

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)

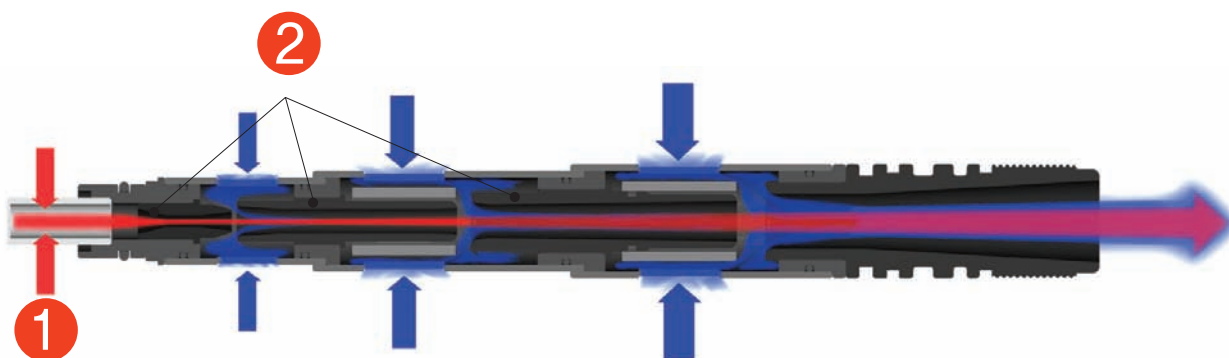
VMECA™

- 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.

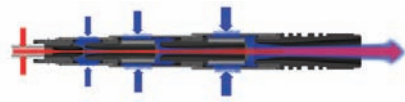


• PRINCIPLE

**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 TECHNOLOGY

Page 4

VACUUM
TECHNOLOGY



SUCTION CUPS

Page 10

SUCTION
CUPS



VACUUM SPEEDER

Page 73

VACUUM
SPEEDER



VACUUM PUMPS

Page 101

VACUUM
PUMPS



V-GRIP SYSTEM

Page 306

V-GRIP
SYSTEM



ACCESSORIES

Page 313

ACCESSORIES



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	kp/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 kp/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 (kp/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 (m³/s)

Common multiple units : liter/min, liter/s, liter/h

	m ³ /s	m ³ /h	l /min	l /s	ft ³ / min (scfm)
1m ³ /s	1	3600	60000	1000	2118.9
1m ³ /h	0.28X10 ⁻³	1	16.6667	0.2778	0.5885
1 l/min	16.67X10 ⁻⁶	0.06	1	0.0167	0.035
1 l/s	1X10 ⁻³	3.6	60	1	2.1189
1ft ³ /min	0.472X10 ⁻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” .

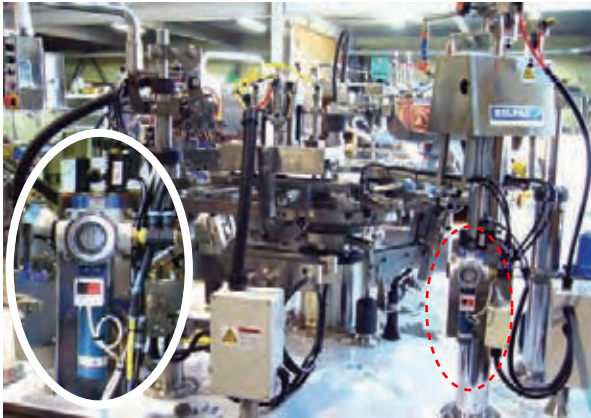
COMPATIBILITY OF DIFFERENT THREAD SYSTEMS:

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

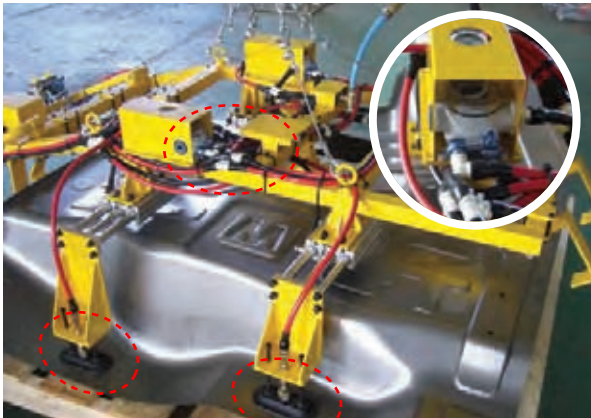
Applications for vtec vacuum equipment



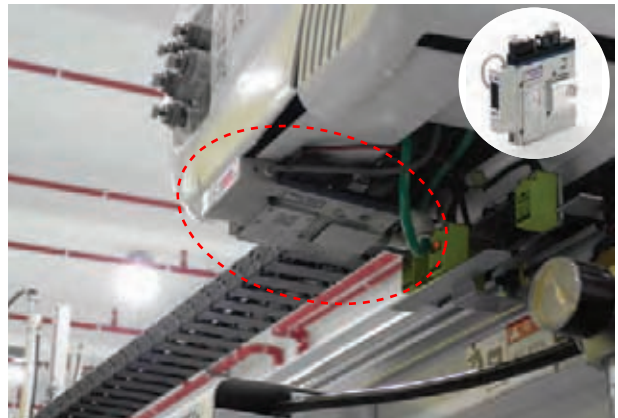
▲ Packaging machine



▲ Handling Box for Robotic palletizing



▲ Panel lifting for Automotive industry



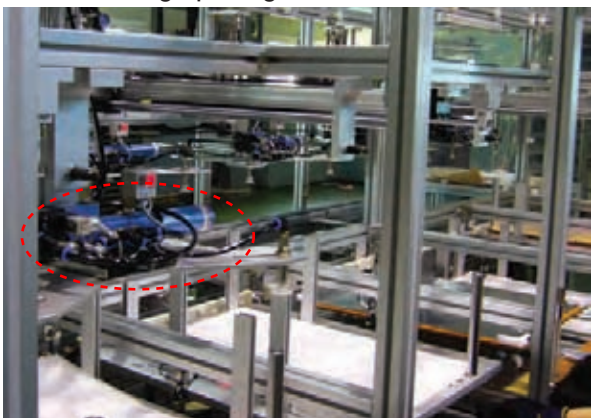
▲ Robot industry



▲ 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) P.60~66



Fittings for Suction cups P.67~72



1. Advantages of suction cup

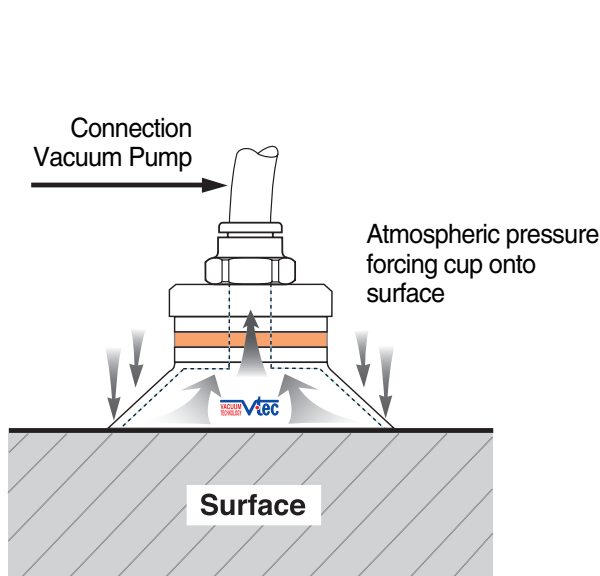
Materials' handling with suction cup is very simple low cost and reliable. It is therefore a solution worth using before considering more complicated handling techniques. Suction cups can lift, and hold objects from a few grams up to several kg.

► Advantages

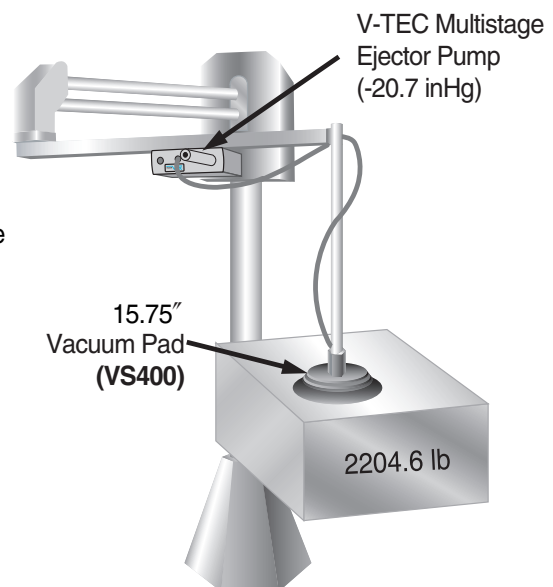
- ✓ Easy installation
- ✓ Low service requirement
- ✓ Low price
- ✓ Does not damage the goods
- ✓ Fast attachment and detachment

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.



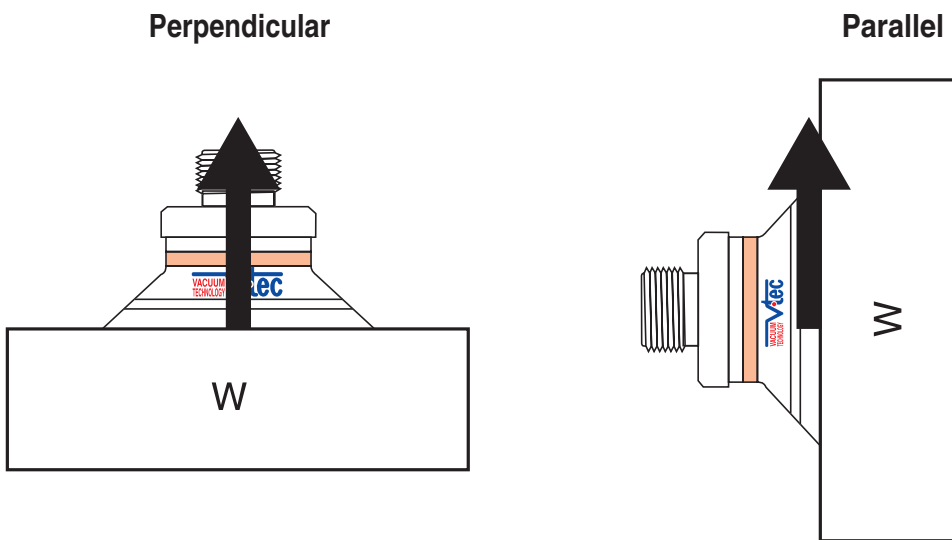
Weights that can be lifted with suction cups.

3. How to select the suction cup

$$D = 1.64 \times \sqrt{\frac{m \times n}{U \times s}}$$

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

4. Calculating achievable perpendicular / parallel lifting force (-60kPa=-17.71inHg)



Lift : Formula

W : Lifting force (lb.f)
 P : Vacuum level (-inHg)
 S : Size of suction cup (in²)
 n : Safety factor { Perpendicular : insert 2 or 3
 Parallel : 3 insert or 4

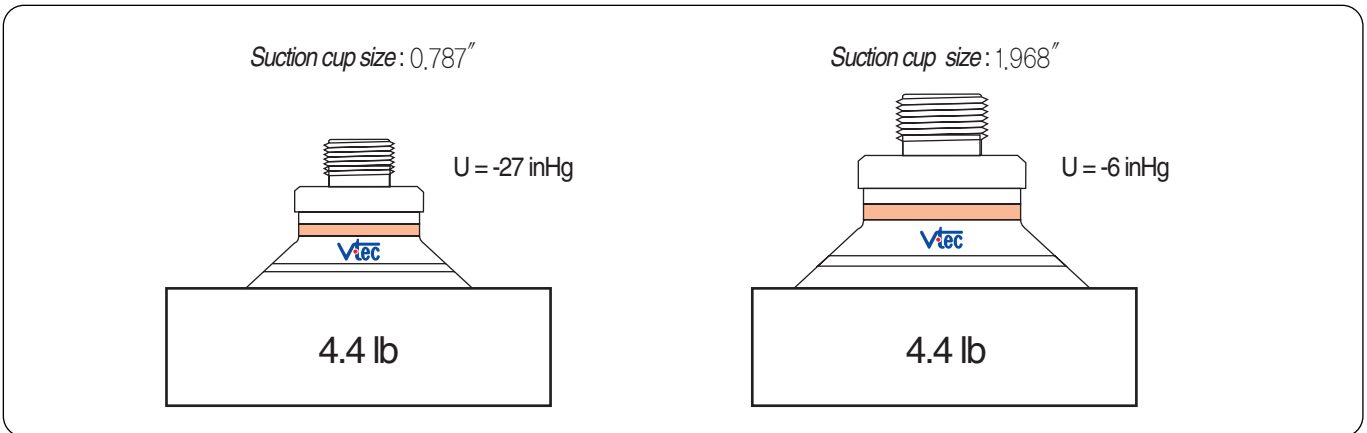
$$W = P \times S \times 0.491 \times \frac{1}{n}$$

5. Recommended vacuum level to use (-18 inHg)

There are several reasons why -18inHg is the optimum vacuum level to use with suction cups. The energy required creating -18inHg is low in comparison to that required generating -27inHg. 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 -27inHg level, If a vacuum circuit is designed to run at -27inHg then clearly there is very little capacity left in the pump performance, thus no margin for error. Lastly suction cups running at -27inHg 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
4.4 lb	-27inHg	0.787"
	-18inHg	1.181"
	-6inHg	1.968"



Lifting force comparison table for cup size




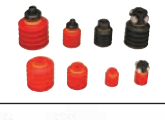








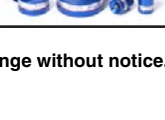
Cup Size (inch)	-18 inHg Lifting force(lb.f) Perpendicular				-18 inHg Lifting force(lb.f) Parallel			
	Safety factor force(lb.f)		force(lb.f)		Safety factor force(lb.f)		force(lb.f)	
	min	max	min	max	min	max	min	max
0,078~0,315	0~0,011	0~0,319	0~0,022	0~0,65	0~0,0044	0~0,216	0~0,017	0~0,65
0,39~0,59	0~0,374	0~0,948	0~0,75	0~1,896	0~0,308	0~0,507	0~0,97	0~1,565
0,78~0,98	0~0,683	0~2,75	0~1,388	0~5,511	0~0,595	0~1,829	0~1,785	0~5,511
1,18~1,37	0~1,785	0~5,62	0~3,593	0~11,243	0~0,727	0~2,38	0~2,204	0~7,187
1,57	0~2,47	0~6,39	0~4,938	0~12,8	0~1,631	0~3,659	0~4,938	0~11,023
1,96~2,36	0~4,828	0~16,86	0~9,656	0~33,73	0~2,755	0~6,371	0~8,311	0~19,114
2,95~3,15	0~17,99	0~22,48	0~35,98	0~44,974	0~8,245	0~14,991	0~24,735	0~44,974
3,94~4,52	0~38,58	0~50,48	0~77,16	0~101,19	0~17,614	0~18,74	0~52,844	0~56,24
5,9	0~77,16	0~95,46	0~154,32	0~191,14		0~44,974		0~134,967
7,87~11,8	0~213,6	0~483,4	0~427,25	0~967,16	0~101,14		0~303,44	

6. Applications for suction cups

Vtec suction cups are available in a wide range of shapes, sizes, materials and configurations. The standard pads 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

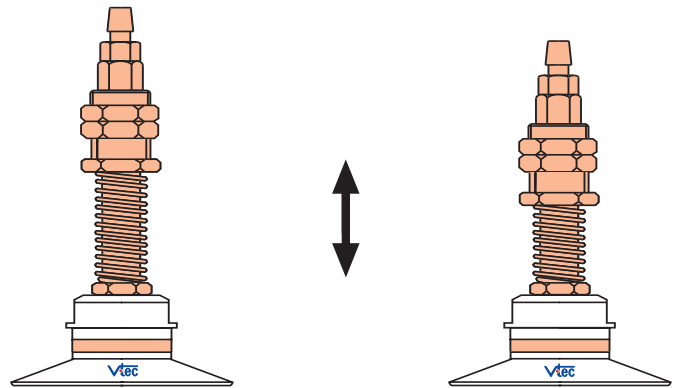
1. Choose the model depending on the shape of object to lift.
2. Choose the size of the cup based on the weight of the object to lift.
3. Choose the material of the cup based on the working environment and surface texture.
4. Select the fitting size to suit the application.
5. Select the accessory depending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

Type	Description	Some Applications
VB (Bellows) 	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) 	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) 	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) 	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) 	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) 	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) 	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) 	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) 	Best suitable for handling long objects With flat and curved surfaces	Semiconductor chips Electronic components Small ampul
VOC (Oval Curved) 	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) 	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) 	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) 	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

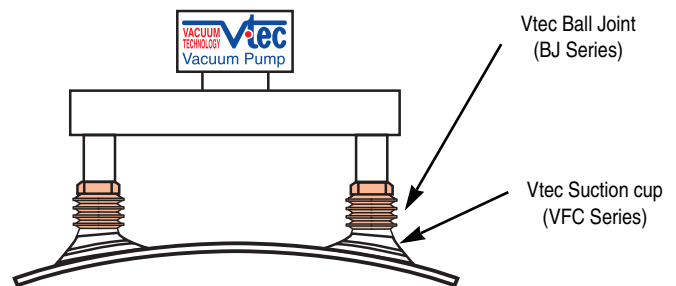
The Vtec level Compensator is used to compensate for differences in height on the surface of the material that is to be lifted. The advantage being a more reliable and less precise pick up position when handling product that may be less consistent in its shape, size and position. The level compensator 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

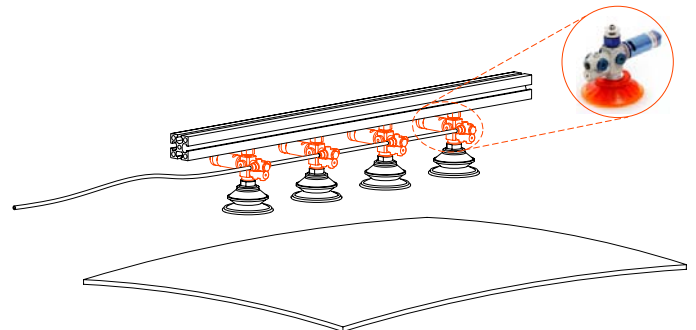
Ball Joints

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

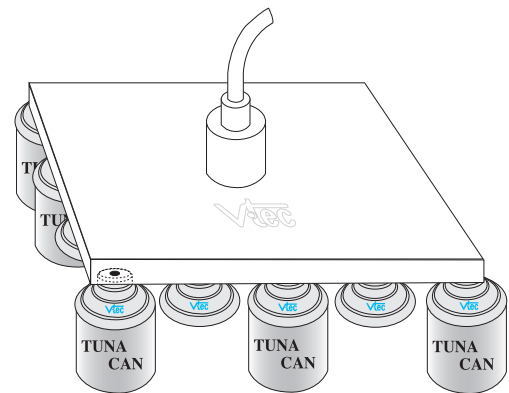
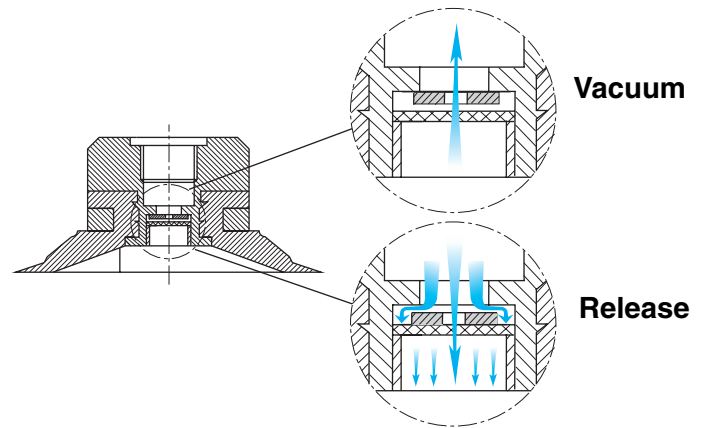
Vacuum speeder is a combination of a vacuum cartridge and suction cup. VSM is available for various mounting options, accessible parts, and interchangeable parts. Due to this it is easily possible to make a compact and simple vacuum system. The vacuum cartridge is located close to the suction point providing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



7. Accessories

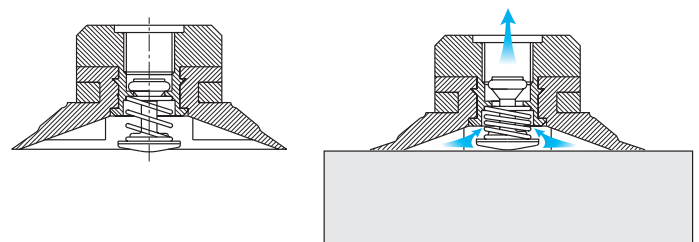
Vacuum Efficiency valve (EV)

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

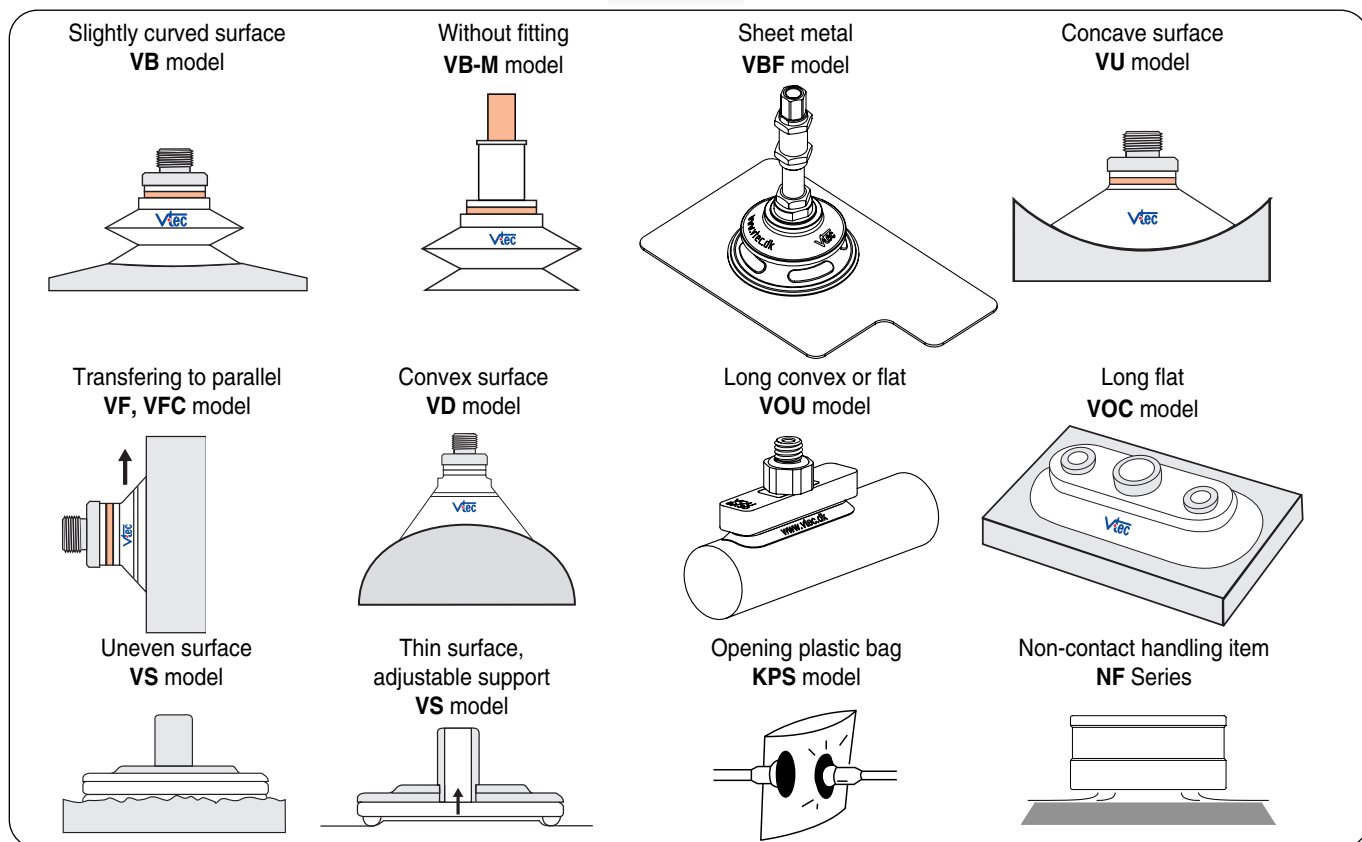
Material	Temperature	Durability	Oil Resistance	Weather & ozone
N - NBR	-40°F to + 230°F	Excellence	Excellence	Very good
S - Silicon	-94°F to + 392°F	Good	Unsuitable	Excellence
C.S - Conductive (special material)	-49°F to + 194°F	Excellence	Excellence	Very good
U - Urethane	-4°F to + 185°F	Excellence	Excellence	Excellence
A - Mark free	-40°F to + 176°F	Excellence	Excellence	Very good
PU- Poly Urethane	32°F to + 140°F	Excellence	Excellence	Excellence
E - EPDM	-40°F to + 212°F	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	★★★	★★★		★★★		★★★	★★★	★	★★★	★★★	★	★★★	★★
VPF	★★★	★★★	★	★★★		★★★	★★★	★★★	★★★	★★★	★★★		
VBL	★★★	★★★		★★★		★★★	★★★			★★			
VU	★★★	★★★	★★★	★★★				★★		★★★	★★		★★
VF	★★★			★★★				★★★	★★★	★★★	★★★		
VFC	★★★	★★★		★★★	★			★★★	★★★	★★★	★★★		★
VD	★★	★★★		★★★		★		★★	★★★	★★★	★★		
VOU	★★★	★★	★★	★★★				★★		★★	★		
VOC	★★★	★★★		★★★		★		★★★		★★★	★★★		
VS	★★★			★★★	★★★		★★★			★★★	★		
KPS	★★★			★★★								★★★	★★★
NF	★★★	★★★					★★★		★★★				

★★★ Excellent ★★ Very good ★ good

SUCTION CUPS



10. Suction cup specifications

Design	Model	Diameter (in)	Volume (in ³)	Material						Lifting force (lb.f) Perpendicular			Lifting force (lb.f) Parallel		
				N	(W)S	CS	U	(W)PU	E	-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
	VB 5	0.22	0.003	•	•	•				0.066	0.176	0.22			
	VB 6X	0.27	0.005	•	•	•				0.11	0.242	0.308			
	VB 8	8.8	0.009	•	•	•				0.176	0.352	0.551			
	VB 10	0.34	0.029	•	•	•	•			0.33	0.75	1.1			
	VB 12	0.47	0.036	•	•	•	•			0.44	0.9	1.36			
	VB 15	0.61	0.067	•	•	•	•	•		0.639	1.32	1.984			
	VB 17	0.72	0.091	•	•	•	•			0.881	1.76	2.204			
	VB 20	0.86	0.164	•	•	•	•	•		1.32	2.2	3.13			
	VB 30	1.33	0.61	•	•	•	•	•		2.68	4.93	6.062			
	VB 40	1.69	0.915	•	•	•	•	•		4.93	8.75	11.02			
	VB 50	2.08	1.95	•	•	•	•	•		7.4	14.61	18.43			
	VB 75	3.07	6.71	•	•	•	•	•		16.86	37.56	50.83			
	VB 110	4.52	18.91	•	•	•	•	•		30.8	77.16	103.7			
	VB 150	6.1	39.66	•	•	•	•	•		66.1	154.3	198.63			
	VB 20M	0.86	0.164	•	•	•	•			1.54	2.64	3.52			
	VB 30M	1.33	0.61	•	•	•	•			3.3	5.73	8.59			
	VB 50M	2.08	1.95	•	•	•	•			7.05	17.4	23.15			
	VBF 30	1.26	0.37					•		3.9	13.8	20.9	1.9	6.8	17.1
	VBF 40	1.65	0.44					•		5.5	21.3	28.2	2.6	14.3	24.9
	VBF50	2.02	0.67					•		9.2	29.1	35.9	4.6	21.6	32.4
	VBF60	2.51	1.34					•		19.7	35.8	40.8	15.08	28.3	37.3
	VBF80	3.3	3.63					•		26.27	47.7	54.4	20.1	37.7	49.7
	VBF 100	4.05	6.31					•		32.8	59.7	68.1	25.1	47.1	62.1
	VBL 20	0.78	0.244	•	•	•	•			0.066	0.132				
	VBL 30	1.18	0.793	•	•	•	•			0.132	0.352				
	VBL 35M	1.37	1.281	•	•	•	•			0.176	0.418				
	VBL 40	1.57	1.647	•	•	•	•			0.24	0.485				
	VBL 50	1.96	3.356	•	•	•	•			0.374	0.947				
	VU 1.5X	0.07	0.00009	•	•	•				0.0017	0.0066	0.0088			
	VU 2	0.1	0.000152	•	•	•				0.0066	0.022	0.033			
	VU 2X	0.1	0.000183	•	•	•				0.0066	0.022	0.033			
	VU 3	0.149	0.0006	•	•	•				0.0198	0.088	0.132			
	VU 3k	0.137	0.001	•	•	•				0.0308	0.132	0.198			
	VU 4	0.196	0.00183	•	•	•				0.044	0.198	0.286	0.044	0.17	0.22
	VU 4X	0.181	0.00183	•	•	•				0.044	0.198	0.286	0.044	0.17	0.22
	VU 6	0.275	0.003	•	•	•				0.11	0.374	0.55	0.066	0.33	0.44
	VU 8	0.354	0.0061	•	•	•				0.22	0.64	0.858	0.22	0.63	0.74
	VU 10	0.433	0.0122	•	•	•	•			0.33	0.97	1.54	0.33	0.97	1.1
	VU 15	0.649	0.0305	•	•	•	•			0.77	1.87	2.46	0.77	1.21	1.32
	VU 20	0.866	0.061	•	•	•	•			1.32	2.68	3.59	1.32	1.96	2.2
	VU 25	1.06	0.0915	•	•	•	•			2	4.36	5.51	1.54	2.09	2.31
	VU 30	1.259	0.122	•	•	•	•			2.68	5.62	6.74	1.74	2.2	2.46
	VU 40	1.653	0.3356	•	•	•	•			4.49	8.75	11	3.13	4.93	6.17
	VU 50	2.08	0.732	•	•	•	•			7.87	16.4	20.67	4.49	8.31	9.87
	VU 80	3.14	1.95	•	•	•	•			17.1	43.65	55.57	9.98	27.9	37.34
	VF 15	0.649	0.024	•	•	•	•			0.77	1.89	2.46	0.77	1.45	1.67
	VF 20	0.866	0.061	•	•	•	•			1.34	3.24	4.25	1.12	1.78	189
	VF 25	1.06	0.067	•	•	•	•			2	4.36	5.62	1.78	2	2.24
	VF 30	1.25	0.122	•	•	•	•	•		2.68	5.62	6.96	2.46	3.59	4.49
	VF 40	1.65	0.292	•	•	•	•	•		4.49	8.99	11.24	3.37	5.62	6.74
	VF 50	2.08	0.61	•	•	•	•	•		8.09	16.64	21.58	5.37	8.99	11.24
	VF 50X2	2.08	0.61	•	•	•	•	•		8.09	16.64	21.58	5.37	8.99	11.24

※ Lifting force : Not considered safety factor.

10. Suction cup specifications

Design	Model	Diameter (in)	Volume (in ³)	Material						Lifting force (lb.f) Perpendicular			Lifting force (lb.f) Parallel		
				N	WS	CS	U	(W)PU	E	-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
	VF75	3.03	1.22	•	•	•	•	•		17.9	44.97	60.73	13.49	24.73	31.48
	VF 90	3.62	3.05					•		22.48	61.37	82.47	19.48	35.22	43.47
	VF 110	4.4	4.27	•	•	•	•			31.48	94.46	125.9	31.46	56.23	67.48
	VF 150	5.98	9.76	•	•	•	•			67.48	191.2	247.4	56.23	134.96	179.9
	VF 200	7.87	28	•	•	•	•			168.71	427.4	607.4	84.43	213.6	303.1
	VF 300	11.96	50	•	•	•	•			359.35	965.6	1439.6	297.62	676.8	1049.4
	VFC 50	1.96	0.61	•	•	•	•	•		7.87	19.11	28.1	7.87	19.11	24.73
	VFC 60	2.36	1.22	•	•	•	•	•		12.12	30.86	40.78	11.9	30.86	41.66
	VFC 60X	2.36	1.22	•	•	•	•			12.12	30.86	40.78	11.9	30.86	41.66
	VFC 75	2.95	1.83	•	•	•	•	•		16.86	42.72	56.24	17.98	44.97	60.73
	VFC 75X1	2.95	1.83	•	•	•	•			16.86	42.72	56.24	17.98	44.97	60.73
	VFC 75X2	2.95	1.83	•	•	•	•			16.86	42.72	56.24	17.98	44.97	60.73
	VFC 90	3.54	3.66					•		20.61	54.71	71.98	20.98	47.59	61.48
	VFC 100	3.93	4.88	•	•	•	•	•		28.1	78.72	103.4	26.98	52.84	62.98
	VD 30	1.18	0.27	•	•	•	•	•		2.68	5.62	6.74	1.609	3.37	4.03
	VD 40	1.57	0.42	•	•	•	•	•		4.49	8.75	11.02	2.68	5.24	6.61
	VD 50	1.96	0.82	•	•	•	•	•		7.87	16.4	20.67	4.71	9.83	12.38
	VD 60	2.4	1.34	•	•	•	•	•		12.12	30.86	40.78	7.27	18.5	24.47
	VD 70	2.83	2.31					•		15.76	41.44	54.89	9.25	25.57	35.71
	VD 85	3.34	3.66	•	•	•	•			22.04	61.72	85.98	13.22	37	51.58
	VD 85X	3.46	4.14	•	•	•	•			22.04	61.72	85.98	13.22	37	51.58
	VD90F	3.5	3.41					•		20.39	53.7	70.9	17.57	31.79	40
	VS 35	1.37	0.36						•	4.49	11.24	15.74			
	VS 60	2.36	1.22						•	13.49	33.73	49.47			
	VS 100	3.93	3.35						•	40.47	101.11	148.4			
	VS 150	5.9	7.62						•	83.77	213.84	304.2			
	VS 200	7.87	33.1						•	168.7	427.4	607.3			
	VS 300	11.81	78.4						•	359.9	967.3	1439.7			
	VS 400	15.74	139.4						•	718.7	1931.2	2866			
	VOU4x10	0.15x0.39	0.0039	•	•							0.451			
	VOU4x20	0.15x0.78	0.0057	•	•							0.765			
	VOU6x10	0.23x0.39	0.0049	•	•							0.564			
	VOU6x20	0.23x0.78	0.0083	•	•							1.329			
	VOU8x20	0.31x0.78	0.01	•	•							1.8			
	VOU8x30	0.31x1.18	0.015	•	•							2.32			
	VOU10x30	0.39x1.18	0.024	•	•							3.42			
	VOU15x45	0.59x1.77	0.096	•	•							7.2			
	VOU20x60	0.78x2.36	0.215	•	•							14			
	VOC 11 x 23	0.43x0.9	0.122		•					2.66	5.51	6.83	2.42	3.52	4.4
	VOC 35 x 90	1.37x3.54	1.22	•	•	•	•			11	29.5	38.36	15.2	36.15	46.29
	VOC 35 x 110	1.37x4.33	1.52	•	•	•	•			13.77	36.8	47.84	18.95	45.19	57.32
	VOC 60 x 140	2.36x5.51	3.17	•	•	•	•			29.54	83.7	116.8	41.66	83.77	114.6
	VOC 60 x 180	2.36x7.08	4.08	•	•	•	•			42.1	119.4	166.8	59.52	119.5	163.1
	KPS-1	1.33	0.884	•	•	•	•			2.68	4.93	6.06			
	KPS-2	1.1	0.122	•	•	•	•			1.54	3.37	4.03			
	KPS-3	0.51	0.03	•	•	•	•			0.77	1.87	2.46			
	KPS-4	0.62	0.06	•	•	•	•			1.322	2.68	3.59			
	KPS-5	1.1	0.152	•	•	•	•			1.54	3.37	4.03			
	KPS-5-15	0.59	0.067	•	•	•	•			0.88	2.44	2.71			
	KPS-6	1.18	0.122	•	•	•	•			1.76	3.74	4.51			
	KPS-7	2.67	1.22	•	•	•	•			12.12	30.86	40.78			
	KPS-8	0.98	0.085	•	•	•	•			1.1	2.53	2.75			
	VU-30-X	1.18	0.109	•	•	•	•			1.65	3.52	4.07			

* Lifting force : Not considered safety factor.

VB Series (Bellows)

Features and Strengths

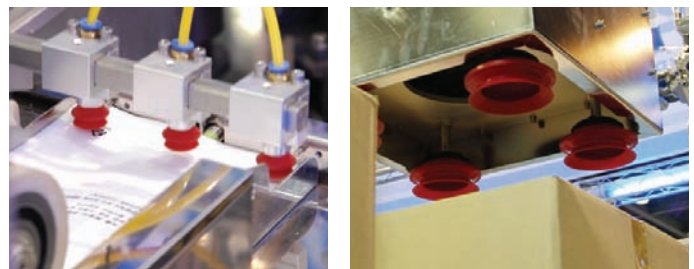
Particularly good for use on curved surfaces and for separating thin sheets of materials in stacks.

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 - NF18F EV - LN1820T - BJ N18

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 21, 60-65.

① Diameter

VB5	- 0,22"
VB6X	- 0,27"
VB8	- 8,8"
VB10	- 0,34"
VB12	- 0,47"
VB15	- 0,61"
VB17	- 0,72"
VB20	- 0,86"
• VB30	- 1,33"
VB40	- 1,69"
VB50	- 2,08"
VB75	- 3,07"
VB75B	- 3,07"
VB110	- 4,52"
VB110B	- 4,52"
VB150	- 6,1"

② Material

N	- NBR
S	- Silicon
WS	- White 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)
N14M	- 1/4" NPT male (VB30, VB40, VB50)
N38M	- 3/8" NPT male (VB50)
M518MF	- M5 female and G1/8" male (VB17, VB20)
M518MFB*	- M5 female and G1/8" male (VB20)
• NF18F(A)	- 1/8" NPSF female (VB17, VB20, VB30, VB40, VB50, VB75, VB75B)
NF18FB*	- 1/8" NPSF female (VB30, VB40)
NF14F(A)	- 1/4" NPSF female (VB75, VB75B)
NF38F(A)	- 3/8" NPSF female (VB75, VB75B)
12F(A)	- G1/2" female (VB75, VB75B, VB110, VB110B, VB150)
M5X5F	- M5X5 female (VB17, VB20)
NF18X5F	- 1/8" NPSF X5 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.

LN1820T BJ N18


⑥

⑦

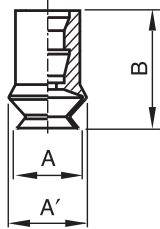
⑥ Level compensator		⑦ Ball joint model
Model	Stroke (In)	
L506TX, L506TS, L506TM, L506TU	0.24	● BJ N18
L510LTX, L510LTS, L510LTM, L510LTU	0.39	
L507T, L507TN	0.27	
L515T	0.59	
L510, L510T	0.39	
L520, L520T, L520TF	0.78	
LN1805F	0.19	
L525TXN, L525TSN, L525TMN, L525TUN	0.98	
L1805M, LN1805F	0.19	
LN1810T, LN1810TS, LN1810TSE	0.39	
LN1815T, LN1815	0.59	
● LN1820T, LN1820TS	0.78	
LN1820TN*	0.78	
LN1830, LN1830T, LN1830TS	1.18	
LN1850, LN1850T	1.97	
LN1230, LN1230T	1.18	BJ12
LN1250, LN1250T	1.97	

*Not available with Ball Joint (BJ)..

Recommended (max.) lifting forces

Model	Volume (inch ³)	Lifting Force (lb.f) – Perpendicular 		
		-6 inHg	-18 inHg	-27 inHg
VB5	0.003	0.066	0.176	0.22
VB6X	0.005	0.11	0.242	0.308
VB8	0.009	0.176	0.352	0.551
VB10	0.029	0.33	0.75	1.1
VB12	0.036	0.44	0.9	1.36
VB15	0.067	0.639	1.32	1.98
VB17	0.091	0.881	1.76	2.2
VB20	0.165	1.32	2.2	3.13
VB30	0.61	2.68	4.93	6.06
VB40	0.915	4.93	8.75	11
VB50	1.95	7.4	14.61	18.4
VB75(B)	6.71	16.86	37.56	50.8
VB110(B)	18.9	30.8	77.16	103.7
VB150	39.66	66.1	154.3	198.6

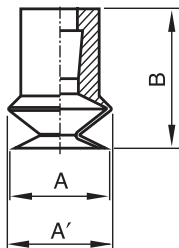
Dimensional information



◀ VB6X

[inch]

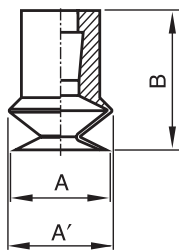
Model	A	A'	B
VB6X	0.27	0.35	0.53



◀ VB5 VB8 VB10 VB12 VB15

[inch]

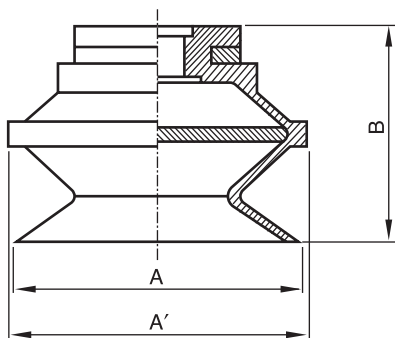
Model	A	A'	B
VB5	0.22	0.23	0.37
VB8	0.34	0.38	0.49
VB10	0.43	0.47	0.62
VB12	0.47	0.55	0.64
VB15	0.61	0.68	0.76



◀ VB17

[inch]

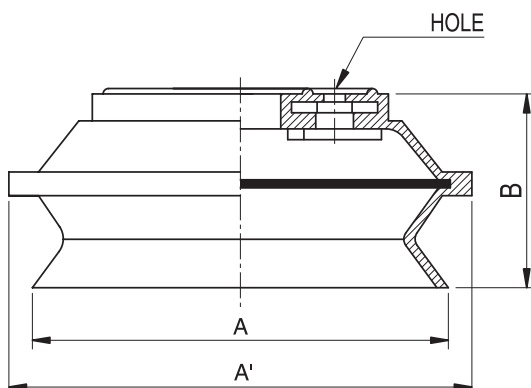
Model	A	A'	B
VB17	0.72	0.65	0.61



◀ VB20 VB30 VB40 VB50

[inch]

Model	A	A'	B
VB20	0.86	0.94	0.74
VB30	1.33	1.41	1
VB40	1.69	1.81	1.1
VB50	2	2.28	1.37

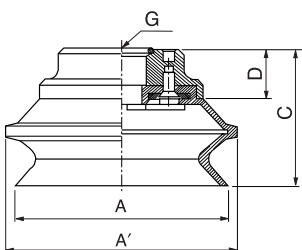
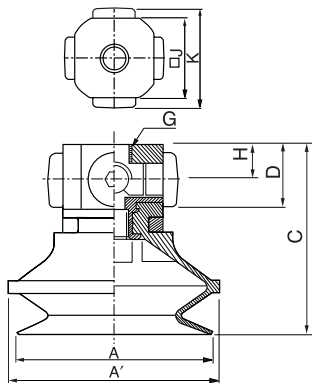
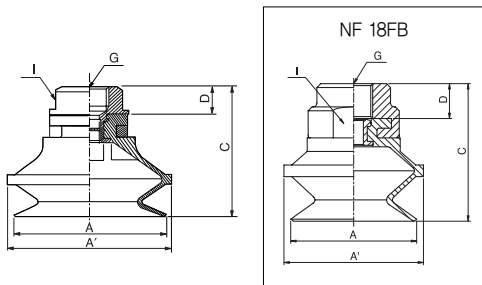
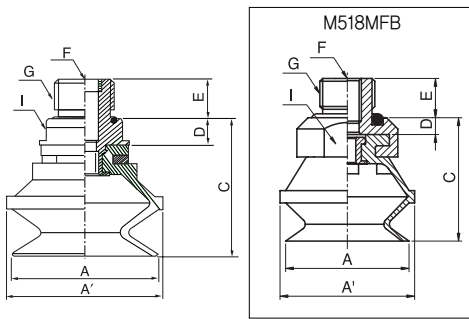
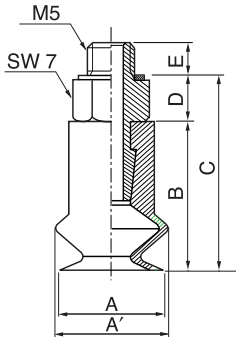


◀ VB75 VB110 VB150

[inch]

Model	A	A'	B	HOLE
VB75(B)	3	3.26	1.45	4-Ø6.5 P.C.D Ø35
VB110(B)	4.52	4.88	2.12	8-Ø6 P.C.D Ø55
VB150	6.1	6.53	2.79	8-Ø6 P.C.D Ø70.5

Dimensional information



Male thread [inch]

Model	A	A'	B	C	D	E
VB5-M5M	0,22	0,23	0,37	0,51	0,15	0,13
VB8-M5M	0,34	0,38	0,49	0,62	0,15	0,13
VB10-M5M	0,43	0,47	0,62	0,82	0,19	0,15
VB12-M5M	0,47	0,55	0,64	0,84	0,19	0,15
VB15-M5M	0,61	0,68	0,76	0,96	0,19	0,15

Male thread [inch]

Model	A	A'	C	D	E	F	G	I
VB17-M518MF	0,72	0,65	0,67	0,05	0,23	M5	G1/8"	SW0,47
VB20-M518MF	0,86	0,94	0,8	0,05	0,23	M5	G1/8"	SW0,47
VB20-M518MFB*	0,86	0,94	0,86	0,11	0,27	M5	G1/8"	SW0,62
VB30-18M	1,33	1,41	1,22	0,19	0,27	-	G1/8"	SW0,66
VB30-N14M	1,33	1,41	1,25	0,23	0,35	-	1/4" NPT	SW0,66
VB40-18M	1,69	1,81	1,29	0,19	0,27	-	G1/8"	SW0,66
VB40-N14M	1,69	1,81	1,33	0,23	0,35	-	1/4" NPT	SW0,66
VB50-N14M	2,08	2,28	1,61	0,23	0,35	-	1/4" NPT	SW0,94
VB50-N38M	2,08	2,28	1,61	0,23	0,39	-	3/8" NPT	SW0,94

*Only for silicon material

Female thread [inch]

Model	A	A'	C	D	G	I
VB17-NF18F	0,72	0,65	0,92	0,31	1/8" NPSF	SW0,59
VB20-NF18F	0,86	0,94	1,06	0,31	1/8" NPSF	SW0,59
VB30-NF18F	1,33	1,41	1,33	0,31	1/8" NPSF	SW0,66
VB30-NF18F*	1,33	1,41	1,37	0,35	1/8" NPSF	SW0,82
VB40-NF18F	1,69	1,81	1,41	0,31	1/8" NPSF	SW0,66
VB40-NF18F*	1,69	1,81	1,45	0,35	1/8" NPSF	SW0,82
VB50-NF18F	2,08	2,28	1,73	0,35	1/8" NPSF	SW0,94

*Only for silicon material

Female thread x5 [inch]

Model	A	A'	C	D	G	H	□J	K
VB17-M5X5F	0,72	0,65	0,96	0,35	M5X5	0,19	0,59	0,86
VB20-M5X5F	0,86	0,94	1,1	0,35	M5X5	0,19	0,59	0,86
VB30-NF18X5F	1,33	1,41	1,73	0,7	5X1/8" NPSF	0,39	0,86	1,18
VB40-NF18X5F	1,69	1,81	1,81	0,7	5X1/8" NPSF	0,39	0,86	1,18
VB50-NF18X5F	2,08	2,28	2,08	0,7	5X1/8" NPSF	0,39	1,1	1,41

Female thread [inch]

Model	A	A'	C	D	G
VB75(B)-NF18F	3,07	3,26	1,96	0,7	1/8" NPSF
VB75(B)-NF14F	3,07	3,26	1,96	0,7	1/4" NPSF
VB75(B)-NF38F	3,07	3,26	1,96	0,7	3/8" NPSF
VB75(B)-12F	3,07	3,26	1,96	0,7	G1/2"
VB110(B)-12F	4,52	4,88	2,48	0,59	G1/2"
VB150-12F	6,1	6,53	3,07	0,55	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 ② ③

① Diameter

- VB20M – 0,86"
- **VB30M** – 1,33"
- VB50M – 2,08"

② Material

- **N** – NBR (VB20M, VB30M, VB50M)
- S – 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)

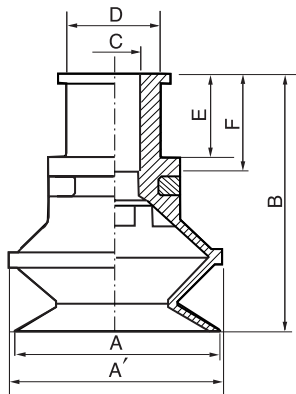
③ Filter

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

Recommended (max.) lifting forces

Model	Volume (inch ³)	Lifting Force (lb.f) –Perpendicular		
		–6 inHg	–18 inHg	–27 inHg
VB20M	0.16	1.54	2.64	3.52
VB30M	0.61	3.3	5.73	8.59
VB50M	1.95	7	17.4	23.14

Dimensional Information



[inch]

Model	A	A'	C	D	E	F	B
VB20M	0,86	0,94	0,23	0,39	0,35	0,41	1,1
VB30M	1,33	1,41	0,33	0,55	0,55	0,62	1,57
VB50M	2,08	2,24	0,49	0,78	0,66	0,78	2,04

SUCTION
CUPS



▲ Plastic pack opening / VTEC Bellows Cup - VB20M

VBF Series (Bellows & Flat)

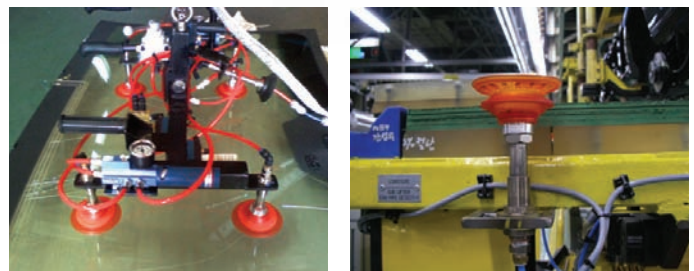
Features and Strengths

- 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 - [] - LN 1230 - BJ12

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 27, 60-65.

① Diameter

VBF30	- 1,26"
VBF40	- 1,65"
VBF50	- 2"
VBF60	- 2,5"
VBF80	- 3,3"
• VBF100	- 4,05"

② Material

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

③ Filter

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

* Available only VBF 60, 80, 100

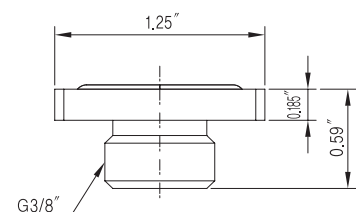
④ Thread Size

18F	- G1/8" female (VBF 30,40,50,60,80,100)
14F	- G1/4" female (VBF 30,40,50,60,80,100)
38F	- G3/8" female (VBF 30,40,50,60,80,100)
• 12F	- G1/2" female (VBF 60,80,100)
14M	- G1/4" male (VBF 30,40,50,60,80,100)
NF18F	- NPSF 1/8" female (VBF 30,40,50,60,80,100)
NF14F	- NPSF 1/4" female (VBF 30,40,50,60,80,100)
NF38F	- NPSF 3/8" female (VBF 30,40,50,60,80,100)
N14M	- NPT 1/4" male (VBF 30,40,50,60,80,100)
M10M	- M10xP1,5 male (VBF 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

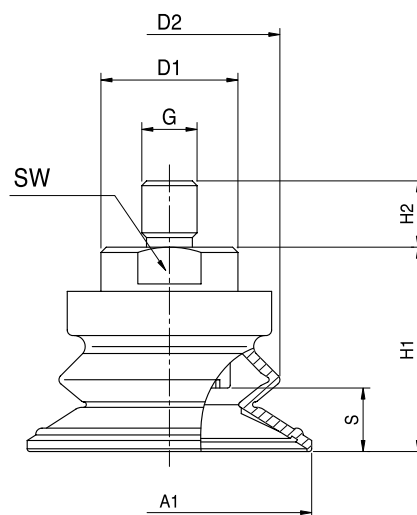
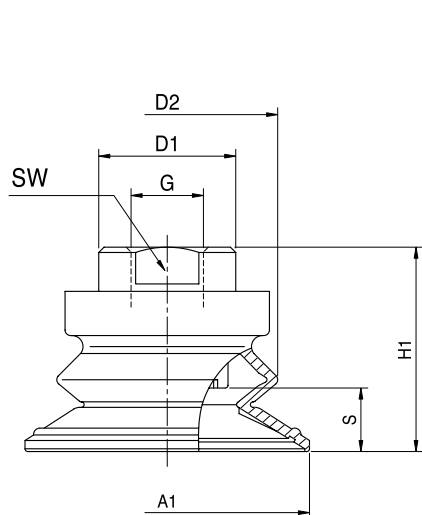
⑥ Level Compensator		⑦ Ball Joint
Level Compensator	Stroke (in)	Ball Joint
LN1805F, L1805M	0.19	BJ N18
LN1810T, LN1810TS, LN1810TSE, LN1810TS-M10F	0.39	
LN1815T, L1815	0.59	
LN1820T, LN1820TS	0.78	
L1830, LN1830T, LN1830TS	1.18	
L1850, LN1850T	1.96	
LN1820TN (Non-rotate)*	0.78	
LN1230, LN1230T	1.18	BJ12
LN1250, LN1250T	1.96	

*Not available with Ball Joint(BJ)..

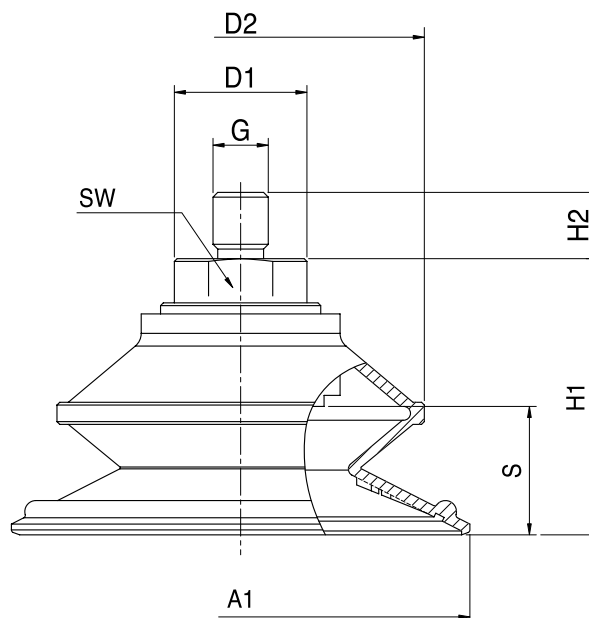
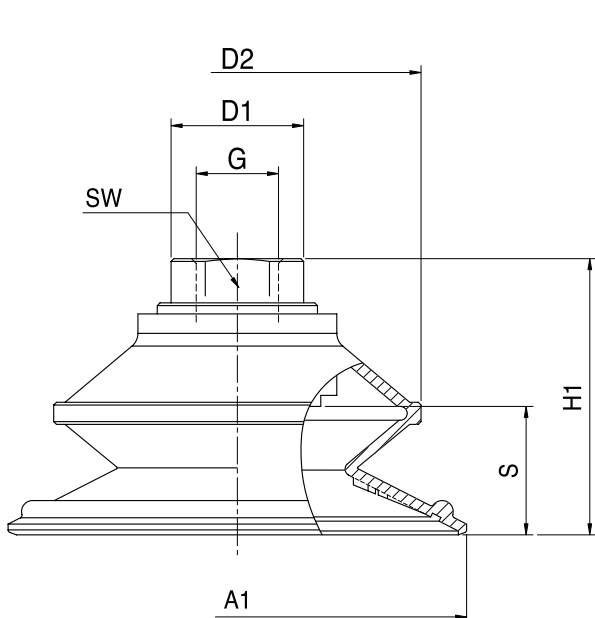
Recommended (max.) lifting force.

Model	Volume (in ³)	Perpendicular Lifting Force (lb.f) at Vacuum level			Parallel Lifting Force (lb.f) at Vacuum level		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VBF 30PU	0.37	3.9	13.8	20.9	1.9	6.8	17.1
VBF 40PU	0.44	5.5	21.3	28.2	2.6	14.3	24.9
VBF 50PU	0.67	9.2	29.1	35.9	4.6	21.6	32.4
VBF 60PU	1.34	19.7	35.8	40.8	15	28.3	37.3
VBF 80PU	3.63	26.2	47.7	54.4	20.1	37.7	49.7
VBF 100PU	6.31	32.8	59.7	68.1	25.1	47.1	62.1

Dimensional information



▲ VBF 30 PU, VBF 40PU, VBF 50PU



▲ VBF 60 PU, VBF 80PU, VBF 100PU

Dimensional information

[Measure unit : inch]

Model	A1	G	H1	H2	SW	S	D12	D2
VBF30PU - 18F	1,26	G1/8" female	1.1	-	0.66	0,27	0.78	1,26
VBF30PU - 14F		G1/4" female	1.1	-	0.66		0.78	
VBF30PU - 38F		G3/8" female	1.73	-	0.66		-	
VBF30PU - 14M		G1/4" male	1.1	0.39	0.66		0.78	
VBF30PU - NF18F		NPSF 1/8" female	1.1	-	0.66		0.78	
VBF30PU - NF14F		NPSF 1/4" female	1.1	-	0.66		0.78	
VBF30PU - NF38F		NPSF 3/8" female	1.73	-	0.66		-	
VBF30PU - N14M		NPT 1/4" male	1.1	0.39	0.66		0.78	
VBF30PU - M10M		M10xP1.5 male	1.1	0.47	0.66		0.78	
VBF40PU - 18F		1,65	G1/8" female	1.14	-		0.66	
VBF40PU - 14F	G1/4" female		1.14	-	0.66	0.78		
VBF40PU - 38F	G3/8" female		1.77	-	0.66	-		
VBF40PU - 14M	G1/4" male		1.14	0.39	0.66	0.78		
VBF40PU - NF18F	NPSF 1/8" female		1.14	-	0.66	0.78		
VBF40PU - NF14F	NPSF 1/4" female		1.14	-	0.66	0.78		
VBF40PU - NF38F	NPSF 3/8" female		1.77	-	0.66	-		
VBF40PU - N14M	NPT 1/4" male		1.14	0.39	0.66	0.78		
VBF40PU - M10M	M10xP1.5 male		1.14	0.47	0.66	0.78		
VBF50PU - 18F	2		G1/8" female	1.45	-	0.86	0,45	0.97
VBF50PU - 14F		G1/4" female	1.45	-	0.86	0.97		
VBF50PU - 38F		G3/8" female	1.45	-	0.86	0.97		
VBF50PU - 14M		G1/4" male	1.45	0.39	0.86	0.97		
VBF50PU - NF18F		NPSF 1/8" female	1.45	-	0.86	0.97		
VBF50PU - NF14F		NPSF 1/4" female	1.45	-	0.86	0.97		
VBF50PU - NF38F		NPSF 3/8" female	2.08	-	0.86	0.97		
VBF50PU - N14M		NPT 1/4" male	1.45	0.39	0.86	0.97		
VBF50PU - M10M		M10xP1.5 male	1.45	0.47	0.86	0.97		
VBF60PU - 18F		2,5	G1/8" female	1.63	-	0.82		0,59
VBF60PU - 14F	G1/4" female		1.63	-	0.82	0.94		
VBF60PU - 38F	G3/8" female		1.63	-	0.82	0.94		
VBF60PU - 12F	G1/2" female		1.63	-	1.02	1.14		
VBF60PU - 14M	G1/4" male		1.63	0.39	0.82	0.94		
VBF60PU - NF18F	NPSF 1/8" female		1.69	-	1.02	1.14		
VBF60PU - NF14F	NPSF 1/4" female		1.69	-	1.02	1.14		
VBF60PU - NF38F	NPSF 3/8" female		1.69	-	1.02	1.14		
VBF60PU - N14M	NPT 1/4" male		1.69	0.39	0.82	0.94		
VBF60PU - M10M	M10xP1.5 male		1.63	0.47	0.82	0.94		
VBF80PU - 18F	3,3	G1/8" female	1.95	-	0.82	0,88	0.94	2,67
VBF80PU - 14F		G1/4" female	1.95	-	0.82		0.94	
VBF80PU - 38F		G3/8" female	1.95	-	0.82		0.94	
VBF80PU - 12F		G1/2" female	1.95	-	1.02		1.14	
VBF80PU - 14M		G1/4" male	1.95	0.39	0.82		0.94	
VBF80PU - NF18F		NPSF 1/8" female	2	-	1.02		0.94	
VBF80PU - NF14F		NPSF 1/4" female	2	-	1.02		1.14	
VBF80PU - NF38F		NPSF 3/8" female	2	-	1.02		1.14	
VBF80PU - N14M		NPT 1/4" male	1.95	0.39	0.82		0.94	
VBF80PU - M10M		M10xP1.5 male	1.95	0.47	0.82		0.94	
VBF100PU - 18F	4,05	G1/8" female	2.16	-	0.86	0,8	0.94	3,26
VBF100PU - 14F		G1/4" female	2.16	-	0.86		0.94	
VBF100PU - 38F		G3/8" female	2.16	-	0.86		0.94	
VBF100PU - 12F		G1/2" female	2.16	-	0.94		1.06	
VBF100PU - 14M		G1/4" male	2.16	10	0.86		0.94	
VBF100PU - NF18F		NPSF 1/8" female	2.22	-	0.94		1.06	
VBF100PU - NF14F		NPSF 1/4" female	2.22	-	0.94		1.06	
VBF100PU - NF38F		NPSF 3/8" female	2.22	-	0.94		1.06	
VBF100PU - N14M		NPT 1/4" male	2.16	0.39	0.86		0.94	

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

- **VBL20** – 0,78"
- VBL30 – 1,18"
- VBL35M – 1,37"
- VBL40 – 1,57"
- VBL50 – 1,96"

② Material

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

④ Thread size

- 18M – G1/8" male (VBL30, VBL40)
- N14M – 1/4" NPT male (VBL30, VBL40, VBL50)
- N38M – 3/8" NPT male (VBL50)
- **M518MF** – M5 female and G1/8" male (VBL20)
- M518MF* – M5 female and G1/8" male (VBL20)
- NF18F – 1/8" NPSF female (VBL20, VBL30, VBL40, VBL50)
- NF18FB* – 1/8" NPSF female (VBL30, VBL40)
- M5X5F – M5X5 female (VBL20)
- NF18X5F – 5X1/8"NPSF female (VBL30, VBL40, VBL50)

▶ See pages 31, 60-65

Remark : VBL30, 40, 50 fittings are including mesh filter material

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)

VOBL 35X90 WS F - 12F

① ② ③

① Material

- N – NBR
- S – Silicon
- **WS** – White 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



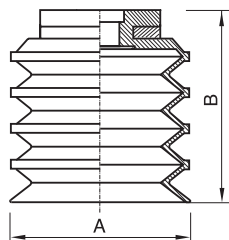
⑥Level compensator	
Model	Stroke (inch)
L510	0,39
• L510T	0,39
L520	0,78
L520T, L520TF	0,78
LN1805F	0,19
L1805M	0,19
LN1810T	0,39
LN1810TS, LN1810TSE	0,39
LN1815T, L1815	0,59
LN1820T, LN1820TS	0,78
LN1820TN	0,78
L1830	1,18
LN1830T, LN1830TS	1,18
L1850	1,97
LN1850T	1,97

Recommended (max.) lifting forces

Model	Volume (in ³)	Lifting Force (lb.f) – Perpendicular 	
		-6 inHg	-18 inHg
VBL20	0,244	0,066	0,132
VBL30	0,793	0,132	0,352
VBL35M	1,281	0,176	0,418
VBL40	1,647	0,24	0,485
VBL50	3,356	0,374	0,947
VOBL35X90	2,624	5,51*	7,05*

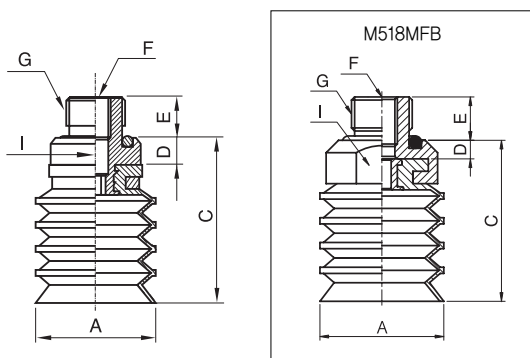
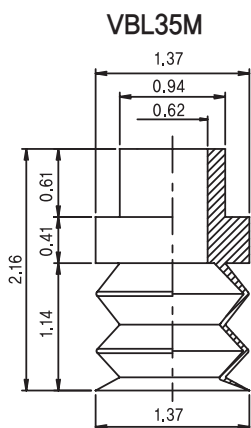
* Lifting force with PE filter

Dimensional Information



◀ VBL20, VBL30, VBL40, VBL50 [inch]

Model	A	B
VBL20	0.78	0.9
VBL30	1.18	1.25
VBL40	1.57	1.65
VBL50	1.96	2.04

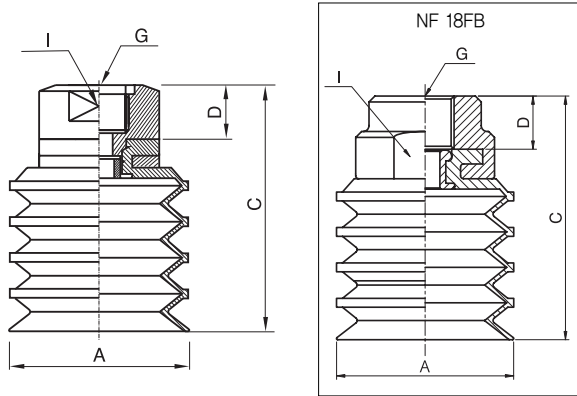


▲ Male thread

Model	A	C	D	E	F	G	I
VBL20-M518MF	0.78	0.96	0.05	0.23	M5	G1/8"	SW0.48
VBL20-M518MFB*	0.78	1.02	0.11	0.27	M5	G1/8"	SW0.62
VBL30-18M	1.18	1.45	0.19	0.27	-	G1/8"	SW0.66
VBL30-N14M	1.18	1.49	0.23	0.35	-	1/4" NPT	SW0.66
VBL40-18M	1.57	1.85	0.19	0.27	-	G1/8"	SW0.66
VBL40-N14M	1.57	1.88	0.23	0.35	-	1/4" NPT	SW0.66
VBL50-N14M	1.96	2.28	0.23	0.35	-	1/4" NPT	SW0.94
VBL50-N38M	1.96	2.28	0.23	0.39	-	3/8" NPT	SW0.94

* Only for silicon material

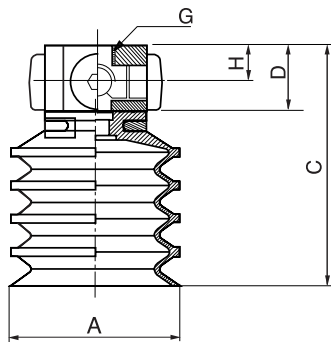
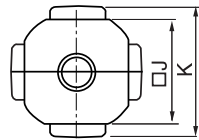
Dimensional Information



Female thread

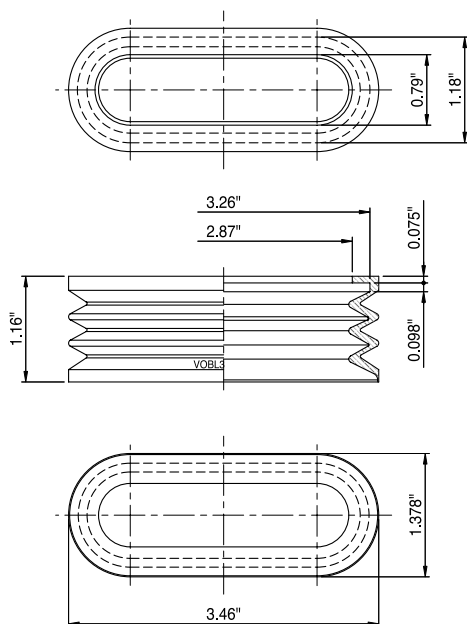
Model	A	C	D	G	I
VBL20-NF18F	0.78	1.22	0.31	1/8" NPSF	0.59
VBL30-NF18F	1.18	1.57	0.31	1/8" NPSF	0.66
VBL30-NF18FB*	1.18	1.61	0.35	1/8" NPSF	0.82
VBL40-NF18F	1.57	1.96	0.31	1/8" NPSF	0.66
VBL40-NF18FB*	1.57	2	0.35	1/8" NPSF	0.82
VBL50-NF18F	1.96	2.36	0.35	1/8" NPSF	0.94

* Only for silicon material

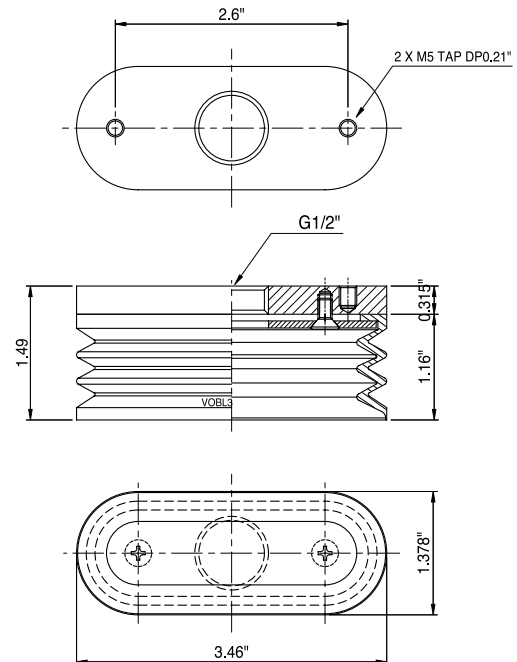


Female thread x 5

Model	A	C	D	G	H	□ J	K
VBL20-M5x5F	0.78	1.25	0.35	M5x5	0.19	0.59	0.86
VBL30-NF18x5F	1.18	1.96	0.7	5X1/8" NPSF	0.39	0.86	1.18
VBL40-NF18x5F	1.57	2.36	0.7	5X1/8" NPSF	0.39	0.86	1.18
VBL50-NF18x5F	1.96	2.75	0.7	5X1/8" NPSF	0.39	1.1	1.41



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** **NF 18F** - **EV** - **LN 1820T** **BJ N18**

① ② ③ ④ ⑤ ⑥

► See pages 35, 60-65.

① Diameter

VU1,5X	– 0,07"
VU2	– 0,1"
VU2X	– 0,1"
VU3	– 0,149"
VU3K	– 0,137"
VU4	– 0,196"
VU4X	– 0,181"
VU6	– 0,275"
VU8	– 0,354"
VU10	– 0,433"
VU15	– 0,649"
VU20	– 0,866"
VU25	– 1,06"
VU30	– 1,259"
• VU40	– 1,653"
VU50	– 2,08"
VU80	– 3,14"

② Material

• N	– NBR
S	– Silicon
WS	– White 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)
N14M	– 1/4" NPT male (VU40, VU50)
N38M	– 3/8" NPT male (VU50)
M5 18MF	– M5 female and G1/8" male (VU20, VU25, VU30)
M5 18MFX*	– M5 female and G1/8" male (VU20, VU25, VU30)
• NF18F	– 1/8" NPSF female (VU30, VU40, VU50, VU80)
NF18FX*	– 1/8" NPSF female (VU40)
M5X5F	– M5X5 female (VU20, VU25, VU30)
NF18X5F	– 5X1/8" NPSF female (VU40, VU50)
8	– 0,31" 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.

LN 1820T BJ N18

⑤ ⑥

⑤ Level compensator		⑥ Ball joint model	
Model	Stroke (in)		
L506TX, L506TS	0.236	-	
L510LTX, L510LTS	0.393		
L507T, L507TN	0.275		
L515T	0.59		
L510, L510T	0.393		
L520, L520T, L520TF	0.787		
LN1805F	0.196		
L525TXN, L525TSN	0.984		
L1805M	0.196		• BJ N18
LN1810T, LN1810TS, LN1810TSE	0.393		
L1815, LN1815T	0.59		
• LN1820T, LN1820TS	0.787		
L1820TN*	0.787		
L1830, LN1830T, LN1830TS	1.181		
L1850, LN1850T	1.968		

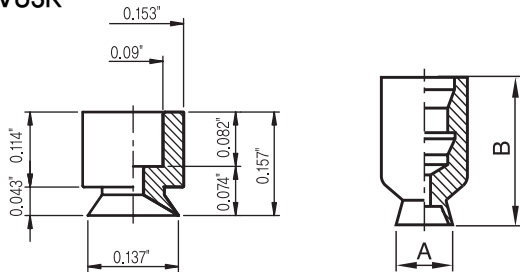
* Not available with Ball Joint(BJ).

Recommended (max.) lifting forces

Model	Volume (inch ³)	Lifting Force (lb.f) – Perpendicular			Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VU1.5X	0,00009	0,0017	0,0066	0,0088			
VU2	0,000152	0,0066	0,022	0,033			
VU2X	0,000183	0,0066	0,022	0,033			
VU3	0,0006	0,0198	0,088	0,132			
VU3K	0,001	0,0308	0,132	0,198			
VU4	0,00183	0,044	0,198	0,286	0,044	0,17	0,22
VU4X	0,00183	0,044	0,198	0,286	0,044	0,17	0,22
VU6	0,003	0,11	0,374	0,55	0,066	0,33	0,44
VU8	0,0061	0,22	0,64	0,858	0,22	0,63	0,74
VU10	0,0122	0,33	0,97	1,54	0,33	0,97	1,1
VU15	0,0305	0,77	1,87	2,46	0,77	1,21	1,32
VU20	0,061	1,32	2,68	3,59	1,32	1,96	2,2
VU25	0,0915	2	4,36	5,51	1,54	2,09	2,31
VU30	0,122	2,68	5,62	6,74	1,74	2,2	2,46
VU40	0,3356	4,49	8,75	11	3,13	4,93	6,17
VU50	0,732	7,87	16,4	20,67	4,49	8,31	9,87
VU80	1,95	17,1	43,65	55,57	9,98	27,9	37,34

Dimensional Information

VU3K



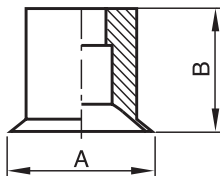
◀ VU1.5X, VU2X, VU4X

[inch]

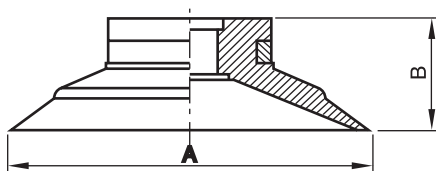
Model	A	B
VU1.5X	0.074	0.472
VU2X	0.102	0.472
VU4X	0.181	0.472

◀ VU2, 3, 4, 6, 8, 10, 15

[inch]



Model	A	B
VU2	0.102	0.137
VU3	0.149	0.177
VU4	0.196	0.24
VU6	0.275	0.255
VU8	0.354	0.275
VU10	0.433	0.413
VU15	0.649	0.433

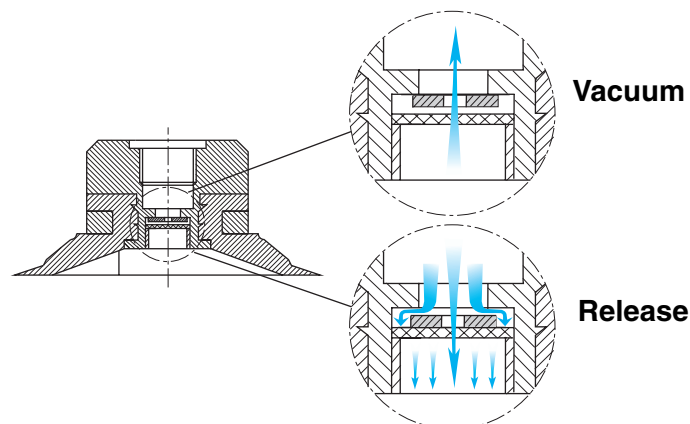


◀ VU20, 30, 40, 50

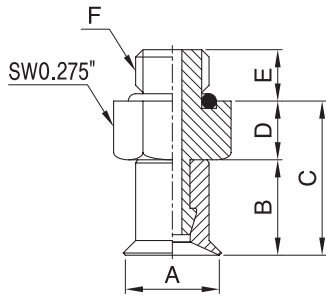
[inch]

Model	A	B
VU20	0.866	0.314
VU25	1.062	0.354
VU30	1.259	0.374
VU40	1.653	0.511
VU50	2.086	0.688

Vacuum Efficiency Valve



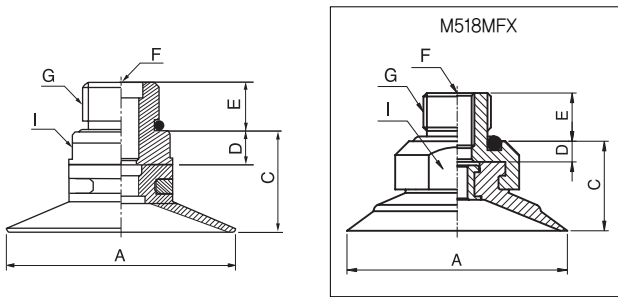
Dimensional Information



◀ Male thread

[inch]

Model	A	B	C	D	E	F
VU2-M2.5M or M5M	0.102	0.137	0.24/0.31	0.098/0.18	0.118/0.165	M2.5 or M5
VU3-M2.5M or M5M	0.149	0.177	0.275/0.358	0.098/0.18	0.118/0.165	M2.5 or M5
VU4-M5M	0.196	0.24	0.397	0.157	0.137	M5
VU6-M5M	0.275	0.255	0.413	0.157	0.137	M5
VU8-M5M	0.354	0.275	0.433	0.157	0.137	M5
VU10-M5M	0.433	0.413	0.61	0.196	0.137	M5
VU15-M5M	0.649	0.452	0.629	0.196	0.137	M5

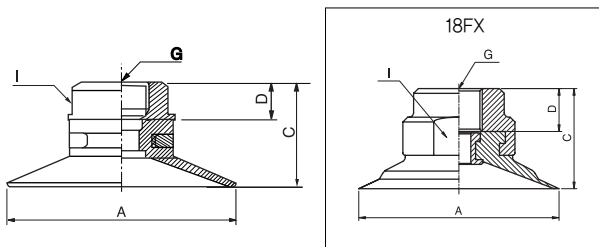


◀ Male thread

[inch]

Model	A	C	D	E	F	G	I
VU20-M518MF	0.866	0.374	0.059	0.236	M5	G1/8"	SW0.472
VU20-M518MFX*	0.866	0.433	0.0118	0.275	M5	G1/8"	SW0.629
VU25-M518MF	1.06	0.413	0.059	0.236	M5	G1/8"	SW0.472
VU25-M518MFX*	1.06	0.472	0.118	0.275	M5	G1/8"	SW0.629
VU30-M518MF	1.25	0.433	0.059	0.236	M5	G1/8"	SW0.472
VU30-M518MFX*	1.25	0.492	0.118	0.275	M5	G1/8"	SW0.629
VU40-18M	1.65	0.7	0.196	0.275	-	G1/8"	SW0.669
VU40-N14M	1.65	0.748	0.236	0.354	-	1/4" NPT	SW0.669
VU50-N14M	2.08	0.925	0.236	0.354	-	1/4" NPT	SW0.944
VU50-N38M	2.08	0.925	0.236	0.393	-	3/8" NPT	SW0.944

* For silicone material

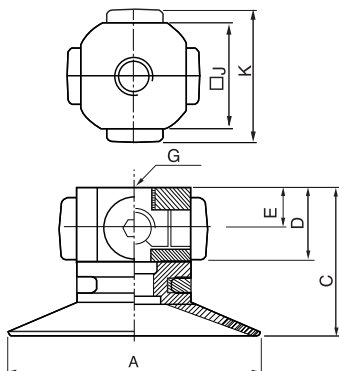
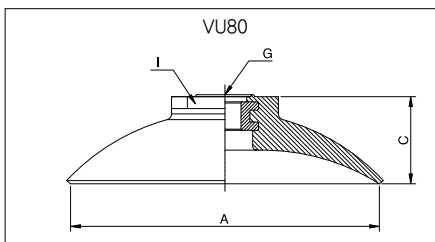


◀ Female thread

[inch]

Model	A	C	D	G	I
VU20-NF18F	0.866	0.629	0.314	1/8" NPSF	SW0.59
VU25-NF18F	1.062	0.669	0.314	1/8" NPSF	SW0.59
VU30-NF18F	1.259	0.688	0.314	1/8" NPSF	SW0.59
VU40-NF18F	1.653	0.826	0.314	1/8" NPSF	SW0.669
VU40-NF18FX*	1.653	0.866	0.354	1/8" NPSF	SW0.826
VU50-NF18F	2.086	1.043	0.354	1/8" NPSF	SW0.944
VU80-NF18F	3.07	0.846	-	1/8" NPSF	SW0.748
VU80-8	3.07	0.846	-	0.314 HOLE	SW0.748

* For silicone material



◀ Female thread X5

[inch]

Model	A	C	D	E	G	□J	K
VU25-M5X5F	0.866	0.669	0.354	0.196	M5X5	0.59	0.866
VU20-M5X5F	1.062	0.708	0.354	0.196	M5X5	0.59	0.866
VU30-M5X5F	1.259	0.728	0.354	0.196	M5X5	0.59	0.866
VU40-NF18X5F	1.653	1.22	0.71	0.393	5X1/8" NPSF	0.866	1.18
VU50-NF18X5F	2.086	1.397	0.71	0.393	5X1/8" NPSF	1.1	1.41

VF Series (Flat)

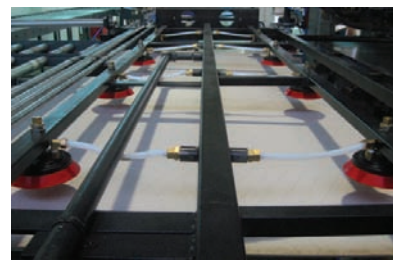
Features and Strengths

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 - NF 18F
BV - LN 1820T
BJN 18

①
②
③
④
⑤
⑥

▶ See pages 39, 60-65.

