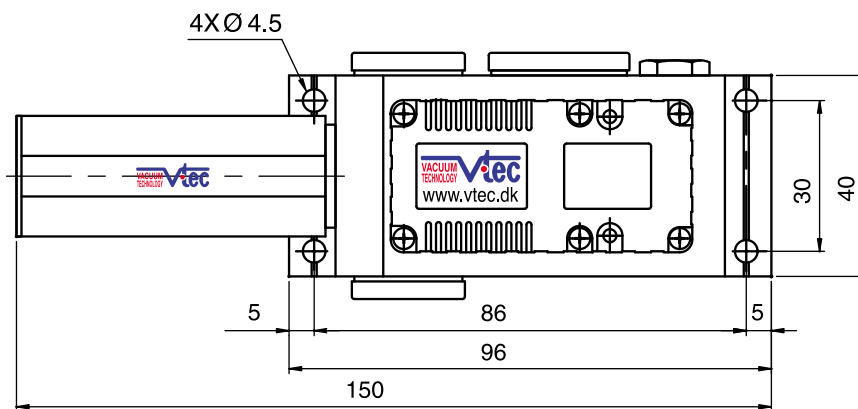
Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	150	5.9	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90	
VTX20KD	0,064	0,199	0,379	0,6	0,89	1,227	1,722	2,54	4,797	
VTX30KD	0,048	0,149	0,284	0,44	0,673	0,917	1,287	1,906	3,595	
VTX40KD	0,032	0,099	0,189	0,29	0,445	0,613	0,858	1,273	2,398	
VTX50KD	0,027	0,083	0,158	0,25	0,371	0,511	0,714	1,016	1,999	
VTX60KD	0,021	0,067	0,126	0,2	0,297	0,409	0,569	0,848	1,599	

Dimensional Information

Standard

VTM(X) 20KD
30

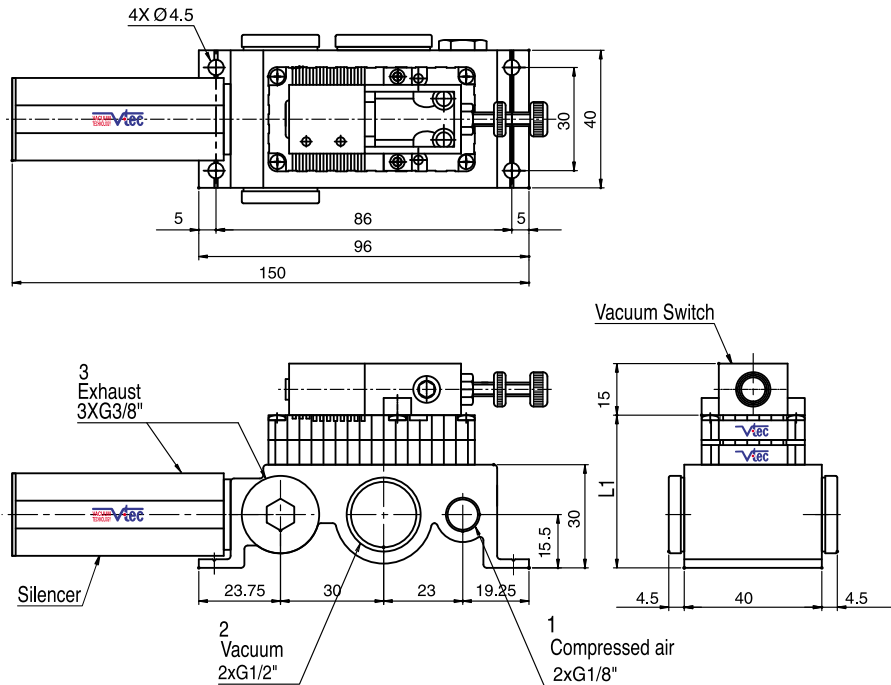


[Measure unit : mm]

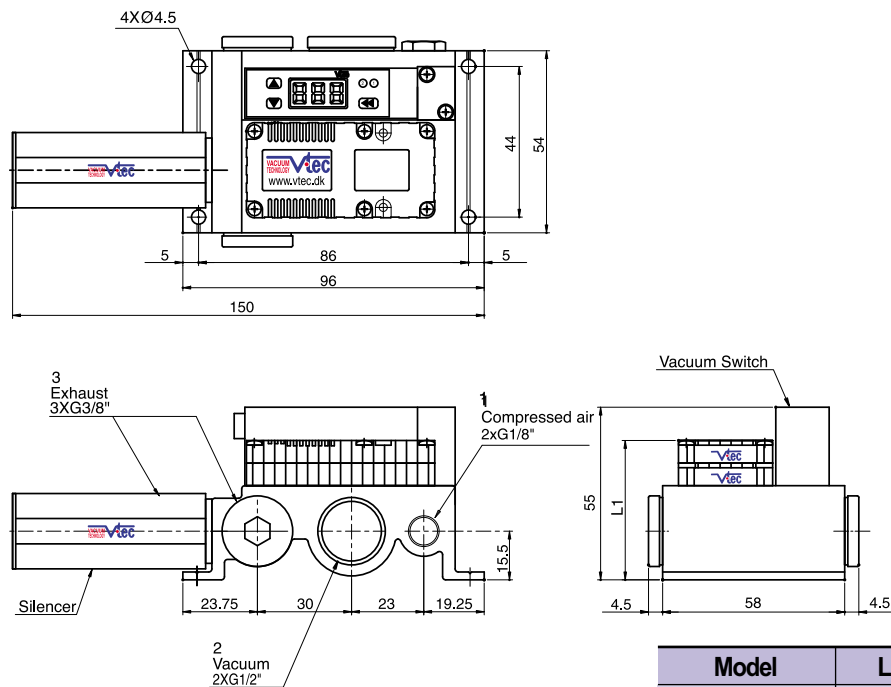
Model	L1 (mm)
VTM(X)20KD	44.4
VTM(X)30KD	51.6

Dimensional Information

with switch S1



with switch → (P)C,(P)G, (P)GA



Model	L1 (mm)
VTM(X)20KD	44.4
VTMI(X)30KD	51.6

[Measure unit : mm]

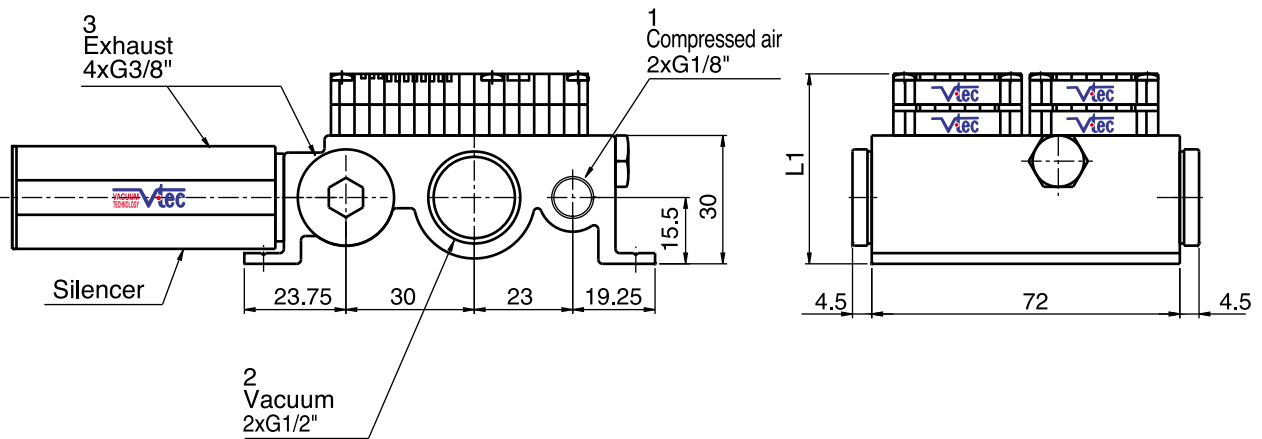
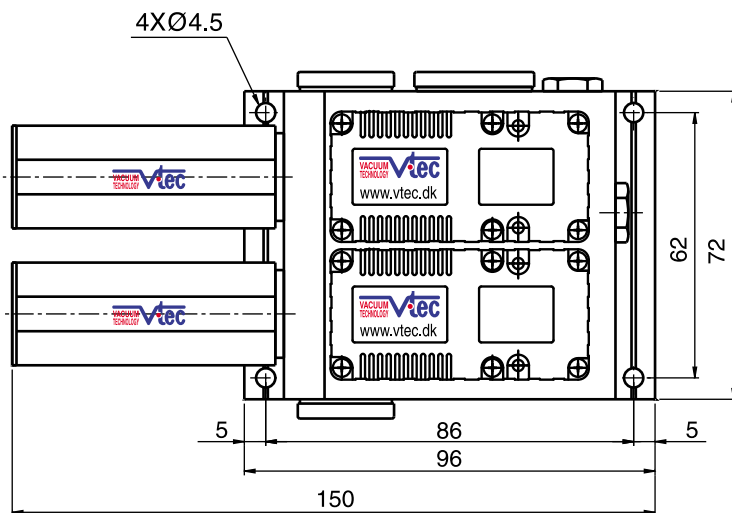
Dimensional Information

Standard

VTM(X) 40KD

50

60

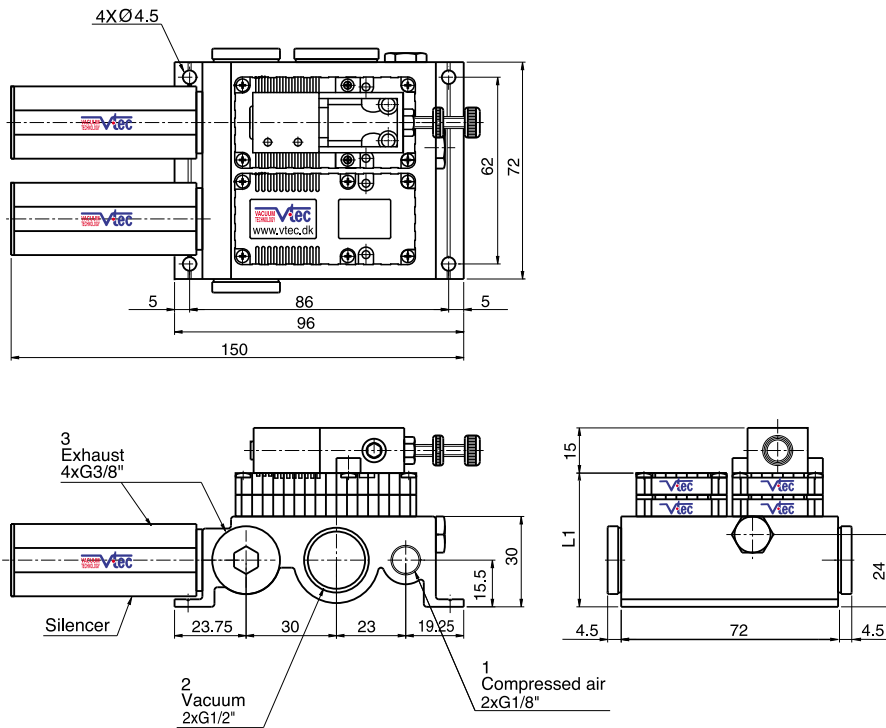


[Measure unit : mm]

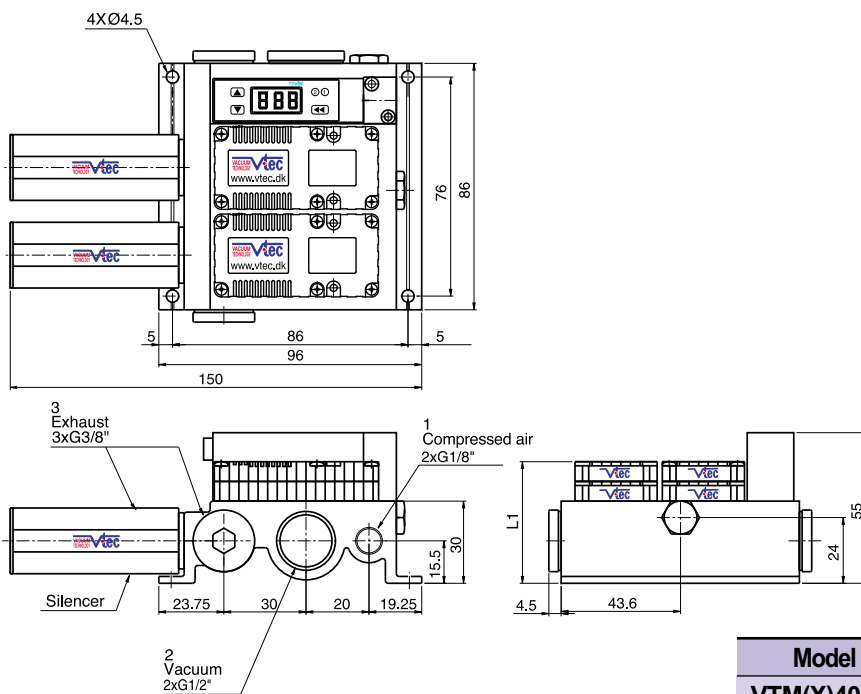
Model	L1 (mm)
VTM(X)40KD	44.4
VTM(X)50KD	51.6
VTM(X)60KD	51.6

Dimensional Information

with swithc S1



with switch → (P)C, (P)G, (P)GA



[Measure unit : mm]

Model	L1 (mm)
VTM(X)40KD	44.4
VTM(X)50KD	51.6
VTM(X)60KD	51.6

VACUUM PUMPS

Conveying Pump (Air Movers)

VTRA Pump

- Max. vacuum level* : -84.4 kPa (-24.92 inHg)
- Max. flow rate* : 3396 NI/m (119.9 scfm)
- Supply air pressure* : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type* : Dry compressed air



Main Advantages

This is a series of adjustable flow rate single stage vacuum pumps particularly good for use in high contamination areas where dust and small debris is likely to enter the vacuum line. The design of this pump enables particles and small debris to pass directly through the pump. High flow rates can be achieved in conjunction with vacuum levels down to -84.4Kpa whilst maintaining a high performance to air consumption ratio.

VTRF Pump

- Max. vacuum level* : -33.8 kPa (-9.98 inHg)
- Max. flow rate* : 4670 NI/m (164.9 scfm)
- Supply air pressure* : 4~6bar, max 7bar
(58~87 psi, max 101.5psi)
- Supply air type* : Dry compressed air



Main Advantages

These pumps provide a reliable and cost effective solution for in line product transfer, particularly for transferring bulk materials, granules, continuous strips and powders. Like the VTRA the pump has a straight through design, hence they are non-clogging and maintenance free. High flows can be achieved with in line bore sizes up to 1 1/2" .

Order No.

VTRA 375 - AL

①

②

① Vacuum pump

- VTRA 250
- VTRA 375
- VTRA 500
- VTRA 750

② Material

- AL – Aluminum
- SS – Stainless steel

VTRF 5-6 - AL

①

②

① Vacuum pump

- VTRF 2-3
- VTRF 3-3
- VTRF 5-6
- VTRF 7-6
- VTRF 15-3
- VTRF 15-6

② Material

- AL – Aluminum
- SS – Stainless steel

VTRA Air consumption vs, Vacuum level (-kPa) NI/m, 5.5 bar

Model \ -inHg -kPa	4.99	9.98	14.97	19.93	24.92
	16.9	33.8	50.7	67.5	84.4
VTRA250	113	170	235	275	340
VTRA375	175	325	481	594	820
VTRA500	340	623	792	934	1274
VTRA750	651	872	1245	1783	2547

VTRA Vacuum flow vs, Vacuum level (-kPa) NI/m

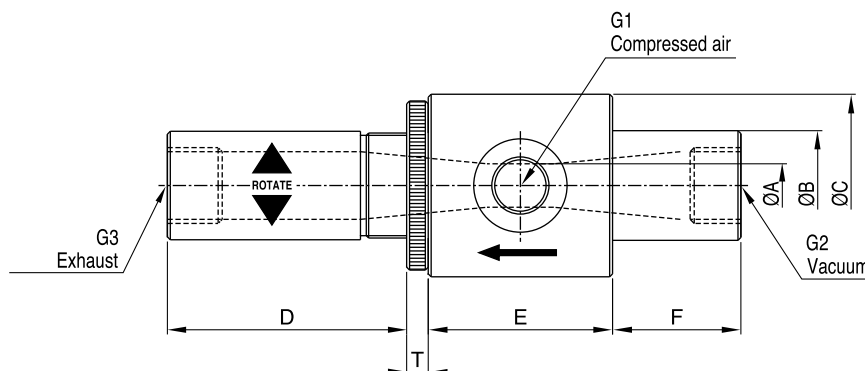
Model \ -inHg -kPa	4.99	9.98	14.97	19.93	24.92
	16.9	33.8	50.7	67.5	84.4
VTRA250	283	243	204	164	127
VTRA375	849	736	623	524	396
VTRA500	1698	1330	1132	991	651
VTRA750	3396	2462	1975	1443	1132

VTRF series performance data

Model	air velocity (ft/sec)	vacuum flow (NI/m)	vacuum level (-kPa)	air consumption (NI/m)	
				2.8bar	5.5bar
VTRF2-3	490	283	27	88	170
VTRF3-3	328	424	15.2	99	170
VTRF5-6	362	849	33.8	396	679
VTRF7-6	326	1698	27	792	1358
VTRF15-3	224	4670	4.4	396	679
VTRF15-6	272	5660	8.5	792	1358

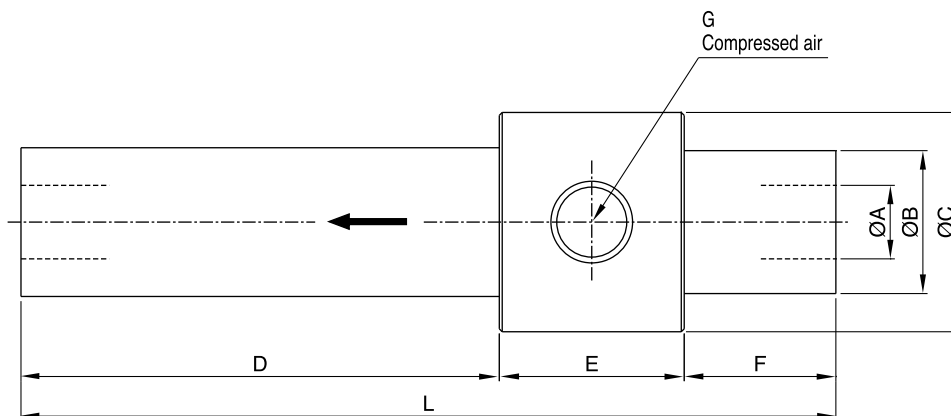
Dimensional Information

VTRA Series



Model	Dimension									
	ØA	ØB	ØC	D	E	F	T	G1	G2	G3
VTRA250	6,8 (0,267")	18,8 (0,732")	31,3 (1,232")	41 (1,614")	31,6 (1,244")	22 (0,866")	3,7 (0,145")	G1/8"	G1/4"	G1/4"
VTRA375	9,6 (0,377")	25,2 (0,992")	43,5 (1,712")	69,8 (2,748")	44,4 (1,748")	37,6 (1,480")	5 (0,196")	G3/8"	G1/2"	G1/2"
VTRA500	12,7 (0,5")	31,4 (1,236")	50 (1,968")	63,5 (2,5")	50,8 (2")	38 (1,496")	5 (0,196")	G3/8"	G1/2"	G3/4"
VTRA750	19,1 (0,751")	37,8 (1,488")	56,8 (2,236")	85,7 (3,374")	50,8 (2")	38,2 (1,503")	5 (0,196")	G1/2"	G3/4"	G1"

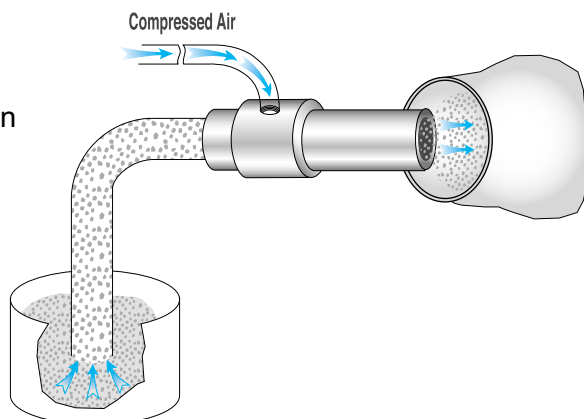
VTRF Series



Model	Dimension							
	ØA	ØB	ØC	D	E	F	L	G
VTRF2-3	6,4 (0,252")	18,4 (0,724")	31,5 (1,240")	45 (1,771")	24,9 (0,980")	19 (0,748")	88,9 (3,5")	G1/8"
VTRF3-3	9,5 (0,374")	18,8 (0,740")	31,3 (1,232")	45,3 (1,783")	25,5 (1,003")	18,2 (0,716")	89 (3,503")	G1/8"
VTRF5-6	12,6 (0,496")	24,5 (0,964")	37,6 (1,480")	82 (3,228")	31,7 (1,248")	26 (1,023")	139,7 (5,5")	G1/4"
VTRF7-6	19 (0,748")	31,8 (1,251")	50 (1,968")	101,8 (4,007")	50,6 (1,992")	38 (1,496")	190,4 (7,496")	G3/8"
VTRF15-3	38,2 (1,503")	49,6 (1,952")	69 (2,716")	101,4 (3,992")	50,8 (2")	38,2 (1,503")	190,4 (7,496")	G3/8"
VTRF15-6	38,2 (1,503")	49,6 (1,952")	69 (2,716")	101,4 (3,992")	50,8 (2")	38,2 (1,503")	190,4 (7,496")	G3/8"

Application

- ▶ Unloading vibrator feeders
- ▶ Reloading hoppers with plastic Regrind
- ▶ Transferring of engine valves in grinding operation
- ▶ Chip removal in drilling operation
- ▶ Transfer power detergent and caustic chemicals
- ▶ Convey peanut husks
- ▶ Selvedge removal in trimming operation
- ▶ Mandrel collection system





CLASSIC PUMPS



Characteristics

Model	max.vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM25L	91 (26.87)	365	114	50 – 65	643	>4	>12	>12
VTM50L		622	228	50 – 65	644	>6	>15	>15
VTM75L		841	342	50 – 65	760	>8	>19	>22
VTM100L		1060	456	50 – 65	761	>8	>19	>22
VTM125L		1195	570	60 – 65	877	>10	>25	>32
VTM150L		1370	684	60 – 65	878	>10	>25	>32

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

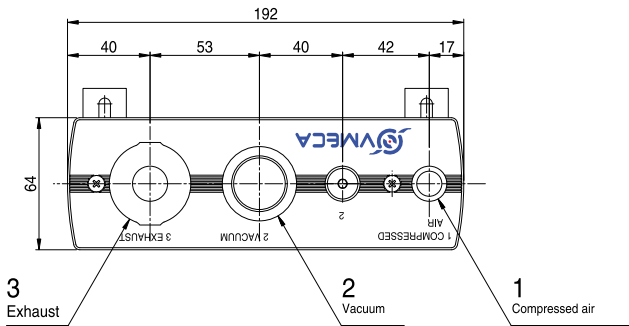
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VTM25L		365	169	124	76	43	33	25	17	7	0.8
VTM50L		622	327	236	149	83	65	49	33	14	1.6
VTM75L		841	481	354	221	122	97	73	49	21	2.4
VTM100L		1060	634	449	293	161	129	96	64	27	3.2
VTM125L		1195	789	522	360	193	152	120	80.6	33.3	3.8
VTM150L		1370	937	589	418	237	187	144	97.2	39.6	4.32

Time in seconds to evacuate to vacuum level (sec/l)

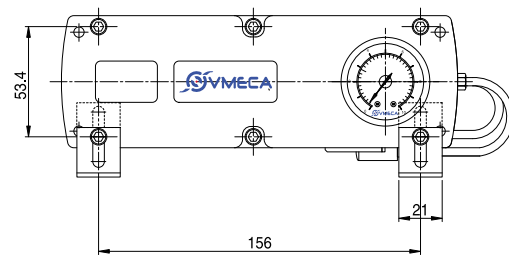
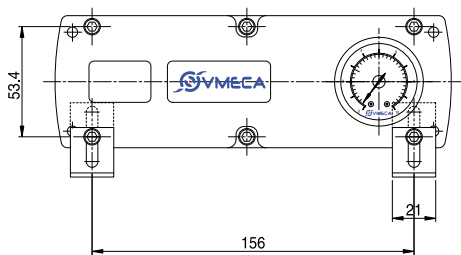
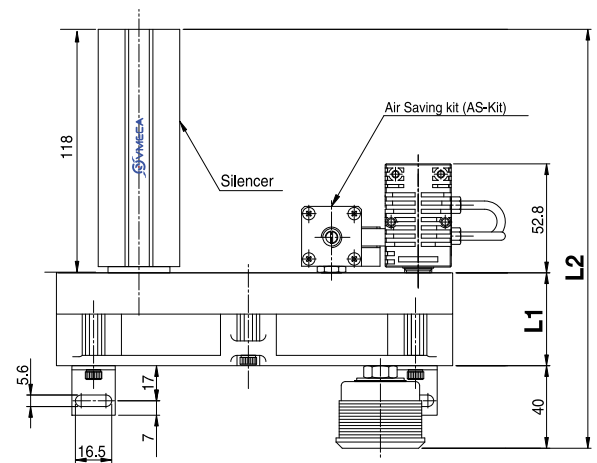
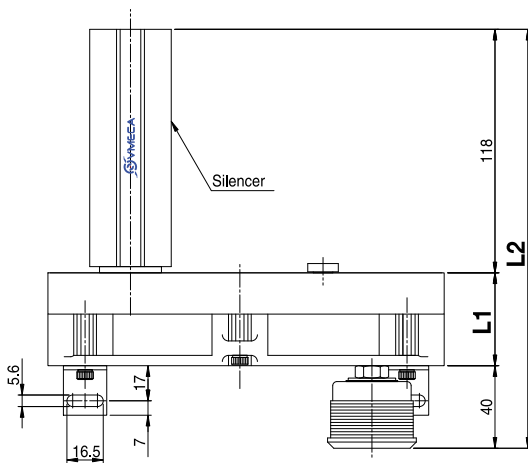
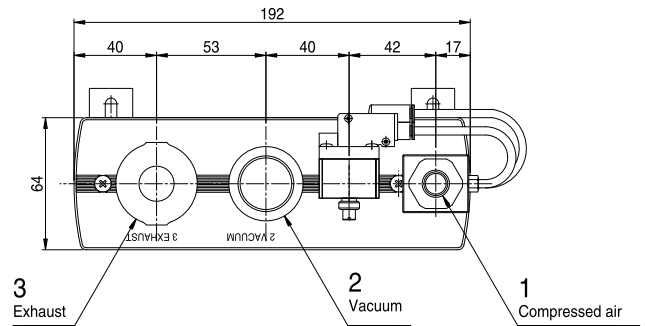
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VTM25L		0,02	0,056	0,12	0,24	0,425	0,66	1,02	1,64	4,6
VTM50L		0,013	0,032	0,062	0,12	0,221	0,33	0,51	0,85	2,3
VTM75L		0,01	0,024	0,047	0,09	0,159	0,248	0,383	0,62	1,73
VTM100L		0,007	0,016	0,031	0,06	0,106	0,165	0,255	0,41	1,15
VTM125L		0,0061	0,0147	0,0302	0,053	0,089	0,143	0,215	0,36	1,01
VTM150L		0,0051	0,0134	0,0294	0,046	0,071	0,115	0,175	0,31	0,87

Dimensional Information

Standard



with AS - KIT



[Measure unit : mm]

(mm)

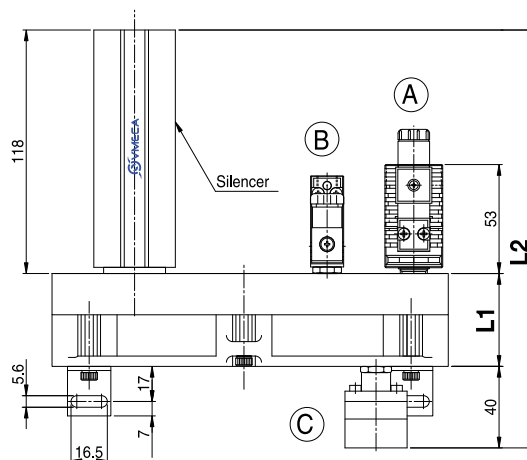
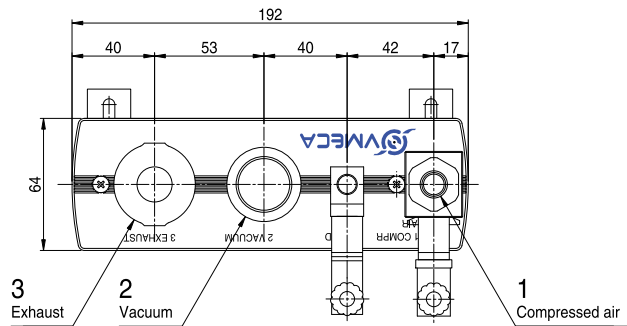
Port 1 : G1/4", NPT1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTM25L	45.5	203.5
VTM50L	45.5	203.5
VTM75L	65	223
VTM100L	65	223
VTM125L	84.5	242.5
VTM150L	84.5	242.5

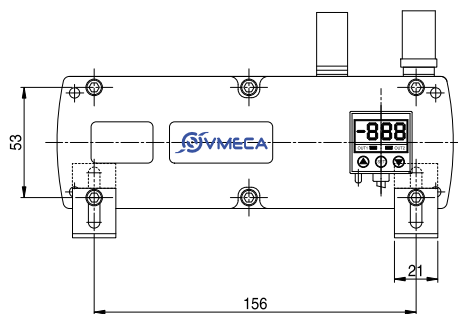
Port 1 : G1/4", NPSF1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Dimensional Information

Air supply control valve
 Vacuum release control valve
 Digital display vacuum switch



- Ⓐ Air supply control valve
- Ⓑ Vacuum release control valve
- Ⓒ Digital display vacuum switch



[Measure unit : mm]

Port 1 : G1/4, NPSF1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(mm)	
Model	L1	L2
VTM25L	45.5	206.5
VTM50L	45.5	206.5
VTM75L	65	226
VTM100L	65	226
VTM125L	84.5	245.5
VTM150L	84.5	245.5

VL-Classic Pump

- Max. vacuum level : **-80 kPa** (-23.62 inHg)
- Max. flow rate : **2061 NI/min** (72.78 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 50~65 dBA

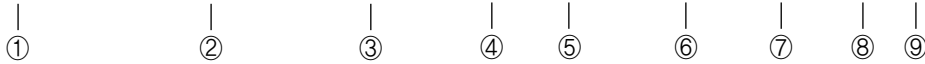


Main Advantages

VL-Classic pumps produces the high flow rate gradually while vacuum level is increasing so it is useful for leakage system. Vtec Air Saving kit is available in this pump in order to maximum reduce the energy usage. VITON® & EPDM seals can be also stipulated as option.