① Diameter

VF15	- 0,649"
VF20	- 0,866"
VF25	- 1,06"
VF30	- 1,25"
• VF40	- 1,65"
VF50	- 2,08"
VF50X2	- 2,08"
VF75	- 3,03"
VF90*	- 3,62"
VF110	- 4,4"
VF150	- 5,98"
VF200	- 7,87"
VF300	- 11,96"

*Only PU Material

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
CS	- Conductive (Special mat 1)
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)
N14M	- 1/4" NPT male (VF40, VF50)
N38M	- 3/8" NPT 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)
• NF18F(A)	- 1/8" NPSF female (VF20, VF25, VF30, VF40, VF50, VF75, VF90)
NF18FX*	- 1/8" NPSF female (VF40)
NF14F(A)	- 1/4" NPSF" female (VF75, VF90)
NF38F(A)	- 3/8" NPSF female (VF75, VF90)
12F(A)	- G1/2" female (VF75, VF90, VF110, VF150, VF200)
M5X5F	- M5X5 female (VF20, VF25, VF30)
NF18X5F	- 5X1/8" NPSF 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.

LN 1820T BJ N18

⑤

⑥

⑤ Level compensator		⑥ Ball joint model	
Model	Stroke (in)		
L506TX, L506TS	0,236	-	
L510LTX, L510LTS	0,393		
L507T, L507TN	0,275		
L515T	0,59		
L510, L510T	0,393		
L520, L520T, L520TF	0,787		
LN1805F	0,196		
L525TSN	0,984		
L1805M	0,196		• BJ N18
LN1810T, LN1810TS, LN1810TSE	0,393		
L1815, LN1815T	0,59		
• LN1820T, LN1820TS	0,787		
LN1820TN*	0,787		
L1830, LN1830T, LN1830TS	1,181		
L1850, LN1850T	1,968	BJ 12	
LN1230, LN1230T	1,181		
LN1250, LN1250T	1,968		

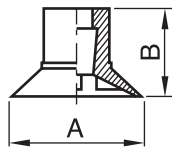
Remark : When apply level compensator into VF300, Use 1/2" level compensator 2pcs or 4pcs
 *Not available with ball joint(BJ)..

SUCTION CUPS

Recommended (max.) lifting forces

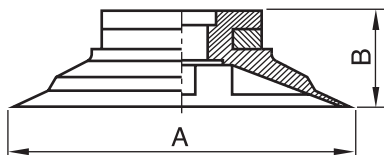
Model	Volume (inch ³)	Lifting Force (lb.f) – Perpendicular			Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VF15	0,024	0,771	1,895	2,469	0,771	1,455	1,67
VF20	0,061	1,344	3,24	4,254	1,124	1,785	1,895
VF25	0,067	2	4,365	5,621	1,785	2	2,248
VF30	0,122	2,689	5,621	6,966	2,469	3,593	4,497
VF40	0,292	4,497	8,99	11,243	3,373	5,62	6,746
VF50	0,61	8,09	16,64	21,583	5,379	8,99	11,243
VF50x2	0,61	8,09	16,64	21,583	5,379	8,99	11,243
VF75	1,22	17,989	44,97	60,737	13,49	24,73	31,48
VF90	3,05	22,487	61,35	82,474	19,48	35,22	43,475
VF110	4,27	31,482	93,87	125,97	31,48	56,23	67,48
VF150	9,76	67,483	191,2	247,4	56,239	134,96	179,96
VF200	28	168,71	427,4	607,39	84,43	213,62	303,1
VF300	50	359,35	965,62	1439,6	297,6	676,8	1049,4

Dimensional Information including



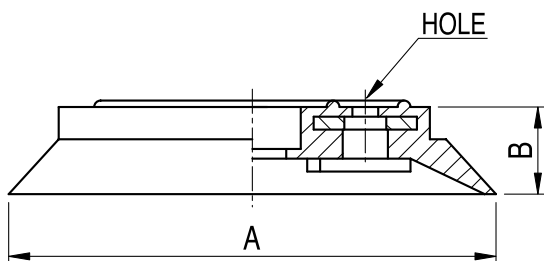
◀ VF15 [inch]

Model	A	B
VF15	0.649	0.433



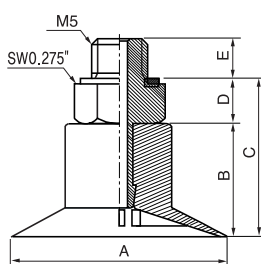
◀ VF20, 25, 30, 40, 50 [inch]

Model	A	B
VF20	0.866	0.314
VF25	1.062	0.354
VF30	1.259	0.393
VF40	1.653	0.511
VF50	2.086	0.688



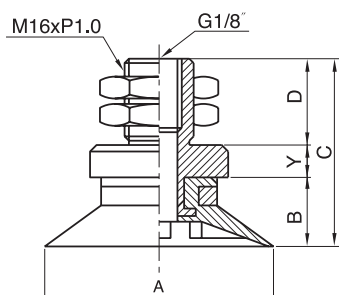
◀ VF75, 90, 110, 150, 200 [inch]

Model	A	B	HOLE
VF75	3.031	0.511	4- \varnothing 6.5 P.C.D \varnothing 35
VF90	3.622	0.492	4- \varnothing 6.5 P.C.D \varnothing 35
VF110	4.409	0.787	8- \varnothing 6 P.C.D \varnothing 55
VF150	5.984	1.023	8- \varnothing 6 P.C.D \varnothing 70.5
VF200	7.874	1.614	-



◀ Male thread [inch]

Model	A	B	C	D	E
VF15-M5-M	0,649	0,433	0,629	0,196	0,137



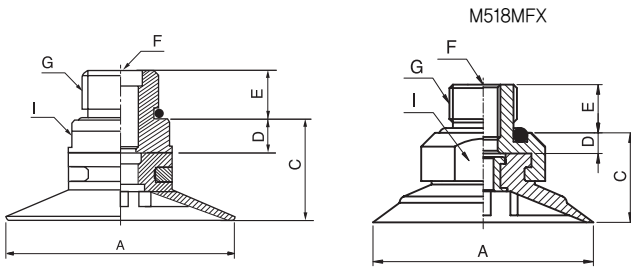
◀ Male / Female thread [inch]

Model	A	Y	B	C	D
VF50x2	2,086	0,295	0,688	1,712	0,787

Dimensional Information

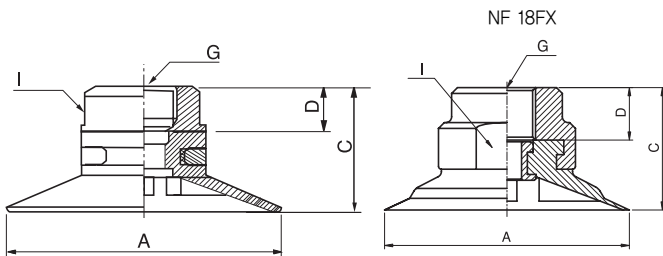
◀ Male/Female thread

[inch]



Model	A	C	D	E	F	G	I
VF20-M518MF	0,866	0,374	0,059	0,236	M5	G1/8"	SW0,472
VF20-M518MFX*	0,866	0,433	0,118	0,275	M5	G1/8"	SW0,629
VF25-M518MF	1,062	0,413	0,059	0,236	M5	G1/8"	SW0,472
VF25-M518MFX*	1,062	0,472	0,118	0,275	M5	G1/8"	SW0,629
VF30-M518MF	1,259	0,452	0,059	0,236	M5	G1/8"	SW0,472
VF30-M518MFX*	1,259	0,511	0,118	0,275	M5	G1/8"	SW0,629
VF40-18M	1,653	0,708	0,196	0,275	-	G1/8"	SW0,669
VF40-N14M	1,653	0,748	0,236	0,354	-	1/4" NPT	SW0,669
VF50-N14M	2,086	0,885	0,236	0,393	-	1/4" NPT	SW0,944
VF50-N38M	2,086	0,925	0,236	0,393	-	3/8" NPT	SW0,944

*For silicone material

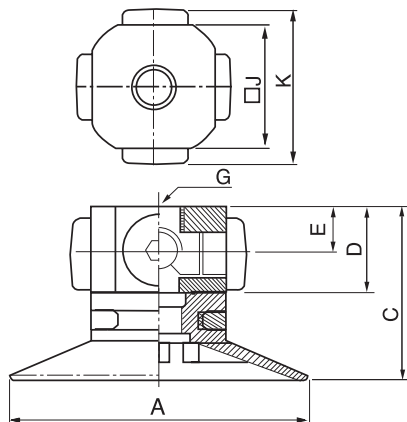


◀ Female thread

[inch]

Model	A	C	D	G	I
VF20-NF18F	0,866	0,629	0,314	1/8" NPSF	SW0,59
VF25-NF18F	1,062	0,669	0,314	1/8" NPSF	SW0,59
VF30-NF18F	1,259	0,708	0,314	1/8" NPSF	SW0,59
VF40-NF18F	1,653	0,826	0,314	1/8" NPSF	SW0,669
VF40-NF18FX*	1,653	0,866	0,354	1/8" NPSF	SW0,826
VF50-NF18F	2,086	1,043	0,354	1/8" NPSF	SW0,826

* For silicone material

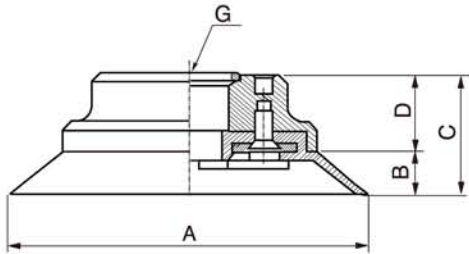


◀ Female thread

[inch]

Model	A	C	D	E	G	□J	K
VF20-M5X5F	0,866	0,669	0,354	0,196	M5x5	0,59	0,866
VF25-M5X5F	1,062	0,708	0,354	0,196	M5x5	0,59	0,866
VF30-M5X5F	1,259	0,748	0,354	0,196	M5x5	0,59	0,866
VF40-NF18X5F	1,653	1,22	0,708	0,393	5x1/8" NPSF	0,866	1,18
VF50-NF18X5F	2,086	1,397	0,708	0,393	5x1/8" NPSF	1,1	1,417

Dimensional Information

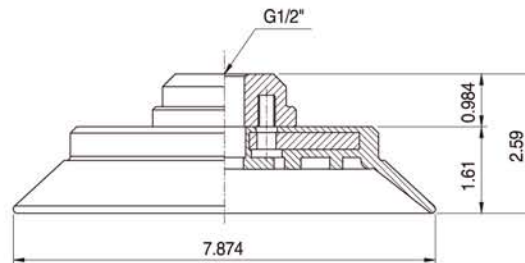


Female thread

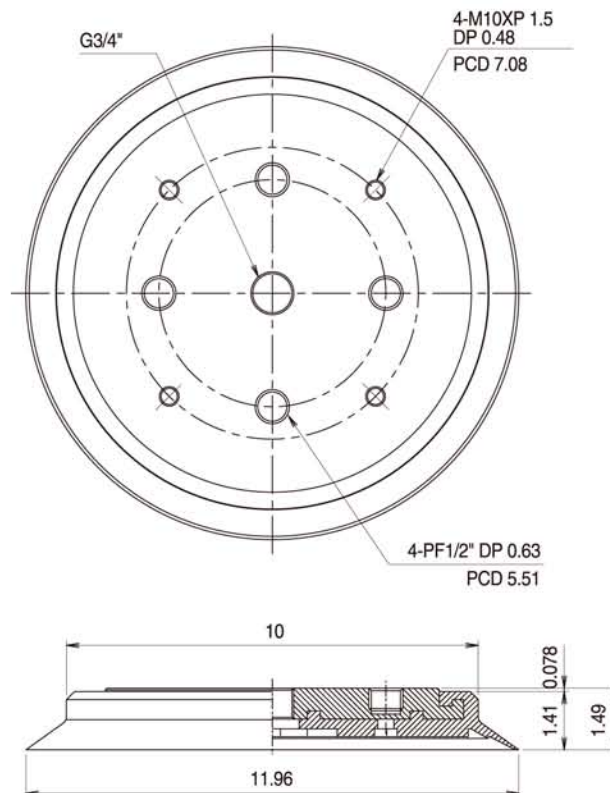
[inch]

Model	A	B	C	D	G
VF75-NF18F	3.031	0.314	1.02	0.708	1/8" NPSF
VF75-NF14F	3.031	0.314	1.02	0.708	1/4" NPSF
VF75-NF38F	3.031	0.314	1.02	0.708	3/8" NPSF
VF75-12F	3.031	0.314	1.02	0.708	G1/2"
VF90-NF18F	3.622	0.295	1	0.708	1/8" NPSF
VF90-NF14F	3.622	0.295	1	0.708	1/4" NPSF
VF90-NF38F	3.622	0.295	1	0.708	3/8" NPSF
VF90-12F	3.622	0.295	1	0.708	G1/2"
VF110-12F	4.4	0.551	1.14	0.59	G1/2"
VF150-12F	5.984	0.748	1.29	0.551	G1/2"

VF200-12F



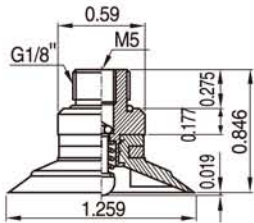
VF300-34F



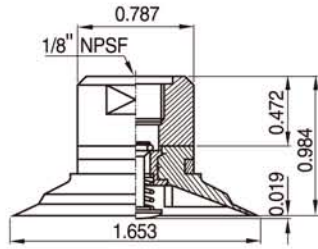
[Measure unit : inch]

Dimensional Information including button valve

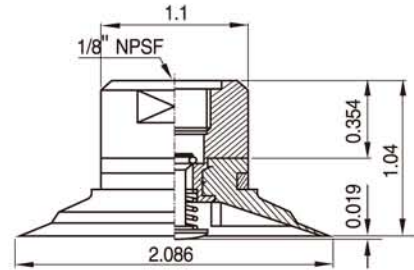
VF30-BV



VF40-BV

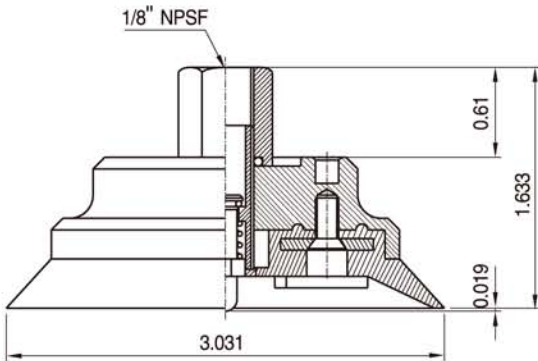


VF50-BV

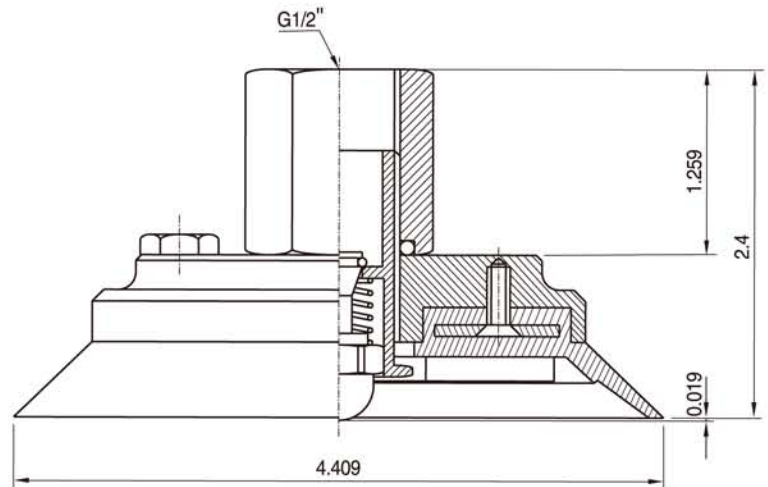


[Measure unit : inch]

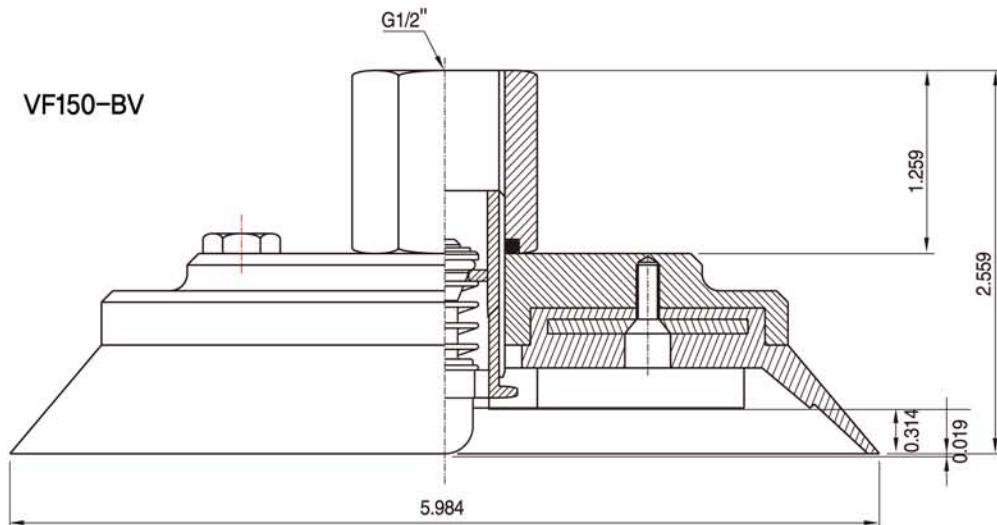
VF75-BV



VF110-BV



VF150-BV



[Measure unit : inch]

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 PU - N 1838MF - LN 1820T BJ N18

①

②

③

④

⑤

► See pages 45, 60-65.

① Diameter

• VFC50	– 1,96"
VFC60	– 2,36"
VFC60X1	– 2,36"
VFC75	– 2,95"
VFC75X1	– 2,95"
VFC75X2	– 2,95"
VFC90*	– 3,54"
VFC100	– 3,43"

*Only for PU Material

② Material

N	– NBR
S	– Silicon
WS	– White 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)
• N1838MF	– 1/8" NPSF female and 3/8" NPT male (VFC50, VFC60, VFC75)
NF18F(A)	– 1/8" NPSF female (VFC90, VFC100)
NF14F(A)	– 1/4" NPSF (VFC90, VFC100)
NF38F(A)	– 3/8" NPSF female (VFC90, VFC100)
12F(A)	– G1/2" female (VFC90, VFC100)

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

Accessories order No.

LN 1820T BJ N18

④

⑤

④ Level compensator		⑤ Ball joint model
Model	Stroke (in)	
L1805M	0.197	• BJ N18
LN1810T	0.393	
LN1810TS, LN1810TSE	0.393	
LN1815T, L1815	0.59	
• LN1820T, LN1820TS	0.787	
LN1820TN*	0.787	
L1830	1.181	
LN1830T, LN1830TS	1.181	
L1850	1.968	
LN1850T	1.968	
LN1230	1.181	BJ 12
LN1230T	1.181	
LN1250	1.968	
LN1250T	1.968	

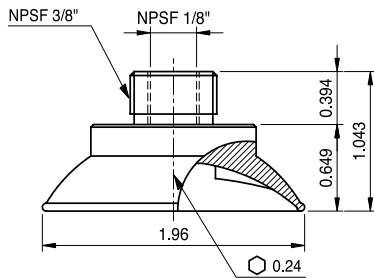
* Not available with ball joint(BJ)

SUCTION CUPS

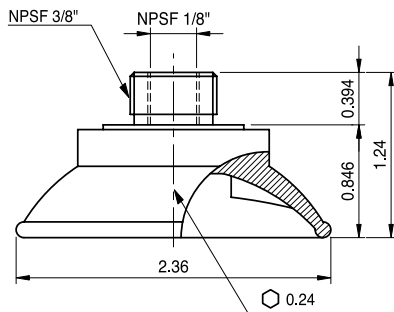
Recommended (max.) lifting forces

Model	Volume (inch ³)	Lifting Force (lb.f) – Perpendicular			Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VFC50	0.61	7.871	19.114	28.109	7.871	19.114	24.736
VFC60	1.22	12.125	30.865	40.786	11.905	30.865	41.667
VFC60X1	1.22	12.125	30.865	40.786	11.905	30.865	41.667
VFC75	1.83	16.865	42.726	56.240	17.990	44.974	60.737
VFC75X1	1.83	16.865	42.726	56.240	17.990	44.974	60.737
VFC75X2	1.83	16.865	42.726	56.240	17.990	44.974	60.737
VFC90	3.66	20.613	54.719	71.981	20.988	47.598	61.487
VFC100	4.88	28.109	78.727	103.463	26.985	47.598	62.986

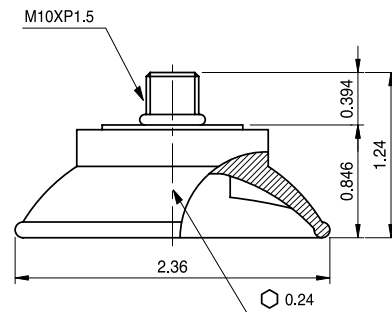
Dimensional Information



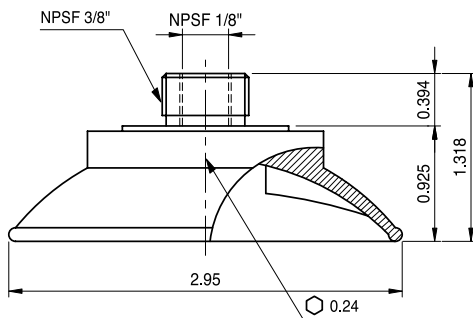
VFC50-NF1838MF



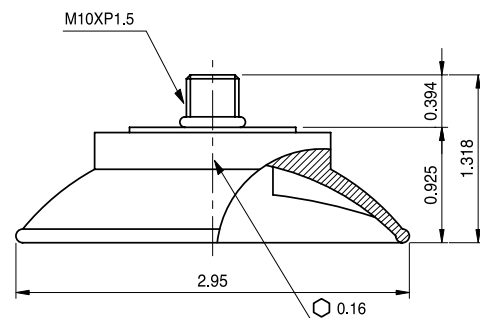
VFC60-NF1838MF



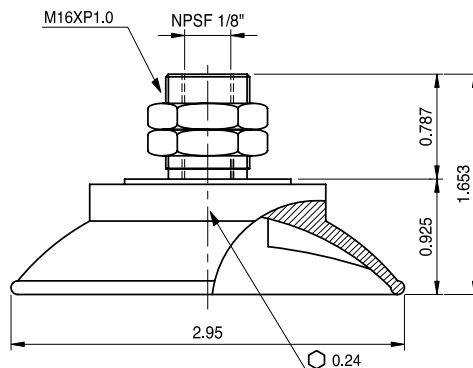
VFC60 X 1



VFC75-NF1838MF



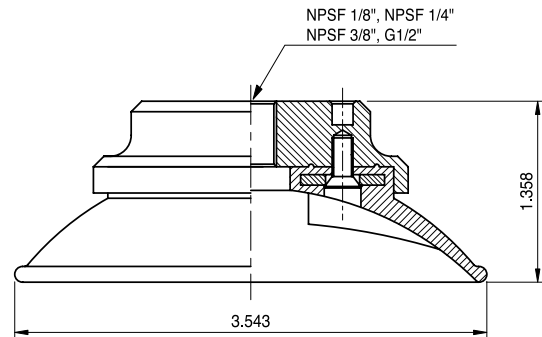
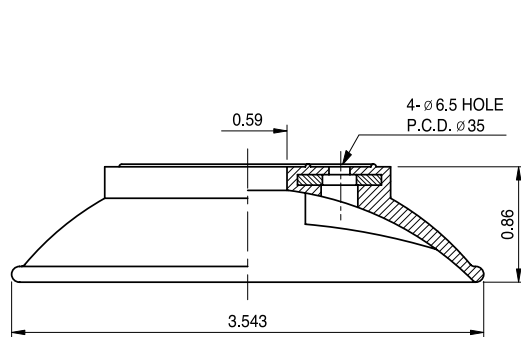
VFC75 X 1



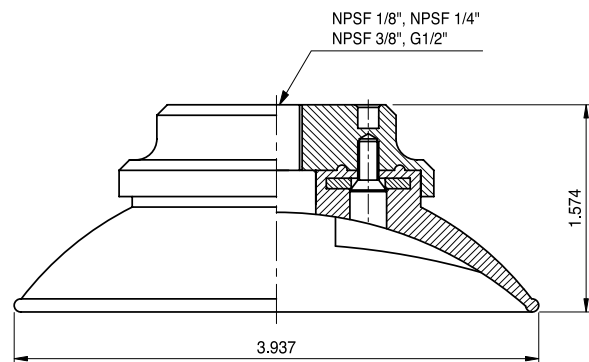
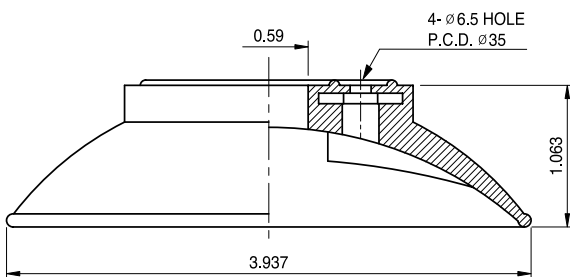
VFC75 X 2

[Measure unit : inch]

Dimensional Information



VFC90



VFC100

[Measure unit : inch]

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 - NF 18F - LN 1820T BJ N18



▶ See pages 60-65.

① Diameter

VD30	- 1,18"
VD40	- 1,57"
• VD50	- 1,96"
VD60	- 2,4"
VD70*	- 2,83"
VD85	- 3,34"
VD85X	- 3,46"
VD90F*	- 3,5"

*Only for PU material

② Material

N	- NBR
S	- Silicon
WS	- White 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)
• NF18F	- 1/8" NPSF female (VD30, VD40, VD50, VD60, VD70, VD85, VD90F)
NF14F	- 1/4" NPSF female (VD90F)
NF38F	- 3/8" NPSF female (VD90F)
12F	- G1/2" female (VD85, VD90F)
H19	- 0.748" Hole (VD90F)

Accessories order No.



LN 1820T BJ N18



④ Level compensator		⑤ Ball joint model
Model	Stroke (in)	
L1805M	0,197	• BJ N18
LN1810T, LN1810TS, LN1810TSE	0,394	
LN1815T, L1815	0,59	
• LN1820T, LN1820TS	0,787	
LN1820TN*	0,787	
L1830, LN1830T, LN1830TS	1,181	
L1850, LN1850T	1,968	
LN1230, LN1230T	1,181	BJ 12
LN1250, LN1250T	1,968	

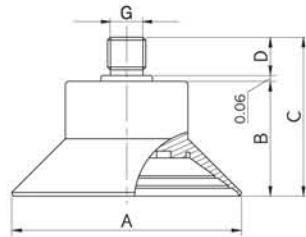
* Not available with ball joint(BJ)

Recommended (max.) lifting forces

Model	Volume (inch ³)	Lifting Force (lb.f) - Perpendicular 			Lifting Force (lb.f) - Parallel 		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VD30	0.27	2.68	5.62	6.74	1.609	3.37	4.03
VD40	0.42	4.49	8.75	11.02	2.68	5.24	6.61
VD50	0.82	7.87	16.4	20.67	4.71	9.83	12.38
VD60	1.34	12.12	30.86	40.78	7.27	18.5	24.47
VD70	2.31	15.76	41.44	54.89	9.25	25.57	35.71
VD85	3.66	22.04	61.72	85.98	13.22	37	51.58
VD85X	4.14	22.04	61.72	85.98	13.22	37	51.58
VD90F	3.41	20.39	53.7	70.9	17.57	31.79	40

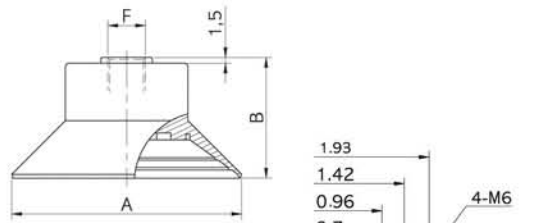
SUCTION CUPS

Dimensional information



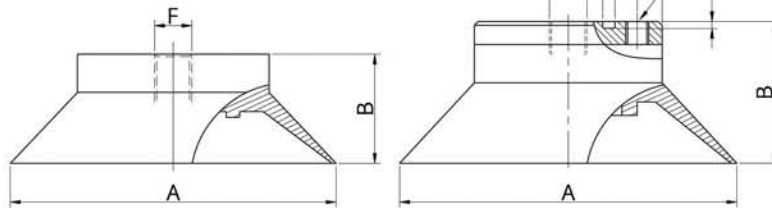
Male thread

Model	A	B	C	D	G
VD30	1.181	0.984	1.378	0.394	M8xP1.25 or M10xP1.5
VD40	1.575	0.984	1.378	0.394	M8xP1.25 or M10xP1.5
VD50	1.969	0.984	1.378	0.394	M8xP1.25 or M10xP1.5
VD60	2.402	1.181	1.634	0.394	M8xP1.25 or M10xP1.5
VD70	2.835	1.181	1.634	0.394	M8xP1.25 or M10xP1.5
VD85	3.346	1.122	1.516	0.394	M8xP1.25 or M10xP1.5



Female thread

Model	ØA	B	F
VD30	1.181	0.984	1/8" NPSF
VD40	1.575	0.984	1/8" NPSF
VD50	1.969	0.984	1/8" NPSF
VD60	2.402	1.181	1/8" NPSF
VD70	2.835	1.181	1/8" NPSF

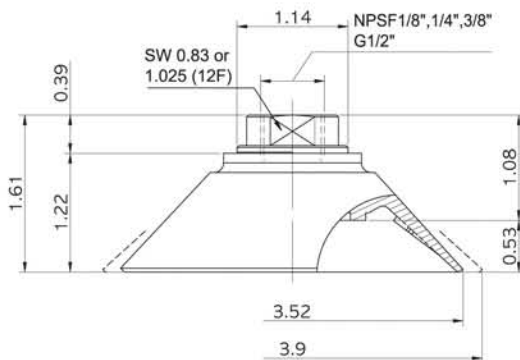


▲ VD 85

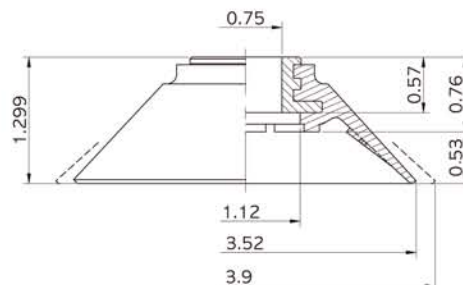
▲ VD 85X

Female thread

Model	ØA	B	F
VD85	3.346	1.122	1/8" NPSF, G1/2"
VD85X	3.346	1.457	1/8" NPSF



▲ VD90F - NF18F, NF14F, NF38F, 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** - **NF18F** **BV** - **LN 1820T** **BJ** **N18**

① ② ③ ④ ⑤ ⑥ ⑦

► See pages 60-65.

① Diameter

VS35	- 1.37"
• VS60	- 2.36"
VS100	- 3.93"
VS150	- 5.9"
VS200	- 7.87"
VS300	- 11.81"
VS400	- 15.74"

② Material

- **E** - EPDM

④ Thread size

- **NF18F** - 1/8"NPSF female (VS35, VS60)
- 12F - G1/2" female (VS100, VS150, VS200)
- 34F - G3/4" female (VS200, VS300, VS400)

③ Adjustable support (Handling for thin Film)

- no mark - standard
- **F** - with adjustable* support (See page : 17)

⑤ Valves

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

* Not available with BV (Button valve)option

Accessories order No.

LN 1820T BJ N18

⑥ ⑦

⑥ Level Compensator		⑦ Ball joint model
Model	Stroke (in)	
L1805M	0,197	• BJ N18
LN1810T, LN1810TS, LN1810TSE	0,394	
LN1815T, L1815	0,59	
• LN1820T, LN1820TS	0,787	
LN1820TN*	0,787	
L1830, LN1830T, LN1830TS	1,181	
L1850, LN1850T	1,968	
LN1230, LN1230T	1,181	BJ12
LN1250, LN1250T	1,968	

*Not available with ball joint(BJ)

Recommended (max.) lifting forces

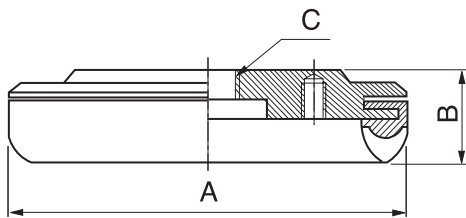
Model	Volume (in ³)	Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg
VS35	0,36	4,497	11,244	15,741
VS60	1,22	13,492	33,731	49,472
VS100	3,35	40,477	101,192	148,459
VS150	7,62	83,776	213,848	304,238
VS200	33,1	168,720	427,410	607,396
VS300	78,4	359,927	967,322	1439,751
VS400	139,4	718,707	1931,250	2866,010

SUCTION CUPS

Dimensional Information

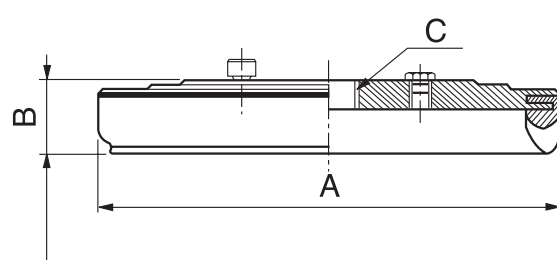
Female thread

VS35, 60, 100, 150



Model	A	B	C
VS35	1,673	0,610	1/8" NPSF
VS60	2,657	0,610	1/8" NPSF
VS100	4,232	0,768	G1/2"
VS150	6,201	0,768	G1/2"

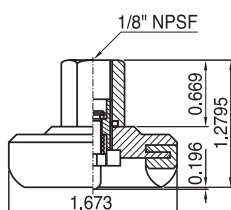
VS200, 300, 400



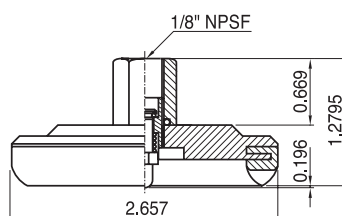
Model	A	B	C
VS200	8,465	1,339	G1/2", G3/4"
VS300	12,402	1,339	G3/4"
VS400	16,339	1,339	G3/4"

Button valve dimensional Information

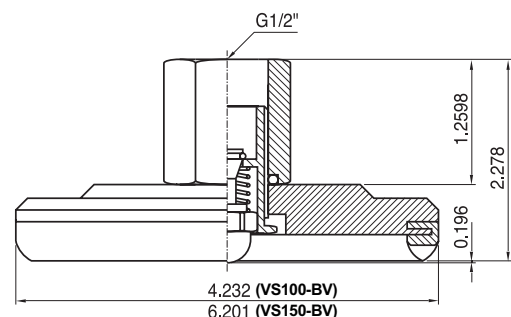
VS35-BV



VS60-BV



VS100-BV
VS150-BV



[Measure unit : inch]

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 NF 18F - LN 1820TN

① ② ③ ④ ⑤ ▶ See pages 60-65.

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

③ Filter

- No Mark - Standard
- F* - With mesh filter

*Only for VOU 15x45
VOU 20x60

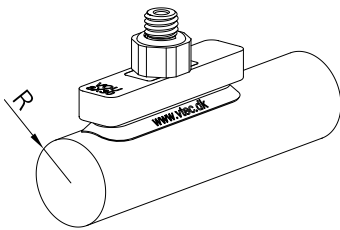
④ Fitting thread

- | | |
|-----------------------------|----------------------------|
| M5M - M5 X 0,8 Male | VOU 4x10, 4x20, 6x10, 6x20 |
| M5F - M5 X 0,8 Female | 8x20, 8x30 |
| 18M - G1/8" Male | 10x30 |
| • NF 18F - 1/8" NPSF Female | VOU 15x145, 20x60 |

⑤ Level Compensator (Accessory)

- | | |
|-----------------------|---|
| L507TN | - VOU 4x10, 4x20, 6x10, 6x20
8x20, 8x30, 10x30 |
| • L1820TN
LN1820TN | - VOU 15x45, 20x60 |

Recommended (max.) lifting forces

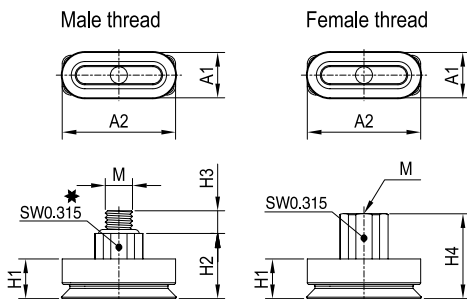


Model	Lifting Force (lb.f) -Perpendicular	Internal volume (inch ³)	Min.curvature radius R (inch)	Weight ≐ (oz.)
VOU 4X10 -...	0.452	0.0039	0.138	0.011
VOU 4X20 -...	0.765	0.0057	0.138	0.012
VOU 6X10 -...	0.564	0.0049	0.177	0.011
VOU 6X20 -...	1.329	0.0083	0.177	0.013
VOU 8X20 -...	1.803	0.01	0.256	0.013
VOU 8X30 -...	2.321	0.015	0.256	0.015
VOU 10X30-...	3.425	0.024	0.315	0.016
VOU 15X45 -...	7.211	0.096	0.433	0.776
VOU 20X60 -...	14	0.215	0.669	1.093

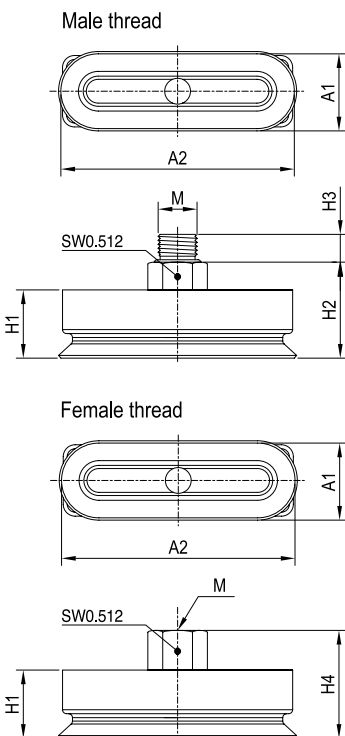
SUCTION CUPS

Dimensional information

▼ VOU 4X10 ~ 8X30



▼ VOU 15X45, 20X60



Model	A1	A2	H1	H2	H3	H4	M
VOU 4 x 10..M5M	0.157	0.393	0.275	0.453	0.157	-	M5 x 0.8
VOU 4 x 10..M5F				-	-	0.59	M5 x 0.8
VOU 4 x 20..M5M	0.157	0.787	0.275	0.453	0.157	-	M5 x 0.8
VOU 4 x 20..M5F				-	-	0.59	M5 x 0.8
VOU 6 x 10..M5M	0.236	0.393	0.275	0.453	0.157	-	M5 x 0.8
VOU 6 x 10..M5F				-	-	0.59	M5 x 0.8
VOU 6 x 20..M5M	0.236	0.787	0.275	0.453	0.157	-	M5 x 0.8
VOU 6 x 20..M5F				-	-	0.59	M5 x 0.8
VOU 8 x 20..M5M	0.314	0.787	0.275	0.453	0.157	-	M5 x 0.8
VOU 8 x 20..M5F				-	-	0.59	M5 x 0.8
VOU 8 x 30..M5M	0.314	1.181	0.275	0.453	0.157	-	M5 x 0.8
VOU 8 x 30..M5F				-	-	0.59	M5 x 0.8
VOU 10 x 30..M5M	0.394	1.181	0.322	0.5	0.157	-	M5 x 0.8
VOU 10 x 30..M5F				-	-	0.64	M5 x 0.8
VOU 15 x 45..18M	0.59	1.771	0.61	0.9	0.275	-	G1/8"
VOU 15 x 45..NF18F				-	-	0.637	1/8" NPSF
VOU 20 x 60..18M	0.787	2.362	0.688	0.984	0.275	-	G1/8"
VOU 20 x 60..NF18F				-	-	0.637	1/8" NPSF

VOC Series (Oval Curved)

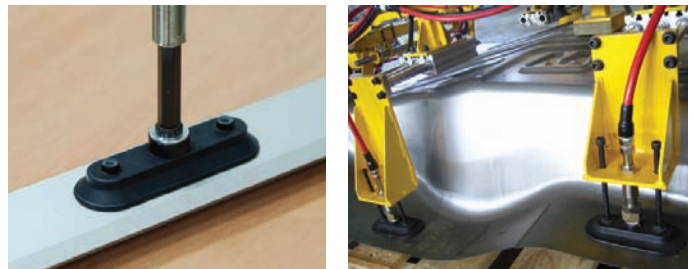
Features and Strengths

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 - NF 38F

①

②

③

① Diameter(inch)

VOC11x23	- 0,483 x 0,905
• VOC35x90	- 1,378 x 3,54
VOC35x110	- 1,378 x 4,33
VOC60x140	- 2,362 x 5,51
VOC60x180	- 2,362 x 7,086

② Material

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

③ Thread size

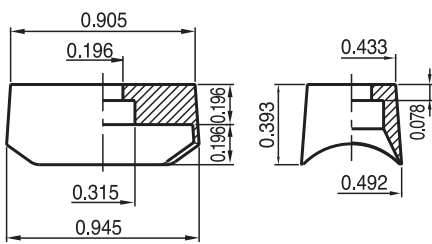
• NF38F	- 3/8"NPSF female
	(VOC35X90,35X110
	VOC60X140, 60X180

Recommended (max.) lifting forces

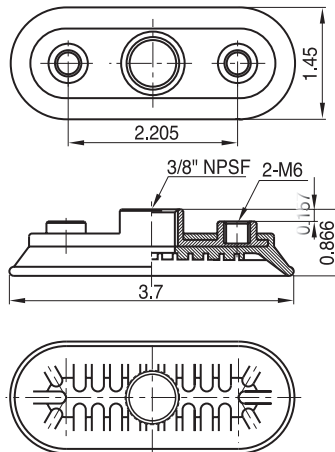
Model	Volume (inch ³)	Lifting Force (lb.f) - Perpendicular			Lifting Force (lb.f) - Perpendicular		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VOC 11 X 23	0,122	1,34	2,866	3,52	1,32	2,645	3,3
VOC 35 X 90	1,22	11,02	29,54	38,36	15,2	36,15	46,29
VOC 35 X 110	1,53	13,77	36,8	47,84	18,95	45,19	57,32
VOC 60 X 140	3,17	29,54	83,7	116,8	41,66	83,77	114,6
VOC 60 X 180	4,08	42,1	119,4	166,88	59,5	119,4	163

Dimensional Information

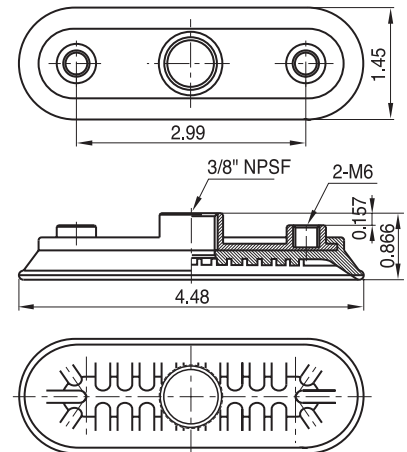
VOC 11x23



VOC 35x90 - NF38F

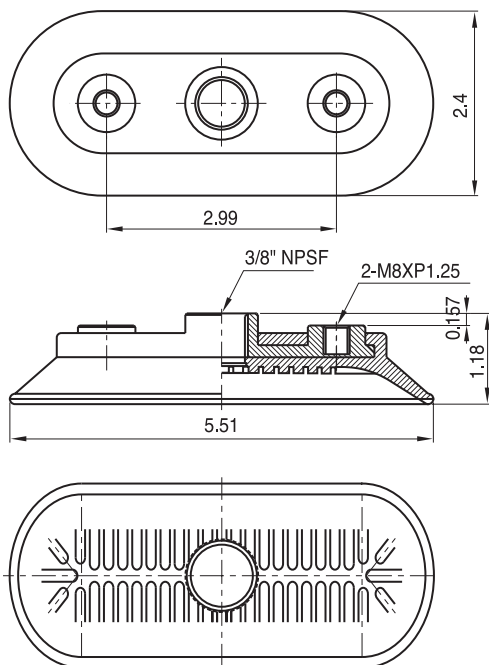


VOC 35x110 - NF38F

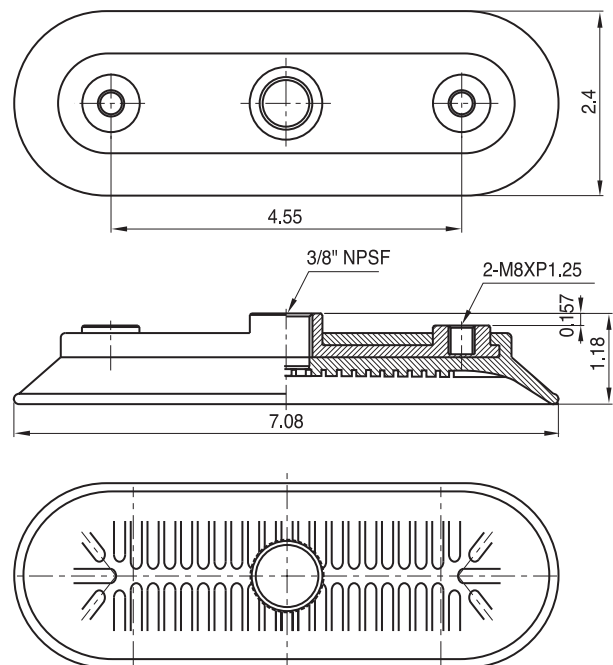


[Measure unit : inch]

VOC 60x140 - NF38F



VOC 60x180 - NF38F



[Measure unit : inch]

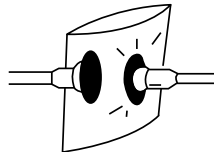
KPS Series (Plastic Bag Opening)

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

①

U

②

① Diameter

• KPS-1*	- 1,33"
KPS-2	- 1,1"
KPS-3	- 0,51"
KPS-4	- 0,62"
KPS-5*	- 1,1"
KPS-5-15*	- 0,59"
KPS-6	- 1,18"
KPS-7	- 2,67"
KPS-8	- 0,98"
VU-30-X	- 1,18"

* 1/8"NPSF Female fitting available

② Material

N	- NBR
S	- Silicon
WS	- White Silicon
CS	- Conductive (Special mat'l)
• U	- Urethane

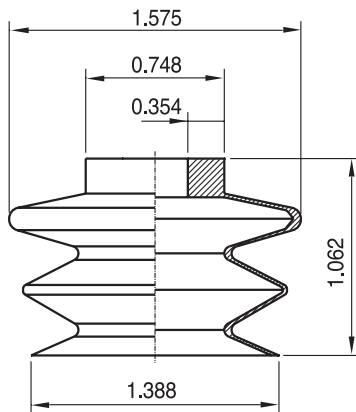
Remark : KPS-8 available only 'S', 'WS'

Recommended (max.) lifting forces

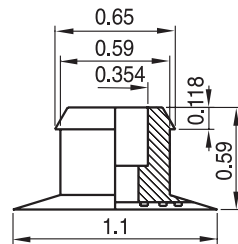
Model	Volume (inch ³)	Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg
KPS-1	0,884	2,68	4,93	6,06
KPS-2	0,122	1,54	3,37	4,03
KPS-3	0,03	0,77	1,87	2,46
KPS-4	0,06	1,322	2,68	3,59
KPS-5	0,52	1,54	3,37	4,03
KPS-5-15	0,067	0,88	2,44	2,71
KPS-6	0,122	1,76	3,74	4,51
KPS-7	1,22	12,12	30,86	40,78
KPS-8	0,085	1,1	2,53	2,75
VU-30-X	0,109	1,65	3,52	4,07

Dimensional Information

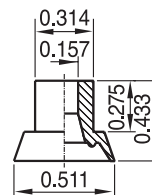
KPS-1



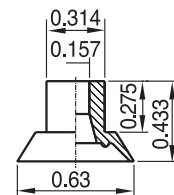
KPS-2



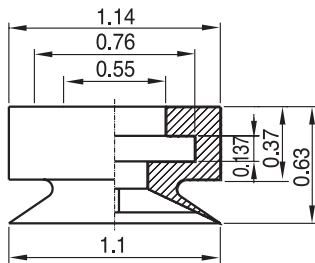
KPS-3



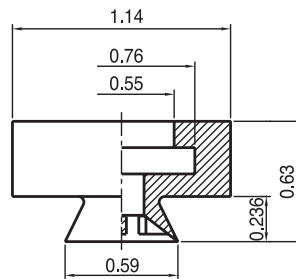
KPS-4



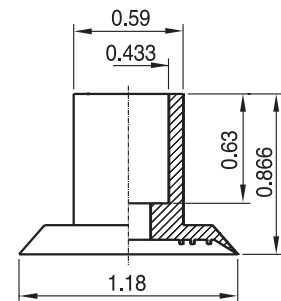
KPS-5



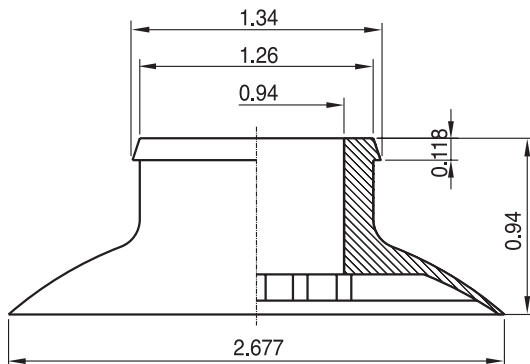
KPS-5-15



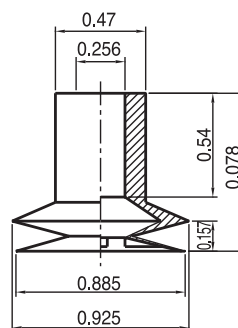
KPS-6



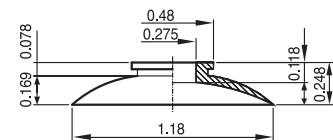
KPS-7



KPS-8



VU-30-X



[Measure unit : inch]

NF Series (Non-touch Flat)



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.

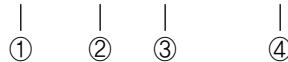


Application

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 - N18F



① Vacuum pad Ø

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

* Low air consumption type

② Vacuum flows

- 06 - standard
- 12 - an extra vacuum flow

③ Material

- **A** - Aluminum
- P - PEEK

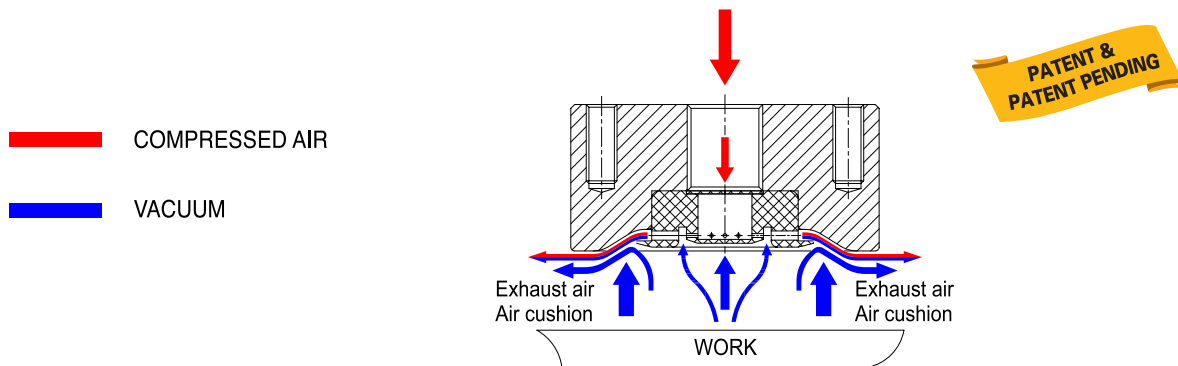
④ Thread size

- M5F - M5XPO.8 female (NF20..)
- **N18F** - NPSF1/8" female (NF40.., NF60..)
- 18F - G1/8" female (NF40.., NF60..)

Technical Data

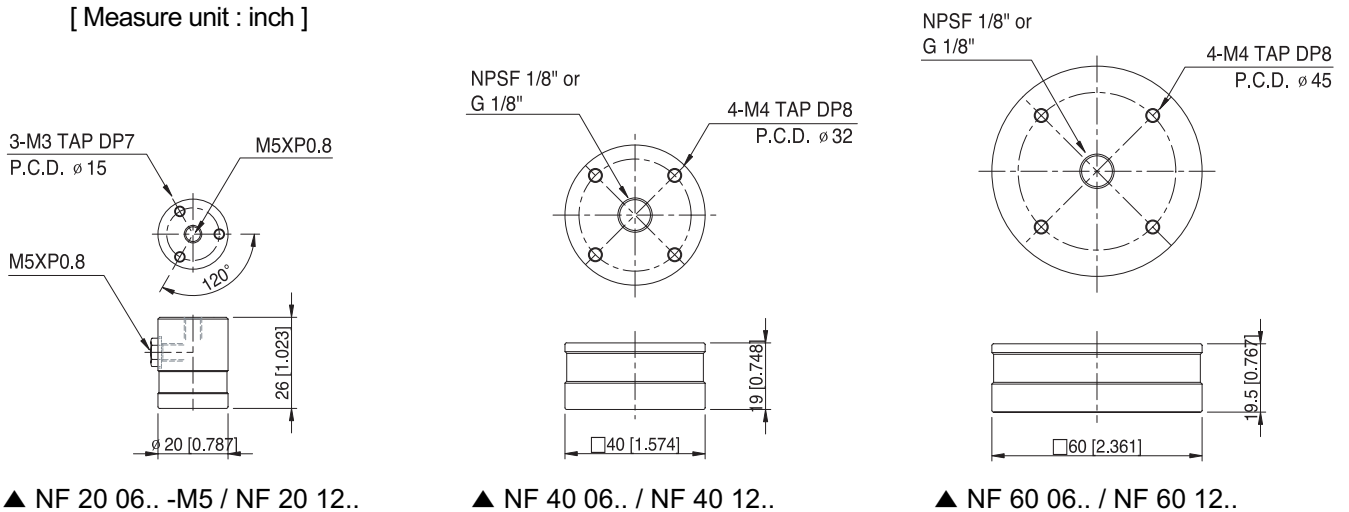
Model	Operating pressure (psi)	Air consumption (scfm)			Holding force, (lb.f) at different pressure			Weight (oz.)
		58 psi	72.5 psi	87 psi	58 psi	72.5 psi	87 psi	
NF 20 06	29 ~ 87	2.64	2.89	3.18	0.44	0.48	0.48	Al : 0.74 Peek : 0.4
NF 20 12		4.87	5.86	6.99	0.44	0.48	0.48	
NFL 20 06		1.38	1.8	2.22	0.33	0.39	0.44	
NFL 20 12		1.8	2.26	2.65	0.22	0.26	0.33	
NF 40 06	29 ~ 87	1.87	2.4	2.9	0.65	0.87	1.1	Al : 1.94 Peek : 1.05
NF 40 12		4.2	4.5	4.7	1.1	1.32	1.52	
NFL 40 06		1.41	1.83	2.19	0.88	1.1	1.32	
NFL 40 12		1.87	2.36	2.65	0.66	0.88	1.1	
NF 60 06	29 ~ 87	3.7	4.3	4.4	1.32	1.75	1.97	Al : 4.58 Peek : 2.47
NF 60 12		5.6	6.7	7.8	2.2	2.76	3.3	
NFL 60 06		1.41	1.73	2.08	1.1	1.54	1.76	
NFL 60 12		1.62	2.01	2.47	0.99	1.1	1.54	

The principle of VMECA NF PAD

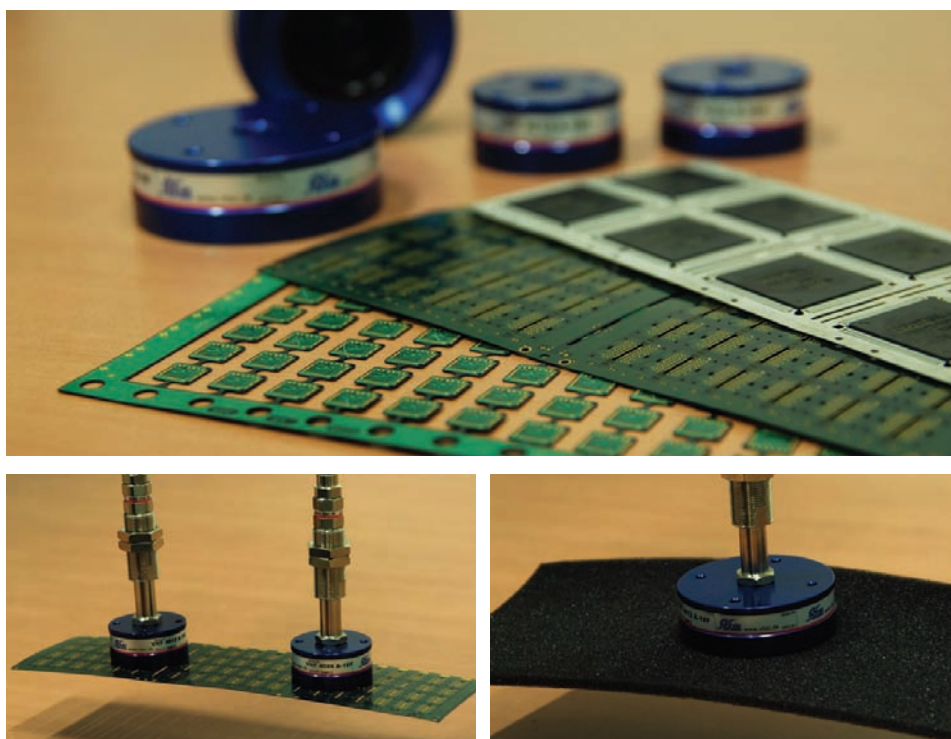


Dimensional information

[Measure unit : inch]



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.

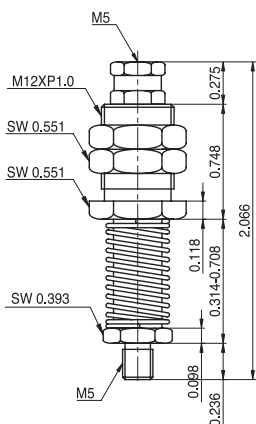


5-Series

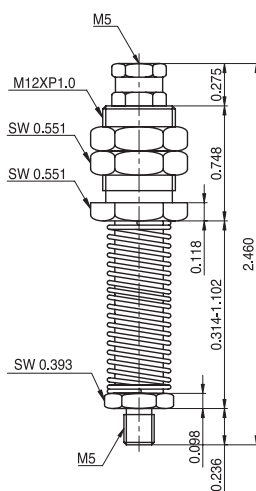
Dimensional Information

Model	Thread Size	Stroke (in)	Weight (oz.)
L510T	M5-male	0.393	1.05
L520T	M5-male	0.787	1.1
L510	M5-male	0.393	1.1
L520	M5-male	0.787	1.2
L506TX	VB6X, VU1.5X, VU2X, VU4X	0.236	0.45
L506TS	VU10, VU15, VF15, VB10, VB12, VB15	0.236	0.47
L506TU	VU4, VU6, VU8, VB5, VB8	0.236	0.44
L506TM	VU2, VU3	0.236	0.44
L510LTX	VB6X, VU1.5X, VU2X, VU4X	0.393	0.68
L510LTS	VU10, VU15, VF15, VB10, VB12, VB15	0.393	0.69
L510LTU	VU4, VU6, VU8, VB5, VB8	0.393	0.67
L510LTM	VU2, VU3	0.393	0.67
L507T	M5-female	0.275	0.59
L515T	M5-female	0.59	0.7
L520TF	M5-female	0.787	0.67

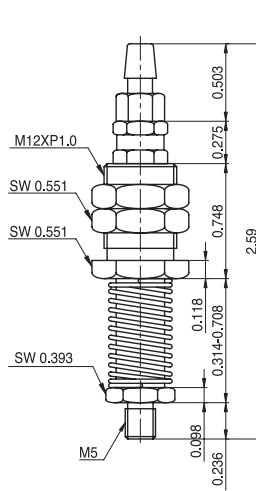
L510T



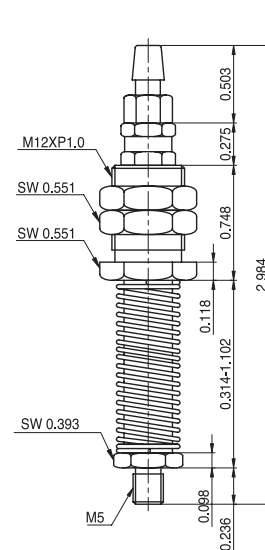
L520T



L510



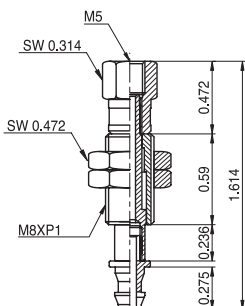
L520



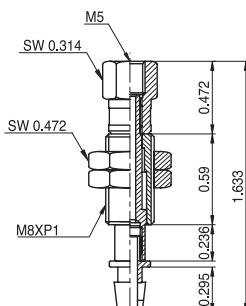
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Dimensional Information

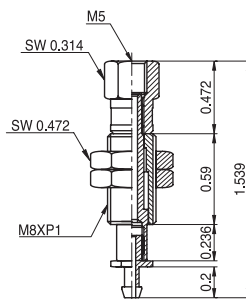
L506TX



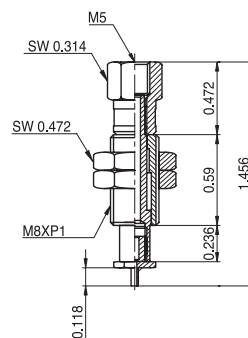
L506TS



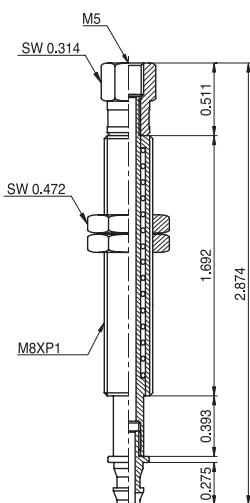
L506TU



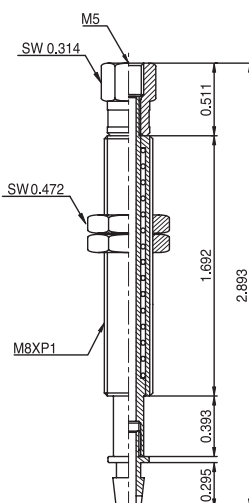
L506TM



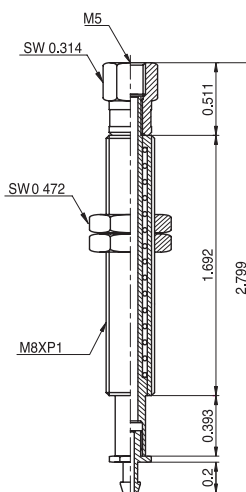
L510LTX



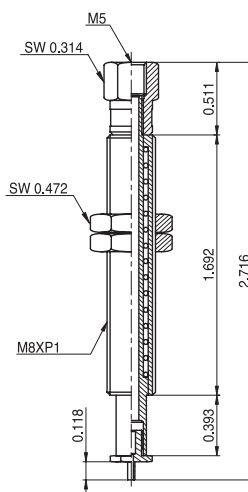
L510LTS



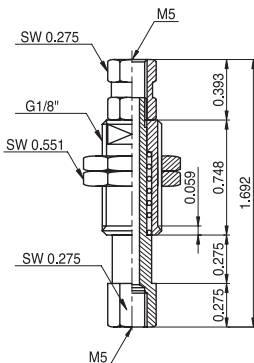
L510LTU



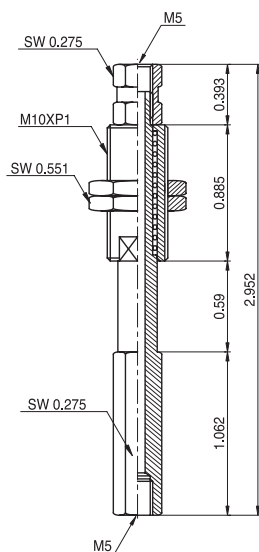
L510LTM



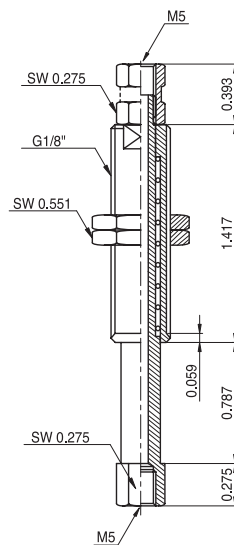
L507T



L515T



L520TF



SUCTION CUPS

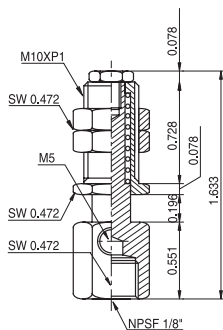
[Measure unit : inch]

18-Series

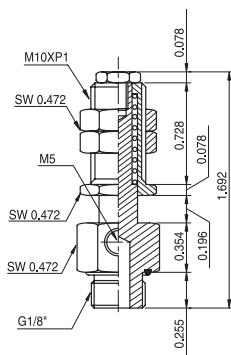
Dimensional Information

Model	Thread Size	Stroke (in.)	Weight (oz.)
LN1805F	1/8" NPSF-female	0.196	0.84
L1805M	G1/8"-male	0.196	0.98
LN1810T	G1/8"-male	0.393	1.55
LN1810TS-M10F	M10-female	0.393	2.36
LN1810TS	G1/8"-male	0.393	2.57
LN1810TSE	G1/8"-male	0.393	3.28
L1815	G1/8"-male	0.59	3.03
LN1815T	G1/8"-male	0.59	1.79
LN1820T	G1/8"-male	0.787	2.85
LN1820TS	G1/8"-male	0.787	3.28
L1830	G1/8"-male	1.181	3.59
LN1830T	G1/8"-male	1.181	3.49
LN1830TS	G1/8"-male	1.181	4.58
L1850	G1/8"-male	1.968	3.7
LN1850T	G1/8"-male	1.968	4.4

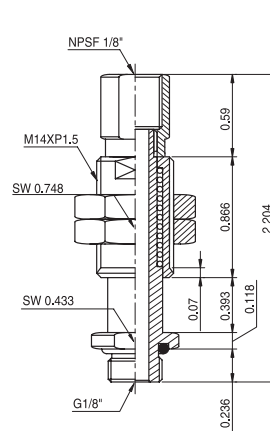
LN 1805F



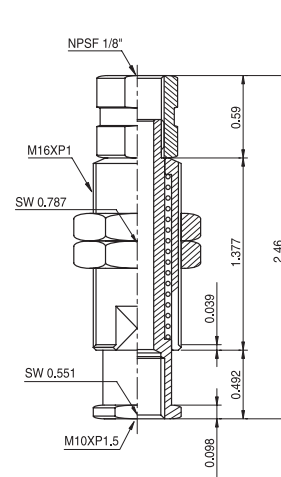
L 1805M



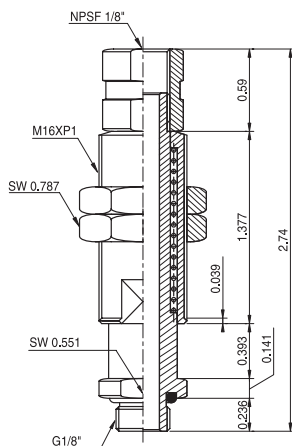
LN 1810T



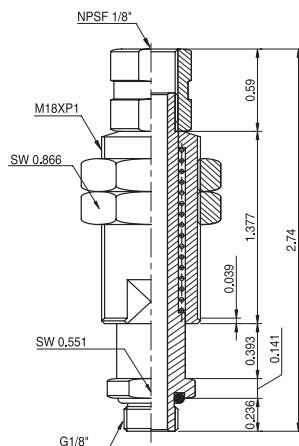
LN 1810TS - M10F



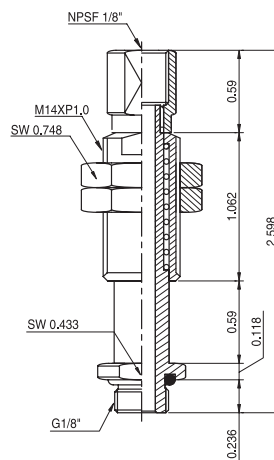
LN 1810TS



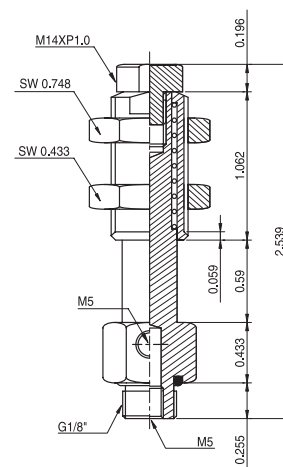
LN 1810TSE



LN 1815T



LN 1815

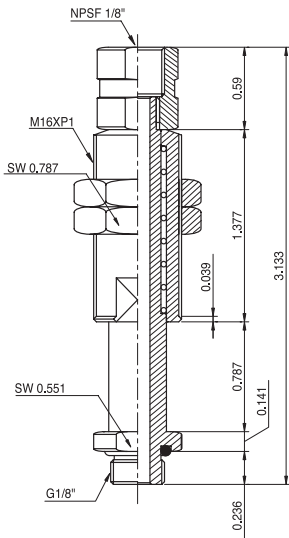


[Measure unit : inch]

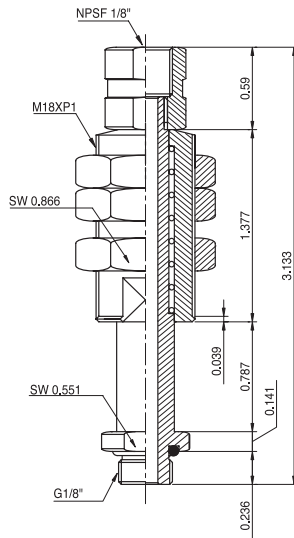
Dimensional Information

SUCTION CUPS

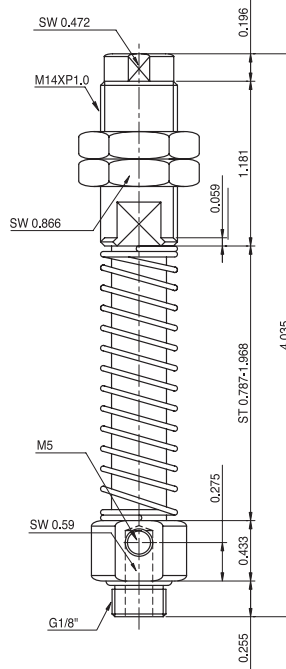
LN 1820T



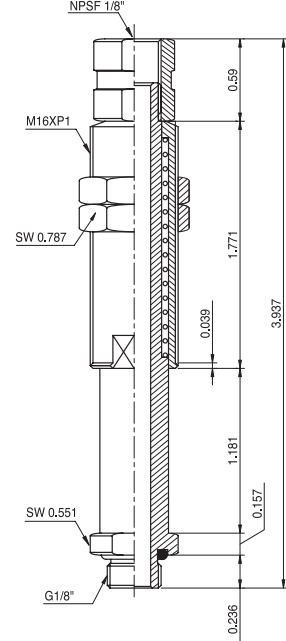
LN 1820TS



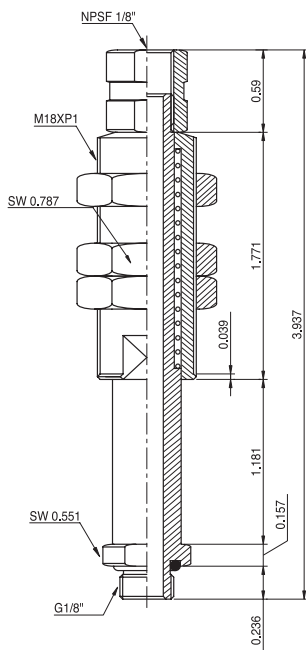
LN 1830



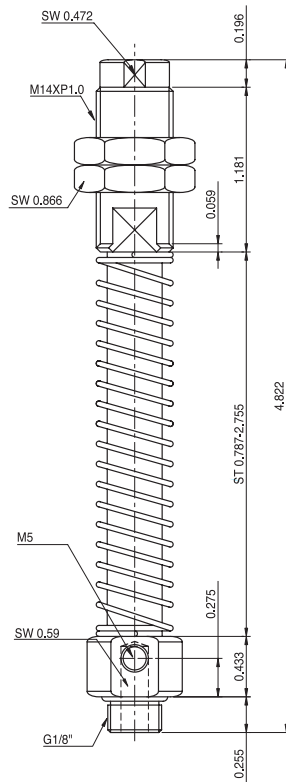
LN 1830T



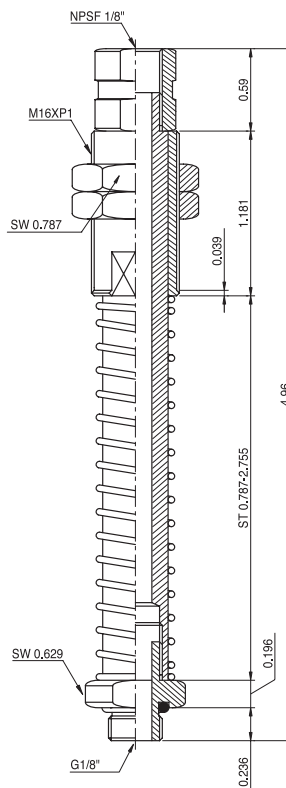
LN 1830TS



LN 1850



LN 1850T



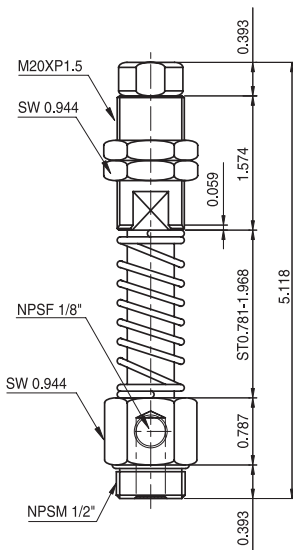
[Measure unit : inch]

12-Series

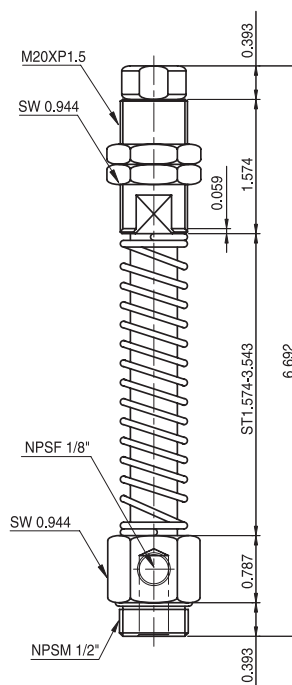
Dimensional Information

Model	Thread Size	Stroke (in)	Weight (oz.)
LN1230	1/2" NPSM	1.181	10.1
LN1250	1/2" NPSM	1.968	12.3
LN1230T	1/2" NPSM	1.181	8.5
LN1250T	1/2" NPSM	1.968	7.58

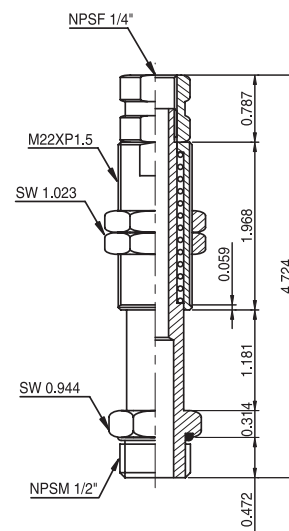
LN 1230



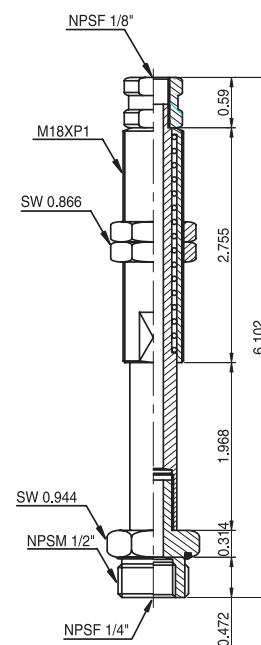
LN 1250



LN 1230T



LN 1250T



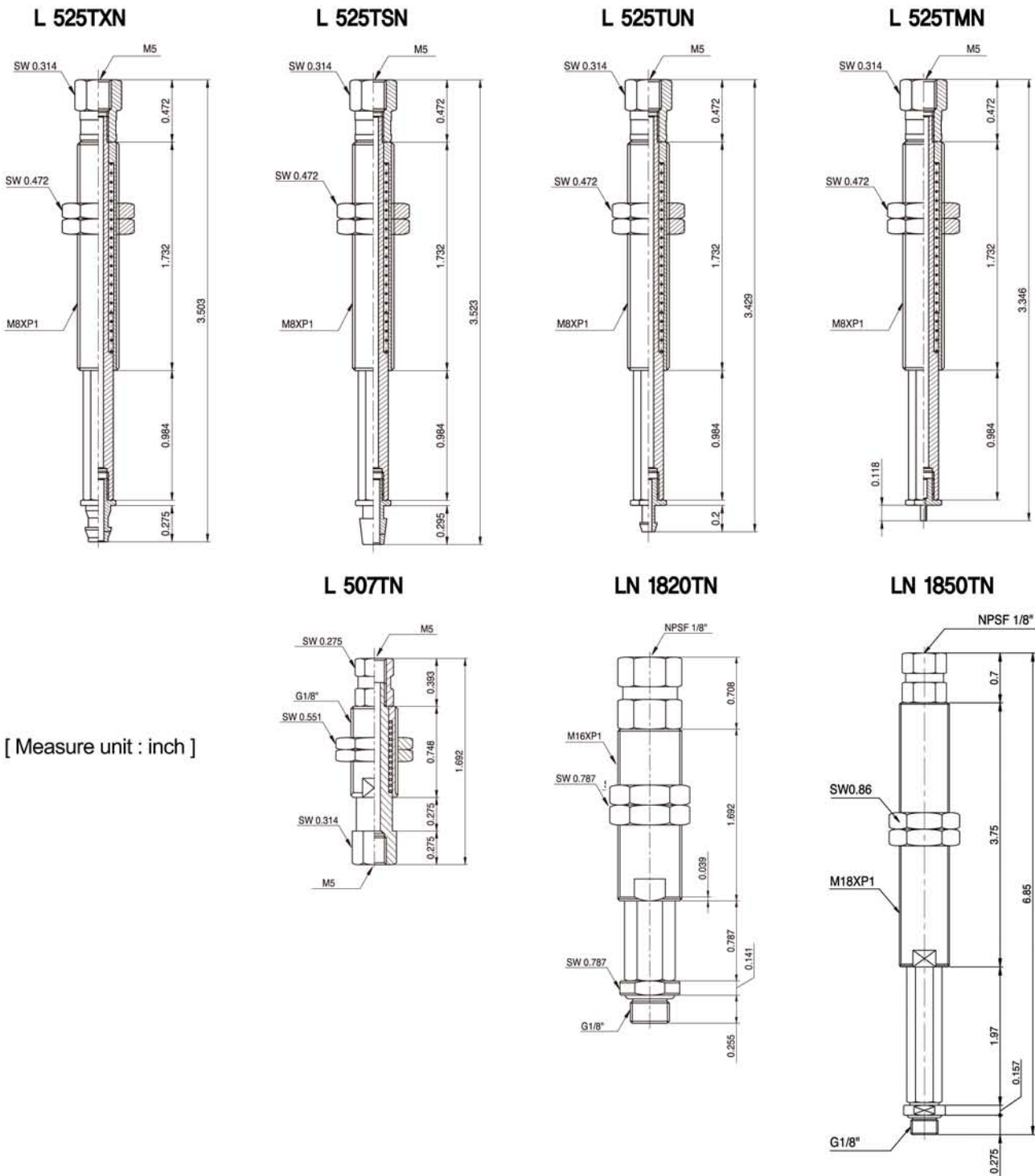
[Measure unit : inch]

■ Non Rotating Level Compensator

Dimensional Information

Model	Thread Size	Stroke (in)	Weight (oz.)
L525TXN	VB6X, VU1.5X, VU2X, VU4X	0.984	0.73
L525TSN	VU10, VU15, VF15, VB10, VB12, VB15	0.984	0.72
L525TUN	VU4, VU6, VU8, VB5, VB8	0.984	0.71
L525TMN	VU2, VU3	0.984	0.71
L507TN	M5-female	0.275	0.63
LN1820TN	G1/8'-male	0.787	2.9

SUCTION CUPS



[Measure unit : inch]

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.