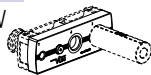
Order No.

VTL25 - 1434 A - AS - A3 R3 - CL SG2 N V



① Model - Capacity equivalent to electricity motor pump size

- **VTL25** - 0.25KW
- VTL50 - 0.50KW
- VTL75 - 0.75KW
- VTL100 - 1.00KW
- VTL125 - 1.25KW
- VTL150 - 1.50KW
- VTL175 - 1.75KW
- VTL200 - 2.00KW



② Connection plate

	Air port	Vacuum port	
1412 A	G1/4"	G1/2"	Aluminum
• 1434 A	G1/4"	G3/4"	
1401 A	G1/4"	G1"	
N1412 A	NPT1/4"	NPT1/2"	
N1434 A	NPT1/4"	NPT3/4"	
N1401 A	NPT1/4"	NPT 1"	Al PPS
1812 P	G1/8"	G1/2"	
1834 P	G1/8"	G3/4"	
N1812 P	NPT1/8"	NPT1/2"	
N1834 P	NPT1/8"	NPT3/4"	

* Remark :

- Air supply port with air control valve or AS-kit
- VTL25~VTL150 : G1/8"
- VTL175~VTL200 : G3/8"
- PPS Mat I is available in VTL25L~ VTL125

③ Air saving Kit

(108)

- No mark - Standard
- **AS** - Air saving kit attached

④ Air supply control valve

- A1 - AC 110V
- A2 - AC 220V
- **A3** - DC 24V
- D1* - AC 110V
- D2* - AC 220V
- D3* - DC 24V

D.* : Double solenoid valve
Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Vacuum release control valve

- R1 - AC110V
- R2 - AC220V
- **R3** - DC24V

⑥ Solenoid Terminal

- DN - DIN type without lead wire
- DL - DIN type with lamp without lead wire
- **CL*** - Connector type with lamp & 0.3m lead wire
- 2B* - DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* - DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

* Remark

- CL : Available only with DC24V
Can not available with VTL175, VTL200
- 3B : Available only with DC24V
Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑦ Vacuum switch

- S2(P) - Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** - Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) - Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

* Remark : ① S..(P)

Output type : PNP open collector.

② VCM8 42 : M8-4Pin female connector, only for type S2(P)

⑧ Non-return valve

- No mark - Standard
- **N** - Non-return valve

⑨ Sealing

- No mark - Standard (NBR)
- **V** - Viton®
- E** - EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTL25	80 (23.62)	379	78-105	50 - 65	643	>4	>12	>12
VTL50		650	156-210	50 - 65	644	>6	>15	>15
VTL75		820	234-315	50 - 65	760	>8	>19	>22
VTL100		990	312-420	50 - 65	761	>8	>19	>22
VTL125		1090	390-525	60 - 65	877	>10	>25	>32
VTL150		1303	468-630	60 - 65	878	>10	>25	>32
VTL175		1682	546-735	60 - 65	994	>10	>32	>40
VTL200		2061	624-840	60 - 65	995	>10	>32	>40

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67
		0	10	20	30	40	50	60	70
VTL25		379	200	139	94	51	40	28	18
VTL50		650	374	266	176	102	77	56	36
VTL75		820	490	370	245	138	116	92	49
VTL100		990	607	473	323	197	152	109	69
VTL125		1090	750	547	390	241	192	138	87
VTL150		1303	907	614	456	282	228	162	102
VTL175		1682	1060	678	515	314	267	189	118
VTL200		2061	1217	729	574	363	294	218	134

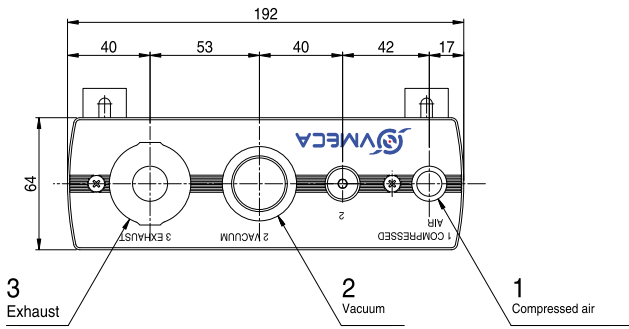
VACUUM PUMPS

Time in seconds to evacuate to vacuum level (sec/l)

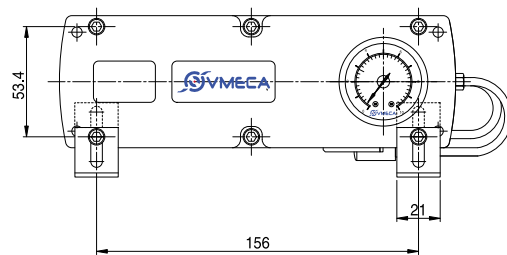
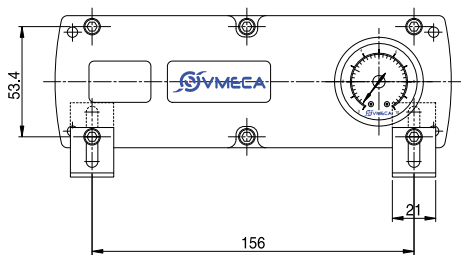
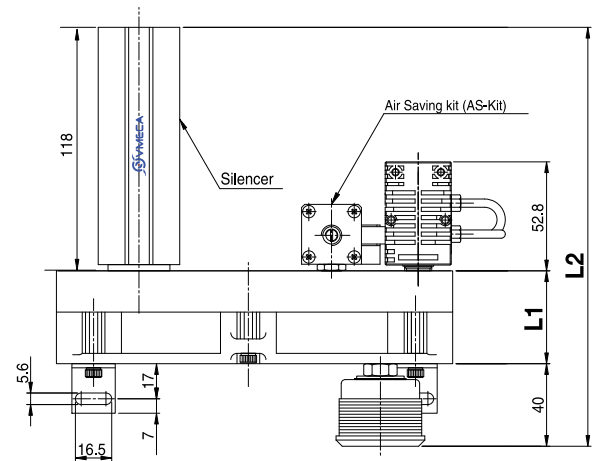
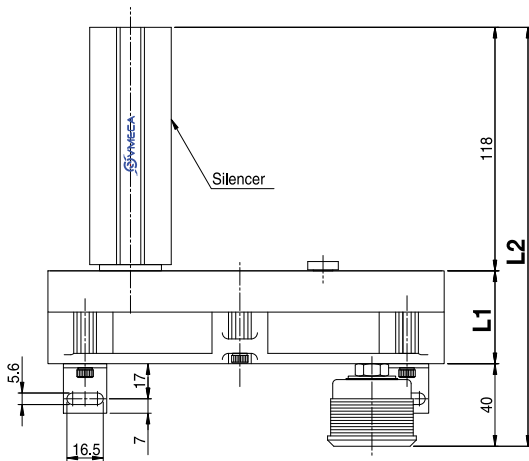
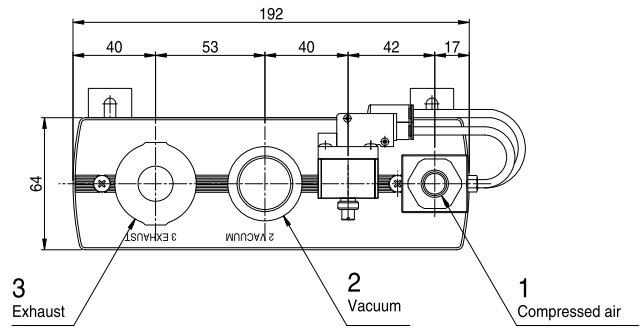
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67
		10	20	30	40	50	60	70
VTL25		0.017	0,045	0.09	0.18	0.34	0.53	0.85
VTL50		0.012	0,027	0.05	0.1	0.18	0,27	0.43
VTL75		0.008	0,021	0.04	0.08	0.13	0.2	0.32
VTL100		0,0069	0,015	0.03	0.05	0.09	0.14	0.22
VTL125		0,0058	0,014	0,026	0,044	0,076	0,118	0,19
VTL150		0,0049	0,013	0,022	0,037	0,062	0,095	0,15
VTL175		0,0047	0,012	0,021	0,035	0,057	0,087	0,14
VTL200		0,0043	0,011	0,019	0,033	0,051	0,078	0,12

Dimensional Information

Standard



with AS - KIT



[Measure unit : mm]

(mm)

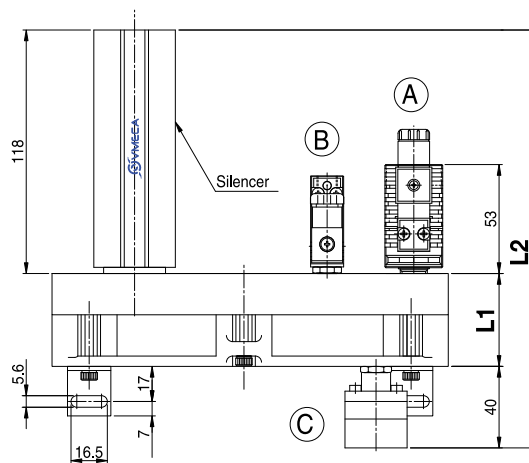
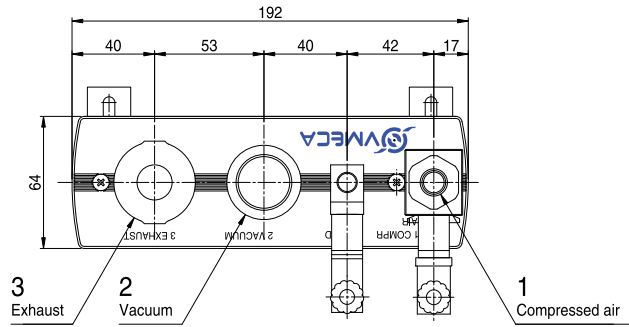
Port 1 : G1/4", NPT1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTL25	45.5	203.5
VTL50	45.5	203.5
VTL75	65	223
VTL100	65	223
VTL125	84.5	242.5
VTL150	84.5	242.5
VTL175	104	262
VTL200	104	262

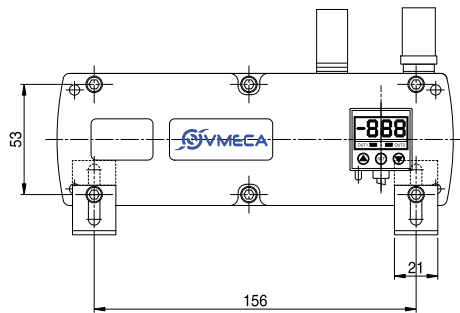
Port 1 : VTL25~VTL150 : G1/4", NPSF 1/4"
 VTL175~VTL200 : G3/8", NPSF 3/8"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Dimensional Information

Air supply control valve
 Vacuum release control valve
 Digital display vacuum switch



- (A) Air supply control valve
- (B) Vacuum release control valve
- (C) Digital display vacuum switch



[Measure unit : mm]

(mm)

Port 1 : VTL25~VTL150 : G1/4", NPSF 1/4"
 VTL175~VTL200 : G3/8", NPSF 3/8"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTL25	45.5	206.5
VTL50	45.5	206.5
VTL75	65	226
VTL100	65	226
VTL125	84.5	245.5
VTL150	84.5	245.5
VTL175	104	265
VTL200	104	265

M-Classic Pump

- Max. vacuum level : **-92 kPa** (-27.17 inHg)
- Max. flow rate : **1580 NI/min** (55.8 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 50~65 dBA



Main Advantages

This Classic VTM pump is probably the most commonly used multi Stage ejector it is available in a large range of sizes and configurations. Each pump comes complete with an exhaust silencer, gauge and fixing brackets. The body whilst robust is also lightweight. The housings are manufactured from PPS high grade plastic, which means most hazardous vapors, can be accommodated. Pump sizes range from a VTM25 to the high flow VTM200. All units are available with the option of an air saving kit and non-return valves. Viton® and EPDM seals can also be stipulated as options.

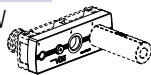
Order No.

VTM25 - 1434 A - AS - A3 R3 - CL SG2 N V



① Model – Capacity equivalent to electricity motor pump size

- **VTM25** – 0.25KW
- VTM50 – 0.50KW
- VTM75 – 0.75KW
- VTM100 – 1.00KW
- VTM125 – 1.25KW
- VTM150 – 1.50KW
- VTM175 – 1.75KW
- VTM200 – 2.00KW



② Connection plate

	Air port	Vacuum port	
1412 A	G1/4"	G1/2"	Aluminum
• 1434 A	G1/4"	G3/4"	
1401 A	G1/4"	G1"	
N1412 A	NPT1/4"	NPT1/2"	
N1434 A	NPT1/4"	NPT3/4"	
N1401 A	NPT1/4"	NPT 1"	All PPS
1812 P	G1/8"	G1/2"	
1834 P	G1/8"	G3/4"	
N1812 P	NPT1/8"	NPT1/2"	
N1834 P	NPT1/8"	NPT3/4"	

* Remark :

- Air supply port with air control valve or AS-kit
VTM25~VTM150 : G1/4"
VTM175~VTM200 : G3/8"
- PPS Mat I is available in VTM25 ~ VTM125

③ Air saving Kit (108)

- No mark – Standard
- **AS** – Air saving kit attached

④ Air supply control valve

- A1 – AC 110V
- A2 – AC 220V
- **A3** – DC 24V
- D1* – AC 110V
- D2* – AC 220V
- D3* – DC 24V

D.* : Double solenoid valve
Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ Vacuum release control valve

- R1 – AC110V
- R2 – AC220V
- **R3** – DC24V

⑥ Solenoid Terminal

- DN – DIN type without lead wire
- DL – DIN type with lamp without lead wire
- **CL*** – Connector type with lamp & 0.3m lead wire
- 2B* – DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* – DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

* Remark

- CL : Available only with DC24V
Can not available with VTM175, VTM200
- 3B : Available only with DC24V
Available only with 'S2' or 'S2P', section ⑦

☞ About 'BUS cable' (340, 341)

⑦ Vacuum switch

- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

* Remark : ① S..(P)

Output type : PNP open collector.

② VCM8 42 : M8-4Pin female connector, only for type S2(P)

⑧ Non-return valve

- No mark – Standard
- **N** – Non-return valve

⑨ Sealing

- No mark – Standard (NBR)
- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM25	92 (27.17)	389	78-108	50 - 65	620	>4	>12	>12
VTM50		647	150-210	50 - 65	622	>6	>15	>15
VTM75		890	228-318	50 - 65	794	>8	>19	>22
VTM100		1100	300-420	50 - 65	795	>8	>19	>22
VTM125		1200	378-528	60 - 65	936	>10	>25	>32
VTM150		1380	450-630	60 - 65	947	>10	>25	>32
VTM175		1490	528-738	60 - 65	1148	>10	>32	>40
VTM200		1580	600-840	60 - 65	1150	>12	>32	>40

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	0	10	20	30	40	50	60	70	80	90	
VTM25	389	220	147	74	37	27	18	10	5	0.8	
VTM50	647	400	279	146	73	54	36	20	10	1.6	
VTM75	890	600	366	220	110	82	54	30	15	2.4	
VTM100	1100	750	453	291	146	109	72	40	20	3.2	
VTM125	1200	900	530	356	182	135	90	50	25	4	
VTM150	1380	1020	597	416	218	162	108	60	30	4.8	
VTM175	1490	1120	654	471	254	189	126	70	35	5.6	
VTM200	1580	1200	701	521	290	216	144	80	40	6.4	

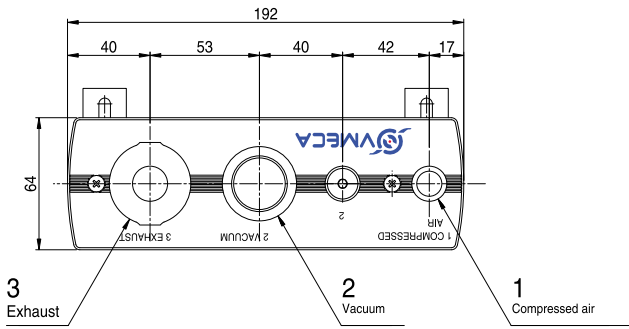
VACUUM PUMPS

Time in seconds to evacuate to vacuum level (sec/l)

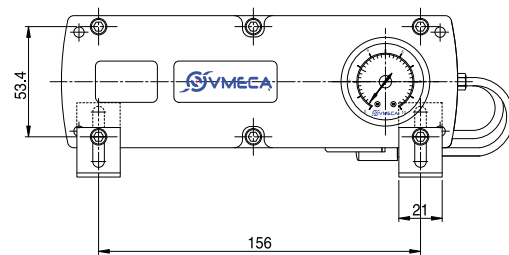
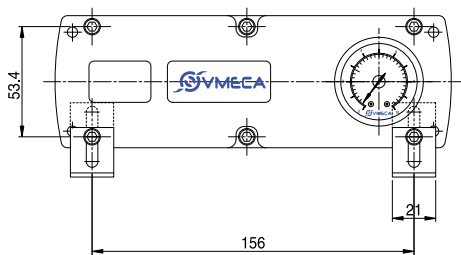
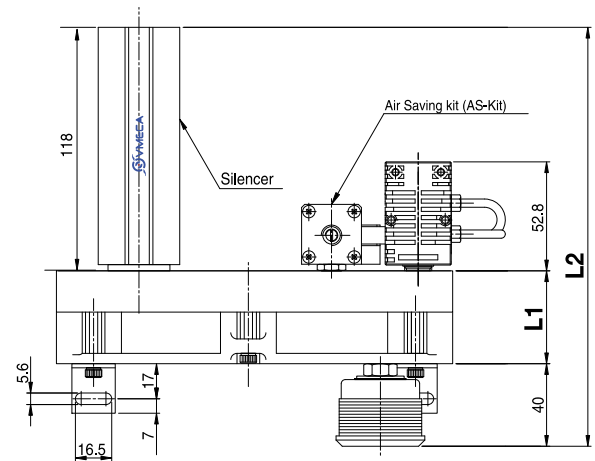
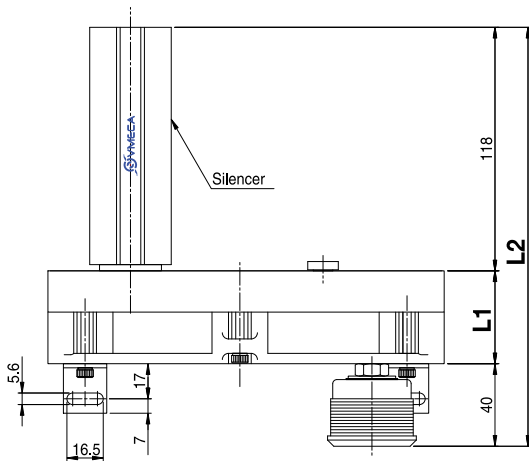
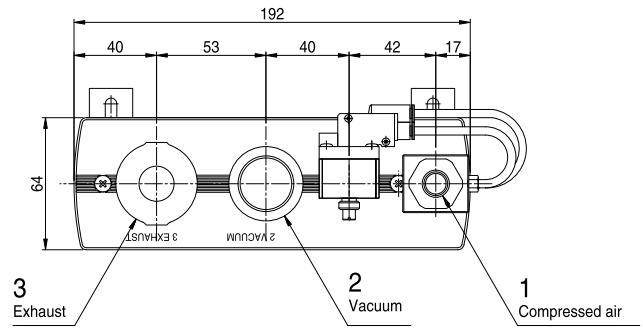
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	10	20	30	40	50	60	70	80	90	
VTM25	0.019	0.048	0.11	0.239	0.416	0.686	1.122	1.91	4.21	
VTM50	0.012	0.03	0.066	0.125	0.209	0.345	0.593	1.05	2.19	
VTM75	0.009	0.023	0.05	0.094	0.157	0.259	0.445	0.788	1.644	
VTM100	0.006	0.015	0.033	0.063	0.105	0.173	0.297	0.526	1.097	
VTM125	0.0055	0.0143	0.0311	0.055	0.092	0.151	0.260	0.46	1.96	
VTM150	0.0052	0.0135	0.0296	0.047	0.078	0.129	0.223	0.394	0.823	
VTM175	0.005	0.0127	0.0279	0.039	0.065	0.108	0.186	0.329	0.686	
VTM200	0.0048	0.0113	0.0258	0.027	0.054	0.09	0.153	0.274	0.67	

Dimensional Information

Standard



with AS - KIT



[Measure unit : mm]

(mm)

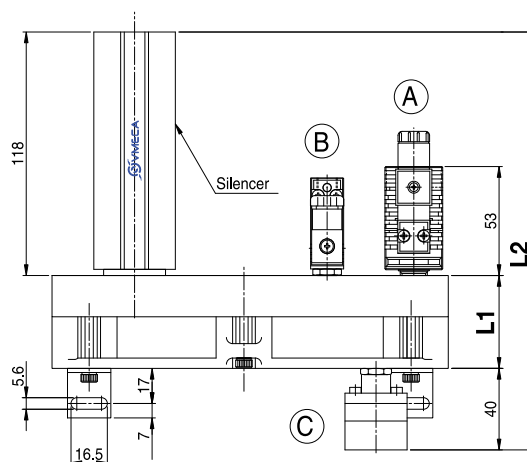
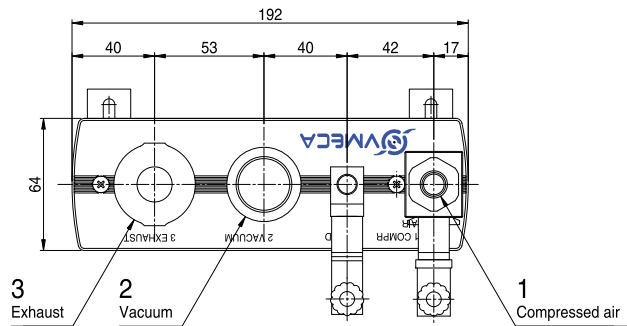
Port 1 : G1/4", NPT1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTM25	45.5	203.5
VTM50	45.5	203.5
VTM75	65	223
VTM100	65	223
VTM125	84.5	242.5
VTM150	84.5	242.5
VTM175	104	262
VTM200	104	262

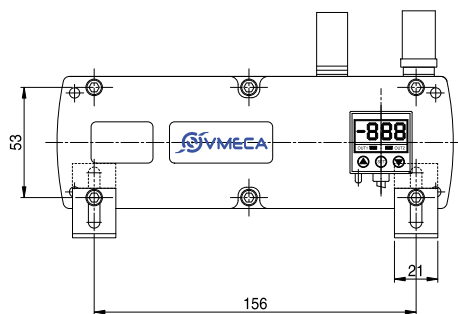
Port 1 : VTM25 ~ VTM150 : G1/4", NPSF 1/4"
 VTM175 ~ VTM200 : G3/8", NPSF 3/8"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Dimensional Information

Air supply control valve
 Vacuum release control valve
 Digital display vacuum switch



- Ⓐ Air supply control valve
- Ⓑ Vacuum release control valve
- Ⓒ Digital display vacuum switch



[Measure unit : mm]
 (mm)

Port 1 : VTM25 ~ VTM150 : G1/4", NPSF 1/4"
 VTM175 ~ VTM200 : G3/8", NPSF 3/8"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTM25	45.5	206.5
VTM50	45.5	206.5
VTM75	65	226
VTM100	65	226
VTM125	84.5	245.5
VTM150	84.5	245.5
VTM175	104	265
VTM200	104	265

X-Classic Pump

- Max. vacuum level : **-97 kPa** (-28.64 inHg)
- Max. flow rate : **521 NI/min** (18.4 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 55 ~ 65 dBA



Main Advantages

This Classic VTX type is a pump that bridges the gap between the High Flow VTM range and the High Vacuum VTH Range, giving a balance of the two. The X-Classic has the same external dimensions to that of the M-Classic, however the internal ejector system is different to enable higher levels of vacuum to be achieved. Each pump comes complete with an exhaust silencer, gauge and fixing brackets. The body whilst robust is also lightweight. The housings are manufactured from PPS high grade plastic, which means most hazardous vapors, can be accommodated. Pump sizes range from a VTX25 to the VTX75. All units are available with the option of an air saving kit and non-return valves. Viton® and EPDM seals can also be stipulated as options.

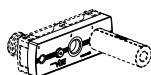
Order No.

VTX25 - 1434 A - AS - A3 R3 - CL - SG2 N V



- ① **Model** – Capacity equivalent to electricity motor pump size
- **VTX25** – 0.25KW
 - VTX50 – 0.50KW
 - VTX75 – 0.75KW

② **Connection plate**



	Air port	Vacuum port	
1412 A	G1/4"	G1/2"	Aluminum
• 1434 A	G1/4"	G3/4"	
1401 A	G1/4"	G1"	
N1412 A	NPT1/4"	NPT1/2"	
N1434 A	NPT1/4"	NPT3/4"	
N1401 A	NPT1/4"	NPT 1"	All PPS
1812 P	G1/8"	G1/2"	
1834 P	G1/8"	G3/4"	
N1812 P	NPT1/8"	NPT1/2"	
N1834 P	NPT1/8"	NPT3/4"	

※ Remark :
• Air supply port with air control valve or AS-kit
⇒ G 1/4"

③ **Air saving Kit**



- No mark – Standard
- **AS** – Air saving kit attached

④ **Air supply control valve**

A1	– AC 110V
A2	– AC 220V
• A3	– DC 24V
D1*	– AC 110V
D2*	– AC 220V
D3*	– DC 24V

D.* : Double solenoid valve
Double solenoid valve is available only with 'DN' or 'DL', section ⑥

⑤ **Vacuum release control valve**

R1	– AC110V
R2	– AC220V
• R3	– DC24V

⑥ **Solenoid Terminal**

- DN – DIN type without lead wire
- DL – DIN type with lamp without lead wire
- **CL*** – Connector type with lamp & 0.3m lead wire
- 2B* – DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
- 3B* – DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

※ Remark
CL : Available only with DC24V
3B : Available only with DC24V
Available only with 'S2' or 'S2P', section ⑦

☞ **About 'BUS cable'** (☞ 340, 341)

⑦ **Vacuum switch**

- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

※ Remark : ① S..(P)
Output type : PNP open collector.
② VCM8 42 : M8-4Pin female connector, only for type S2(P)

⑧ **Non-return valve**

- No mark – Standard
- **N** – Non-return valve

⑨ **Sealing**

- No mark – Standard (NBR)
- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTX25	97 (28.64)	185	150~210	55 – 60	633	>4	>12	>12
VTX50		365	228~318	60 – 65	633	>6	>15	>15
VTX75		521	300~420	60 – 65	796	>8	>19	>22

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

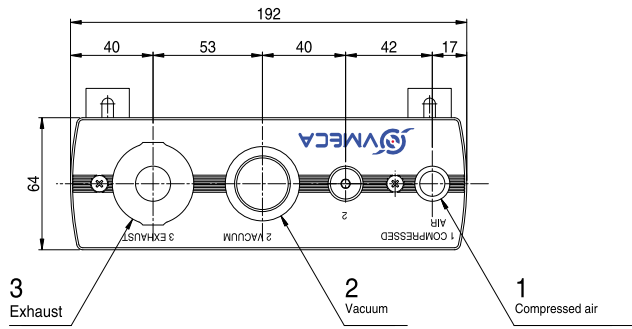
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
		0	10	20	30	40	50	60	70	80	90	95
VTX25		185	148	105	66	35	27	21	15	12	4.2	1.5
VTX50		365	292	207	132	69	54	42	30	23	8.4	3
VTX75		521	424	309	198	102	81	63	45	35	12.6	4.5

Time in seconds to evacuate to vacuum level (sec/l)

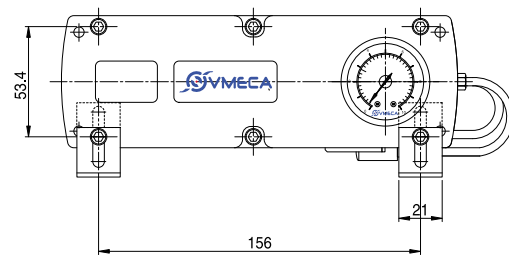
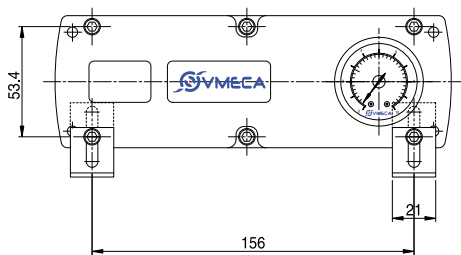
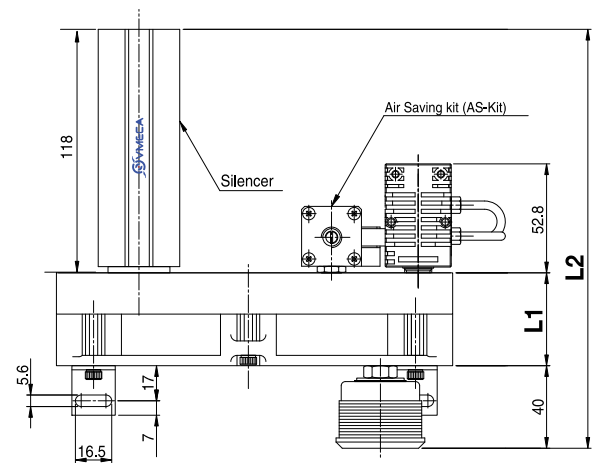
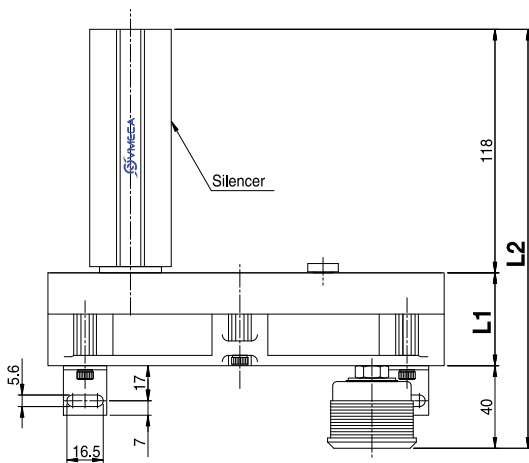
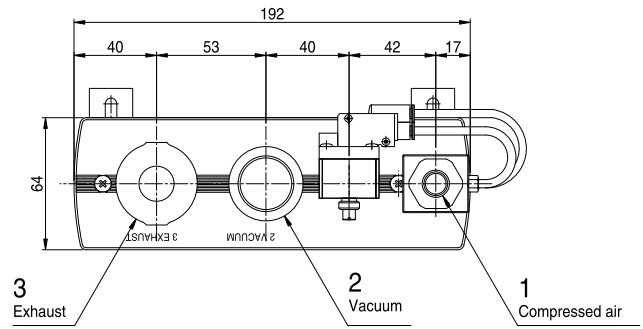
Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
		10	20	30	40	50	60	70	80	90	95
VTX25		0,028	0,068	0,134	0,26	0,49	0,736	1,126	1,598	2,7	3,76
VTX50		0,014	0,035	0,067	0,13	0,25	0,368	0,563	0,799	1,35	1,88
VTX75		0,011	0,023	0,046	0,095	0,167	0,246	0,376	0,533	0,9	1,264

Dimensional Information

Standard



with AS - KIT



[Measure unit : mm]

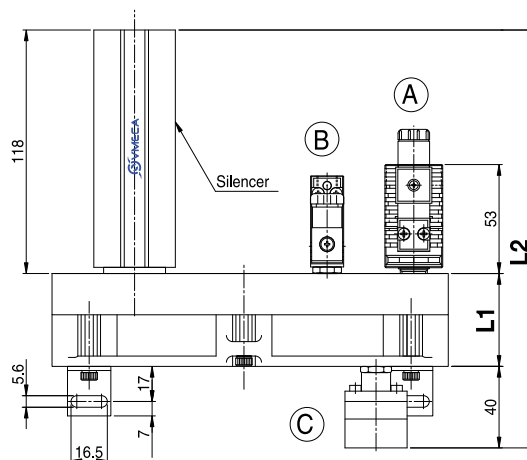
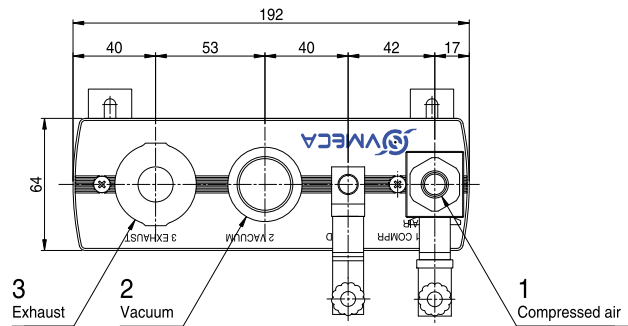
Port 1 : G1/4, NPSF1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(mm)	
Model	L1	L2
VTX25	45.5	203.5
VTX50	45.5	203.5
VTX75	65	223

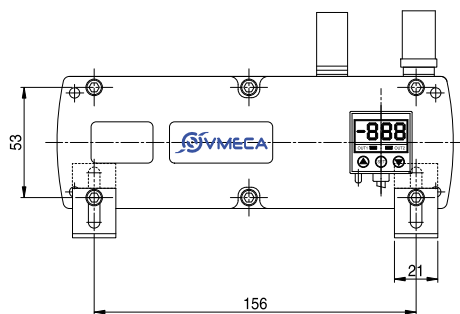
Port 1 : G1/4", NPSF 1/4"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Dimensional Information

Air supply control valve
 Vacuum release control valve
 Digital display vacuum switch



- Ⓐ Air supply control valve
- Ⓑ Vacuum release control valve
- Ⓒ Digital display vacuum switch



[Measure unit : mm]

Port 1 : G1/4", NPT 1/4"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(mm)	
Model	L1	L2
VTX25	45.5	206.5
VTX50	45.5	206.5
VTX75	65	226

MM - Midiflex Pump

- Max. vacuum level** : **-92 kPa** (-27.17 inHg)
- Max. flow rate** : **2200 NI/min** (77.69 scfm)
- Supply air pressure** : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type** : Dry compressed air
- Working temperature** : -20°C ~ 80°C
- Noise level** : 55 ~ 65 dBA



Main Advantages

This MM-Midiflex pump is a compact manifold based multi stage ejector multi pump arrangement. Much higher flow rates and fast evacuation times can be achieved with this type of pump.

The pump features a pressure gauge and a vacuum gauge along with two G3/4" ports for connecting more than one large bore vacuum pipe. As with most of the other pumps the MM-Midiflex can be specified with an air saving kit, and with Viton® or EPDM as seal options. This manifold has a special design allowing you to choose between two vacuum ports suited for your application. The pumps to achieve a combination of high flow rates and the highest vacuum levels.

Order No.

VTMM100 - V34 - AS A3 - SG2 - N V

① ② ③ ④ ⑤ ⑥ ⑦

① **Model** – Capacity equivalent to electricity motor pump size

- **VTMM100** – 1KW
- VTMM150 – 1.5KW
- VTMM200 – 2KW
- VTMM200F – 2KW

② **Vacuum port**

- **V34** – 2XG3/4" (VTMM100, 150, 200)
- V01 – G1" (VTMM100, 150, 200)
- V02 – G1 1/2" (VTMM200F)

③ **Air saving kit** (108)

- No mark – Standard
- **AS** – Air saving kit attach

④ **Air supply control valve**

- no mark – Without control valve
- A1 – AC110V Electrically operated valve
- A2 – AC220V Electrically operated valve
- **A3** – DC24V Electrically operated valve
- A4 – Pneumatically operated valve

⑤ **Vacuum switch**

- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

※ Remark : ① S..(P)
 ↓
 Output type : PNP open collector.
② VCM8 42 : M8-4Pin female connector.
 only for type S2(P)

⑥ **Non return valve**

- No mark – Standard
- **N** – Non return valve

⑦ **Sealing**

- No mark – Standard (NBR)
- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTMM100	92 (27.17)	1290	300~420	55~60	2389	>8	>19	>22
VTMM150		1740	450~630	55~65	2558	>10	>25	>32
VTMM200		2150	600~780	55~65	2981	>10	>32	>40
VTMM200F		2200	600~780	55~65	3260	>10	>32	>40

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VTMM100		1290	844	562	291	146	109	72	40	20	3.2
VTMM150		1740	1206	700	420	216	162	180	60	27	4.5
VTMM200		2150	1530	1010	520	290	216	144	80	40	6.4
VTMM200F		2200	1540	1016	528	290	216	144	80	40	6.4

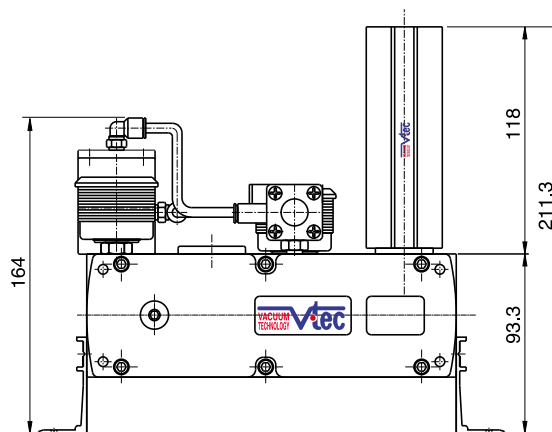
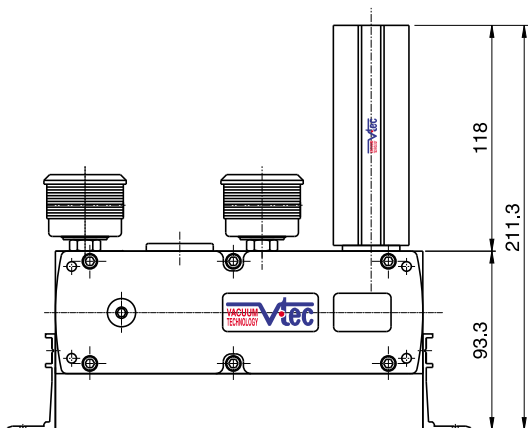
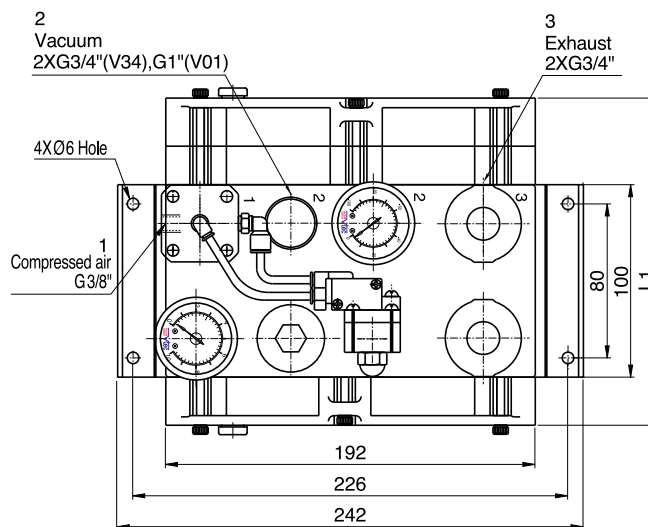
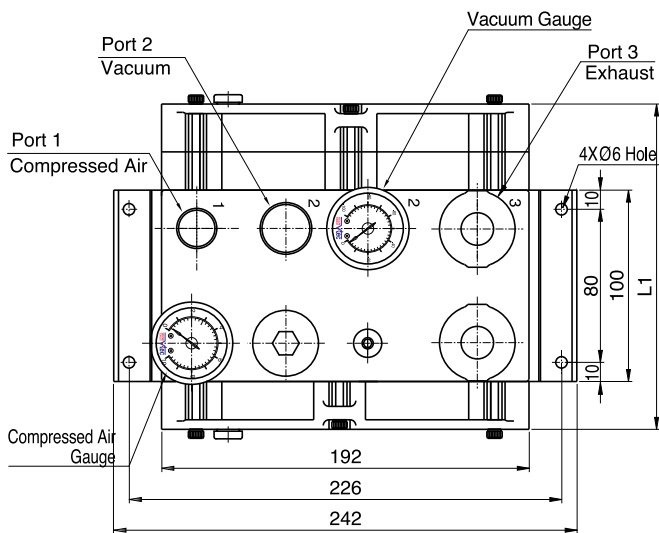
Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VTMM100		0.0053	0.0144	0.031	0.063	0.105	0.173	0.297	0.526	1.097
VTMM150		0.0046	0.011	0.025	0.047	0.078	0.129	0.223	0.394	0.823
VTMM200		0.0032	0.0076	0.0165	0.029	0.054	0.09	0.153	0.274	0.67
VTMM200F		0.0031	0.0075	0.0164	0.029	0.054	0.09	0.153	0.274	0.67

Dimensional Information

100
VTMM (150)
200

with AS - KIT



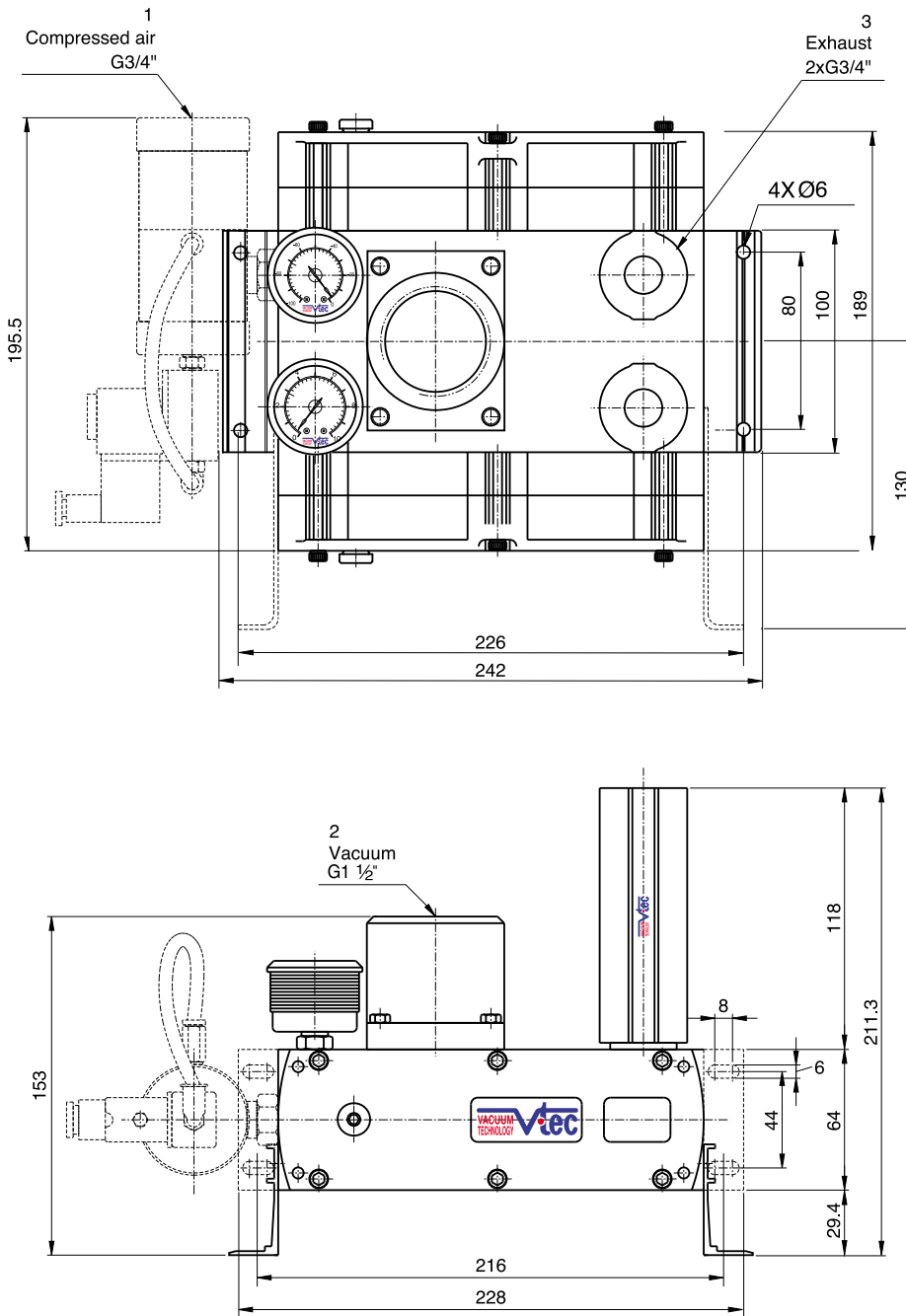
Port1 : G1/2"
Port2 : 2xG3/4"(V34), G1" (V01)
Port3 : 2xG3/4"

[Measure unit : mm]

(mm)	
Model	L1
VTMM100	150
VTMM150	169.5
VTMM200	189

Dimensional Information

VTMM 200F with air supply control valve



- Port1 : G3/4"
- Port2 : G1 1/2" (V02)
- Port3 : 2xG3/4"

[Measure unit : mm]

VACUUM PUMPS

MX - Midiflex Pump

- Max. vacuum level : **-97 kPa** (-28.64 inHg)
- Max. flow rate : **1355 NI/min** (47.85 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 63 ~ 68 dBA



Main Advantages

This MX-Midiflex pump is a compact manifold based multi stage ejector multi pump arrangement. The MX-Midiflex has the same external dimensions to that of the VTMM, however the internal ejector system is different to enable higher levels of vacuum to be achieved. A good balance between higher flow rates and higher vacuum levels with fast evacuation times can be achieved with this type of pump. The pump features a vacuum gauge along with two 3/4" ports for connecting more than one large bore vacuum pipe. As with most of the other pumps the MX-Midiflex can be specified with an air saving kit, and with Viton® or EPDM as seal options.

Order No.

VTMX100 - V34 - AS - A3 - SG2 - N V

① ② ③ ④ ⑤ ⑥ ⑦

① **Model** – Capacity equivalent to electricity motor pump size

- **VTMX100** – 1KW
- VTMX200 – 2KW
- VTMX300 – 3KW

② **Vacuum port**

- **V34** – 2XG3/4"
- V01 – G1"

③ **Air saving kit** (108)

- no mark – standard
- **AS** – Air saving kit attach

④ **Air supply control valve**

- no mark – Without control valve
- A1 – Electrically operated valve AC110V
- A2 – Electrically operated valve AC220V
- **A3** – Electrically operated valve DC24V
- A4 – Pneumatically operated valve

⑤ **Vacuum switch**

- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P)** – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

※ Remark : ① S..(P)
 ↳ Output type : PNP open collector.
② VCM8 42 : M8-4Pin female connector.
 only for type S2(P)

⑥ **Non return valve**

- no mark – standard
- **N** – non return valve

⑦ **Sealing**

- no mark – standard (NBR)
- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTMX100	97 (28.64)	695	504~600	63 ~ 68	2390	>8	>19	>22
VTMX200		1037	756~900	63 ~ 68	2549	>10	>25	>32
VTMX300		1355	1008~1200	63 ~ 68	3438	>10	>32	>40

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

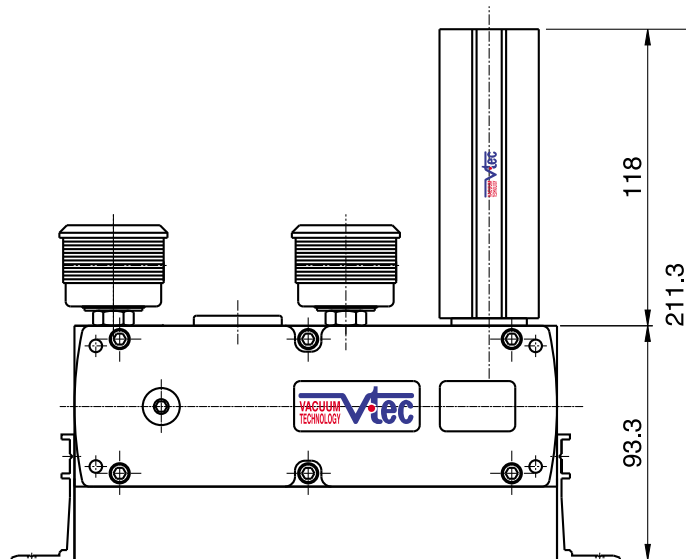
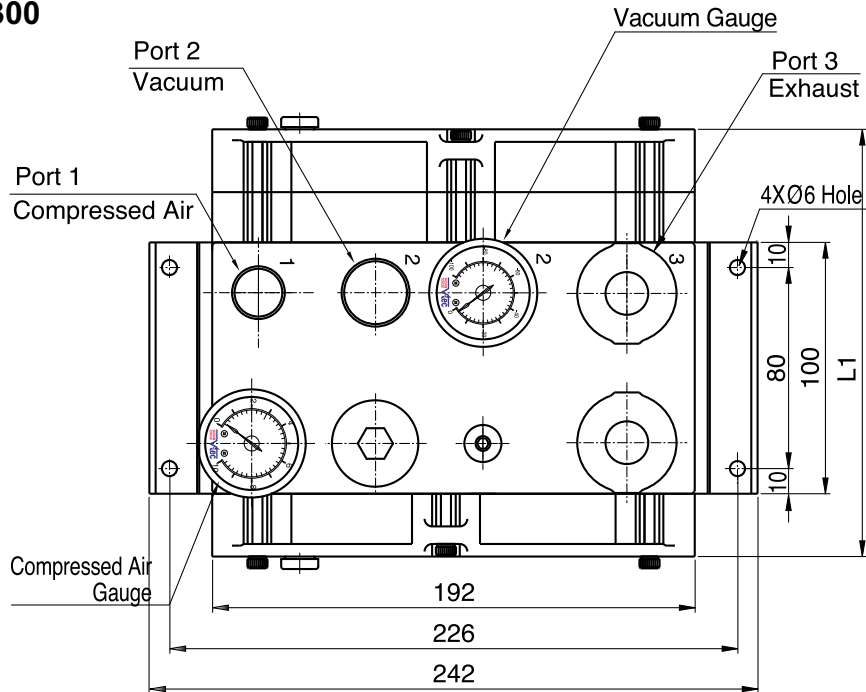
Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
	0	10	20	30	40	50	60	70	80	90	95
VTMX100	695	568	411	260	139	108	84	60	45	17	6
VTMX200	1037	844	615	398	211	162	126	90	69	26	9
VTMX300	1355	1096	813	530	289	216	168	120	92	33	12

Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
	10	20	30	40	50	60	70	80	90	95
VTMX100	0.0093	0.017	0.036	0.064	0.123	0.184	0.272	0.397	0.674	0.948
VTMX200	0.0064	0.012	0.024	0.047	0.082	0.123	0.186	0.256	0.448	0.631
VTMX300	0.0049	0.009	0.018	0.031	0.061	0.092	0.141	0.197	0.336	0.473

Dimensional Information

100
VTMX (200)
300



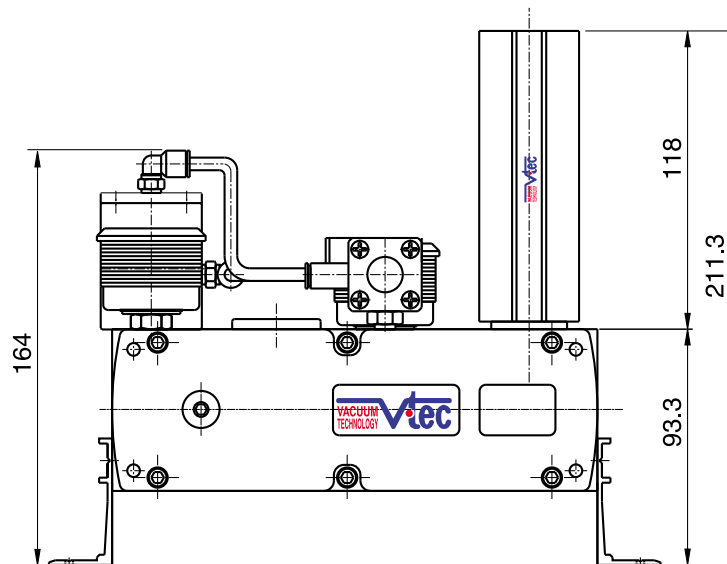
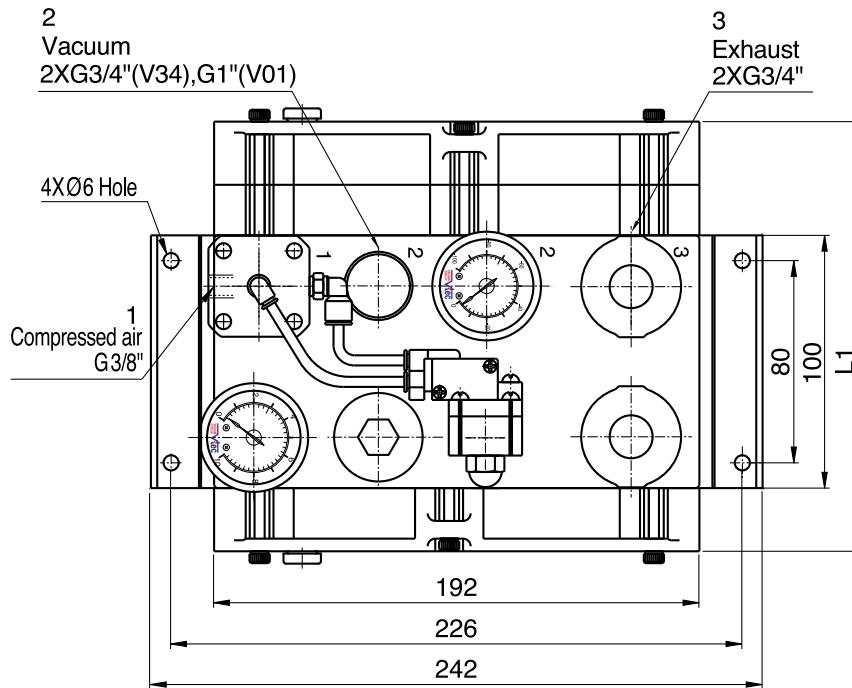
[Measure unit : mm]

Port1 : G1/2"
Port2 : 2xG3/4" (V34), G 1" (V01)
Port3 : 2xG3/4"

Model	L1 (mm)
VTMX100	150
VTMX200	169.5
VTMX300	208.5

Dimensional Information

with AS - KIT



[Measure unit : mm]

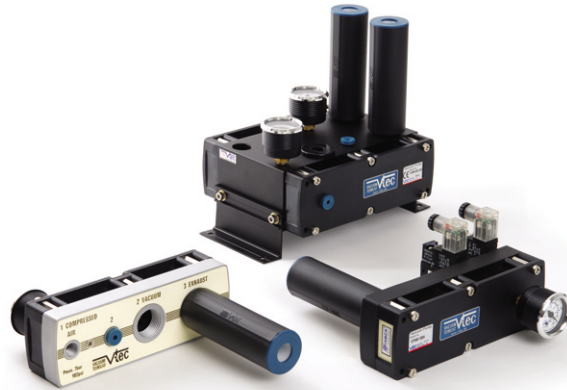
- Port1 : G1/2", G3/8"
- Port2 : 2xG3/4" (V34), G 1" (V01)
- Port3 : 2xG3/4"

Model	L1 (mm)
VTMX100	150
VTMX200	169.5
VTMX300	208.5

VACUUM PUMPS

H - Classic / H - Midiflex Pump

- Max. vacuum level : **-100.8 kPa** (-29.76 inHg)
- Max. flow rate : **1042 NI/min** (36.8 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 60 ~ 65 dBA

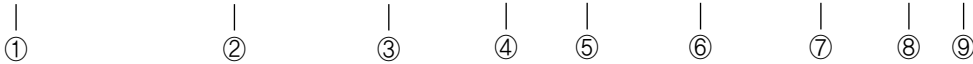


Main Advantages

The H-Classic / H-Midiflex range produces the very highest vacuum levels, whilst maintaining good flow rates for quick evacuation time. There are three models to choose from two classic sharp pumps and one midiflex pump, ranging from VTH50 to the VTH300. As with most of the other pumps there are options for an air saving kit, integral non return valve and Viton® or EPDM seals.

Order No.

VTH50 - 1434 A - AS - A3 R3 - CL - SG2 N V



- ① Model – Capacity equivalent to electricity motor pump size
- **VTH50** – 0.30KW
 - VTH150** – 0.90KW
 - VTH300** – 1.00KW

- ② Connection plate

	Air port	Vacuum port	Mat'l
VTH50, VTH150	1412 A	G1/4"	G1/2"
	1434 A	G1/4"	G3/4"
	1401 A	G1/4"	G1"
	N1412 A	NPT1/4"	NPT1/2"
	N1434 A	NPT1/4"	NPT3/4"
	N1401 A	NPT1/4"	NPT 1"
	Aluminum		
VTH300	1812 P	G1/8"	G1/2"
	1834 P	G1/8"	G3/4"
	N1812 P	NPT1/8"	NPT1/2"
	N1834 P	NPT1/8"	NPT3/4"
	All PPS		
VTH300	V34	G1/2"	2XG3/4"
	V01	G1/2"	G1"

- ※ Remark :
- Air supply port with air control valve or AS-kit
VTH50, VTH150 : G1/4"
VTH300 : G3/8"
 - PPS Mat'l is available with VTH50, VTH150

- ③ Air saving Kit
- No mark – Standard
 - **AS** – Air saving kit attached

- ④ Air supply control valve
- A1 – AC 110V
 - A2 – AC 220V
 - **A3** – DC 24V
 - D1* – AC 110V
 - D2* – AC 220V
 - D3* – DC 24V

D.* : Double solenoid valve
Double solenoid valve is available only with 'DN' or 'DL', section ⑥

- ⑤ Vacuum release control valve
- R1 – AC110V
 - R2 – AC220V
 - **R3** – DC24V

- ⑥ Solenoid Terminal
- DN – DIN type without lead wire
 - DL – DIN type with lamp without lead wire
 - **CL*** – Connector type with lamp & 0.3m lead wire
 - 2B* – DIN type with '2 in 1' BUS cable
(Air control v/v + Vacuum release v/v)
 - 3B* – DIN type with '3 in 1' BUS cable
(Air control v/v + Vacuum release v/v + Digital switch)

* Can not available with double solenoid valve

- ※ Remark
CL : Available only with DC24V
Can not available with VTH300
3B : Available only with DC24V
Available only with 'S2' or 'S2P', section ⑦
 About 'BUS cable' (340, 341)

- ⑦ Vacuum switch
- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
 - **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
 - SG3(P) – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

※ Remark : ① S..(P)
Output type : PNP open collector.
② VCM8 42 : M8-4Pin female connector, only for type S2(P)

- ⑧ Non-return valve
- No mark – Standard
 - **N** – Non-return valve

- ⑨ Sealing
- No mark – Standard (NBR)
 - **V** – Viton®
 - E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTH50	100,8 (29.76)	185	120-156	60-65	632	>8	>12	>12
VTH150		521	420-456	60-65	780	>8	>15	>15
VTH300		1042	870-912	60-65	2682	>10	>19	>22

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

Model \ -inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
	0	10	20	30	40	50	60	70	80	90	95	99
VTH50	185	147	106	66	32	21	15	9,6	7,8	3,6	1,2	0,3
VTH150	521	423	307	198	105	78	54	39	27	7,8	3,6	0,48
VTH300	1042	846	614	396	210	156	108	78	54	15,6	7,2	0,96

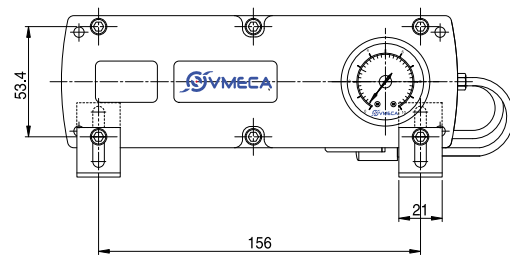
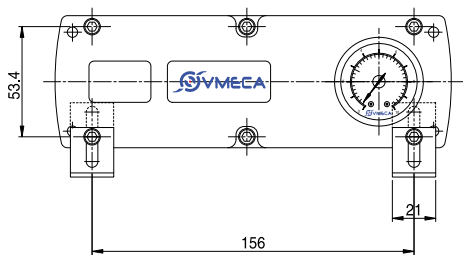
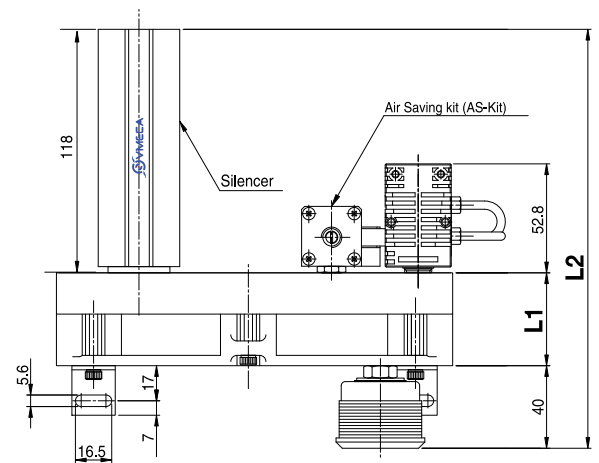
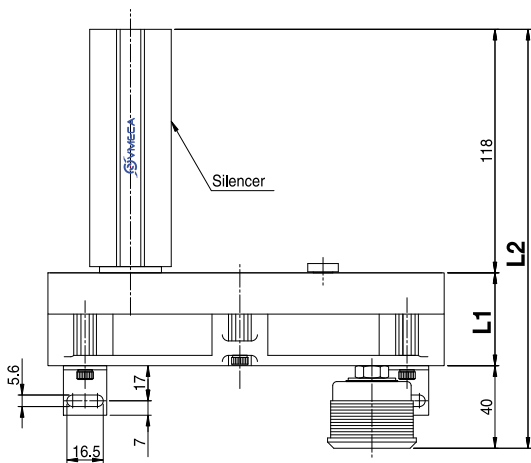
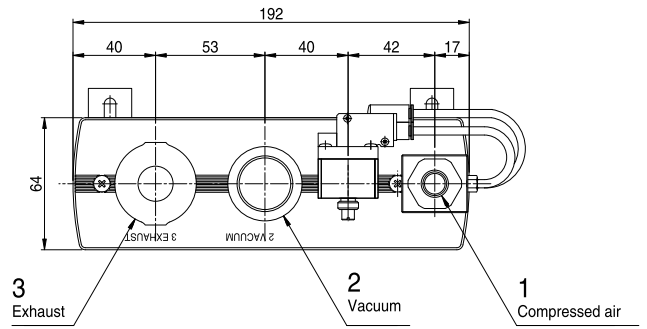
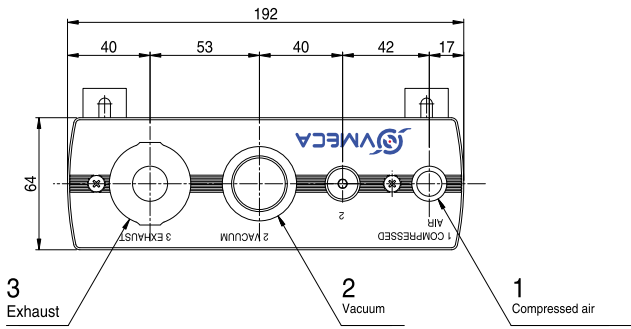
Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
	10	20	30	40	50	60	70	80	90	95	99
VTH50	0,029	0,07	0,12	0,25	0,55	0,92	1,446	2,2	3,39	4,986	9,18
VTH150	0,011	0,025	0,05	0,097	0,17	0,272	0,41	0,6	1,17	1,82	3,586
VTH300	0,006	0,013	0,025	0,048	0,085	0,136	0,205	0,3	0,585	0,91	1,798