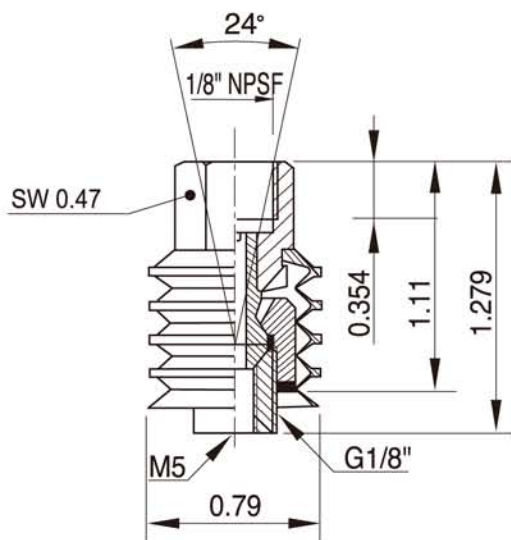
The vacuum port is integral through the centre of the joint thus providing a neat and compact solution.



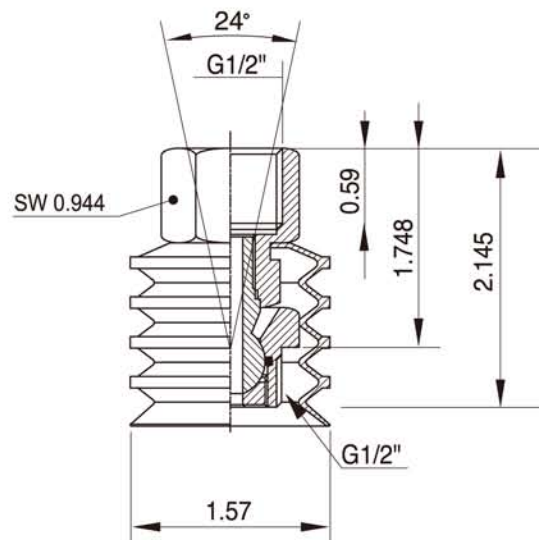
Dimensional Information

Model	Thread Size	Angle	Max. Load (lb.f)	Weight (oz.)
BJ N18	NPSF 1/8" and G1/8"	±12°	55	0.7
BJ 12	G1/2"	±12°	110	3.95

BJ N18



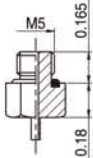
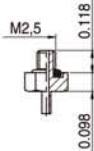
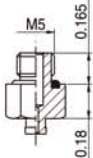
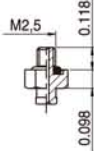
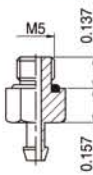
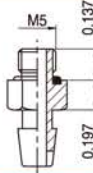
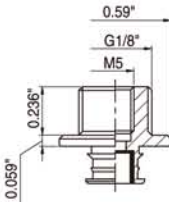
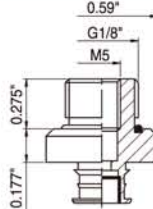
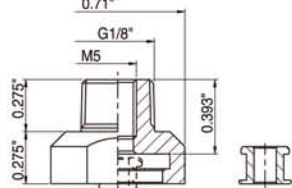
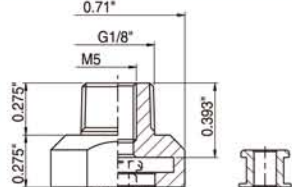
BJ 12



[Measure unit : inch]

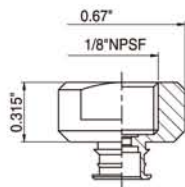
Fittings (Option)

**SUCTION
CUPS**

<p>M5-M Code No. : 350 000 3100</p>		<p>VU2 , VU3</p>		<p>M2.5-M Code No. : 350 000 3000</p>
<p>M5-M Code No. : 350 000 3106</p>		<p>VU3K</p>		<p>M2.5-M Code No. : 350 000 3006</p>
<p>M5-M</p>		<p>VU4, VU6, VU8 VB5, VB8</p>		<p>Code No. : 350 000 3101</p>
<p>M5-M</p>		<p>VU10, VU15, VF15 VB10, VB12, VB15</p>		<p>Code No. : 350 000 3102</p>
<p>M518-MF</p>		<p>VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20</p>		<p>Code No. Standard - 350 000 3209 Built in mesh-filter - 350 000 5209 Built in efficiency valve - 350 010 4209</p>
<p>M5/18-MFO</p>		<p>VU20, VU25, VU30 VF20, VF25, VF30 VB17, VB20 VBL20</p>		<p>Code No. Standard - 350 000 1209 Built in mesh-filter - 350 000 1109 Built in efficiency valve - 350 010 1209</p>
<p>M5/18MF (For silicone Mat'l)</p>		<p>VU20, VU25, VU30 VF20, VF25, VF30</p>		<p>Code No. : 350 000 3229</p>
<p>M5/18MFB (For silicone Mat'l)</p>		<p>VB20, VBL20</p>		<p>Code No. : 350 000 3239</p>

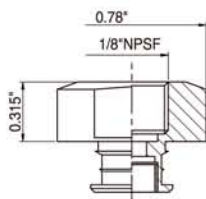
Fittings (Option)

NF18-F



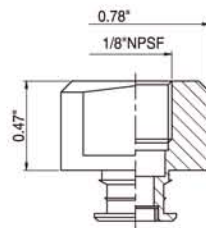
VU20, VU25, VU30 Code No.
 VF20, VF25, VF30
 VB17, VB20 Standard - 350 000 4610
 VBL20 Built in mesh-filter - 350 000 4710
 Built in efficiency valve - 350 010 4610

NF18-F



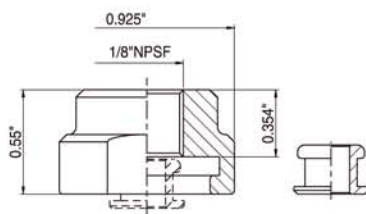
VU40 Code No.
 VF40 Standard (Built in mesh-filter) - 350 000 4611
 VB30, VB40 Built in efficiency valve - 350 010 4611
 VBL30, VBL40

NF18-F



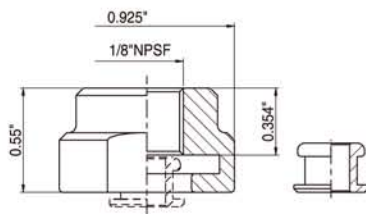
VU40 Code No.
 VF40 Standard (Built in mesh-filter) - 350 000 4511
 VB30, VB40
 VBL30, VBL40

NF18-FX
 (For silicone Mat'l)



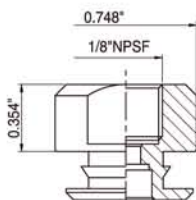
VU40, VF40 Code No. : 350 000 4621

NF18-FB
 (For silicone Mat'l)



VB30, VB40 Code No. : 350 000 4631
 VBL30, VBL40

NF18-F KPS 1



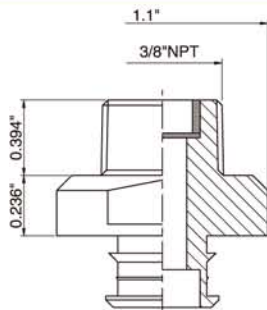
KPS 1 Code No.
 Standard (Built in mesh-filter) - 350 000 4650

Fittings (Option)

NF18-F KPS 5		KPS 5, KPS 5-15	Code No. Standard (Built in mesh-filter) - 350 000 4651
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
NF18-F		VU50 VF50 VB50 VBL50	Code No. Standard (Built in mesh-filter) - 350 000 4412 Built in efficiency valve - 350 010 4412
NF18-F		VU50 VF50 VB50 VBL50	Code No. Standard (Built in mesh-filter) - 350 000 4612 Built in efficiency valve - 350 010 4612
N14-M		VU40 VF40 VB30, VB40 VBL30, VBL40	Code No. Standard (Built in mesh-filter) - 350 000 5304 Built in efficiency valve - 350 010 5304
N14-M		VU50 VF50 VB50 VBL50	Code No. Standard (Built in mesh-filter) - 350 000 5305 Built in efficiency valve - 350 010 5305

Fittings (Option)

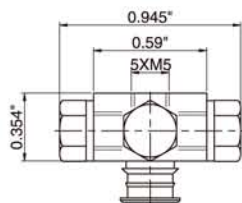
N38-M



VU50
VF50
VB50
VBL50

Code No.
Standard (Built in mesh-filter) - 350 000 5405
Built in efficiency valve - 350 010 5405

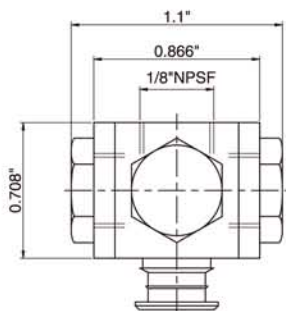
5XM5-F



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

Code No.
Standard - 351 000 3110
Built in mesh-filter - 351 000 4110
Built in efficiency valve - 351 010 3110

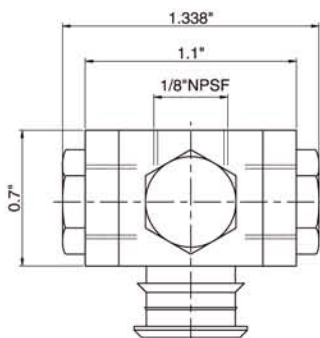
5-NF18-F



VU40
VF40
VB30, VB40
VBL30, VBL40

Code No.
Standard (Built in mesh-filter) - 351 000 3411
Built in efficiency valve - 351 010 3411

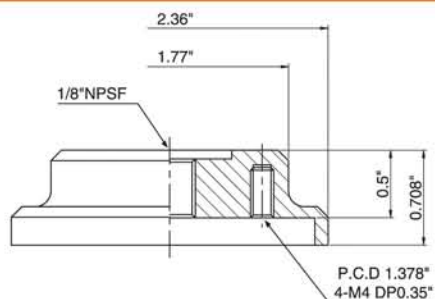
5-NF18-F



VU50
VF50
VB50
VBL50

Code No.
Standard (Built in mesh-filter) - 351 000 3412
Built in efficiency valve - 351 010 3412

NF18-F



VB75
VF75
VF90
VFC90
VFC100

Code No.
(PPS) : 350 000 4613
(AL) : 350 000 4623

Fittings (Option)

SUCTION CUPS

NF14-F

VB75
 VF75
 VF90
 VFC90
 VFC100

Code No.
 (PPS) : 350 000 5313
 (AL) : 350 000 5323

NF38-F

VB75
 VF75
 VF90
 VFC90
 VFC100

Code No.
 (PPS) : 350 000 5413
 (AL) : 350 000 5423

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

12-F

VF200

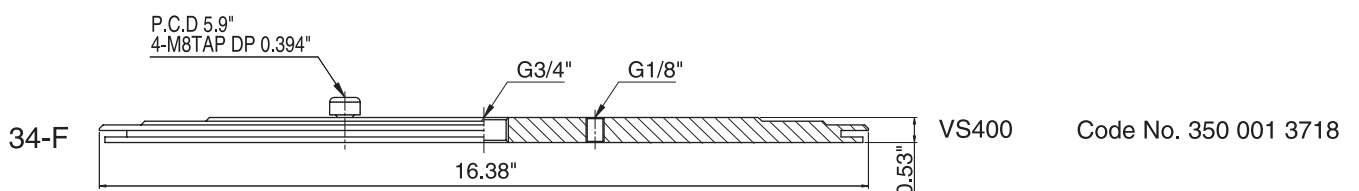
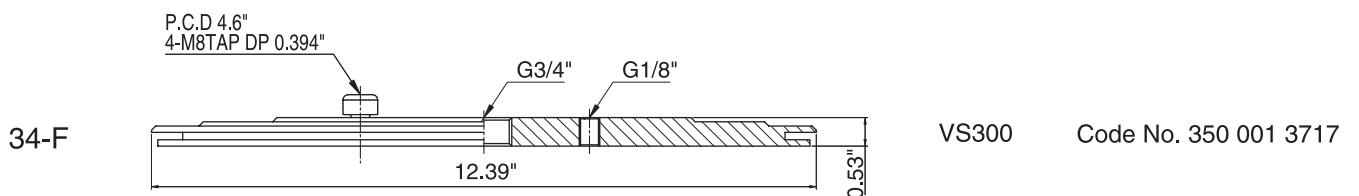
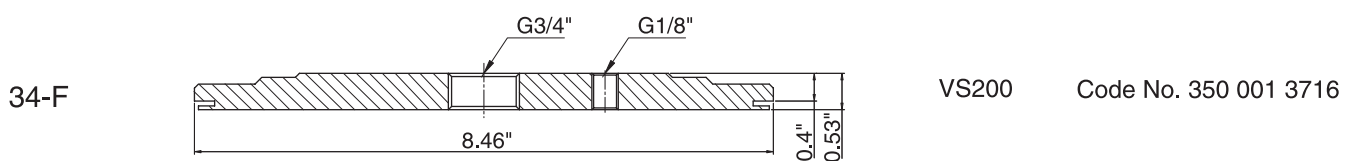
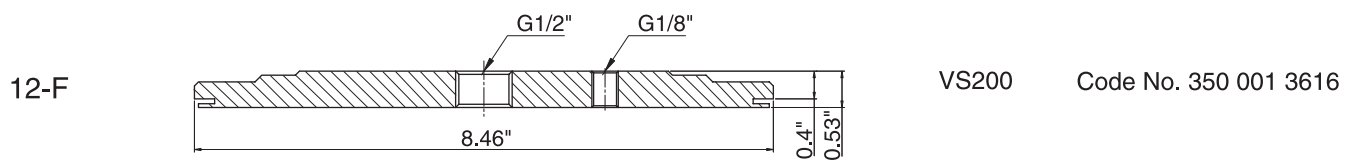
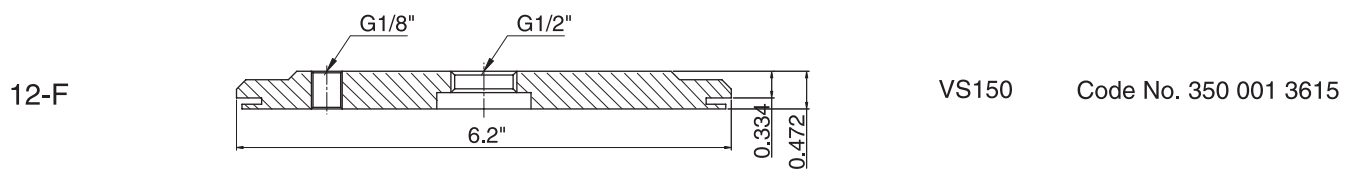
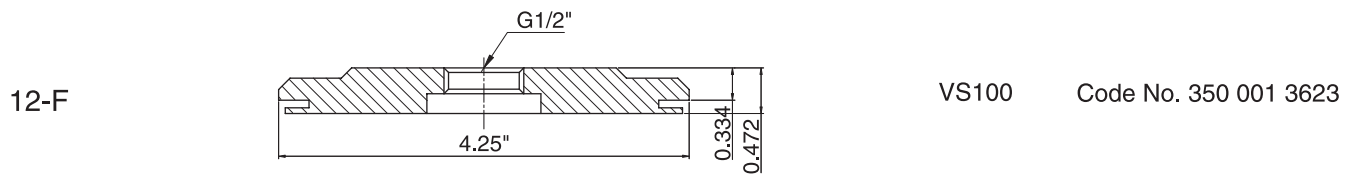
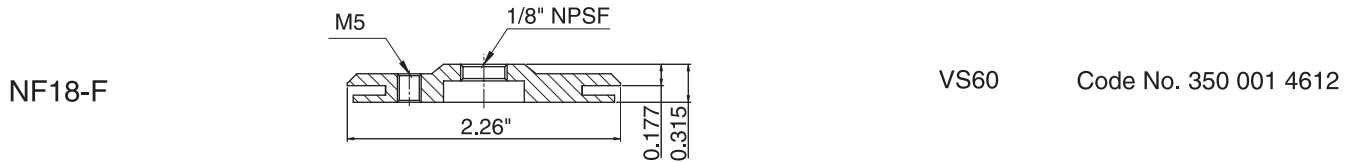
Code No. 350 000 3616

NF18-F

VS35

Code No. 350 001 4611

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 1.45 scfm) 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 3 scfm) 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.



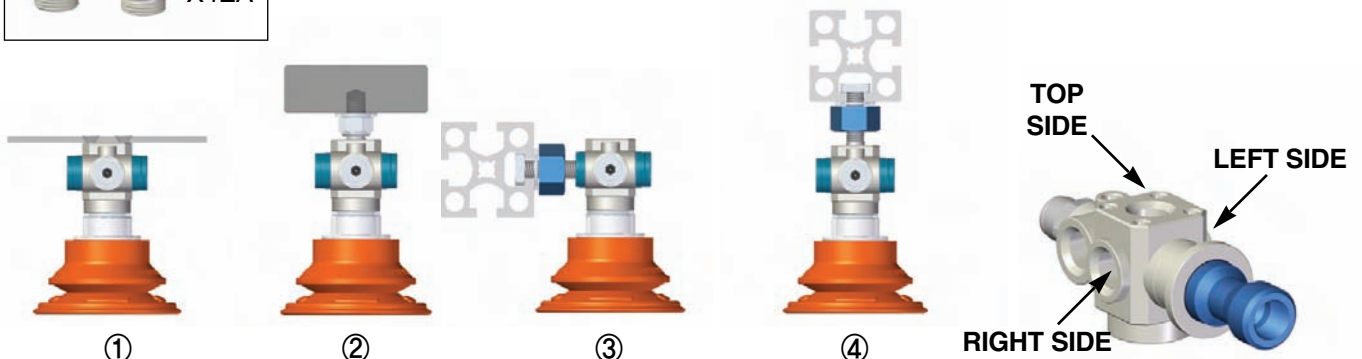
▶ Option “M” - M8 Male Mounting **exm. ②**

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**

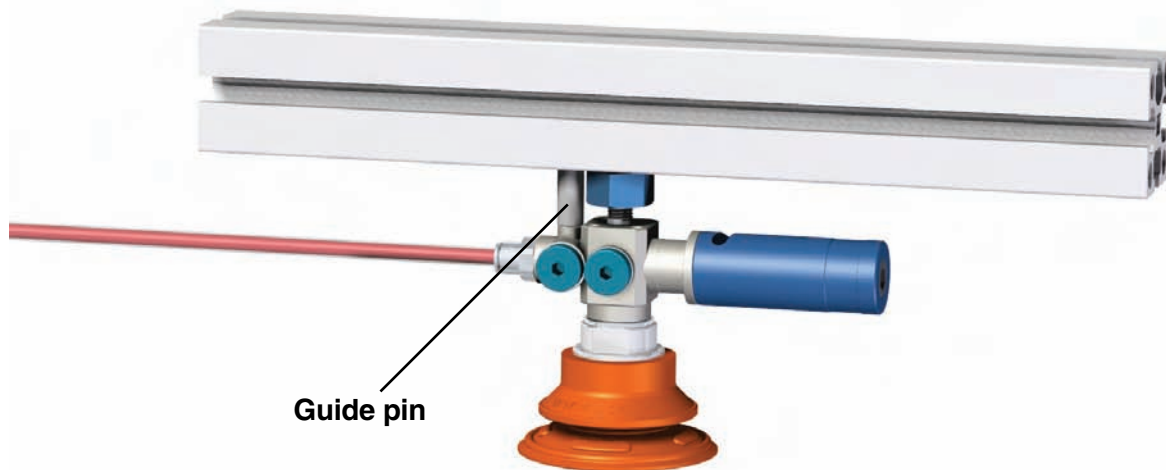
Mount to appropriate t-slot frame in one of (3) positions (top, right, left) using (1) M8 27mm or (1) M6 22mm screw as specified with supplied nut and washers. (4) G1/8 plugs are included. Optional non-return valve is available.”



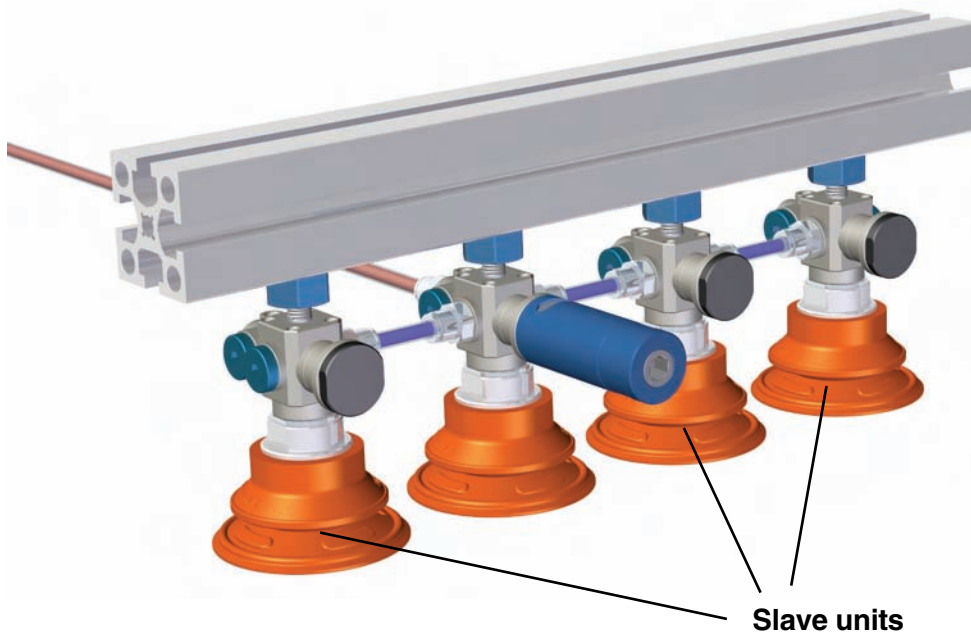
VSM Example

 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.

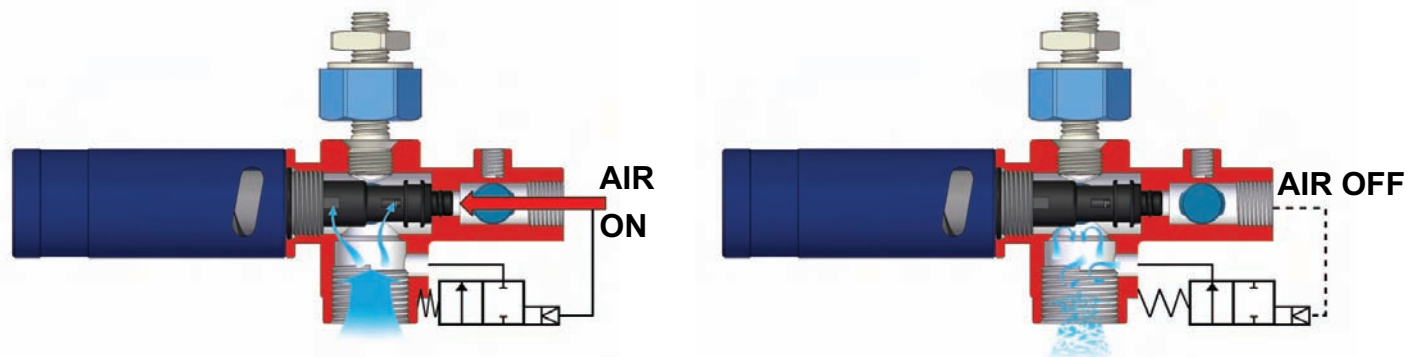
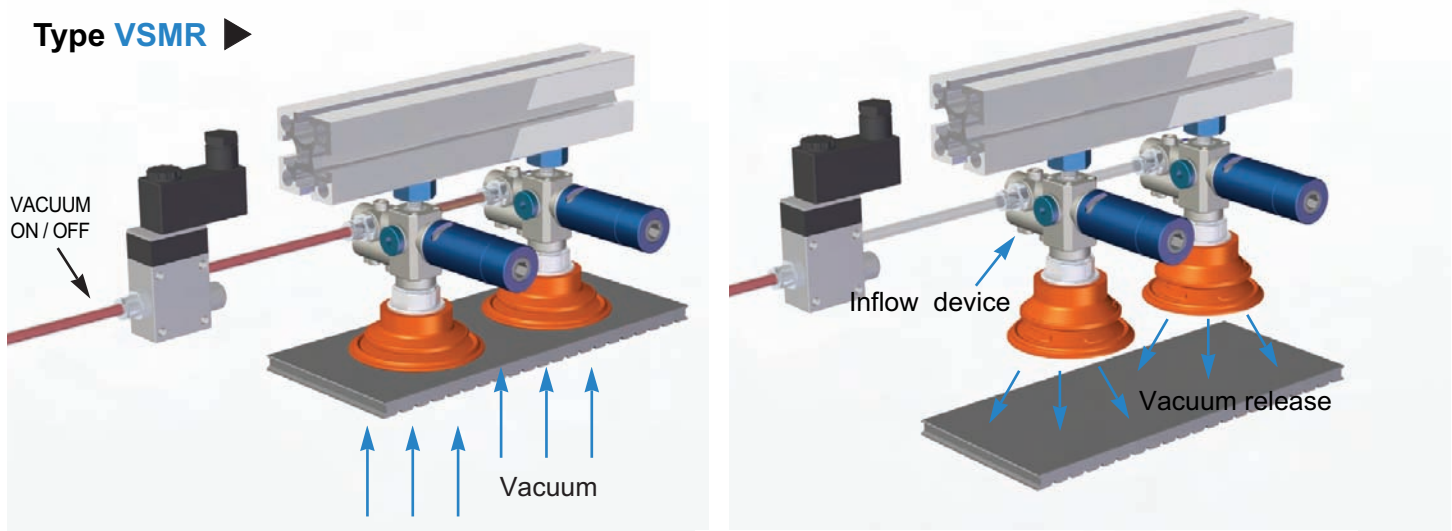


- ▲ Use a VSM (Vacuum Speeder) as a slave unit with vacuum supplied by another VSM in sealed applications or in applications where quick response time is not required.

Example

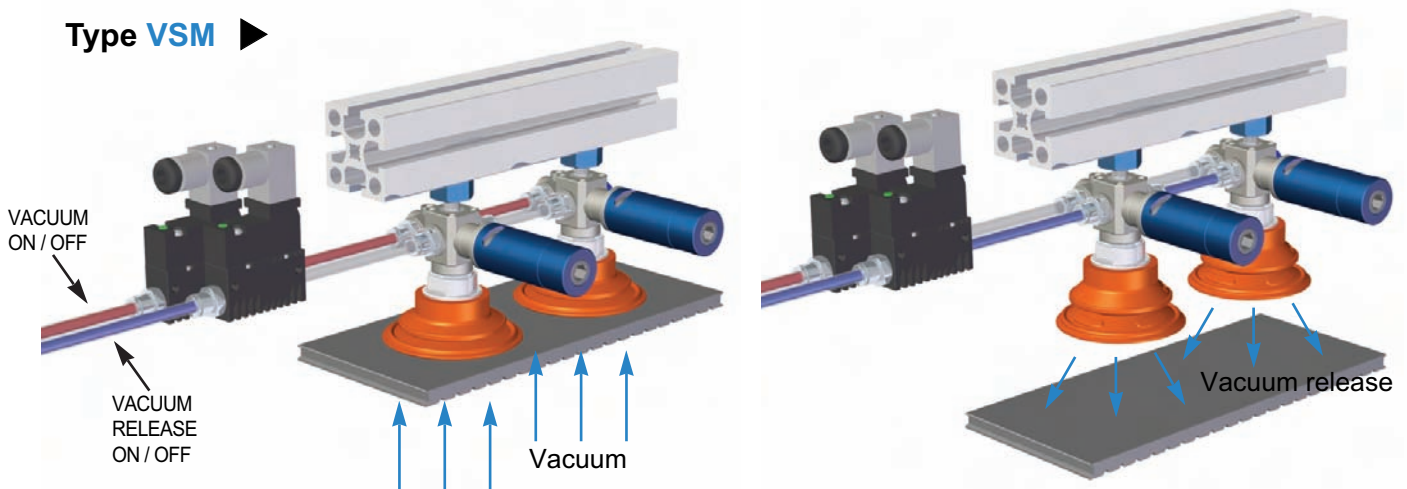
• VACUUM RELEASE

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.

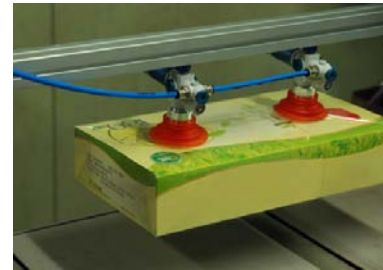
Series VSMR..

- Max. vacuum level : -26.57 inHg (-90kPa)
- Max. flow rate : 3.03 scfm (85.8 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi
(3~6bar, max 7bar)
- Air consumption : 0.7~1.13 scfm (20~32 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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

① ② ▲ See pages 81-95

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	

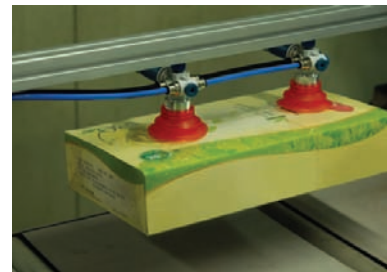
Series VSM..

- Max. vacuum level : -26.57 inHg (-90kPa)
- Max. flow rate : 3.03 scfm (85.8 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi
(3~6bar, max 7bar)
- Air consumption : 0.7~1.13 scfm (20~32 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4°F ~ 176°F
- Noise level : 55~65 dBA



Main advantages

- Efficient individual and independent point-of-use vacuum.
- 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

①

②

▲ See pages 81-95

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	

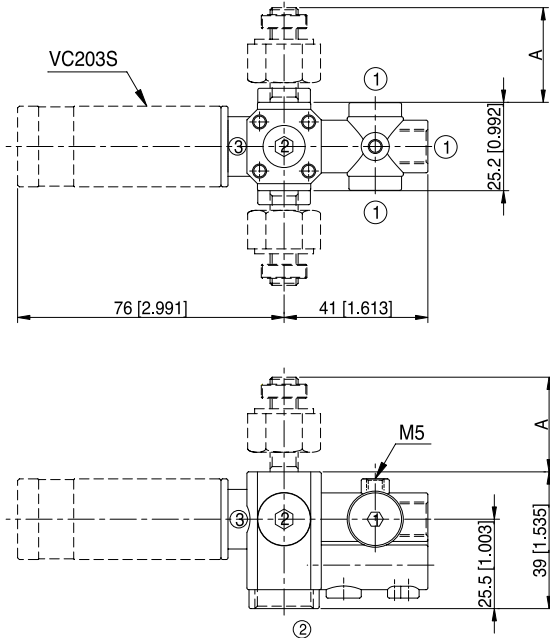
Technical Data

Model	Feed pressure (psi)	Air consumption (scfm)	Max. Vacuum level (-inHg)	Suction cup	Time, s/l, evacuate a volume to different vacuum level	
					-5.9 inHg	-17.7 inHg
VSMR 203.. VSM 203..	45.5	0.918	26.5	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..	45.5	0.918	26.5	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				

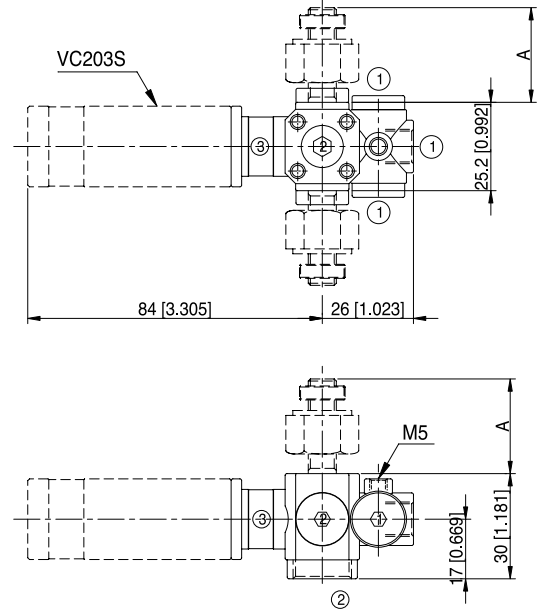
VACUUM SPEEDER

Dimension

▼ VSMR 203..



▼ VSM 203..

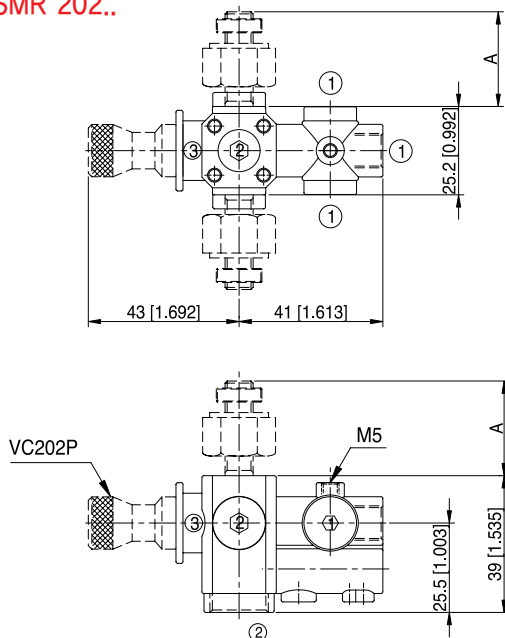


Measure unit : mm [inch]

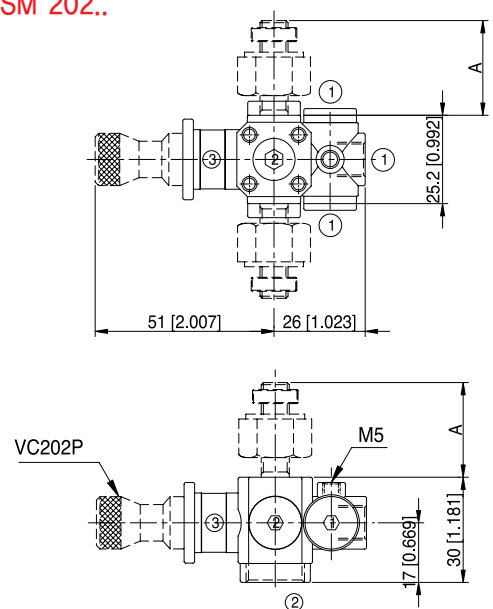
Mounting	A
M□8	0.63"
P□8	1.06"
P□8	0.86"

1. Compressed air : 3 x G1/8"
2. Vacuum : 1 x G3/8" and 3 x G1/8"
3. Exhaust

▼ VSMR 202..



▼ VSM 202..



Measure unit : mm [inch]

Mounting	A
M□8	0.63"
P□8	1.06"
P□8	0.86"

1. Compressed air : 3 x G1/8"
2. Vacuum : 1 x G3/8" and 3 x G1/8"
3. Exhaust

☞ Refer to page 81~95 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	★★	★★★★		★★★★		★★★★	★★★★	★	★★★★	★	★★
VBF	★★★★	★★★★	★	★★★★		★★★★	★★★★	★★★★	★★★★	★★★★	
VBL	★★	★★★★		★★★★		★★★★	★★★★		★★		
VF	★★★★			★★★★				★★★★	★★★★	★★★★	
VFC	★★★★	★★★★		★★★★	★			★★★★	★★★★	★★★★	★
VOU	★★★★	★★	★★	★★★★				★★	★★	★	
VOC	★★★★	★★★★		★★★★		★		★★★★	★★★★	★★★★	

★★★★ Excellent ★★ Very good ★ good



Slightly curved surface
VB model

▶ See page 82

Thin flexible material
VBL model

▶ See page 86

Sheet metal
VBF model

▶ See page 84

Transferring to parallel
VF, VFC model

▶ See page 88,90

Long convex or flat
VOU model

▶ See page 92

Long flat
VOC model

▶ See page 94

Material and characteristic of suction cup

Material	Durability	Temperature	Oil Resistance	Weather & Ozone
N - NBR	Excellent	-40 °F ~ +230 °F	Excellent	Very Good
S - Silicon	Good	-94 °F ~ +392 °F	Unsuitable	Excellent
C.S - Conducive(Special mat'l)	Excellent	-49 °F ~ +194 °F	Excellent	Very Good
U - Urethane	Excellent	-4 °F ~ +185 °F	Excellent	Excellent
A - Mark free	Excellent	-40 °F ~ +176 °F	Excellent	Very Good
PU - Poly Unethane	Excellent	32 °F ~ +140 °F	Excellent	Excellent
E - EPDM	Very Good	-40 °F ~ +212 °F	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 77, 78

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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
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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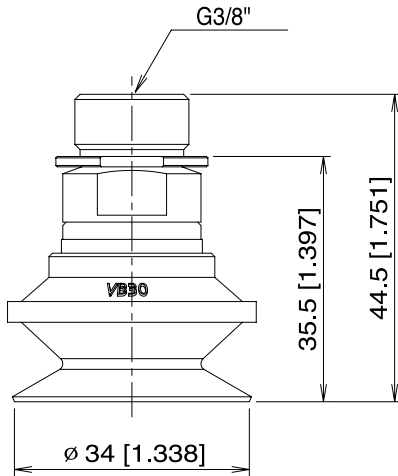
* Remark : Including mesh filter

Technical Data

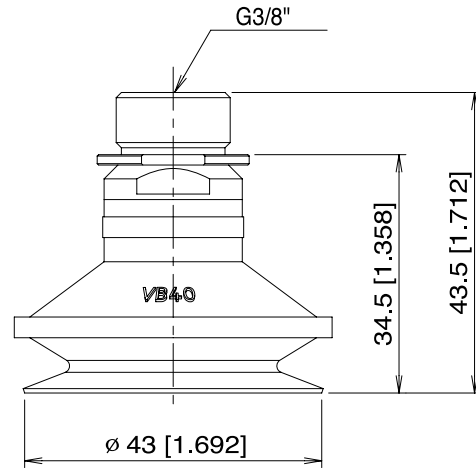
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg
VB30	0,918 scfm (26 NI/m)	2,68	4,93	6,06
VB40		4,93	8,75	11,02
VB50		7,4	14,61	18,43
VB75(B)		16,86	37,56	50,83

Dimension

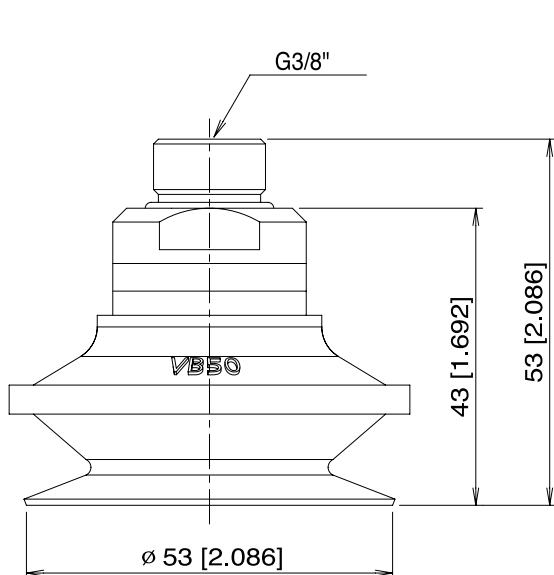
👉 Refer to page 80 about dimension of Vacuum Speeder.



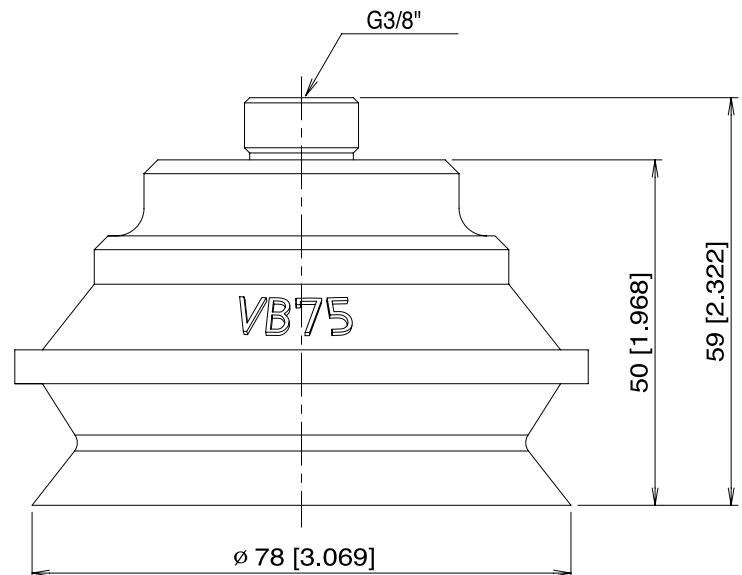
VB30..38M



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 77, 78

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① Suction cup Ø

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

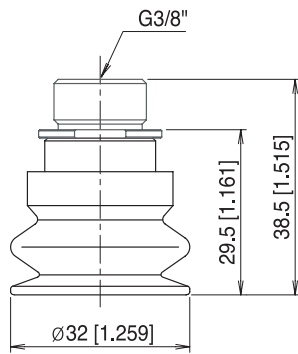
* Remark : Including mesh filter

Technical Data

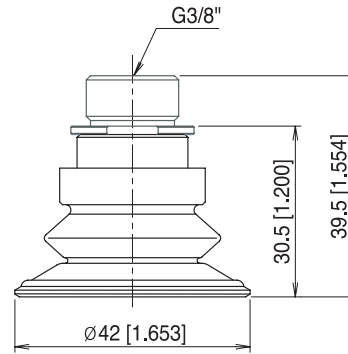
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) - Perpendicular			Lifting Force (lb.f) - Parallel		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VBF 30	0,918 scfm (26 NI/m)	3,9	13,8	20,9	1,9	6,8	17,
VBF 40		5,5	21,3	28,2	2,6	14,3	24,9
VBF 50		9,2	29,1	35,9	4,6	21,6	32,4
VBF 60		19,7	35,8	40,8	15,08	28,3	37,3
VBF 80		26,27	47,7	54,4	20,1	37,7	49,7
VBF 100		32,8	59,7	68,1	25,1	47,1	62,1

Dimension

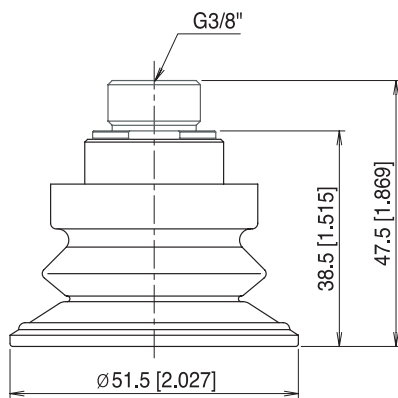
👉 Refer to page 80 about dimension of Vacuum Speeder.



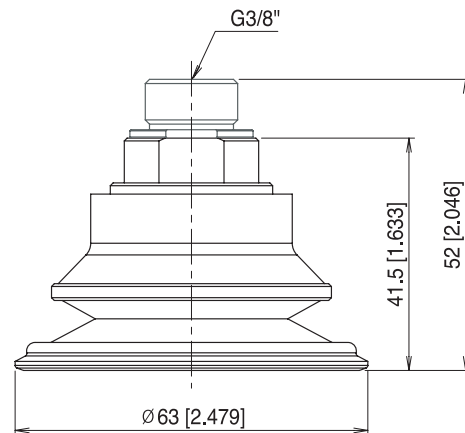
VBF30 P(U) - 38M



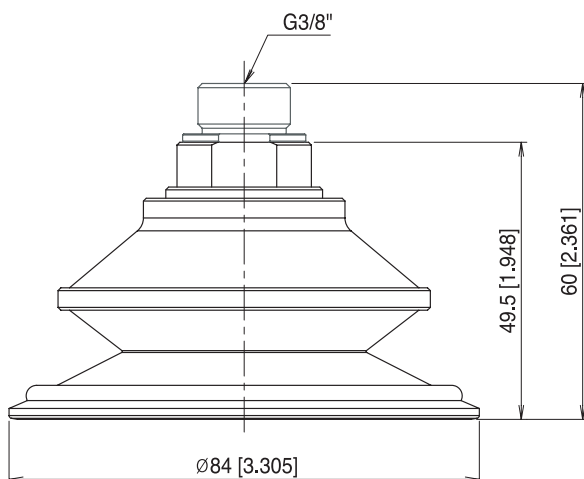
VBF40 P(U) - 38M



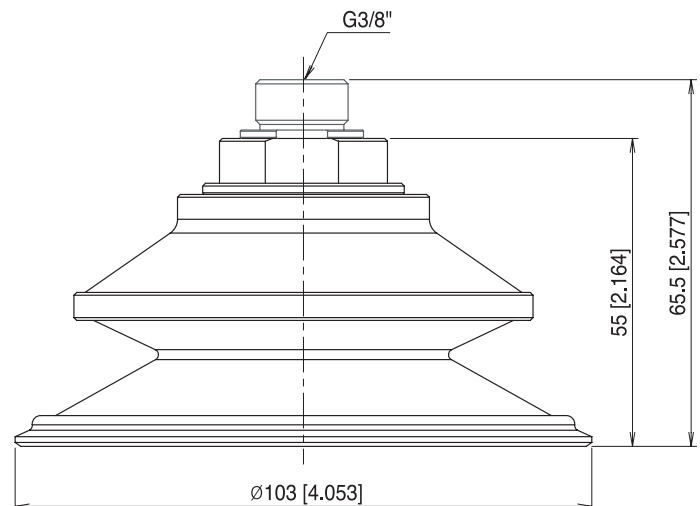
VBF50 P(U) - 38M



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 77, 78

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① Suction cup Ø

VBL30 - Ø30

VBL40 - Ø40

- VBL50 - Ø50

② Material

- N - NBR

S - Silicon

WS - White 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

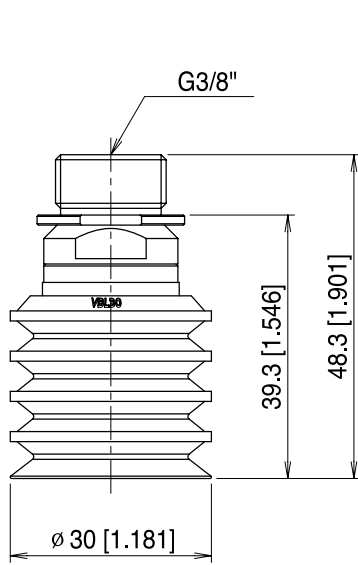
* Remark : Including mesh filter

Technical Data

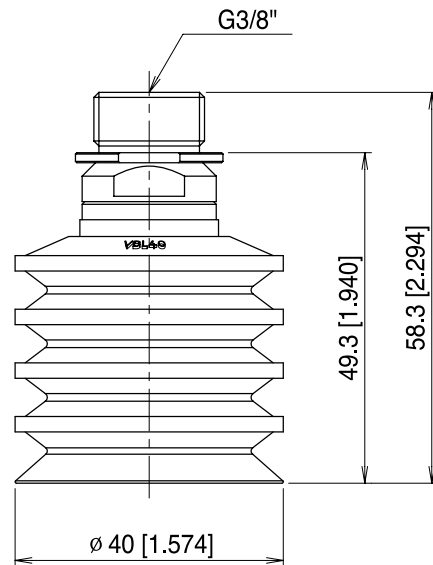
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) - Perpendicular		
		-6 inHg	-18 inHg	-27 inHg
VBL30	0,918 scfm (26 NI/m)	0,132	0,352	-
VBL40		0,176	0,418	-
VBL50		0,24	0,485	-

Dimension

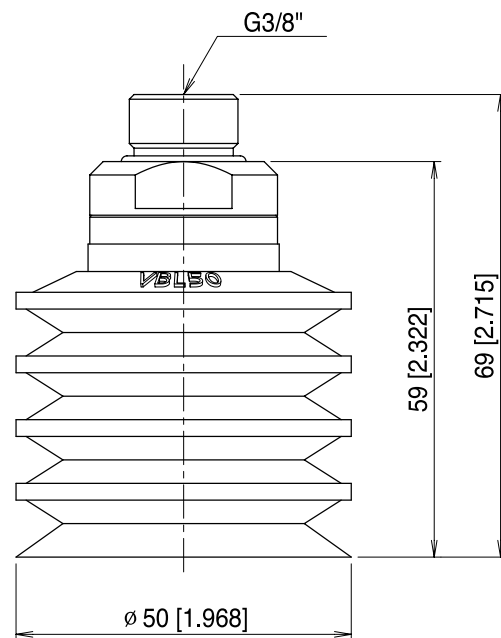
☞ Refer to page 80 about dimension of Vacuum Speeder.



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 77, 78

①

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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
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

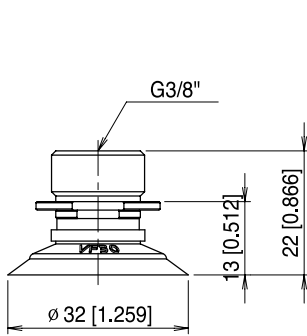
* Remark : Including mesh filter

Technical Data

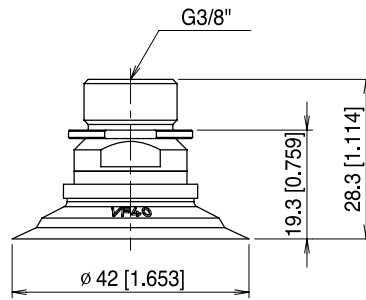
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) - Perpendicular			Lifting Force (lb.f) - Parallel		
		-6 inHg	-18 inHg	-27inHg	-6 inHg	-18 inHg	-27 inHg
VF30	0,918 scfm (26 NI/m)	2,68	5,62	6,96	2,46	3,59	4,49
VF40		4,49	8,99	11,24	3,37	5,62	6,74
VF50		8,09	16,64	21,58	5,37	8,99	11,24
VF75		17,9	44,97	60,73	13,49	24,73	31,48
VF90		22,48	61,37	82,47	19,48	35,22	43,47
VF110		31,48	94,46	125,9	31,48	56,23	67,48

Dimension

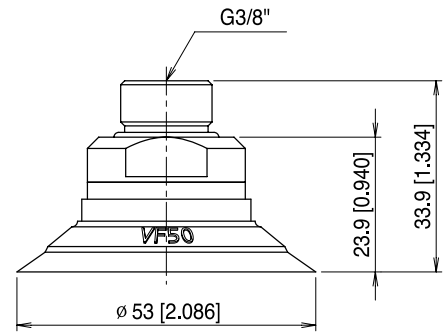
☞ Refer to page 80 about dimension of Vacuum Speeder.



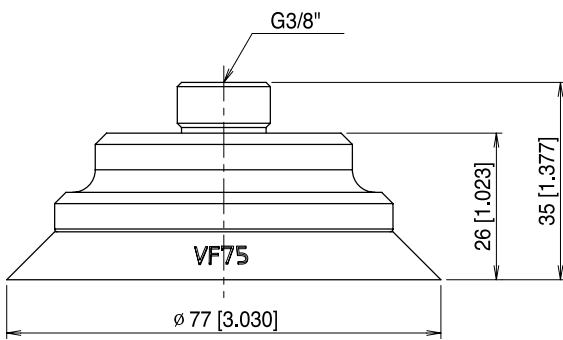
VF30..38M



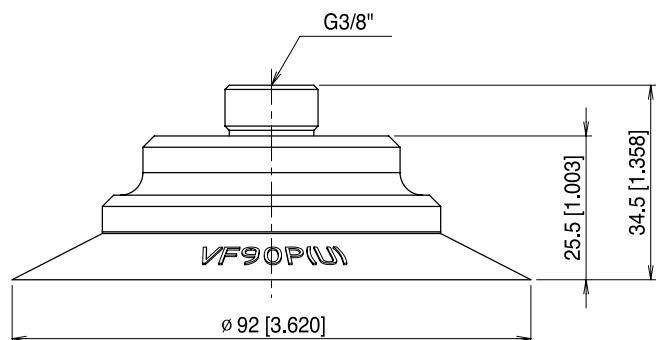
VF40..38M



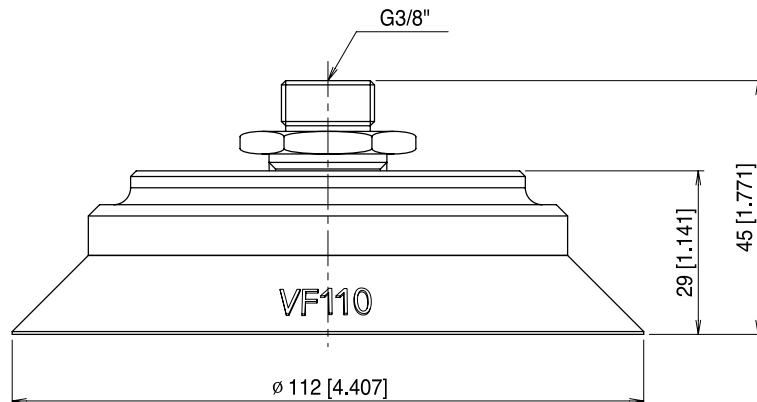
VF50..38M



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 77, 78

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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
- 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

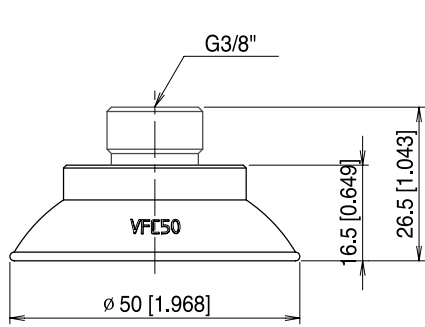
* Remark : Including mesh filter

Technical Data

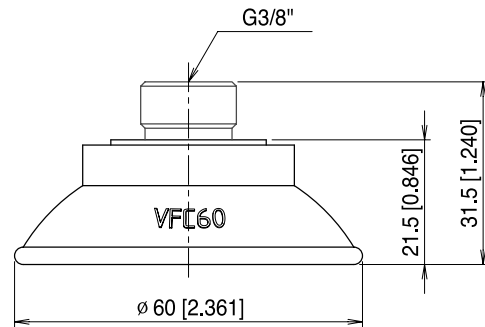
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) – Perpendicular			Lifting Force (lb.f) – Parallel		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VFC50	0,918 scfm (26 NI/m)	7,87	19,11	28,1	7,87	19,11	24,73
VFC60		12,12	30,86	40,78	11,9	30,86	41,66
VFC75		16,86	42,72	56,24	17,98	44,97	60,73
VFC90		20,61	54,71	71,98	20,98	47,59	61,48
VFC100		28,1	78,72	103,4	26,98	52,84	62,98

Dimension

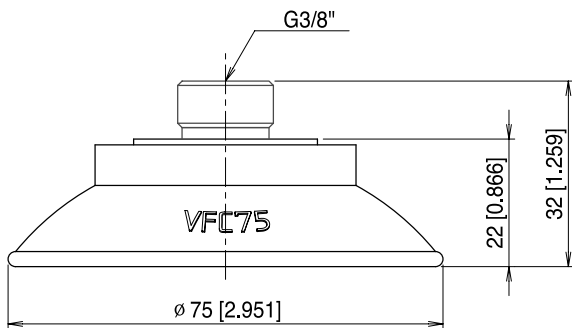
☞ Refer to page 80 about dimension of Vacuum Speeder.



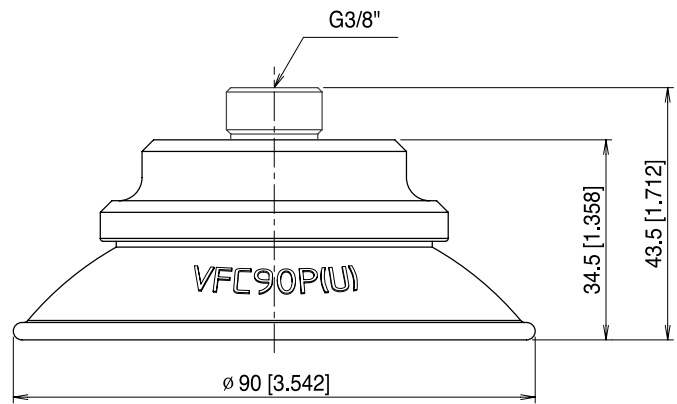
VFC50..38M



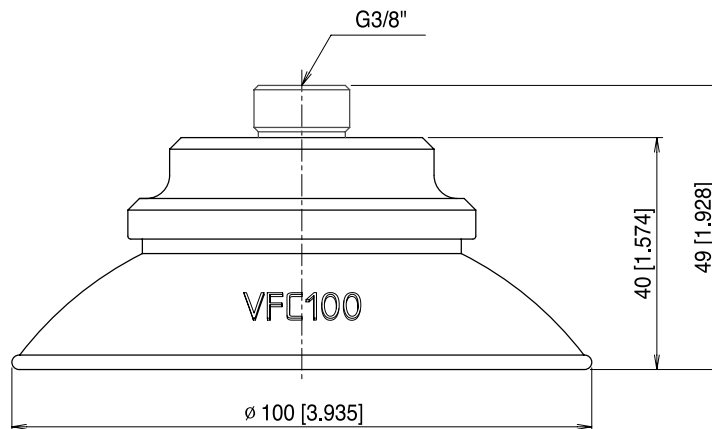
VFC60..38M



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 77, 78

①

②

③

④

① Suction cup Ø

VOU 15X45

- VOU 20X60

② Material

- N – NBR

S – Silicon

WS – White Silicon

CS – Conductive (Special mat'l)

U – Urethane

③ Filter

- F – With mesh filter

* Required option

④ Thread size

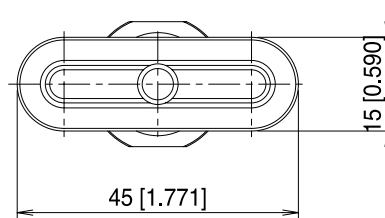
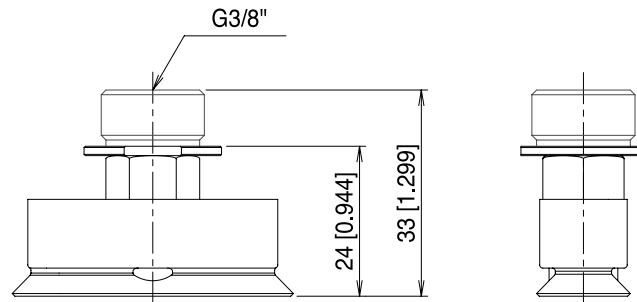
- 38M – G3/8" male

Technical Data

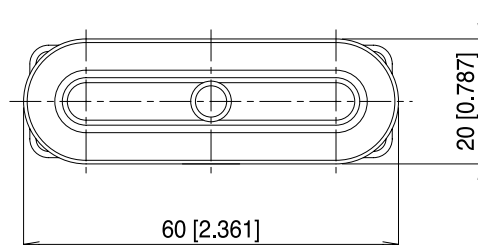
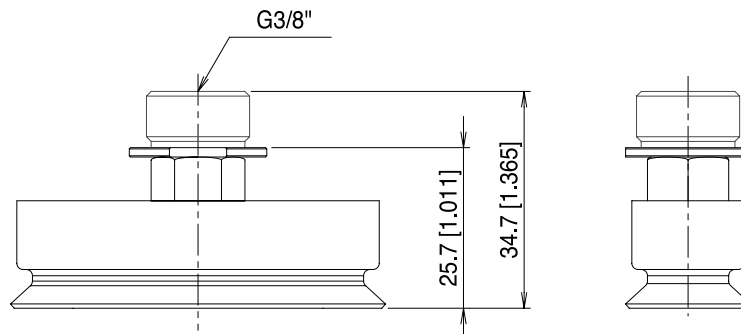
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) – Perpendicular		
		-6 inHg	-18 inHg	-27 inHg
VOU 15X45	0,918 scfm (26 NI/m)	2.2	4.6	7.2
VOU 20X60		4.5	10.6	14

Dimension

☞ Refer to page 80 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 77, 78

①

②

③

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
- CS – Conductive (Special mat'l)
- U – Urethane
- A – Mark free

③ Thread size

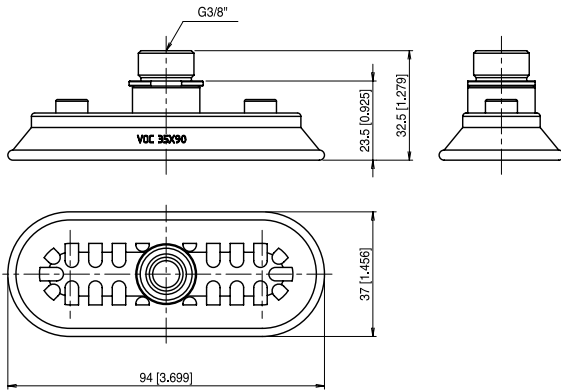
- **38M** – G3/8" male
- * Remark : Including mesh filter

Technical Data

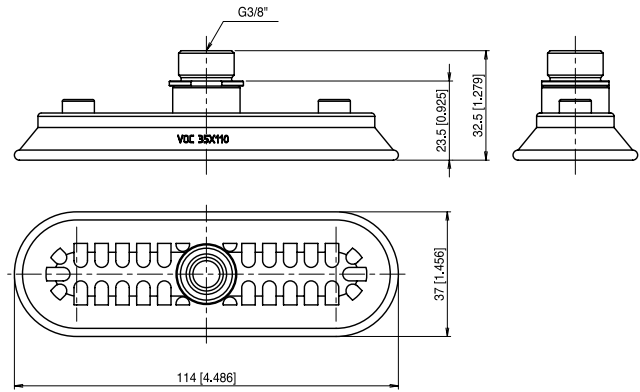
Cup Ø	Air consumption at 45.5 psi	Lifting Force (lb.f) – Perpendicular			Lifting Force (lb.f) – Parallel		
		-6 inHg	-18 inHg	-27 inHg	-6 inHg	-18 inHg	-27 inHg
VOC 35X90	0,918 scfm (26 NI/m)	11	29,5	36,36	15,2	36,15	46,29
VOC 35X110		13,77	36,8	47,84	18,95	45,19	57,32
VOC 60X140		29,54	83,7	116,8	41,66	83,77	114,6
VOC 60X180		42,1	119,4	166,8	59,52	119,5	163,1

Dimension

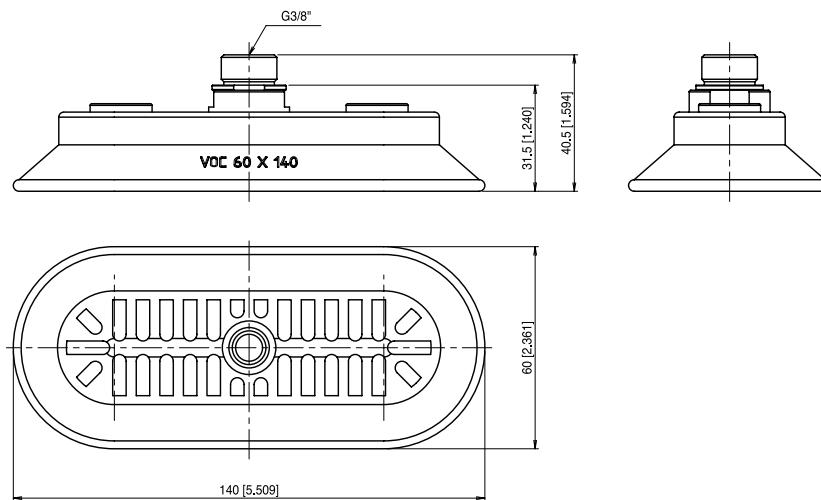
☞ Refer to page 80 about dimension of Vacuum Speeder.



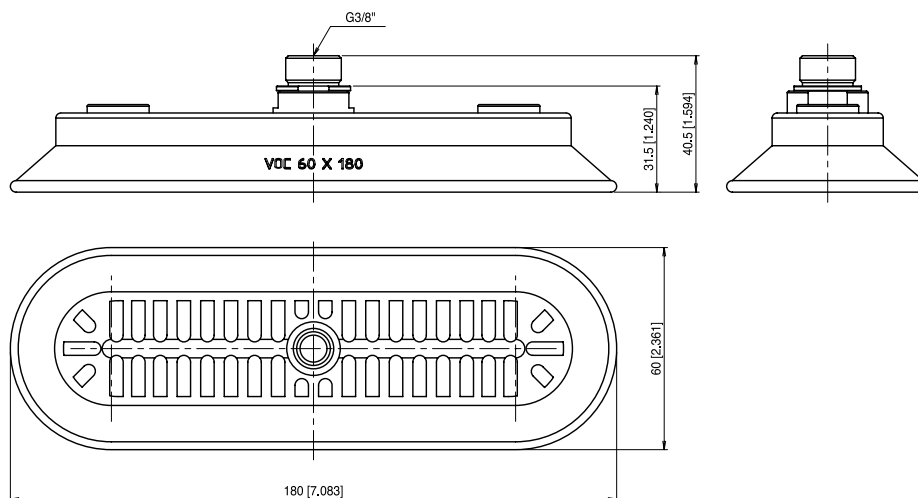
VOC 35X90..38M



VOC 35X110..38M



VOC 60 X 140..38M



VOC 60X180..38M

Measure unit : mm [inch]

VACUUM
SPEEDER

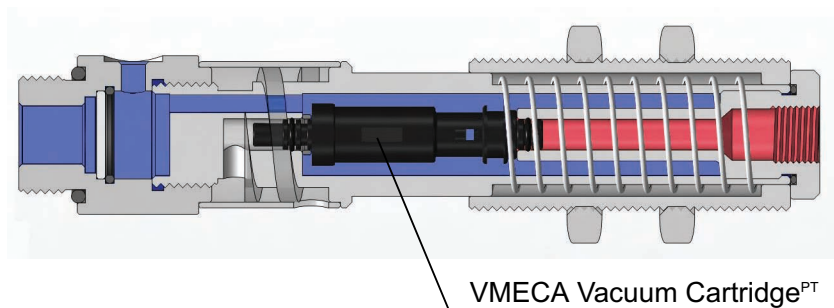
Series VCS 202..

- Max. vacuum level** : -26.57 inHg (-90kPa)
- Max. flow rate** : 1.45 scfm (41.3 NI/min)
- Supply air pressure** : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- Air consumption** : 14.6 scfm (416 NI/min)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F ~ 176 °F
- 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
 - N18M – NPSF" 1/8 Male
 - N38M – NPSF" 3/8 Male
 - N12M – NPSF" 1/2 Male

- ② Stroke
- 20 – 0.78 in

Performance Data

Vacuum flow, scfm, at different vacuum level -inHg

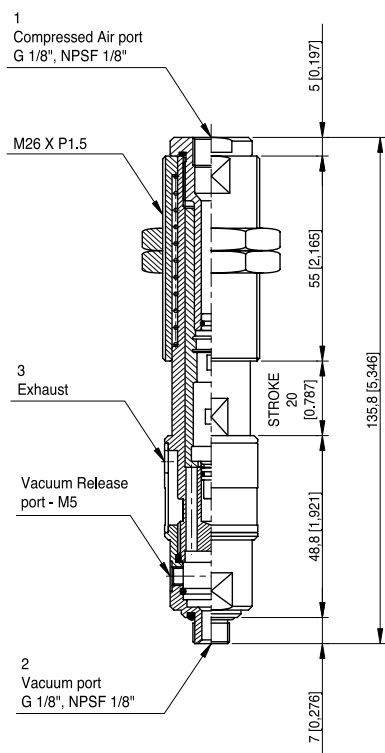
MAX. Vacuum (-inHg)	Feed pressure (psi)	0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
14.76	24.65	1.23	0.89	0.45	0.29	0.14	-	-	-	-	-
19.19	31.9	1.37	1.04	0.6	0.4	0.28	0.18	0.049	-	-	-
26.57	45.54	1.45	1.3	0.918	0.558	0.388	0.314	0.23	0.137	0.07	-
25.1	58	1.42	1.5	1.904	0.812	0.497	0.268	0.226	0.137	0.046	-

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

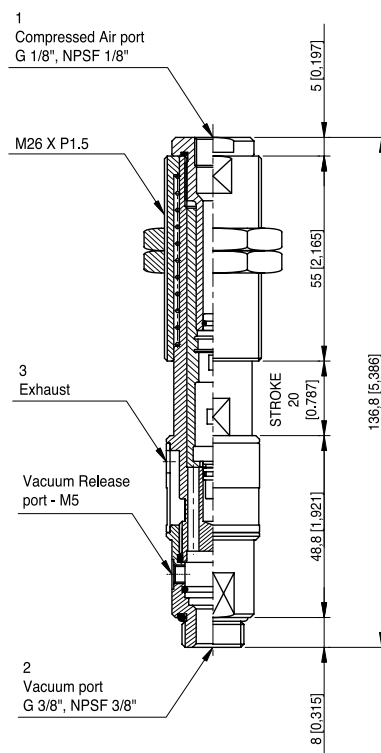
Feed pressure (psi)	Air consumption (scfm)	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
24.65	0.6	0.26	0.59	1.29	2.56	-	-	-	-	-
31.9	0.7	0.8	0.48	0.95	1.55	2	2.5	-	-	-
45.54	0.92	0.15	0.37	0.61	1.5	1.5	2	3.8	6.2	-
58	1.13	0.14	0.39	0.59	0.9	1.2	1.8	3.2	6.9	-

Dimensional information

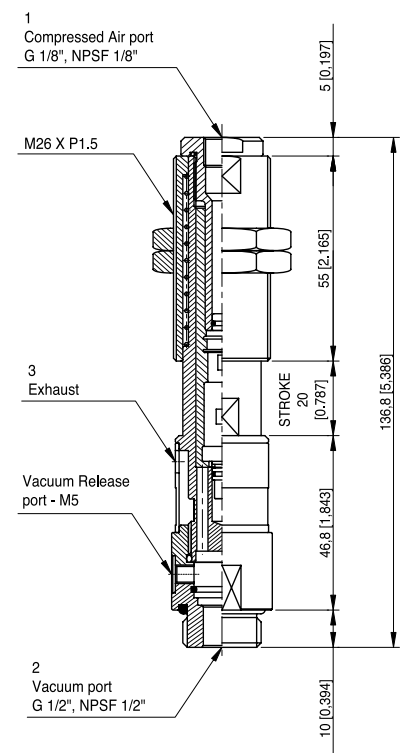
▼ VCS202-18M20
VCS202-N18M20



▼ VCS202-38M20
VCS202-N38M20



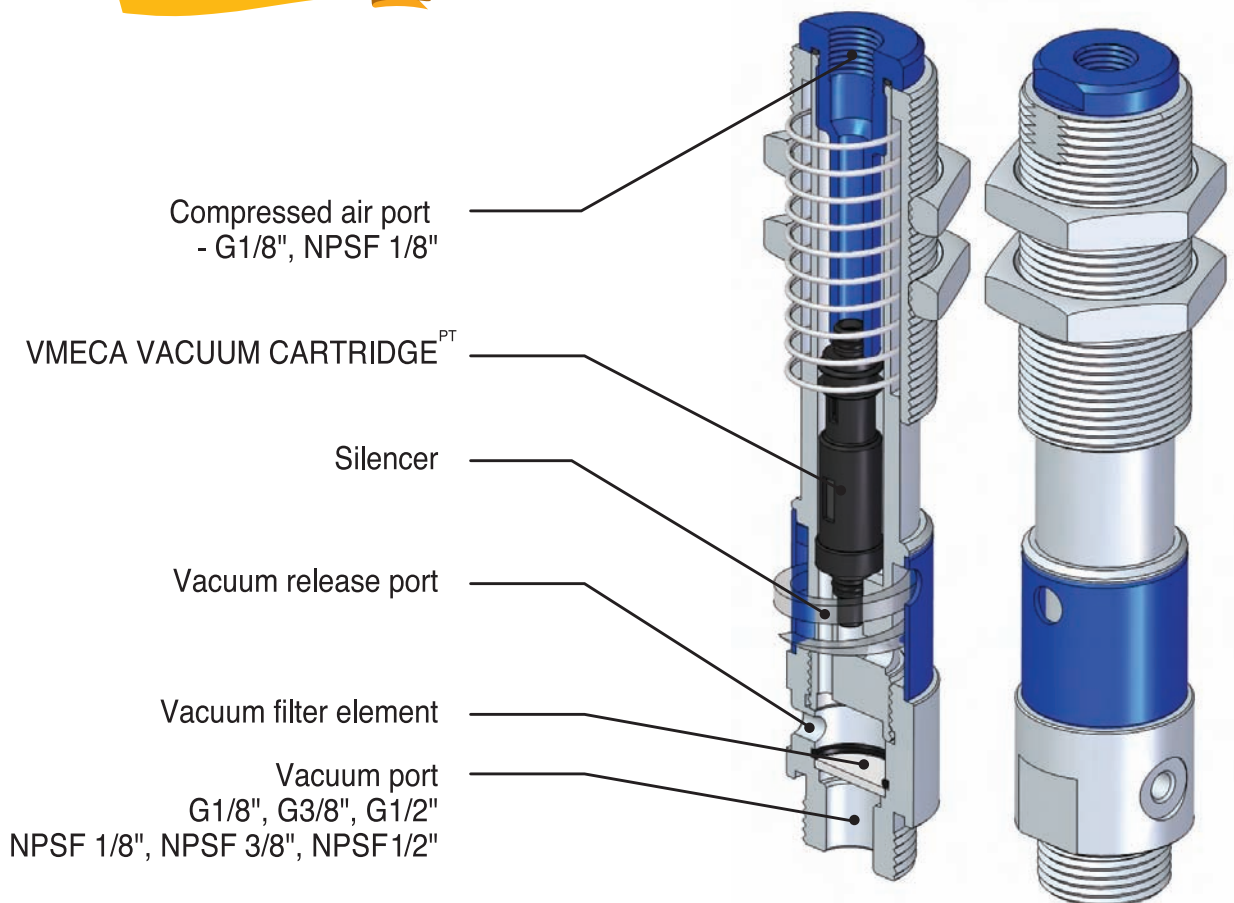
▼ VCS202-12M20
VCS202-N12M20



Measure unit : mm [inch]

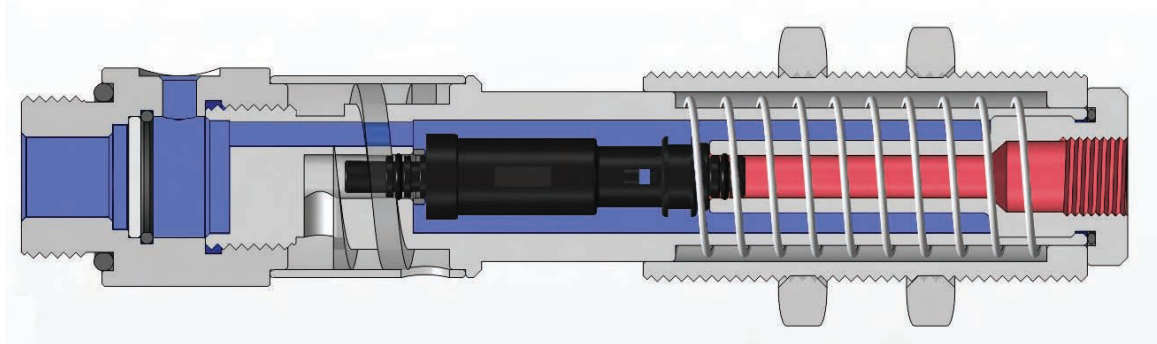
Constructions

**PATENT &
PATENT PENDING**



Features

- VMECA Vacuum speeder operates at 3~6bar(43.5~87 psi) air pressure and maintains vacuum (-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.