Dimensional Information

Standard

with AS - KIT



[Measure unit : mm]

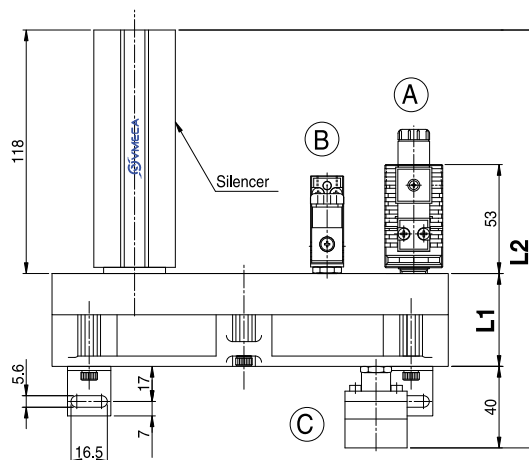
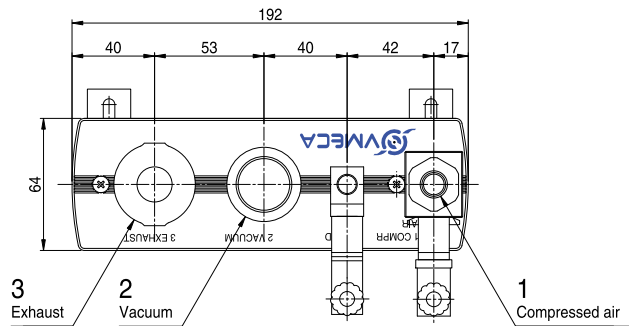
Port 1 : G1/4, NPT1/4"
 Port 2 : G1/2", G3/4", G1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(mm)	
Model	L1	L2
VTH50	45.5	203.5
VTH150	65	223

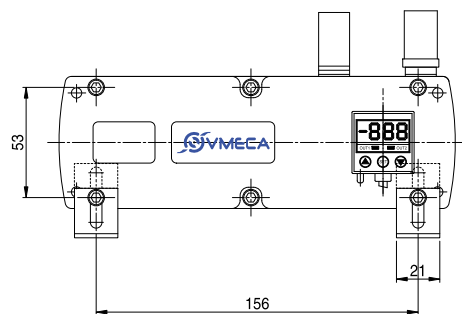
Port 1 : G1/4", NPSF 1/4"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Dimensional Information

Air supply control valve
 Vacuum release control valve
 Digital display vacuum switch



- Ⓐ Air supply control valve
- Ⓑ Vacuum release control valve
- Ⓒ Digital display vacuum switch



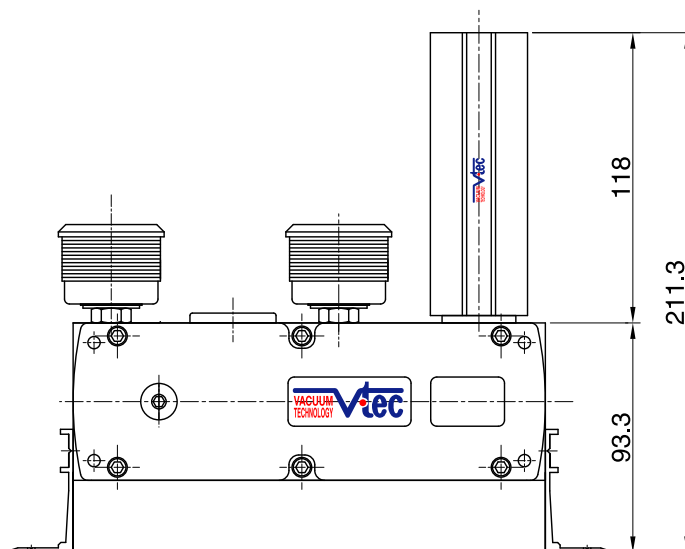
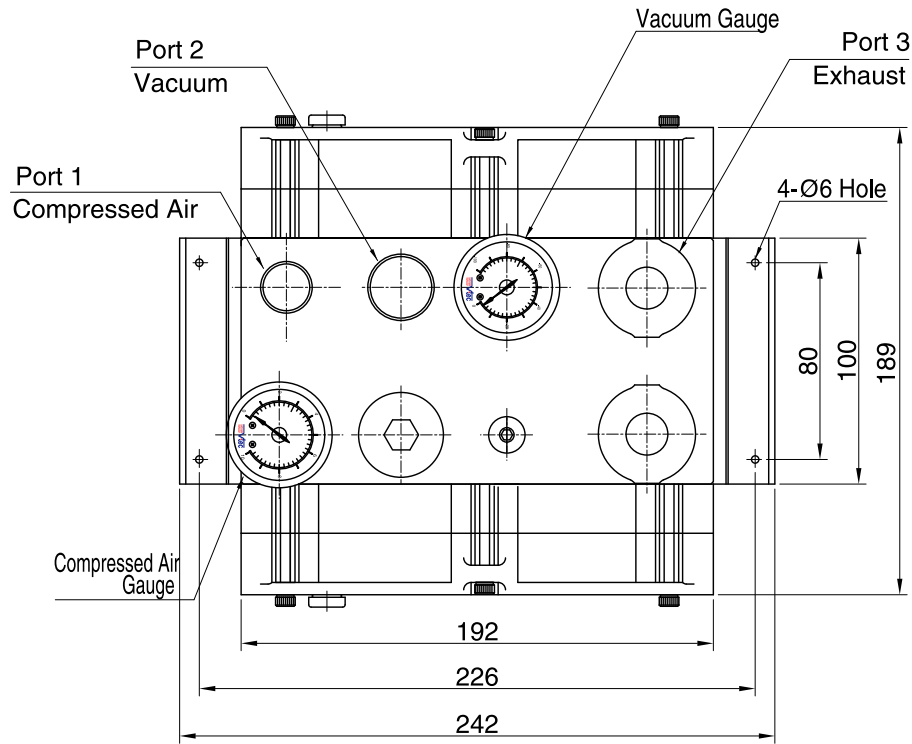
[Measure unit : mm]

Port 1 : G1/4", NPSF 1/4"
 Port 2 : G1/2", G3/4", G 1"
 NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(mm)	
Model	L1	L2
VTH50	45.5	206.5
VTH150	65	226

Dimensional Information

Standard
VTH 300

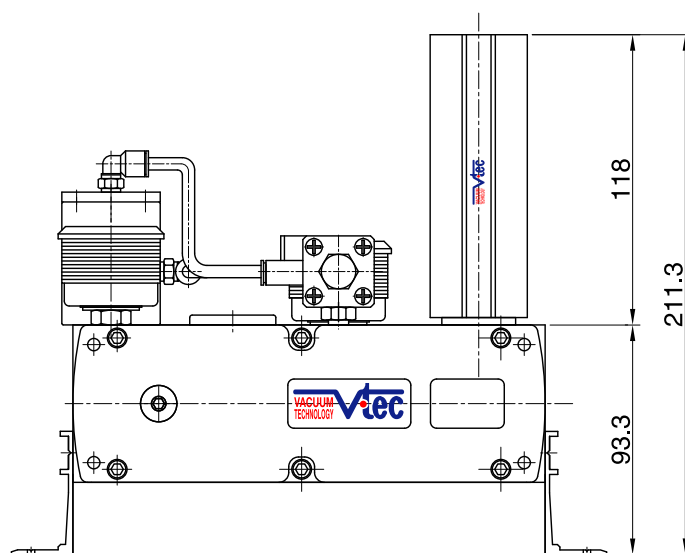
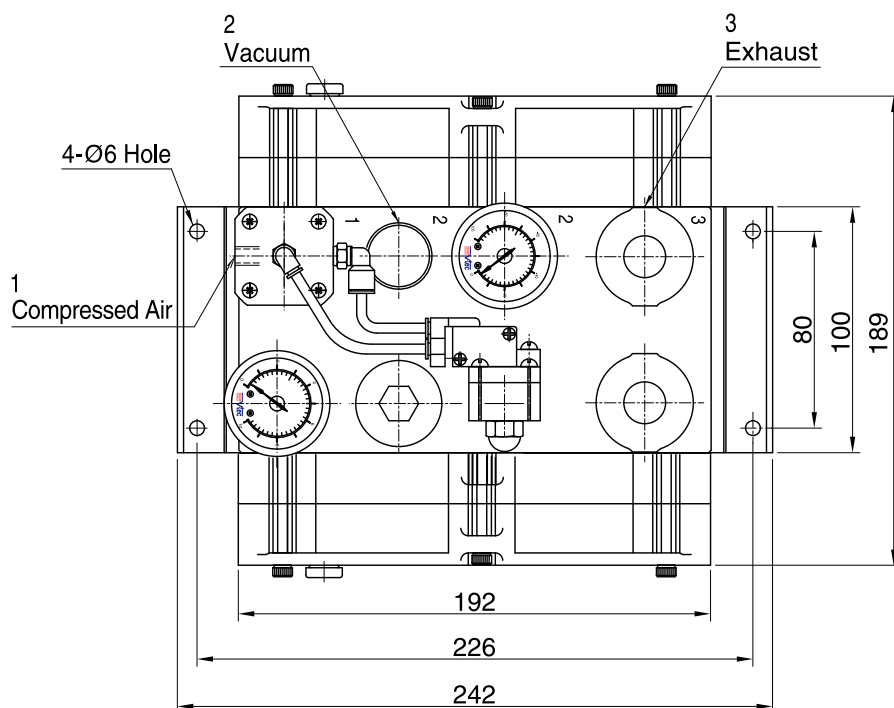


[Measure unit : mm]

- Port1 : G1/2"
- Port2 : 2xG3/4" (V34), G1" (V01)
- Port3 : 2xG3/4"

Dimensional Information

with AS - KIT



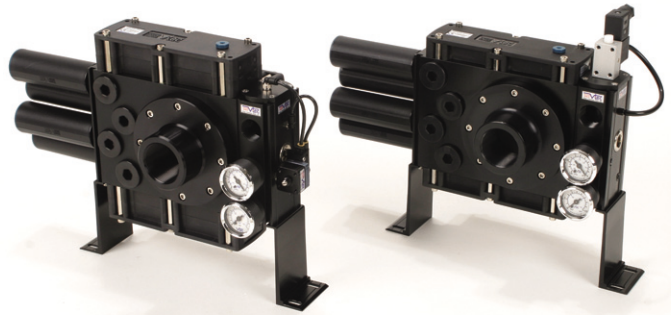
[Measure unit : mm]

- Port1 : G3/8"
- Port2 : 2xG3/4" (V34), G1"(V01)
- Port3 : 2xG3/4"

VACUUM PUMPS

L - Maxflex Pump

- Max. vacuum level : **-91 kPa** (-26.87 inHg)
- Max. flow rate : **6100 NI/min** (215.4 scfm)
- Supply air pressure : **3~6bar, max 7bar**
(43.5~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 55 ~ 68 dBA



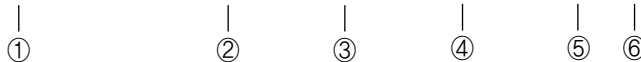
Main Advantages

This is the most significant model based on the multi stage principle. Low compressed air are required for massive evacuation volumes at high vacuum flow and high vacuum level rate Vtec air saving kit is available in this pump in order to maximize the reduction of energy usage.

The pumps utilize an integrally mounted large bore air supply ON/OFF valve as an option. Viton® & EPDM seals can be also stipulated as an option as well.

Order No.

VTM150LEF - AS - A3 - SG2 - N V



① Model - Capacity equivalent to electricity motor pump size

- **VTM150LEF** - 1.5KW
- VTM200LEF - 2KW
- VTM300LEF - 3KW
- VTM400LEF - 4KW
- VTM500LEF - 5KW
- VTM600LEF - 6KW
- VTM800LEF - 8KW

② Air saving kit (108)

- No mark - Standard
- **AS** - Air saving kit attach

③ Air supply control valve

- No mark - Without control valve
- A1 - AC110V Electrically operated valve
- A2 - AC220V Electrically operated valve
- **A3** - DC24V Electrically operated valve
- A4 - Pneumatically operated valve

④ Vacuum switch

- S2(P) - Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** - Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) - Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

* Remark : ① S.(P)
Output type : PNP open collector.

② VCM8 42 : M8-4Pin female connector.
only for type S2(P)

⑤ Non return valve

- No mark - Standard
- **N** - Non return valve

⑥ Sealing

- No mark - Standard (NBR)
- **V** - Viton®
- E - EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTM150LEF	91 (26.87)	1680	684	55~65	3143	>8	>25	>32
VTM200LEF		2100	912	55~65	3260	>10	>32	>40
VTM300LEF		2600	1368	55~68	3660	>12	>40	>60
VTM400LEF		3180	1824	55~68	5785	>12	>40	>60
VTM500LEF		4200	2280	60~68	6275	>14	>45	>70
VTM600LEF		5010	2736	60~68	6641	>14	>50	>70
VTM800LEF		6100	3648	60~68	7497	>15	>50	>75

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

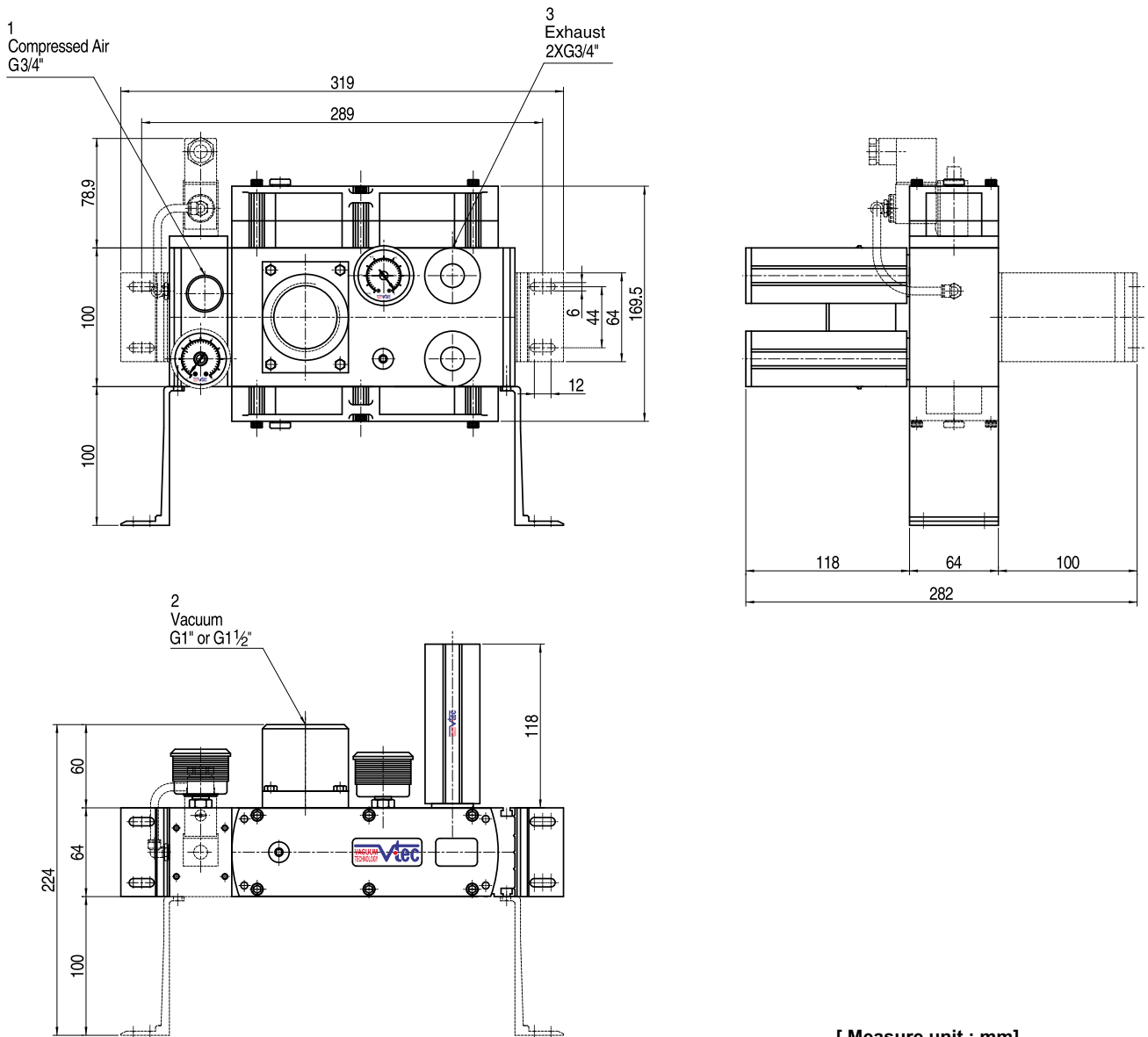
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VTM150LEF		1680	838	642	439.2	244.8	190.8	144	97.2	39.6	4.32
VTM200LEF		2100	1260	900	585.6	326.4	254.4	192	129.6	52.8	5.76
VTM300LEF		2600	1800	1260	878.4	489.6	381.6	288	194.4	92	8.67
VTM400LEF		3180	2400	1608	1171	652.8	508.8	384	259.2	105.6	11.52
VTM500LEF		4200	2950	2020	1464	816	636	480	324	132	14.4
VTM600LEF		5010	3450	2450	1757	979.2	763.2	576	388.8	158.4	17.28
VTM800LEF		6100	4200	3340	2342	1306	1018	768	518.4	211.2	23

Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VTM150LEF		0.0033	0.009	0.02	0.04	0.071	0.11	0.17	0.31	0.87
VTM200LEF		0.0025	0.007	0.015	0.03	0.053	0.083	0.128	0.21	0.58
VTM300LEF		0.0017	0.005	0.01	0.02	0.035	0.055	0.085	0.16	0.44
VTM400LEF		0.0013	0.004	0.008	0.015	0.027	0.041	0.064	0.11	0.29
VTM500LEF		0.001	0.003	0.006	0.012	0.021	0.033	0.051	0.09	0.26
VTM600LEF		0.0008	0.0023	0.005	0.01	0.018	0.028	0.043	0.08	0.22
VTM800LEF		0.0006	0.0018	0.004	0.008	0.013	0.021	0.032	0.05	0.15

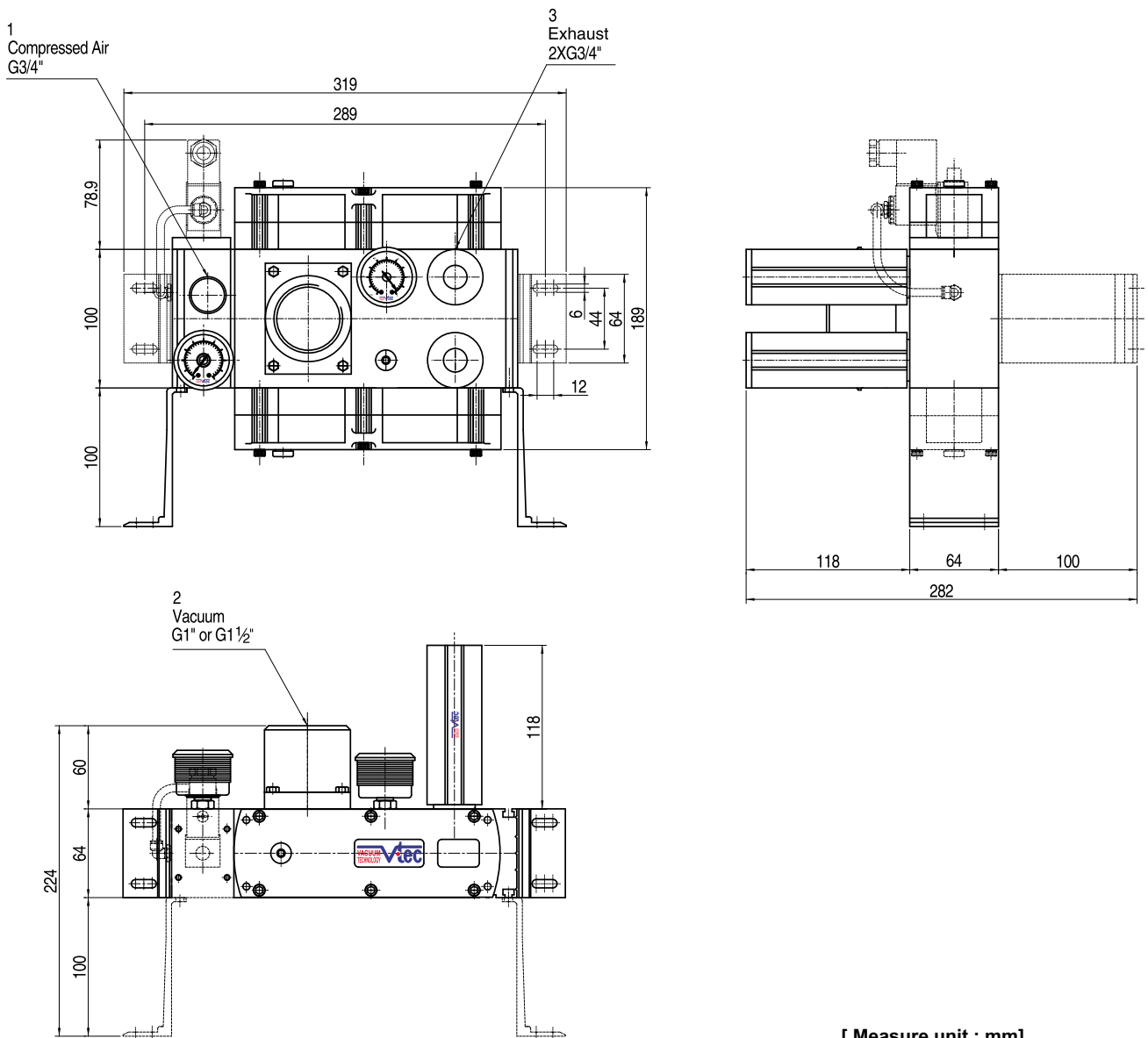
Dimensional Information

VTM150LEF



Dimensional Information

VTM200LEF

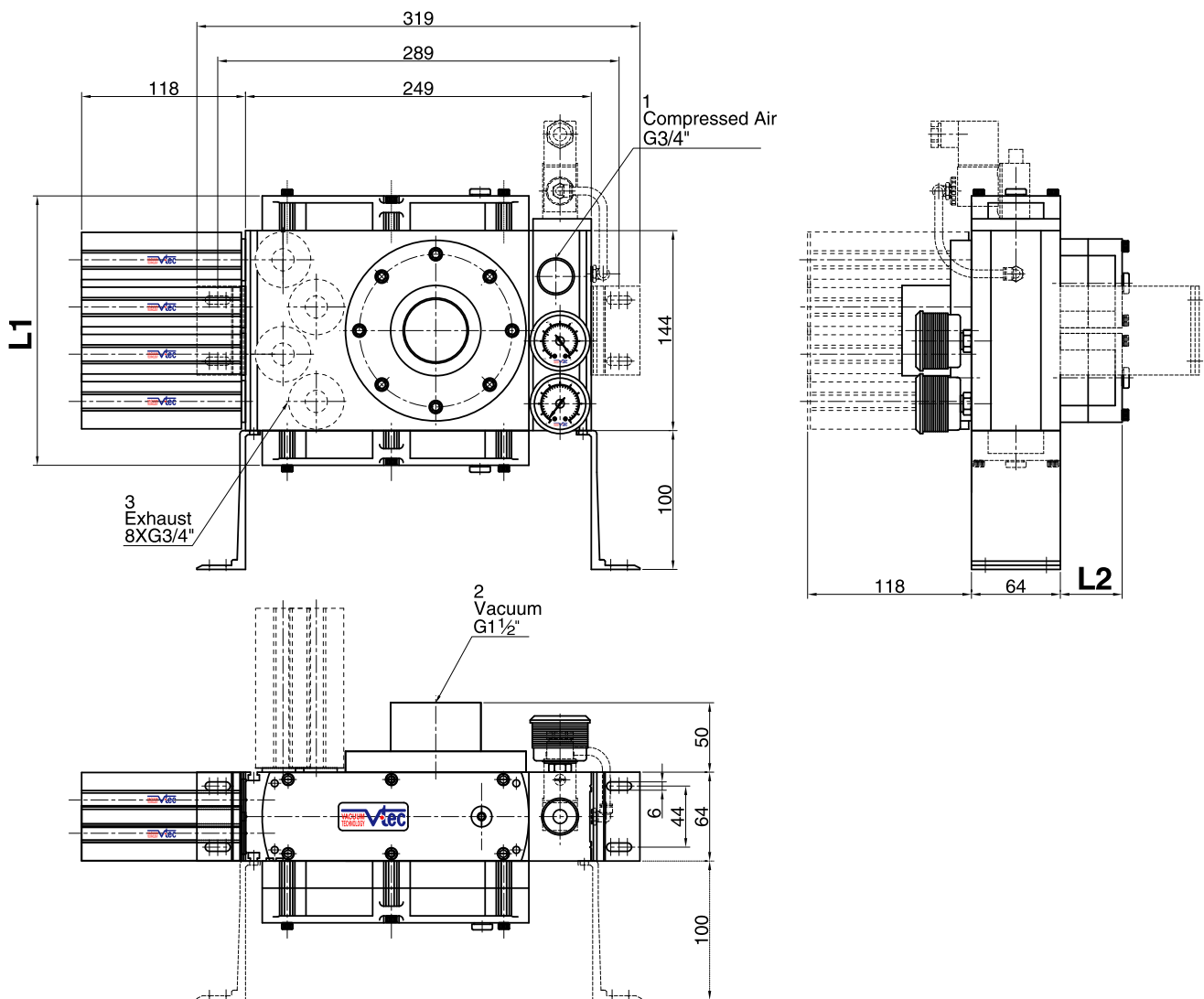


VACUUM PUMPS

Dimensional Information

VTM300LEF

400
500

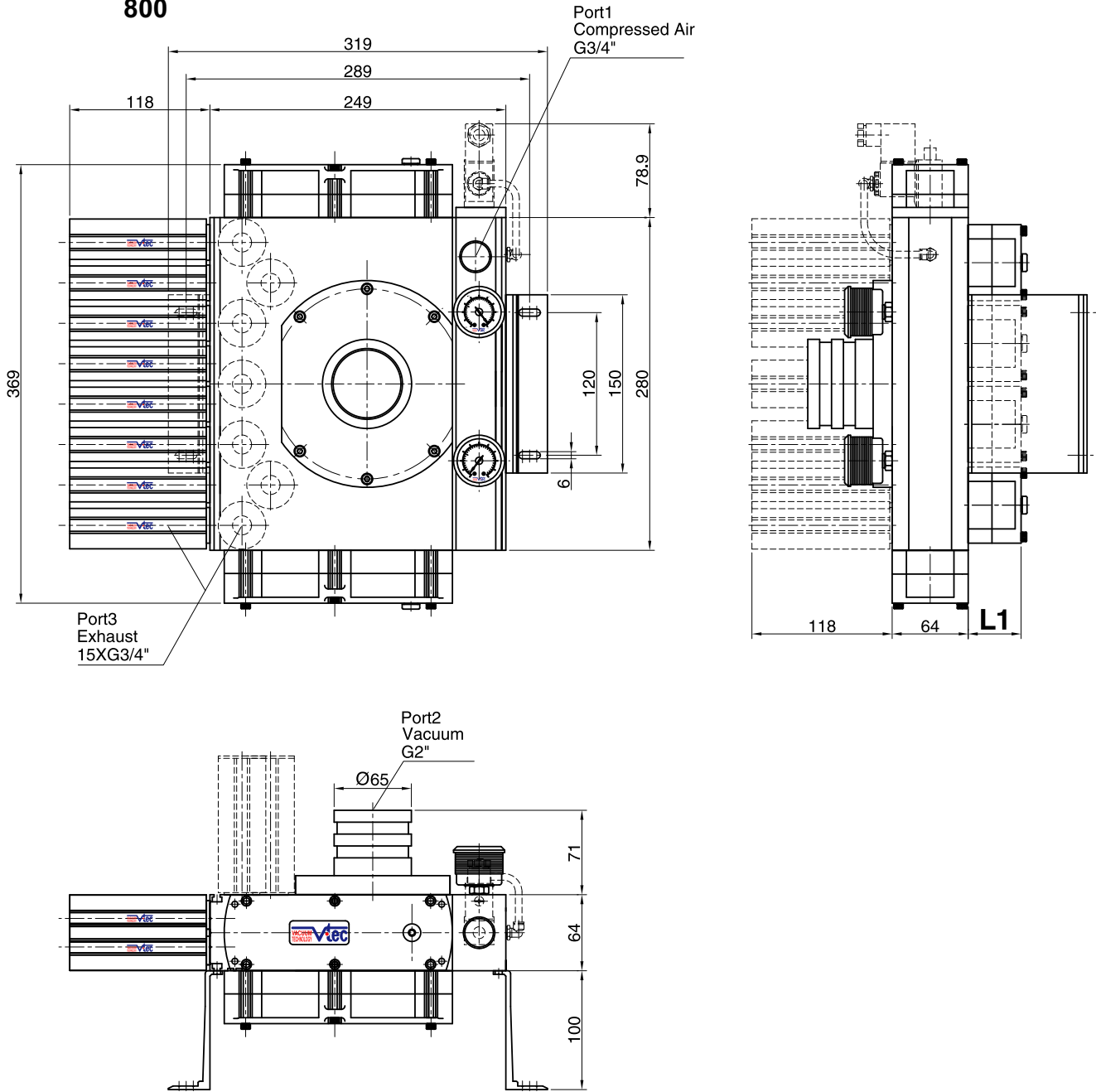


[Measure unit : mm]

Model	(mm)	
	L1	L2
VTM300LEF	194	44.5
VTM400LEF	233	44.5
VTM500LEF	233	64

Dimensional Information

VTM600LEF
800



[Measure unit : mm]

(mm)	
Model	L1
VTM600LEF	44.5
VTM800LEF	64

VACUUM PUMPS

M - Maxflex Pump

- Max. vacuum level : **-92 kPa** (-27.17 inHg)
- Max. flow rate : **11000 NI/min** (388.5 scfm)
- Supply air pressure : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ 80°C
- Noise level : 55 ~ 68 dBA



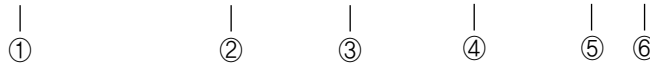
Main Advantages

This range of M-Maxflex pumps produces the very highest flow rates, as the name denotes all the pumps uses a large bore common vacuum port with port sizes up to 2". This type of pump has many applications but is particularly useful for high leakage systems, porous materials centerising vacuum system and large vacuum circuits.