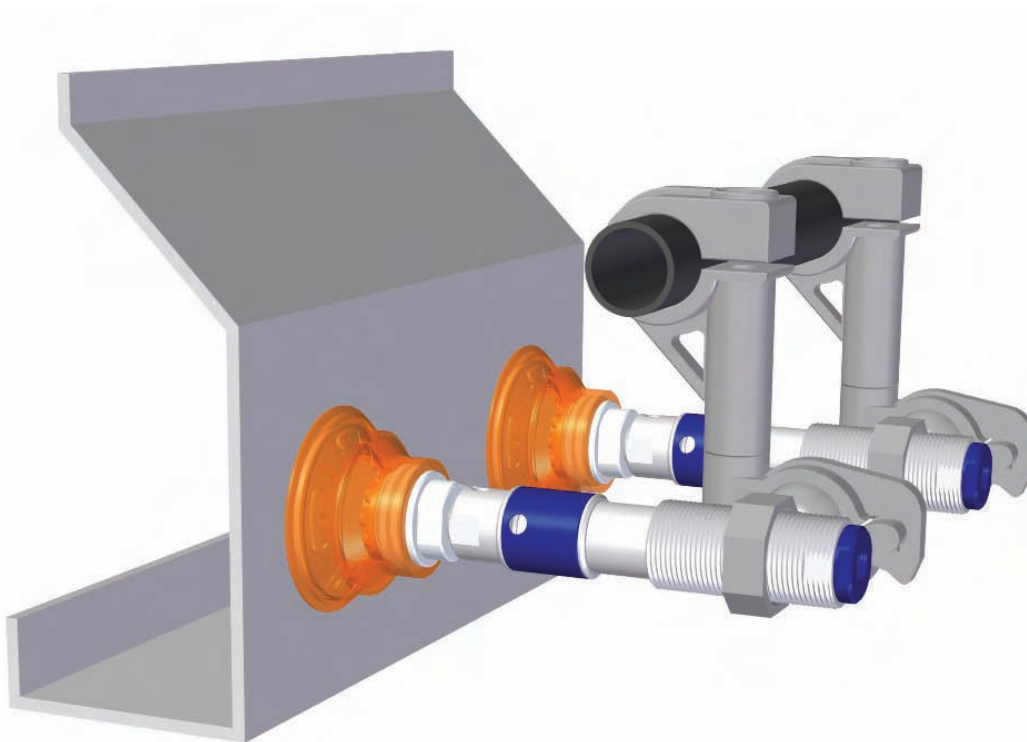


■ Vacuum Zone

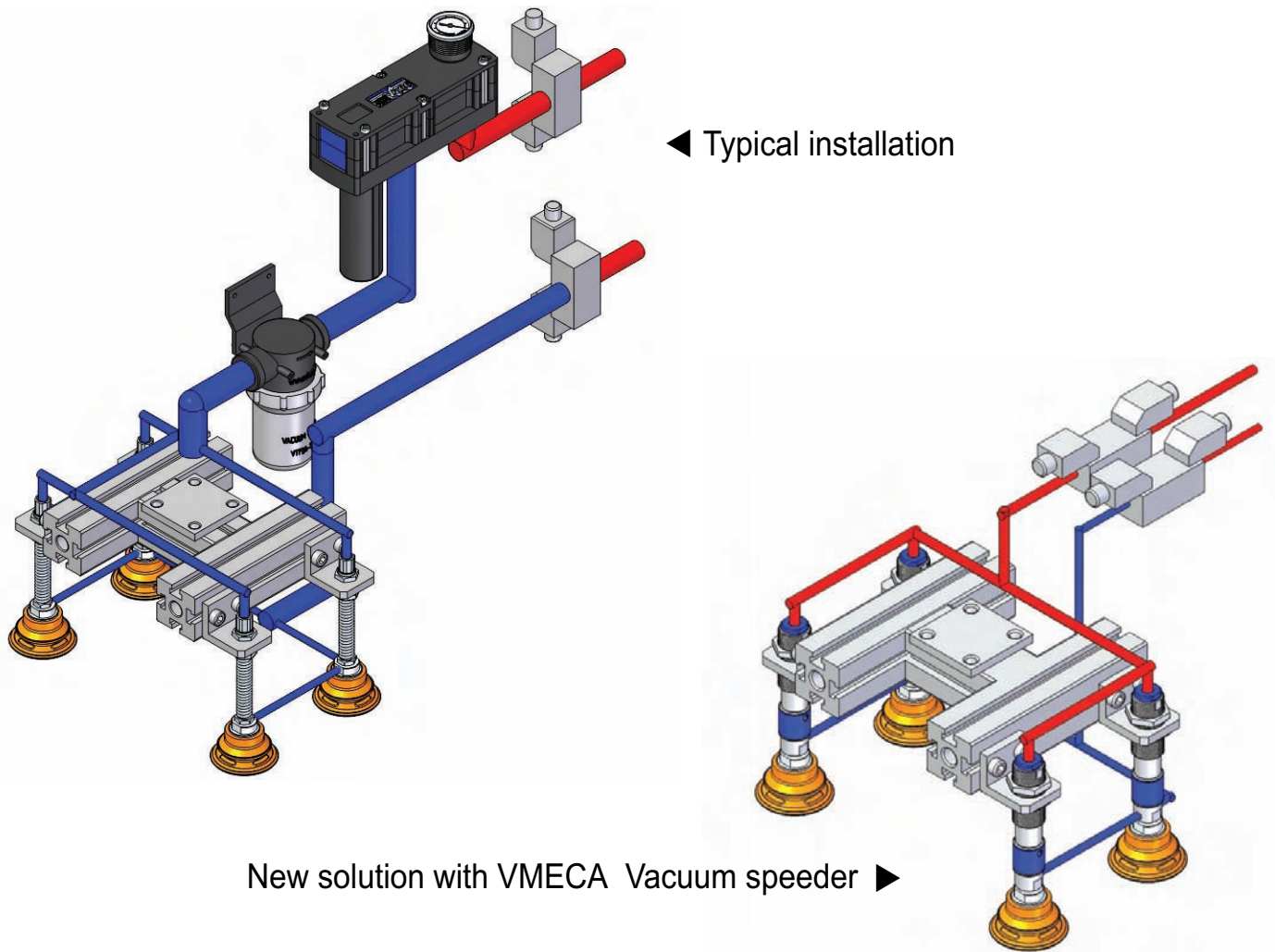
■ Compressed-air feed zone

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.103~117



Midi Turtle Pump P.118~137



Mega Turtle Pump P.118~127
P.140~149



V-Pump P.152~161



MD-Pump P.164~173



Premium Pump P.176~189



Mini Keyboard Pump P.192~195



Midi Keyboard Pump P.196~207



Mega Keyboard Pump P.208~219



Mini Pump P.222~227



One-Line Pump P.228~231



Minimultiple Pump P.232~237



Midimultiple Pump P.238~243



Duplex Pump P.244~251



Conveying Pump P.252~255



L-Class Pump P.258~261

VL-Class Pump P.262~265

M-Class Pump P.266~269

X-Class Pump P.270~273

H-Class Pump P.282~285



MM-Midiflex Pump P.274~277

MX-Midiflex Pump P.278~281

H-Midiflex Pump P.282~287



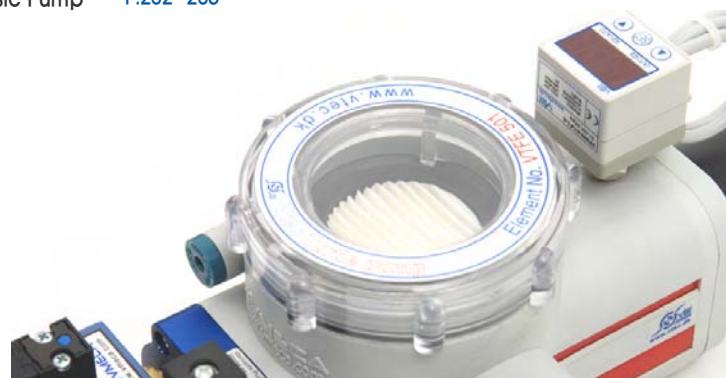
L-Maxflex Pump P.288~293

M-Maxflex Pump P.294~299



Mega Pump P.300~305

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 -5.9kPa)

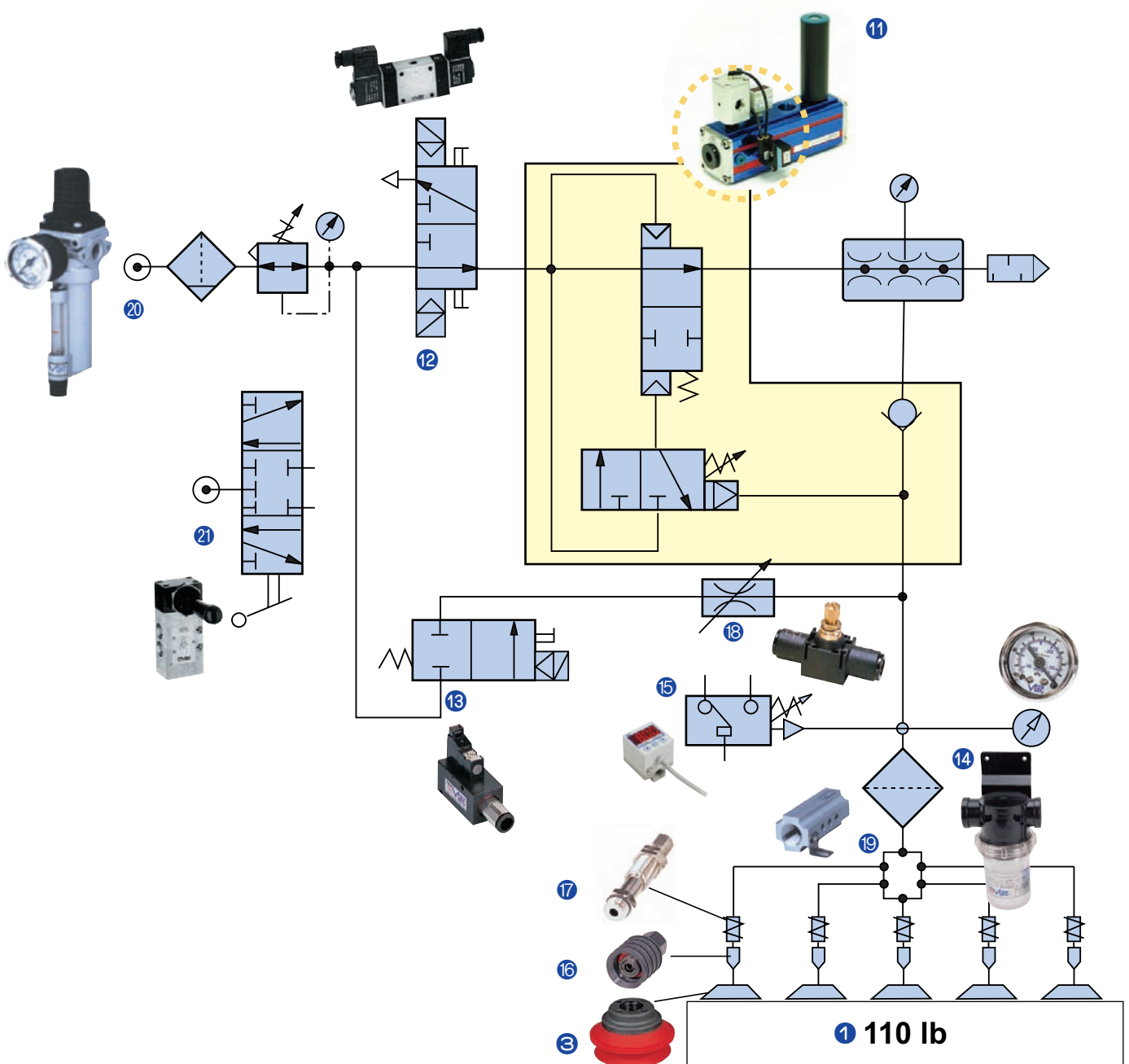
AS-KIT (Air saving system)

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 (110 lb) with suction cup and suction time-within 0.3sec using to the condition as follows :

Condition : air pipe length=118in, air pipe(hose) inner diameter=0.236in, Quantity of suction cup ; 5 pcs
 What is proper vacuum pump & suction cup model?



① Moving weight (lb)	: 110
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 (in)	: 3.07 "
⑦ Air vacuum hose length (in)	: 118 "
⑧ Inner diameter of air hose (in)	: 0.236 "
⑨ Volume of suction cup (in³)	: 6.71
⑩ Volume of vacuum air hose (in³)	: 5.16
⑪ Selected vacuum Pump	: VTM 50L - 1834 - AS
⑫ Air supply control valve	: VMS18 3 - 3
⑬ Vacuum release control valve	: VMS18 3 - 3
⑭ Selected vacuum filter (You can be select to size of a vacuum filter according to capability of infected material.)	: VTF 34N - 2
⑮ Vacuum switch (transition signal for next movement)	: V20C..
⑯ Ball joint (to use in curve or uneven objects)	: BJ 12
⑰ Level spring (to use to compensate differences in level)	: 1230T
⑱ Needle valve (vacuum level controlling valve)	: 7770-08
⑲ Vacuum manifold	: VTDC34-14X5
⑳ Air filter / regulator (remove to dust, water, rust, etc.)	: VTARF-14
㉑ Hand valve (using to manual)	

▶ HOW TO SELECT SUCTION CUP SIZE

$$D = 1.64 \times \sqrt{\frac{MXN}{UXS}} = 1.64 \times \sqrt{\frac{110 \times 2}{17.71 \times 5}} = 2.585 \text{ in}$$

D = diameter size of suction cup (in)
M = weight (lb)
U = vacuum level (-inHg)
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 X 5 Pcs = 6.71 in³ X 5 Pcs = 33.55 in³ (*Please refer to page 18.19 for the Volume of suction cup)

• 33.55 in³ → 0.55ℓ (Quantity of suction cup : 5Pcs)

▶ THE TOTAL CAPACITY OF AIR PIPE & SUCTION CUP

$$V = \frac{\pi d^2 \times L}{4} = \frac{3.14 \times 0.236^2 \times 118}{4} \cong 5.16 \text{ in}^3 \cong 0.085 \ell$$

V = Capacity(liter) d² = inside diameter of air pipe(in) L = the length of air pipe(in)

VTF 34N - 2 : 9.76 in³ Needed vacuum capacity = the capacity of suction cup + the capacity of air pipe + the vacuum filter

• 0.16 0.795ℓ = 0.55ℓ + 0.085ℓ + 0.16ℓ

▶ 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.

Pump Characteristics

Model	MAX. Vacuum (-inHg)	Supply Air pressure (psi)	Max. Vacuum Flow (scfm)	Air consumption (scfm)	Noise level (dBA)	Min. hose inner ϕ (within 6.5ft)			
						Air supply	Vacuum	Exhaust	
VTC 3021	22.15	31.9	5.79	3.43	50 ~60	6	8	10	
	27.46	43.5	6	4.17					
	27.46	58	6.04	5.37					
VTC 3031	22.15	31.9	10.67	3.43					
	27.46	43.5	11.94	4.17					
	27.46	58	12.04	5.37					
VTCL 3021	17.72	58	6.64	2.47					
	20.67	72.5	6.89	3					
	22.15	87	7.06	3.67					
VTCL 3031	17.72	58	10.67	2.47					
	20.67	72.5	12.15	3					
	22.15	87	12.78	3.67					
VTC 3022	22.15	31.9	11.58	6.85		60~65	8	12	18
	27.46	43.5	12	8.33					
	27.46	58	12.08	10.73					
VTC 3032	22.15	31.9	21.33	6.85					
	27.46	43.5	23.87	8.33					
	27.46	58	24.08	10.73					
VTCL 3022	17.72	58	13.28	4.94					
	20.67	72.5	13.77	6					
	22.15	87	14.13	7.35					
VTCL 3032	17.72	58	21.33	4.94					
	20.67	72.5	24.3	6					
	22.15	87	25.57	7.35					
VTC 3122	22.15	31.9	11.58	6.85	60 ~65		8	15	15
	27.46	43.5	12	8.33					
	27.46	58	12.08	10.73					
VTC 3123	22.15	31.9	17.37	10.27					
	27.46	43.5	18.01	12.5					
	27.46	58	18.11	16.1					
VTC 3124	22.15	31.9	23.16	13.7					
	27.46	43.5	24.01	16.67					
	27.46	58	24.15	21.47					
VTC 3132	22.15	31.9	21.33	6.85					
	27.46	43.5	23.87	8.33					
	27.46	58	24.08	10.73					
VTC 3133	22.15	31.9	31.85	10.27					
	27.46	43.5	35.81	12.5					
	27.46	58	36.13	16.1					
VTC 3134	22.15	31.9	42.66	13.7					
	27.46	43.5	47.75	16.67					
	27.46	58	48.17	21.47					
VTCL 3122	17.72	58	13.28	4.94					
	20.67	72.5	13.77	6					
	22.15	87	14.12	7.34					
VTCL 3123	17.72	58	19.92	7.41					
	20.67	72.5	20.66	9					
	22.15	87	21.19	11.01					
VTCL 3124	17.72	58	26.55	9.88					
	20.67	72.5	27.54	12					
	22.15	87	28.25	14.69					
VTCL 3132	17.72	58	21.33	4.94					
	20.67	72.5	24.3	6					
	22.15	87	25.56	7.34					
VTCL 3133	17.72	58	31.99	7.41					
	20.67	72.5	36.44	9					
	22.15	87	38.35	11.01					
VTCL 3134	17.72	58	42.66	9.88					
	20.67	72.5	48.59	12					
	22.15	87	51.13	14.69					

Pump Characteristics

Model	MAX. Vacuum (-inHg)	Supply Air pressure (psi)	Max. Vacuum Flow (scfm)	Air consumption (scfm)	Noise level (dBA)	Min. hose inner ϕ (within 6.5ft)					
						Air supply	Vacuum	Exhaust			
VS 144	22.15	31.9	10.67	3.43	50 ~60	6	8	10			
	27.46	43.5	11.94	4.17							
	27.46	58	12.04	5.37							
VS 146	22.15	31.9	10.67	3.43		50 ~60	6	8	10		
	27.46	43.5	11.94	4.17							
	27.46	58	12.04	5.37							
VS 148	22.15	31.9	10.67	3.43			50 ~60	6	8	10	
	27.46	43.5	11.94	4.17							
	27.46	58	12.04	5.37							
VLS 144	17.72	58	10.67	2.47				50 ~60	6	8	10
	20.67	72.5	12.15	3							
	22.15	87	12.78	3.67							
VLS 146	17.72	58	10.67	2.47	50 ~60				6	8	10
	20.67	72.5	12.15	3							
	22.15	87	12.78	3.67							
VLS 148	17.72	58	10.67	2.47		50 ~60			6	8	10
	20.67	72.5	12.15	3							
	22.15	87	12.78	3.67							
MD 302	22.15	31.9	5.79	3.43			50 ~60		6	8	10
	27.46	43.5	6	4.17							
	27.46	58	6.04	5.37							
MD 303	22.15	31.9	10.67	3.43				50 ~60	6	8	10
	27.46	43.5	11.94	4.17							
	27.46	58	12.04	5.37							
MDL 302	17.72	58	6.64	2.47	50 ~60				6	8	10
	20.67	72.5	6.89	3							
	22.15	87	7.06	3.67							
MDL 303	17.72	58	10.67	2.47		50 ~60			6	8	10
	20.67	72.5	12.15	3							
	22.15	87	12.78	3.67							
PM 303 X 1	22.15	31.9	10.67	3.43			60 ~65		8	12	12
	27.46	43.5	11.94	4.17							
	27.46	58	12.04	5.37							
PM 303 X 2	22.15	31.9	21.33	6.85				60 ~65	8	15	15
	27.46	43.5	23.87	8.33							
	27.46	58	24.08	10.73							
PM 303 X 3	22.15	31.9	31.85	10.27	60 ~65				10	19	22
	27.46	43.5	35.81	12.5							
	27.46	58	36.13	16.1							
PM 303 X 4	22.15	31.9	42.66	13.7		60 ~65			10	22	32
	27.46	43.5	47.75	16.67							
	27.46	87	48.17	21.47							
PML 303 X 1	17.72	58	10.66	2.47			60 ~65		8	12	12
	20.67	72.5	12.15	3							
	22.15	87	12.78	3.67							
PML 303 X 2	17.72	58	21.33	4.94				60 ~65	8	15	15
	20.67	72.5	24.3	6							
	22.15	87	25.56	7.34							
PML 303 X 3	17.72	58	31.99	7.41	60 ~65				10	19	22
	20.67	72.5	36.44	9							
	22.15	87	38.35	11.01							
PML 303 X 4	17.72	58	42.66	9.88		60 ~65			10	22	32
	20.67	72.5	48.59	12							
	22.15	87	51.13	14.69							

Pump Characteristics

Model	MAX. Vacuum (-inHg)	Supply Air pressure (psi)	Max. Vacuum Flow (scfm)	Air consumption (scfm)	Capacity equivalent to electricity motor pump size (kw)	Noise level (dBA)	Min. hose inner ø (within 6.5ft)		
							Air supply	Vacuum	Exhaust
VKX5	27.17	43.5-87	0.812	0.46 - 0.78	0.03	50-65	>2	>2	
VKM5	25.1	43.5-87	0.918	0.42 - 0.74	0.03		>2	>2	
VKM61	25.1	43.5-87	1.307	0.53 - 0.74	0.05	50-65	>4-10	>6	>10
VKM62		43.5-87	2.613	1.06 - 1.48	0.1		>4-10	>6	>10
VKX61	27.17	43.5-87	1.095	0.76 - 0.85	0.05	50-65	>4-10	>6	>10
VKX62		43.5-87	2.190	1.53 - 1.70	0.1		>4-10	>6	>10
VKX73	27.17	43.5-87	3.320	1.73 - 2.33	0.15	50-65	>4-10	>8	>12
VKX74		43.5-87	3.850	2.33 - 3.11	0.2		>4-10	>8	>12
VKM73	25.1	43.5-87	3.920	1.41 - 2.05	0.15	50-65	>4-10	>8	>12
VKM74		43.5-87	4.768	1.91 - 2.75	0.2		>4-10	>8	>12
VTOM5-(N)Stack	25.1	79.77	0.954	0.53xN - 0.74xN	0.05XN	50-65	>8-10	>2.5	>10
VTOM10-(N)Stack		79.77	1.236	1.06xN - 1.48xN	0.1XN		>8-10	>4	>12
VTOX5-(N)Stack	27.17	76.87	0.848	0.76xN - 0.85xN	0.05XN	50-65	>8-10	>2.5	>10
VTOX10-(N)Stack		76.87	1.130	1.53xN - 1.70xN	0.1XN		>8-10	>4	>12
VTM5-(N)Stack	25.1	79.77	0.954	0.53xN - 0.74xN	0.05XN	50-65	>8-10	>2.5	>10
VTM10-(N)Stack		79.77	1.236	1.06xN - 1.48xN	0.1XN		>8-10	>4	>12
VTM10X(N)B(BA,...NC)	25.1	79.77	2.613	1.06xN - 1.48xN	0.1	50-65	>8-10	>8	>10x(N)
VTM20X(N)B(BA,...NC)		79.77	5.262	2.12xN - 2.97xN	0.2		>8-10	>10	>12x(N)
VTM30X(N)B(C,...NC)		79.77	7.770	3.18xN - 4.45xN	0.3		>8-10	>12	>12x(N)
VTM5-A(B,...NC)	25.1	79.77	1.307	0.53 - 0.88	0.05	50-65	>2	>5	>8
VTM10-A(B,...NC)		79.77	2.613	1.06 - 1.48	0.1		>2	>8	>10
VTM20-B(C,...NC)		79.77	5.262	2.12 - 2.97	0.2		>4	>10	>12
VTM30-B(C,...NC)		79.77	7.770	3.18 - 4.45	0.3		>6	>12	>15
VTM20KD	25.1	79.77	5.262	2.12 - 2.97	0.2	50-65	>4	>10	>12
VTM30KD		79.77	7.770	3.18 - 4.45	0.3		>6	>10	>15
VTM40KD		79.77	10.312	4.24 - 5.93	0.4		>6	>12	>15
VTM50KD		79.77	12.043	5.30 - 7.63	0.5		>8	>12	>18
VTM60KD		79.77	13.774	6.36 - 8.90	0.6		>8	>15	>18
VTM25L	26.87	49.31	12.891	4.03	0.25	50-65	>4	>12	>12
VTM50L		49.31	21.967	8.05	0.5		>6	>15	>15
VTM75L		49.31	29.701	12.08	0.75		>8	>19	>22
VTM100L		49.31	37.436	16.10	1.0		>8	>19	>22
VTM125L		49.31	42.203	20.13	1.25		>10	>25	>32
VTM150L		49.31	48.384	24.16	1.5		>10	>25	>32
VTL25	23.62	87.02	13.385	2.75 - 3.71	0.25	50-65	>4	>12	>12
VTL50		87.02	22.956	5.51 - 7.42	0.5		>6	>15	>15
VTL75		87.02	28.960	8.26 - 11.12	0.75		>8	>19	>22
VTL100		87.02	34.964	11.02 - 14.83	1		>8	>19	>22
VTL125		87.02	38.495	13.77 - 18.54	1.25		>10	>25	>32
VTL150		87.02	46.018	16.53 - 22.25	1.5		>10	>25	>32
VTL175		87.02	59.403	19.28 - 25.96	1.75		>10	>32	>40
VTL200		87.02	72.788	22.04 - 29.67	2		>10	>32	>40
VTM25	27.17	84.12	13.738	2.75 - 3.81	0.25	50-65	>4	>12	>12
VTM50		84.12	22.850	5.30 - 7.42	0.5		>6	>15	>15
VTM75		84.12	31.432	8.05 - 11.23	0.75		>8	>19	>22
VTM100		84.12	38.848	10.60 - 14.83	1		>8	>19	>22
VTM125		84.12	42.380	13.35 - 18.65	1.25		>8	>25	>32
VTM150		84.12	48.737	15.89 - 22.25	1.5		>10	>25	>32
VTM175		84.12	52.622	18.65 - 26.06	1.75		>10	>32	>40
VTM200		84.12	55.800	21.19 - 29.67	2		>10	>32	>40

Pump Characteristics

Model	MAX. Vacuum (-inHg)	Supply Air pressure (psi)	Max. Vacuum Flow (scfm)	Air consumption (scfm)	Capacity equivalent to electricity motor pump size(kw)	Noise level (dBA)	Min. hose inner ϕ (within 6.5ft)		
							Air supply	Vacuum	Exhaust
VTMM100	27.17	84.12	45.559	10.60 - 14.83	1	55-65	>8	>19	>22
VTMM150		84.12	61.451	15.89 - 22.25	1.5		>10	>25	>32
VTMM200		84.12	75.931	21.19 - 27.55	2		>10	>32	>40
VTMM200F		84.12	77.697	21.19 - 27.55	2		>10	>32	>40
VTM150LEF	26.87	49.31	59.332	24.16	1.5	55-68	>8	>25	>32
VTM200LEF		49.31	74.165	32.21	2		>10	>32	>40
VTM300LEF		49.31	91.823	48.31	3		>12	>40	>60
VTM400LEF		49.31	112.307	64.42	4		>12	>40	>60
VTM500LEF		49.31	148.330	80.52	5		>14	>45	>70
VTM600LEF		49.31	176.937	96.63	6		>14	>50	>70
VTM800LEF		49.31	215.432	128.84	8		>15	>50	>75
VTMM200EF	27.17	87.02	77.697	21.19 - 27.55	2	55-68	>10	>32	>40
VTMM300EF		87.02	116.545	31.79 - 44.50	3		>12	>40	>60
VTMM400EF		87.02	155.393	42.38 - 59.33	4		>12	>40	>60
VTMM500EF		87.02	194.242	52.98 - 74.17	5		>14	>45	>70
VTMM600EF		87.02	233.090	63.57 - 89.00	6		>14	>50	>70
VTMM800EF		87.02	310.787	84.76 - 118.66	8		>15	>50	>75
VTMM1000EF		87.02	388.483	105.95 - 148.33	10		>18	>65	>95
VTML200	27.17	87.02	85.113	21.19 - 27.55	2	68-76	>10	>32	>40
VTML400		87.02	170.226	42.38 - 59.33	4		>12	>40	>60
VTML600		87.02	255.340	63.57 - 89.00	6		>14	>50	>70
VTML800		87.02	340.453	84.76 - 118.66	8		>15	>50	>75
VTML1000		87.02	425.566	105.95-146.21	10		>18	>65	>90
VTML1200		87.02	510.679	127.14-173.76	12		>20	>75	>100
VTX5-(N)Stack	27.17	87.02	0.848	0.76xN - 0.85xN	0.05xN	55-65	>8-10	>2.5	>12
VTX10-(N)Stack		87.02	1.130	1.53xN - 1.70xN	0.1xN		>8-10	>4	>12
VTX10x(N-B(BA,...NC))	27.17	76.87	2.190	1.53xN - 1.70xN	0.1	50-65	>8-10	>8	>10xN
VTX20x(N-B(BA,...NC))		76.87	4.379	3.05xN - 3.39xN	0.2		>8-10	>10	>12xN
VTX30x(N-B(BA,...NC))		76.87	6.534	4.58xN - 5.09xN	0.3		>8-10	>12	>12xN
VTX5-A(B,...NC)	27.17	76.87	1.130	0.76 - 0.85	0.05	50-68	>2	>5	>8
VTX10-A(B,...NC)		76.87	2.190	1.53 - 1.70	0.1		>2	>8	>10
VTX20-B(C,...NC)		76.87	4.379	3.05 - 3.39	0.2	55-65	>4	>10	>12
VTX30-B(C,...NC)		76.87	6.534	4.58 - 5.09	0.3		>6	>12	>15
VTX20KD	27.17	76.87	4.379	3.05 - 3.39	0.2	57-65	>4	>10	>12
VTX30KD		76.87	6.534	4.58 - 5.09	0.3		>6	>10	>15
VTX40KD		76.87	8.723	6.10 - 6.78	0.4		>6	>12	>15
VTX50KD		76.87	10.242	7.63 - 8.48	0.5		>6	>12	>18
VTX60KD		76.87	11.725	9.15 - 10.17	0.6		>6	>15	>18
VTX25		28.64	87.02	6.534	5.30 - 7.42		0.4	55-65	>4
VTX50	87.02		12.891	8.05 - 11.23	0.8	>6	>15		>15
VTX75	87.02		18.400	10.60 - 14.83	1.2	>8	>19		>22
VTMX100	28.64	87.02	24.545	17.80 - 21.19	1	63-68	>8	>19	>22
VTMX200		87.02	36.623	26.70 - 31.79	2		>8	>25	>32
VTMX300		87.02	47.854	35.60 - 42.38	3		>10	>32	>40
VTH50	29.76	87.02	6.534	4.24 - 5.51	0.3	60-65	>6	>12	>12
VTH150		87.02	18.400	14.83 - 16.10	0.9		>8	>15	>15
VTH300		87.02	36.800	30.73 - 32.21	1.2		>10	>19	>22

Vacuum flow (scfm) at different vacuum level (-inHg)

Model	MAX. Vacuum (-inHg)	(-inHg)		0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
		Feed pressure (psi)											
VTC 3021	22.15	31.9	5.79	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-	-
	27.46	43.5	6	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067	-
	27.46	58	6.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074	-
VTC 3031	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067	-
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074	-
VTCL 3021	17.72	58	6.64	5.58	3.88	2.47	1.62	0.99	0.24	-	-	-	-
	20.67	72.5	6.89	6.22	4.59	2.9	1.77	1.32	0.81	0.4	-	-	-
	22.15	87	7.06	6.46	5.44	3.53	1.84	1.34	1.13	0.78	-	-	-
VTCL 3031	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-	-
VTC 3022	22.15	31.9	11.58	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-	-
	27.46	43.5	12	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13	-
	27.46	58	12.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15	-
VTC 3032	22.15	31.9	21.33	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-	-
	27.46	43.5	23.87	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13	-
	27.46	58	24.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15	-
VTCL 3022	17.72	58	13.28	11.16	7.77	4.94	3.25	1.98	0.48	-	-	-	-
	20.67	72.5	13.77	12.43	9.18	5.79	3.53	2.65	1.62	0.84	-	-	-
	22.15	87	14.13	12.93	10.88	7.06	3.67	2.68	2.26	1.55	-	-	-
VTCL 3032	17.72	58	21.33	12.43	7.77	4.94	3.25	1.98	0.48	-	-	-	-
	20.67	72.5	24.3	13.84	9.18	5.79	3.53	2.65	1.62	0.84	-	-	-
	22.15	87	25.57	14.66	10.88	7.06	3.67	2.68	2.26	1.55	-	-	-
VTC 3122	22.15	31.9	11.58	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-	-
	27.46	43.5	12	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13	-
	27.46	58	12.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15	-
VTC 3123	22.15	31.9	17.37	12.96	9.32	5.61	3.32	3.03	1.76	0.49	-	-	-
	27.46	46.5	18.01	16.1	11.23	6.78	3.49	3.39	2.33	1.76	0.67	0.21	-
	27.46	58	18.11	16.31	13.52	9.96	7.31	4.55	2.47	1.83	0.74	0.22	-
VTC 3124	22.15	31.9	23.16	17.3	12.43	7.48	4.45	4.02	2.33	0.63	-	-	-
	27.46	43.5	24.01	21.47	14.97	9.04	4.66	4.52	3.1	2.33	0.91	0.27	-
	27.46	58	24.15	21.75	18.01	13.28	9.74	6.07	3.28	2.43	0.99	0.29	-
VTC 3132	22.15	31.9	21.33	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-	-
	27.46	43.5	23.87	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13	-
	27.46	58	24.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15	-
VTC 3133	22.15	31.9	31.85	12.99	9.32	5.61	3.32	3.04	1.76	0.49	-	-	-
	27.46	43.5	35.81	16.1	11.23	6.78	3.49	3.39	2.33	0.18	0.67	0.21	-
	27.46	58	36.13	16.31	13.88	9.96	7.31	4.55	2.47	1.83	0.74	0.22	-
VTC 3134	22.15	31.9	42.66	17.3	12.43	7.48	4.45	4.02	2.33	0.63	-	-	-
	27.46	43.5	47.75	21.47	14.97	9.04	4.66	4.52	3.11	2.33	0.92	0.27	-
	27.46	58	48.17	21.75	18.01	13.28	9.74	6.07	3.284	2.43	0.99	0.29	-
VTCL 3122	17.72	58	13.28	11.16	7.77	4.94	3.25	1.98	0.48	-	-	-	-
	20.67	72.5	13.77	12.43	9.18	5.79	3.53	2.65	1.62	0.84	-	-	-
	22.15	87	14.13	12.93	10.88	7.06	3.67	2.68	2.26	1.55	-	-	-
VTCL 3123	17.72	58	19.91	16.74	11.65	7.41	4.87	2.96	0.72	-	-	-	-
	20.67	72.5	20.66	18.64	13.77	8.68	5.29	3.97	2.43	1.19	-	-	-
	22.15	87	21.19	19.39	16.31	10.59	5.5	4.02	3.39	2.33	-	-	-
VTCL 3124	17.72	58	26.55	22.32	15.53	9.88	6.5	3.95	0.96	-	-	-	-
	20.67	72.5	27.5	24.86	18.36	11.58	7.06	5.29	3.25	1.59	-	-	-
	22.15	87	28.25	25.85	21.75	14.13	7.34	5.368	4.52	3.11	-	-	-
VTCL 3132	17.72	58	21.33	12.43	7.77	4.94	3.25	1.98	0.48	-	-	-	-
	20.67	72.5	24.3	13.84	9.18	5.79	3.53	2.65	1.62	0.84	-	-	-
	22.15	87	25.57	14.66	10.88	7.06	3.67	2.68	2.26	1.55	-	-	-
VTCL 3133	17.72	58	31.99	18.22	11.65	7.41	4.87	2.96	0.72	-	-	-	-
	20.67	72.5	36.44	20.76	13.77	8.69	5.3	3.97	2.43	1.2	-	-	-
	22.15	87	38.35	21.93	16.31	10.59	5.51	4.02	3.39	2.33	-	-	-
VTCL 3134	17.72	58	42.66	24.3	15.54	9.89	6.5	3.95	0.95	-	-	-	-
	20.67	72.5	48.59	27.68	18.36	11.58	7.06	5.3	3.25	1.6	-	-	-
	22.15	87	51.4	29.24	21.75	14.13	7.34	5.37	4.52	3.11	-	-	-

Vacuum flow (scfm) at different vacuum level (-inHg)

Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	(-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VS 144	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
VS 146	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
VS 148	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
VLS 144	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-
VLS 146	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-
VLS 148	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-
MD 302	22.15	31.9	5.79	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	6	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	6.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
MD 303	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
MDL 302	17.72	58	6.64	5.58	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	6.89	6.22	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	7.06	6.46	5.44	3.53	1.84	1.34	1.13	0.78	-	-
MDL 303	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-
PM 303X1	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
PM 303X2	22.15	31.9	21.33	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-
	27.46	43.5	23.87	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13
	27.46	58	24.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15
PM 303X3	22.15	31.9	31.85	12.99	9.32	5.61	3.32	3.04	1.76	0.49	-	-
	27.46	43.5	35.81	16.1	11.23	6.78	3.49	3.39	2.33	0.18	0.67	0.21
	27.46	58	36.13	16.31	13.88	9.96	7.31	4.55	2.47	1.83	0.74	0.22
PM 303X4	22.15	31.9	42.66	17.3	12.43	7.48	4.45	4.02	2.33	0.63	-	-
	27.46	43.5	47.75	21.47	14.97	9.04	4.66	4.52	3.11	2.33	0.92	0.27
	27.46	58	48.17	21.75	18.01	13.28	9.74	6.07	3.284	2.43	0.99	0.29
PML 303X1	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-
PML 303X2	17.72	58	21.33	12.43	7.77	4.94	3.25	1.98	0.48	-	-	-
	20.67	72.5	24.3	13.84	9.18	5.79	3.53	2.65	1.62	0.84	-	-
	22.15	87	25.57	14.66	10.88	7.06	3.67	2.68	2.26	1.55	-	-
PML 303X3	17.72	58	31.99	18.22	11.65	7.41	4.87	2.96	0.72	-	-	-
	20.67	72.5	36.44	20.76	13.77	8.69	5.3	3.97	2.43	1.2	-	-
	22.15	87	38.35	21.93	16.31	10.59	5.51	4.02	3.39	2.33	-	-
PML 303X4	17.72	58	42.66	24.3	15.64	9.89	6.5	3.95	0.95	-	-	-
	20.67	72.5	48.59	27.68	18.36	11.58	7.06	5.3	3.25	1.6	-	-
	22.15	87	51.14	29.24	21.75	14.13	7.34	5.37	4.52	3.11	-	-

Vacuum flow (scfm) at different vacuum levels (-inHg)

Model	MAX. Vacuum(-inHg)	-inHg											
		0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
VKX5	27.17	0.812	0.424	0.283	0.247	0.212	0.177	0.141	0.095	0.042	0.016		
VKM5	25.1	0.918	0.530	0.424	0.388	0.353	0.283	0.194	0.099	0.025			
VKM61	25.1	1.307	0.918	0.565	0.494	0.353	0.283	0.212	0.085	0.023			
VKM62		2.613	1.836	1.095	0.989	0.706	0.565	0.424	0.170	0.047			
VKX61	27.17	1.095	0.636	0.318	0.283	0.247	0.177	0.141	0.095	0.042	0.016		
VKX62		2.190	1.271	0.636	0.565	0.459	0.388	0.318	0.191	0.085	0.032		
VKX73	27.17	3.320	1.907	0.954	0.848	0.742	0.600	0.477	0.318	0.127	0.048		
VKX74		3.850	2.543	1.236	1.130	0.954	0.777	0.636	0.424	0.170	0.064		
VKM73	25.1	3.920	2.755	1.660	1.483	1.060	0.848	0.636	0.254	0.070			
VKM74		4.768	3.496	2.190	1.907	1.413	1.130	0.848	0.339	0.093			
VTOM5-(N)Stack	25.1	0.954	0.565	0.459	0.424	0.388	0.283	0.212	0.085	0.023 / (N)Stack			
VTOM10-(N)Stack		1.236	1.024	0.883	0.812	0.671	0.565	0.424	0.170	0.047 / (N)Stack			
VTOX5-(N)Stack	27.17	0.848	0.459	0.318	0.283	0.247	0.177	0.141	0.095	0.042	0.016 / (N)Stack		
VTOX10-(N)Stack		1.130	0.742	0.600	0.530	0.494	0.388	0.318	0.191	0.085	0.032 / (N)Stack		
VTM5-(N)Stack	25.1	0.954	0.565	0.459	0.424	0.388	0.283	0.212	0.085	0.023 / (N)Stack			
VTM10-(N)Stack		1.236	1.024	0.883	0.812	0.671	0.565	0.424	0.170	0.047 / (N)Stack			
VTM10X(N)B(BA,...NC)	25.1	2.613	1.836	1.095	0.989	0.706	0.565	0.424	0.170	0.047 / (N)Stack			
VTM20X(N)B(BA,...NC)		5.262	3.496	2.190	1.907	1.413	1.130	0.777	0.371	0.095 / (N)Stack			
VTM30X(N)B(C,...NC)		7.770	5.192	3.249	2.578	2.119	1.660	1.130	0.565	0.145 / (N)Stack			
VTM5-A(B,...NC)		1.307	0.918	0.565	0.494	0.353	0.283	0.212	0.085	0.023			
VTM10-A(B,...NC)	25.1	2.613	1.836	1.095	0.989	0.706	0.565	0.424	0.170	0.047			
VTM20-B(C,...NC)		5.262	3.496	2.190	1.907	1.413	1.130	0.777	0.371	0.095			
VTM30-B(C,...NC)		7.770	5.192	3.249	2.578	2.119	1.660	1.130	0.565	0.145			
VTM20KD		5.262	3.496	2.190	1.907	1.413	1.130	0.777	0.371	0.095			
VTM30KD	25.1	7.770	5.192	3.249	2.578	2.119	1.660	1.130	0.565	0.145			
VTM40KD		10.312	7.063	3.885	3.284	2.825	2.225	1.519	0.742	0.191			
VTM50KD		12.043	8.052	4.768	4.061	3.532	2.790	2.119	0.848	0.233			
VTM60KD		13.774	9.041	9.147	4.838	4.203	3.320	2.260	1.130	0.300			
VTM25L		26.87	12.891	5.969	4.379	2.684	1.519	1.165	0.883	0.600	0.247	0.028	
VTM50L	21.967		11.549	8.335	5.262	2.931	2.296	1.731	1.165	0.494	0.057		
VTM75L	29.701		16.987	12.502	7.805	4.309	3.426	2.578	1.731	0.742	0.085		
VTM100L	37.436		22.391	15.857	10.348	5.686	4.556	3.390	2.260	0.954	0.113		
VTM125L	42.203		27.865	18.435	12.714	6.816	5.368	4.238	2.847	1.176	0.134		
VTM150L	48.384		33.092	20.802	14.762	8.370	6.604	5.086	3.433	1.399	0.153		
VTL25	23.62	13.385	7.063	4.909	3.320	1.801	1.413	0.989	0.636				
VTL50		22.956	13.208	9.394	6.216	3.602	2.719	1.978	1.271				
VTL75		28.960	17.305	13.067	8.653	4.874	4.097	3.249	1.731				
VTL100		34.964	21.437	16.705	11.407	6.957	5.368	3.850	2.437				
VTL125		38.495	26.488	19.318	13.774	8.511	6.781	4.874	3.073				
VTL150		46.018	32.032	21.864	16.104	9.959	8.052	5.721	3.602				
VTL175		59.403	37.436	23.945	18.188	11.089	9.430	6.675	4.167				
VTL200		72.788	42.980	25.746	20.272	12.820	10.383	7.699	4.732				
VTM25	31.432	13.738	7.770	5.192	2.613	1.307	0.954	0.636	0.353	0.177	0.028		
VTM50		22.850	14.127	9.853	5.156	2.578	1.907	1.271	0.706	0.353	0.057		
VTM75		31.432	21.190	12.926	7.770	3.885	2.896	1.907	1.060	0.530	0.085		
VTM100		38.848	26.488	15.998	10.277	5.156	3.850	2.543	1.413	0.706	0.113		
VTM125		42.380	31.785	18.718	12.573	6.428	4.768	3.179	1.766	0.883	0.141		
VTM150		48.737	36.023	21.084	14.692	7.699	5.721	3.814	2.119	1.060	0.170		
VTM175		52.622	39.555	23.097	16.634	8.970	6.675	4.450	2.472	1.236	0.198		
VTM200		55.800	42.380	24.757	18.400	10.242	7.628	5.086	2.825	1.413	0.226		

Vacuum flow (scfm) at different vacuum levels (-inHg)

Model	MAX. Vacuum(-inHg)	-inHg											
		0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
VTMM100	26.57	45.559	29.8	19.8	10.277	5.156	3.850	2.543	1.413	0.706	0.113		
VTMM150		61.451	42.6	24.7	14.833	7.628	5.721	6.357	2.119	0.954	0.159		
VTMM200		75.931	54.0	35.7	18.365	10.242	7.628	5.086	2.825	1.413	0.226		
VTMM200F		77.967	54.4	35.9	18.647	10.242	7.628	5.086	2.825	1.413	0.226		
VTM150LEF	26.87	59.332	29.6	22.7	15.511	8.646	6.738	5.086	3.433	1.399	0.153		
VTM200LEF		74.165	44.5	31.8	20.681	11.527	8.985	6.781	4.577	1.865	0.203		
VTM300LEF		91.823	63.6	44.5	31.022	17.291	10.298	10.171	6.866	3.249	0.306		
VTM400LEF		109.482	84.8	56.8	41.356	23.055	17.969	13.562	9.154	3.729	0.407		
VTM500LEF		148.330	104.2	71.3	51.704	28.818	22.461	16.952	11.443	4.662	0.509		
VTM600LEF		176.937	121.8	86.5	62.051	34.582	26.954	20.342	13.731	5.594	0.610		
VTM800LEF	215.432	148.3	118.0	82.712	46.124	35.952	27.123	18.308	7.459	0.812			
VTMM200EF	27.17	77.697	54.4	35.9	18.647	10.242	7.628	5.086	2.825	1.413	0.226		
VTMM300EF		116.545	81.6	62.9	28.006	15.363	11.443	7.628	4.238	2.119	0.339		
VTMM400EF		155.393	108.8	71.9	37.365	20.484	15.257	10.171	5.651	2.825	0.452		
VTMM500EF		194.242	136.0	89.9	4.662	25.605	19.071	12.714	7.063	3.532	0.565		
VTMM600EF		233.090	163.2	107.9	56.083	30.726	22.885	15.257	8.476	4.238	0.678		
VTMM800EF		310.787	217.7	144.0	74.836	40.967	30.514	20.342	11.301	5.651	0.904		
VTMM1000EF	388.483	271.9	179.8	93.448	51.209	38.142	25.428	14.127	7.063	1.130			
VTML200	27.17	85.113	59.6	39.4	20.484	10.242	7.628	5.086	2.825	1.413	0.226		
VTML400		170.226	119.2	78.8	40.967	20.484	15.257	10.171	5.651	2.825	0.452		
VTML600		255.340	178.8	118.2	61.451	30.726	22.885	15.257	8.476	4.238	0.678		
VTML800		340.453	238.5	157.7	81.935	40.967	30.514	20.342	11.301	5.651	0.904		
VTML1000		425.566	298.1	197.1	102.418	51.209	38.142	25.428	14.127	7.063	1.130		
VTML1200		510.679	357.7	236.5	122.902	61.451	45.770	30.514	16.952	8.476	1.356		
VTX5-(N)Stack	27.17	0.848	0.5	0.3	0.283	0.247	0.177	0.141	0.095	0.042	0.016 / (N)Stack		
VTX10-(N)Stack		1.130	0.7	0.6	0.530	0.494	0.388	0.318	0.191	0.085	0.032 / (N)Stack		
VTX10x(N-B(BA,...NC)	27.17	2.190	1.3	0.6	0.565	0.494	0.388	0.318	0.212	0.085	0.032 / (N)Stack		
VTX20x(N-B(BA,...NC)		4.379	2.5	1.2	1.130	0.954	0.777	0.636	0.424	0.170	0.064 / (N)Stack		
VTX30x(N-B(BA,...NC)		6.534	3.8	1.8	1.660	1.448	1.165	0.918	0.636	0.254	0.095 / (N)Stack		
VTX5-A(B,...NC)	27.17	1.130	0.6	0.3	0.283	0.247	0.212	0.177	0.106	0.042	0.016		
VTX10-A(B,...NC)		2.190	1.3	0.6	0.565	0.494	0.388	0.318	0.212	0.085	0.032		
VTX20-B(C,...NC)		4.379	2.5	1.2	1.130	0.954	0.777	0.636	0.424	0.170	0.064		
VTX30-B(C,...NC)		6.534	3.8	1.8	1.660	1.448	1.165	0.918	0.636	0.254	0.095		
VTX20KD	27.17	4.379	2.5	1.2	1.130	0.954	0.777	0.636	0.424	0.170	0.064		
VTX30KD		6.354	3.8	1.8	1.660	1.448	1.165	0.918	0.636	0.254	0.095		
VTX40KD		8.723	5.1	2.4	2.225	1.907	1.554	1.236	0.812	0.339	0.127		
VTX50KD		10.242	6.0	3.0	2.755	2.331	1.942	1.519	1.024	0.424	0.159		
VTX60KD		11.725	7.0	3.6	3.284	2.755	2.296	1.907	1.201	0.509	0.191		
VTX25	28.64	6.534	5.2	3.7	2.331	1.236	0.954	0.742	0.530	0.424	0.148	0.053	
VTX50		12.891	10.3	7.3	4.662	2.437	1.907	1.483	1.060	0.812	0.297	0.106	
VTX75		18.400	15.0	10.9	6.993	3.602	2.861	2.225	1.589	1.236	0.445	0.159	
VTMX100	28.64	24.545	20.1	14.5	9.182	4.909	3.814	2.967	2.119	1.589	0.600	0.212	
VTMX200		36.623	29.8	21.7	14.056	7.452	5.721	4.450	3.179	2.437	0.918	0.318	
VTMX300		47.854	38.7	28.7	18.718	10.207	7.628	5.933	4.238	3.249	1.165	0.424	
VTH50	29.76	6.534	5.2	3.7	2.331	1.130	0.742	0.530	0.339	0.254	0.127	0.042	0.011
VTH150		18.400	14.9	10.8	6.993	3.708	2.755	1.907	1.377	0.954	0.275	0.127	0.017
VTH300		36.800	29.9	21.7	13.985	7.417	5.509	3.814	2.755	1.907	0.551	0.254	0.034

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

Model	MAX. Vacuum (-inHg)	(-inHg) Feed pressure (psi)	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
			VTC 3021	22.15	31.9	0.03	0.12	0.21	0.38	0.47	0.73
	27.46	43.5	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8
	27.46	58	0.26	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5
VTC 3031	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.5
VTCL 3021	17.72	58	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-
VTCL 3031	17.72	58	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
VTC 3022	22.15	31.9	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-
	27.46	43.5	0.016	0.05	0.07	0.16	0.23	0.34	0.48	0.795	2.01
	27.46	58	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75
VTC 3032	22.15	31.9	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	27.46	43.5	0.01	0.032	0.055	0.15	0.22	0.33	0.5	0.78	1.98
	27.46	58	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
VTCL 3022	17.72	58	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-
	20.67	72.5	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-
	22.15	87	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-
VTCL 3032	17.72	58	0.013	0.037	0.073	0.14	0.19	0.45	-	-	-
	20.67	72.5	0.009	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	22.15	87	0.008	0.03	0.047	0.098	0.15	0.2	0.32	-	-
VTC 3122	22.15	31.9	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-
	27.46	43.5	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01
	27.46	58	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75
VTC 3123	22.15	31.9	0.01	0.04	0.07	0.13	0.16	0.24	0.54	-	-
	27.46	43.5	0.009	0.03	0.06	0.1	0.13	0.21	0.26	0.4	1.27
	27.46	58	0.008	0.019	0.03	0.033	0.08	0.16	0.23	0.35	1.17
VTC 3124	22.15	31.9	0.008	0.03	0.05	0.095	0.12	0.18	0.4	-	-
	27.46	43.5	0.007	0.025	0.048	0.08	0.1	0.16	0.2	0.3	0.95
	27.46	58	0.006	0.015	0.023	0.025	0.06	0.12	0.17	0.26	0.87
VTC 3132	22.15	31.9	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	27.46	43.5	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98
	27.46	58	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
VTC 3133	22.15	31.9	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	27.46	43.5	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	27.46	58	0.004	0.01	0.02	0.03	0.06	0.14	0.02	0.33	1.13
VTC 3134	22.15	31.9	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	27.46	43.5	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95
	27.46	58	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85
VTCL 3122	17.72	58	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-
	20.67	72.5	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-
	22.15	87	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-
VTCL 3123	17.72	58	0.012	0.029	0.057	0.097	0.127	0.27	-	-	-
	20.67	72.5	0.009	0.028	0.05	0.083	0.1	0.13	0.26	-	-
	22.15	87	0.009	0.027	0.04	0.06	0.09	0.12	0.2	-	-
VTCL 3124	17.72	58	0.01	0.025	0.04	0.07	0.09	0.02	-	-	-
	20.67	72.5	0.0067	0.02	0.037	0.065	0.075	0.1	0.2	-	-
	22.15	87	0.006	0.02	0.03	0.055	0.073	0.09	0.15	-	-
VTCL 3132	17.72	58	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	20.67	72.5	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	22.15	87	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
VTCL 3133	17.72	58	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	20.67	72.5	0.0085	0.028	0.05	0.08	0.01	0.13	0.26	-	-
	22.15	87	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
VTCL 3134	17.72	58	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	20.67	72.5	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	22.15	87	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-

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

Model	MAX. Vacuum (-inHg)	(-inHg) Feed pressure (psi)	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
			VS 144	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
VS 146	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
VS 148	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
VLS 144	17.72	58	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
VLS 146	17.72	58	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
VLS 148	17.72	58	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
MD 302	22.15	31.9	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-
	27.46	43.5	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8
	27.46	58	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5
MD 303	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
MDL 302	17.72	58	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-
MDL 303	17.72	58	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-
PM 303X1	22.15	31.9	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	27.46	43.5	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8
	27.46	58	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
PM 303X2	22.15	31.9	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	27.46	43.5	0.01	0.032	0.055	0.15	0.22	0.33	0.48	0.78	1.98
	27.46	58	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
PM 303X3	22.15	31.9	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	27.46	43.5	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	27.46	58	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
PM 303X4	22.15	31.9	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	27.46	43.5	0.004	0.018	0.002	0.07	0.09	0.16	0.2	0.3	0.95
	27.46	58	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85
PML 303X1	17.72	58	0.032	0.09	0.17	0.29	0.38	0.8	-	-	-
	20.67	72.5	0.023	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	22.15	87	0.022	0.07	0.12	0.2	0.28	0.36	0.6	-	-
PML 303X2	17.72	58	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	20.67	72.5	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	22.15	87	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
PML 303X3	17.72	58	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	20.67	72.5	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-
	22.15	87	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
PML 303X4	17.72	58	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	20.67	72.5	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	22.15	87	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 (-inHg)

Model	-inHg MAX. Vacuum (-inHg)	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
		VKX5	27.17	0.26	0.80	1.52	2.4	3.38	4.91	6.89	10.16	19
VKM5	25.1	0.22	0.56	1.18	1.58	2.36	3.44	5.27	10.22			
VKM61	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			
VKX61	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		
VKX73	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		
VKM73	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			
VTOM5-(N)Stack	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			
VTOX5-(N)Stack	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		
VTM5-(N)Stack	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			
VTM10X(N)B(BA,...NC)	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			
VTM5-A(B,...NC)	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	0.014	0.186	0.295	0.441	0.647	0.898	1.935			
VTM20KD	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			
VTM25L	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		
VTL25	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				
VTM25	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 (-inHg)

Model	-inHg MAX. Vacuum (-inHg)	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
		VTMM100	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	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	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	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	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)	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)	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	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	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	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	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

VACUUM PUMPS

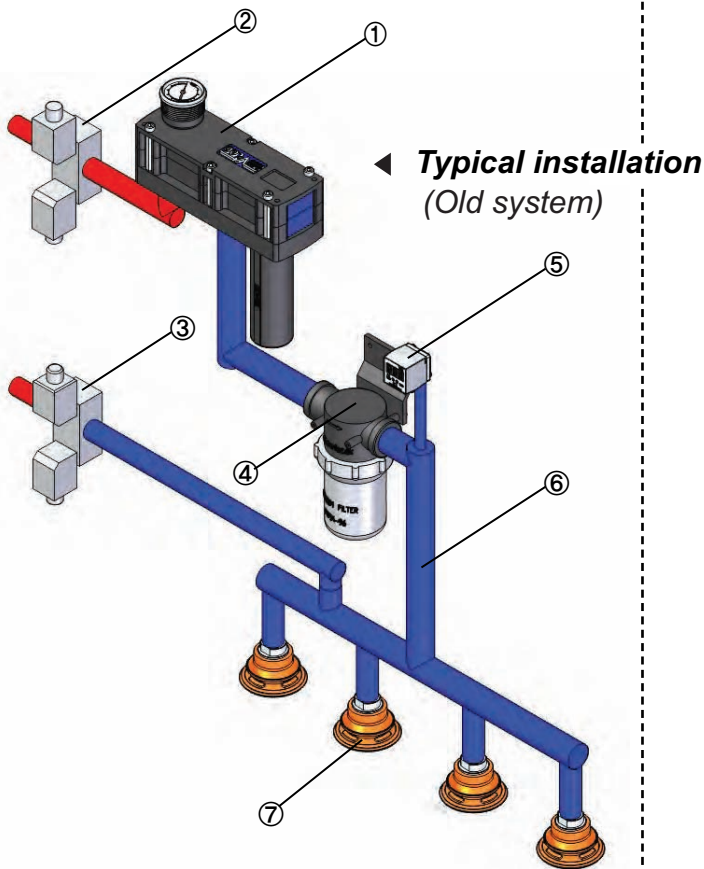




TURTLE PUMPS



The VMECA Turtle Pump offers the convenience of a complete yet compact system.



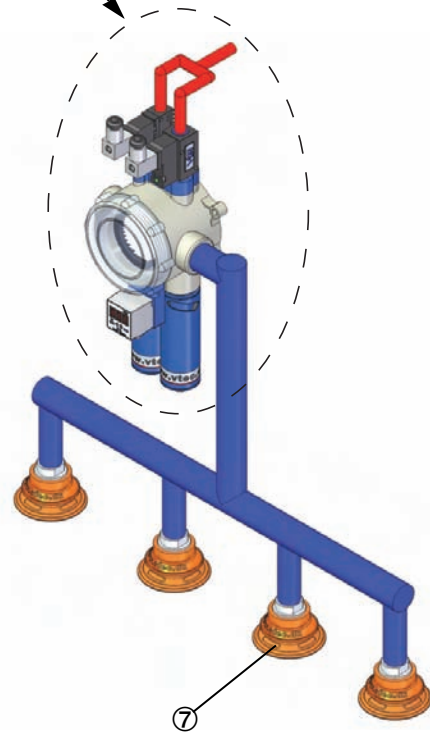
- ① Vacuum pump
- ② Air control valve
- ③ Vacuum release control valve
- ④ Vacuum filter
- ⑤ Vacuum switch
- ⑥ Vacuum pipe line
- ⑦ Suction cup

HIGH installation and maintenance **Costs !!**



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

①+②+③+④+⑤+⑥



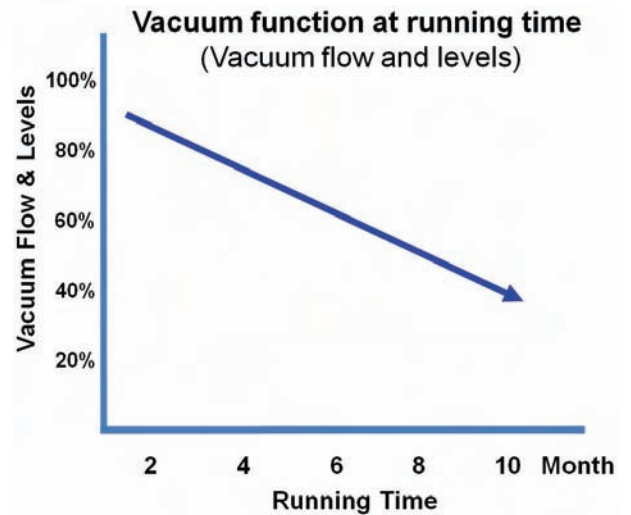
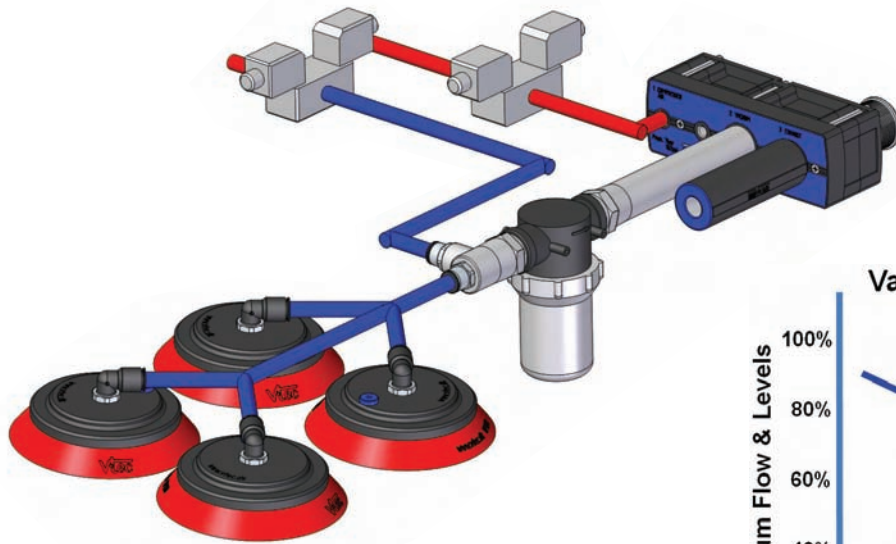
Very LOW installation and maintenance **Costs !!**



- Cost saving due to no need to install air pipes
- High performance by minimizing vacuum area with all-in-one system
- Compact size and light weight
- Easy installation and maintenance

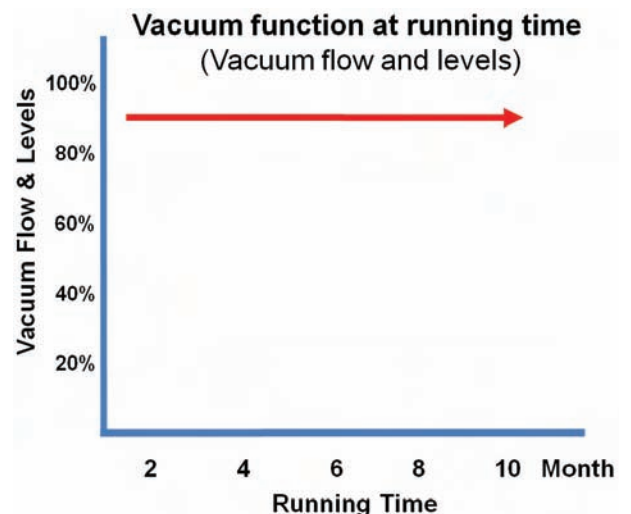
VMECA® Turtle pump with integral vacuum filter and silencer can be combined with the optional vacuum On/Off control valve, vacuum release valve and vacuum switch to create an optimal vacuum solution for many applications. The VMECA® Turtle pump and optional components, due to the compact design and size,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

◆ *Typical installation (Old system)*

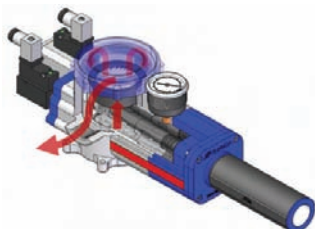


- Required periodic filter cleaning
- Drop vacuum flow and levels due to easily be blocked the filter surface by dust according as the running time

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



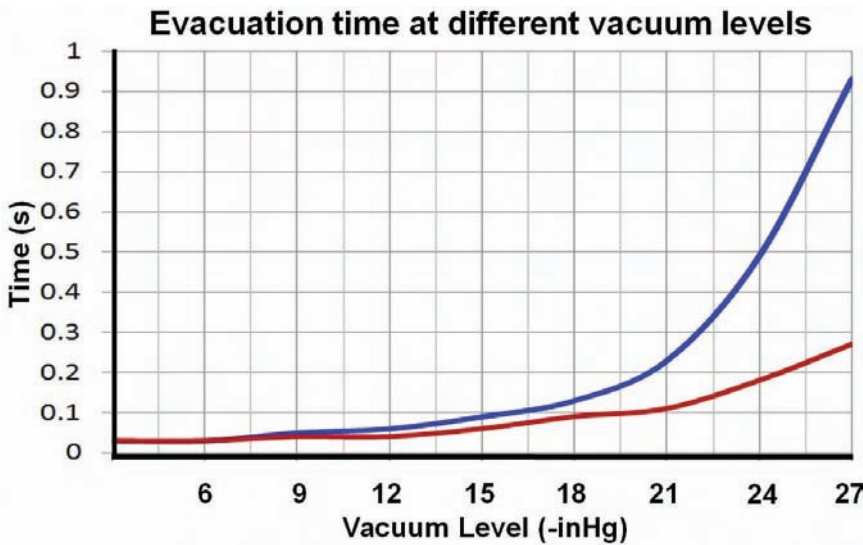
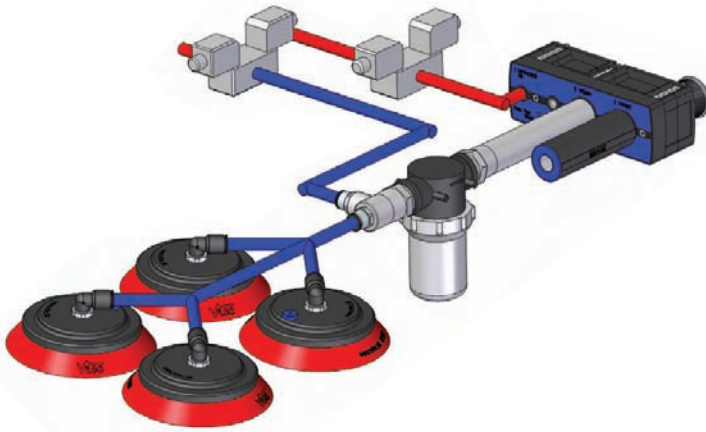
- Constant vacuum flow & vacuum level
- VMECA® Turtle pump with built-in **filter automatic cleaning system** eliminates drop vacuum flow and vacuum levels



VACUUM PUMPS

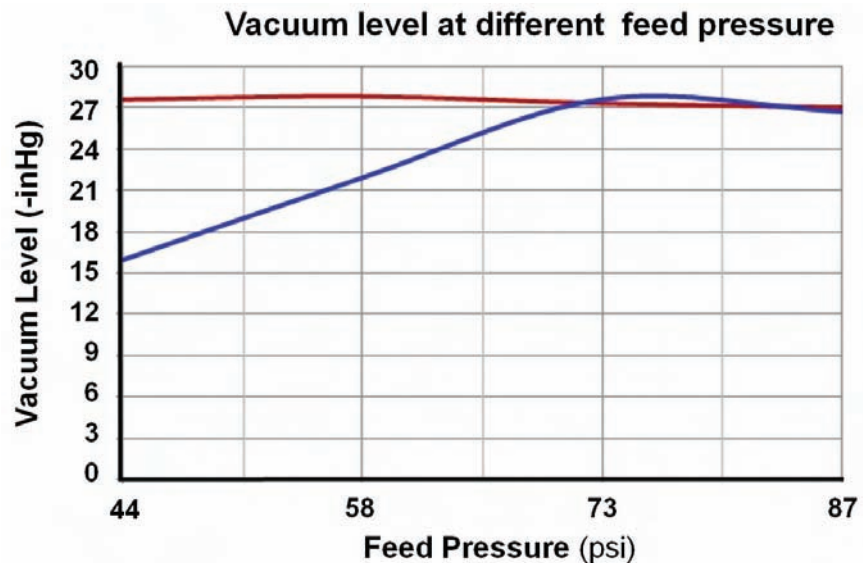
◆ Old system

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



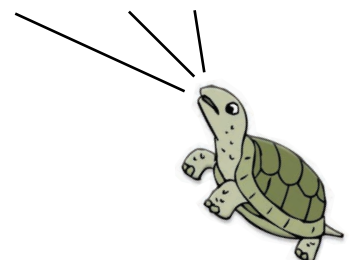
■ Typical installation (Old System)

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



■ 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



VC Type Vacuum cartridge
(Using in VTC Series)

VCL Type Vacuum cartridge
(Using in VTCL Series)

► **VTC Series**

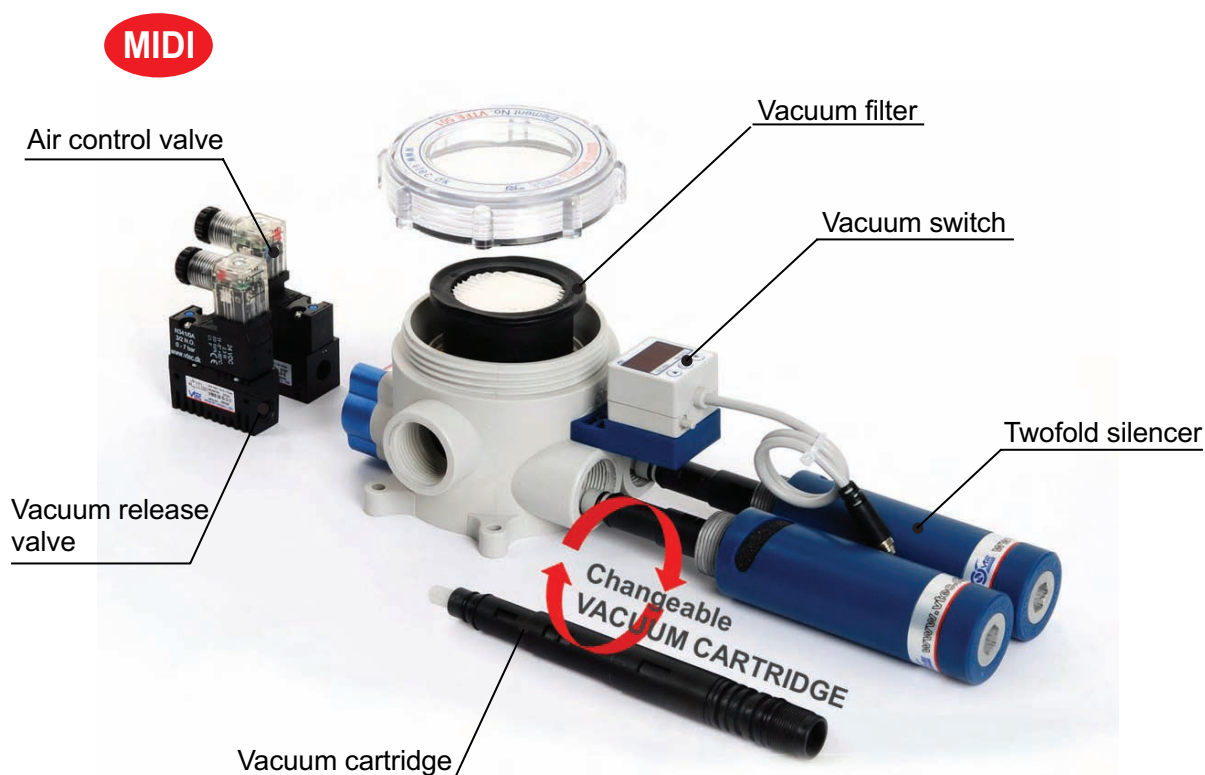
High vacuum level (-27.17 inHg) at **low compressed air pressure** (43.5~87.0 psi).
High vacuum flow rate to compensate for fluctuating or low compressed air pressure.
Suitable for sealed system applications such as lifting metal sheets or glass plate.

► **VTCL Series**

Extra high vacuum flow rate and suitable for **non-sealed system** applications.
Vacuum level of -22.15 inHg at a compressed air pressure of 87.0psi.

Structure and Main advantage of Midi Turtle Pump

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



- **Patented design** integrating the VMECA Vacuum Cartridge, VMECA Turtle Filter and VMECA Twofold Silencer.^{PT} Factory installed options include vacuum On/Off control valve, vacuum release control valve and vacuum switch.
- The integral **high capacity filter** with built-in **automatic cleaning system** eliminates periodic maintenance.
- **Very high vacuum flow rate.** Suitable for applications that require high operational reliability despite fluctuating or low compressed air pressure.
- The specially designed VMECA Twofold Silencer^{PT} is built in assuring **very low noise levels**.
- Multiple vacuum ports (2x), a compact design and small footprint make installation easy.