The pumps are based around a manifold design and utilize an integrally mounted large bore air supply on/off valve as option. The pumps also come with vacuum and air pressure gauges with two options for positioning of the exhausts, mounting brackets are also supplied. Air saving kits and VITON® & EPDM seals options are also available with this pump.

Order No.

VTMM200EF - AS - A3 - SG2 - N V



① **Model** – Capacity equivalent to electricity motor pump size

- **VTMM200EF** – 2KW
- VTMM300EF – 3KW
- VTMM400EF – 4KW
- VTMM500EF – 5KW
- VTMM600EF – 6KW
- VTMM800EF – 8KW
- VTMM1000EF – 10KW

② **Air saving kit** (108)

- No mark – Standard
- **AS** – Air saving kit attach

③ **Air supply control valve**

- No mark – Without control valve
- A1 – AC110V Electrically operated valve
- A2 – AC220V Electrically operated valve
- **A3** – DC24V Electrically operated valve
- A4 – Pneumatically operated valve

④ **Vacuum switch**

- S2(P) – Digital output 2points, No analog supply
M8-4Pin male connector (0.3m lead wire)
- **SG2(P)** – Digital output 2points, No analog supply
Grommet type 4-core 2m lead wire
- SG3(P) – Digital output 2points, Analog supply
Grommet type 4-core 2m lead wire

※ Remark : ① S..(P) → Output type : PNP open collector.

② VCM8 42 : M8-4Pin female connector.
only for type S2(P)

⑤ **Non return valve**

- No mark – Standard
- **N** – Non return valve

⑥ **Sealing**

- No mark – Standard (NBR)
- **V** – Viton®
- E** – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTMM200EF	92 (27.17)	2200	600-780	55~65	4270	>10	>32	>40
VTMM300EF		3300	900-1260	55~65	5584	>12	>40	>60
VTMM400EF		4400	1200-1680	55~65	5939	>12	>40	>60
VTMM500EF		5500	1500-2100	65~68	6275	>14	>45	>70
VTMM600EF		6600	1800-2520	65~68	11579	>14	>50	>70
VTMM800EF		8800	2400-3360	65~68	12300	>15	>50	>75
VTMM1000EF		11000	3000-4140	65~68	15800	>18	>65	>90

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

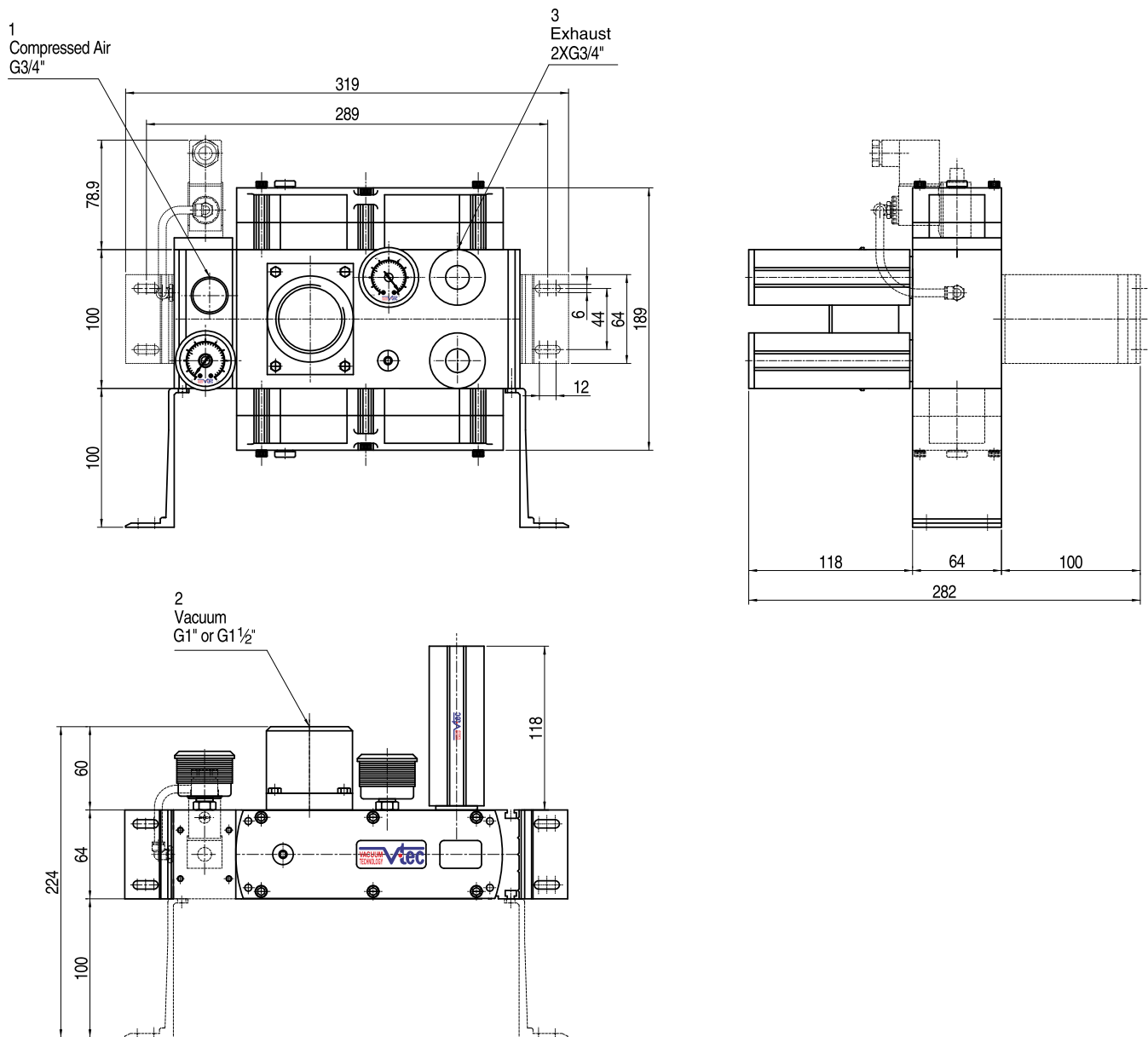
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VTMM200EF		2200	1540	1016	528	290	216	144	80	40	6.4
VTMM300EF		3300	2310	1781	793	435	324	216	120	60	9.6
VTMM400EF		4400	3080	2036	1058	580	432	288	160	80	12.8
VTMM500EF		5500	3850	2545	1323	725	540	360	200	100	16
VTMM600EF		6600	4620	3055	1588	870	648	432	240	120	19.2
VTMM800EF		8800	6164	4076	2119	1160	864	576	320	160	25.6
VTMM1000EF		11000	7700	5090	2646	1450	1080	720	400	200	32

Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VTMM200EF		0.0031	0.0075	0.0164	0.029	0.054	0.09	0.153	0.274	0.67
VTMM300EF		0.0023	0.0056	0.0123	0.022	0.041	0.068	0.115	0.206	0.503
VTMM400EF		0.0015	0.0038	0.0082	0.014	0.027	0.045	0.076	0.137	0.335
VTMM500EF		0.0013	0.0033	0.0072	0.013	0.024	0.04	0.067	0.120	0.294
VTMM600EF		0.0012	0.0028	0.0062	0.011	0.021	0.034	0.057	0.103	0.252
VTMM800EF		0.0008	0.0019	0.0041	0.007	0.014	0.022	0.038	0.068	0.168
VTMM1000EF		0.0007	0.0016	0.0036	0.006	0.012	0.018	0.031	0.057	0.147

Dimensional Information

VTMM200EF

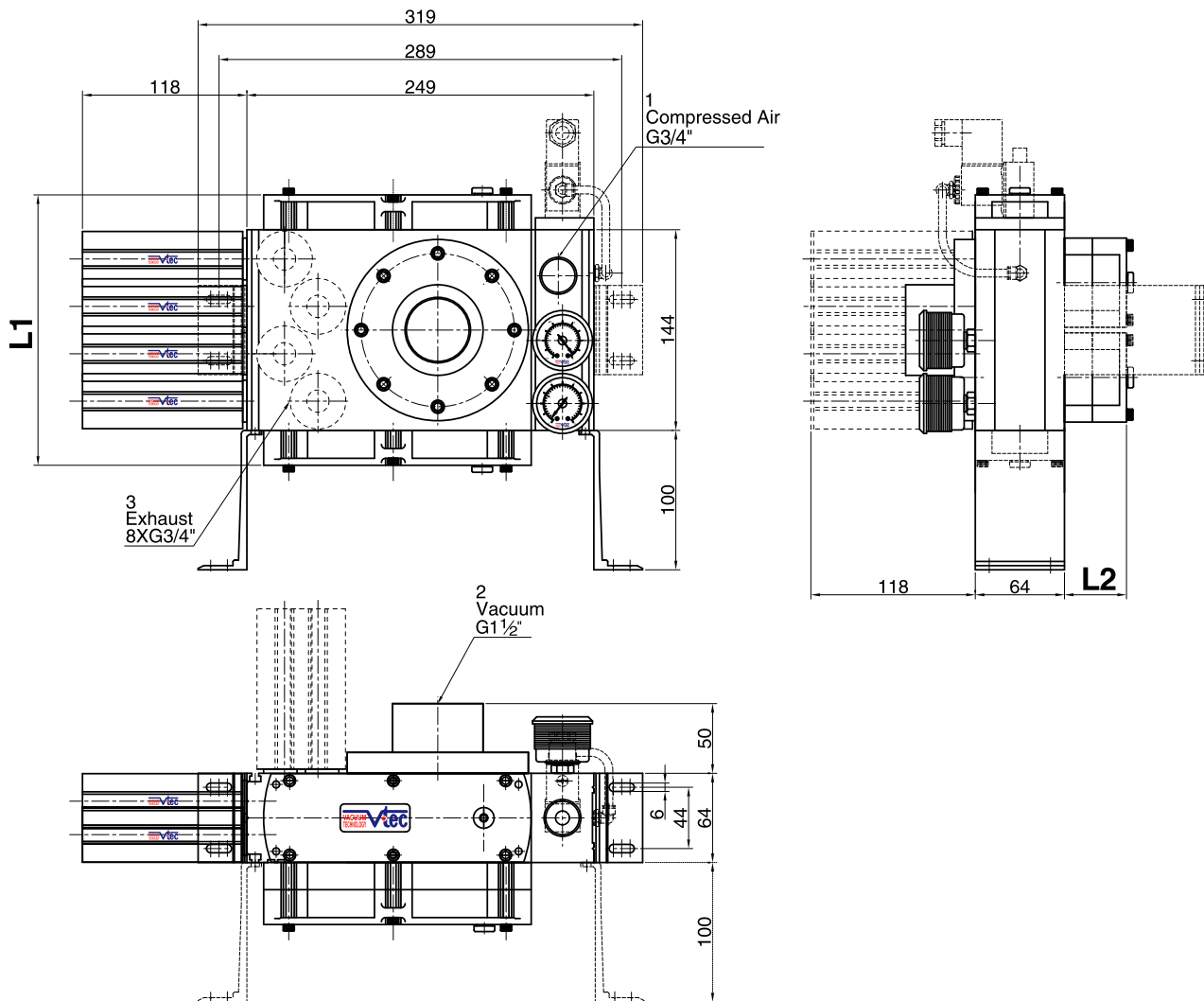


[Measure unit : mm]

Dimensional Information

VTMM300EF

400
500



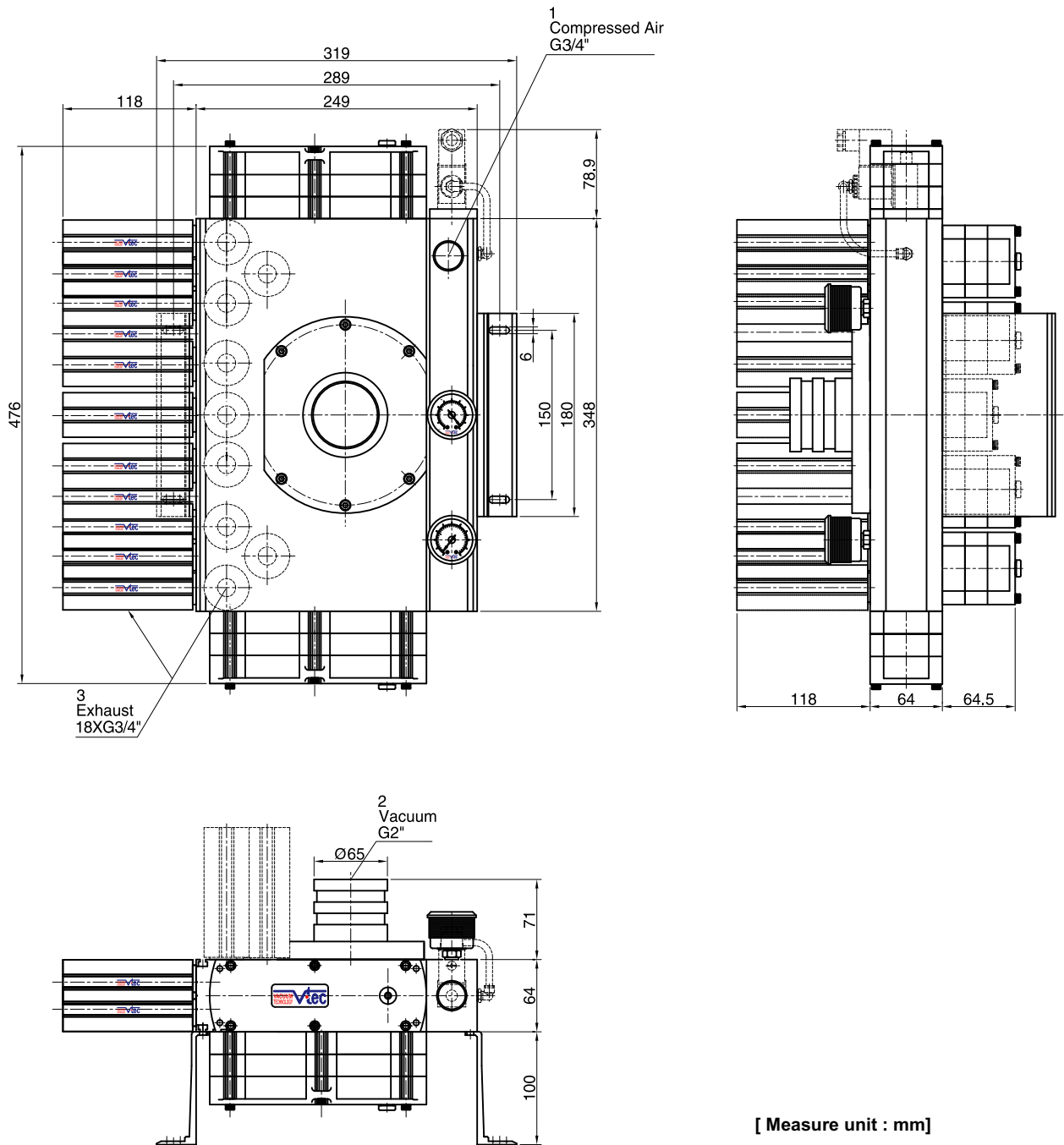
[Measure unit : mm]

Model	(mm)	
	L1	L2
VTMM300-EF	194	44.5
VTMM400-EF	233	44.5
VTMM500-EF	233	44.5

VACUUM PUMPS

Dimensional Information

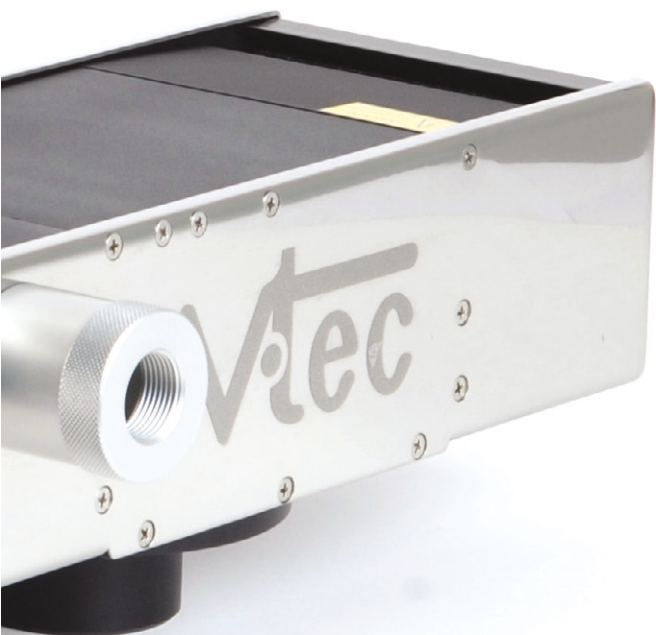
VTMM1000EF



VACUUM PUMPS

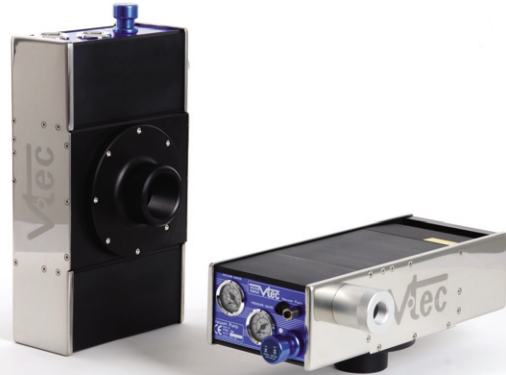


MEGA PUMPS



Mega Pump

- Max. vacuum level* : **-92 kPa** (-27.17 inHg)
- Max. flow rate* : **14460 NI/min** (510.6 scfm)
- Supply air pressure* : **4~6bar, max 7bar**
(58~87 psi, max 101.5psi)
- Supply air type* : Dry compressed air
- Working temperature* : -20°C ~ +80°C
- Noise level* : 68 ~ 76 dBA



Main Advantages

The largest compressed air-driven vacuum pump in the market place, that is comparatively compact and light weight. This pump is mainly used on applications where larger air volume is to be evacuated or to compensate for the leakage flow must remarkable application for this pump will be in conveying system for granules, transferring bulk materials and powder. This unit is complete with vacuum gauge, pressure gauge and mechanical ON/OFF valve as standard. Air saving kit, solenoid valve, non-return valve, and with VITON® or EPDM as seal options.

Order No.

VTML200 - **AS** - **N** **V**
 ① ② ③ ④ ⑤

① **Model** – Capacity equivalent to electricity motor pump size

- **VTML200** – 2KW
- VTML400 – 4KW
- VTML600 – 6KW
- VTML800 – 8KW
- VTML1000 – 10KW
- VTML1200 – 12KW

② **Exhaust**

- **No mark** – Free flow exhaust duct
- CP – Concentration port

③ **Air saving kit** (108)

- No mark – Standard
- **AS** – Air saving kit attach

④ **Non return valve**

- No mark – Standard
- **N** – Non return valve

⑤ **Sealing**

- No mark – Standard (NBR)
- **V** – Viton®
- E – EPDM

Characteristics

Model	max. vacuum -kPa(-inHg)	Max. vacuum flow (NI/m)	air consumption (NI/m)	noise level (dBA)	weight (g)	min hose inner Ø (within 2m)		
						air supply	vacuum	exhaust
VTML200	92 (27.17)	2410	600-780	68-76	4926	>10	>32	>40
VTML400		4820	1200-1680	68-76	5116	>12	>40	>60
VTML600		7230	1800-2520	68-76	5900	>14	>50	>70
VTML800		9640	2400-3360	68-76	6700	>15	>50	>75
VTML1000		12050	3000-4140	68-76	7800	>18	>65	>90
VTML1200		14460	3600-4920	68-76	8800	>20	>75	>100

Vacuum flow in (NI/m) at different Vacuum level (-kPa)

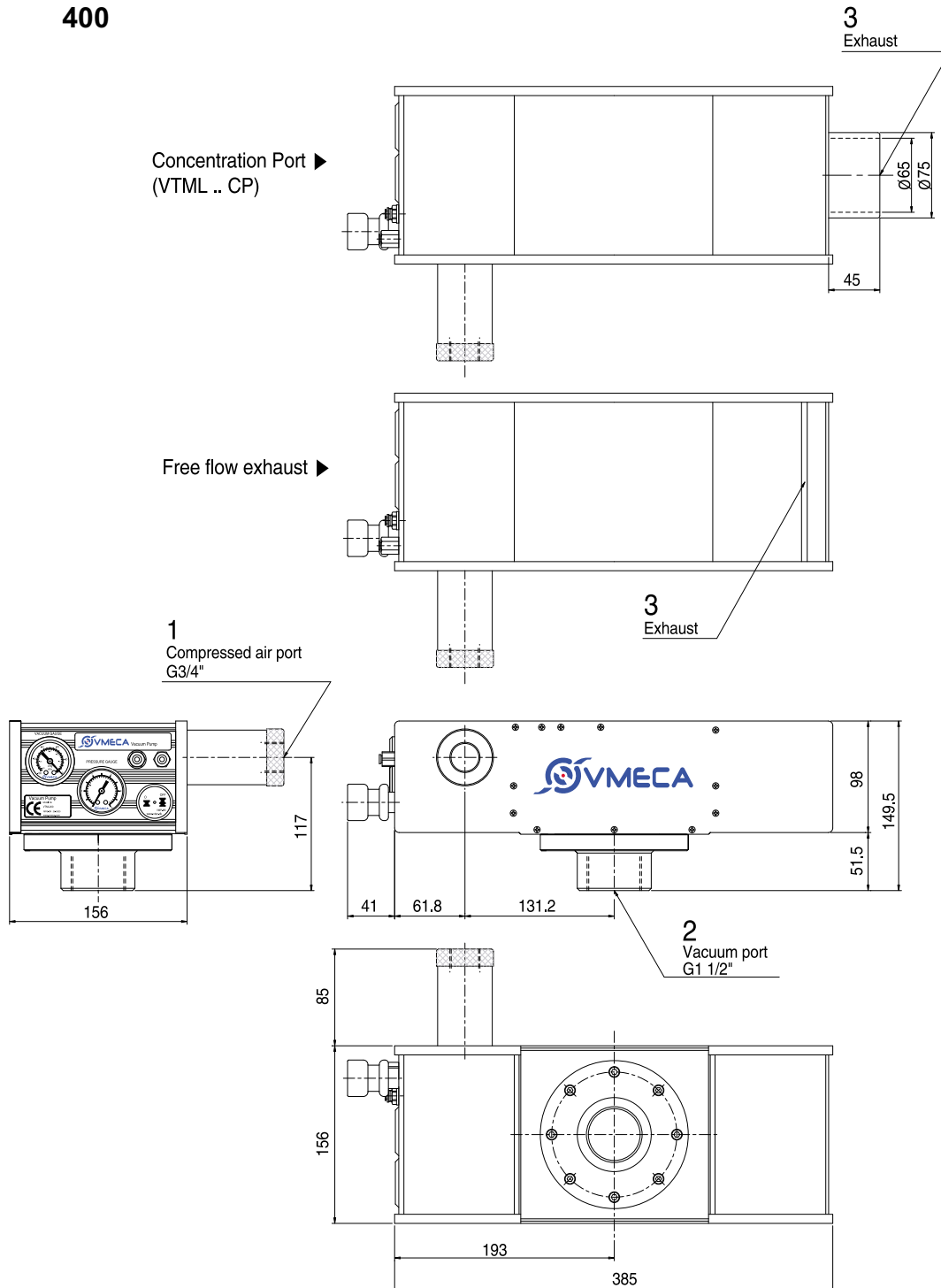
Model	-inHg -kPa	0	2.95	5.9	8.85	11.81	14.76	17.76	20.67	23.62	26.57
		0	10	20	30	40	50	60	70	80	90
VTML200		2410	1688	1116	580	290	216	144	80	40	6.4
VTML400		4820	3376	2232	1160	580	432	288	160	80	12.8
VTML600		7230	5064	3348	1740	870	648	432	240	120	19.2
VTML800		9640	6752	4464	2320	1160	864	576	320	160	25.6
VTML1000		12050	8440	5580	2900	1450	1080	720	400	200	32
VTML1200		14460	10128	6696	3480	1740	1296	864	480	240	38.4

Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg -kPa	2.95	5.9	8.85	11.81	14.76	17.76	20.67	23.62	26.57
		10	20	30	40	50	60	70	80	90
VTML200		0,0021	0,0055	0,0124	0,029	0,054	0,09	0,153	0,274	0,67
VTML400		0,0011	0,0027	0,0062	0,014	0,027	0,045	0,076	0,137	0,335
VTML600		0,0009	0,0021	0,0047	0,011	0,021	0,034	0,057	0,103	0,252
VTML800		0,0006	0,0014	0,0031	0,007	0,014	0,023	0,038	0,068	0,168
VTML1000		0,0005	0,0012	0,0026	0,006	0,012	0,018	0,031	0,057	0,147
VTML1200		0,0004	0,0009	0,0021	0,005	0,009	0,014	0,024	0,045	0,125

Dimensional Information

VTML200
400

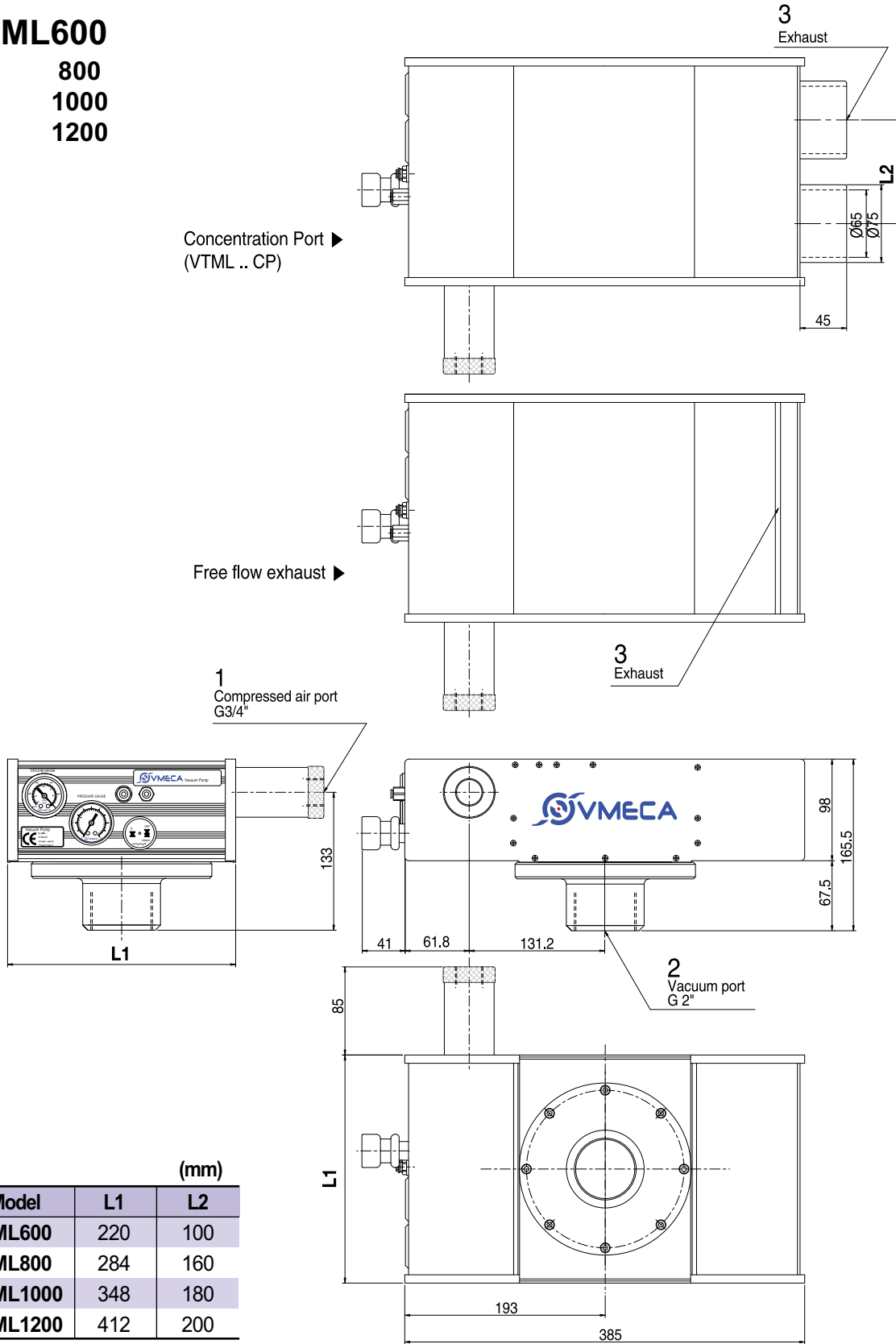


[Measure unit : mm]

Dimensional Information

VTML600

- 800
- 1000
- 1200

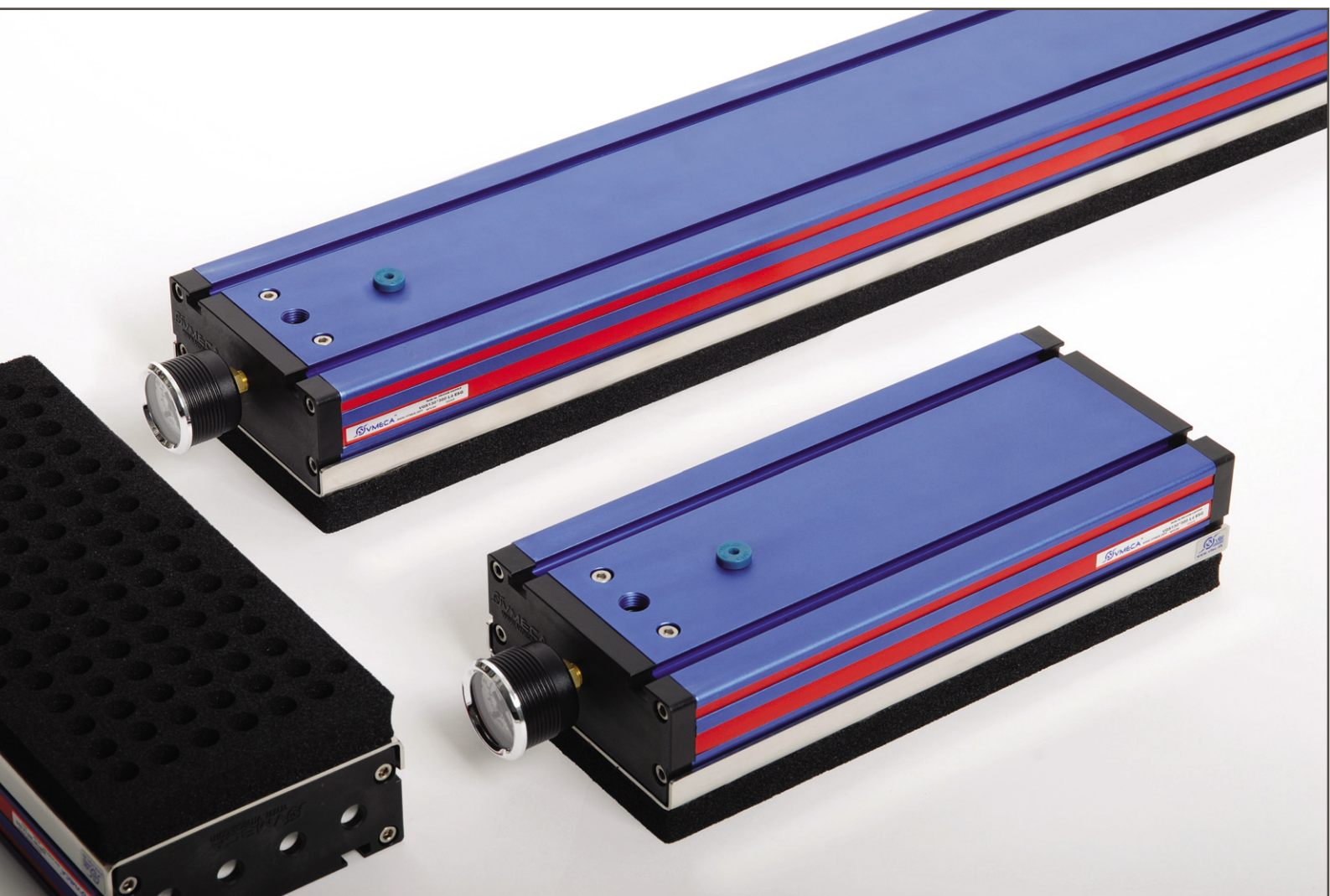


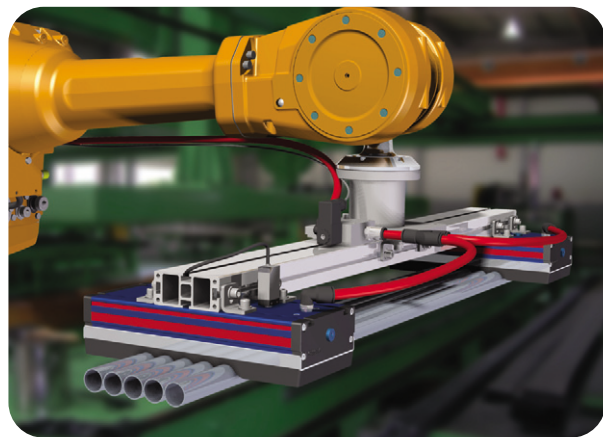
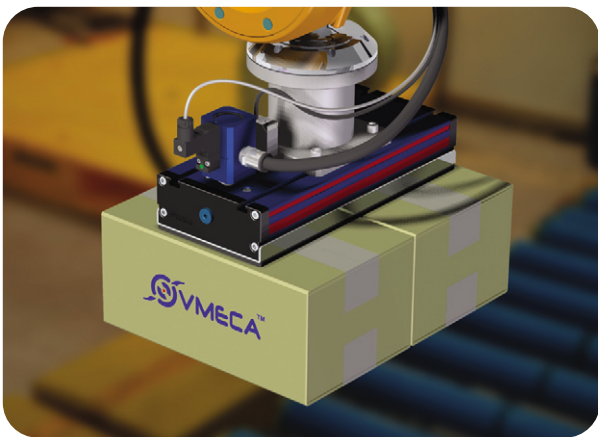
	(mm)	
Model	L1	L2
VTML600	220	100
VTML800	284	160
VTML1000	348	180
VTML1200	412	200

[Measure unit : mm]

VACUUM PUMPS

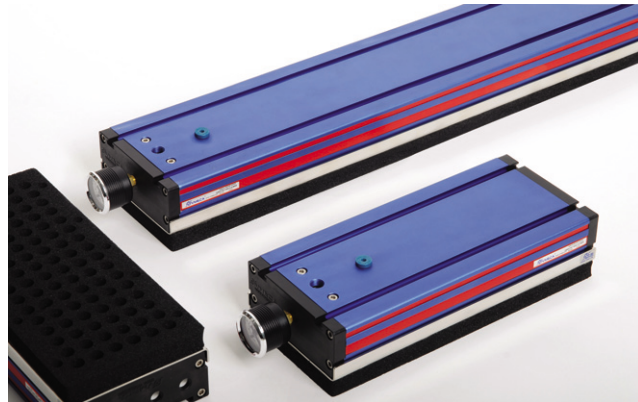
V-GRIP SYSTEM





VG-Series

- Max. vacuum level : -74 kPa (-21.85 inHg)
- Max. flow rate : 1,448 NI/min (51.1 scfm)
- Supply air pressure : 4~6 bar, max 7 bar (58~87 psi, max 101.5 psi)
- Air consumption : 416 NI/min (14.6 scfm)
- Supply air type : Dry compressed air
- Working temperature : -20°C ~ + 80°C
- Noise level : 55~65 dBA

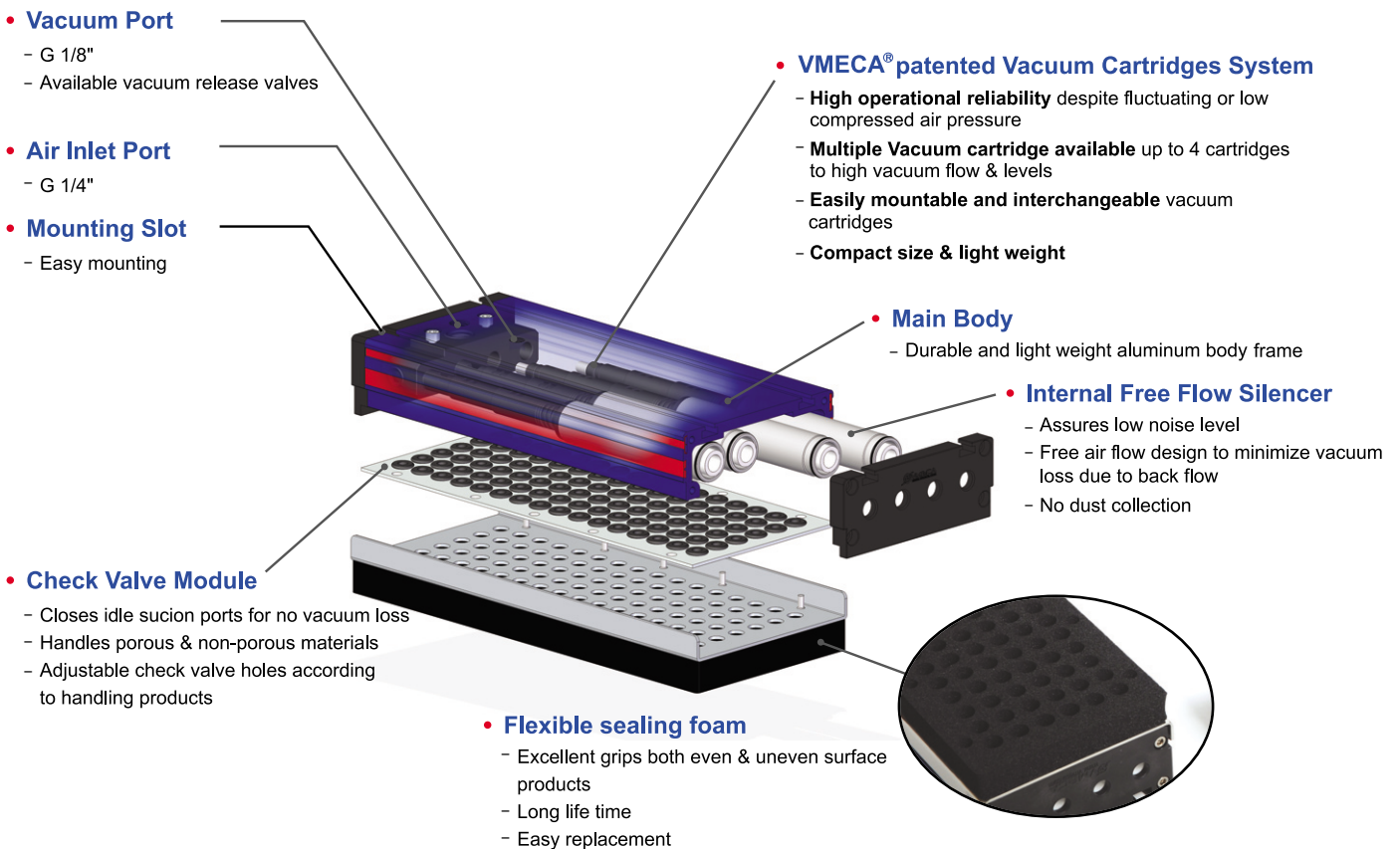


Features

- Modular design gripper system integrated with high efficient multi-stage VMECA Vacuum cartridge^{PT}
- Handles various products with different shapes, sizes and porous materials
- Flexible sealing foam to excellent grip both even & uneven surface products
- Adjustable check valve holes & perfect closure of the idle suction ports
- Durable and light weight aluminum body frame
- Easy installation and low maintenance

Construction of the VG Series

✓ All-around V-Grip system !
 ✓ Handles various size of products !!



Technical data

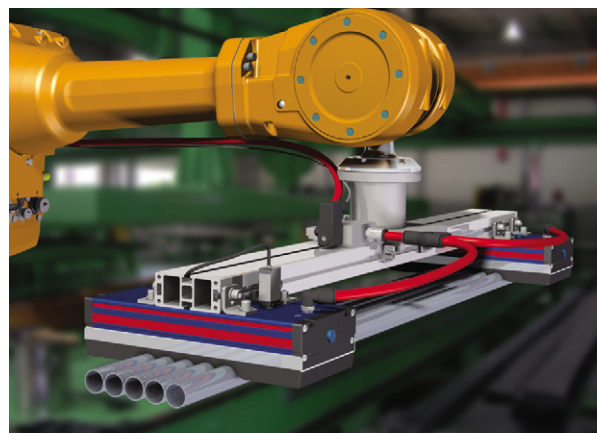
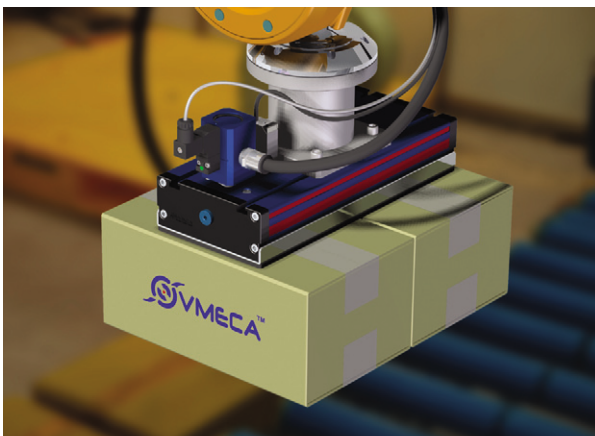
TYPE	Air inlet pressure MPa (psi)	Air consumption NI/m (scfm)	Max.Vacuum Flows NI/m (scfm)	Max.Vacuum level -kPa (-inHg)
VG 130x300 L2 ES..	0,6 (87)	208 (7,3)	724 (25,5)	74 (21,85)
VG 130x300 L3 ES..	0,6 (87)	312 (11)	1,086 (38,3)	74 (21,85)
VG 130x300 L4 ES..	0,6 (87)	416 (14,6)	1,448 (51,1)	74 (21,85)

TYPE	Holding force at 40% Sealing (N)**	Holding force at 60% Sealing (N)**	Holding force at 80% Sealing (N)**	Weight (NET) kg*
VG 130x300 L2 ES..	270	410	610	2,85
VG 130x300 L3 ES..	310	525	705	2,84
VG 130x300 L4 ES..	480	710	950	2,84

** NOTE : Actual figures might be different according to surface and porousness of product

* Weight of Flange mount not included

Application



Ordering Information

VG 130x300 L4 ES A3 R3 G

①
②
③
④⑤
⑥
⑦
⑧

① Gripper type (width)

- **VG 130** - 130 mm

② Length

- **300** - 300 mm
- **220** - 220 mm

③ Specification of Vacuum cartridge

	Air inlet pressure MPa(psi)	Max. Vacuum level -kPa(-inHg)	Max. Vacuum flow NI/min(scfm)
L2	0.6 (87)	75 (22.1)	724 (25.5)
L3	0.6 (87)	75 (22.1)	1,086 (38.3)
• L4	0.6 (87)	75 (22.1)	1,448 (51.1)

④ Check valves

- **E** - Standard
- **A*** - Adjustable Check valve

*Available only with 'W', section ⑤

⑤ Port spacing

- **S** - Narrow Spacing
- **W** - Wide Spacing

⑥ Air inlet control valve

- A1 - G3/8", N/C, AC110V
- A2 - G3/8", N/C, AC220V
- **A3** - G3/8", N/C, DC24V

⑦ Vacuum release control valve

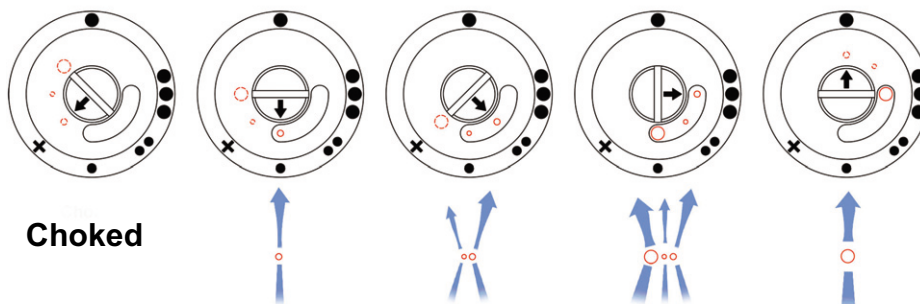
- R1 - G1/8", N/C, AC110V
- R2 - G1/8", N/C, AC220V
- **R3** - G1/8", N/C, DC24V

⑧ Vacuum switch

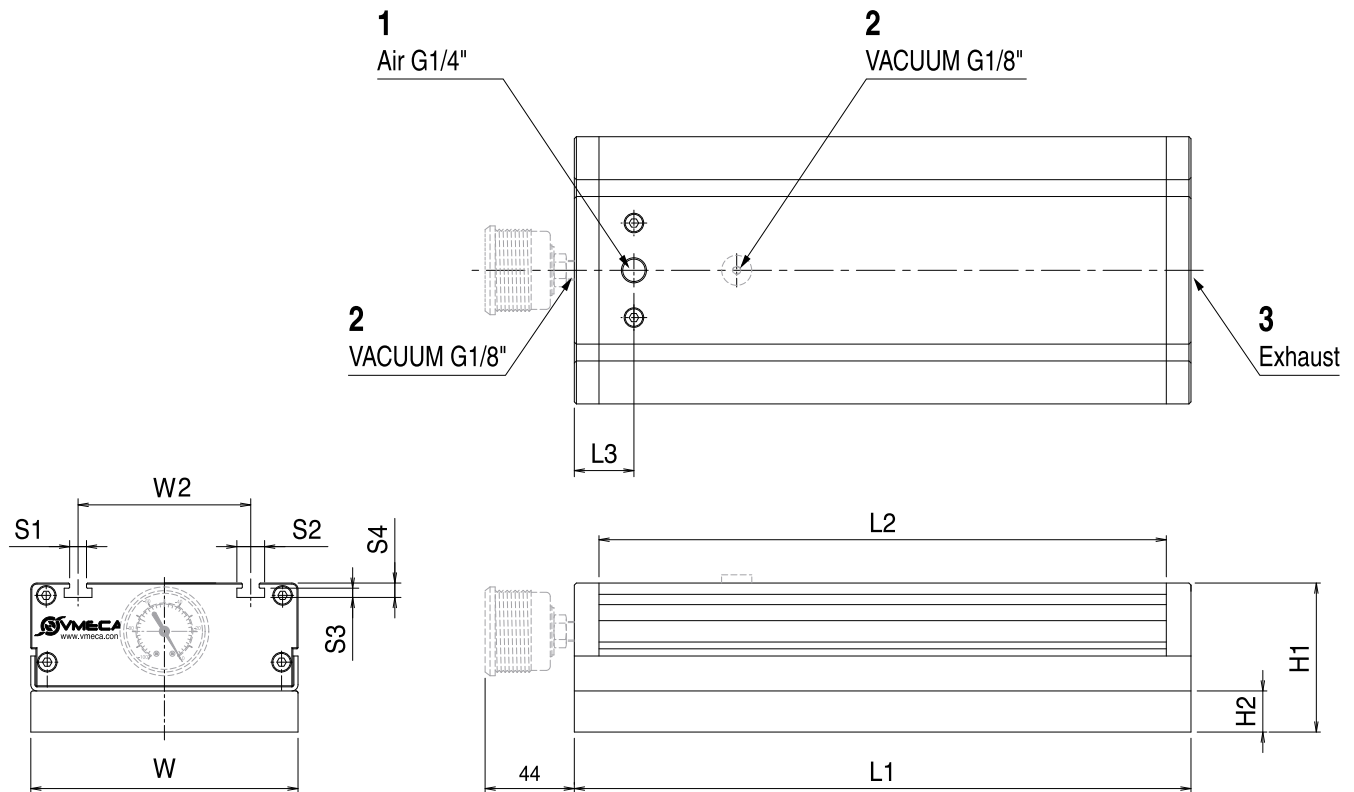
- **G** - Dial gauge attached
- - Not attached
- S2(P) - Digital output 2points, No analog supply.
M8-4Pin male connector.(0.3m lead wire)
- SG2(P) - Digital output 2 points, No analog supply.
Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital output 2 points, Analog supply.
Grommet type 5-Core 2m lead wire.

※ Remark: ① S..(P)
 ↳ Output type :PNP open collector
 ② VCM8 42 : M8-4Pin female connector.
 Option for type S2 or S2(P).

• Adjustable check valve



Dimension data



TYPE	SIZE mm (inch)										
	W	W2	L1	L2	L3	H1	H2	S1	S2	S3	S4
VG 130X300...	130 (5.11)	84 (3.3)	300 (11.8)	276 (10.86)	29 (1.14)	72.5 (2.85)	20 (0.78)	8.2 (0.32)	13.5 (0.53)	4.5 (0.17)	7 (0.27)
VG 130X220...	130 (5.11)	84 (3.3)	220 (8.66)	196 (7.72)	29 (1.14)	72.5 (2.85)	20 (0.78)	8.2 (0.32)	13.5 (0.53)	4.5 (0.17)	7 (0.27)

ACCESSORIES



Vacuum filter

P.318–321



Vacuum switch

P.322–329



Air / & Vacuum Control Valve

P.330–333



Pressure Gauge

P.334



Vacuum Gauge

P.335



Silencers

P.336



Air/Vacuum Manifold

P.337–339



BUS Cables

P.340,341

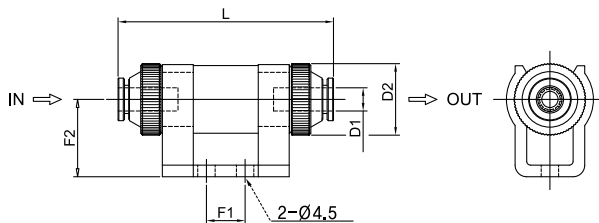
Line Vacuum Filter (LV-filter)

- Simply pushing the tube into the LV-filter (no other operation is required)
- Excellent filtering (minimum particle, 10 micron)
- Easy to check and replaceable filter element inside



Operating specifications

Model	Tube size (O.D)	Removal efficiency (μ)	Filtration area (mm ²)	Working temperature	Weight (g)	Filter Element Model
VTF-0706	6	10	7,5	0 °C ~ +60 °C	25	VTFE-0706
VTF-1208	8	10	12,5	0 °C ~ +60 °C	39,5	VTFE-1208



(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

Line Vacuum Filter (LV-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 & Multiple stack pumps.

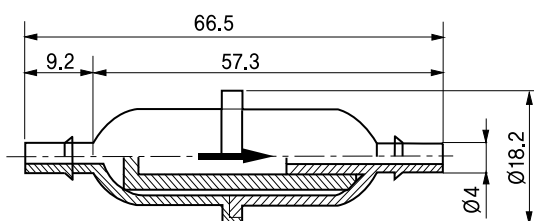
The 3/8" Version can be screwed directly into the Mini type vacuum pump as well as any other port using a 3/8"-BSP connection, when used with the mini pumps & midimultiple pumps it provides a very compact set up.



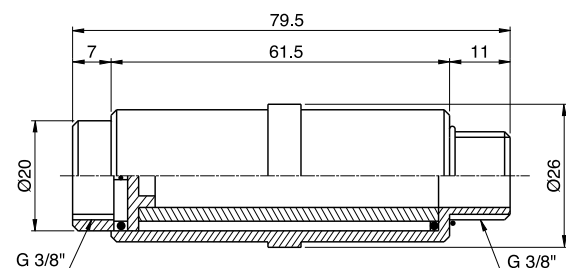
Operating specifications

Model	Port Size	Internal Volume (cm ³)	Removal efficiency (μ)	Material	Working temperature	Weight (g)
VTF06-IN	Ø4 (inner)	4	20	PP, PE	0 °C ~ 80 °C	4
VTF38-IN	3/8"	20	20	PP, PE	0 °C ~ 80 °C	14

VTF06-IN



VTF38-IN



[Measure unit : mm]

Turtle Filter

- Patented design
- Pleated Media for High Dirt Holding Capacity
- Available PE & Paper elements
- Can be ordered element only
- Compact size
- Easy to disassemble
- Moisture resistant*
- Washable filter element-lukewarm water & mild detergent * * Only for PE element



Order no.

VTF34 - 2

① ②

① Model

VTF38

VTF12

• VTF34

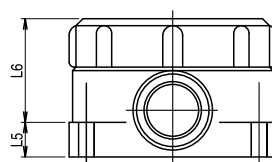
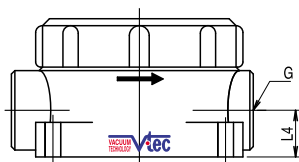
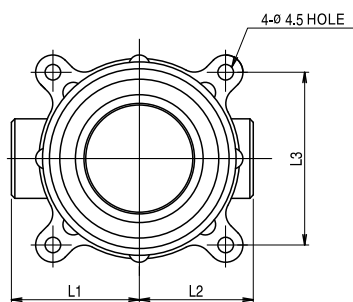
② Element material

1 - Paper

• 2 - Polyester(PE)

Characteristics

Model	Port Size	Internal Volume (cm ³)	Removal Efficiency (μ)	Material	Working Temperature	Weight (g)	Filter Element Model
VTF38 - 1	G3/8"	35	Paper:2 Polyester:5	PA PC PE Paper	-26 °C ~ +104 °C	0.08	VTFE341
VTF38 - 2	G3/8"	35				0.08	VTFE342
VTF12 - 1	G1/2"	150				0.22	VTFE501
VTF12 - 2	G1/2"	150				0.22	VTFE502
VTF34 - 1	G3/4"	160				0.2	VTFE501
VTF34 - 2	G3/4"	160				0.2	VTFE502



(mm)

Model	L1	L2	L3	L4	L5	L6	G
VTF38-1(2)	37	33	50	13.5	10	30	G3/8"
VTF12-1(2)	57	52	76	19	10	47	G1/2"
VTF34-1(2)	57	52	76	19	10	47	G3/4"

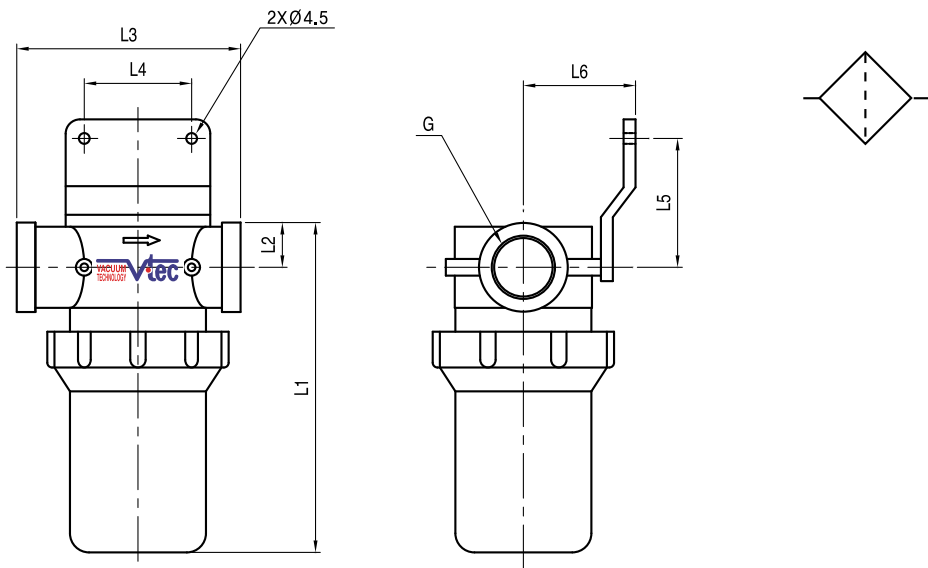
Bowl Vacuum Filter

These filters are useful in conjunction with the larger pumps which use bigger conjunction parts i.e. 3/8". All filters use a detachable bowl and a replaceable element inside.

The housing of the filter comes complete with a surface mounting bracket, this bracket can be mounted either side of the housing. There are five connection sizes available with each size having the option of a standard length bowl and filter or a long style bowl and filter. Elements for all filters can be ordered separately.



Dimensional Information



Operating specifications

[Measure Unit : mm]

Model	Internal Volume (cm ³)	Removal Efficiency (μ)	Material	Working Temperature	G	L1	L2	L3	L4	L5	L6	Weight (g)	Filter Element Model
VTF 38-96	205	20	PA PC PE	-20 °C ~ +100 °C	3/8"	140	18.5	90	44.5	52	47	226	VTFE27.5-39096
VTF 38-141	269					185	18.5	90	44.5	52	47	286	VTFE27.5-39141
VTF 12-96	205				1/2"	140	18.5	90	44.5	52	47	230	VTFE27.5-39096
VTF 12-141	269					185	18.5	90	44.5	52	47	269	VTFE27.5-39141
VTF 34-96	205				3/4"	140	18.5	90	44.5	52	47	213	VTFE27.5-39096
VTF 34-141	269					185	18.5	90	44.5	52	47	258	VTFE27.5-39141
VTF 01-118	495				1"	183	31	125	70	65	67	620	VTFE47.4-62118
VTF 01-154	675					219	31	125	70	65	67	690	VTFE47.4-62154
VTF 02-118	495				1 1/2"	183	31	125	70	65	67	565	VTFE47.4-62118
VTF 02-154	675					219	31	125	70	65	67	636	VTFE47.4-62154

Mega Vacuum Filter

This particular vacuum filter is made by steel Hosing, Clip on Bracket and filter element available in PE material or paper. This enable the element can be blown of with compressed air before replaced. This range of Mega filters are useful in conjunction with the larger pumps need highest filter capacity.



Dimensional Information / Order no.

VFS34 - P

①

②

① Model

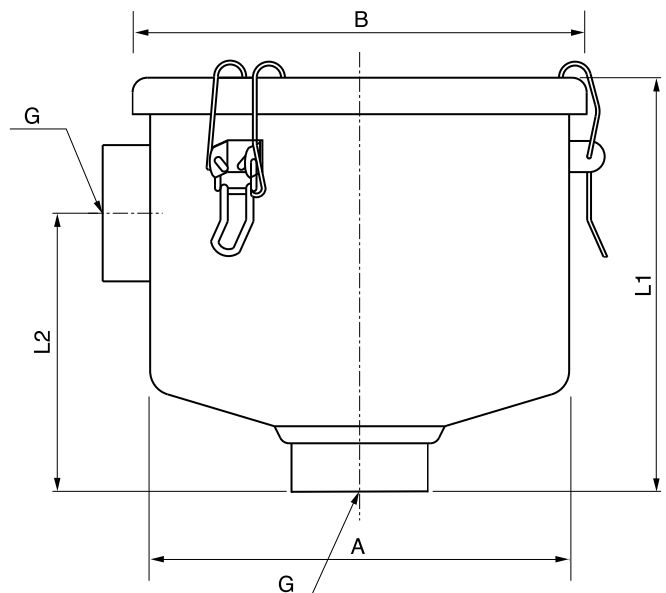
- **VFS34**
- VFS01
- VFS02
- VFS03

② Element material

- no mark - paper
- **P** - polyester(PE)

Model	ØA	ØB	L1	L2	G
VFS34	129	147	111	68	NPT 3/4"
VFS01	129	147	111	68	NPT 1"
VFS02	173	187	172	118	NPT 1 1/2"
VFS03	194	222	257	127	NPT 2"

[Measure Unit : mm]



Operating specifications

Model	Port Size	Internal Volume (cm ³)	Removal efficiency (μ)	Material	Working temperature	Weight (kg)	Filter Element Model	
							paper	polyester
VFS34	NPT 3/4"	1200	paper : 2 polyester : 5	Steel paper or polyester	-26 °C ~ 104 °C	1	VFSE34	VFSPE34
VFS01	NPT 1"	1200				1	VFSE34	VFSPE34
VFS02	NPT 1 1/2"	3000				2.1	VFSE02	VFSPE02
VFS03	NPT 2"	6500				4.9	VFSE03	VFSPE03

Order No.