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

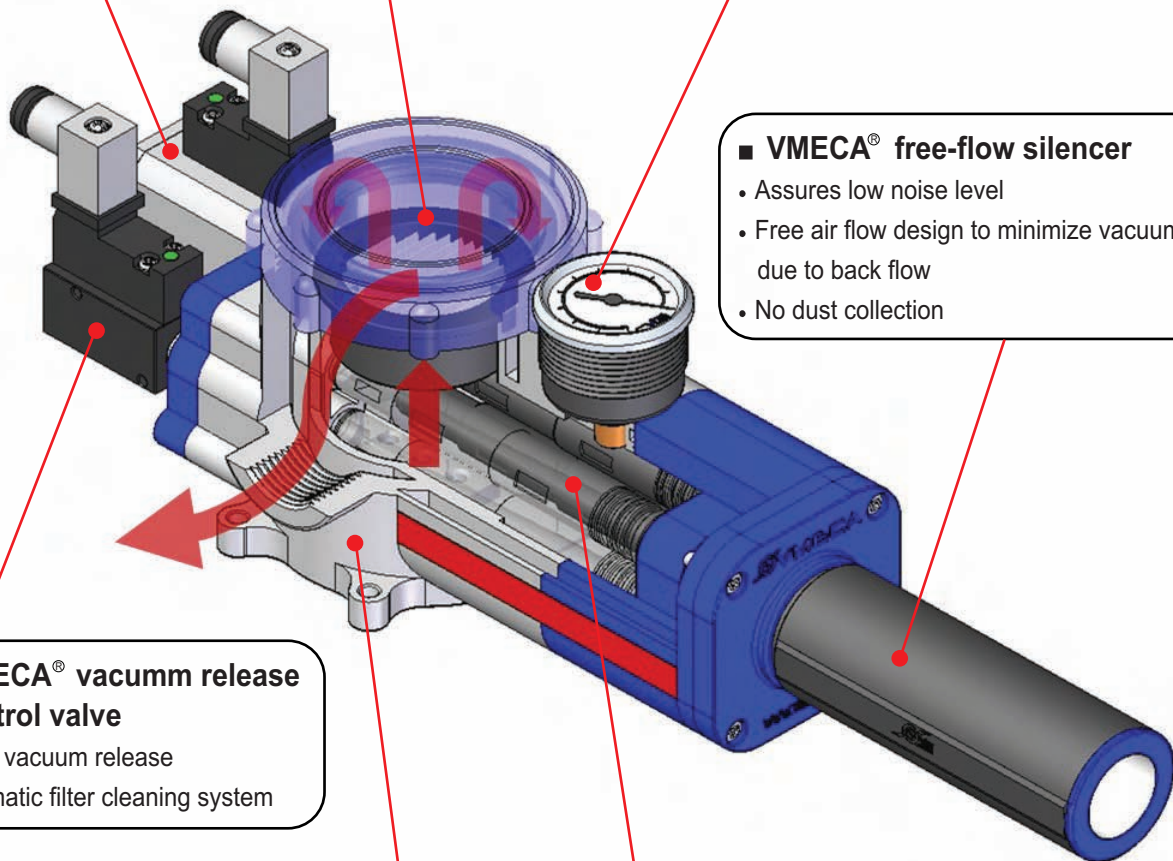
- Quick vacuum release
- Automatic filter cleaning system

■ Body

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

■ VMECA® patented Vacuum Cartridge System

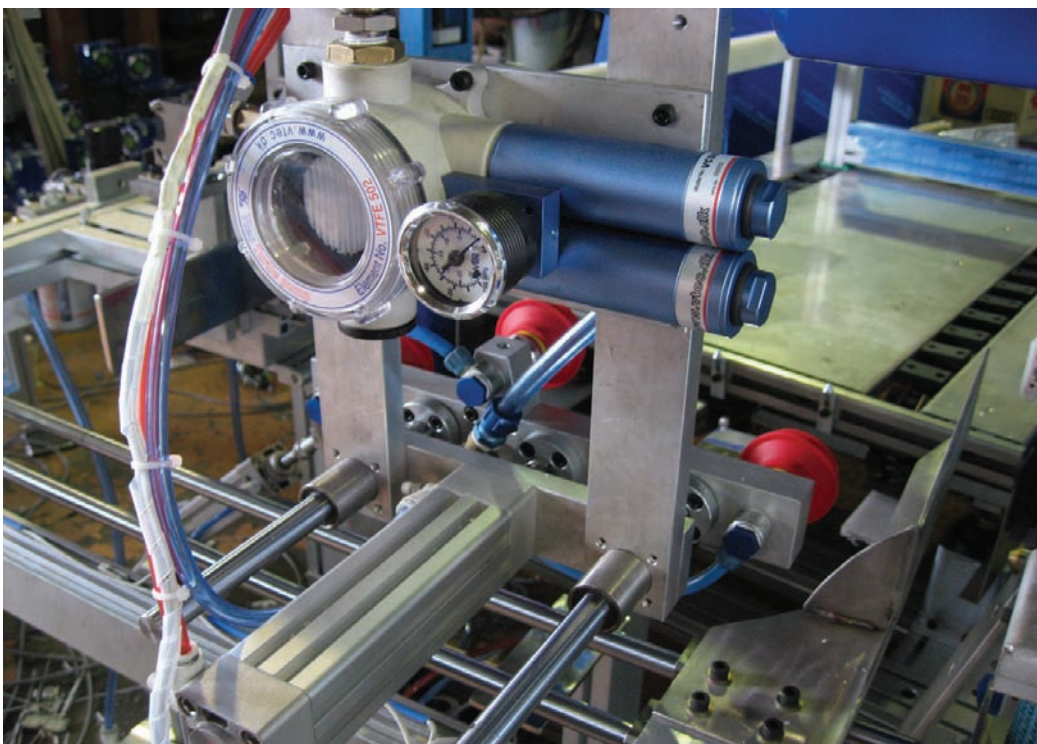
- Multiple Vacuum cartridge available up to 4 pcs
- High operational reliability despite fluctuating or low compressed air pressure
- Air-Saving (AS) kit available to minimize energy consumption (about 20times less)
- Easily mountable and interchangeable vacuum cartridge



APPLICATIONS

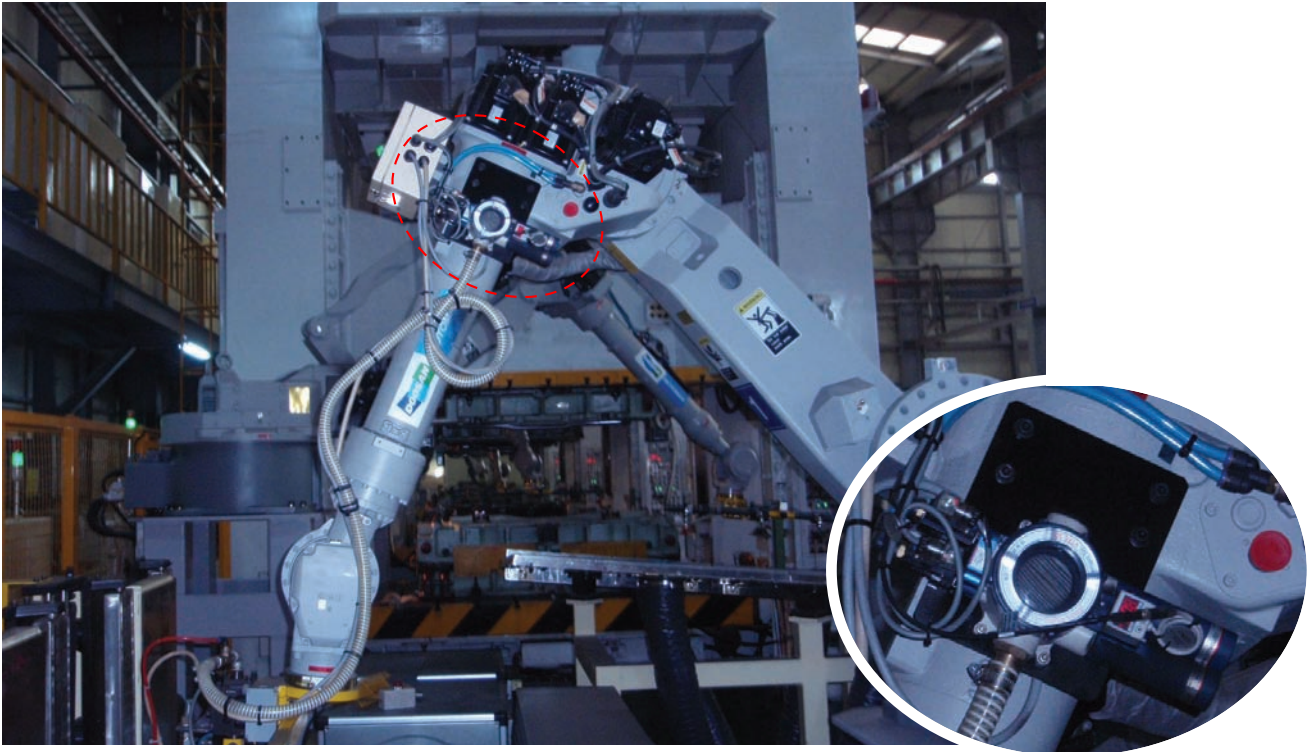


▲ Rotary Packaging machine (VTC3031)

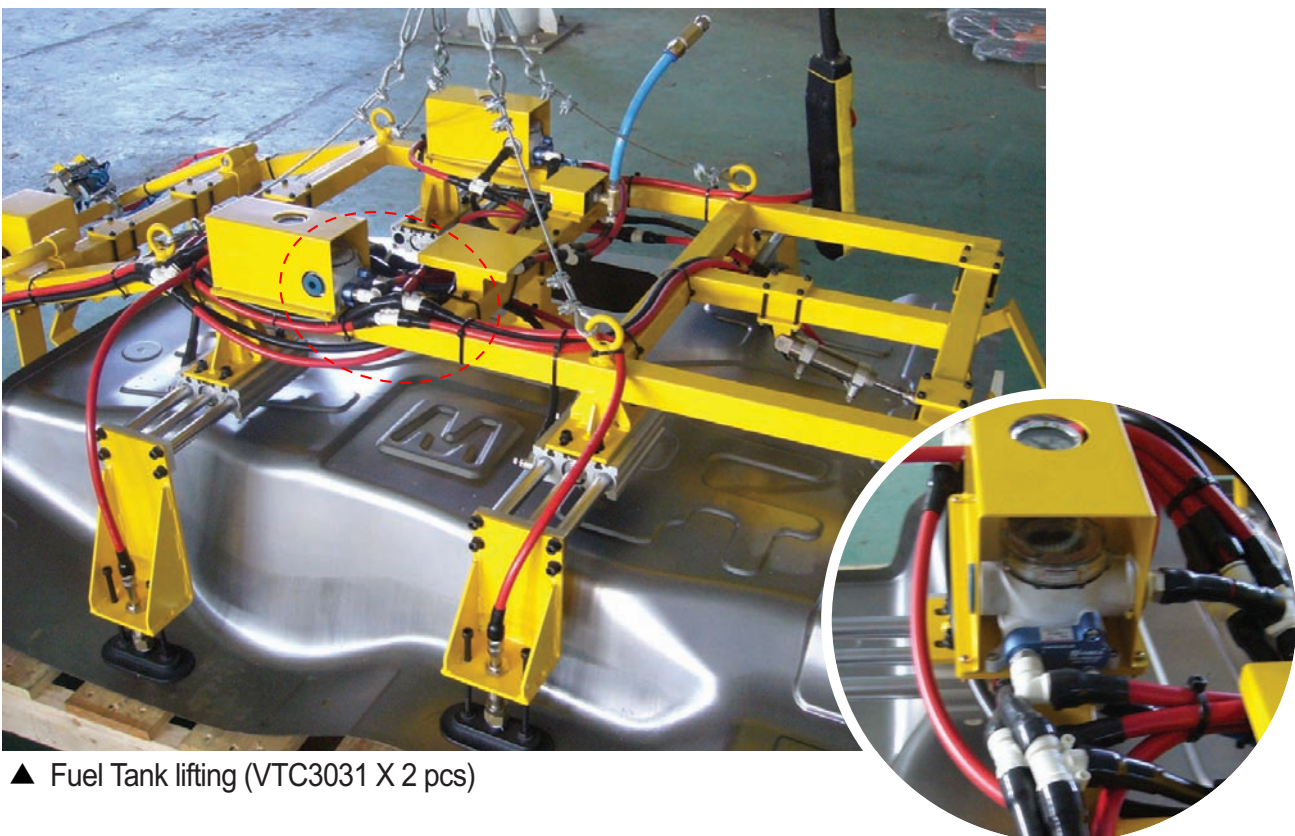


▲ Packaging machine : Carton boxes opening (VTC3032)

APPLICATIONS



▲ Robot Arm : Press stamping line (VTC3032)



▲ Fuel Tank lifting (VTC3031 X 2 pcs)

VACUUM PUMPS

VTC 3031/3021 Series

- Max. vacuum level : -27.46 inHg (-93kPa)
- Max. flow rate : 12.04 scfm (341 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi
(3~6bar, max 7bar)
- Air consumption : 3.43~5.37 scfm (97~152 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 4 - 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)
• 4	Polyester (PE)	Dry seal thread(NPSF)

③ Air saving kit

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'
(See page : 336, 337)

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®

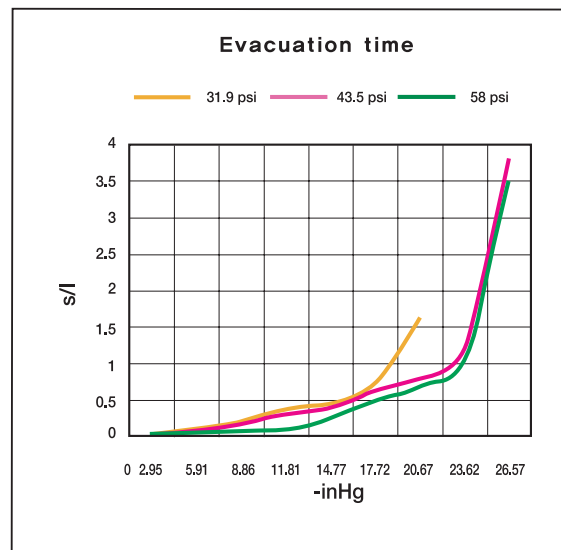
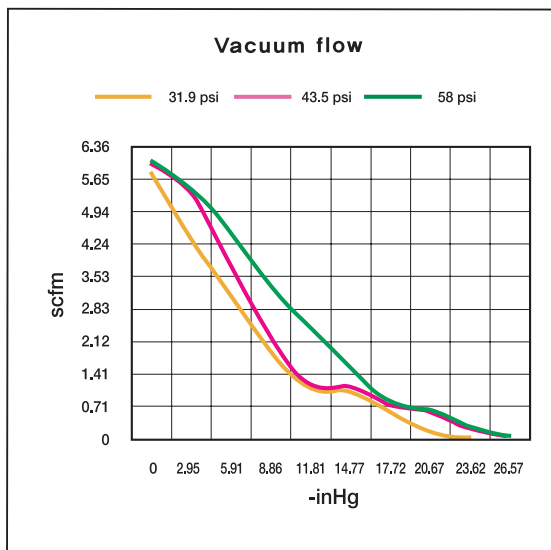
E - EPDM

Performance Data

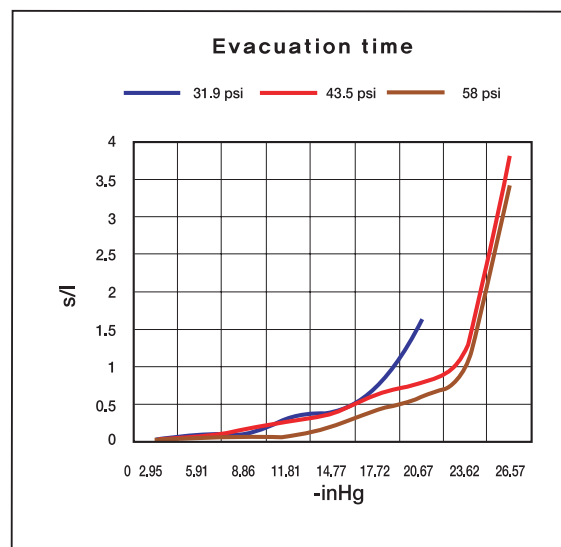
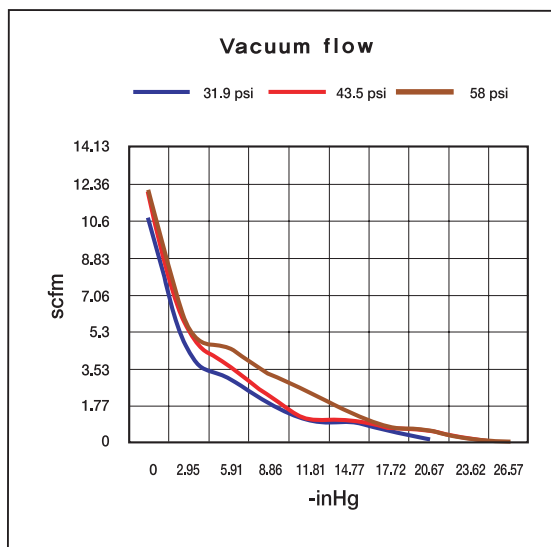
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTC3021..	22.15	31.9	5.79	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	6	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	6.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
VTC3031..	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
VTC3021..	31.9	3.43	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-	
	43.5	4.17	0.027	0.1	0.19	0.3	0.4	0.64	0.8	1.2	3.8	
	58	5.37	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5	
VTC3031..	31.9	3.43	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-	
	43.5	4.17	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8	
	58	5.37	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 : 22.15 inHg (-75kPa)
- Max. flow rate : 12.79 scfm (362 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- Air consumption : 2.47~3.67 scfm (70~104 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- Noise level : 50~60 dBA

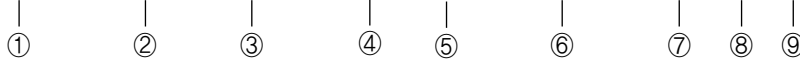


Main advantages

- 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 - 4 - AS - A3 R3 - CL - S2 N V

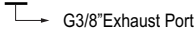


① Model

VTCL 3021 - Two stage nozzle

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

※ Remark...(P)



② Filter element & Connection port

	Material	Connection port
2	Polyester (PE)	BSP Thread(G)
• 4	Polyester (PE)	Dry seal thread(NPSF)

③ Air saving kit

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'
(See page : 336, 337)

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)



- 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®

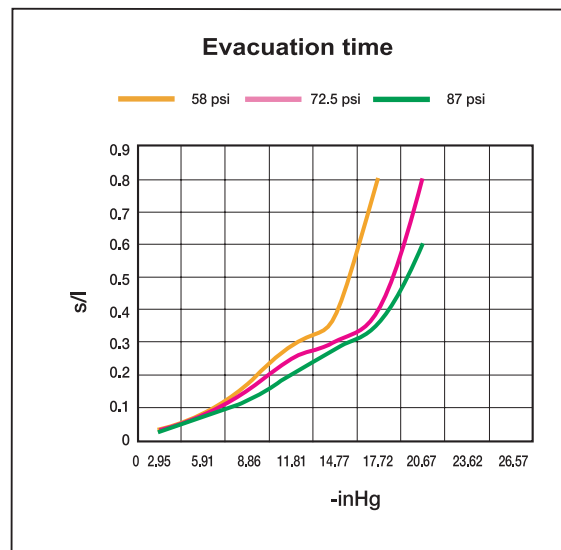
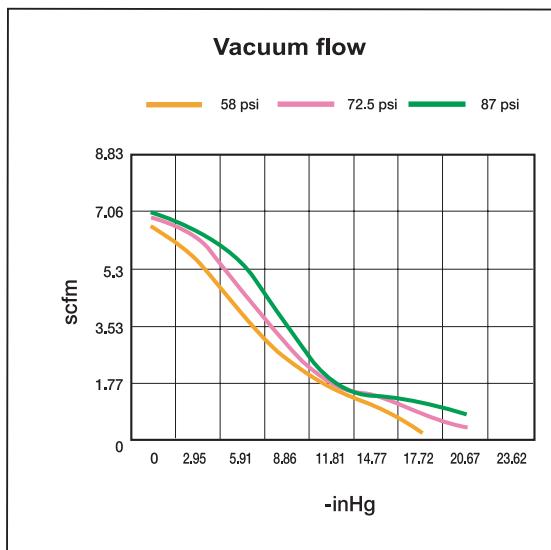
E - EPDM

Performance Data

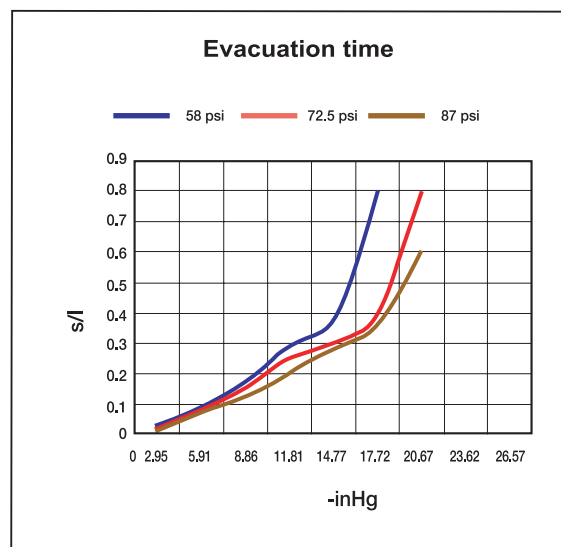
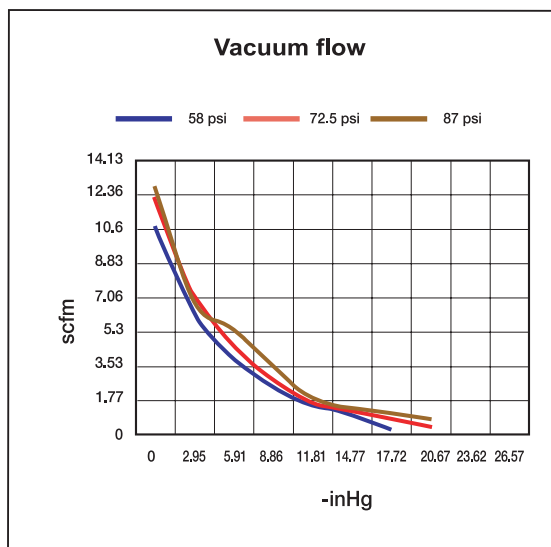
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTCL3021..	17.72	58	6.64	5.58	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	6.89	6.22	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	7.06	6.46	5.44	3.53	1.84	1.34	1.13	0.78	-	-
VTCL3031..	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.81	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
VTCL3021..	58	2.47	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-	
	72.5	3	0.027	0.08	0.15	0.25	0.3	0.6	0.8	-	-	
	87	3.67	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-	
VTCL3031..	58	2.47	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-	
	72.5	3	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	87	3.67	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-	

▼ VTCL-3021..



▼ VTCL-3031..

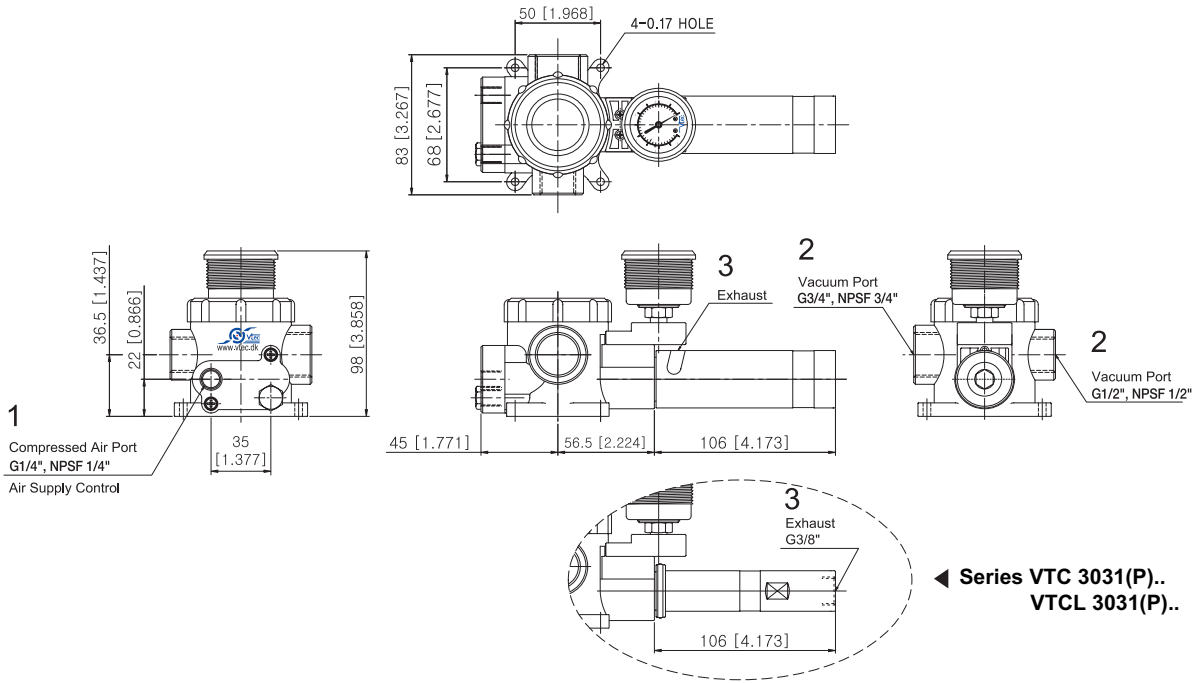


VACUUM PUMPS

Dimensional Information

Standard

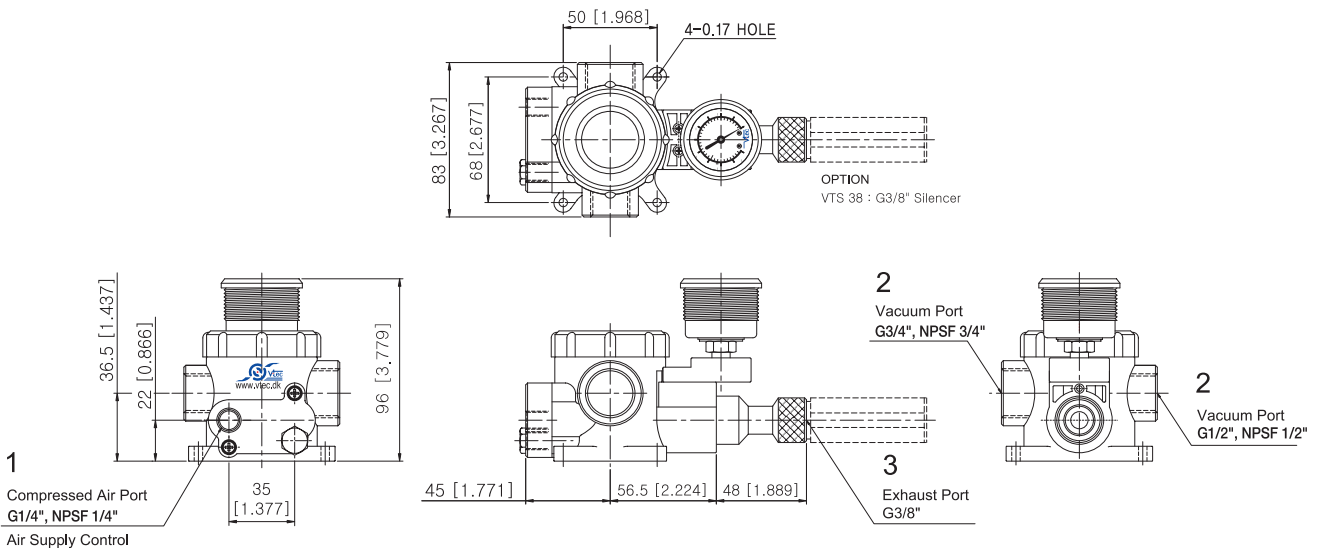
Series VTC 3031.. / VTCL 3031..



Measure unit : mm [in]

Standard

Series VTC 3021.. / VTCL 3021..

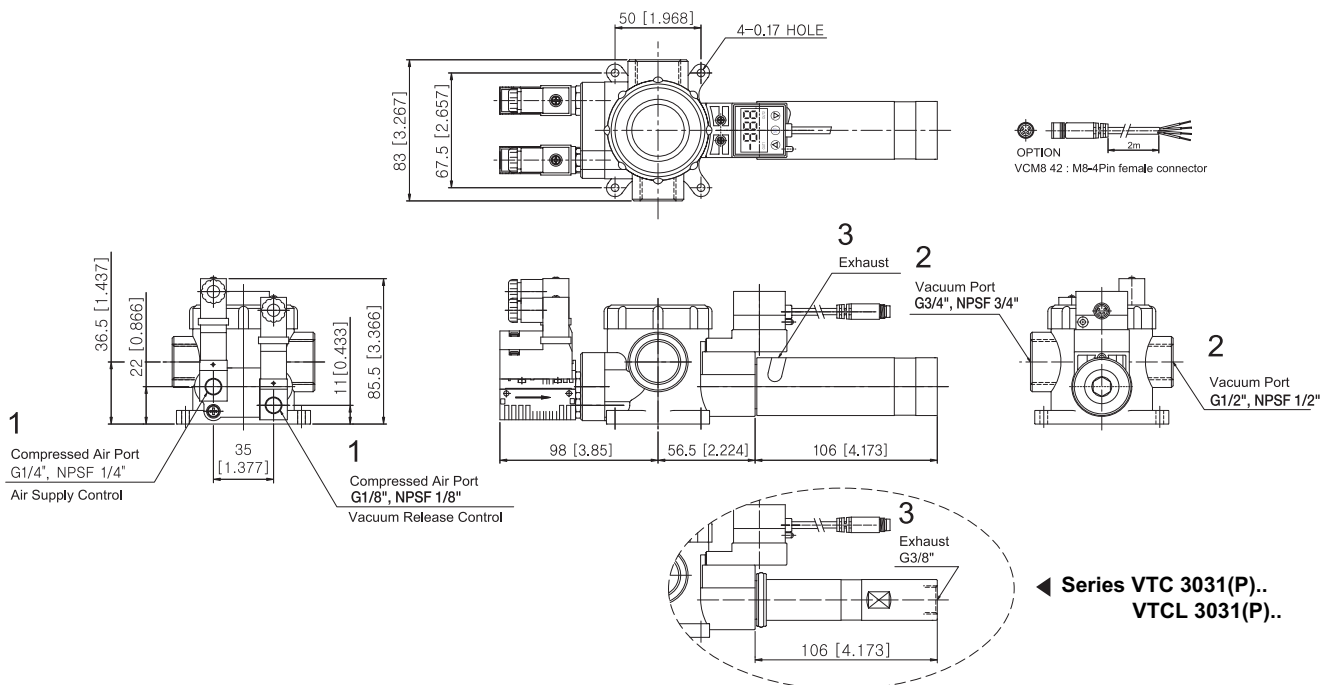


Measure unit : mm [in]

Dimensional Information

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

Series VTC 3031.. / VTCL 3031..

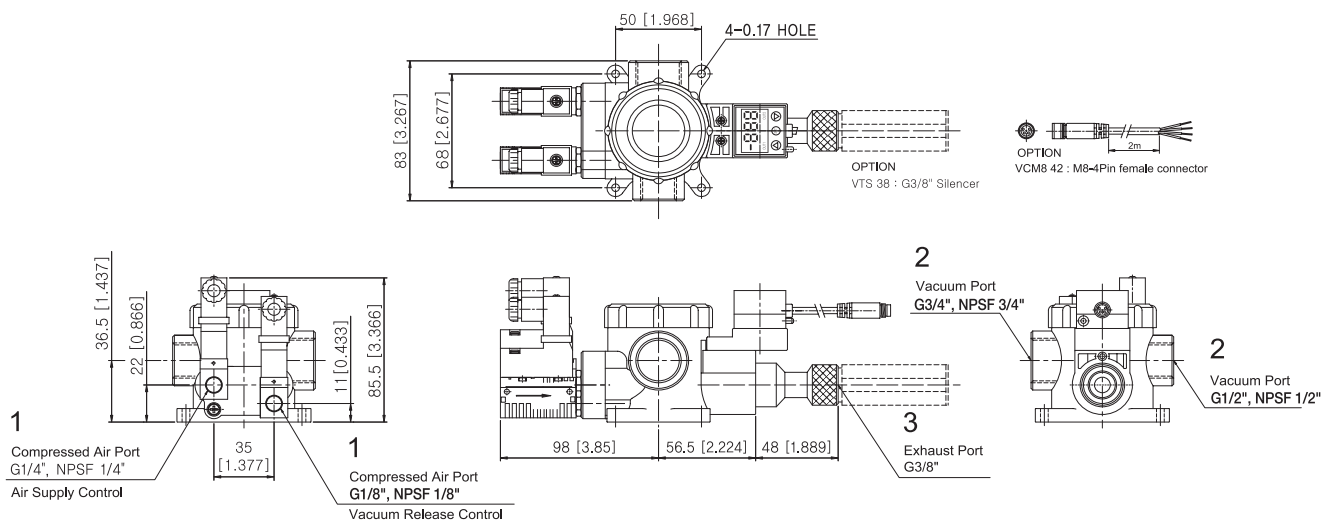


Measure unit : mm [in]

◀ Series VTC 3031(P)..
VTCL 3031(P)..

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

Series VTC 3021.. / VTCL 3021..



Measure unit : mm [in]

VACUUM PUMPS

VTC 3032 / 3022 Series

- Max. vacuum level : -27.46 inHg (-93kPa)
- Max. flow rate : 24.3 scfm (688 NI/min)
- Supply air pressure : 43.5~87 psi, 101.5 psi (3~6bar, max 7bar)
- Air consumption : 6.85~10.74 scfm (194~304 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 4 - 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)
• 4	Polyester (PE)	Dry seal thread(NPSF)

③ Air saving kit

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' (See page : 336, 337)

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[®]

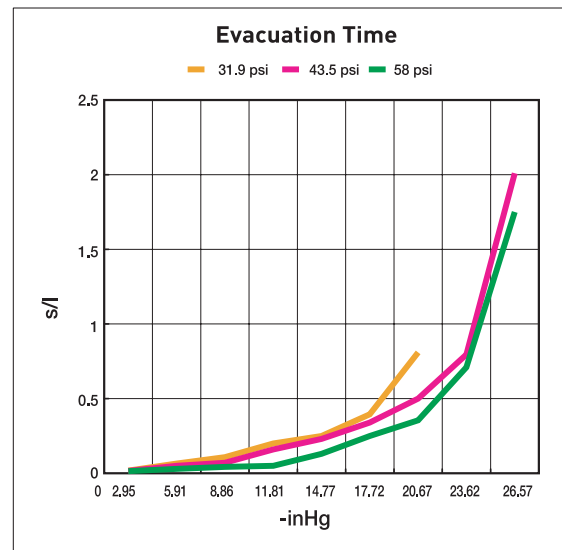
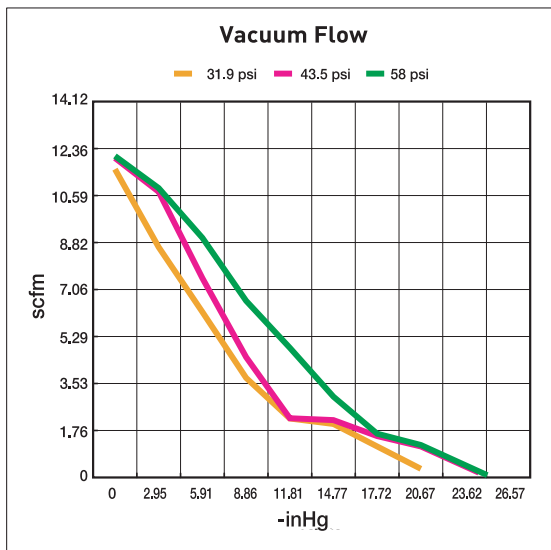
E - EPDM

Performance Data

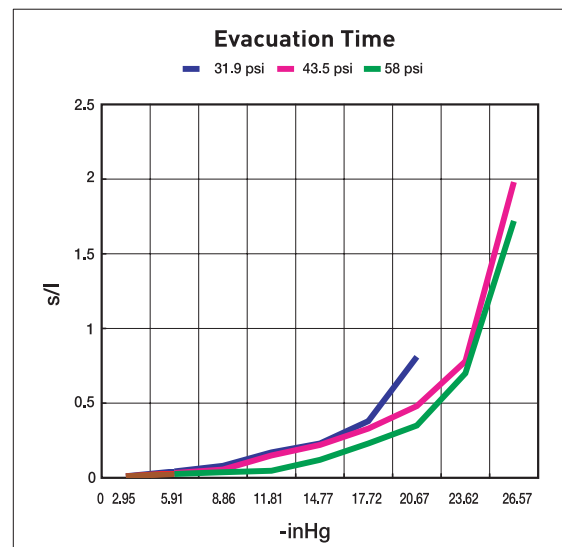
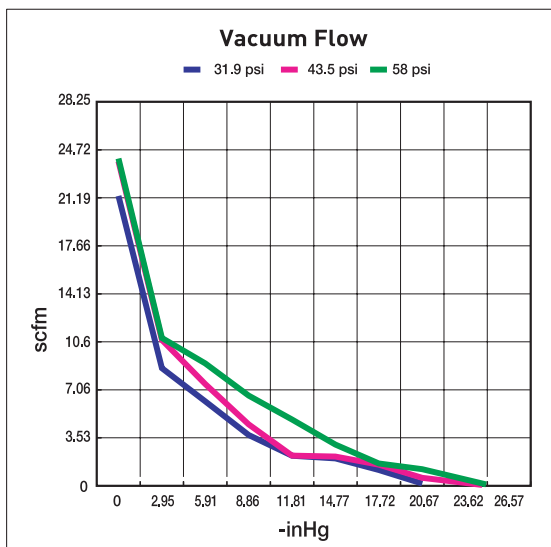
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTC3022..	22.15	31.9	11.58	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-
	27.46	43.5	12	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13
	27.46	58	12.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15
VTC3032..	22.15	31.9	21.33	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-
	27.46	43.5	23.87	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13
	27.46	58	24.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
VTC3022..	31.9	6.85	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-	
	43.5	8.33	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01	
	58	10.73	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75	
VTC3032..	31.9	6.85	0.011	0.043	0.05	0.17	0.23	0.38	0.811	-	-	
	43.5	8.33	0.01	0.032	0.055	0.15	0.22	0.33	0.48	0.78	1.98	
	58	10.73	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 : -22.15 inHg (-75kPa)
- Max. flow rate : 25.57 scfm (724 NI/min)
- Supply air pressure : 58~87 psi, max 101.5 psi
(4~6bar , max 7bar)
- Air consumption : 4.94~7.35 scfm (140~208 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 4 - 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)
• 4	Polyester (PE)	Dry seal thread(NPSF)

③ Air saving kit

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'**
(See page : 336, 337)

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[®]

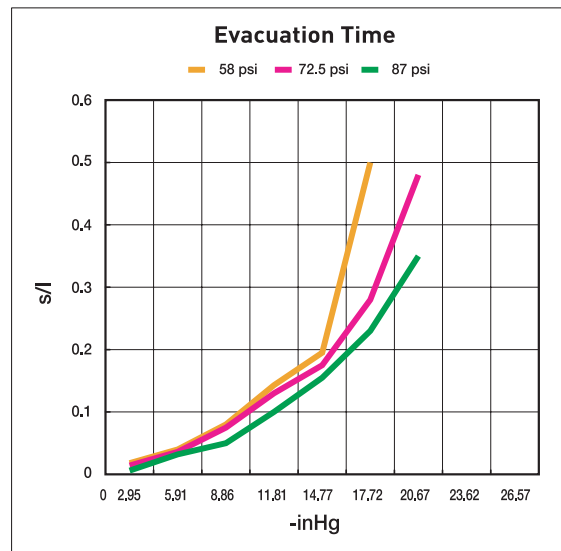
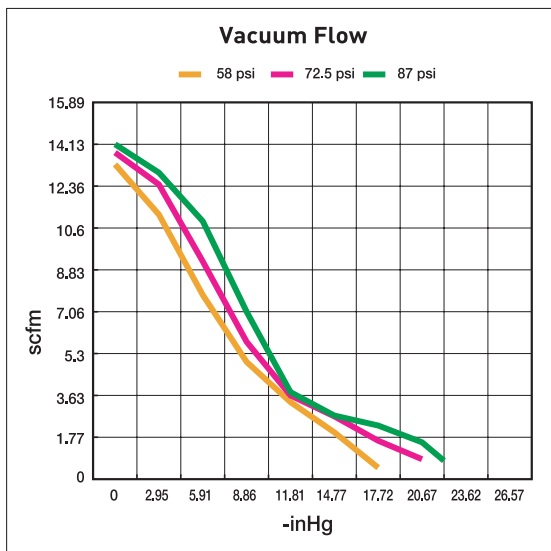
E - EPDM

Performance Data

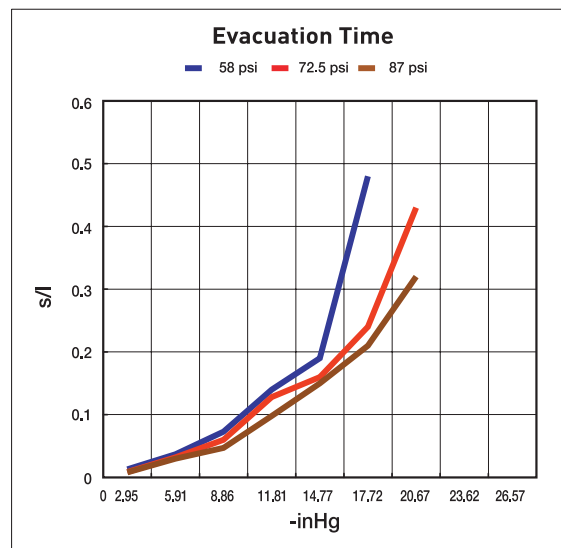
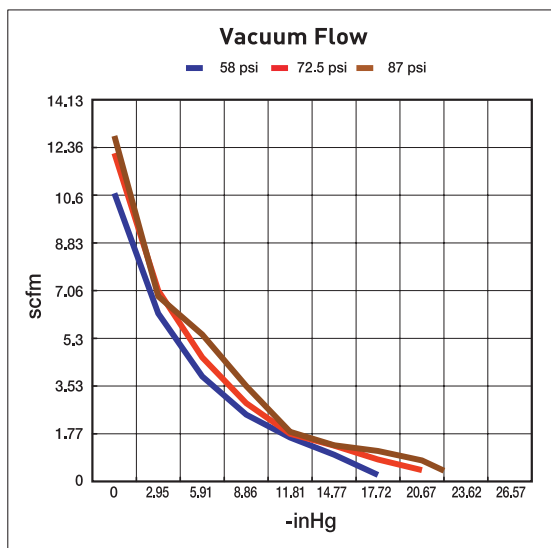
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTCL3022..	17.72	58	13.28	11.16	7.77	4.94	3.25	1.98	0.48	-	-	-
	20.67	72.5	13.77	12.43	9.18	5.79	3.53	2.65	1.62	0.84	-	-
	22.15	87	14.13	12.93	10.88	7.06	3.67	2.68	2.26	1.55	-	-
VTCL3032..	17.72	58	21.33	12.43	7.77	4.94	3.25	1.98	0.48	-	-	-
	20.67	72.5	24.3	13.84	9.18	5.79	3.53	2.65	1.62	0.84	-	-
	22.15	87	25.57	14.66	10.88	7.06	3.67	2.68	2.26	1.55	-	-

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
VTCL3022	58	4.94	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-	
	72.5	6.00	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-	
	87	7.35	0.013	0.032	0.06	0.1	0.18	0.18	0.35	-	-	
VTCL3032	58	4.94	0.013	0.037	0.073	0.14	0.19	0.45	-	-	-	
	72.5	6.00	0.009	0.032	0.06	0.128	0.16	0.25	0.43	-	-	
	87	7.35	0.008	0.03	0.047	0.098	0.15	0.2	0.32	-	-	

▼ VTCL-3022..



▼ VTCL-3032..

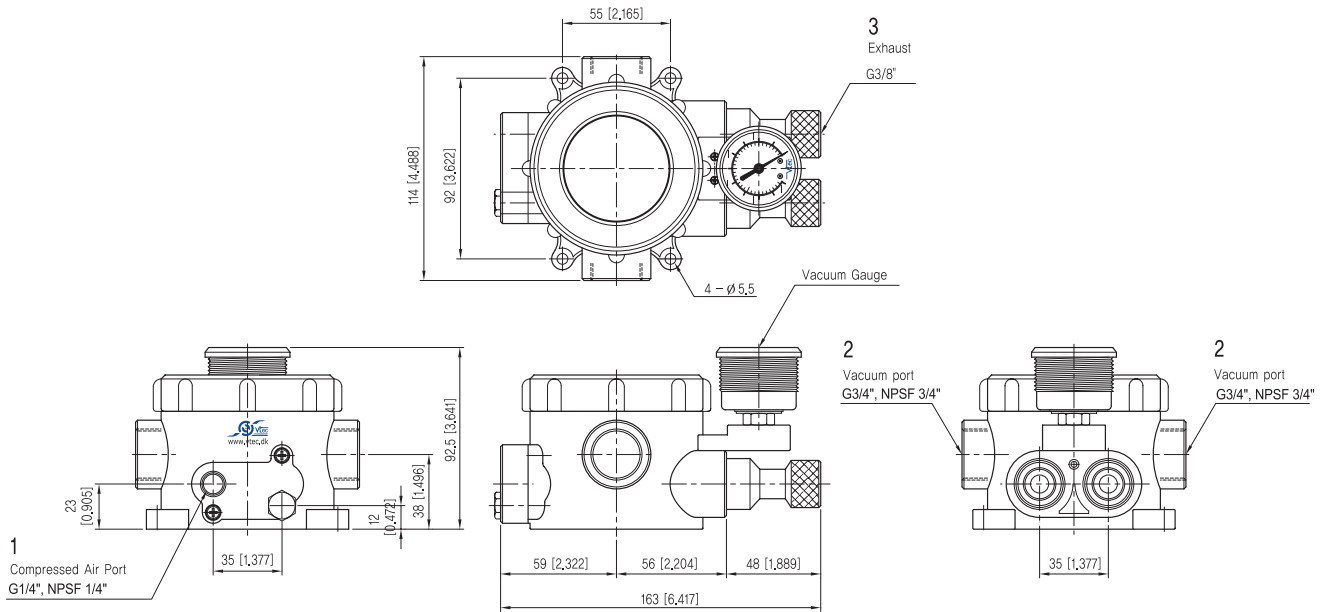


VACUUM PUMPS

Dimensional Information

Standard

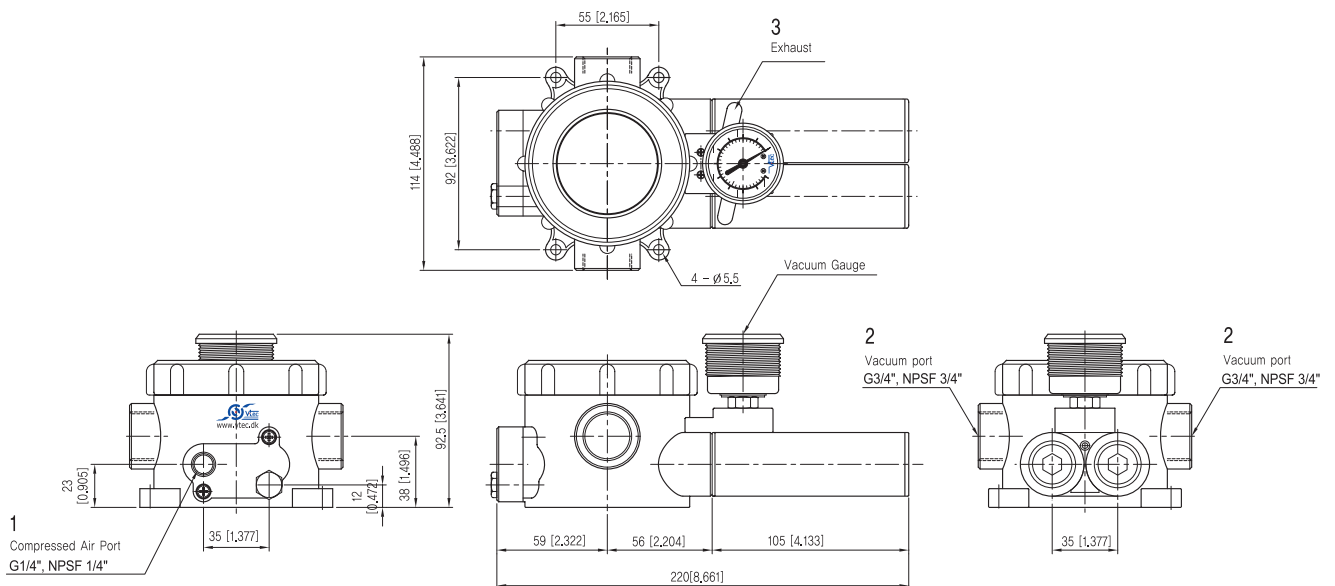
VTC 3022.. / VTCL 3022..



Measure unit : mm [in]

Standard

VTC 3032.. / VTCL 3032..

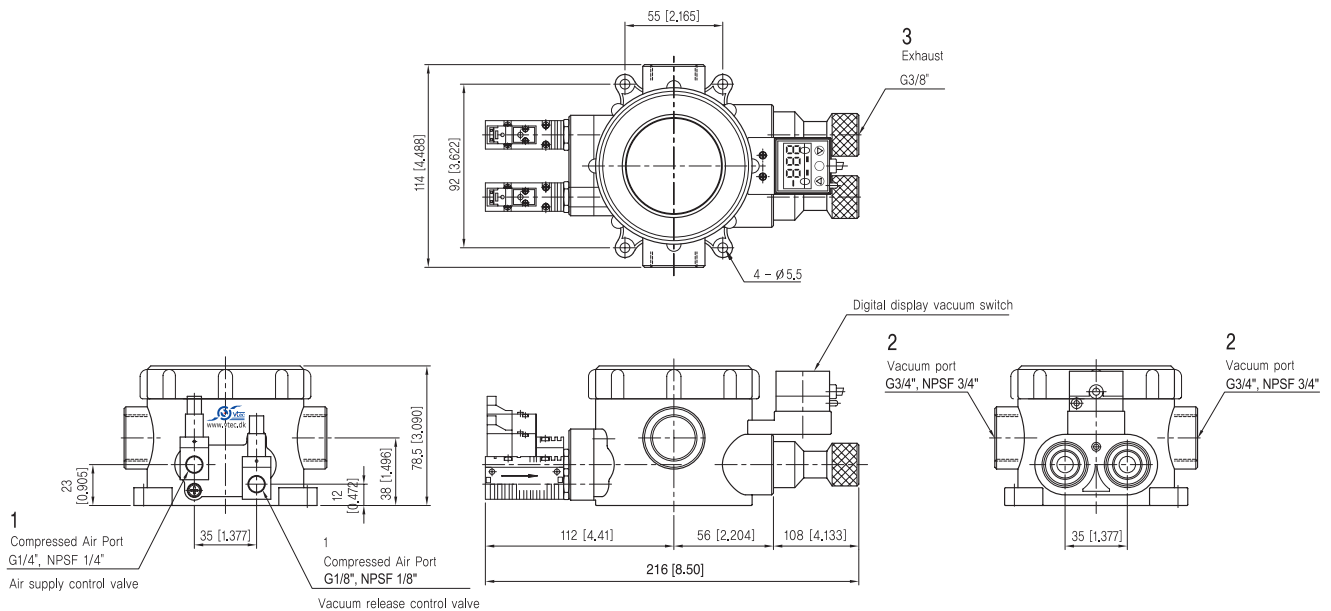


Measure unit : mm [in]

Dimensional Information

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

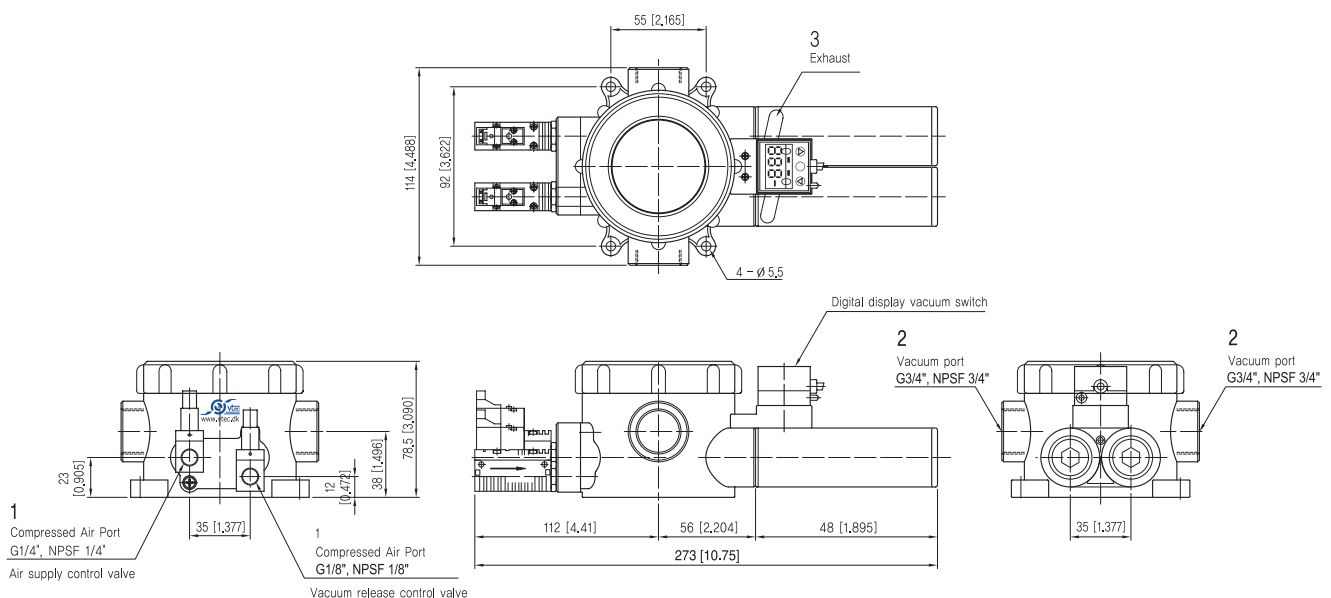
VTC 3022.. / VTCL 3022..



Measure unit : mm [in]

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

VTC 3032.. / VTCL 3032..



Measure unit : mm [in]

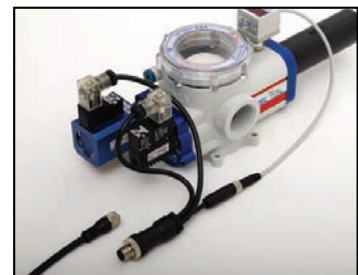
VTC Series

- Max. vacuum level : 27.46 inHg (-93kPa)
- Max. flow rate : 48.17 scfm (1,364 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi (3~6bar, max 7bar)
- Air consumption : 6.85~21.47 scfm (194~608 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 4 - AS - A3 R3 - CL - S2 N V

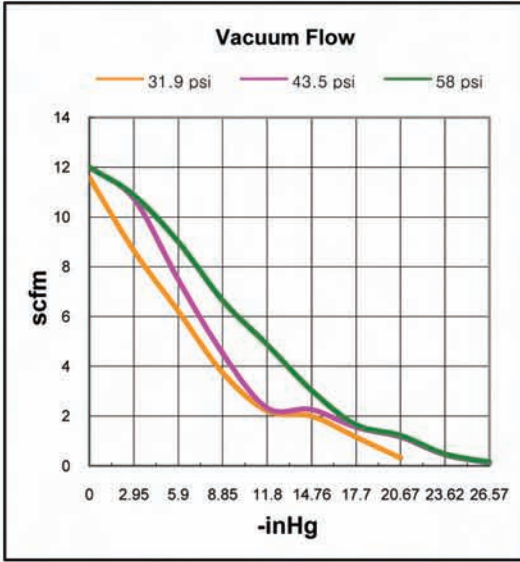
	①	②	③	④	⑤	⑥	⑦	⑧	⑨									
① Series	VTC3122(P) - 2 stage nozzle x 2 ea		VTC3123(P) - 2 stage nozzle x 3 ea		VTC3124(P) - 2 stage nozzle x 4 ea		VTC3132(P) - 3 stage nozzle x 2 ea		VTC3133(P) - 3 stage nozzle x 3 ea		• VTC3134(P) - 3 stage nozzle x 4 ea							
※ Remark:..(P) ↳ G1" Exhaust Port																		
② Filter element & Connection port	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Material</th> <th style="width: 90%;">Connection port</th> </tr> </thead> <tbody> <tr> <td>2 Polyester (PE)</td> <td>BSP Thread(G)</td> </tr> <tr> <td>• 4 Polyester (PE)</td> <td>Dry seal thread(NPSF)</td> </tr> </tbody> </table>		Material	Connection port	2 Polyester (PE)	BSP Thread(G)	• 4 Polyester (PE)	Dry seal thread(NPSF)	⑤ Voltage of vacuum release control valve		R1 - AC110V		R2 - AC220V		• R3 - DC24V		⑦ Vacuum switch	
Material	Connection port																	
2 Polyester (PE)	BSP Thread(G)																	
• 4 Polyester (PE)	Dry seal thread(NPSF)																	
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> 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. </td> <td style="width: 50%;"> ※ Remark: ① S..(P) ↳ Output type :PNP open collector ② VCM8 42 : M8-4Pin connector wire. Only for type S2 or S2(P). </td> </tr> </table>													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).				
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).																	
③ Air saving kit (AS-Kit)	No mark - Not attached		• AS - Attached		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							
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> 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) </td> <td style="width: 50%;"> * 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' (See page : 336, 337) </td> </tr> </table>													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' (See page : 336, 337)				
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' (See page : 336, 337)																	
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																		
⑧ Non-return valve																		
No mark - Standard																		
• N - Non-return valve.																		
⑨ Sealing																		
No mark - Standard																		
• V - Viton®																		
E - EPDM																		

Performance Data

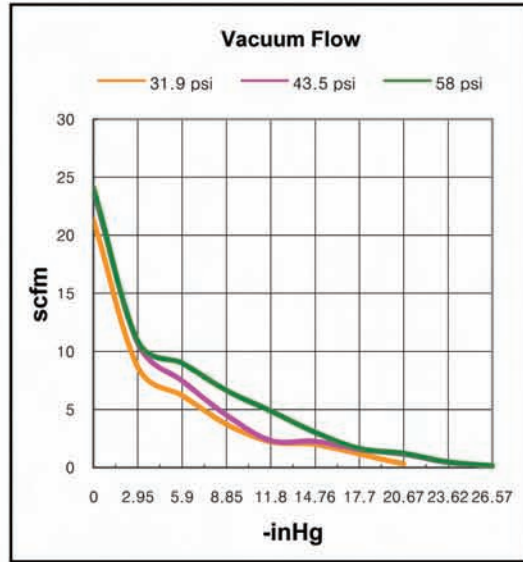
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTC 3122	22.15	31.9	11.58	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-
	27.46	43.5	12	10.37	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13
	27.46	58	12.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15
VTC 3123	22.15	31.9	17.37	12.96	9.32	5.61	3.32	3.03	1.76	0.49	-	-
	27.46	43.5	18.01	16.1	11.23	6.78	3.49	3.39	2.33	1.76	0.67	0.21
	27.46	58	18.11	16.31	13.52	9.96	7.31	4.55	2.47	1.83	0.74	0.22
VTC 3124	22.15	31.9	23.16	17.3	12.43	7.48	4.45	4.02	2.33	0.63	-	-
	27.46	43.5	24.01	21.47	14.97	9.04	4.66	4.52	3.1	2.33	0.91	0.27
	27.46	58	24.15	21.75	18.01	13.28	9.74	6.07	3.28	2.43	0.99	0.29
VTC 3132	22.15	31.9	21.33	8.65	6.21	3.74	2.22	2	1.16	0.32	-	-
	27.46	43.5	23.87	10.73	7.48	4.52	2.33	2.26	1.55	1.16	0.45	0.13
	27.46	58	24.08	10.87	9	6.64	4.87	3.03	1.64	1.22	0.48	0.15
VTC 3133	22.15	31.9	31.85	12.99	9.32	5.61	3.32	3.04	1.76	0.49	-	-
	27.46	43.5	35.81	16.1	11.23	6.78	3.49	3.39	2.33	1.76	0.67	0.21
	27.46	58	36.13	16.31	13.88	9.96	7.31	4.55	2.47	1.83	0.74	0.22
VTC 3134	22.15	31.9	42.66	17.3	12.43	7.48	4.45	4.02	2.33	0.63	-	-
	27.46	43.5	47.75	21.47	14.97	9.04	4.66	4.52	3.11	2.33	0.92	0.27
	27.46	58	48.17	21.75	18.01	13.28	9.74	6.07	3.284	2.43	0.99	0.29

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)								
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTC 3122	31.9	6.85	0.018	0.065	0.108	0.2	0.25	0.395	0.81	-	-
	43.5	8.33	0.016	0.05	0.07	0.16	0.23	0.34	0.5	0.795	2.01
	58	10.37	0.014	0.029	0.043	0.05	0.13	0.25	0.355	0.71	1.75
VTC 3123	31.9	10.27	0.01	0.04	0.07	0.13	0.16	0.24	0.54	-	-
	43.5	12.5	0.009	0.03	0.06	0.1	0.13	0.21	0.26	0.4	1.27
	58	16.1	0.008	0.019	0.03	0.033	0.08	0.16	0.23	0.35	1.17
VTC 3124	31.9	13.7	0.008	0.03	0.05	0.095	0.12	0.18	0.4	-	-
	43.5	16.67	0.007	0.025	0.048	0.08	0.1	0.16	0.2	0.3	0.95
	58	21.47	0.006	0.015	0.023	0.025	0.06	0.12	0.17	0.26	0.87
VTC 3132	31.9	6.85	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	43.5	8.33	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98
	58	10.73	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
VTC 3133	31.9	10.27	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	43.5	12.5	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	58	16.1	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
VTC 3134	31.9	13.7	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	43.5	16.67	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95
	58	21.47	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85

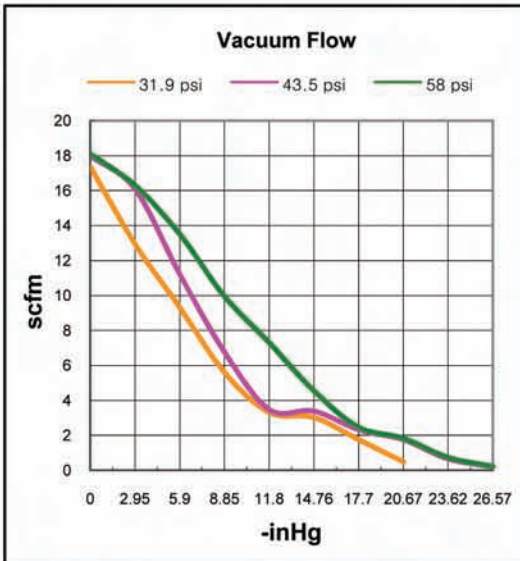
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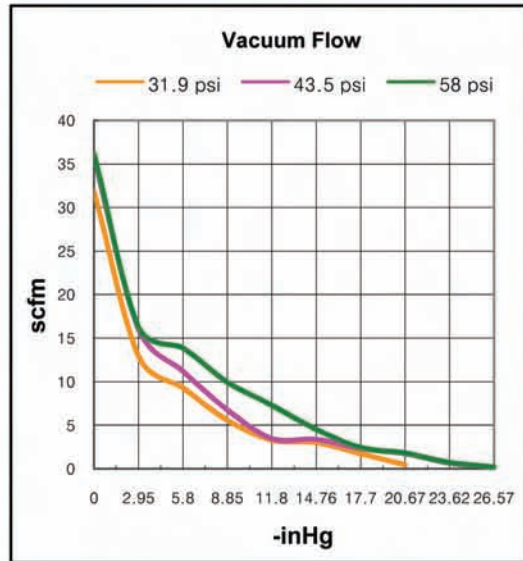
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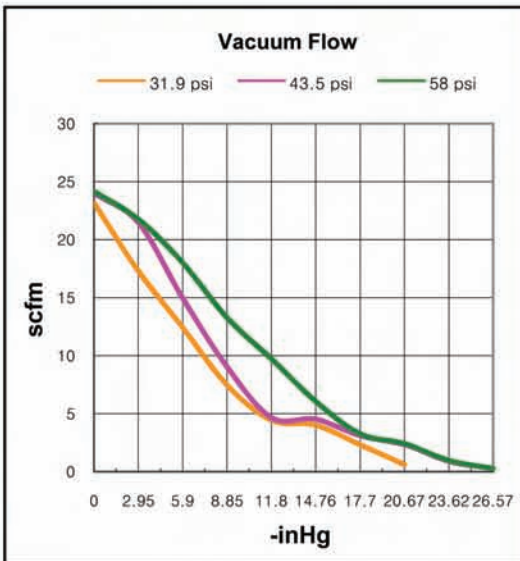
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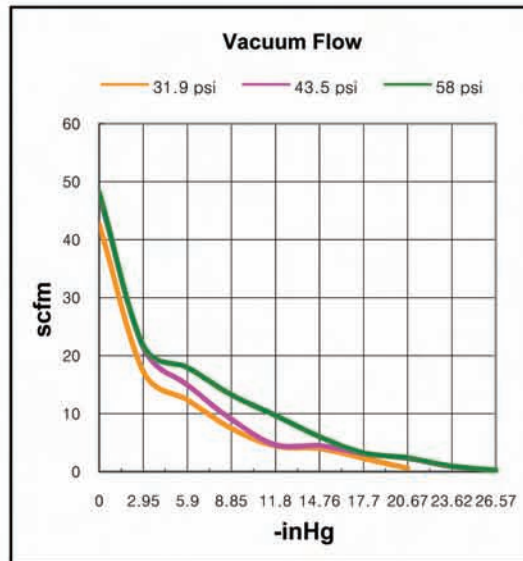
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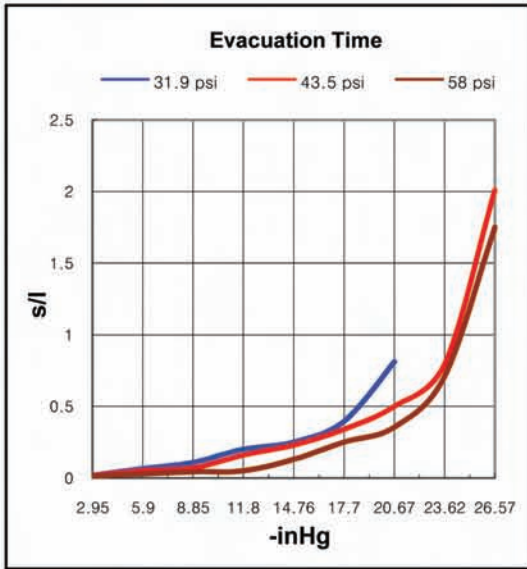
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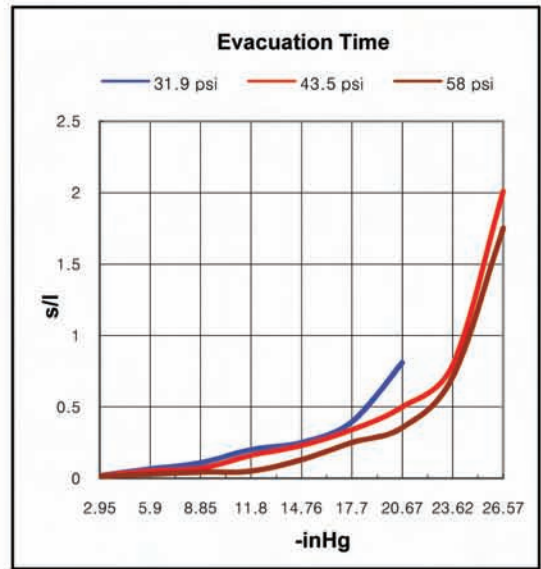
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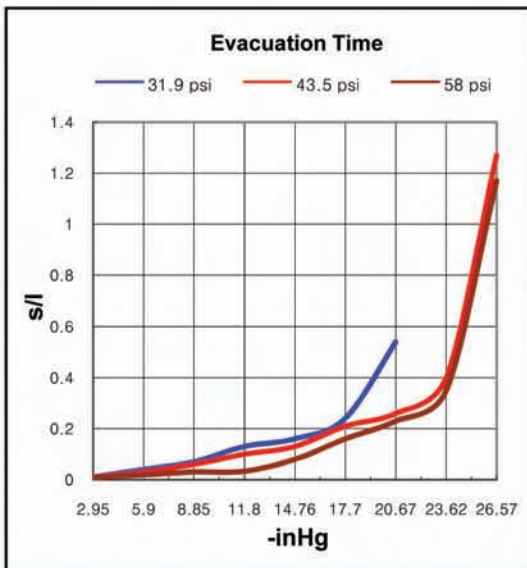
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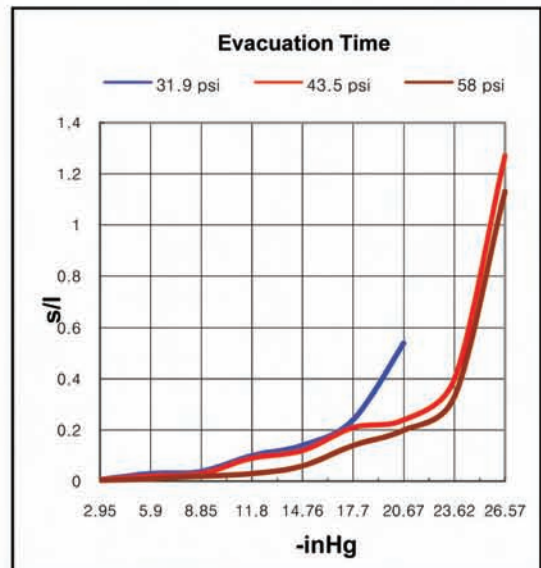
▼ VTC 3132 ..



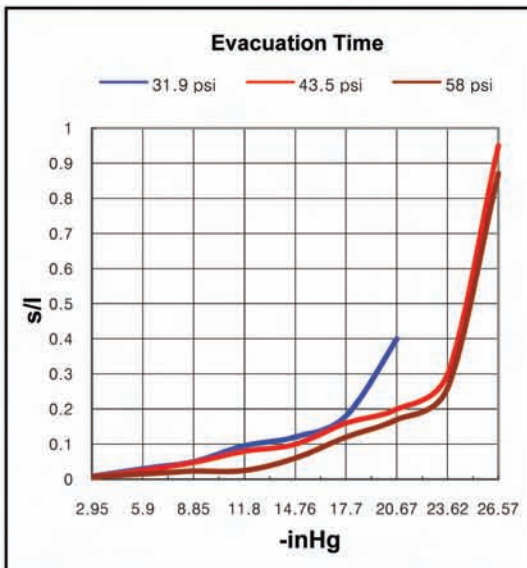
▼ VTC 3123 ..



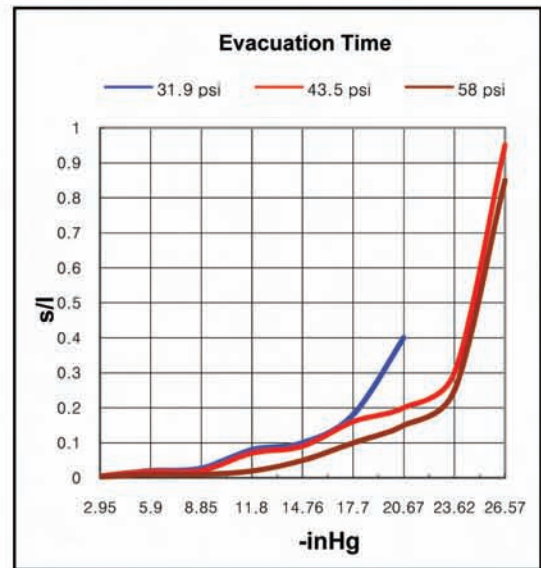
▼ VTC 3133 ..



▼ VTC 3124 ..



▼ VTC 3134 ..



VACUUM PUMPS

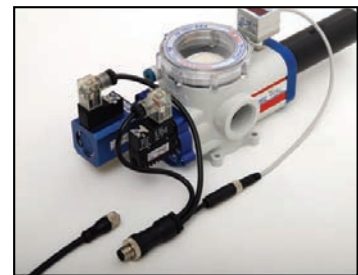
VTCL - Series

- Max. vacuum level : 22.15 inHg (-75kPa)
- Max. flow rate : 51.13 scfm (1,448 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi (4~6bar, max 7bar)
- Air consumption : 4.94~14.69 scfm (140~416 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 4 - 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>VTCL3122(P) - 2 stage nozzle x 2 ea</td></tr> <tr><td>VTCL3123(P) - 2 stage nozzle x 3 ea</td></tr> <tr><td>VTCL3124(P) - 2 stage nozzle x 4 ea</td></tr> <tr><td>VTCL3132(P) - 3 stage nozzle x 2 ea</td></tr> <tr><td>VTCL3133(P) - 3 stage nozzle x 3 ea</td></tr> <tr><td>• VTCL3134(P) - 3 stage nozzle x 4 ea</td></tr> </table>									VTCL3122(P) - 2 stage nozzle x 2 ea	VTCL3123(P) - 2 stage nozzle x 3 ea	VTCL3124(P) - 2 stage nozzle x 4 ea	VTCL3132(P) - 3 stage nozzle x 2 ea	VTCL3133(P) - 3 stage nozzle x 3 ea	• VTCL3134(P) - 3 stage nozzle x 4 ea
VTCL3122(P) - 2 stage nozzle x 2 ea															
VTCL3123(P) - 2 stage nozzle x 3 ea															
VTCL3124(P) - 2 stage nozzle x 4 ea															
VTCL3132(P) - 3 stage nozzle x 2 ea															
VTCL3133(P) - 3 stage nozzle x 3 ea															
• VTCL3134(P) - 3 stage nozzle x 4 ea															
※ Remark...(P)	<p style="margin-left: 20px;">└─ G1" Exhaust Port</p>														
② Filter element & Connection port	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Material</th> <th style="width: 90%;">Connection port</th> </tr> </thead> <tbody> <tr> <td>2 Polyester (PE)</td> <td>BSP Thread(G)</td> </tr> <tr> <td>• 4 Polyester (PE)</td> <td>Dry seal thread(NPSF)</td> </tr> </tbody> </table>									Material	Connection port	2 Polyester (PE)	BSP Thread(G)	• 4 Polyester (PE)	Dry seal thread(NPSF)
Material	Connection port														
2 Polyester (PE)	BSP Thread(G)														
• 4 Polyester (PE)	Dry seal thread(NPSF)														
③ Air saving kit (AS-Kit)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>No mark - Not attached</td> </tr> <tr> <td>• 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>A1 - AC110V</td></tr> <tr><td>A2 - AC220V</td></tr> <tr><td>• A3 - DC24V</td></tr> <tr><td>D1* - AC110V</td></tr> <tr><td>D2* - AC220V</td></tr> <tr><td>D3* - DC24V</td></tr> </table>									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>R1 - AC110V</td></tr> <tr><td>R2 - AC220V</td></tr> <tr><td>• 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>DN - DIN type without lead wire</td></tr> <tr><td>DL - DIN type with lamp without lead wire</td></tr> <tr><td>• CL* - Connector type with lamp & 0.3 m lead wire</td></tr> <tr><td>2B* - DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)</td></tr> <tr><td>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</p> <p>※ Remark CL : Available only with DC24V 3B : Available only with DC24V Available only with 'S2' or 'S2P', section ⑦</p> <p>☞ About 'BUS cable' (See page : 336, 337)</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>No mark - Vacuum gauge.</td></tr> <tr><td>• 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></tr> <tr><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</p> <p>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>No mark - Standard</td> </tr> <tr> <td>• 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>No mark - Standard</td></tr> <tr><td>• V - Viton®</td></tr> <tr><td>E - EPDM</td></tr> </table>									No mark - Standard	• V - Viton®	E - EPDM			
No mark - Standard															
• V - Viton®															
E - EPDM															

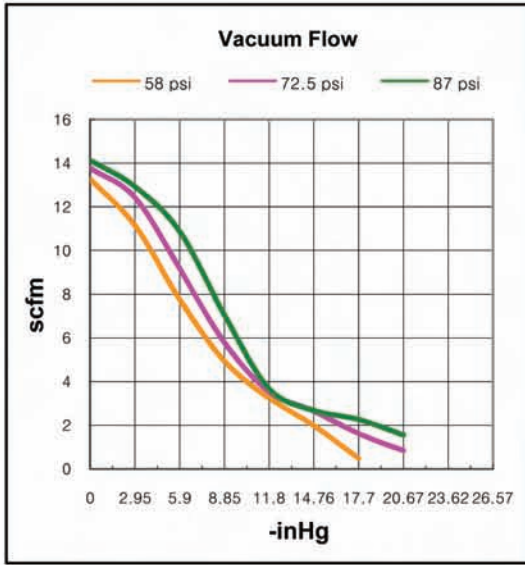
* D.. : Double solenoid valve is available only with 'DN' or 'DL', section ⑥

Performance Data

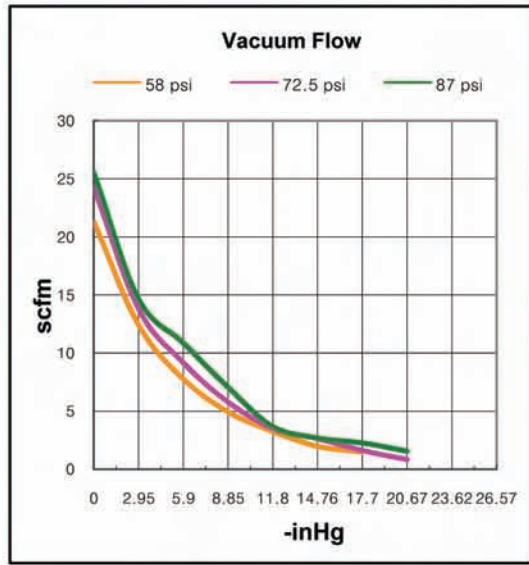
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VTCL 3122	17.72	58	13.28	11.16	7.77	4.94	3.25	1.98	0.48	-	-	-
	20.67	72.5	13.77	12.43	9.18	5.79	3.53	2.65	1.62	0.84	-	-
	22.15	87	14.13	12.93	10.88	7.06	3.67	2.68	2.26	1.55	-	-
VTCL 3123	17.72	58	19.91	16.74	11.65	7.41	4.87	2.96	0.72	-	-	-
	20.67	72.5	20.66	18.64	13.77	8.68	5.29	3.97	2.43	1.19	-	-
	22.15	87	21.19	19.39	16.31	10.59	5.5	4.02	3.39	2.33	-	-
VTCL 3124	17.72	58	26.55	22.32	15.53	9.88	6.5	3.95	0.96	-	-	-
	20.67	72.5	27.5	24.86	18.36	11.58	7.06	5.29	3.25	1.59	-	-
	22.15	87	28.14	25.85	21.75	14.13	7.34	5.368	4.52	3.11	-	-
VTCL 3132	17.72	58	21.33	12.43	7.77	4.94	3.25	1.98	0.48	-	-	-
	20.67	72.5	24.3	13.84	9.18	5.79	3.53	2.65	1.62	0.84	-	-
	22.15	87	25.57	14.66	10.88	7.06	3.67	2.68	2.26	1.55	-	-
VTCL 3133	17.72	58	31.99	18.22	11.65	7.41	4.87	2.96	0.72	-	-	-
	20.67	72.5	36.44	20.76	13.77	8.69	5.3	3.97	2.43	1.2	-	-
	22.15	87	38.35	21.93	16.31	10.59	5.51	4.02	3.39	2.33	-	-
VTCL 3134	17.72	58	42.66	24.3	15.54	9.89	6.5	3.95	0.95	-	-	-
	20.67	72.5	48.59	27.68	18.36	11.58	7.06	5.3	3.25	1.6	-	-
	22.15	87	51.14	29.24	21.75	14.13	7.34	5.37	4.52	3.11	-	-

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
VTCL 3122	58	4.94	0.018	0.04	0.08	0.145	0.195	0.5	-	-	-	
	72.5	6	0.014	0.036	0.075	0.125	0.15	0.2	0.4	-	-	
	87	7.34	0.013	0.032	0.06	0.1	0.155	0.18	0.35	-	-	
VTCL 3123	58	7.41	0.012	0.029	0.057	0.097	0.127	0.27	-	-	-	
	72.5	9	0.009	0.028	0.05	0.083	0.1	0.113	0.26	-	-	
	87	11.01	0.009	0.027	0.04	0.06	0.09	0.12	0.2	-	-	
VTCL 3124	58	9.88	0.01	0.025	0.04	0.07	0.09	0.2	-	-	-	
	72.5	12	0.0067	0.02	0.037	0.065	0.075	0.1	0.2	-	-	
	87	14.69	0.006	0.02	0.03	0.055	0.073	0.09	0.15	-	-	
VTCL 3132	58	4.94	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-	
	72.5	6	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-	
	87	7.34	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-	
VTCL 3133	58	7.41	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-	
	72.5	9	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-	
	87	11.01	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-	
VTCL 3134	58	9.88	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-	
	72.5	12	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-	
	87	14.69	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-	

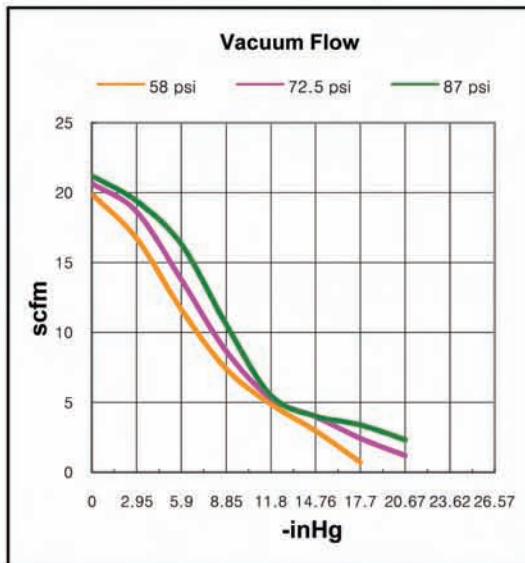
▼ VTCL 3122 ..