V16 - 1 - 03

① ②

① Pressure range

- 1 - Negative pressure (-101 ~ 0 kPa)

② Output type

- 02 - PNP Open Collector
- 03 - NPN Open Collector

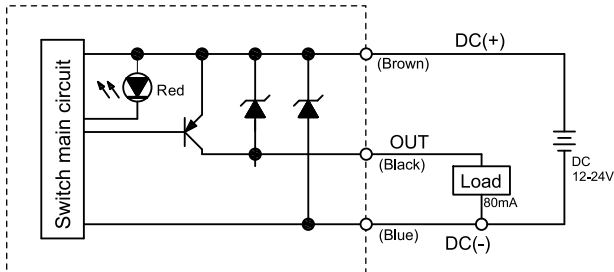


Operating specifications

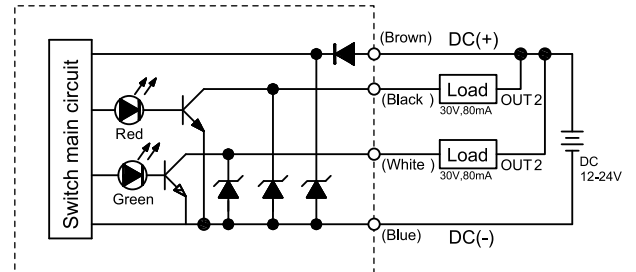
Specifications	Model	V16 - 1 - 02	V16 - 1 - 03
Applicable fluid		Air, Non corrosive gases, Incombustible gases	
Pressure range		-101.0 ~ 0 kPa	
Withstand pressure		300 kPa	
Pressure port		1/8" PT, M5 Female	
Power supply voltage		12~24 VDC ±10%, Ripple (P-P) 10% or less	
Power consumption		Max.21mA	Max.25mA
Output		PNP : open collector 1 output Max. load currunt : 80mA	NPN : open collector 2 output Max. load currunt : 80mA Max. supply volatage : 30VDC
Environment	Repeatability (switch output)	≤±1% F,S	
	Response time	≤5ms	
	Protection structure	IP40	
	Operating ambient temp. (°C)	Operation : 0 °C ~ 50°C, Storage : -20 °C ~ 60 °C (No condensation or freezing)	
	Operating humidity	Operation / Storage : 35~85% RH (No condensation)	
	Vibration resistance	Total amplitude 1.5mm, 10Hz-55Hz-10Hz scan for 1minute, two hours each direction of X, y and Z	
Shock resistance	980 m/s ² (100G), 3 times each in direction of X, Y and Z		
Temperature characteristic		≤±3% F.S. at temp. (25 °C)	
Hysteresis mode		1~10% of setting pressure (Adjustable)	3% F.S. or less (Fixed)
Indicator		Light at ON(Red)	Light at ON (output 1 : Red, Output2 2 : Green)
Cable		Oil-resistance 3-core 1m lead wire	Oil-resistance 4-core 1m lead wire
Weight		50g (Including 1m lead wire)	

Circuit diagram

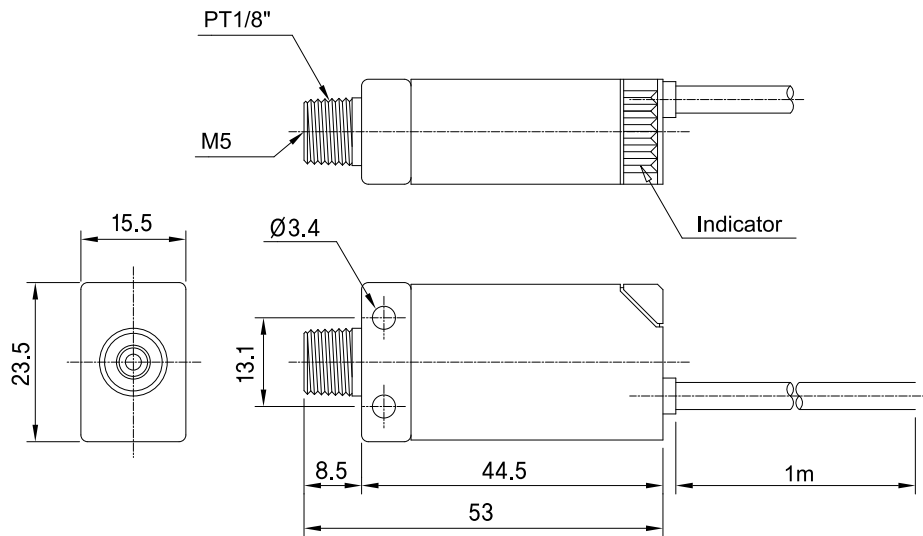
V16-1-02
PNP output



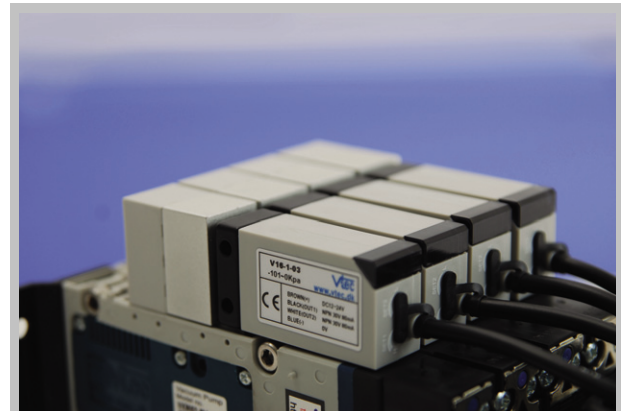
V16-1-03
NPN output



Dimension



[Measure Unit : mm]



Order No.

V17 - P C

① ② ③

① Pressure range

- **V17** - Negative pressure (-101.3 ~ 0 kPa)

② Output type

- No mark - NPN Open Collector
- **P** - PNP Open Collector



③ Analog output & Cable specification

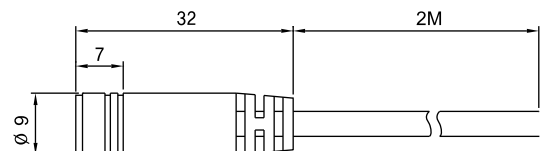
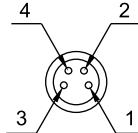
- **C** - No analog supply, M8, 4-Pin male connector
- **G** - No analog supply, Grommet type 4-Core 2m lead wire
- **GA** - Analog supply, Grommet type 5-Core 2m lead wire



VCM8 4 2 (Female Connector)

2 : 2M Lead wire
4 : 4 Pin connector
VCM8 : M8-Female thread connector

- (1) Brown(+)
- (2) White (OUT2)
- (3) Blue (-)
- (4) Black (OUT1)



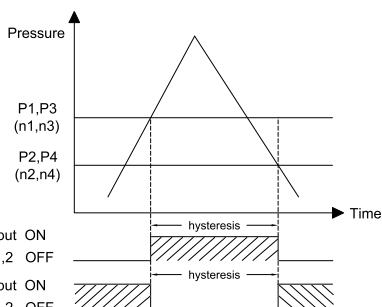
specifications

Specifications	Model	V17 - ② G	V17 - ② C	V17 - ② GA
Applicable fluid		Air, Non corrosive gases, Incombustible gases		
Pressure range		-101.3 ~ 0 kPa		
Withstand pressure		kPa:0.1, MPa:-, kgf/cm ² :0.001, bar:0.001, psi:0.01, InHg:0.1, mmHg:1, mmH ₂ O:0.1		
Pressure port		M5 Female(Nylon material)		
Power supply voltage		12~24 VDC ±10%, Ripple (P-P) 10% or less		
Power consumption		≤ 55 m A		
Output		NPN : open collector 2 output Max. load currunt : 80mA Max. supply volatage : 30VDC Residual voltage : ≤1V(load currunt 80mA)	PNP : open collector 2 output Max. load currunt : 80mA Max. supply volatage : 24VDC Residual voltage : ≤1V(load currunt 80mA)	
Analog output		-		Output voltage: 1~5V ≤ ±2.5%F.S. (Within rated pressure range) Linearity: ≤ ± 1% F.S.
Environment	Repeatability (switch output)	≤±0.2% F.S. ±1digit		
	Response time	≤25ms (chattering-proof function: 24ms, 192 and 768ms selections)		
	Protection structure	IP40		
	Operating ambient temp. (°C)	Operation : 0°C ~ 50°C, Storage : -20°C ~ 60°C (No condensation or freezing)		
	Operating humidity	Operation / Storage : 35~85% RH (No condensation)		
	Vibration resistance	Total amplitude 1.5mm, 10Hz~55Hz~10Hz scan for 1minute, two hours each direction of X, Y and Z		
	Shock resistance	980 m/s ² (100G), 3 times each in direction of X, Y and Z		
Temperature characteristic	≤±2% F.S. of detected pressure (25°C) at temp. Range			
Hysteresis mode	Adjustable			
Window comparator mode	Fixed (3digit)			
Indicator accuracy	≤±2% F.S. ±1 digit (ambient temp.:25±3°C)			
Cable	Oil-resistance cable (0.15mm ²)			
Weight (g)		75	35	75

Operating mode

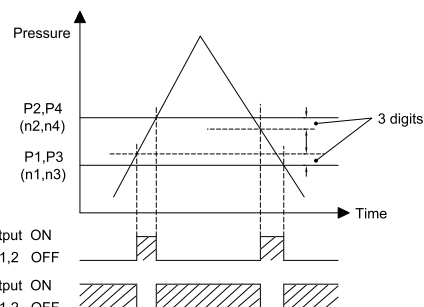
Hysteresis mode :

Output hysteresis value can be pre-setted.



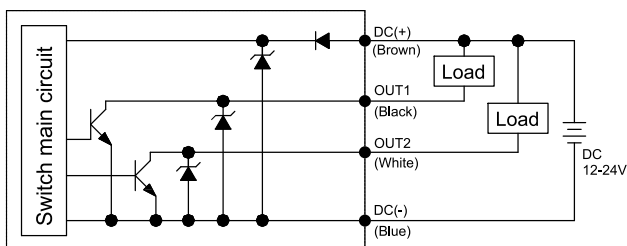
Window comparator mode :

Within pressure setting range, Pressure transfer output can be ON or OFF.

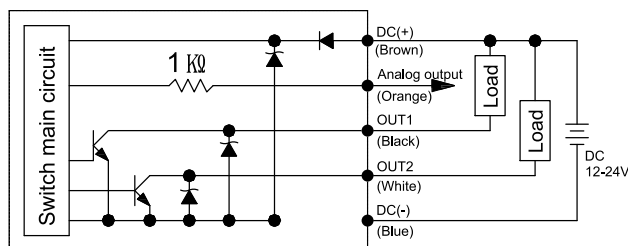


Circuit diagram

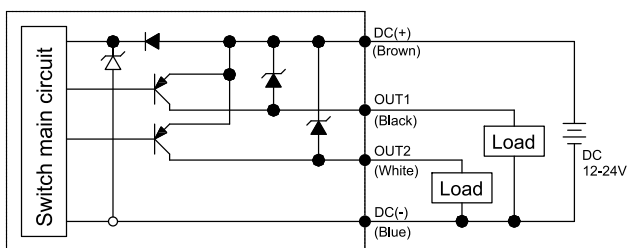
V17-C, V17-G NPN output



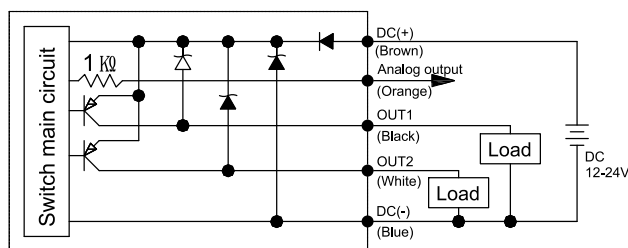
V17-GA NPN output



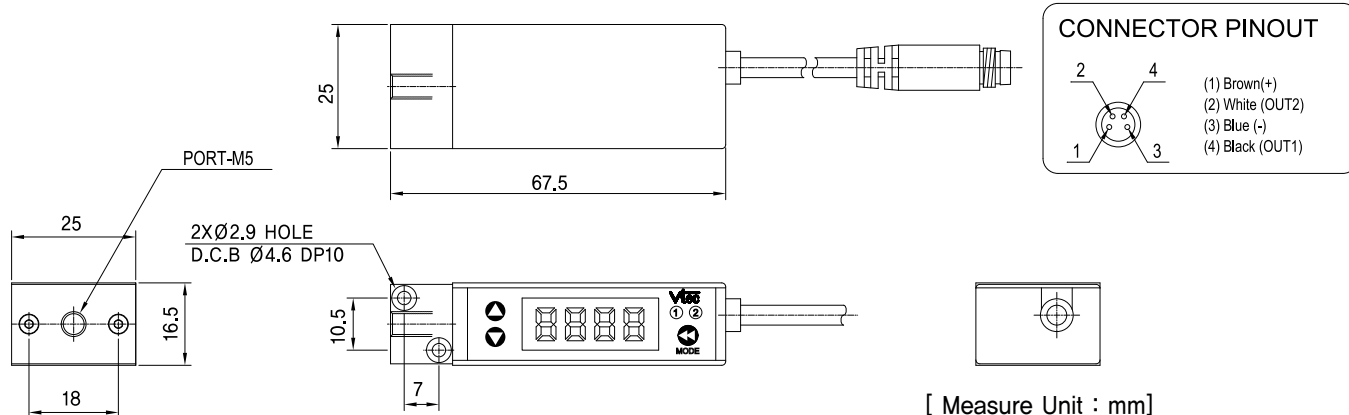
V17 PG PNP output



V17-PGA PNP output

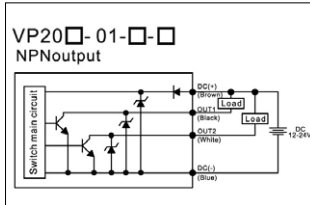


Dimension

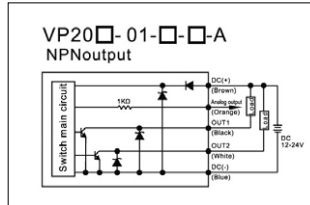


Circuit diagram and examples of connection

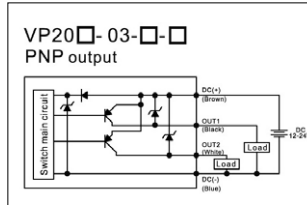
NPN output



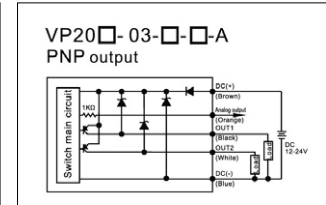
NPN output with analog supply



PNP output

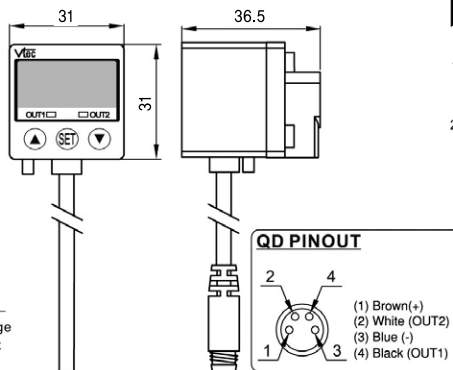
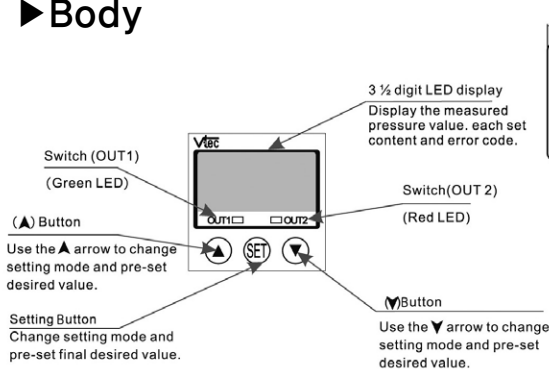


PNP output with analog supply



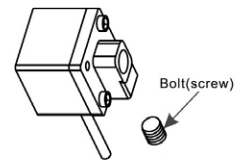
Dimensional information

► Body



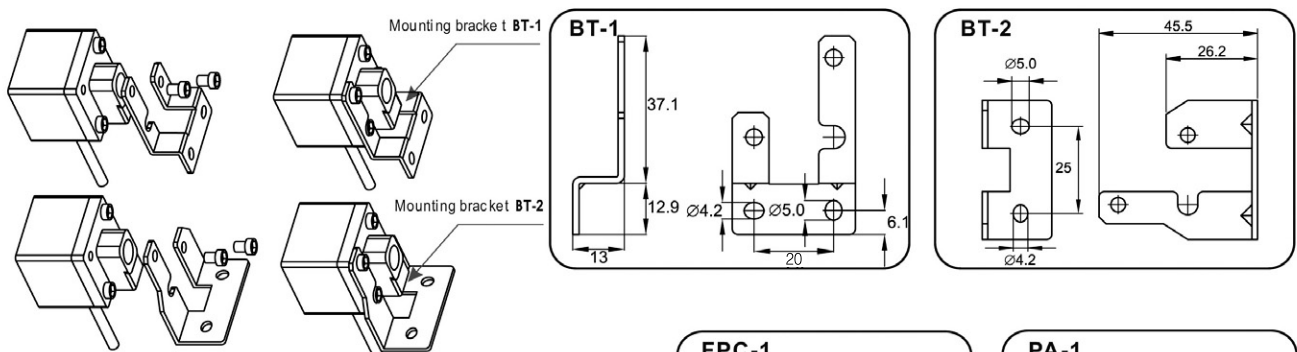
► Installation

1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.

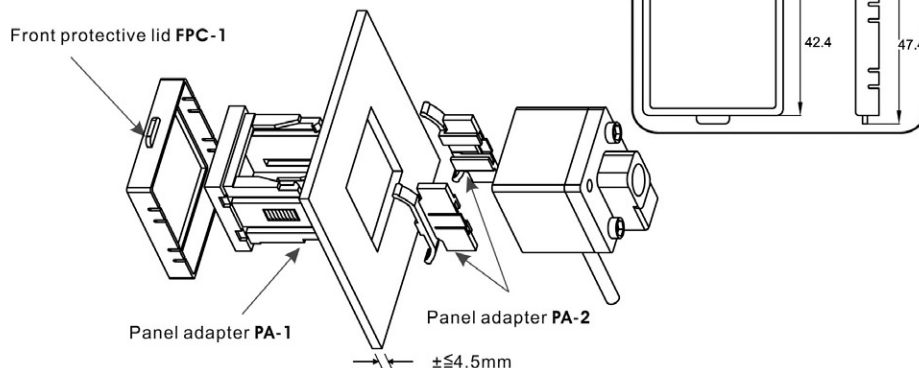


[Measure Unit : mm]

► Mounting bracket



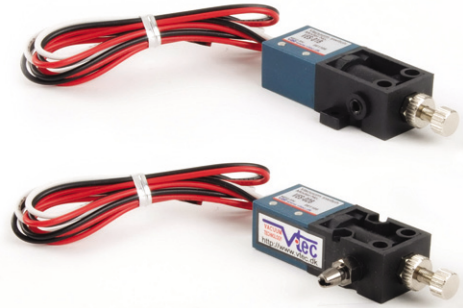
► Panel type



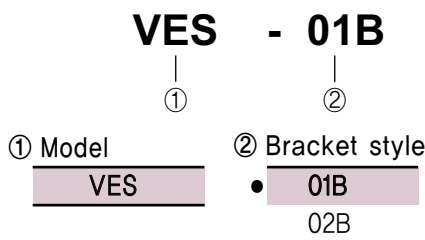
Electro-Mechanical Vacuum Switches

Features

These switches use a vacuum actuated membrane to operate a mechanical micro switch. All switches can be wired normally closed or normally open. The vacuum level to which the switch operates can be set with the manually adjustable and lockable screw. The VES-02B comes with two fixing holes molded into the housing, whereas the VES-01B comes with fixings in two extended ears.

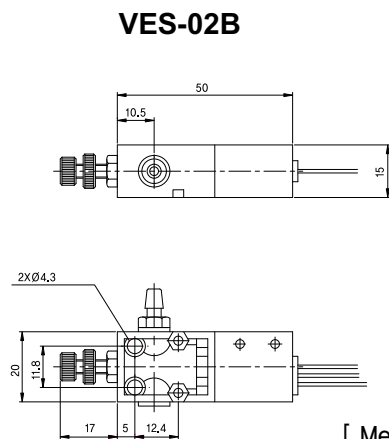
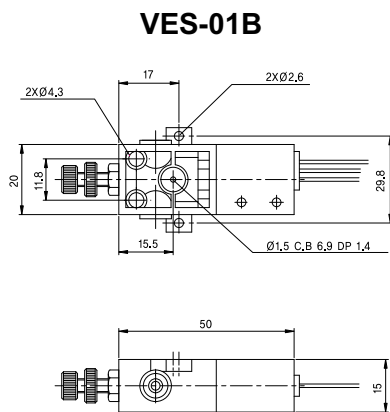


Order no.



Function	Adjustable
NO / NC	<p>NC : Normally Closed (Red) NO : Normally Open (White)</p>

Dimensional Information



[Measure Unit : mm]

Operating specifications

Type	VES-01B, VES-02B
Fluid used	Air (non corrosive, inflammable gaseous body)
Output function	NO / NC
Pressure range	10 ~ 90 kPa (29,5 ~ 26,5 inHg)
Hystresis, kPa	±5
Range of operating temperature (°C)	-10 ~ +80°C
Cable	3 X 0.75mm ² X 0.5m
Weight (g)	30
Operating humidity	85% RH or less
Line voltage	MAX. 250V/AC(30V/DC)
Output current Max.	7A
Vacuum connection	Ø6 (Hose out diameter) or M5

Pneumtical vacuum switches

Features

These switches are used to convert a vacuum signal into a pneumatical signal, e.g. for use with an air saving kit. The switch uses a vacuum actuated membrane to operate a pressure Air 3/2 way valve. The level at which the pressure Air valve will operate can be adjusted using the lockable screw. Two options of valve are available a normally closed version or a normally open version.



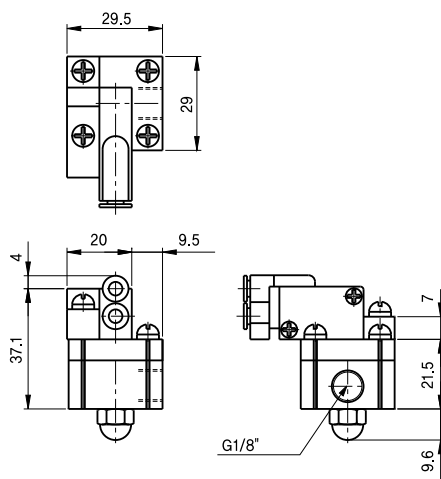
Order no.

VPS - 01

- ① Model
VPS
- ② Function
 - 01 - Normally closed
 - 02 - Normally open

Function	Adjustable
NC (normally closed)	
NO (normally open)	

Dimensional Information



[Measure Unit : mm]

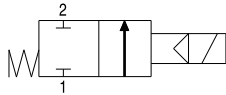
Operating specifications

Type	Model	VPS-01	VPS-02
Output function		NC (Normally closed)	NO (Normally open)
Pressure (bar)		1.5 ~ 8	
Signal range (-kPa)		15 - 95	10 - 95
Hysteresis (kPa)		12	3
Temperature (°C)		-10 ~ +60°C	
Weight (g)		69	
Vacuum connection		G1/8"	

VMS18D Control Valves

Features

2/2 way solenoid valve G1/8" (for air control) indirectly operated with spring return.
This valve are compact and can control high flow rate of air.



Order No.

VMS18D - 3 - 2

① ② ③

① Model

- VMS 18D (Diaphragm Valve)

② Voltage

- 1 - AC110V
- 2 - AC220V
- 3 - DC24V

③ Solenoid terminal

- 1 - DIN type without lead wire
- 2 - DIN type with lamp without lead wire
- 3 - Connector type with 0,3m lead wire & lamp : DC24V

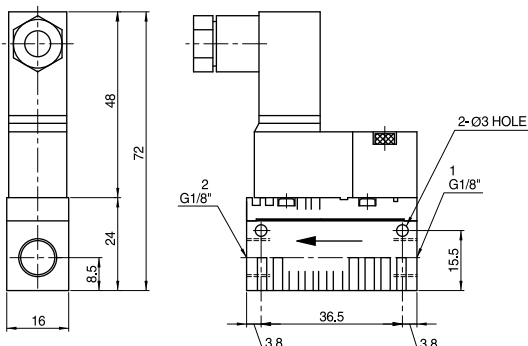
* Remark : Connector type control valve DC24V Only.

Operating specifications

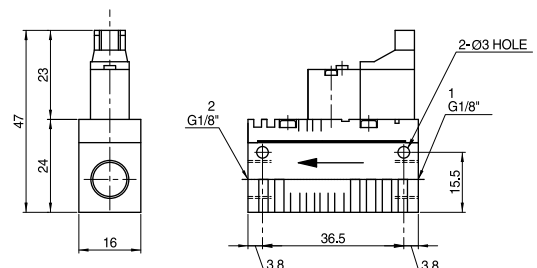
Type	VMS 18D
Connection	G1/8"
Normal flow (NI/m)	516
Pressure range (bar)	2,5 ~ 7 bar
Temperature range	0°C ~ +60°C
Materials	Ni, Al, SS, POM, CuZn, NBR, PA66, PUR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V – 50/60Hz
Power consumption	0,85W , 1,3W
Weight (g)	20

Dimensional Information

DIN type



Connector type

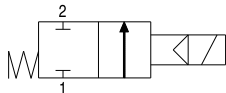
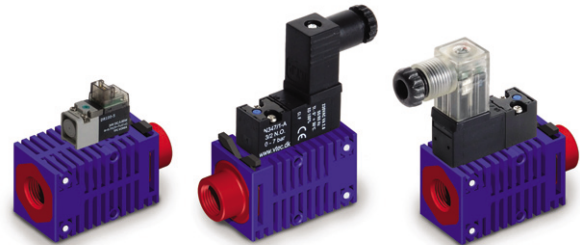


[Measure Unit : mm]

VMS14 Control Valves

Features

2/2 way solenoid valve G1/4" (for air control) indirectly operated with spring return.
This valve are compact and can control high flow rate of air.



Order No.

VMS 14 - 3 - 2

① ② ③

① Model

- **VMS 14** (Piston Valve)

② Voltage

- 1 - AC110V
- 2 - AC220V
- 3 - DC24V

③ Solenoid terminal

- 1 - DIN type without lead wire
- 2 - DIN type with lamp without lead wire
- 3 - Connector type with 0.3m lead wire & lamp : DC24V

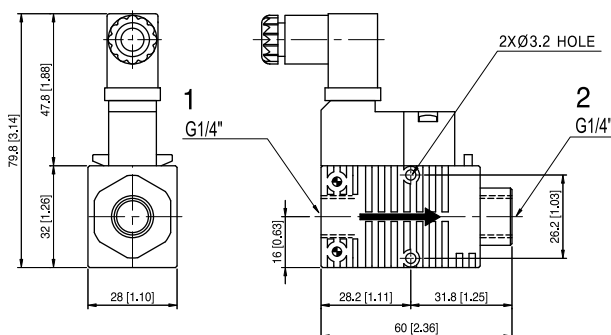
* Remark : Connector type control valve DC24V Only.

Operating specifications

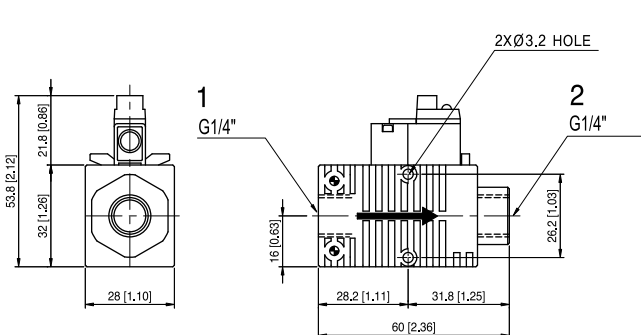
Type	VMS 14
Connection	G1/4"
Normal flow (NI/m)	1410
Pressure range (bar)	2.5 ~ 7 bar
Temperature range	-18 °C ~ +65 °C
Materials	NYLON, AL, SUM, Ni, SS, CuZn, NBR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V – 50/60Hz
Power consumption	0.85W , 1.3W
Weight (g)	80

Dimensional Information

DIN type



Connector type

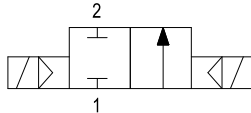


Measure Unit : mm [inch]

VMS14D Control Valves

Features

2/2 way double solenoid valve G1/4" directly operated with solenoid return (For only Air control).
This valve are compact and can control high flow rate of air.



Order no.

VMS 14D - 3 - 2

① ② ③

① Model

- **VMS 14D** - Double solenoid valve

② Voltage

- **1** - AC110V
- **2** - AC220V
- **3** - DC24V

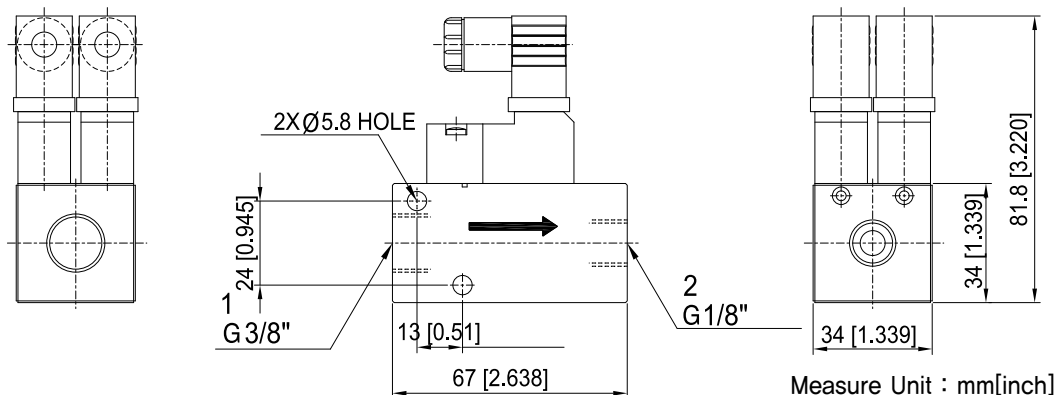
③ Solenoid terminal

- **1** - DIN type without lead wire
- **2** - DIN type with lamp without lead wire

Technical Data

Description	VMS 14D
Connection	IN : G3/8", OUT : G1/4"
Normal flow (NI/m)	1430
Pressure range (bar)	2 ~ 7
Temperature range	-18 °C ~ +65°C
Materials	AL, BS, NBR, POM, PPS, SS
Standard voltages	• DC : 24V • AC : 110V, 220V - 50/60Hz
Power consumption	2,3W
Weight (g)	321

Dimension

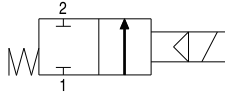


VMS 38 Control Valves

Features

2/2 way solenoid valve G3/8" (for air control) indirectly operated with spring return.

This valve are compact and can control high flow rate of air.



Order No.