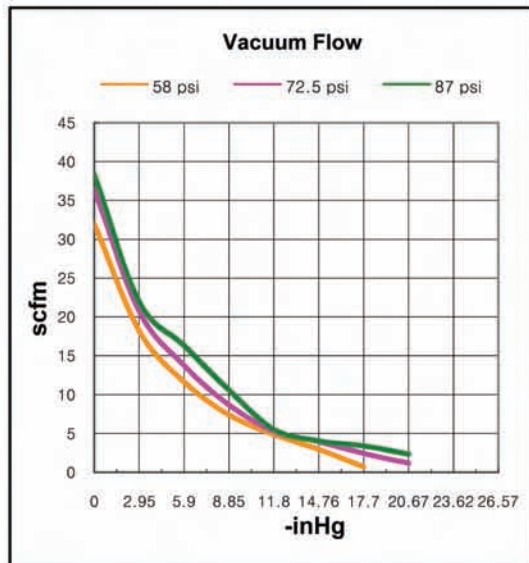
▼ VTCL 3132 ..



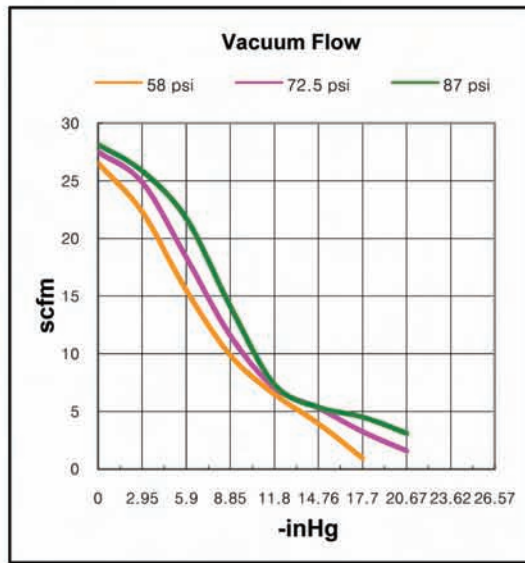
▼ VTCL 3123 ..



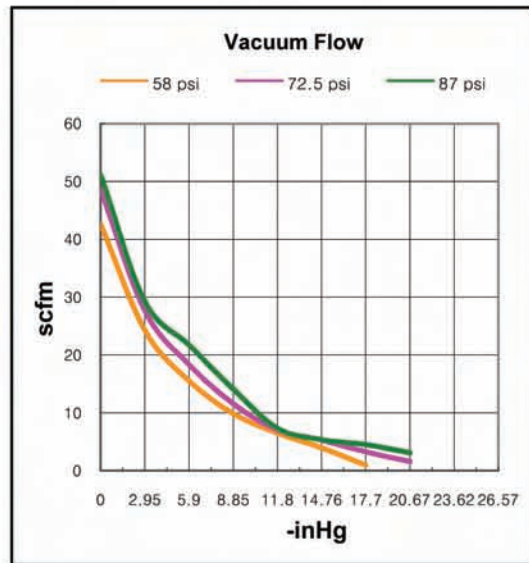
▼ VTCL 3133 ..



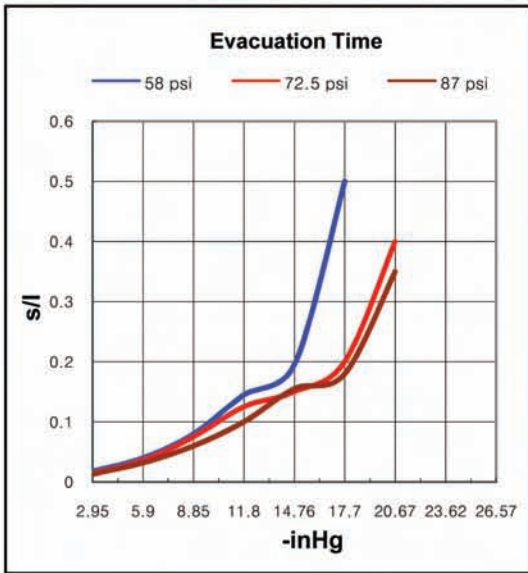
▼ VTCL 3124 ..



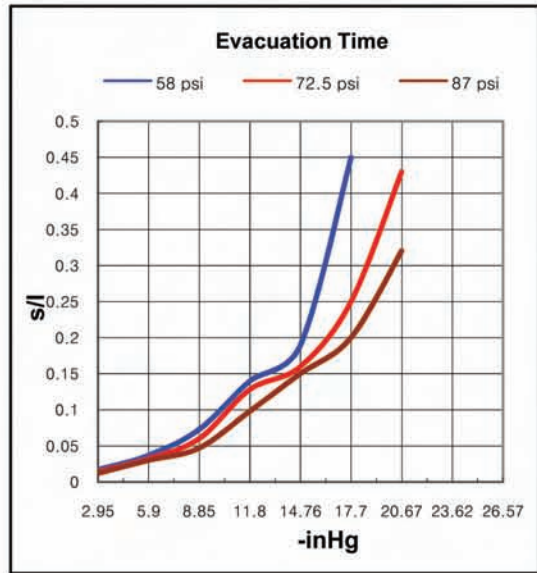
▼ VTCL 3134 ..



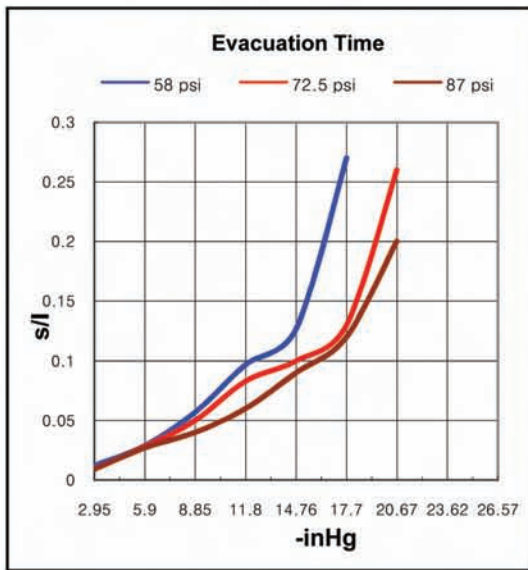
▼ VTCL 3122 ..



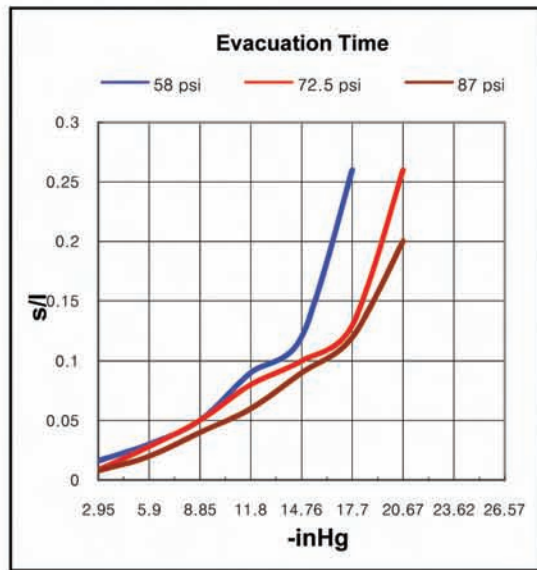
▼ VTCL 3132 ..



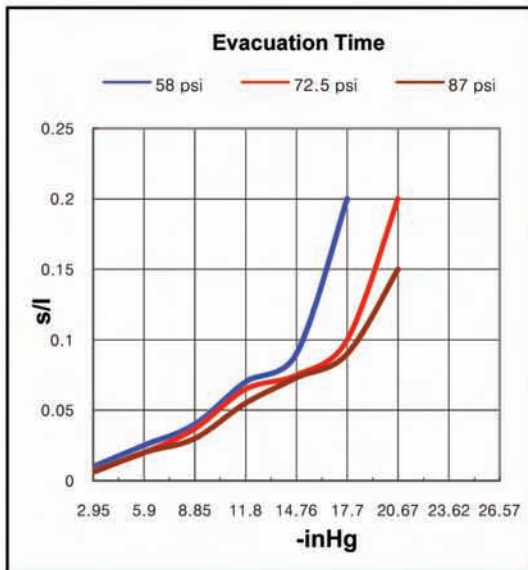
▼ VTCL 3123 ..



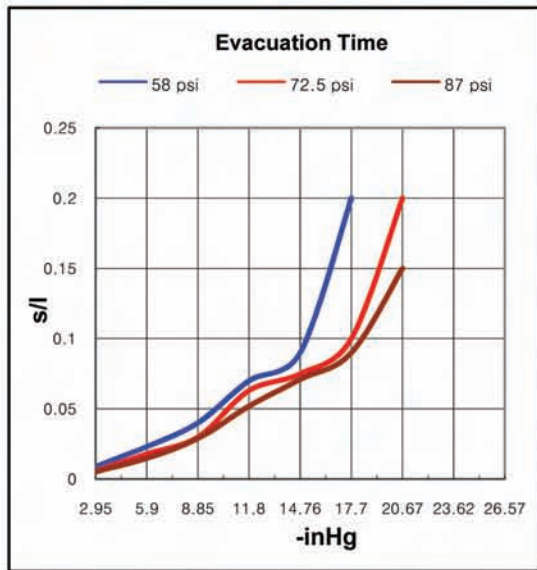
▼ VTCL 3133 ..



▼ VTCL 3124 ..



▼ VTCL 3134 ..

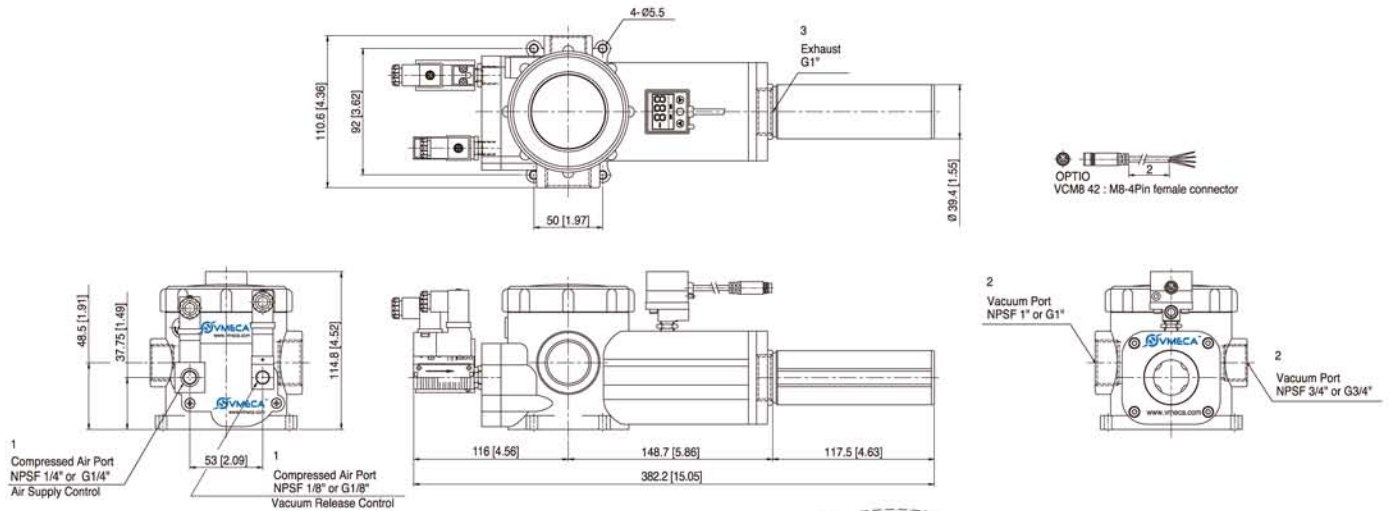


VACUUM PUMPS

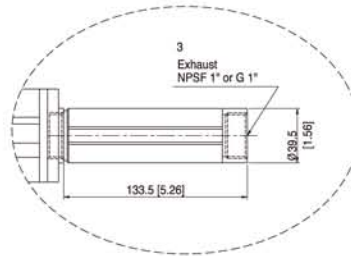
Dimensional Information

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

▼ Series VTC 313().. / VTCL 313()..



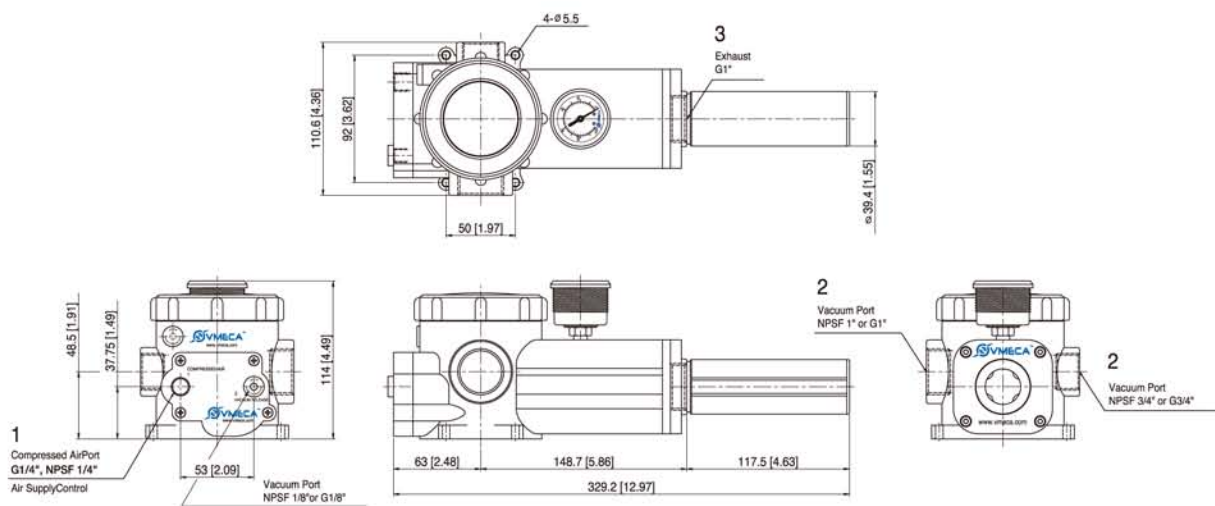
Measure unit : mm [in]



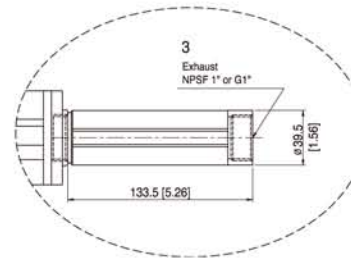
◀ Series VTC 313 □(P)..
VTCL 313 □(P)..

Standard

▼ Series VTC 313().. / VTCL 313()..



Measure unit : mm [in]

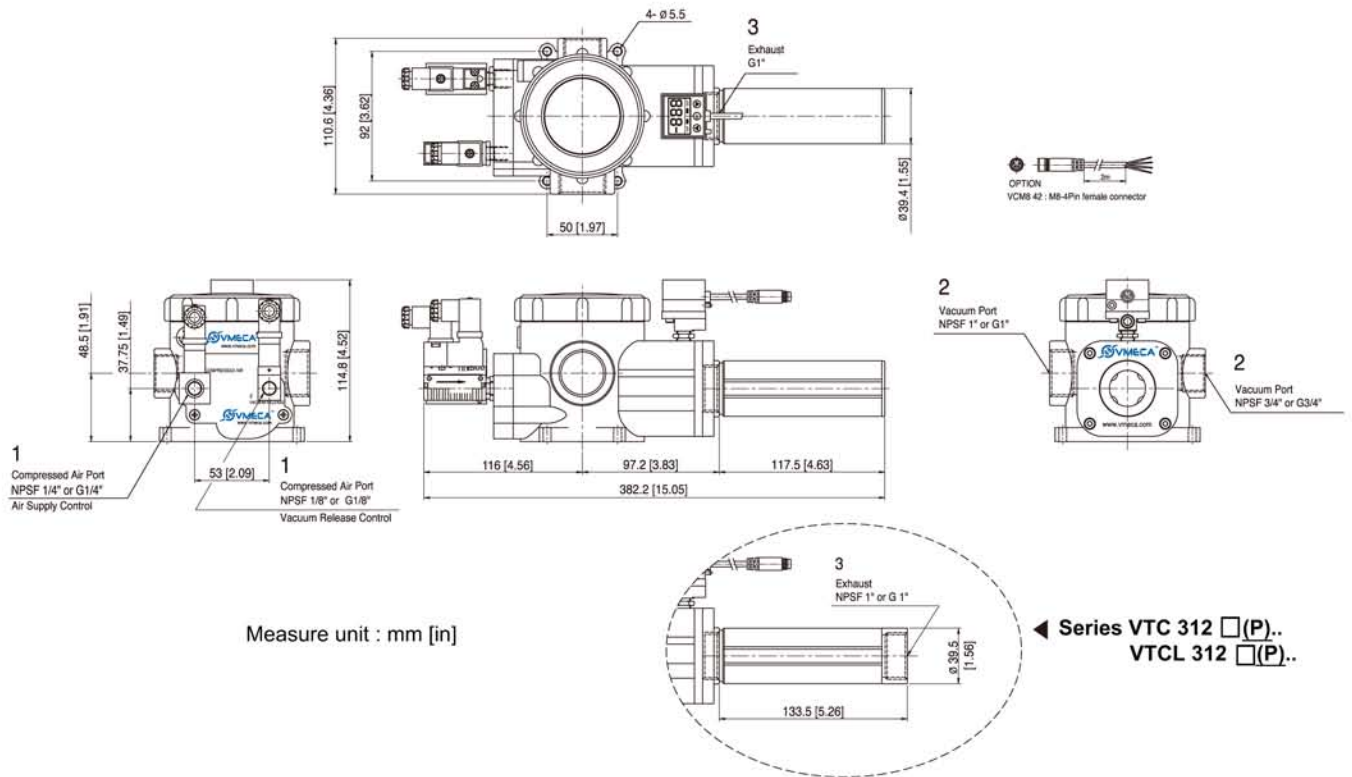


◀ Series VTC 313 □(P)..
VTCL 313 □(P)..

Dimensional Information

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

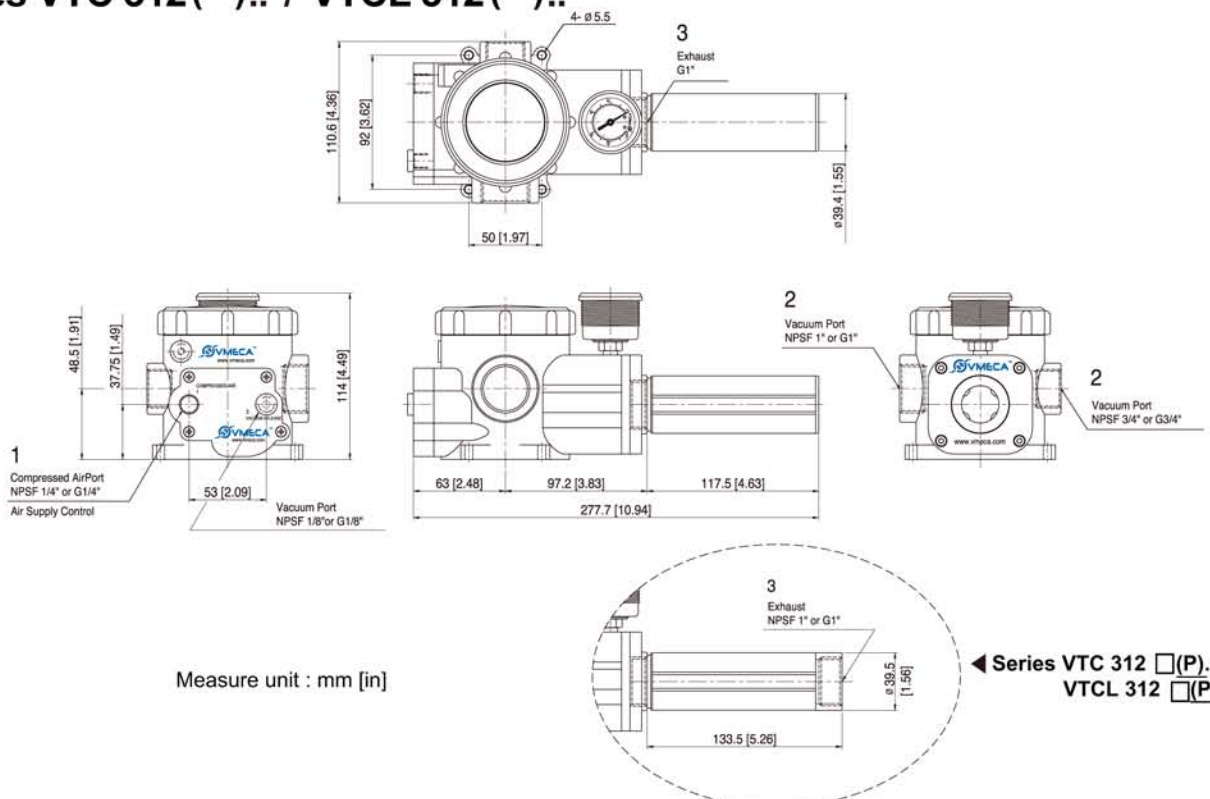
▼ Series VTC 312().. / VTCL 312()..



◀ Series VTC 312 □(P)..
VTCL 312 □(P)..

Standard

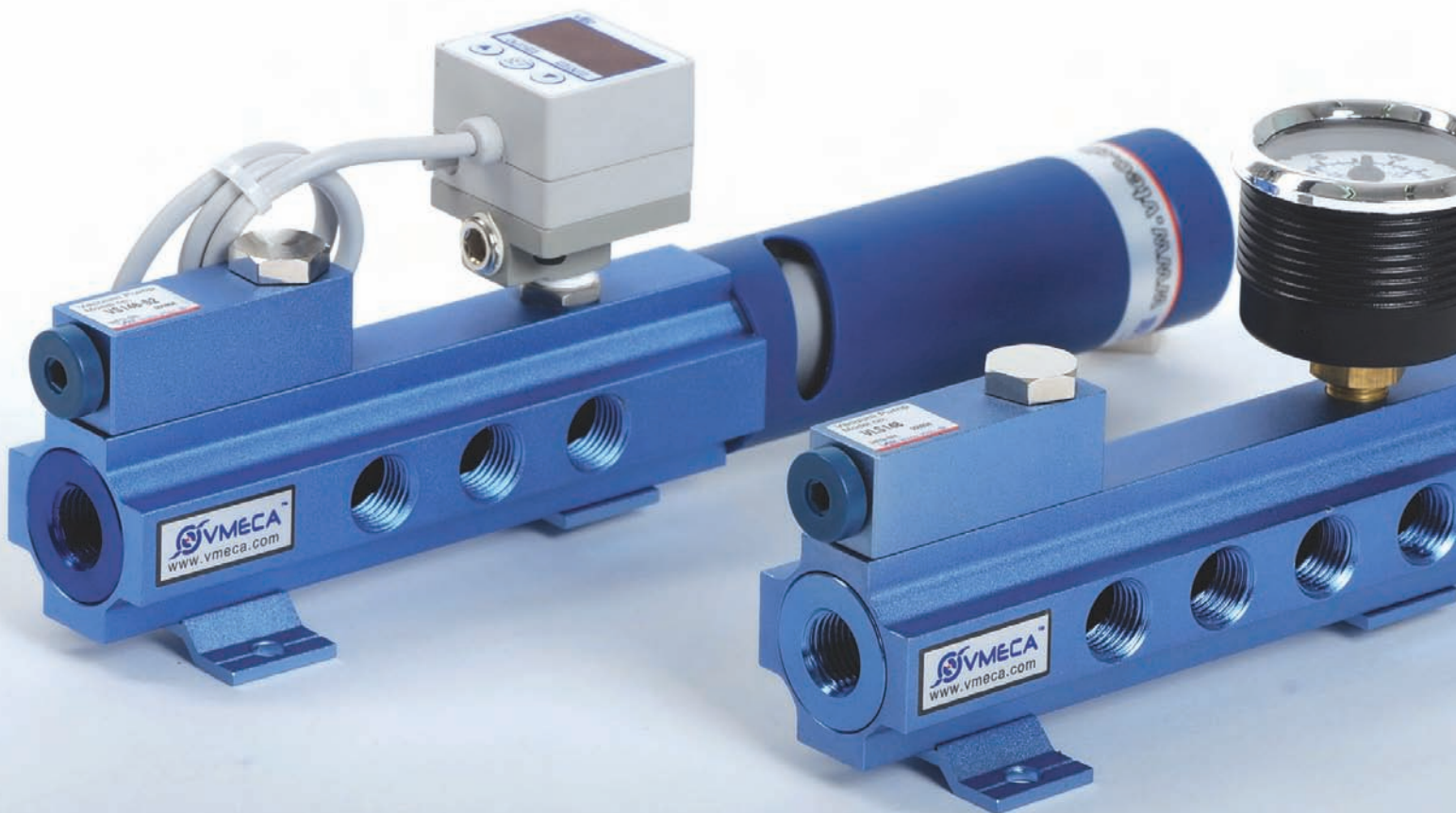
▼ Series VTC 312().. / VTCL 312()..



◀ Series VTC 312 □(P)..
VTCL 312 □(P)..



V-PUMPS



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



► VS Series

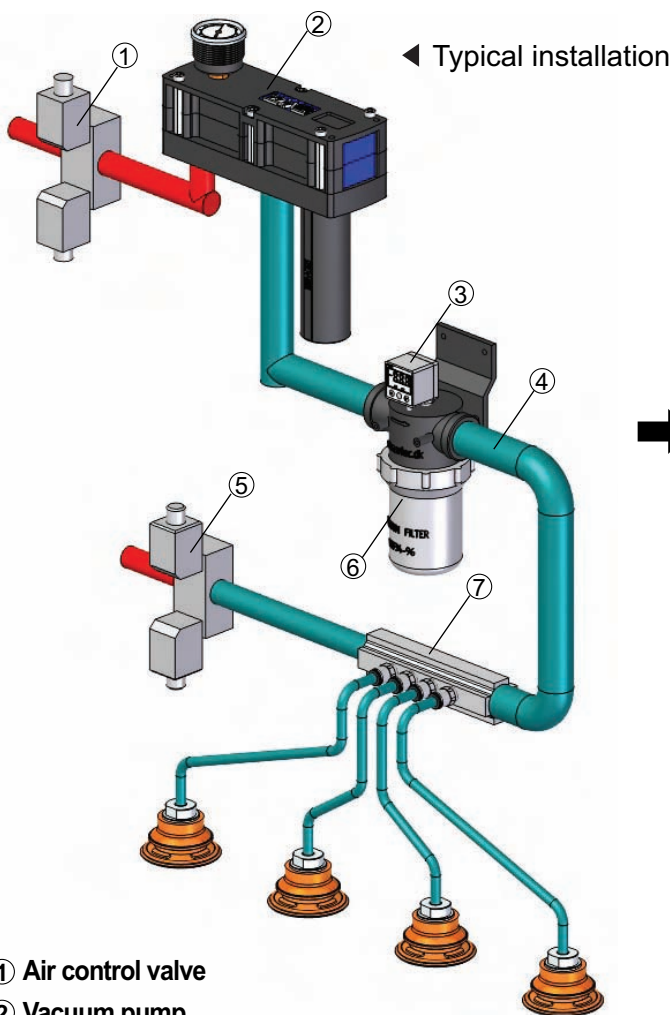
High vacuum level (-27.46 inHg) at low compressed inlet air pressure (43.5~87 psi).
High vacuum flow rate to compensate for fluctuating or low compressed air pressure.
Suitable for sealed system applications such as lifting metal sheets of glass plate.

► VLS Series

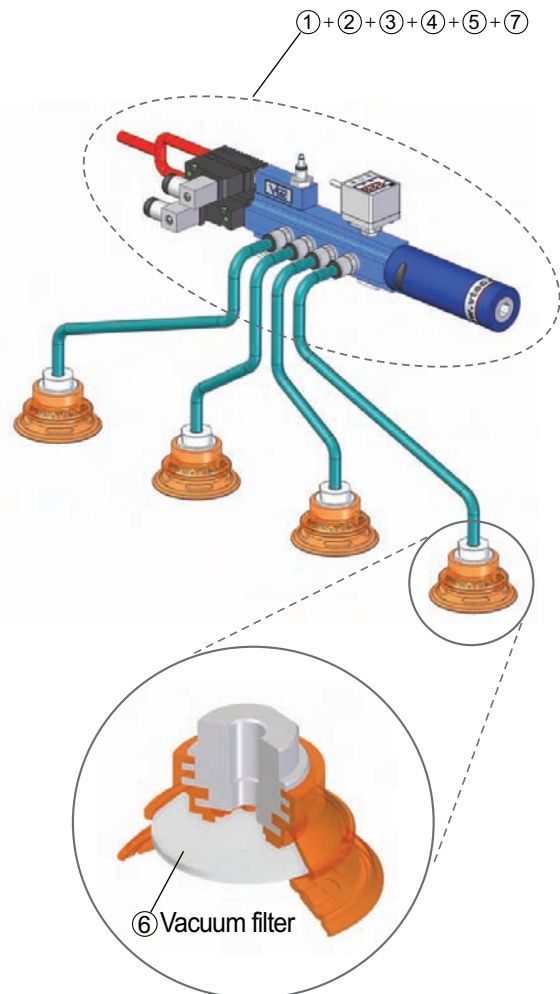
Vacuum level (-22.15 inHg) at general inlet air pressure (87psi)
Extra high vacuum flow rate and suitable for non-sealed system application.

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.



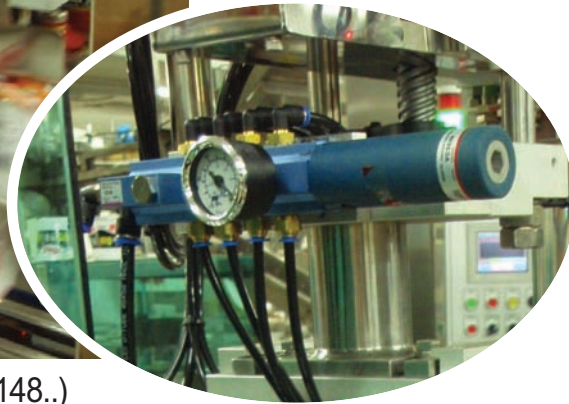
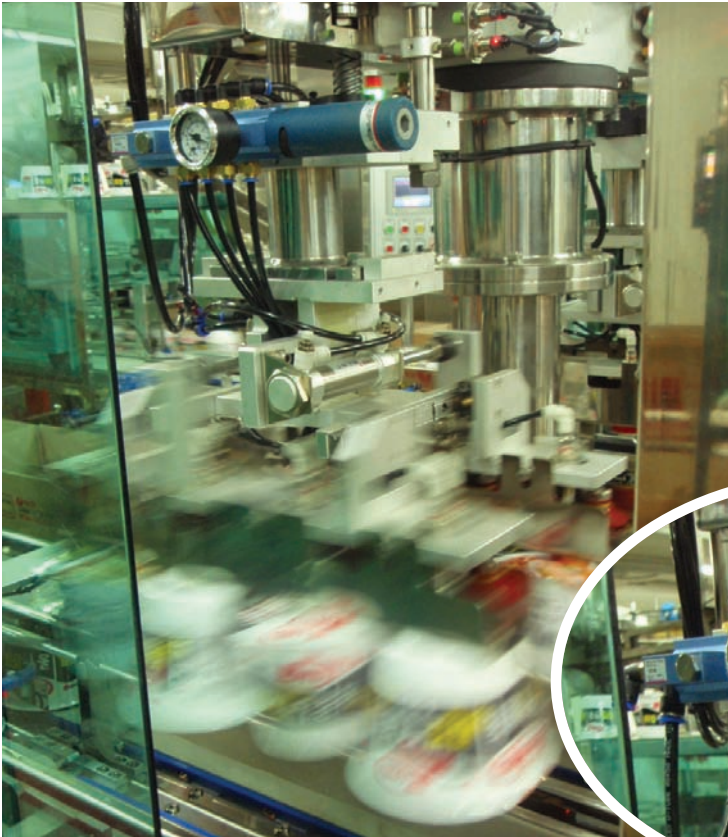
▼ New solution with VMECA V-PUMP



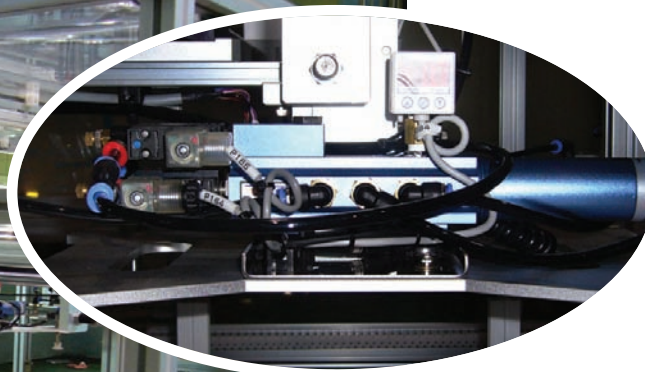
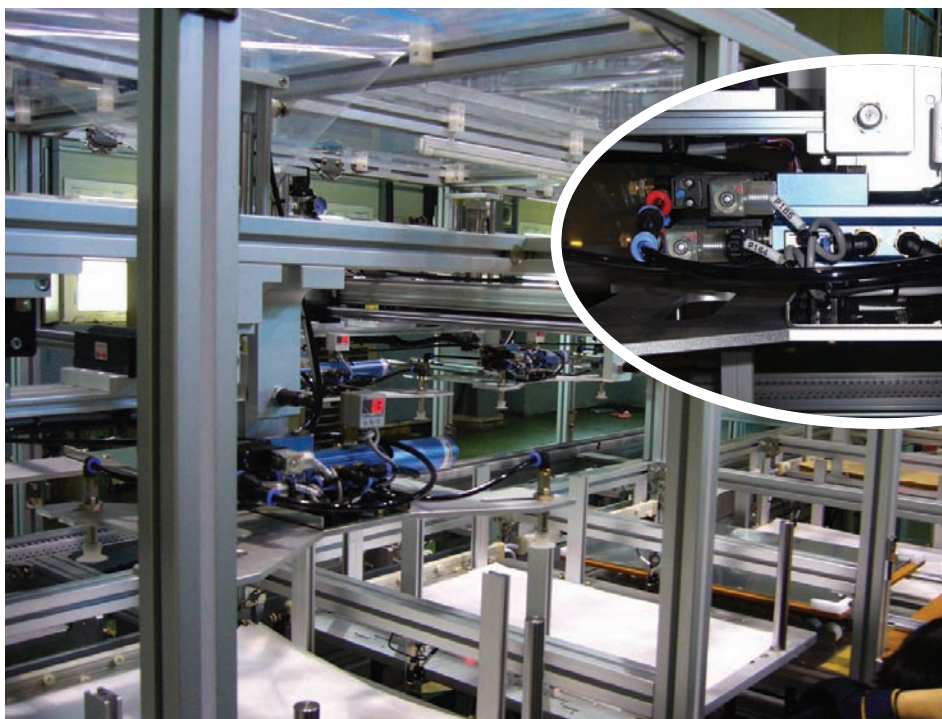
- ① Air control valve
- ② Vacuum pump
- ③ Digital Vacuum switch
- ④ Main vacuum pipe line
- ⑤ Vacuum release control valve
- ⑥ Vacuum filter
- ⑦ Distributor (Manifold)

VACUUM PUMPS

APPLICATIONS



▲ Cup noodle Packaging machine (VS148..)



▲ Thin Film loading (VS146..)

VS - Series

Max. vacuum level	: -27.46 inHg (-93kPa)
Max. flow rate	: 12.04 scfm (341 NI/min)
Supply air pressure	: 43.5~87 psi, max 101.5psi (3~6bar, max 7bar)
Air consumption	: 3.43~5.37 scfm (97~152 NI/min)
Supply air type	: Dry compressed air
Working temperature	: -4 °F ~ 176 °F
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 N144 - AS - A3 R3 - CL A - S2 N V

①
②
③
④
⑤
⑥
⑦
⑧
⑨

① Vacuum Port

- **N144** - NPSF 1/4" X 4EA
- N146 - NPSF1/4" X 6EA
- N148 - NPSF1/4" X 8EA

② Air saving kit

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'
(See page : 336, 337)

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

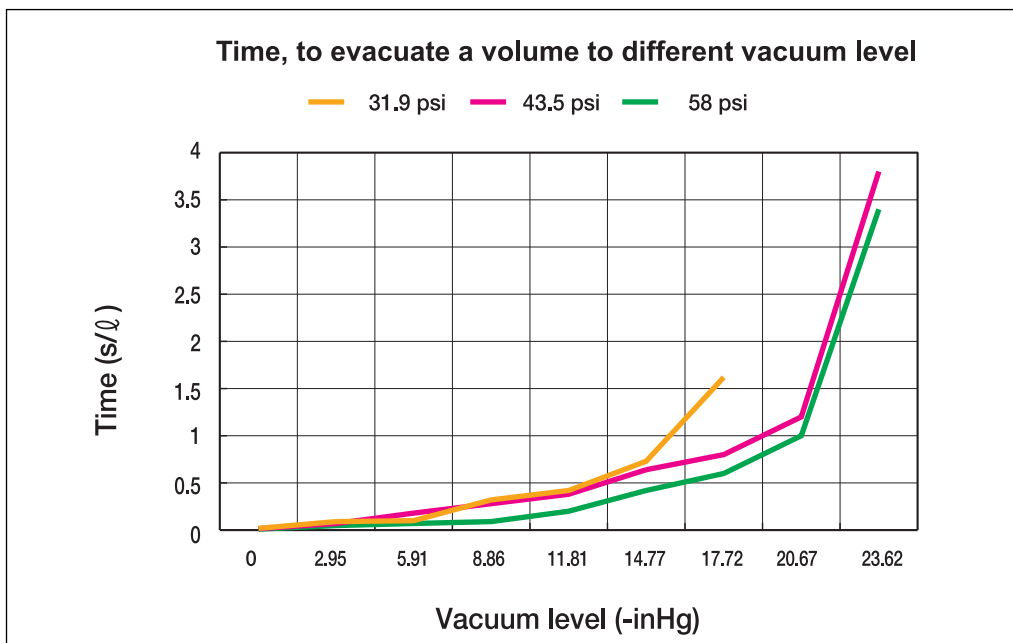
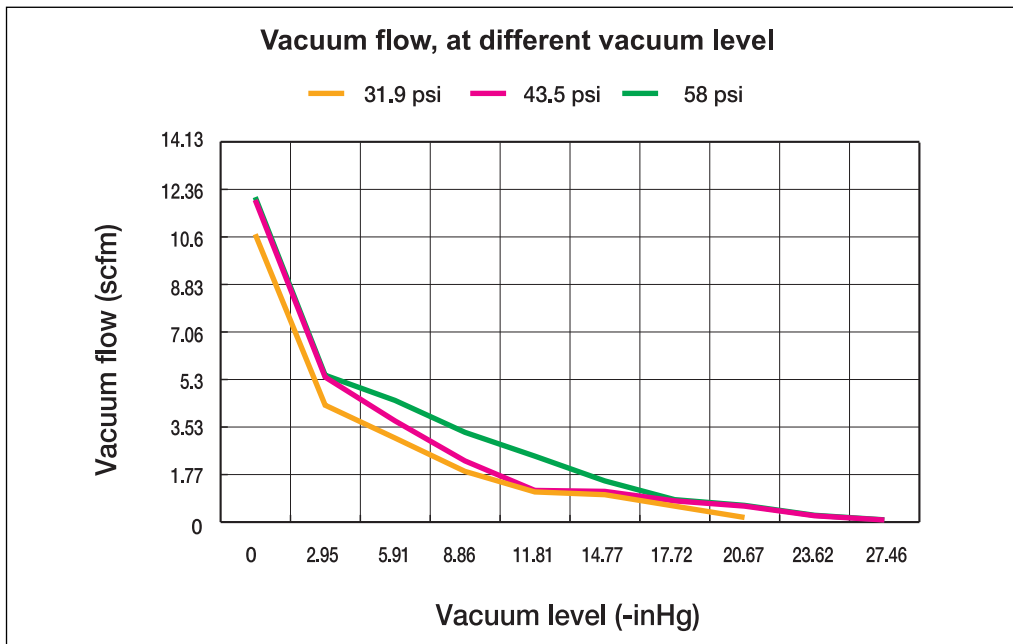
- **V** - Viton®

E - EPDM

Performance Data

Series	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VS	22.15	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.46	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.46	58	12.04	5.44	4.50	3.32	2.44	1.52	0.82	0.61	0.24	0.074

Series	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)								
			2.95	5.91	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VS	31.9	3.43	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-
	43.5	4.17	0.015	0.07	0.18	0.28	0.38	0.64	0.8	12	3.8
	58	5.37	0.01	0.48	0.07	0.09	0.2	0.42	0.8	1	3.4



VLS-Series

Max. vacuum level	: -22.15 inHg (-75kPa)
Max. flow rate	: 12.79 scfm (362 NI/min)
Supply air pressure	: 58~87 psi, max 101.5psi (4~6bar, max 7bar)
Air consumption	: 2.47~3.67 scfm (70~104 NI/min)
Supply air type	: Dry compressed air
Working temperature	: -4 °F ~ 176 °F
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 N144 - AS - A3 R3 - CL A - S2 N V



① Vacuum Port

- **N144** - NPSF 1/4" X 4EA
- **N146** - NPSF 1/4" X 6EA
- **N148** - NPSF 1/4" X 8EA

② Air saving kit

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'
(See page : 336, 337)

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

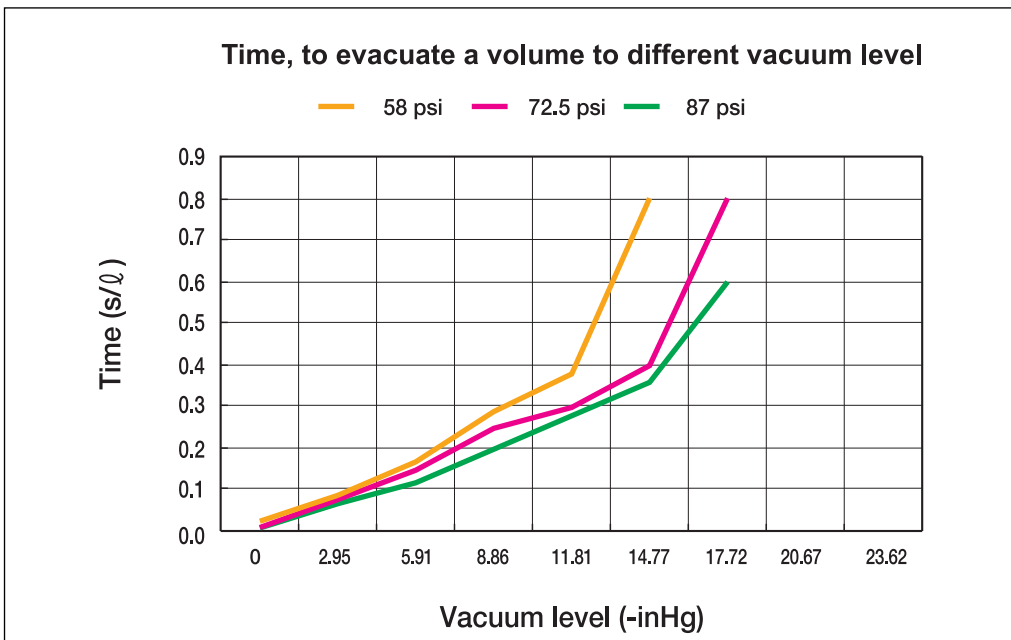
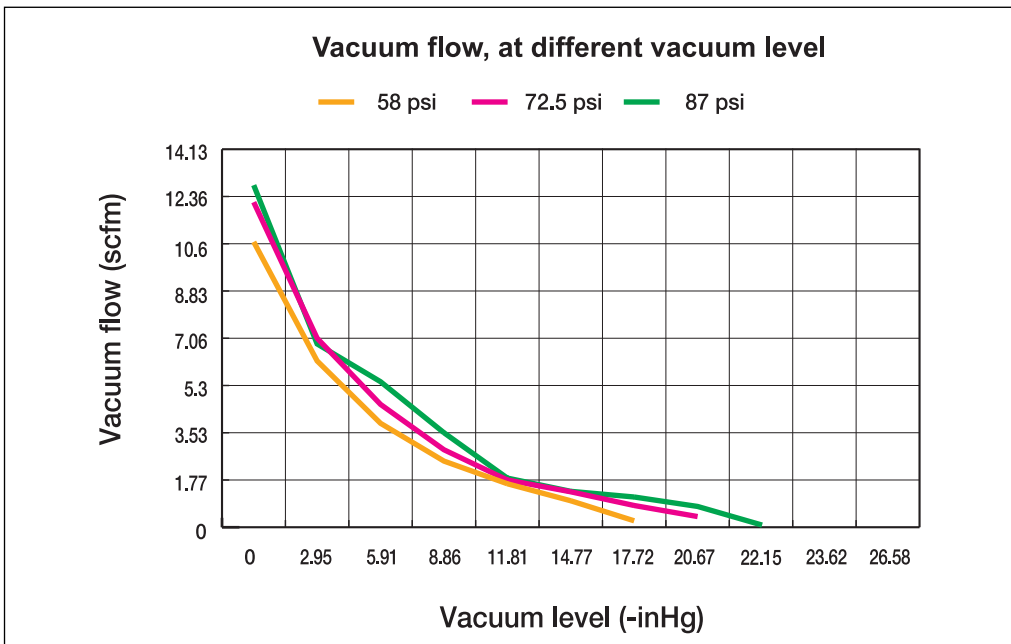
- **V** - Viton®

E - EPDM

Performance Data

Series	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VLS	17.72	58	10.67	6.22	3.88	2.47	1.62	0.99	0.24	-	-	-
	20.67	72.5	12.15	7.06	4.59	2.9	1.77	1.32	0.811	0.4	-	-
	22.15	87	12.78	6.85	5.44	3.53	1.84	1.34	1.13	0.78	-	-

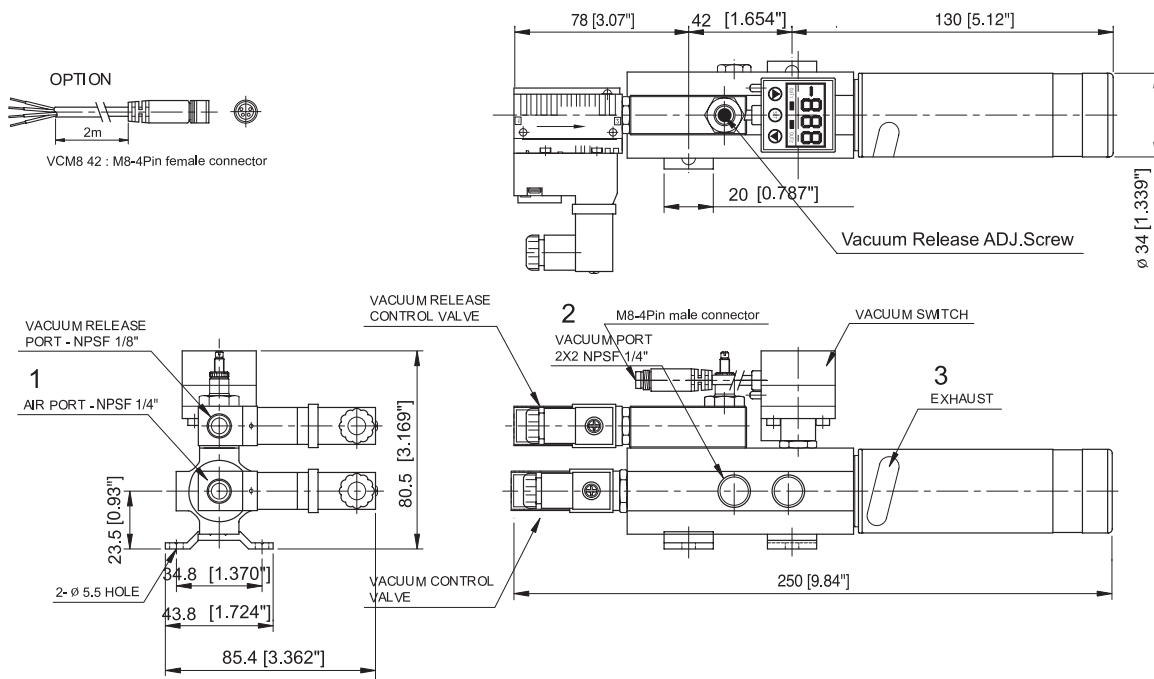
Series	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)								
			2.95	5.91	8.85	11.8	14.76	17.7	20.67	23.62	26.57
VLS	58	2.47	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-
	72.5	3	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	87	3.67	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-



Dimensional Information

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

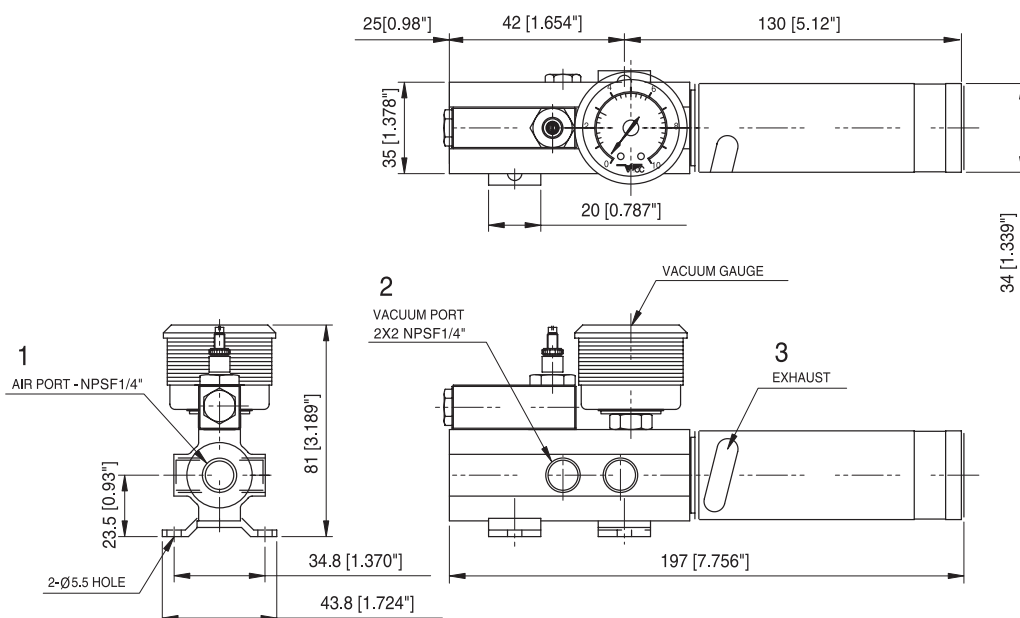
▼ Series VS N144.. / VLS N144..



Measure unit : mm [in]

Standard

▼ Series VS N144.. / VLS N144..

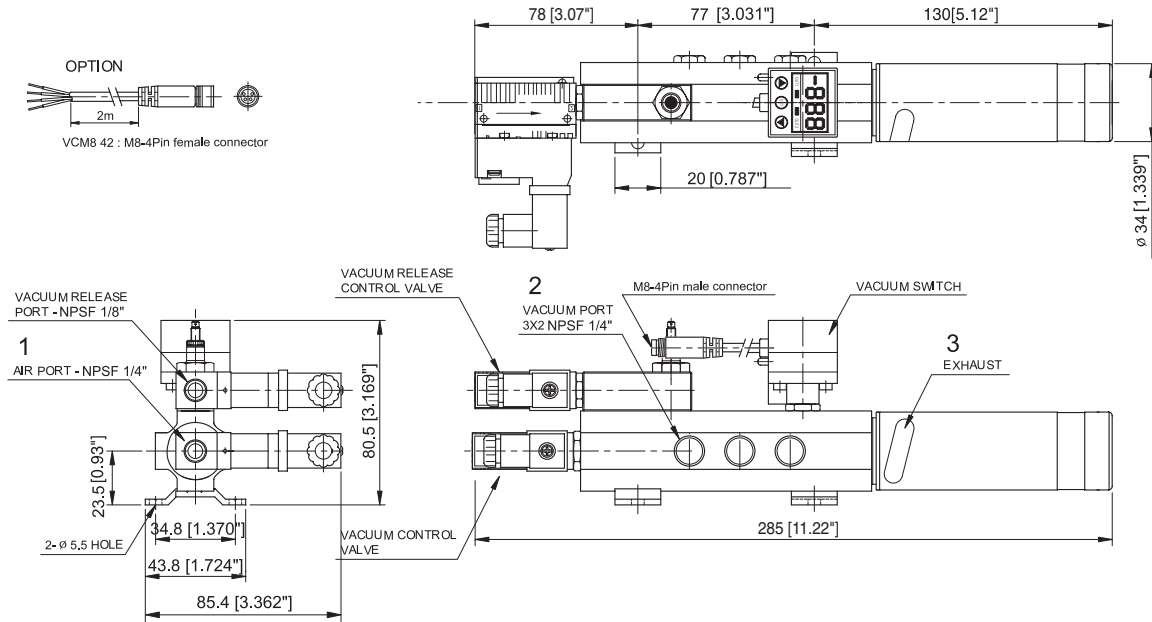


Measure unit : mm [in]

Dimensional Information

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

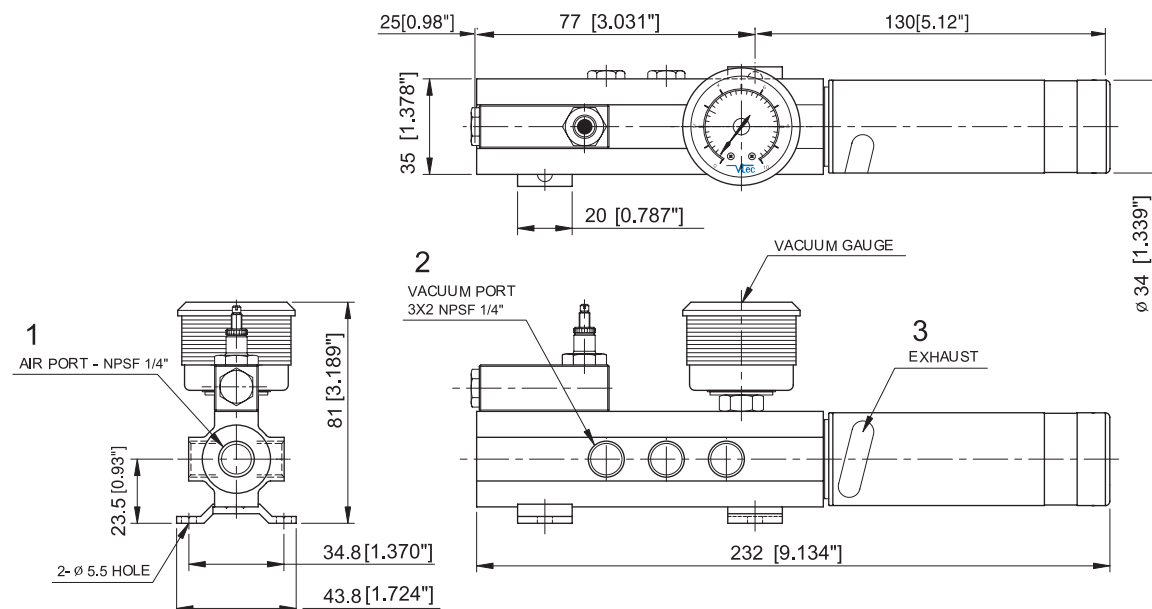
▼ Series VS N146.. / VLS N146..



Measure unit : mm [in]

Standard

▼ Series VS N146.. / VLS N146..

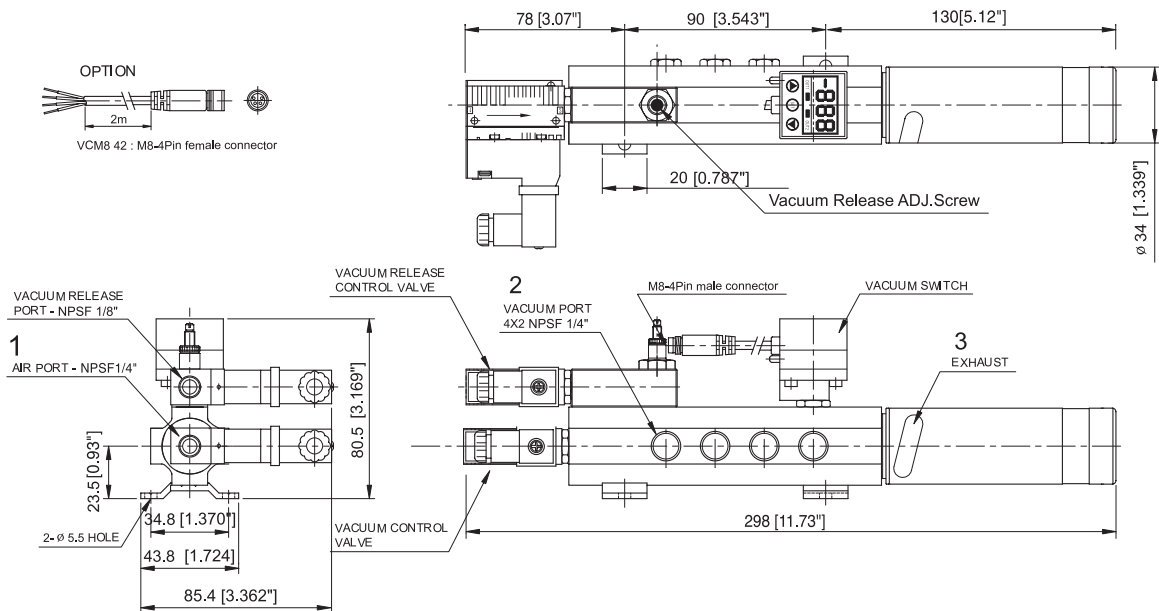


Measure unit : mm [in]

Dimensional Information

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

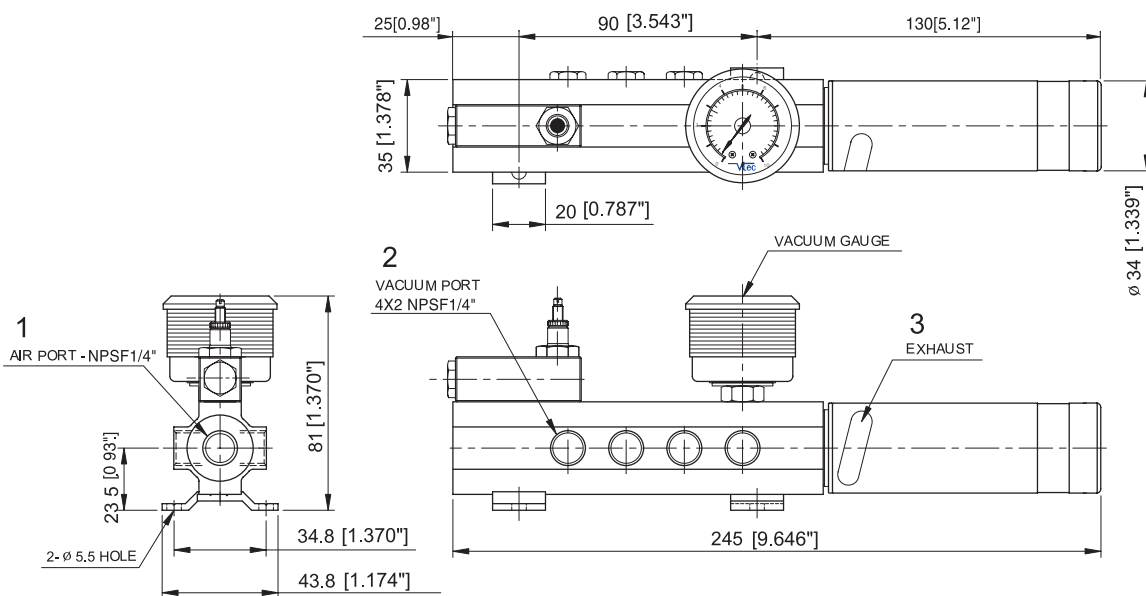
▼ Series VS N148.. / VLS N148..



Measure unit : mm [in]

Standard

▼ Series VS N148.. / VLS N148..



Measure unit : mm [in]



MD-PUMPS



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



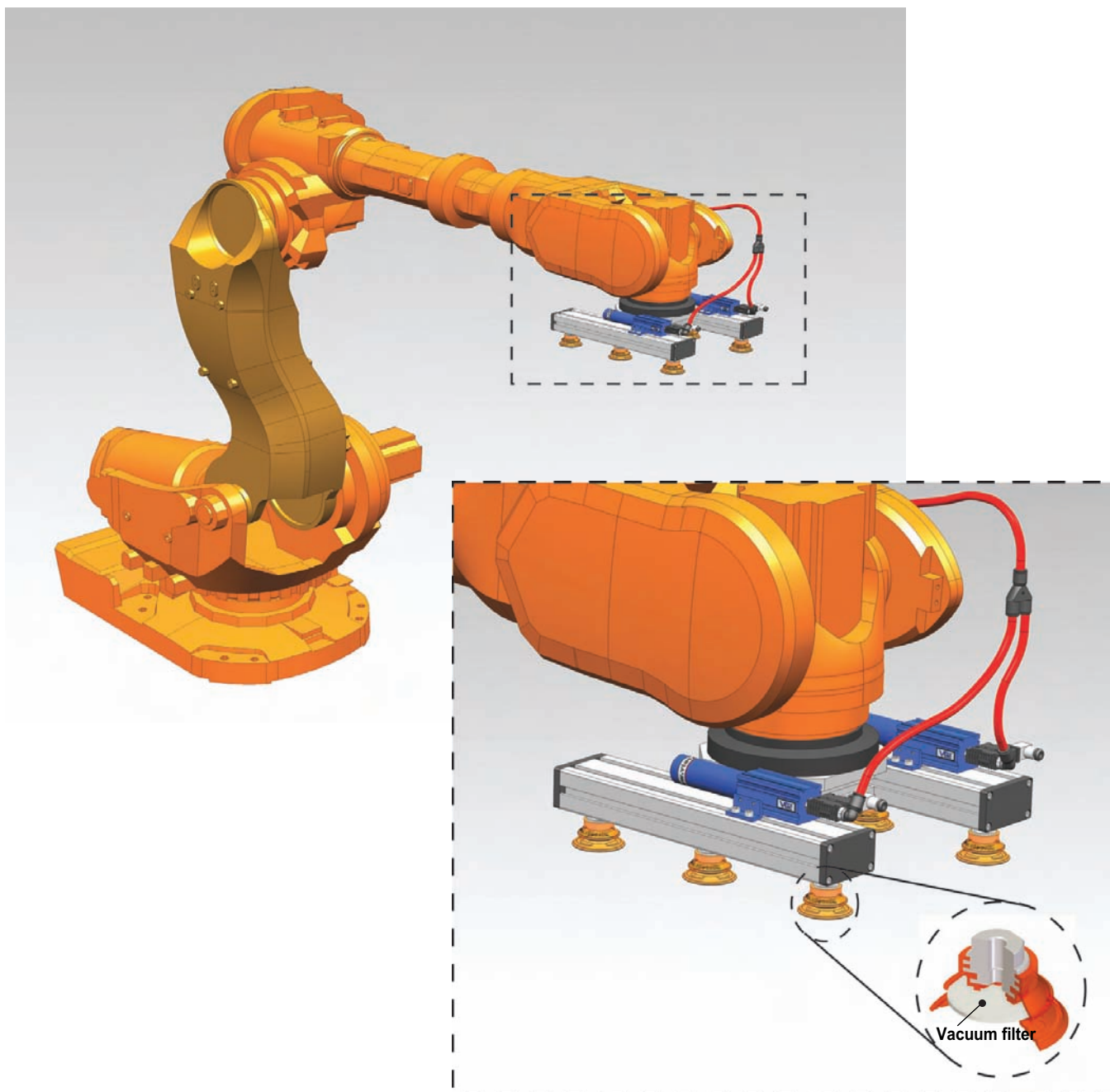
► MD Series

High vacuum level (-27.46 inHg) at low compressed inlet air pressure (43.5~87 psi).
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 (-22.15 inHg) at general inlet air pressure. (87 psi)
Extra high vacuum flow rate and suitable for non-sealed system application.

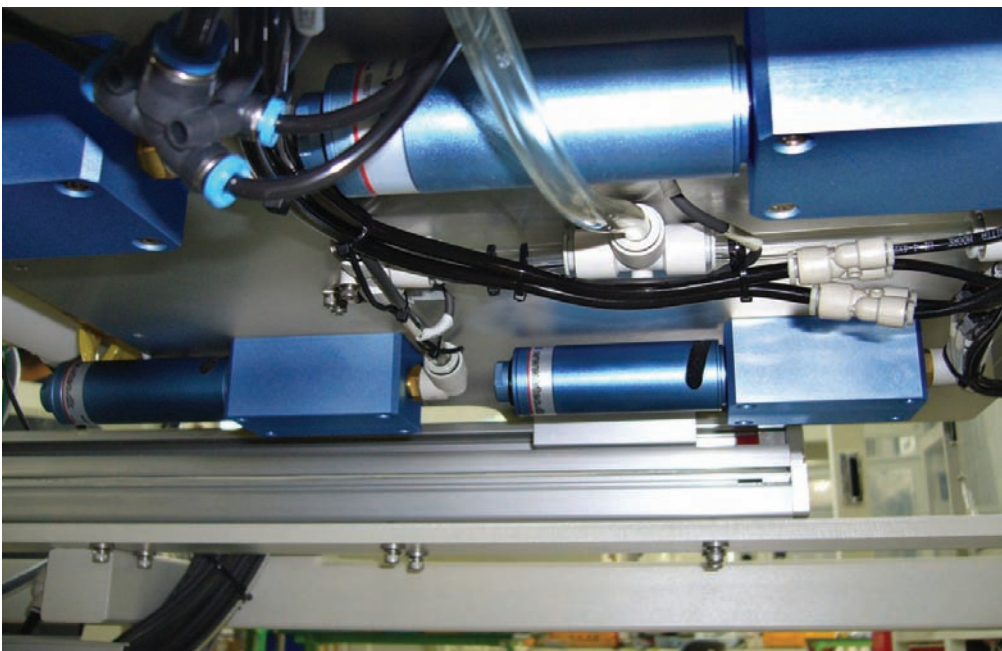
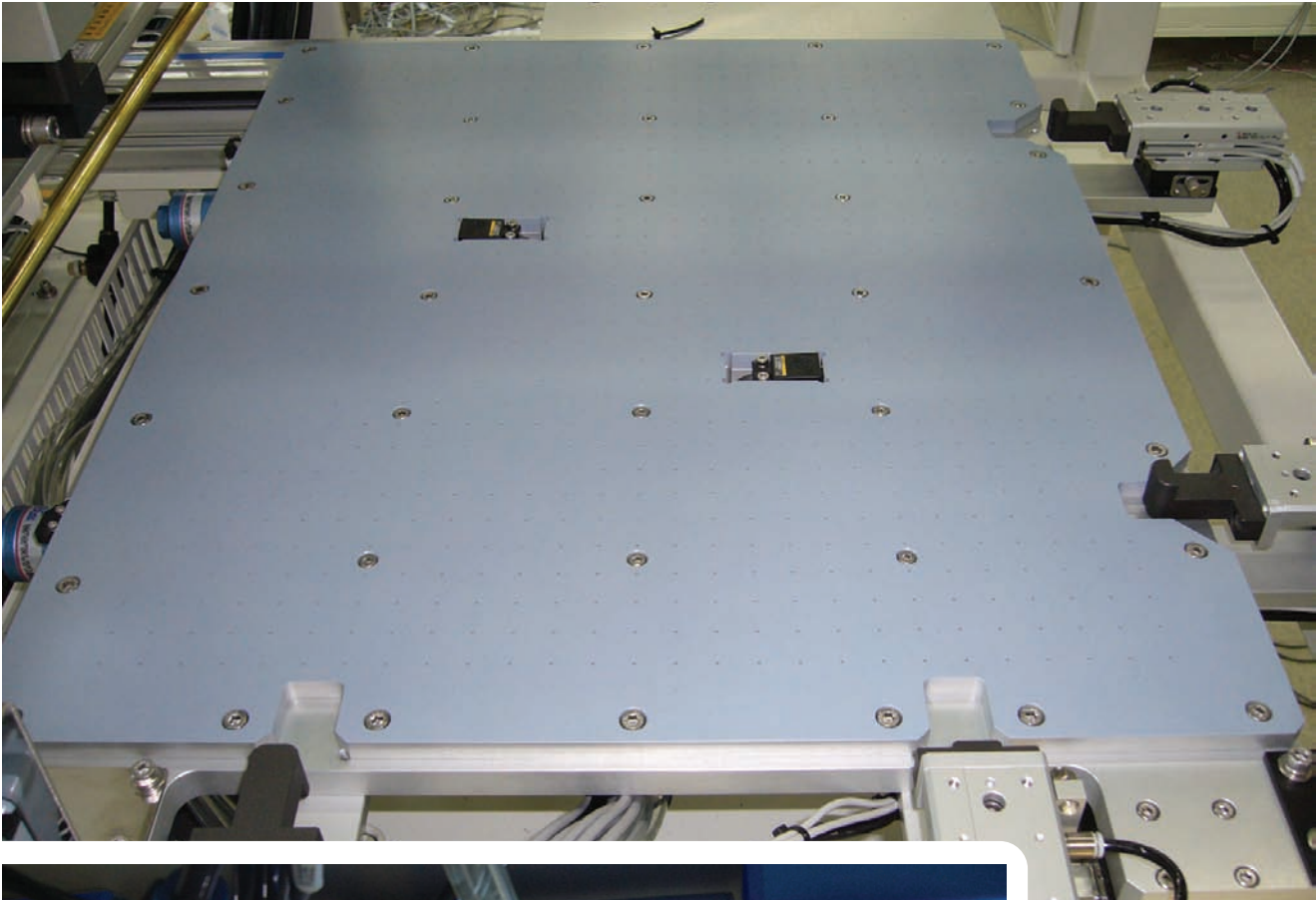
APPLICATIONS



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 : -27.46 inHg (-93kPa)
- Max. flow rate : 12.04 scfm (341 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi
(3~6bar, max 7bar)
- Air consumption : 3.43~5.37 scfm (97~152 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 - NF34 AS A3 R3 - CL A - S2 - N V

①②③④⑤⑥⑦⑧⑨⑩⑪

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

- **NF34** - NPSF 3/4 "
 - NH22* - 0.86 " Hole
- * NH22 : For direct installation

④ Air saving kit

- 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' (See page : 336, 337)

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

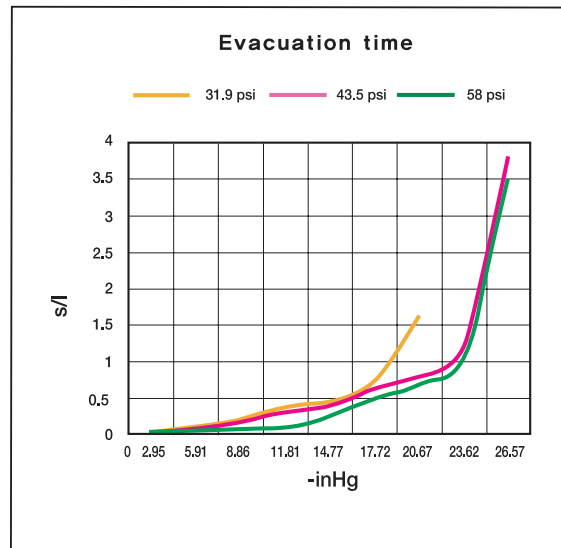
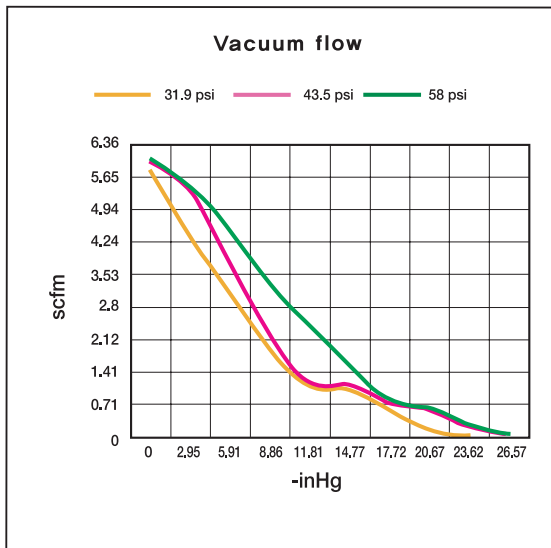
- No mark - Standard
- **V** - Viton®
- E** - EPDM

Performance Data

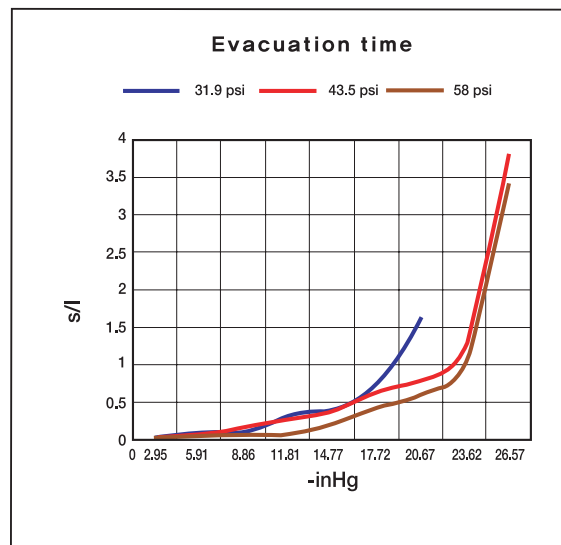
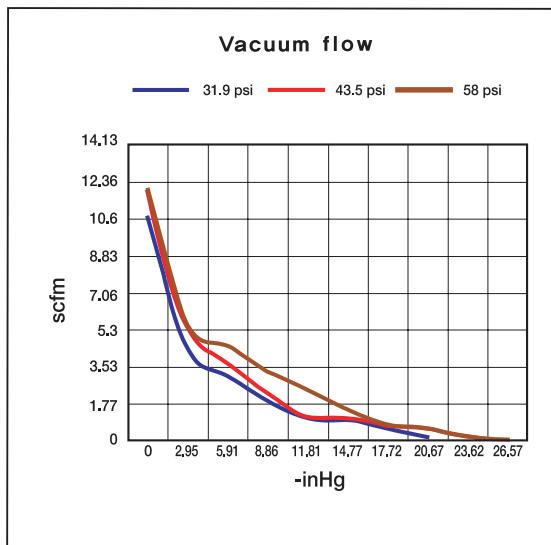
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
MD 302..	22.147	31.9	5.79	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.463	43.5	6	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.463	58	6.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074
MD 303..	22.147	31.9	10.67	4.33	3.11	1.87	1.11	1.01	0.58	0.16	-	-
	27.463	43.5	11.94	5.37	3.74	2.26	1.17	1.13	0.78	0.58	0.23	0.067
	27.463	58	12.04	5.44	4.5	3.32	2.44	1.52	0.82	0.61	0.24	0.074

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
MD 302..	31.9	3.43	0.03	0.12	0.21	0.38	0.47	0.73	1.62	-	-	
	43.5	4.17	0.027	0.1	0.19	0.3	0.4	0.64	0.8	12	3.8	
	58	5.37	0.026	0.058	0.09	0.1	0.25	0.5	0.69	1.05	3.5	
MD 303..	31.9	3.43	0.019	0.09	0.1	0.32	0.42	0.73	1.62	-	-	
	43.5	4.17	0.015	0.07	0.18	0.28	0.38	0.64	0.8	1.2	3.8	
	58	5.37	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4	

▼ MD-302..



▼ MD-303..