VMS 38 **3** - **1**

① ② ③

① Model

- **VMS 38**

② Voltage

- 1 - AC110V
- 2 - AC220V
- **3 - DC24V**

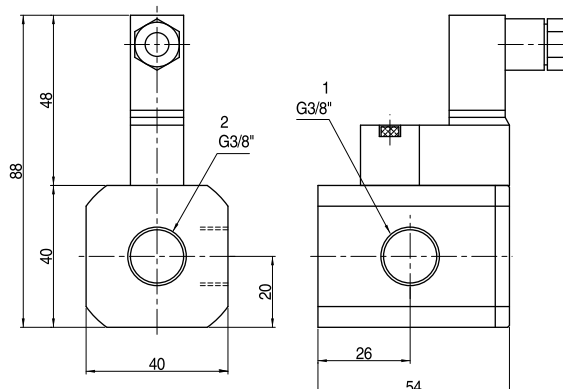
③ Solenoid terminal

- **1 - DIN type without lead wire**
- 2 - DIN type with lamp without lead wire

Operating specifications

Type	VMS 38
Connection	G3/8"
Normal flow (NI/min)	1500
Pressure range (bar)	2.5 ~ 7
Temperature range	-18 °C ~ +65°C
Materials	Ni, Al, SS, POM, CuZn, NBR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V – 50/60Hz
Power consumption	1.3W
Weight (g)	220

Dimensional Information



[Measure Unit : mm]

Pressure Gauge

- Compressed air : 0~10bar (0~140psi)
- Accuracy : ±2.5% Full scale
- Material : Brass, ABS, PMMA
- Weight : 58g (with nut), 52g (without nut)

Features

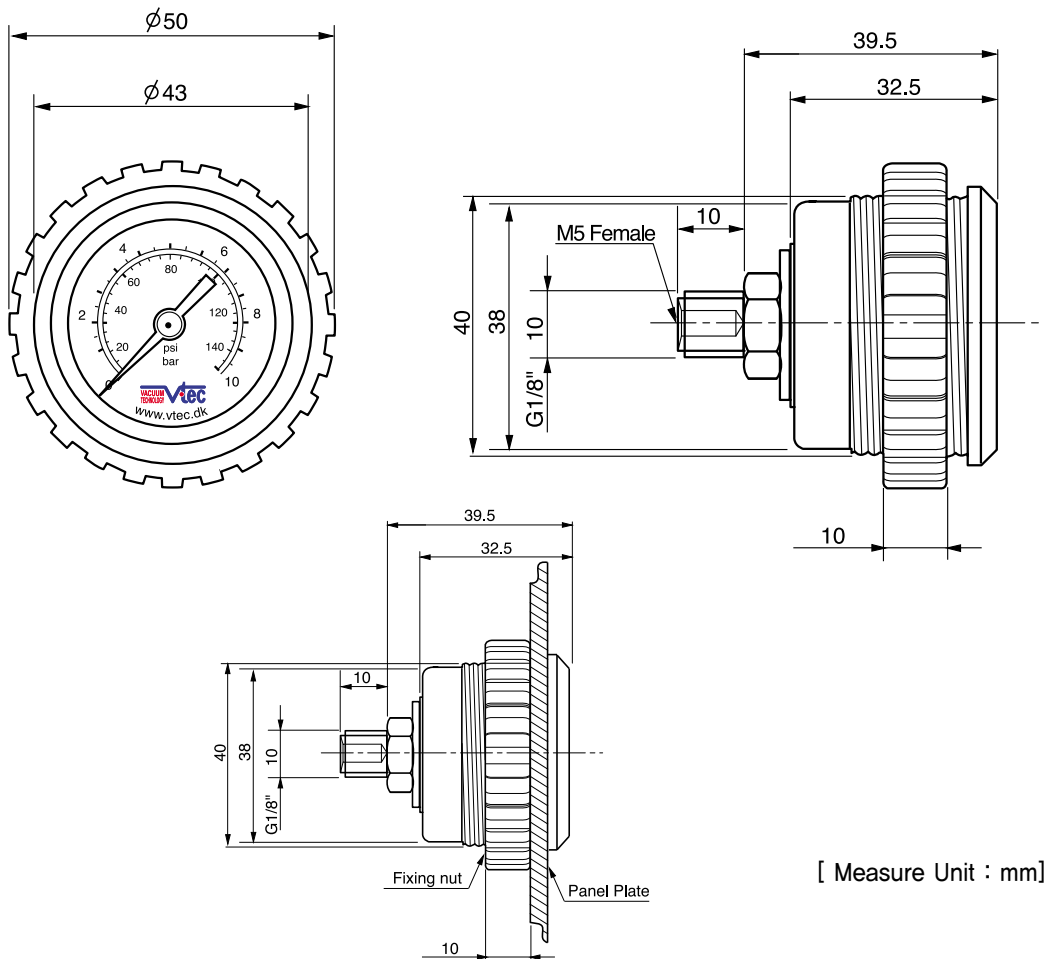
This pressure gauge are high quality & reach a very long life time. Specially, can be mounted directed into the panel plate with fixing nut.



Order no.

Model	Description	Weight (g)
VTPG-18 + N	with nut	58
VTPG-18	without nut	52

Dimensional Data



[Measure Unit : mm]

Vacuum Gauge

- Vacuum level : 0 to -100kPa (0 to -760mmHg)
- Accuracy : ±1.6% Full scale
- Material : Brass, ABS, PMMA
- Weight : 58g (with nut) , 52g (without nut)

Features

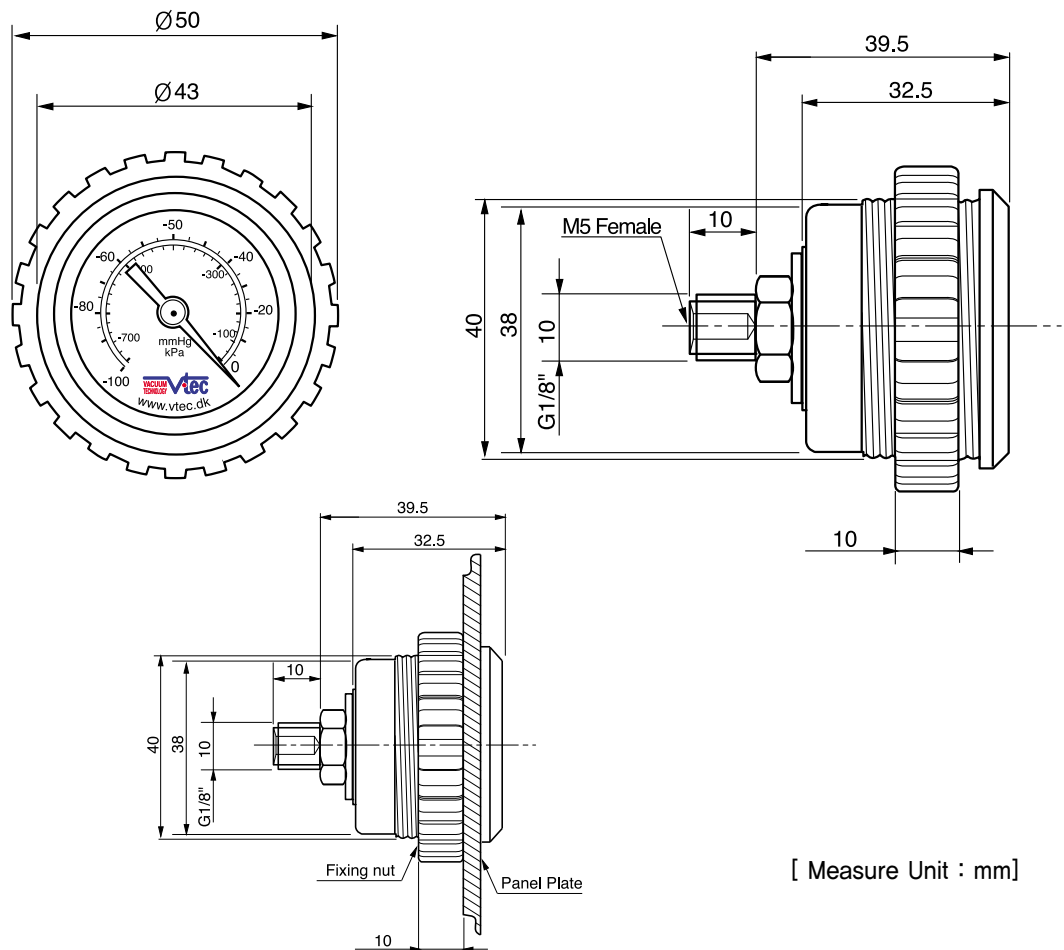
This vacuum gauges are high quality & reach a very long life time. Specially, can be mounted directed into the panel plate with fixing nut.



Order no.

Model	DISCRIPTION	Weight (g)
VTG-18 + N	with nut	58
VTG-18	without nut	52

Dimensional Data



Silencers

Features

These silencers which are fitted to many of the vacuum pumps as standard can be ordered separately as replacements. They significantly reduce noise levels on all exhaust applications.

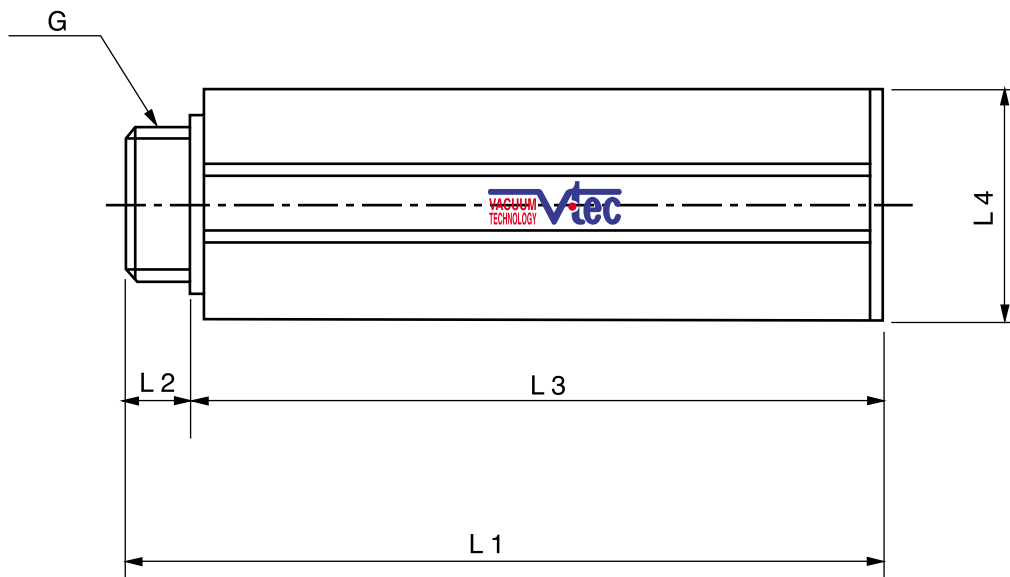
Six sizes are available ranging from 1/8" up to 1".



Order no.

Model	SIZE	L1	L2	L3	L4	G	Weight (oz.)
VTS18	G1/8"	48	5,7	42,3	16	G1/8"	4
VTS14	G1/4"	71,5	7,5	64	24	G1/4"	12
VTS38	G3/8"	71,5	7,5	64	24	G3/8"	13
VTS12	G1/2"	129,5	11	118,5	40	G1/2"	52
VTS34	G3/4"	129,5	11	118,5	40	G3/4"	54
VTS10	G1"	129,5	11	118,5	40	G1"	40

Dimensional Data



Air / Vacuum Manifolds

Its important to maintain pipe bore size on vacuum circuits when using more than one suction cup.

The Vtec manifolds enable multiple connections to be made back to one common large BSP connection. The manifolds are very compact and are available in a number of configurations to suit most applications. Each manifold is manufactured from lightweight anodised aluminum and comes complete with mounting brackets and one end plugged.



Order no.

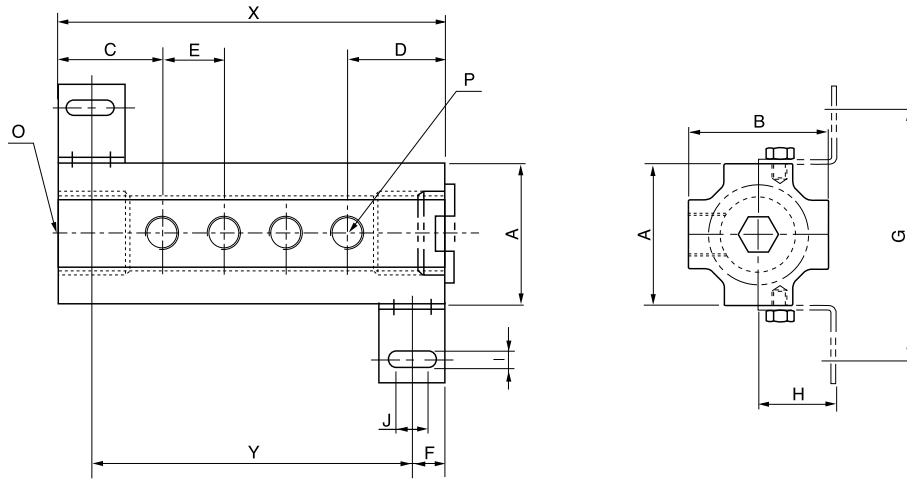
※ n : Port Quantity

MODEL	Supply Port Size	Manifold Port Size	(MAX) Manifold Port Q'ty
VTDF38-18Xn	G3/8 "	G1/8 "	60
VTDF12-18Xn	G1/2 "	G1/8 "	60
VTDF12-14Xn	G1/2 "	G1/4 "	50
VTDF34-18Xn	G3/4 "	G1/8 "	60
VTDF34-14Xn	G3/4 "	G1/4 "	50
VTDF34-38Xn	G3/4 "	G3/8 "	45
VTDL38-18Xn	G3/8 "	G1/8 "	120
VTDL12-18Xn	G1/2 "	G1/8 "	120
VTDL12-14Xn	G1/2 "	G1/4 "	100
VTDL34-18Xn	G3/4 "	G1/8 "	120
VTDL34-14Xn	G3/4 "	G1/4 "	100
VTDL34-38Xn	G3/4 "	G3/8 "	90
VTDC38-18Xn	G3/8 "	G1/8 "	120
VTDC12-18Xn	G1/2 "	G1/8 "	120
VTDC12-14Xn	G1/2 "	G1/4 "	100
VTDC34-18Xn	G3/4 "	G1/8 "	120
VTDC34-14Xn	G3/4 "	G1/4 "	100
VTDC34-38Xn	G3/4 "	G3/8 "	90
VTDE38-18Xn	G3/8 "	G1/8 "	180
VTDE12-18Xn	G1/2 "	G1/8 "	180
VTDE12-14Xn	G1/2 "	G1/4 "	150
VTDE34-18Xn	G3/4 "	G1/8 "	180
VTDE34-14Xn	G3/4 "	G1/4 "	150
VTDE34-38Xn	G3/4 "	G3/8 "	130

※ Please contact Vtec for special type.

Dimensional Information

VTDF Series
(Ports on top only)

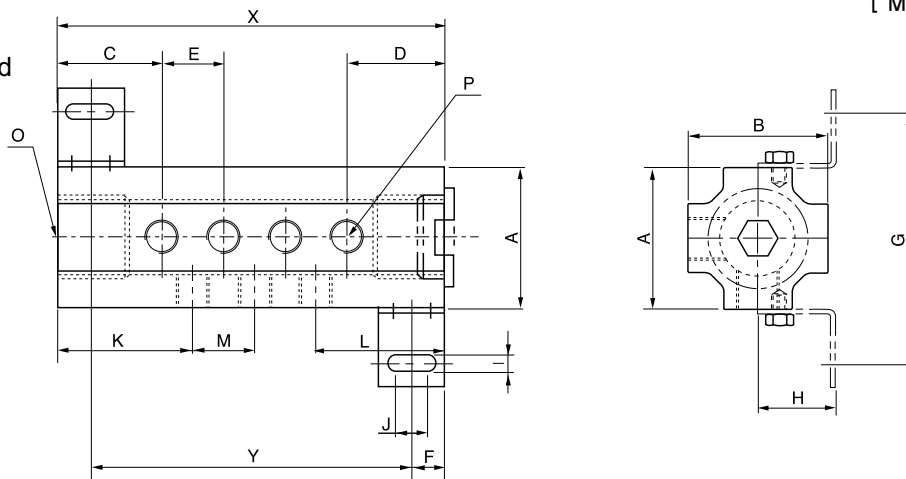


※ n : Port Quantity

MODEL	Vacuum port size (O)	Manifold port size (P)	Manifold port Qty max.(n)	A	B	C	D	E	F	G	H	I	J	X	Y
VTDF38-18Xn	G3/8"	G1/8"	60	35	35	21,5	21,5	17	10,5	67	18	5,5	10	(n X17)+26	X-21
VTDF12-18Xn	G1/2"	G1/8"	60	35	35	21,5	21,5	17	10,5	67	18	5,5	10	(n X17)+26	X-21
VTDF12-14Xn	G1/2"	G1/4"	50	35	35	19	19	22	10,5	67	18	5,5	10	(n X22)+16	X-21
VTDF34-18Xn	G3/4"	G1/8"	60	45	45	26,5	26,5	17	10,5	80	25	5,5	10	(n X17)+36	X-21
VTDF34-14Xn	G3/4"	G1/4"	50	45	45	29	29	22	10,5	80	25	5,5	10	(n X22)+36	X-21
VTDF34-38Xn	G3/4"	G3/8"	45	45	45	27,5	27,5	25	10,5	80	25	5,5	10	(n X25)+30	X-21

[Measure Unit : mm]

VTDL - Series
(Ports on top and one side)



※ n : Port Quantity

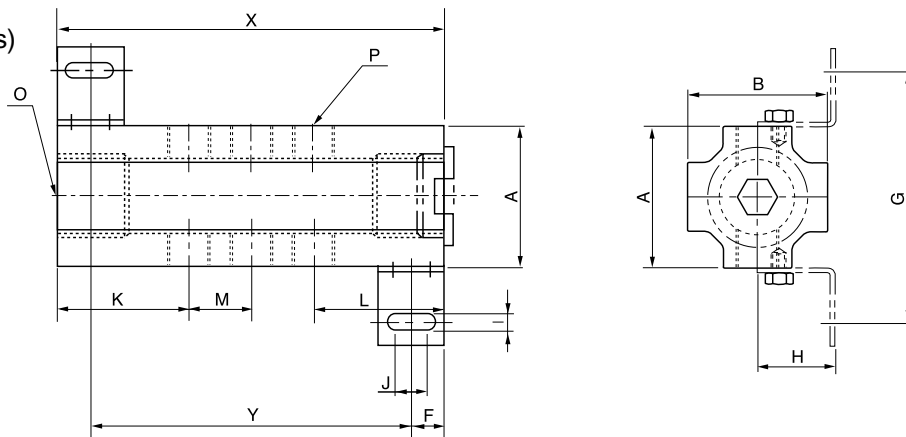
MODEL	Vacuum port size (O)	Manifold port size (P)	Manifold port Qty max.(n)	A	B	C	D	E	F	G	H	I	J	K	L	M	X	Y
VTDL38-18Xn	G3/8"	G1/8"	120	35	35	21,5	21,5	17	10,5	67	18	5,5	10	30	30	17	※ Please contact Vtec for the dimension.	
VTDL12-18Xn	G1/2"	G1/8"	120	35	35	21,5	21,5	17	10,5	67	18	5,5	10	30	30	17		
VTDL12-14Xn	G1/2"	G1/4"	100	35	35	19	19	22	10,5	67	18	5,5	10	30	30	22		
VTDL34-18Xn	G3/4"	G1/8"	120	45	45	26,5	26,5	17	10,5	80	25	5,5	10	35	35	17		
VTDL34-14Xn	G3/4"	G1/4"	100	45	45	29	29	22	10,5	80	25	5,5	10	40	40	22		
VTDL34-38Xn	G3/4"	G3/8"	90	45	45	27,5	27,5	25	10,5	80	25	5,5	10	40	40	25		

[Measure Unit : mm]

Dimensional Information

VTDC - Series

(Ports on both sides)



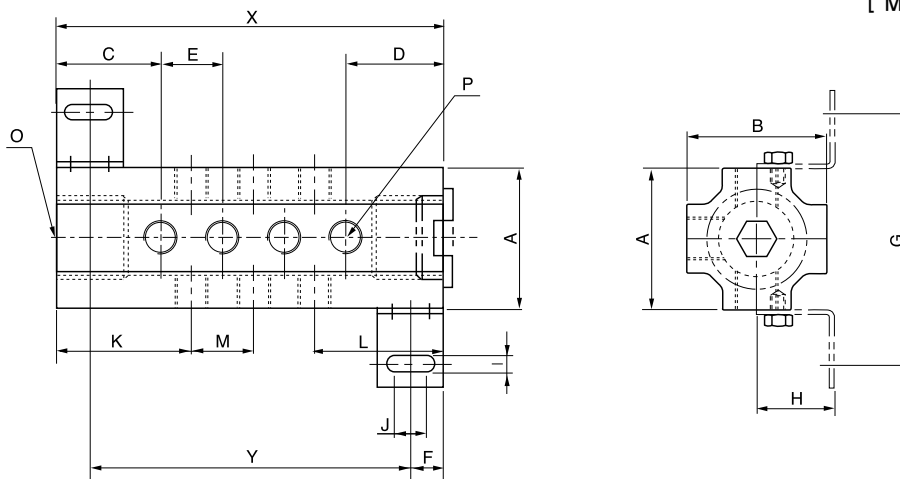
※ n : Port Quantity

MODEL	Vacuum port size (O)	Manifold port size (P)	Manifold port Qty max.(n)	A	B	F	G	H	I	J	K	L	M	X	Y
VTDC38-18Xn	G3/8"	G1/8"	120	35	35	10,5	67	18	5,5	10	30	30	17	(n X 17)+43	X-21
VTDC12-18Xn	G1/2"	G1/8"	120	35	35	10,5	67	18	5,5	10	30	30	17	(n X 17)+43	X-21
VTDC12-14Xn	G1/2"	G1/4"	100	35	35	10,5	67	18	5,5	10	30	30	22	(n X 22)+38	X-21
VTDC34-18Xn	G3/4"	G1/8"	120	45	45	10,5	80	25	5,5	10	35	35	17	(n X 17)+53	X-21
VTDC34-14Xn	G3/4"	G1/4"	100	45	45	10,5	80	25	5,5	10	40	40	22	(n X 22)+58	X-21
VTDC34-38Xn	G3/4"	G3/8"	90	45	45	10,5	80	25	5,5	10	40	40	25	(n X 25)+55	X-21

VTDE - Series

(Ports on top and both sides)

[Measure Unit : mm]



※ n : Port Quantity

MODEL	Vacuum port size (O)	Manifold port size (P)	Manifold port Qty max.(n)	A	B	C	D	E	F	G	H	I	J	K	L	M	X	Y
VTDE38-18Xn	G3/8"	G1/8"	180	35	35	21,5	21,5	17	10,5	67	18	5,5	10	30	30	17	※ Please contact Vtec for the dimension.	
VTDE12-18Xn	G1/2"	G1/8"	180	35	35	21,5	21,5	17	10,5	67	18	5,5	10	30	30	17		
VTDE12-14Xn	G1/2"	G1/4"	150	35	35	30	30	22	10,5	67	18	5,5	10	30	30	22		
VTDE34-18Xn	G3/4"	G1/8"	180	45	45	26,5	26,5	17	10,5	80	25	5,5	10	35	35	17		
VTDE34-14Xn	G3/4"	G1/4"	150	45	45	29	29	22	10,5	80	25	5,5	10	40	40	22		
VTDE34-38Xn	G3/4"	G3/8"	130	45	45	27,5	27,5	25	10,5	80	25	5,5	10	40	40	25		

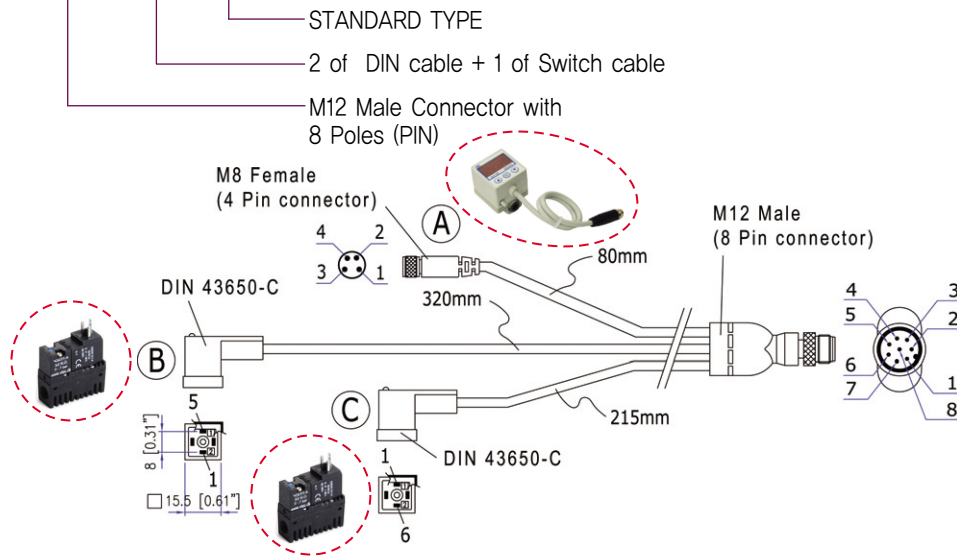
[Measure Unit : mm]

BUS Cables and Connection Cables for Vacuum Pumps

Order No.

- Bus Cables for '3 in 1' – Vacuum ON/OFF + Vacuum Release ON/OFF + Vacuum Switch

BC M12 - 3DS - 1



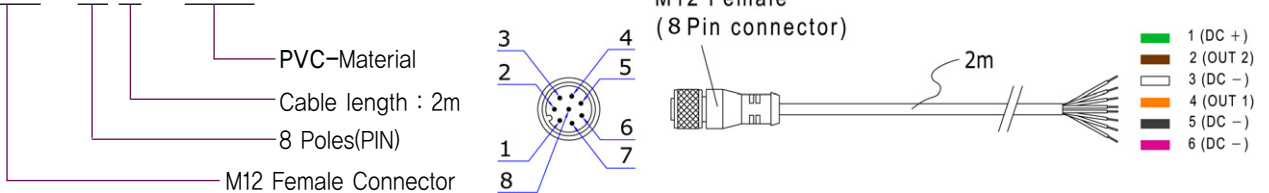
Specifications of DIN 43650-C

Type of contact : Screw with conductor protection	Max. conductor section : 0.75 mm ²
Contact spacing : 8mm	Protection class : IP 65 assembled
Number of poles : 2 Poles	Fixing screw : M2.5 x 28.5
Cable material : PVC H03VVF	Profile gasket : NBR

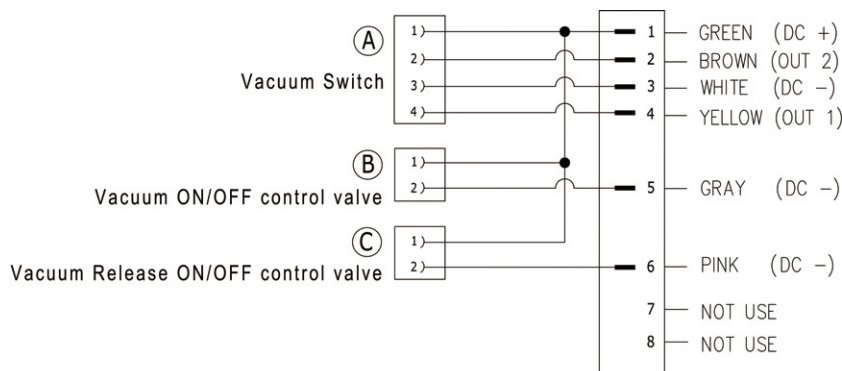
Order No.

- Connection Cables for BC M12..

VC M12 - 8 2 - PVC



Connection diagram

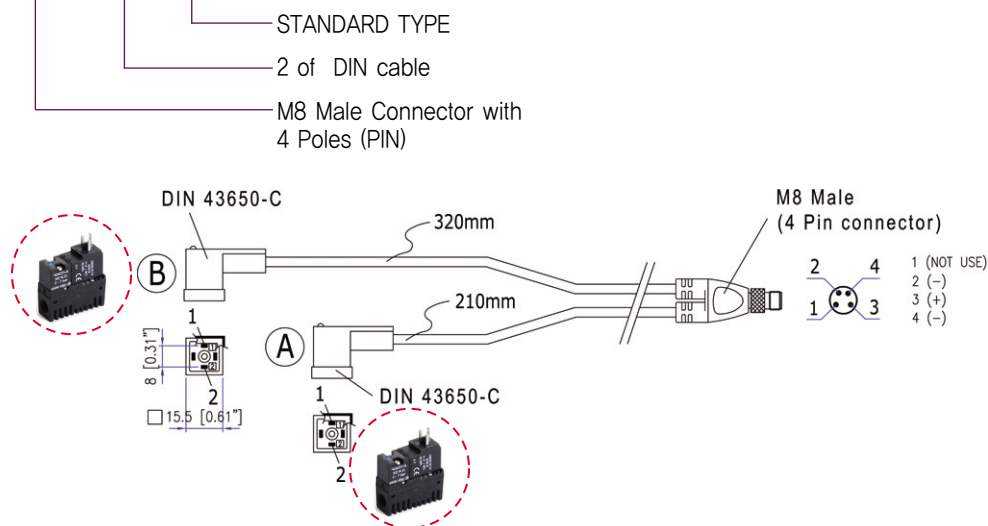


BUS Cables and Connection Cables for Vacuum Pumps

Order No.

- Bus Cables for '2 in 1' – Vacuum ON/OFF + Vacuum Release ON/OFF

BC M8 - 2D - 1

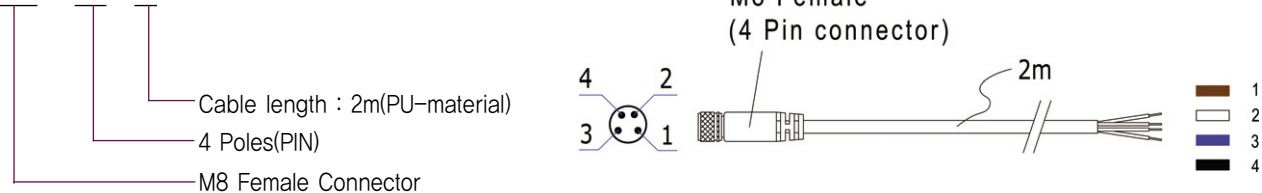


Specifications of DIN 43650-C	
Type of contact : Screw with conductor protection	Max. conductor section : 0.75 mm ²
Contact spacing : 8mm	Protection class : IP 65 assembled
Number of poles : 2 Poles	Fixing screw : M2.5 x 28.5
Cable material : PVC H03VVF	Profile gasket : NBR

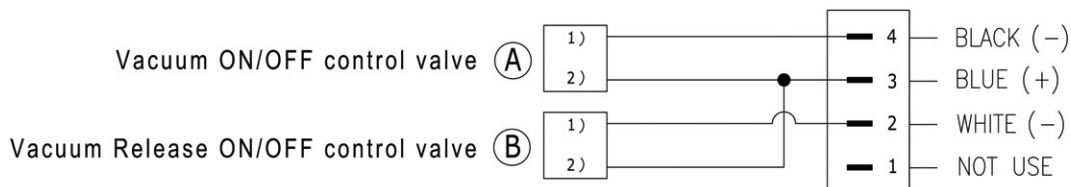
Order No.

- Connection Cables for BC M8..

VC M8 - 4 - 2



Connection diagram





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