MDL-Series

- Max. vacuum level : -22.15 inHg (-75 kPa)
- Max. flow rate : 12.79 scfm (362 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- Air consumption : 2.47~3.67 scfm (70~104 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 - NF34 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

- **NF34** - NPSF 3/4"
- NH22* - 0.86" Hole

* NH22 : For direct installation

④ Air saving kit

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'**
(See page : 336, 337)

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®

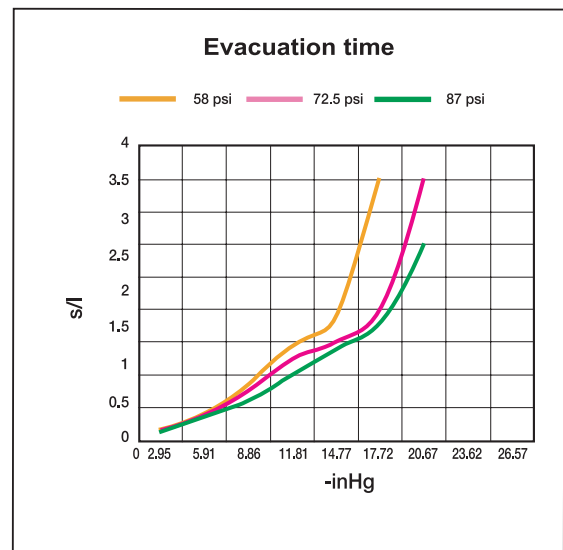
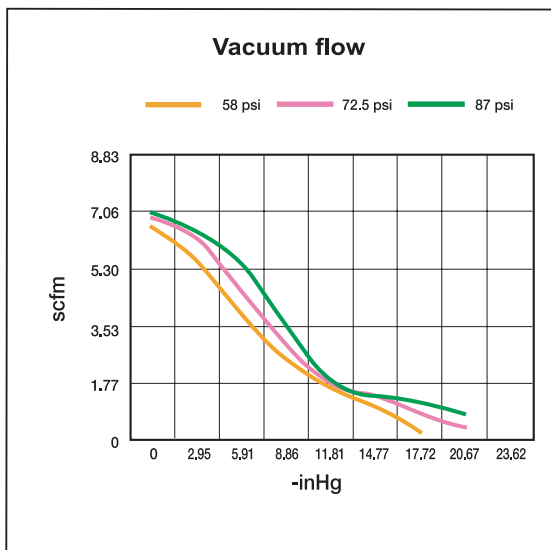
E - EPDM

Performance Data

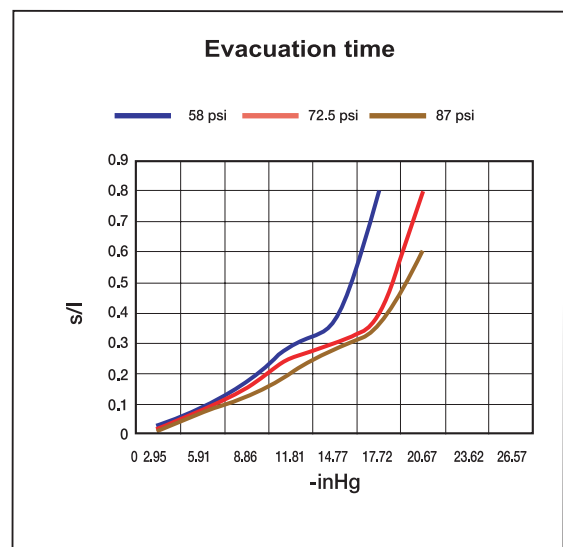
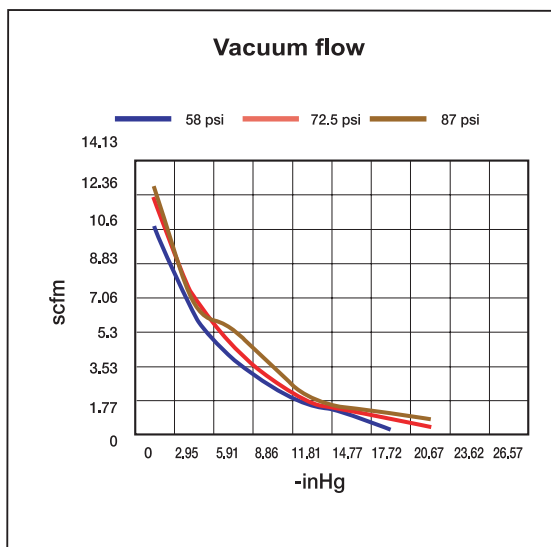
Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	Vacuum flow (scfm) at different vacuum levels (-inHg)									
			0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
MDL 302..	17.718	58	6.640	5.580	3.885	2.472	1.625	0.989	0.240	-	-	-
	20.671	72.5	6.887	6.216	4.591	2.896	1.766	1.324	0.812	0.399	-	-
	22.147	87	7.063	6.463	5.439	3.532	1.836	1.342	1.130	0.777	-	-
MDL 303..	17.718	58	10.666	6.216	3.885	2.472	1.625	0.989	0.240	-	-	-
	20.671	72.5	12.149	7.063	4.591	2.896	1.766	1.324	0.812	0.399	-	-
	22.147	87	12.785	6.851	5.439	3.532	1.836	1.342	1.130	0.777	-	-

Model	Feed pressure (psi)	Air consumption (scfm)	Time, s/l, to evacuate a volume to different vacuum levels (-inHg)									
			2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57	
MDL 302..	58	2.47	0.035	0.084	0.17	0.29	0.38	0.8	-	-	-	
	72.5	3.00	0.027	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	87	3.67	0.028	0.08	0.12	0.2	0.28	0.36	0.6	-	-	
MDL 303..	58	2.47	0.028	0.09	0.17	0.29	0.38	0.8	-	-	-	
	72.5	3.00	0.013	0.08	0.15	0.25	0.3	0.4	0.8	-	-	
	87	3.67	0.012	0.07	0.12	0.2	0.28	0.36	0.6	-	-	

▼ MDL-302..



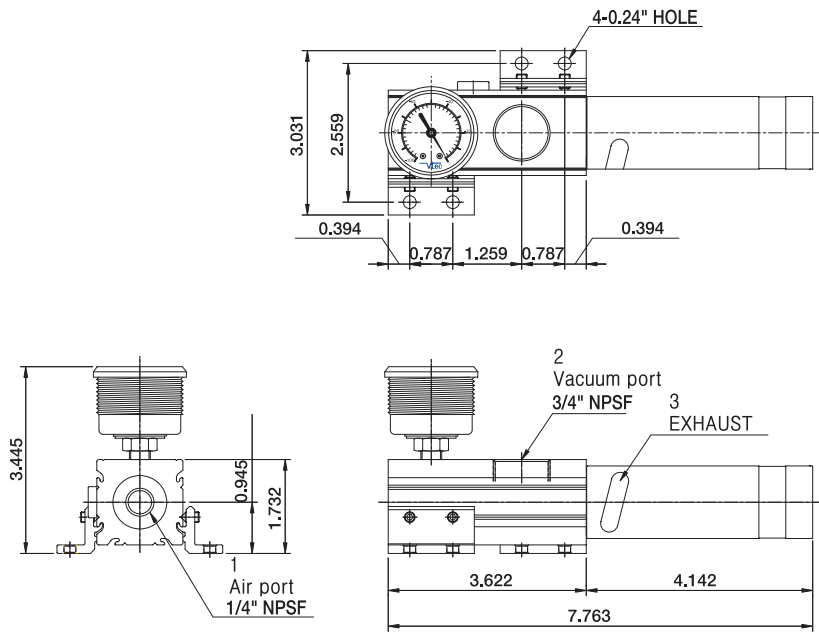
▼ MDL-303..



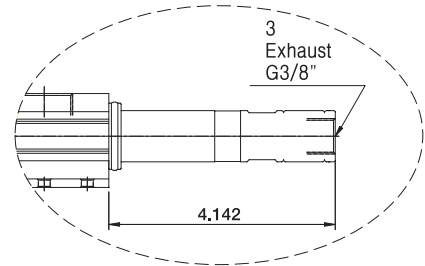
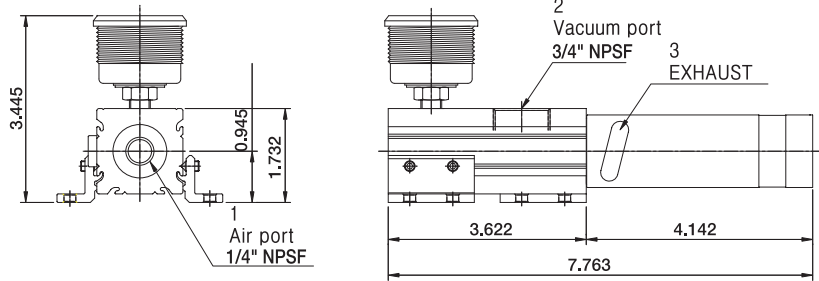
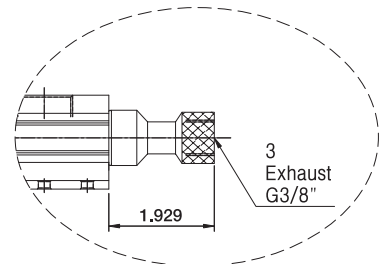
Dimensional Information

Standard

▼ Series MD 303 S - NF34.. / MDL 303 S - NF34..



▼ Series MD 302 P.. MDL 302 P..

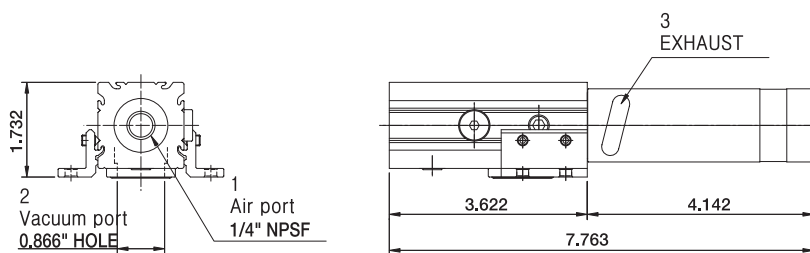


▲ Series MD 303 P.. MDL 303 P..

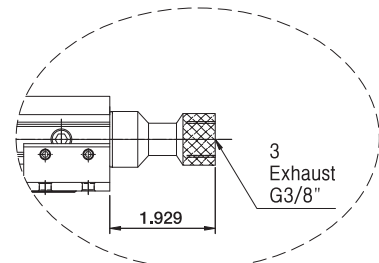
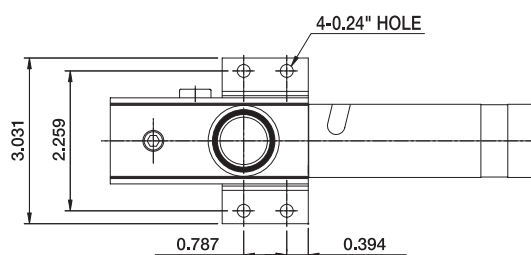
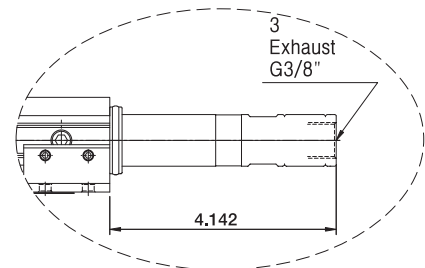
[Measure unit : inch]

Standard

▼ Series MD 303 S - NH22.. / MDL 303 S - NH22..



▼ Series MD 303 P.. MDL 303 P..



▲ Series MD 302 P.. MDL 302 P..

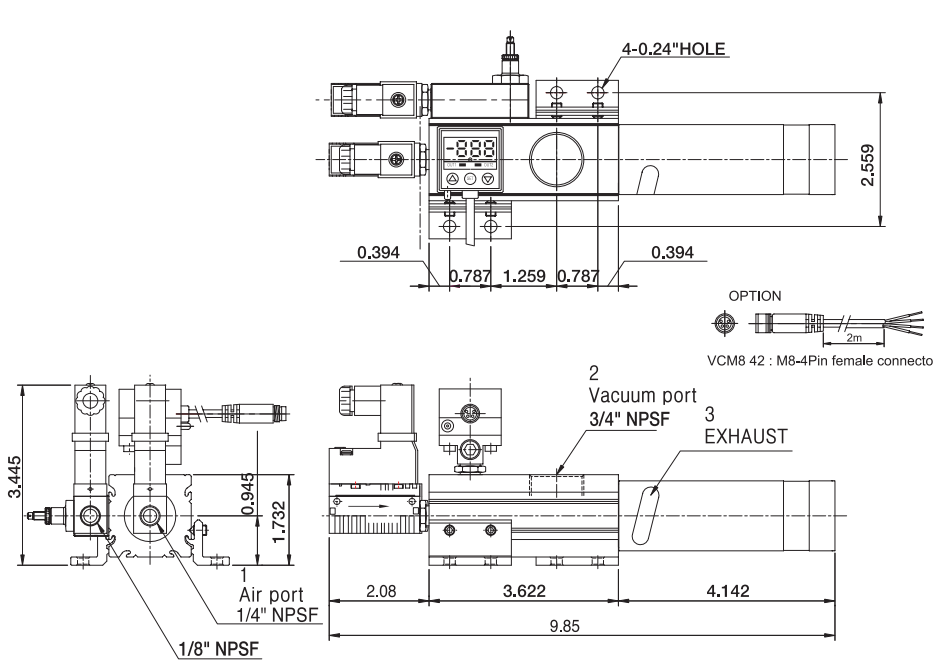
[Measure unit : inch]

VACUUM PUMPS

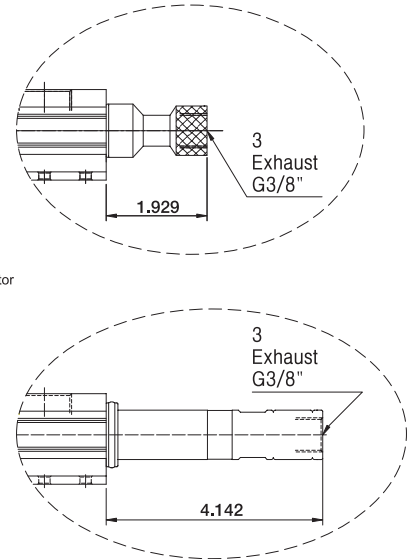
Dimensional Information

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

▼ **Series MD 303 S - NF34.. / MDL 303 S - NF34..**



▼ **Series MD 302 P..
MDL 302 P..**

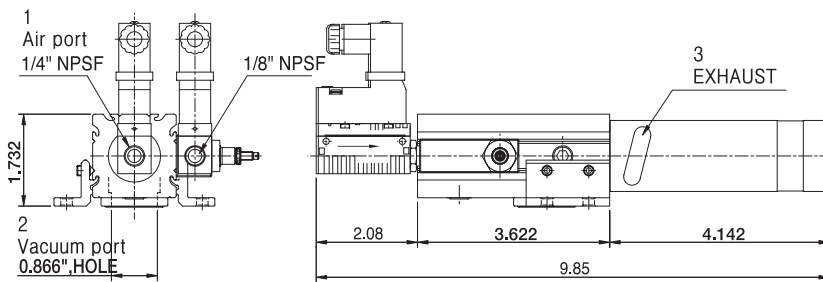


▲ **Series MD 303 P..
MDL 303 P..**

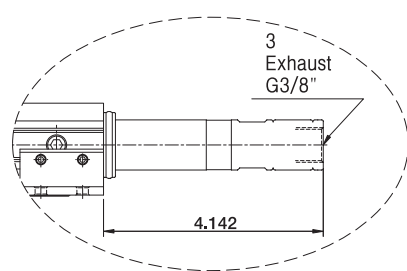
[Measure unit : inch]

With Air Control valve, Vacuum Release Control valve

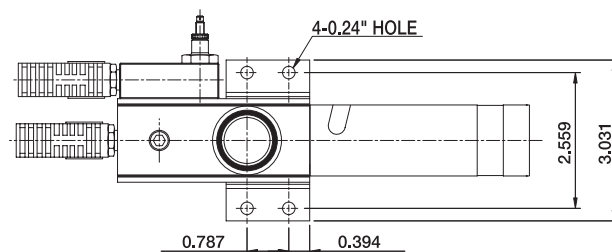
▼ **Series MD 303 S - NH22.. / MDL 303 S - NH22..**



▼ **Series MD 303 P..
MDL 303 P..**



▲ **Series MD 302 P..
MDL 302 P..**

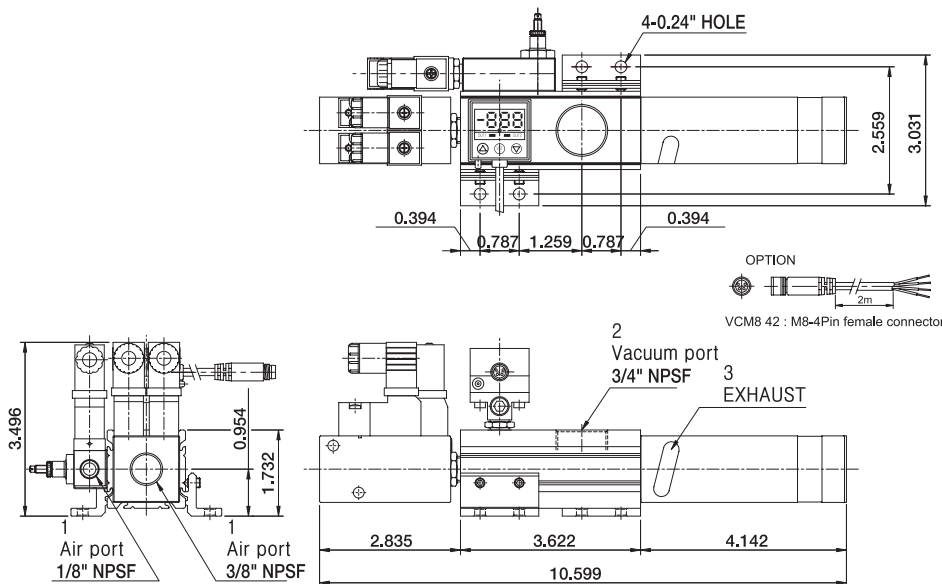


[Measure unit : inch]

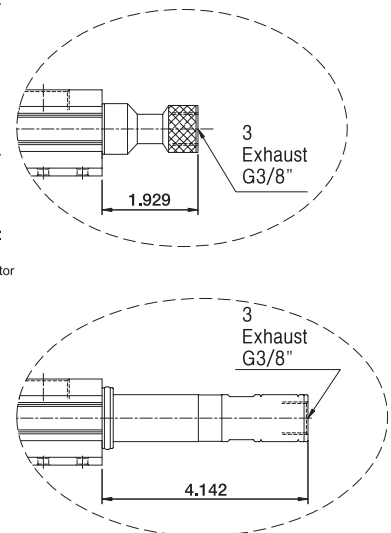
Dimensional Information

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

▼ Series MD 303 S - NF34.. / MDL 303 S - NF34..



▼ Series MD 302 P.. MDL 302 P..

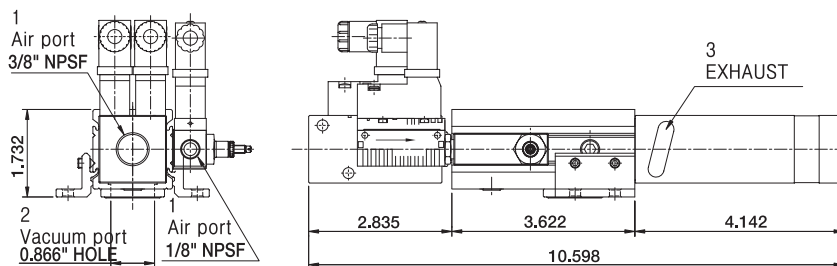


▲ Series MD 303 P.. MDL 303 P..

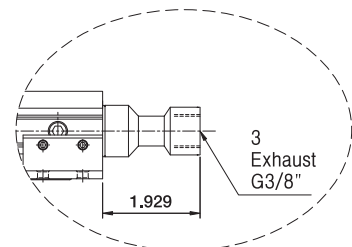
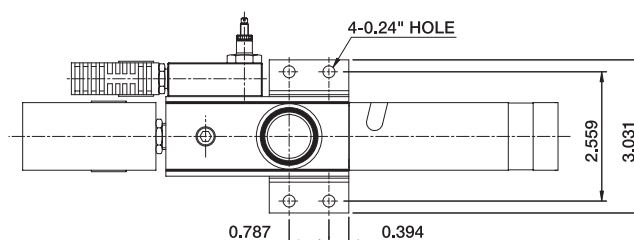
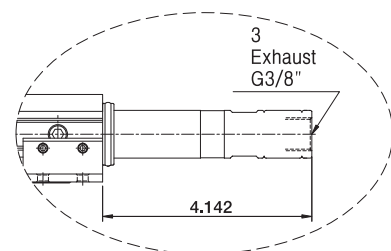
[Measure unit : inch]

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

▼ Series MD 303 S - NH22.. / MDL 303 S - NH22..



▼ Series MD 303 P.. MDL 303 P..



▲ Series MD 302 P.. MDL 302 P..

[Measure unit : inch]



PREMIUM PUMPS



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



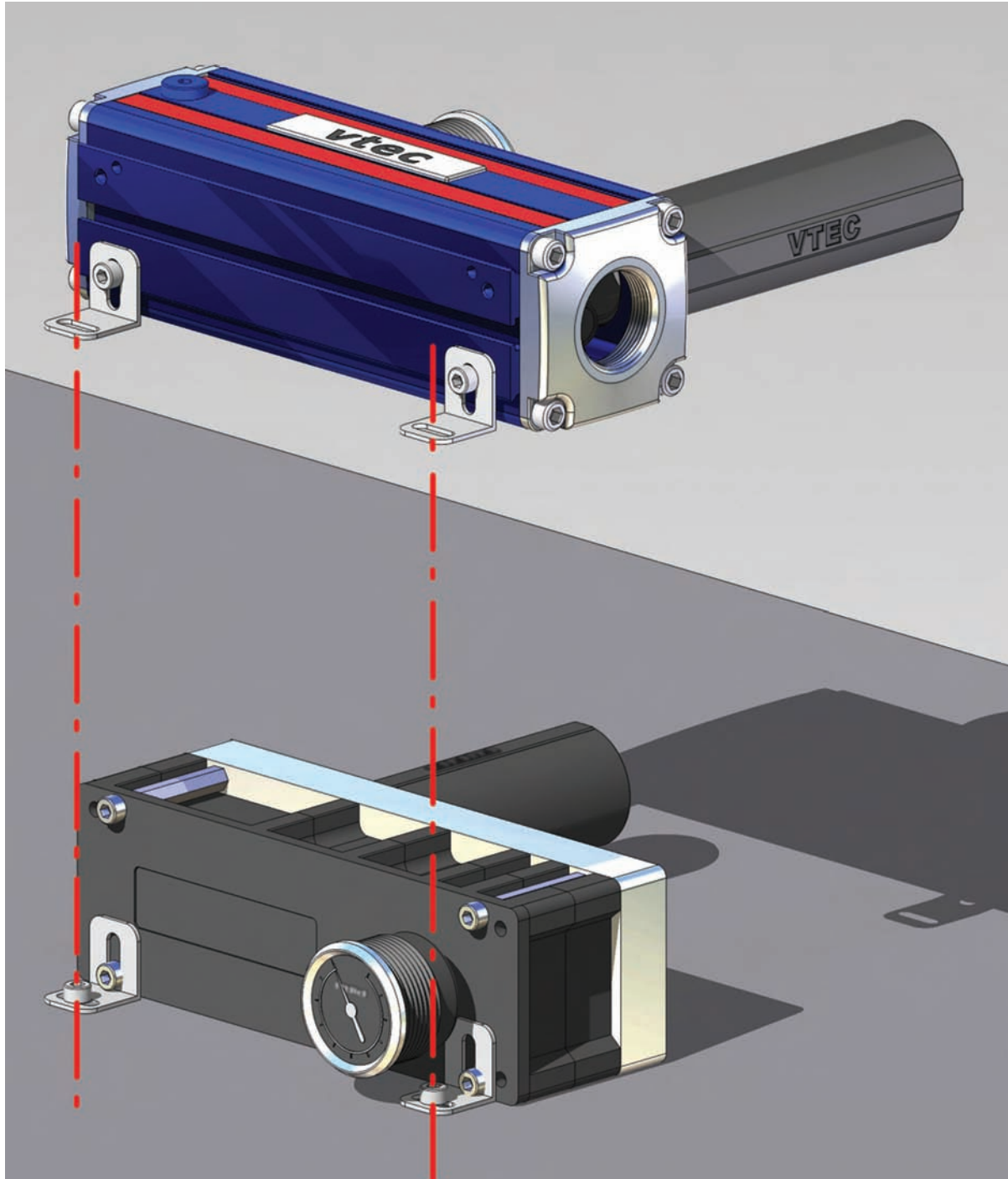
► **PM Series**

High vacuum level (-27.46 inHg) at low compressed air pressure (43.5~87 psi).
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 -22.15 inHg at a compressed air pressure of 87 psi.

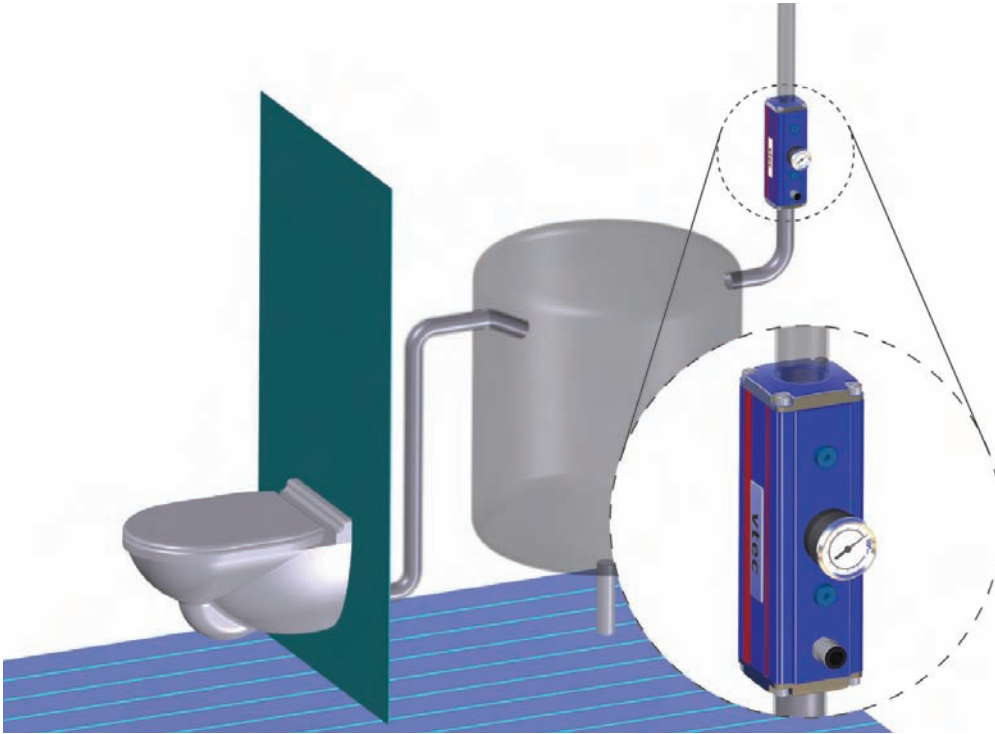
APPLICATIONS



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

VACUUM PUMPS

APPLICATIONS



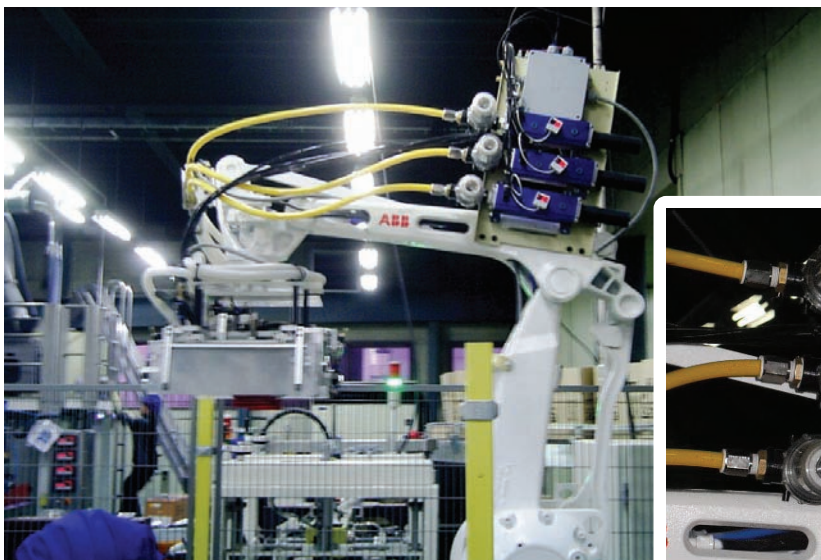
The VMECA PREMIUM VACUUM PUMP can be mounted directly in-line to save space and is suitable for applications requiring high suction flows or evacuation of large volumes of air (i.e. vacuum chamber)



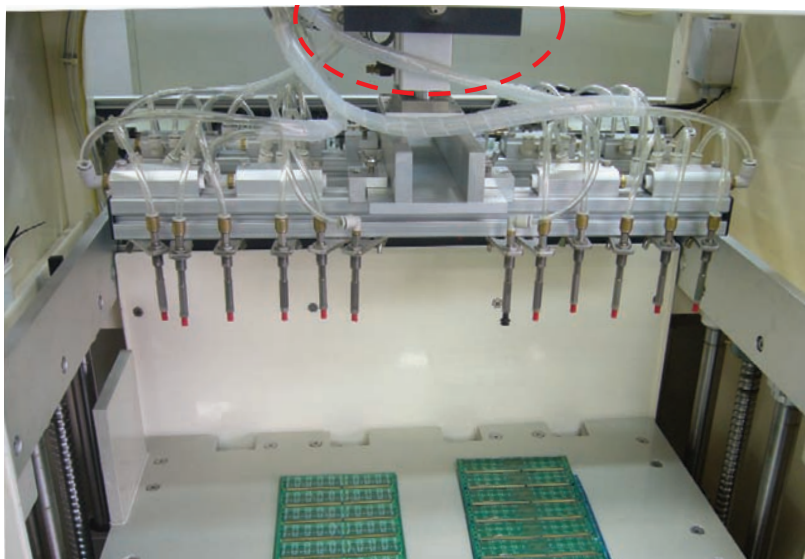
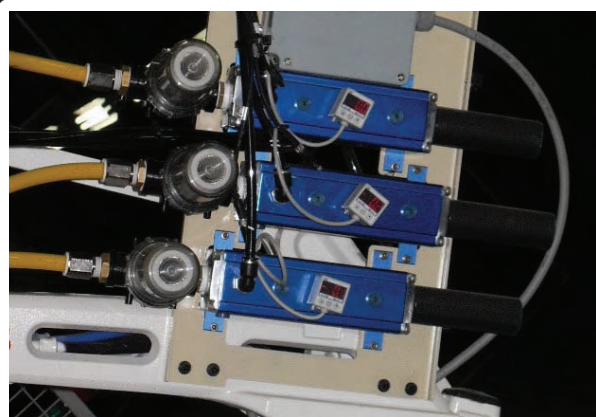
Despite fluctuations and drops in air pressure, the PREMIUM PUMP maintains a high flow rate along with a high and stable vacuum level eliminating lost or interrupted cycles.

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

APPLICATIONS



▲ Robot Arm



▲ Circuit board roading



◀ Vacuum conveyor

VACUUM PUMPS

PM-Series

- Max. vacuum level : -27.46 inHg (-93 kPa)
- Max. flow rate : 12.04~48.17 scfm (341~1364 NI/min)
- Supply air pressure : 43.5~87 psi, max 101.5psi (3~6bar, max 7bar)
- Air consumption : 3.43~21.47 scfm (97~608 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 303 X 1A - NF34 - 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** - 12.04 scfm
- PM303 X 2 - 24.08 scfm
- PM303 X 3 - 36.12 scfm
- PM303 X 4 - 48.17 scfm

② Body type

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

③ Vacuum port

- **NF34*** - 3/4" NPSF
- NF01 - 1" NPSF

* NF34 : Body type B is available only with vacuum port NF34

④ Mounting bracket

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

⑤ Air saving kit

- 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' (See page : 336, 337)

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

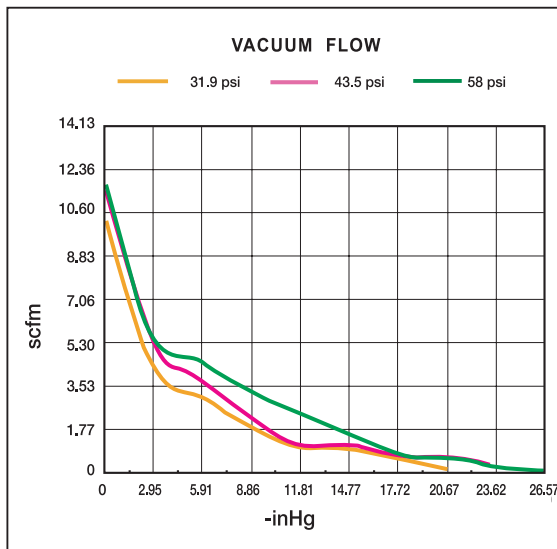
- No mark - NBR
- **V** - Viton®
- E - EPDM

Performance Data

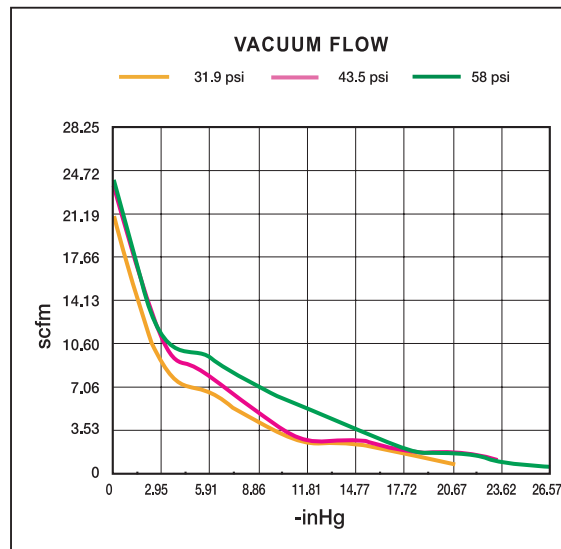
Vacuum flow, (scfm) at different vacuum levels (-inHg)

Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
PM 303X1..	22.147	31.9	10.666	4.326	3.108	1.872	1.109	1.007	0.583	0.162	-	-
	27.463	43.5	11.937	5.368	3.744	2.260	1.165	1.130	0.777	0.583	0.226	0.067
	27.463	58	12.043	5.439	4.503	3.320	2.437	1.519	0.823	0.611	0.244	0.074
PM 303X2..	22.147	31.9	21.331	8.653	6.216	3.744	2.218	2.013	1.165	0.325	-	-
	27.463	43.5	23.874	10.736	7.487	4.521	2.331	2.260	1.554	1.165	0.452	0.134
	27.463	58	24.086	10.878	7.946	6.640	4.874	3.037	1.646	1.222	0.487	0.148
PM 303X3..	22.147	31.9	31.856	12.997	9.324	5.615	3.320	3.037	1.766	0.494	-	-
	27.463	43.5	35.811	16.104	11.23	6.781	3.496	3.390	2.331	0.177	0.671	0.212
	27.463	58	36.129	16.316	13.879	9.959	7.311	4.556	2.472	1.836	0.742	0.222
PM 303X4..	22.147	31.9	42.663	17.305	12.431	7.487	4.450	4.026	2.331	0.636	-	-
	27.463	43.5	47.748	21.473	14.974	9.041	4.662	4.521	3.108	2.331	0.918	0.268
	27.463	58	48.172	21.755	18.012	13.279	9.747	6.074	3.284	2.437	0.989	0.297

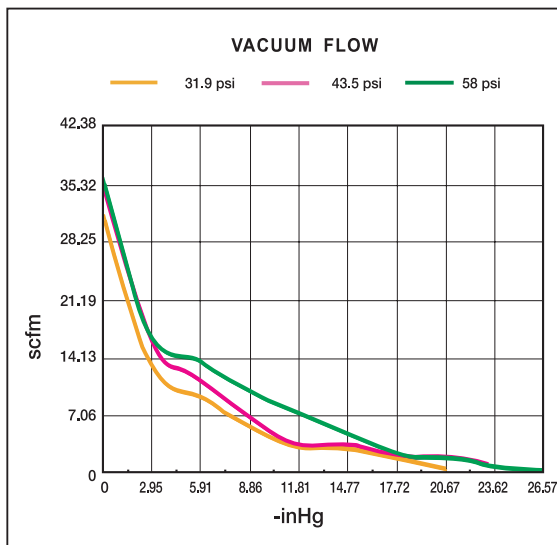
▼ PM 303 X1 ..



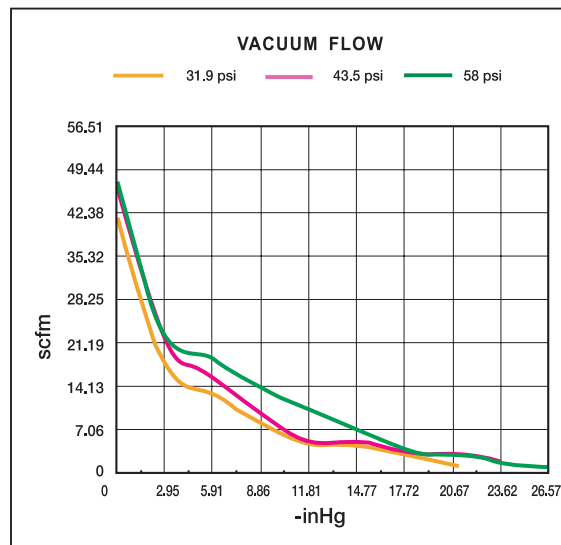
▼ PM 303 X2 ..



▼ PM 303 X3 ..



▼ PM 303 X4 ..



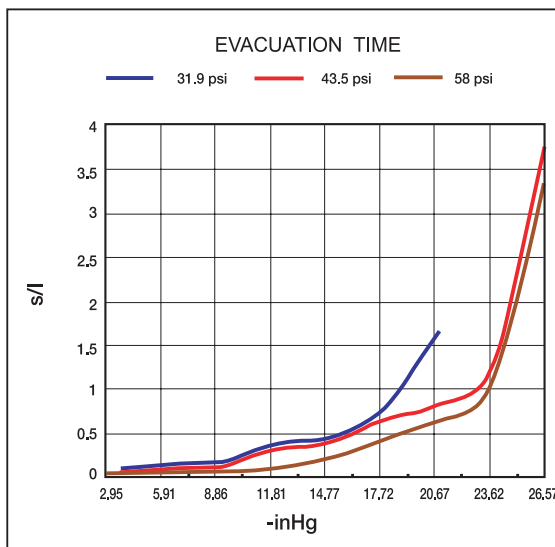
VACUUM PUMPS

Performance Data

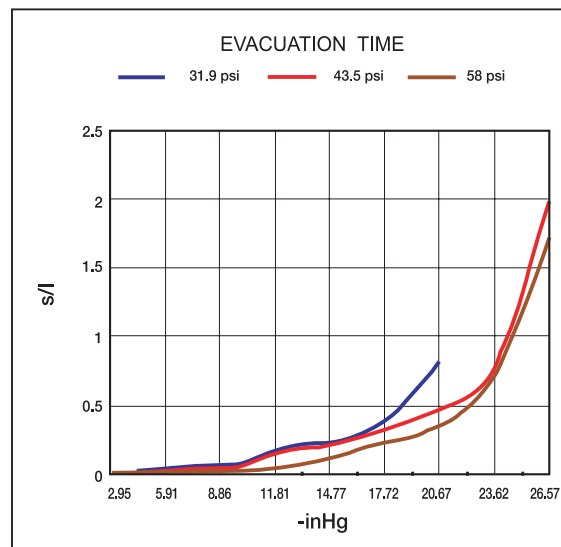
Time, s/l, to evacuate a volume to different vacuum levels (-inHg)

Model	MAX. Vacuum (-inHg)	Air consumption (scfm)	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
PM 303X1..	31.9	3.426	0.019	0.009	0.16	0.32	0.42	0.73	1.62	-	-
	43.5	4.167	0.015	0.07	0.1	0.28	0.38	0.64	0.8	1.2	3.8
	58	5.36	0.01	0.048	0.07	0.09	0.2	0.42	0.6	1	3.4
PM 303X2..	31.9	6.851	0.011	0.043	0.05	0.17	0.23	0.38	0.81	-	-
	43.5	8.335	0.01	0.032	0.045	0.15	0.22	0.33	0.48	0.78	1.98
	58	10.736	0.01	0.026	0.037	0.047	0.12	0.23	0.35	0.7	1.72
PM 303X3..	31.9	10.277	0.006	0.03	0.038	0.1	0.14	0.24	0.54	-	-
	43.5	12.502	0.005	0.02	0.03	0.09	0.12	0.21	0.24	0.4	1.27
	58	16.104	0.004	0.01	0.02	0.03	0.06	0.14	0.2	0.33	1.13
PM 303X4..	31.9	13.703	0.005	0.02	0.027	0.08	0.1	0.18	0.4	-	-
	43.5	16.669	0.004	0.018	0.02	0.07	0.09	0.16	0.2	0.3	0.95
	58	21.473	0.003	0.01	0.01	0.02	0.05	0.1	0.15	0.25	0.85

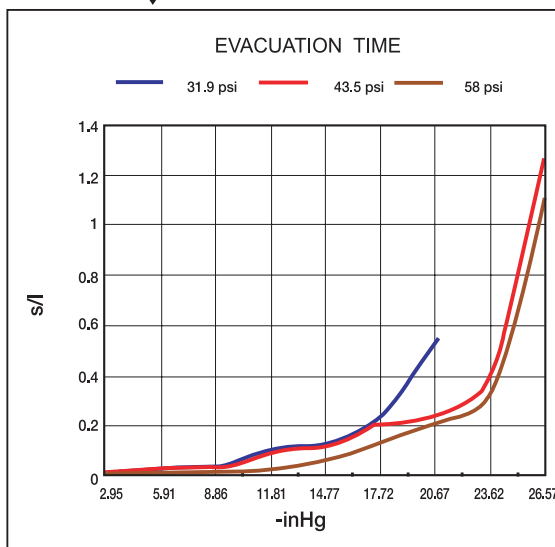
▼ PM 303 X1 ..



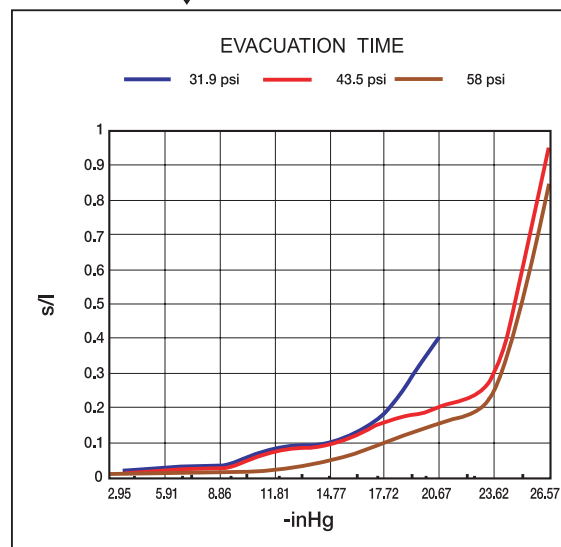
▼ PM 303 X2 ..



▼ PM 303 X3 ..



▼ PM 303 X4 ..

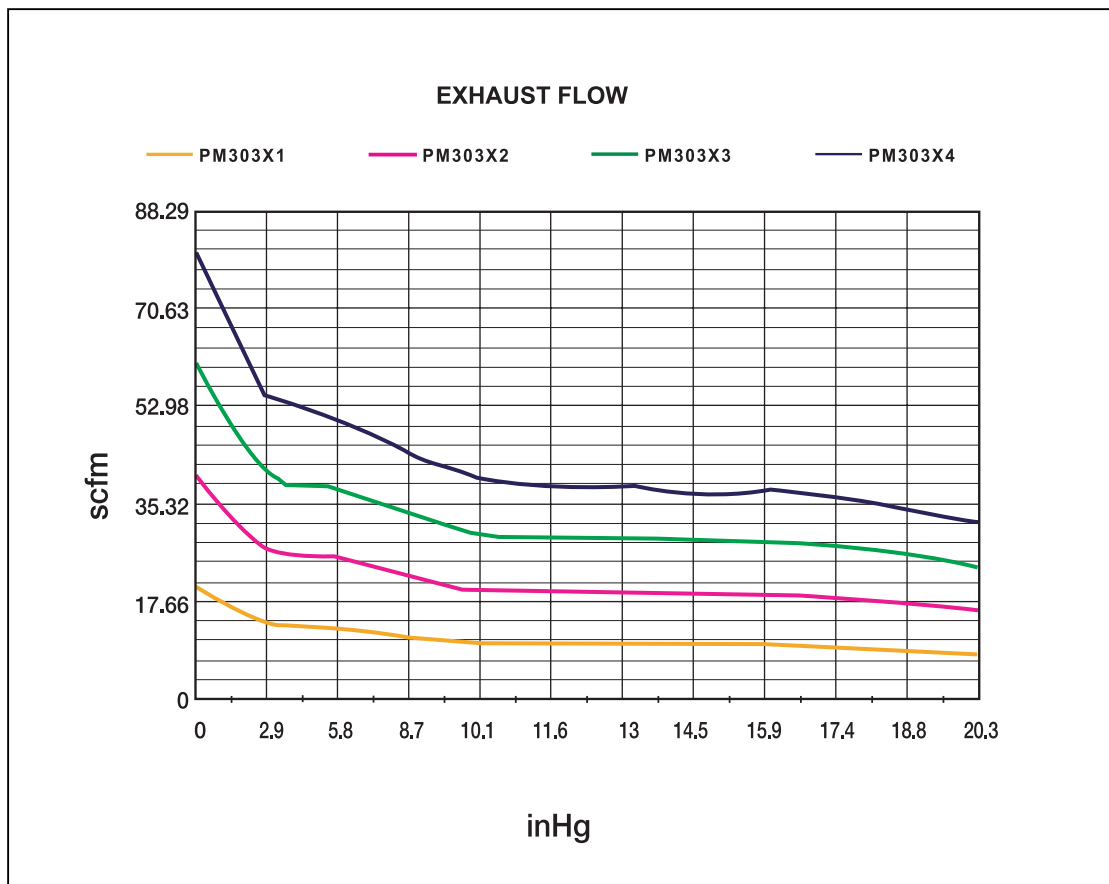


Performance Data

Exhaust flow, scfm, at different internal pressure levels (psi)

Model	Feed pressure (psi)	Air consumption (scfm)	0	2.9	5.8	8.7	10.1	11.6	13	14.5	15.9	17.4	18.8	20.3
PM 303X1..	87	7.417	20.21	13.668	12.679	11.125	9.899	9.606	9.677	9.571	9.500	9.147	8.547	7.946
PM 303X2..	87	14.833	40.402	27.335	25.357	22.250	19.777	19.212	19.354	19.142	19.000	18.294	17.093	15.893
PM 303X3..	87	22.250	60.603	41.003	38.036	33.374	29.666	28.818	29.030	28.712	28.501	27.441	26.382	23.839
PM 303X4..	87	29.666	80.805	54.670	50.715	44.499	39.555	38.425	38.354	38.283	38.001	36.588	34.187	31.785

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



VACUUM PUMPS

PML-Series

- Max. vacuum level : -22.15 inHg (-75 kPa)
- Max. flow rate : 12.78~51.14 scfm (362~1448 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi (4~6bar, max 7bar)
- Air consumption : 2.47~14.7 scfm (70~416 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 303 X 1A - NF34 - 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** - 12.78 scfm
- PML303 X 2 - 25.56 scfm
- PML303 X 3 - 38.35 scfm
- PML303 X 4 - 51.13 scfm

② Body type

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

③ Vacuum port

- **NF34*** - 3/4" NPSF
- NF01 - 1" NPSF

* NF34 : Body type B is available only with vacuum port NF34

④ Mounting bracket

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

⑤ Air saving kit

- 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'
 (See page : 336, 337)

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

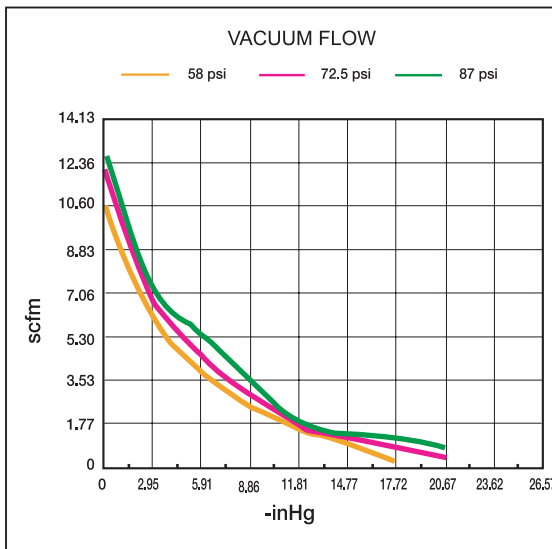
- No mark - NBR
- **V** - Viton®
- E** - EPDM

Performance Data

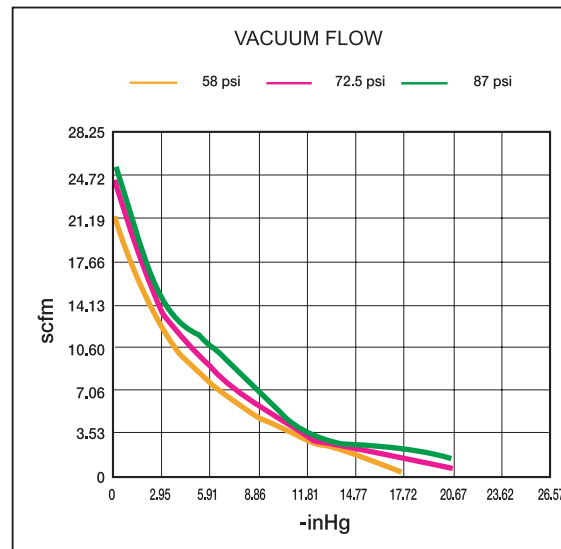
Vacuum flow, (scfm) at different vacuum levels (-inHg)

Model	MAX. Vacuum (-inHg)	Feed pressure (psi)	0	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
PML 303X1..	17.718	58	10.666	6.074	3.885	2.472	1.625	0.989	0.240	-	-	-
	20.671	72.5	12.149	6.922	4.591	2.896	1.766	1.324	0.812	0.399	-	-
	22.147	87	12.785	7.311	5.439	3.532	1.836	1.342	1.130	0.777	-	-
PML 303X2..	17.718	58	21.331	12.149	7.770	4.944	3.249	1.978	0.480	-	-	-
	20.671	72.5	24.298	13.844	9.182	5.792	3.532	2.649	1.625	0.841	-	-
	22.147	87	25.569	14.656	10.878	7.063	3.673	2.684	2.260	1.554	-	-
PML 303X3..	17.718	58	31.997	18.223	11.655	7.417	4.874	2.967	0.720	-	-	-
	20.671	72.5	36.447	20.766	13.774	8.688	5.298	3.973	2.437	1.201	-	-
	22.147	87	38.354	21.932	16.316	10.595	5.509	4.026	3.390	2.331	-	-
PML 303X4..	17.718	58	42.663	24.298	15.539	9.889	6.498	3.955	0.954	-	-	-
	20.671	72.5	48.596	27.688	18.365	11.584	7.063	5.298	3.249	1.589	-	-
	22.147	87	51.139	29.242	21.755	14.127	7.346	5.368	4.521	3.108	-	-

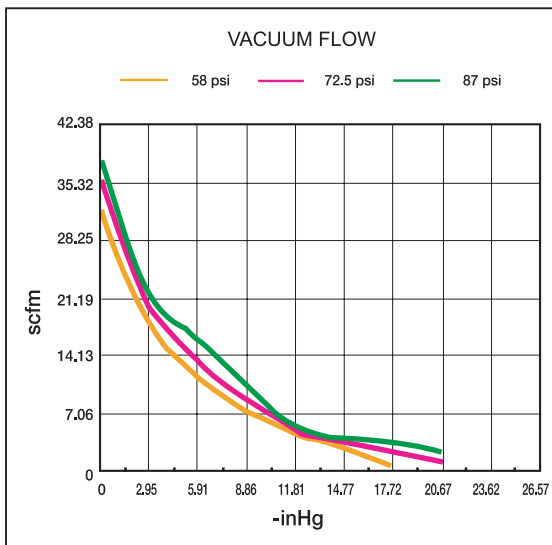
▼ PML 303 X1 ..



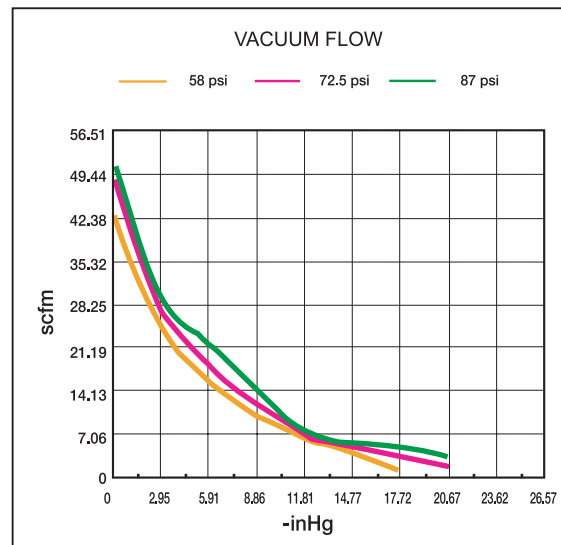
▼ PML 303 X2 ..



▼ PML 303 X3 ..



▼ PML 303 X4 ..



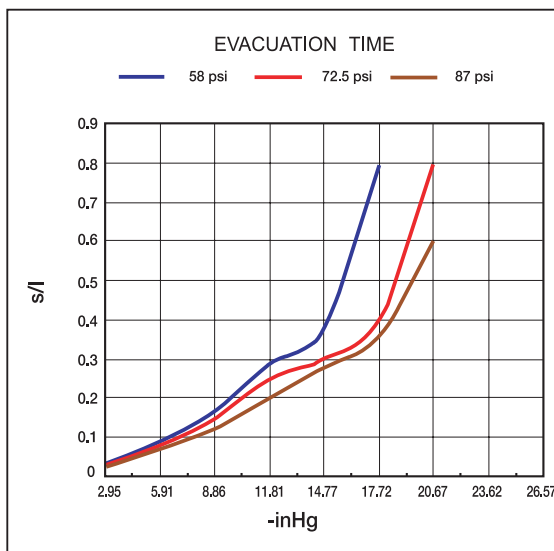
VACUUM PUMPS

Performance Data

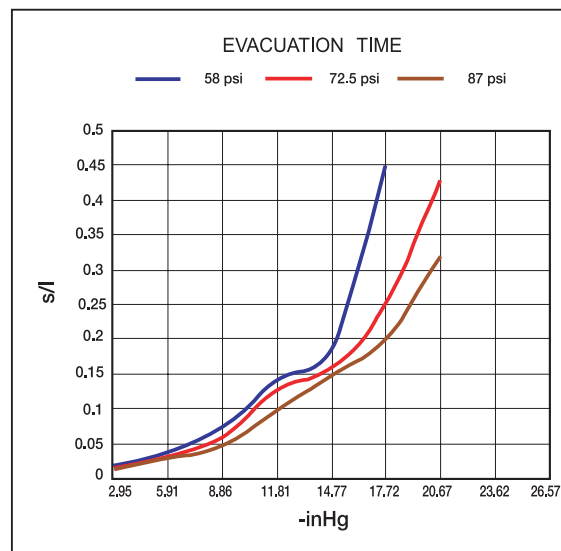
Time, s/l, to evacuate a volume to different vacuum levels (-inHg)

Model	MAX. Vacuum (-inHg)	Air consumption (scfm)	2.95	5.9	8.85	11.8	14.76	17.7	20.67	23.62	26.57
PML 303X1..	58	2.472	0.032	0.09	0.17	0.29	0.38	0.8	-	-	-
	72.5	3.002	0.023	0.08	0.15	0.25	0.3	0.4	0.8	-	-
	87	3.673	0.022	0.07	0.12	0.2	0.28	0.36	0.6	-	-
PML 303X2..	58	4.944	0.017	0.037	0.073	0.14	0.19	0.45	-	-	-
	72.5	6.004	0.014	0.032	0.06	0.128	0.16	0.25	0.43	-	-
	87	7.346	0.012	0.03	0.047	0.098	0.15	0.2	0.32	-	-
PML 303X3..	58	7.417	0.016	0.03	0.05	0.09	0.12	0.26	-	-	-
	72.5	9.006	0.0085	0.028	0.05	0.08	0.1	0.13	0.26	-	-
	87	11.019	0.0079	0.02	0.04	0.06	0.09	0.12	0.2	-	-
PML 303X4..	58	9.889	0.0089	0.023	0.04	0.07	0.09	0.2	-	-	-
	72.5	12.008	0.0057	0.018	0.03	0.063	0.075	0.1	0.2	-	-
	87	14.692	0.0053	0.015	0.029	0.052	0.071	0.09	0.15	-	-

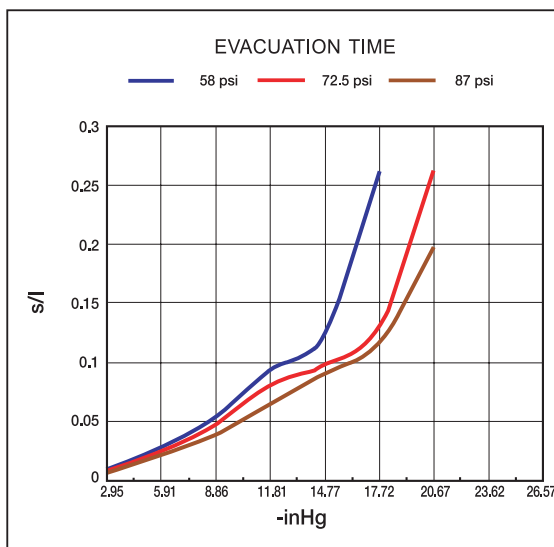
▼ PML 303 X1 ..



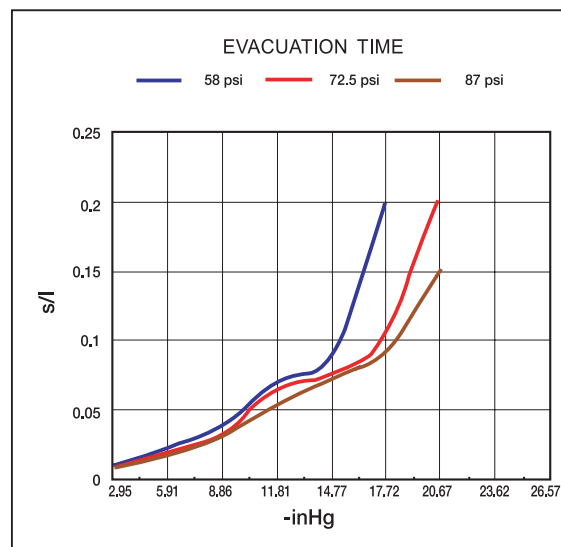
▼ PML 303 X2 ..



▼ PML 303 X3 ..



▼ PML 303 X4 ..

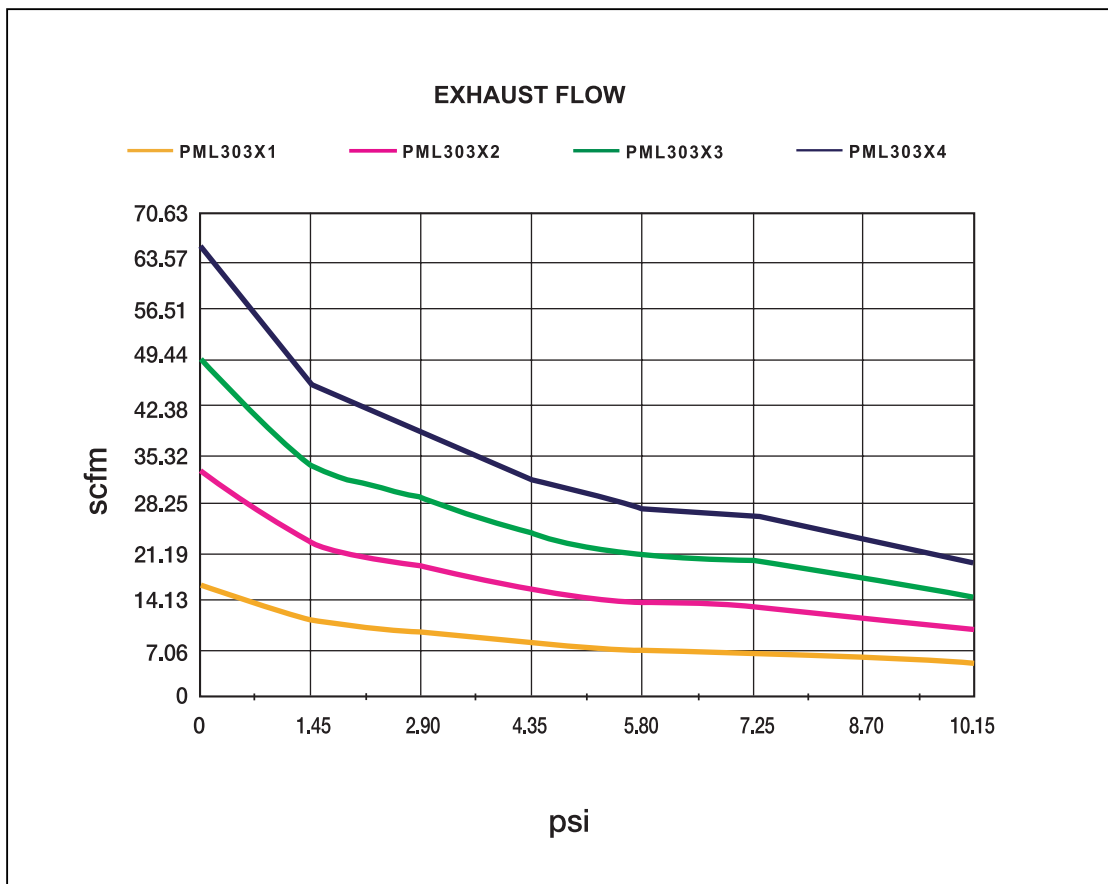


Performance Data

Exhaust flow, scfm, at different internal pressure levels (psi)

Model	Feed pressure (psi)	Air consumption (scfm)	0	1.45	2.90	4.35	5.80	7.25	8.70	10.15
PML 303X1..	87	3.673	16.559	11.301	9.606	7.946	6.922	6.675	5.827	4.944
PML 303X2..	87	7.346	33.198	22.603	19.212	15.893	13.844	13.350	11.655	9.889
PML 303X3..	87	11.019	49.585	34.116	29.030	23.945	20.802	19.919	17.376	14.692
PML 303X4..	87	14.692	65.972	45.347	38.354	31.926	27.688	26.558	23.168	19.636

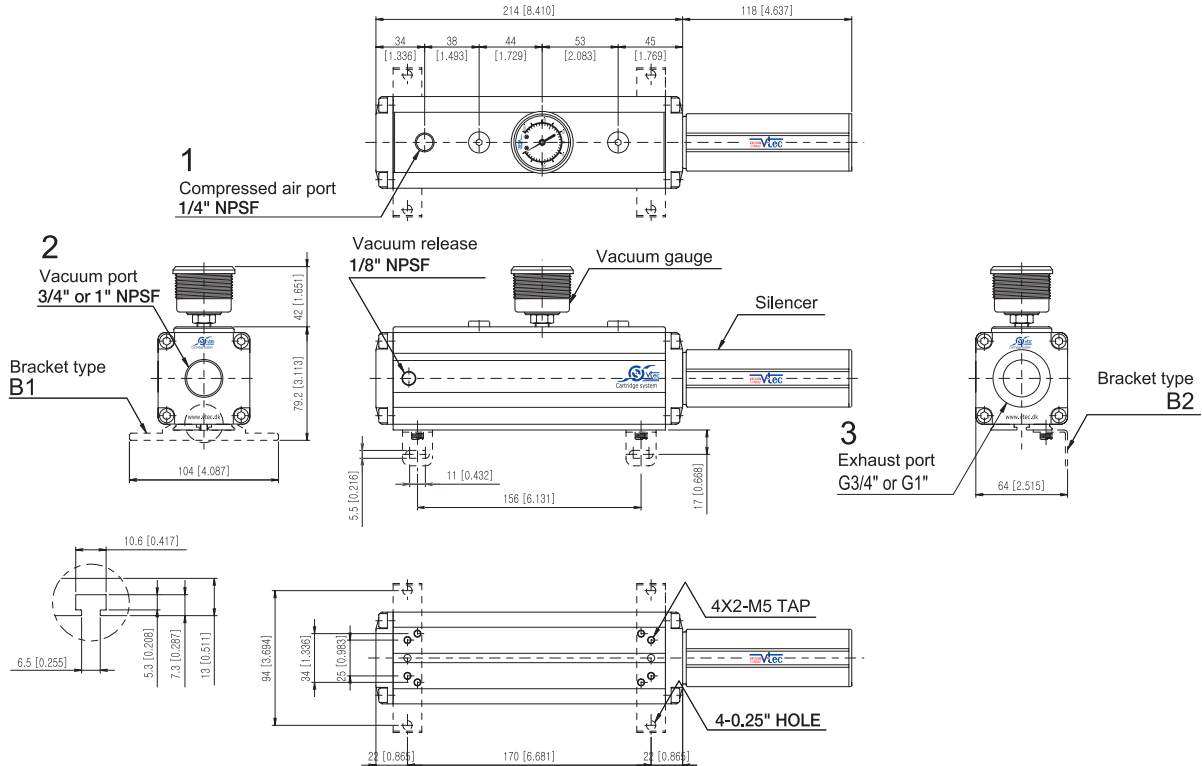
* Remark : Choose the 'A' body type (Vacuum port on side) for blowing function.



Dimensional Information

Standard

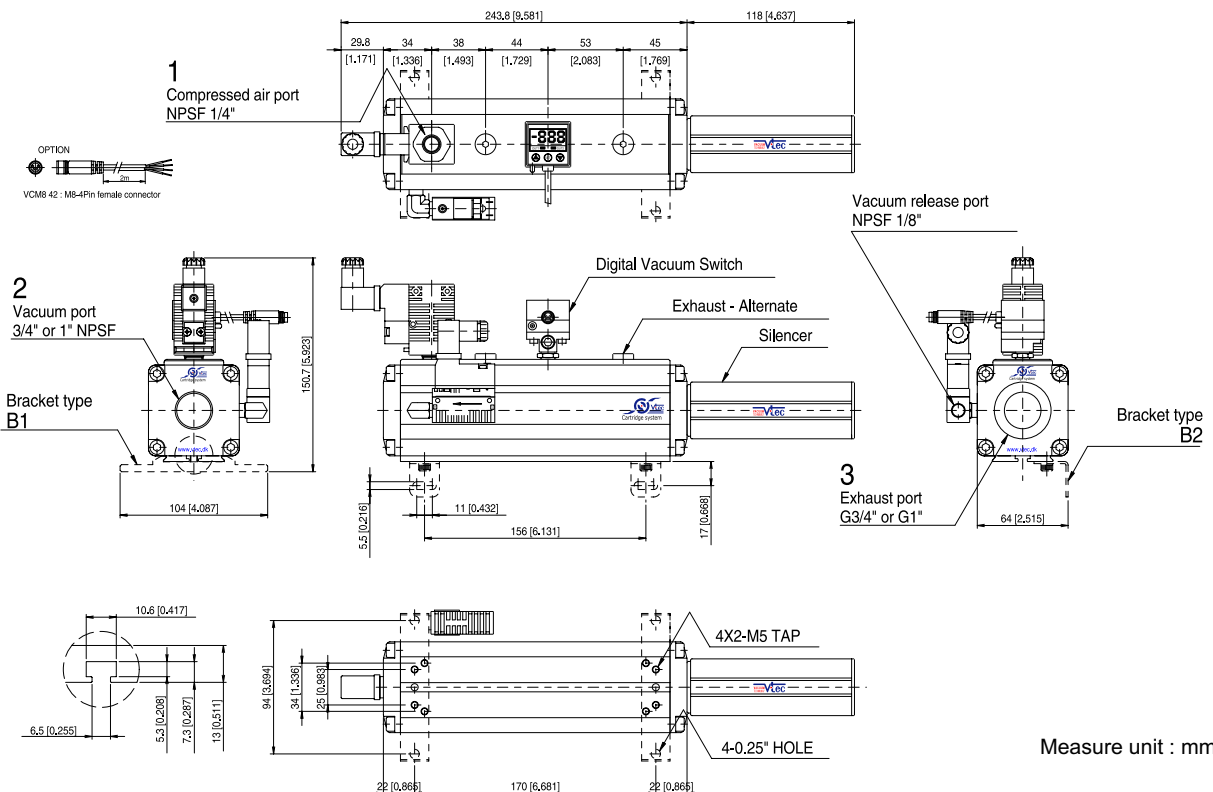
▼Series PM 303X()..A.. / PML 303X()..A..



Measure unit : mm [in]

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

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

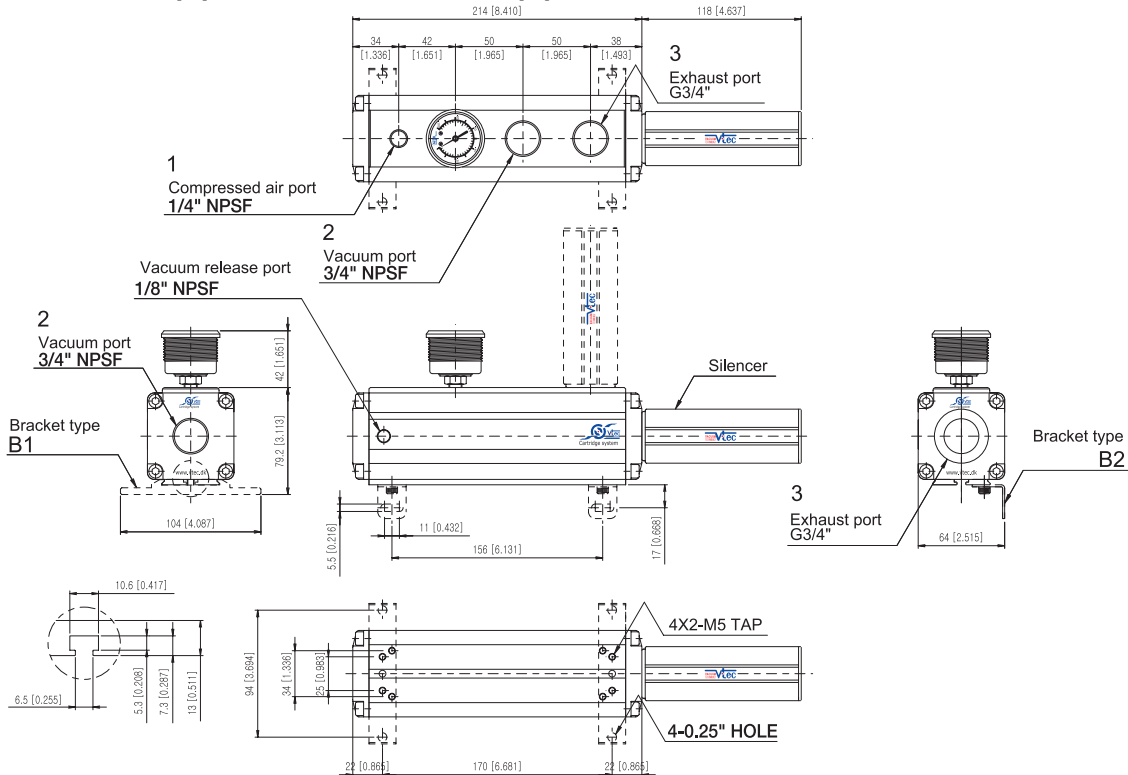


Measure unit : mm [in]

Dimensional Information

Standard

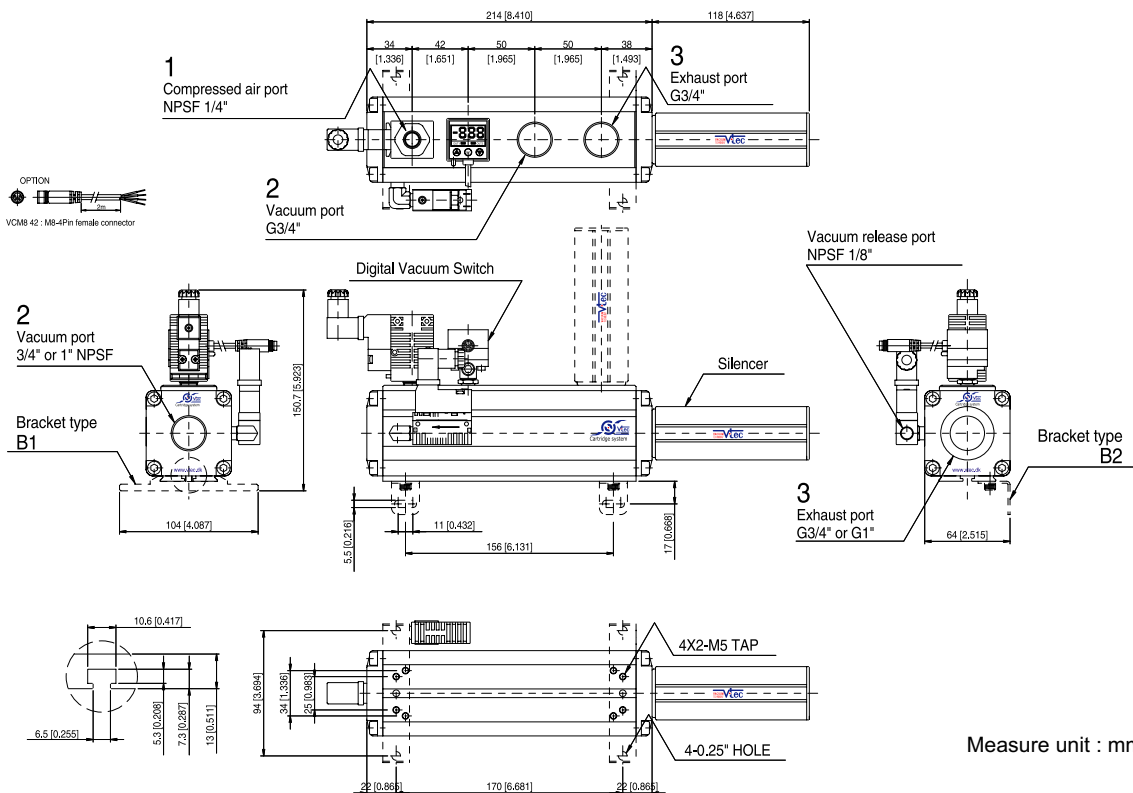
▼ Series PM 303X()..B.. / PML 303X()..B..



Measure unit : mm [in]

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

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



Measure unit : mm [in]



KEYBOARD PUMPS



Mini Keyboard Pump

- Max. vacuum level** : VKX pump **-27.16 inHg** (-92 kPa)
VKM pump **-25.1 inHg** (-85 kPa)
- Max. flow rate** : VKX pump **0.81 scfm** (23 NI/min)
VKM pump **0.91 scfm** (26 NI/min)
- Supply air pressure** : **43.5~87 psi, max 101.5psi**
(3~6bar, max 7bar)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F~ 176 °F
- 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 - MU6 A 4 N V

① ② ③ ④ ⑤ ⑥ ⑦

① Model-Vacuum Flow

VKX5	-	0,81 scfm
VKM5	-	0,918 scfm

② Body type

S	-	single unit
MU	-	manifold unit
EU	-	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

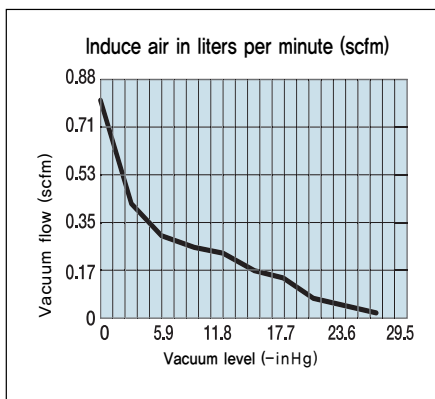
Only DC24V is available for valve
Connector type with 0,3m lead wire & lamp

Characteristics

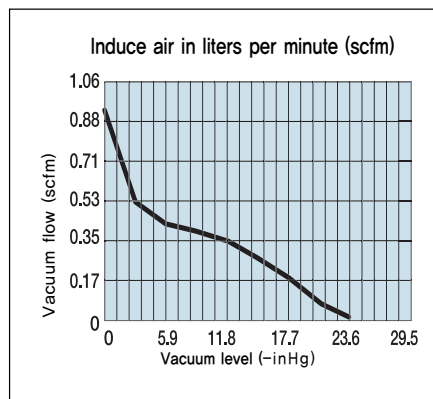
Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)/each stack	air consumption (scfm)/each stack	noise level (dBA)	weight (oz.) /each stack
VKX5	27.17	0.81	0.46~0.78	50~65	3.386
VKM5	25.1	0.92	0.42~0.74	50~65	3.386

※ Remark : Manifold unit type weight = 3.03oz. X N + 0.77oz. (N : stack)

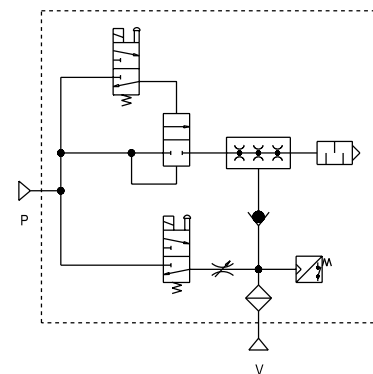
VKX5



VKM5

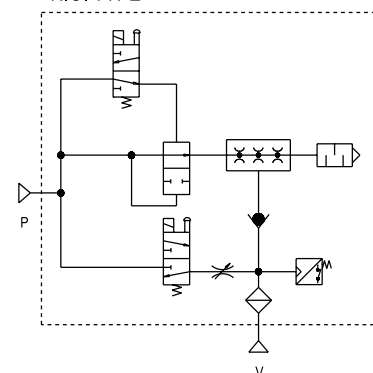


N.C. TYPE

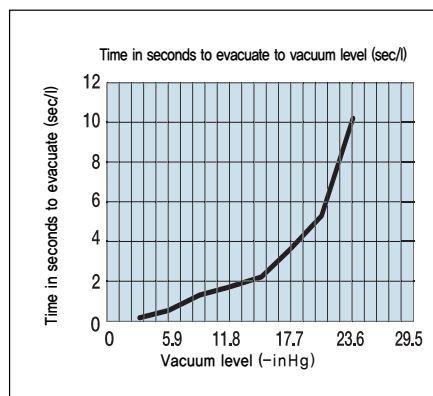
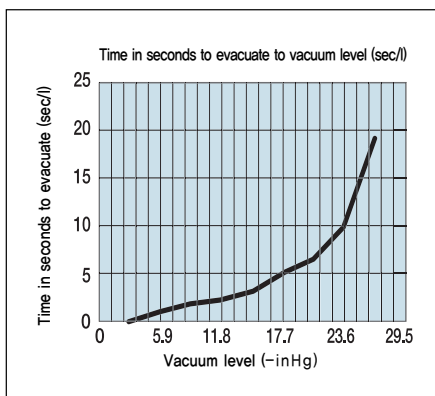


P : Compressed air supply port
v : Vacuum port

N.O. TYPE



P : Compressed air supply port
v : Vacuum port



Induce air in liters per minute (scfm)

Model	-inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VKX5		0.81	0.42	0.28	0.25	0.21	0.18	0.14	0.1	0.04
VKM5		0.92	0.53	0.42	0.39	0.35	0.28	0.19	0.10	0.02	

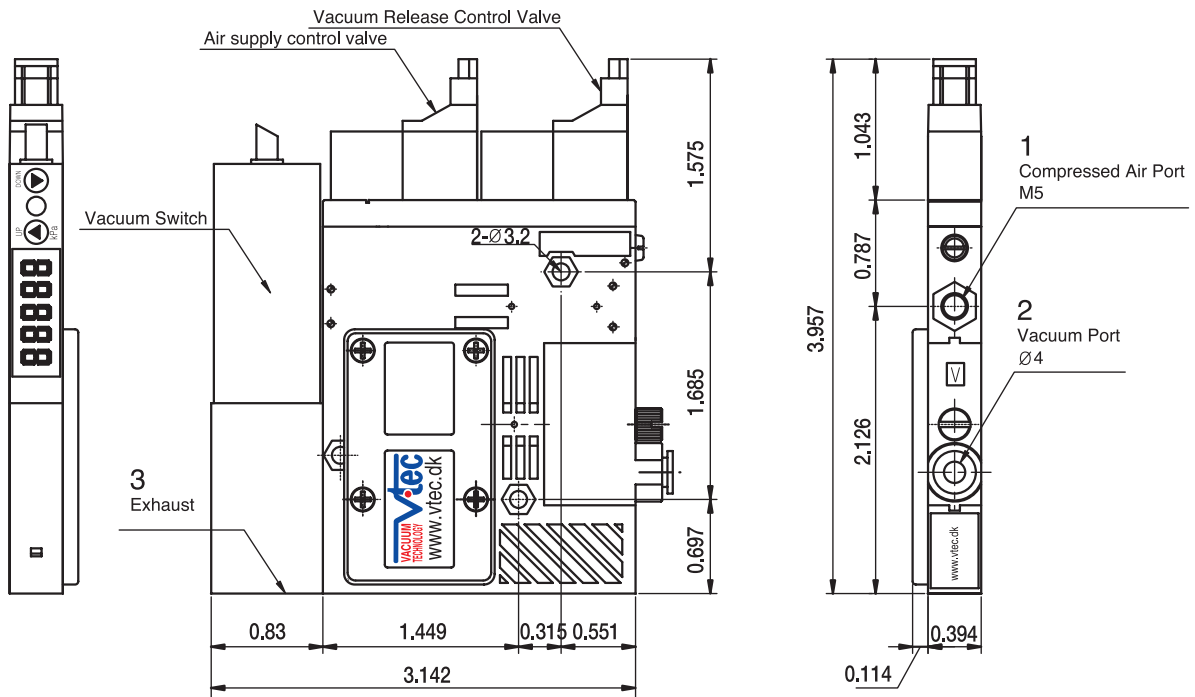
Time in seconds to evacuate to vacuum level (sec/l)

Model	-inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VKX5		0.26	0.80	1.52	2.4	3.38	4.91	6.89	10.16
VKM5		0.22	0.56	1.18	1.58	2.36	3.44	5.27	10.22	

Dimensional Information

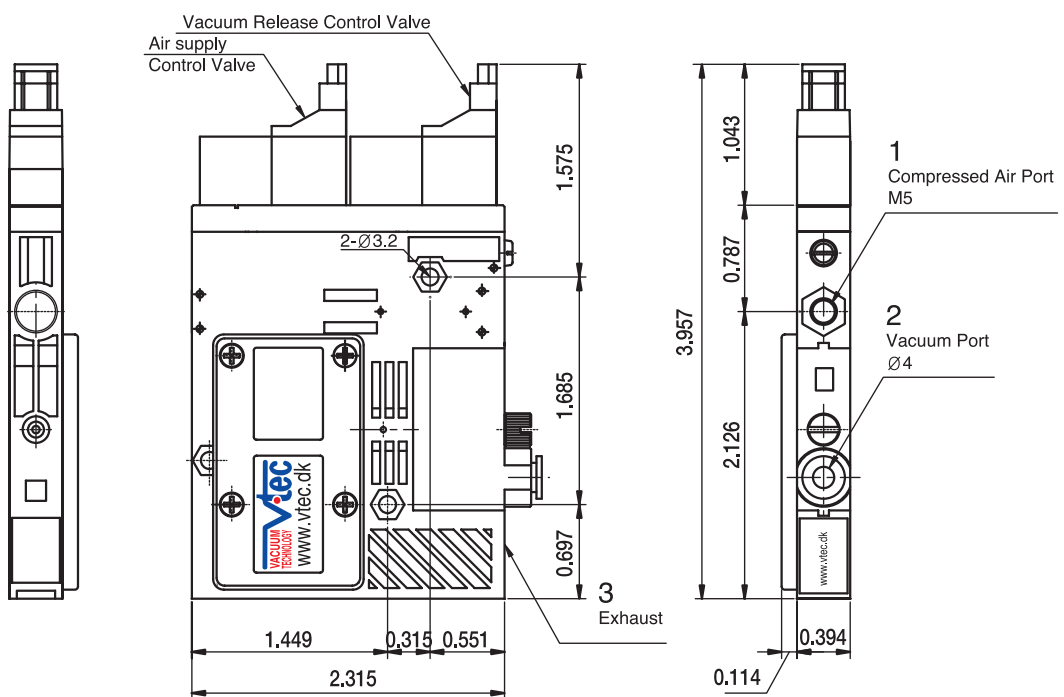
Single unit

Single Unit (A,B - Type)



[Measure unit : inch]

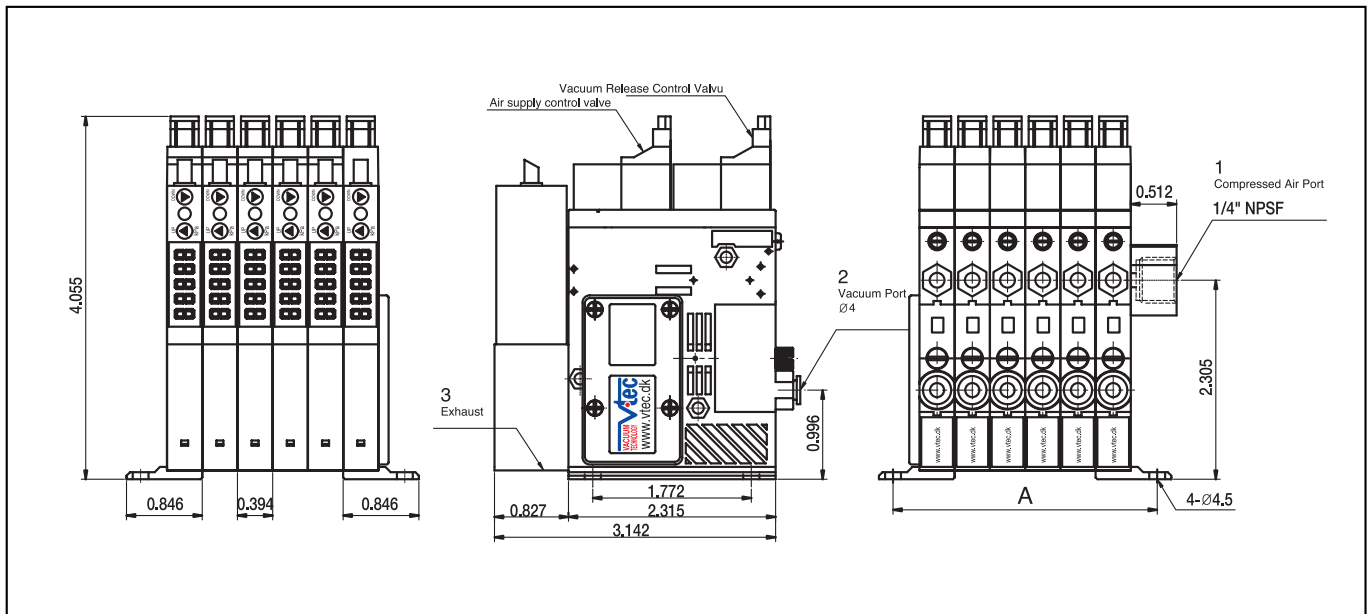
Single Unit (C,D - Type)



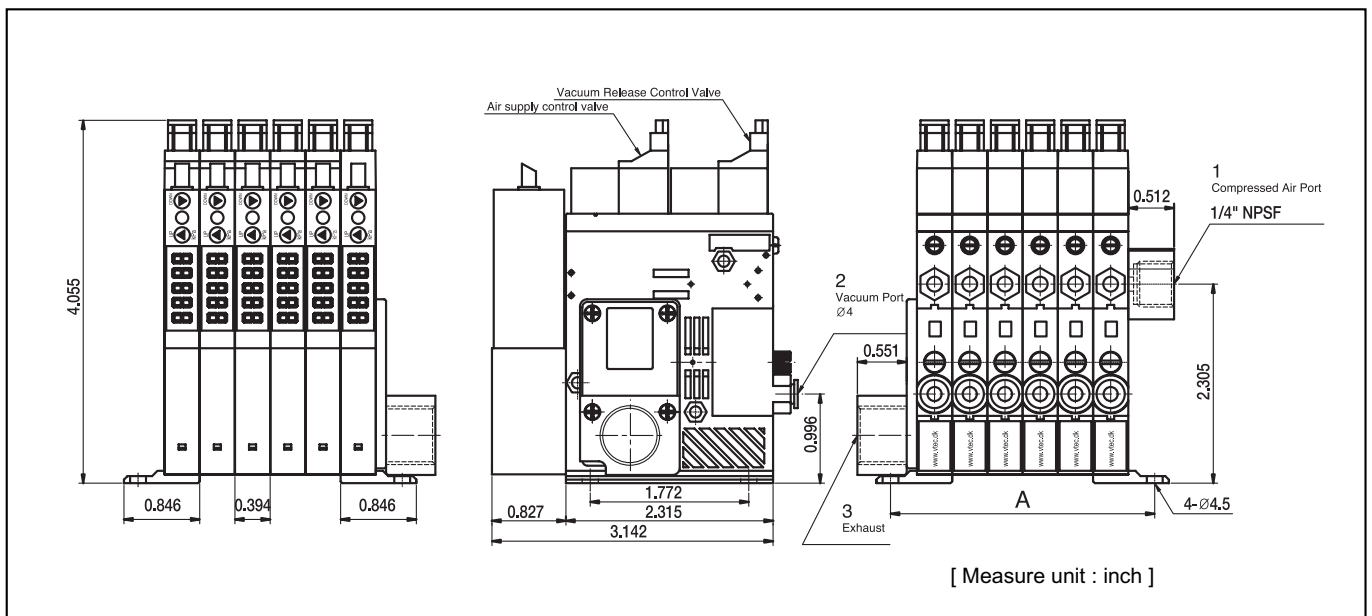
[Measure unit : inch]

Dimensional Information

Manifold unit



Manifold unit with central exhaust unit



VACUUM PUMPS

Stack	A (inch)
2stack	1.378
3stack	1.772
4stack	2.165
5stack	2.559
6stack	2.953
7stack	3.346
8stack	3.740
9stack	4.134
10stack	4.528

Midi Keyboard Pump

- Max. vacuum level : VKX pump **-27.16 inHg** (-92kPa)
VKM pump **-25.1 inHg** (-85kPa)
- Max. flow rate : VKX pump **2.19 scfm** (62 NI/min)
VKM pump **2.61 scfm** (74 NI/min)
- Supply air pressure : **43.5~87 psi, max 101.5psi**
(3~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- Noise level : 50~65 dBA

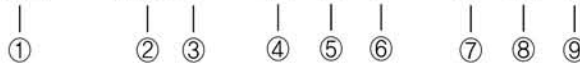


Main Advantages

- High efficiency Midi vacuum pump (Multi-Nozzle type).
- Available of individual control.
- Automatic Vacuum Filter 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 - MU4 - A 3 3 - C N V



① Model-Vacuum Flow

VKM61	-	1.31 scfm
• VKM62	-	2.61 scfm
VKX61	-	1.09 scfm
VKX62	-	2.19 scfm

② Body-type

SU	-	Single unit
• MU	-	Manifold unit
EU	-	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' (See page : 336, 337)

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 (-inHg)	Max. vacuum flow (scfm)/eachstack	air consumption (scfm)/eachstack	noise level (dBA)	weight (oz.) each stack		min hose inner ϕ (within 6.5ft.)		vacuum
					Connector Valve	DIN Valve	air supply		
							single unit	manifold unit	
VKX61	27.17	1.09	0.74~85	50~65	7.531	10.282	≥ 4	$\geq 8 \sim 12$	≥ 6
VKX62		2.19	1.52~1.70	50~65	7.531	10.282	≥ 4	$\geq 8 \sim 12$	≥ 6
VKM61	25.1	1.31	0.53~74	50~65	7.531	10.282	≥ 4	$\geq 8 \sim 12$	≥ 6
VKM62		2.61	1.06~1.48	50~65	7.531	10.282	≥ 4	$\geq 8 \sim 12$	≥ 6

※ Remark : Manifold unit type weight = each stack weight X N + 1.97 oz. (N: stack)

Induce air in liters per minute (scfm)

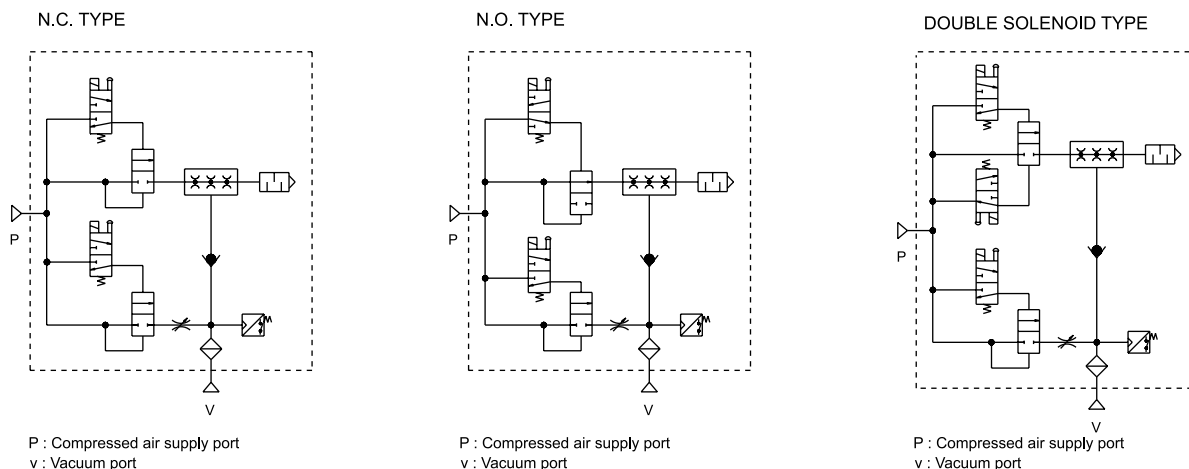
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VKX61x(N)	1.09	0.64	0.32	0.28	0.24	0.18	0.14	0.10	0.04	0.02
VKX62x(N)	2.19	1.27	0.64	0.57	0.46	0.39	0.32	0.19	0.08	0.03
VKM61x(N)	1.31	0.92	0.57	0.49	0.35	0.28	0.21	0.10	0.02	
VKM62x(N)	2.61	1.84	1.09	0.99	0.71	0.57	0.42	0.17	0.05	

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

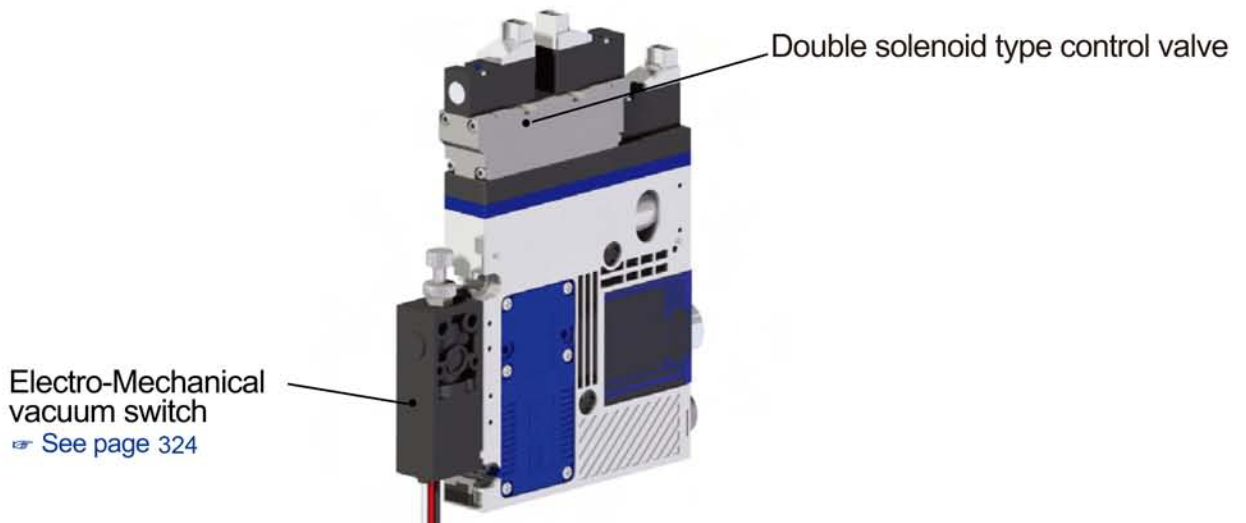
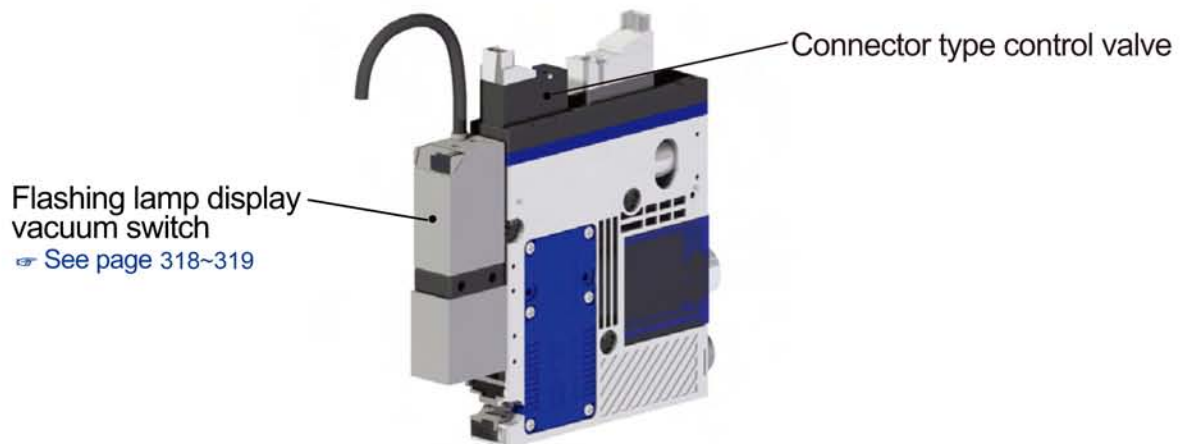
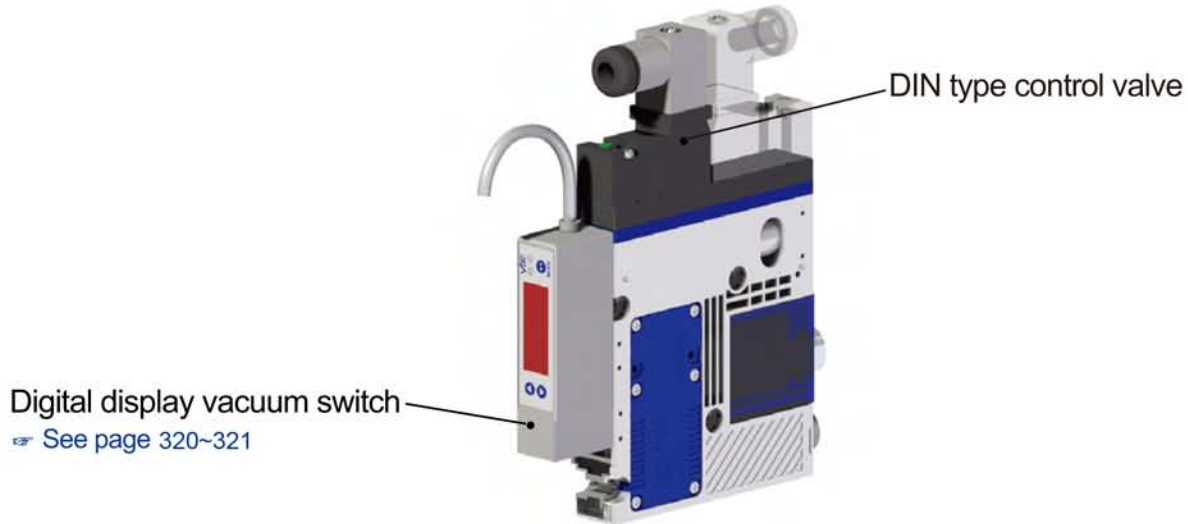
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VKX61	0.258	0.796	1.516	2.4	3.56	4.91	6.896	10.16	19.19
VKX62	0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.549
VKM61	0.218	0.556	1	1.576	2.356	3.44	5.27	10.216	
VKM62	0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158	

VACUUM PUMPS

The composition of the Midi Keyboard pump

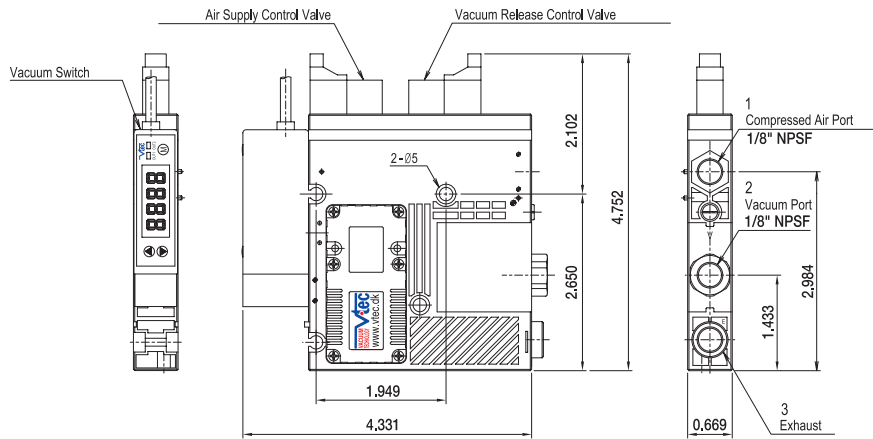


Selectable wide range of valves and switches.

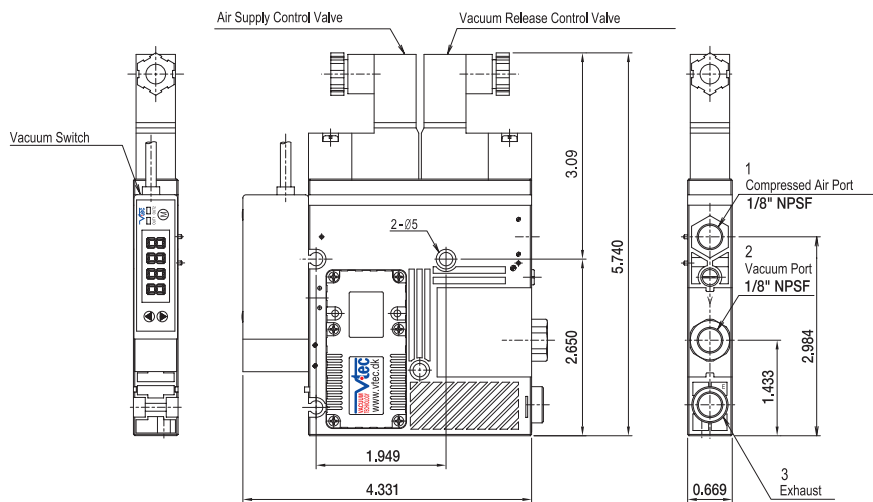


Dimensional Information

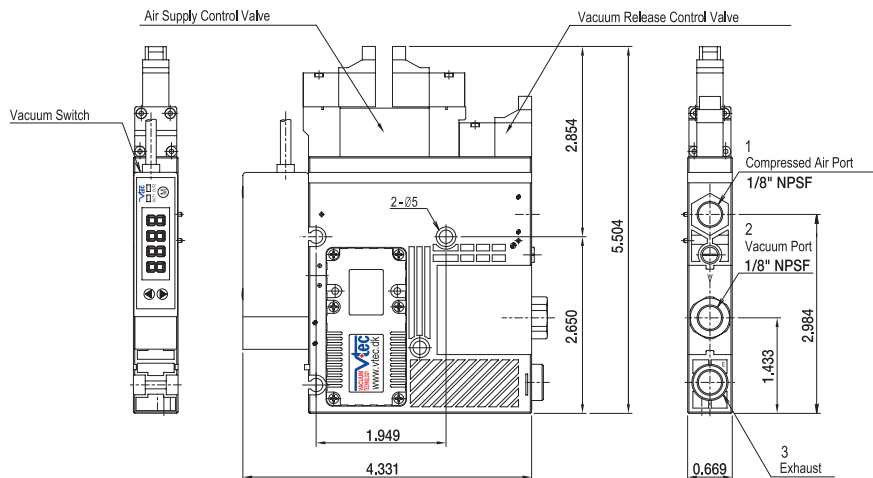
Single unit Control valve Connector type / Digital vacuum switch



Single unit Control valve DIN type / Digital vacuum switch



Single unit Control valve double solenoid type / Digital vacuum switch



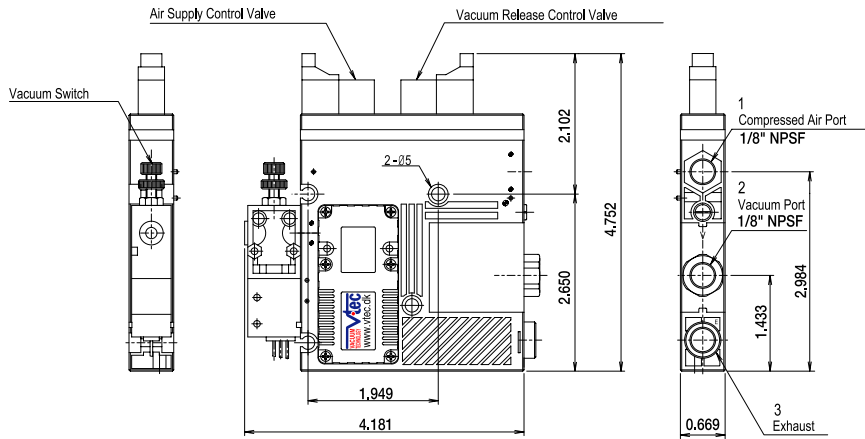
[Measure unit : inch]

VACUUM PUMPS

Dimensional Information

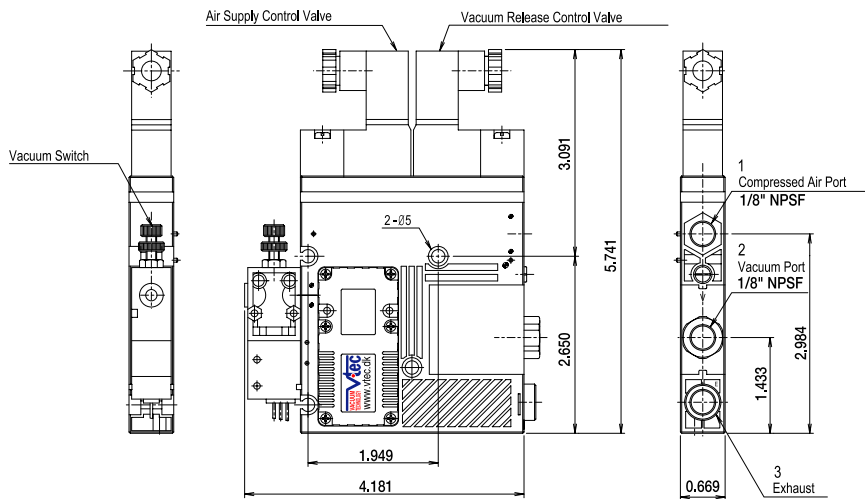
Single unit

Control valve Connector type / Mechanical vacuum switch



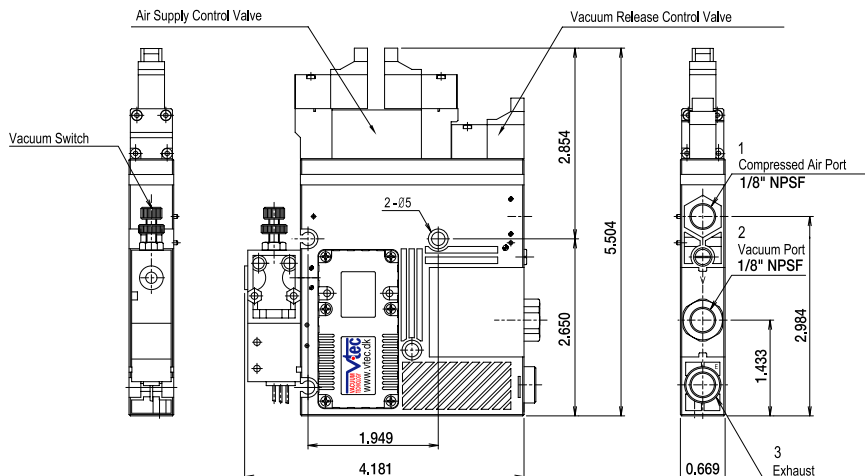
Single unit

Control valve DIN type / Mechanical vacuum switch



Single unit

Control valve double solenoid type / Mechanical vacuum switch

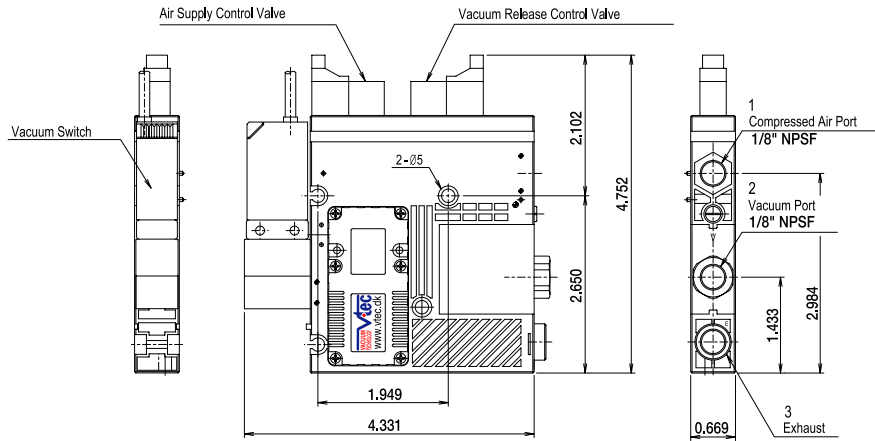


[Measure unit : inch]

Dimensional Information

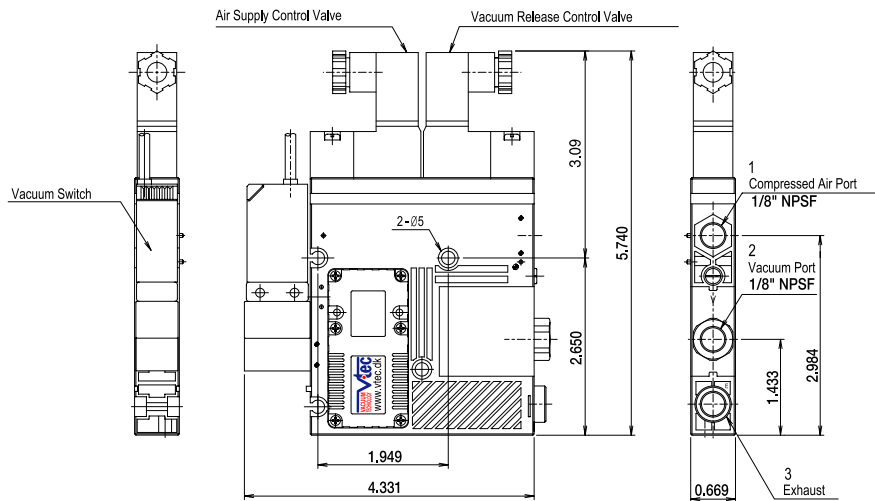
Single unit

Control valve Connector type / Flashing lamp display vacuum switch



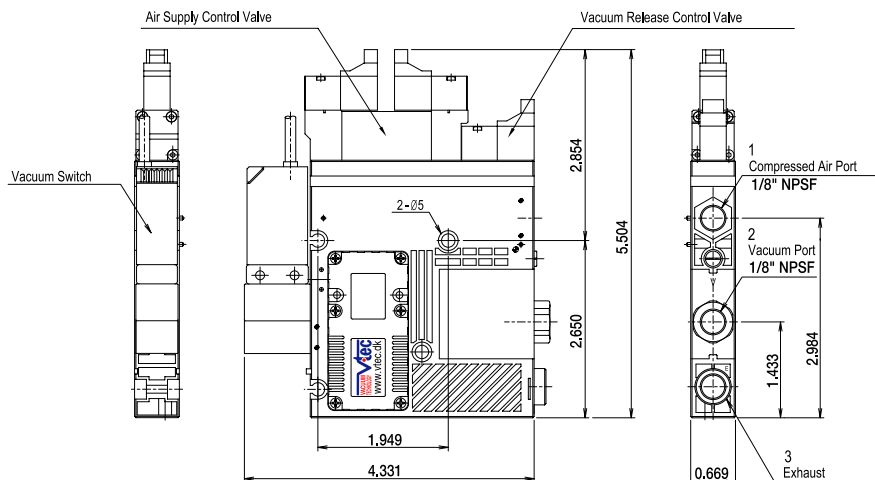
Single unit

Control valve DIN type / Flashing lamp display vacuum switch



Single unit

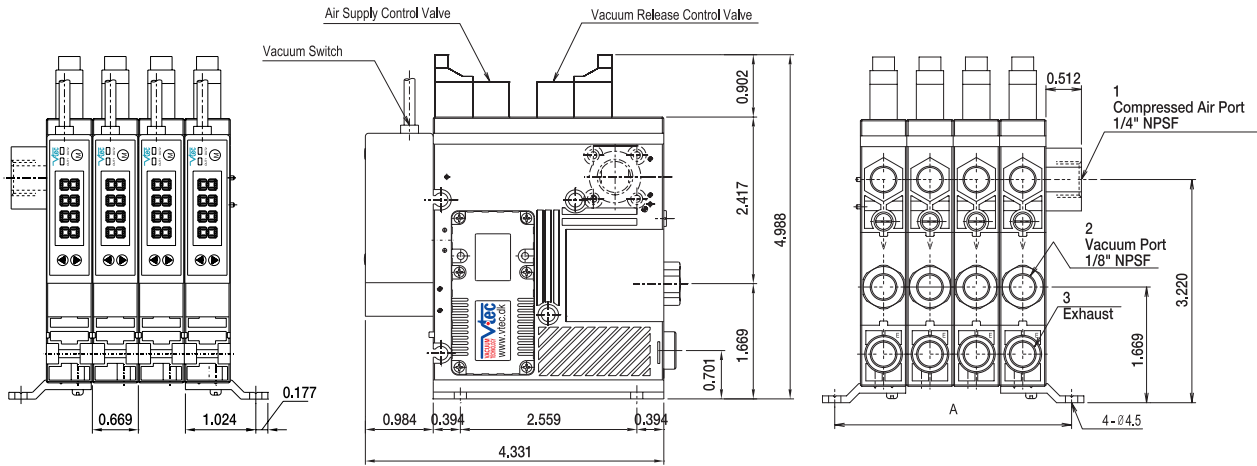
Control valve double solenoid type / Flashing lamp display vacuum switch



[Measure unit : inch]

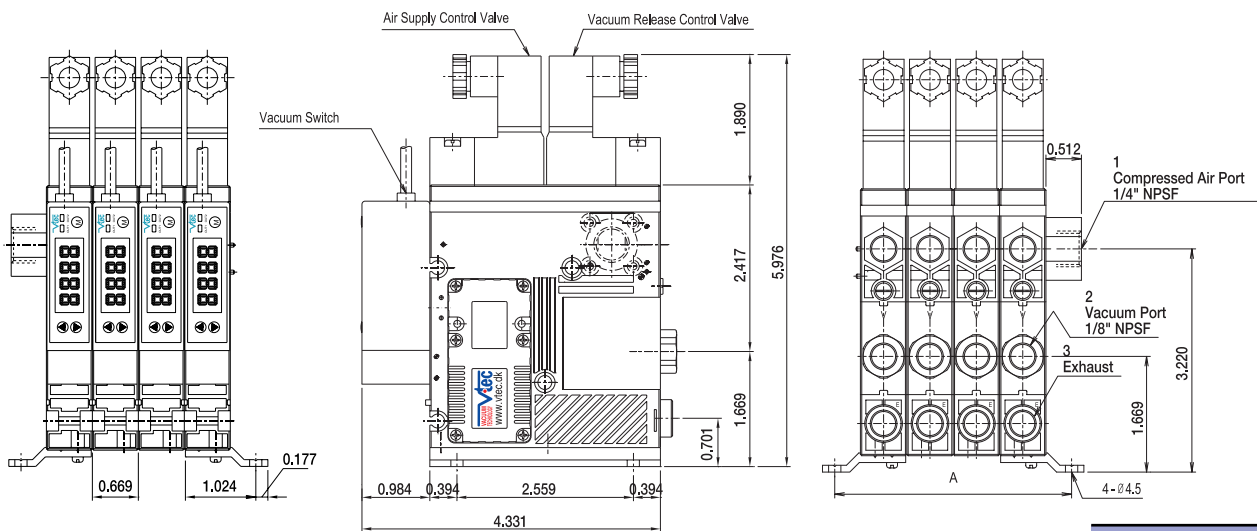
Dimensional Information

Manifold unit Control valve Connector type / Digital vacuum switch

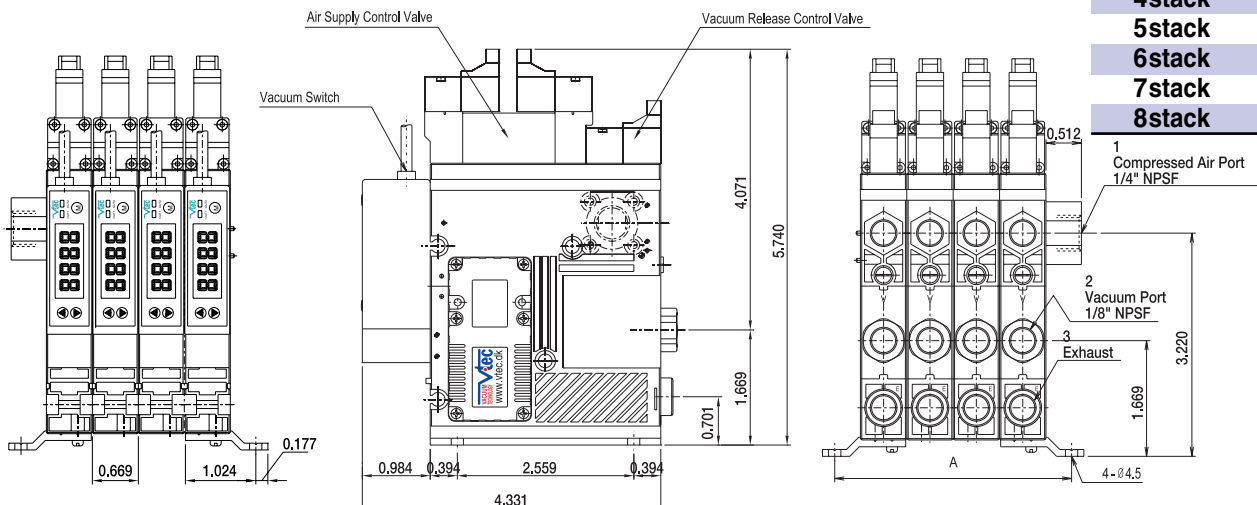


Manifold unit Control valve DIN type / Digital vacuum switch

[Measure unit : inch]



Manifold unit Control valve double solenoid type / Digital vacuum switch

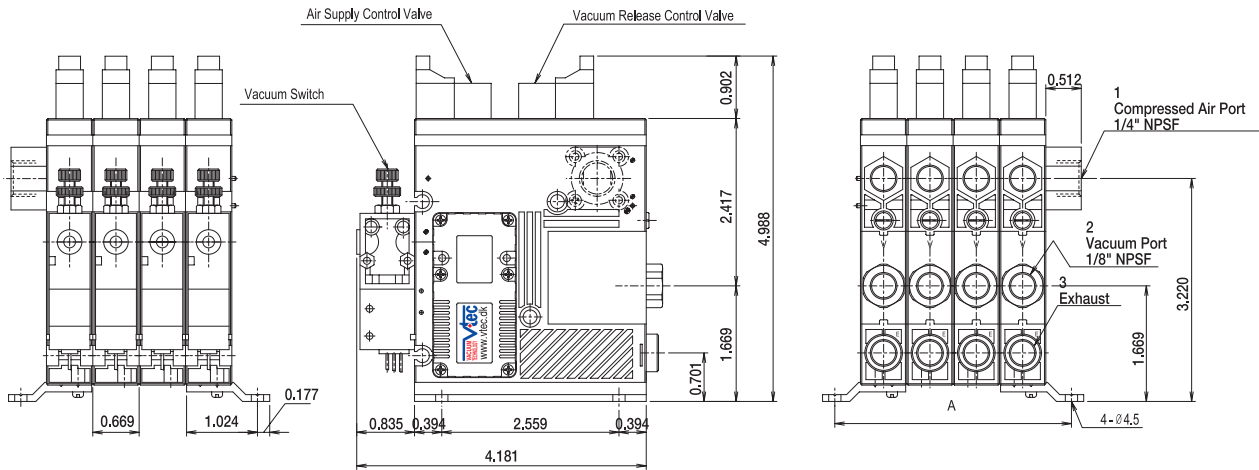


Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

Dimensional Information

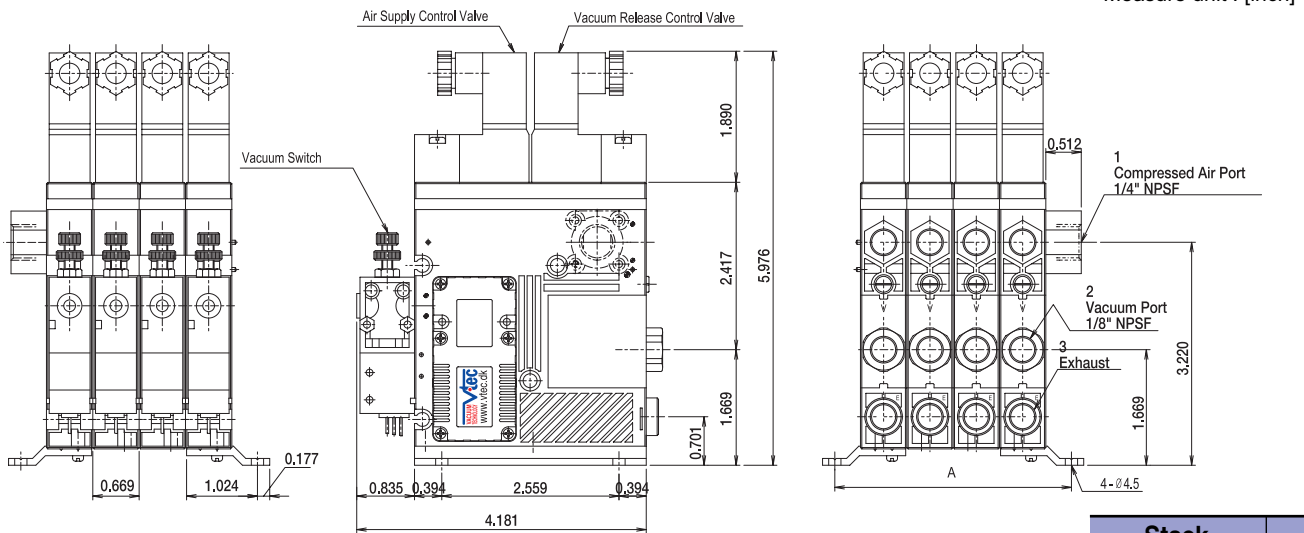
Manifold unit

Control valve Connector type / Mechanical vacuum switch



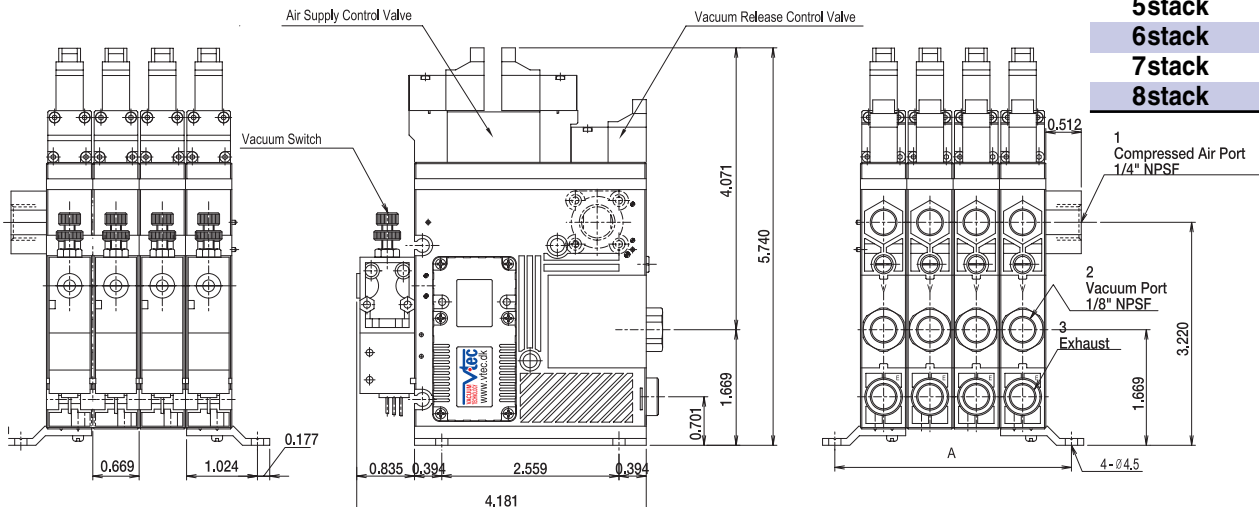
Manifold unit

Control valve DIN type / Mechanical vacuum switch



Manifold unit

Control valve double solenoid type / Mechanical vacuum switch

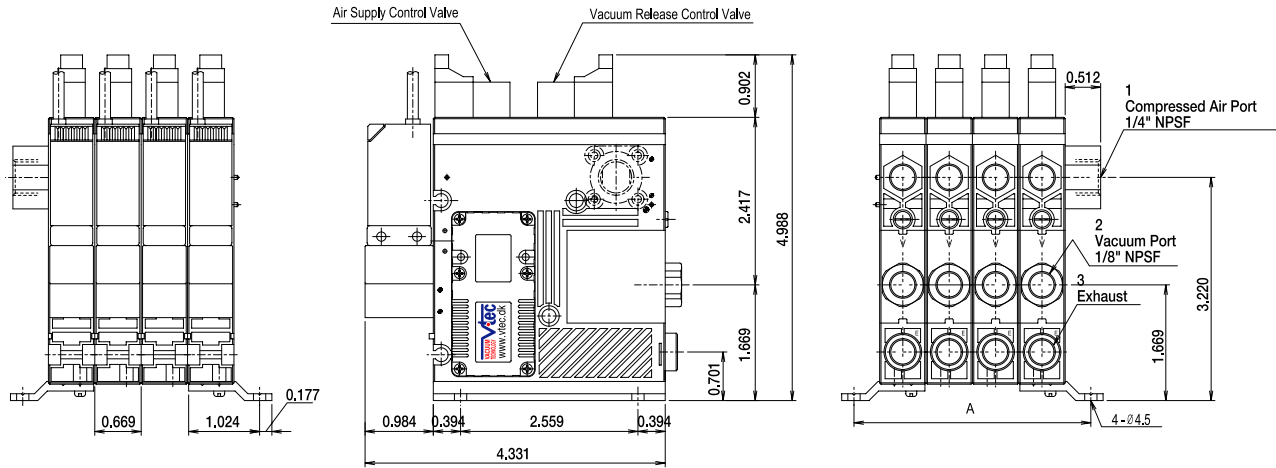


Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

VACUUM PUMPS

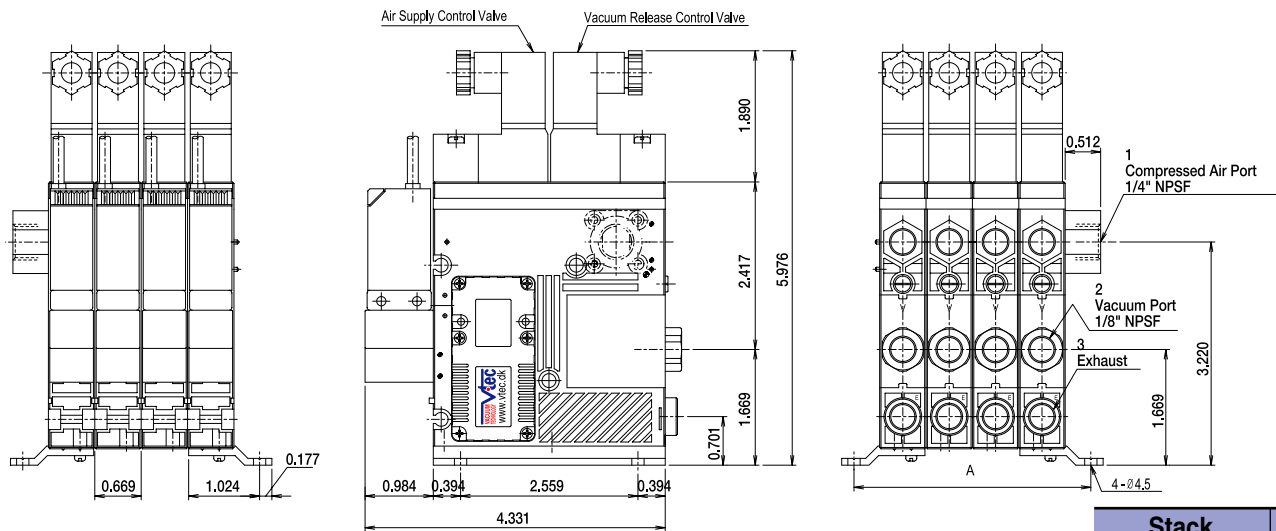
Dimensional Information

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

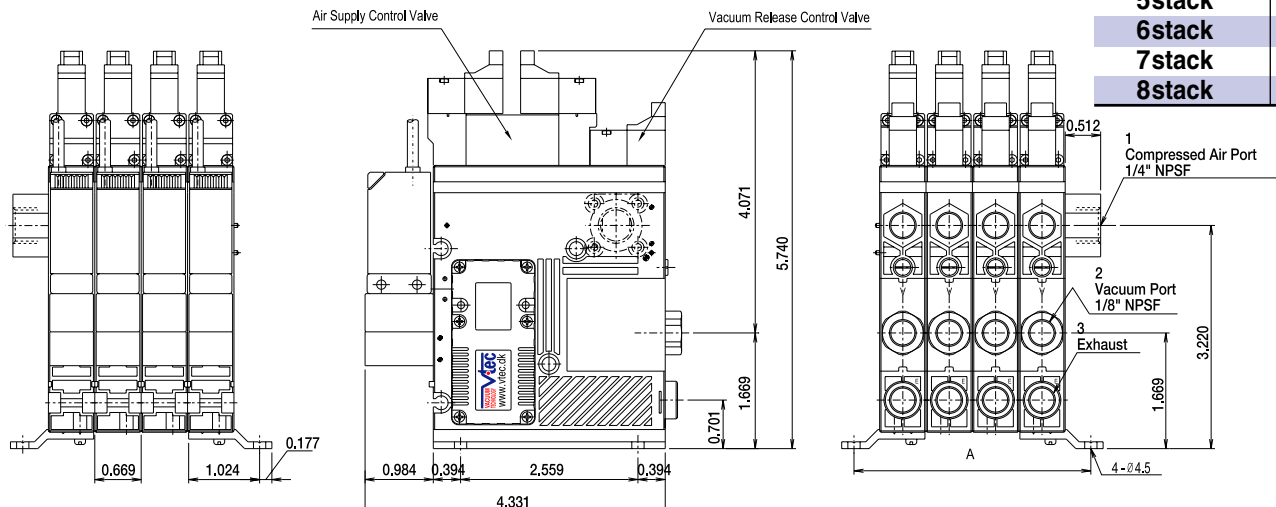


Manifold unit Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : inch]



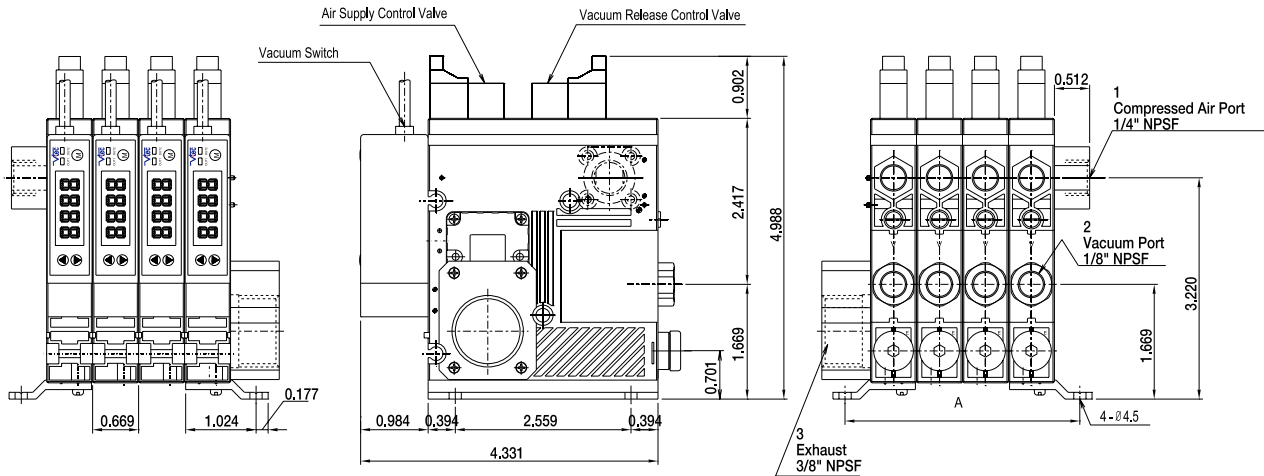
Manifold unit Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

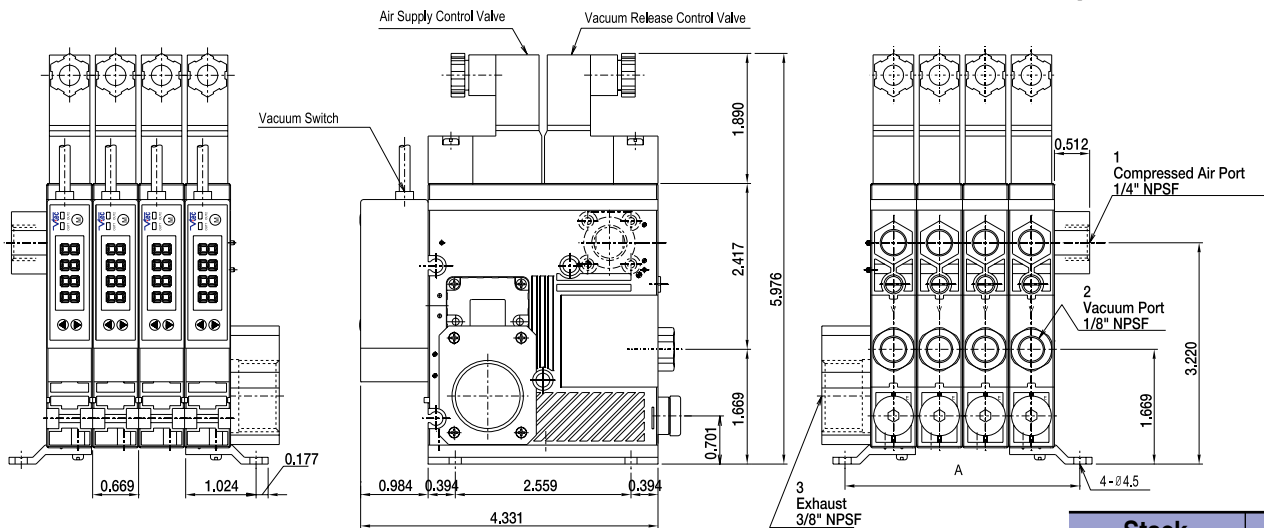
Dimensional Information

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

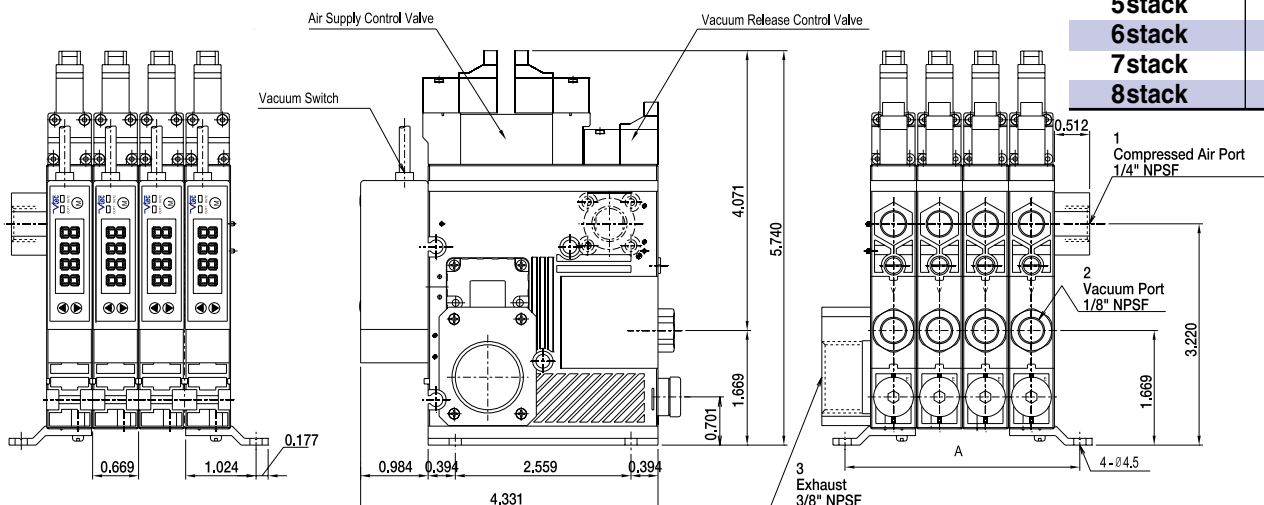


Manifold unit with central exhaust
Control valve DIN type / Digital vacuum switch

[Measure unit : inch]



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



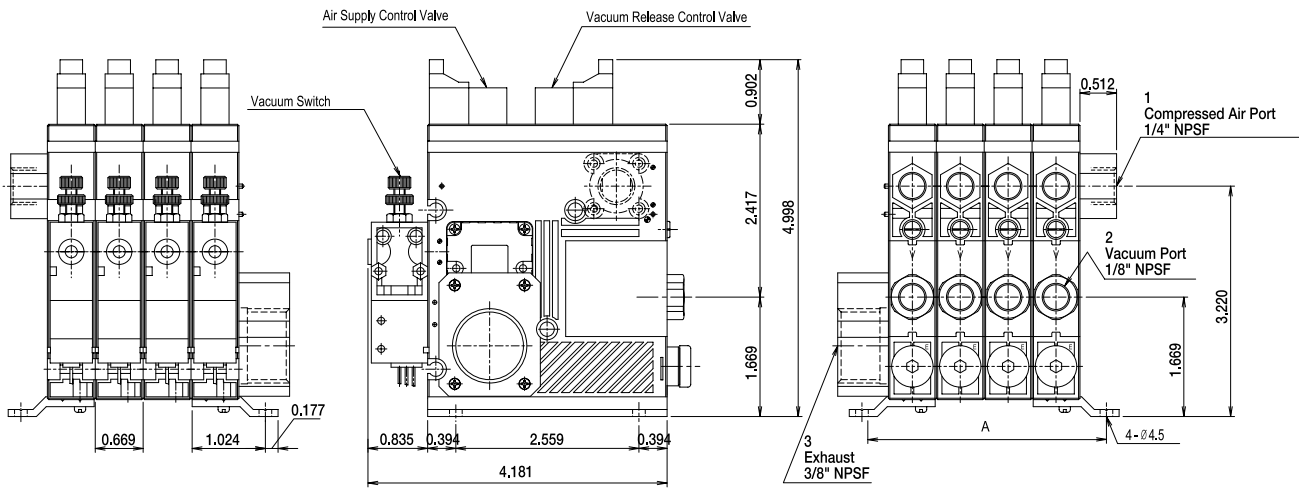
Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

VACUUM PUMPS

Dimensional Information

Manifold unit with central exhaust

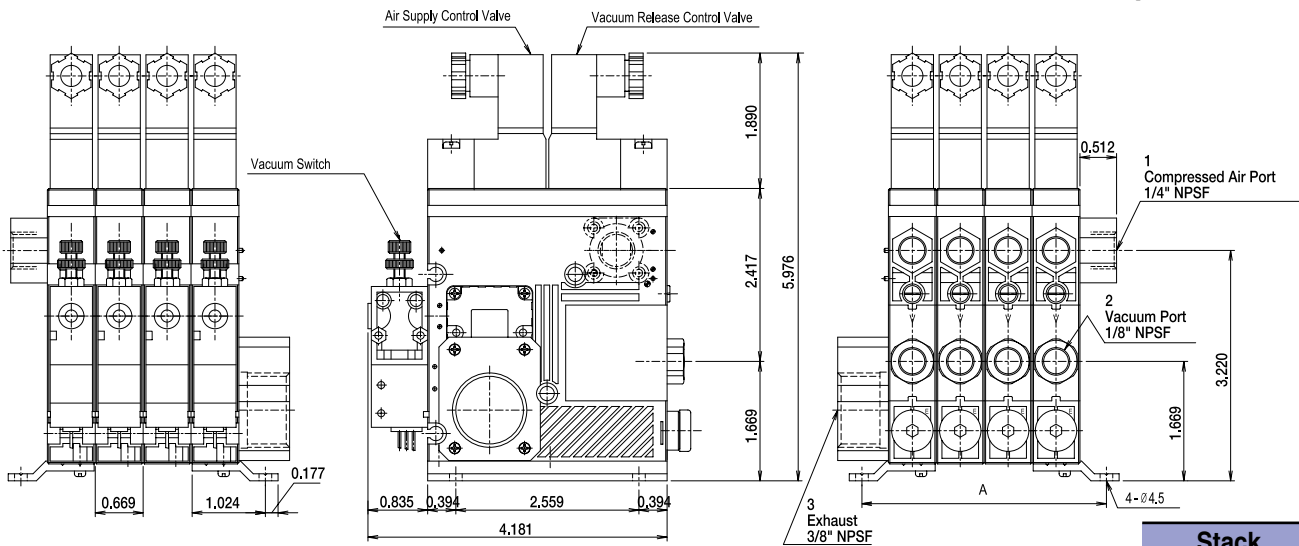
Control valve Connector type / Mechanical vacuum switch



Manifold unit with central exhaust

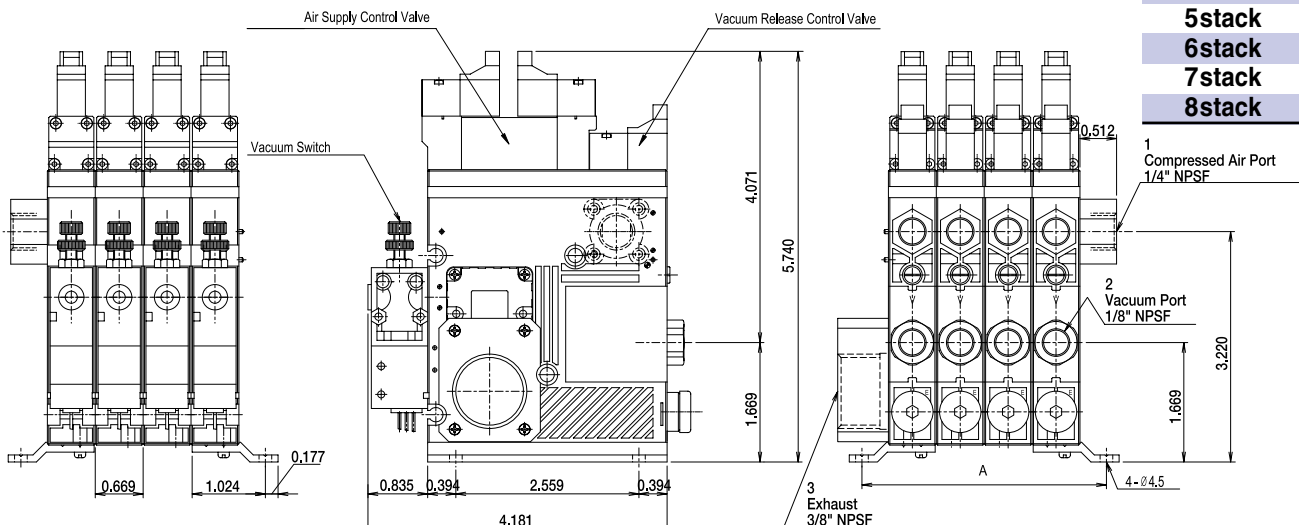
Control valve DIN type / Mechanical vacuum switch

[Measure unit : inch]



Manifold unit with central exhaust

Control valve double solenoid type / Mechanical vacuum switch

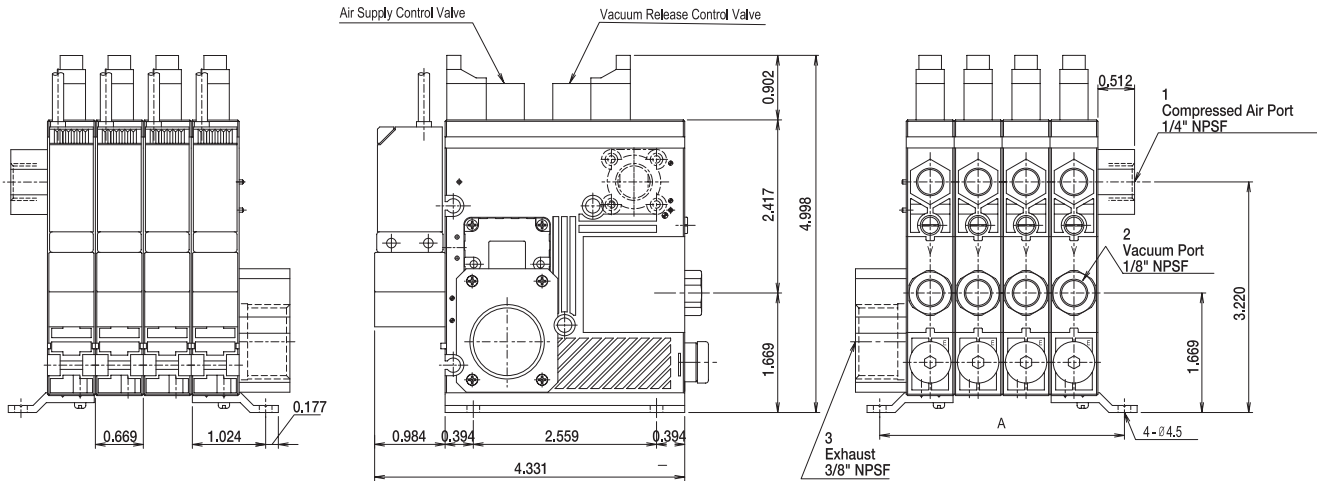


Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

Dimensional Information

Manifold unit with central exhaust

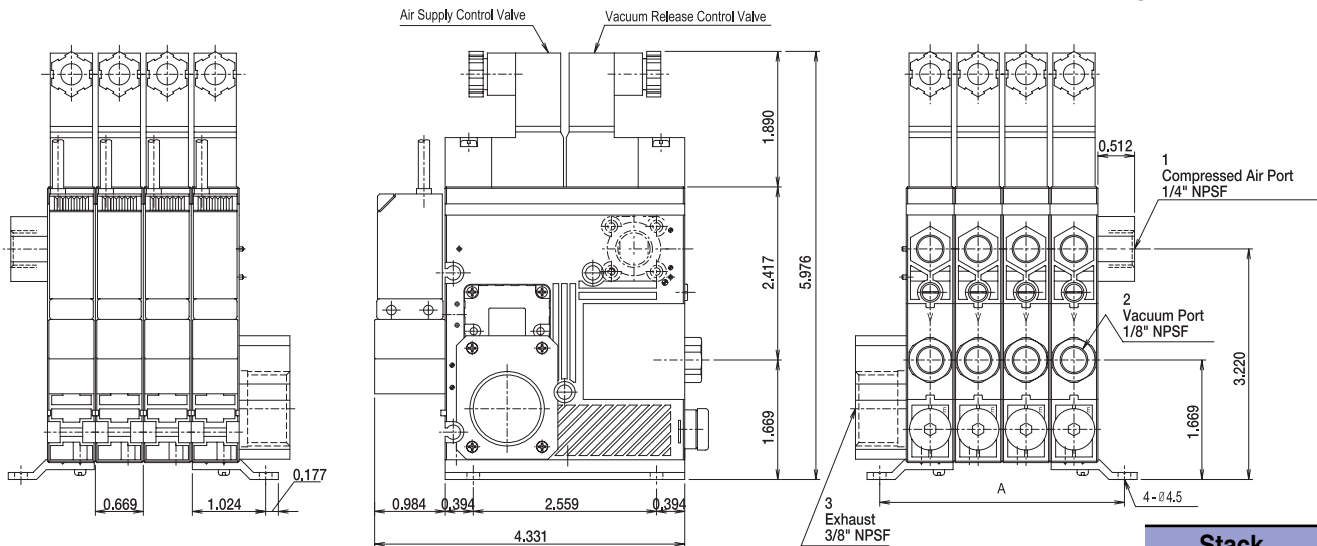
Control valve Connector type / Flashing lamp display vacuum switch



Manifold unit with central exhaust

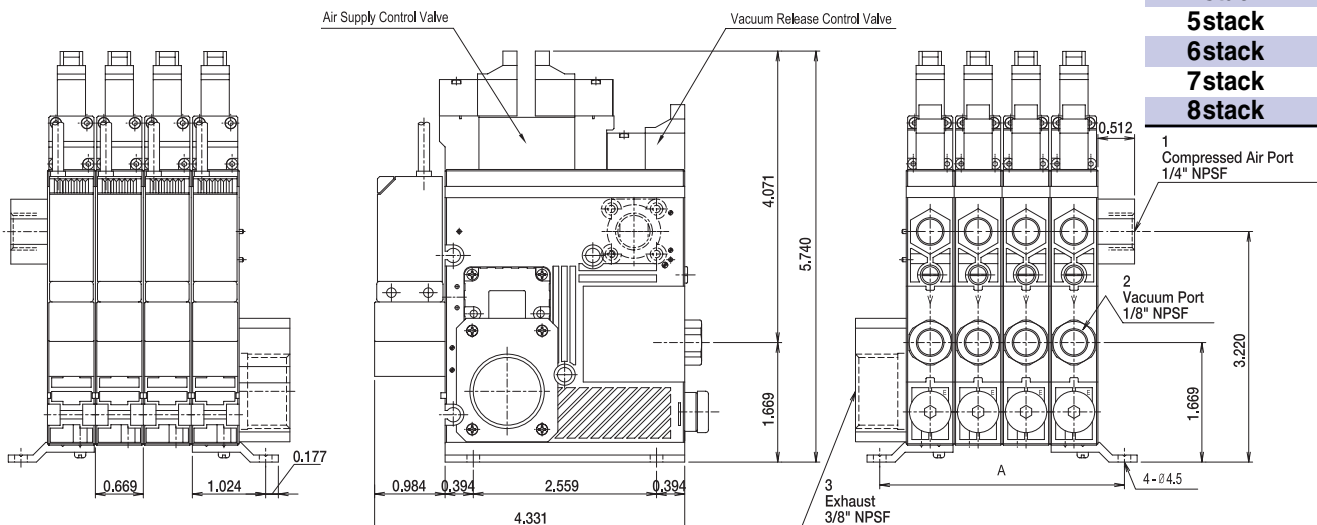
Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : inch]



Manifold unit with central exhaust

Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (inch)
2stack	2.079
3stack	2.748
4stack	3.417
5stack	4.087
6stack	4.756
7stack	5.425
8stack	6.094

VACUUM PUMPS

Specifications subject to change without notice.

Mega Keyboard Pump

- Max. vacuum level** : VKX pump **-27.16 inHg** (-92kPa)
VKM pump **-25.1 inHg** (-85kPa)
- Max. flow rate** : VKX pump **3.85 scfm** (109 NI/min)
VKM pump **4.76 scfm** (135 NI/min)
- Supply air pressure** : **43.5~87 psi, max 101.5psi**
(3~6bar, max 7bar)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F~ 176 °F
- Noise level** : 50~65 dBA



Main Advantages

- High efficiency Mega vacuum pump (Multi-Nozzle type).
- Available of individual control.
- Automatic Vacuum Filter 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 - MU4 - W 3 3 - C N V



① Model-Vacuum Flow

VKX73	-	3.32 scfm
• VKX74	-	3.85 scfm
VKM73	-	3.92 scfm
VKM74	-	4.76 scfm

② Body-type

SU	-	Single unit
• MU	-	Manifold unit
EU	-	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' (See page : 336, 337)

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 (-inHg)	Max. vacuum flow (scfm)/eachstack	air consumption (scfm)/eachstack	noise level (dBA)	weight(oz.) eachstack		min hose inner Ø (within 6.5ft.)		vacuum
					Connector Valve	DIN Valve	air supply		
							single unit	manifold unit	
VKX73	27.17	3.32	1.73~2.38	50~65	7.48	10.23	≥4	≥8~12	≥8
VKX74		3.85	2.33~3.11	50~65	7.48	10.23	≥4	≥8~12	≥8
VKM73	25.1	3.92	1.41~2.05	50~65	7.48	10.23	≥4	≥8~12	≥8
VKM74		4.77	1.91~2.75	50~65	7.48	10.23	≥4	≥8~12	≥8

※ Remark : Manifold unit type weight = each stack weight X N + 1.97oz. (N: stack)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

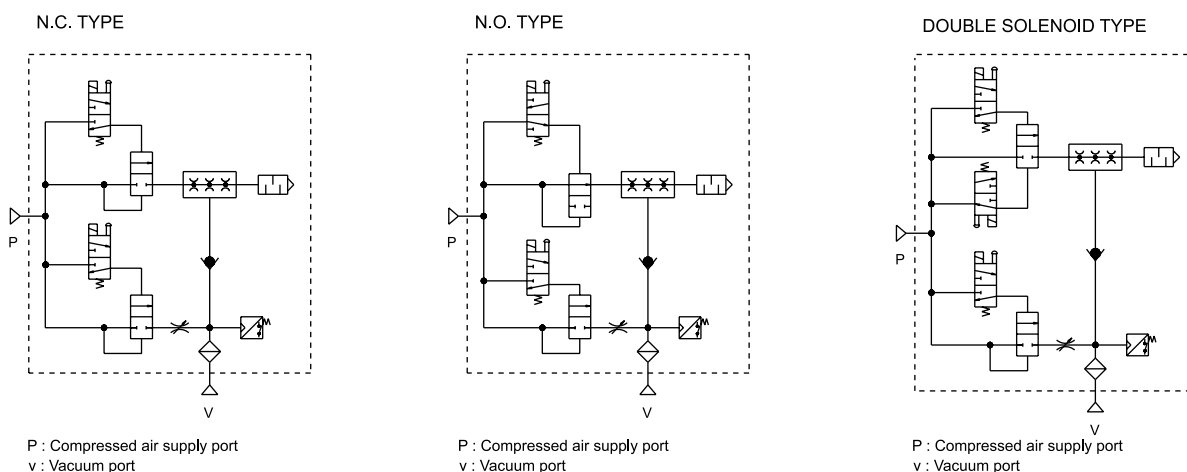
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VKX73	3.32	1.91	0.95	0.85	0.74	0.60	0.48	0.32	0.13	0.05
VKX74	3.85	2.54	1.24	1.13	0.95	0.78	0.64	0.48	0.17	0.06
VKM73	3.92	2.75	1.66	1.48	1.06	0.85	0.64	0.25	0.07	
VKM74	4.77	3.50	2.19	1.91	1.41	1.13	0.85	0.34	0.09	

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

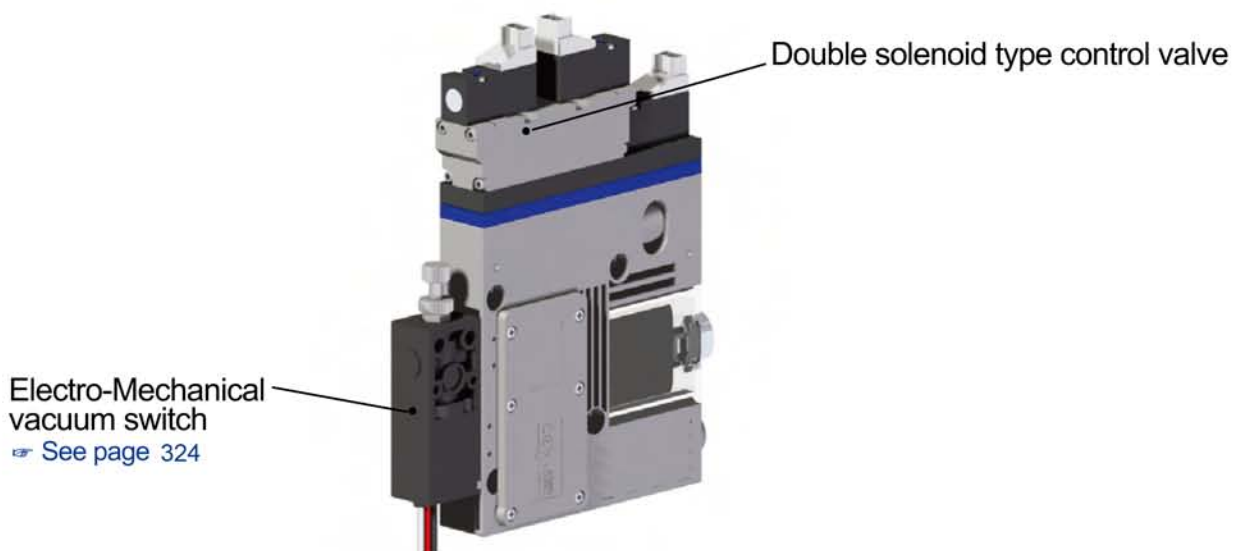
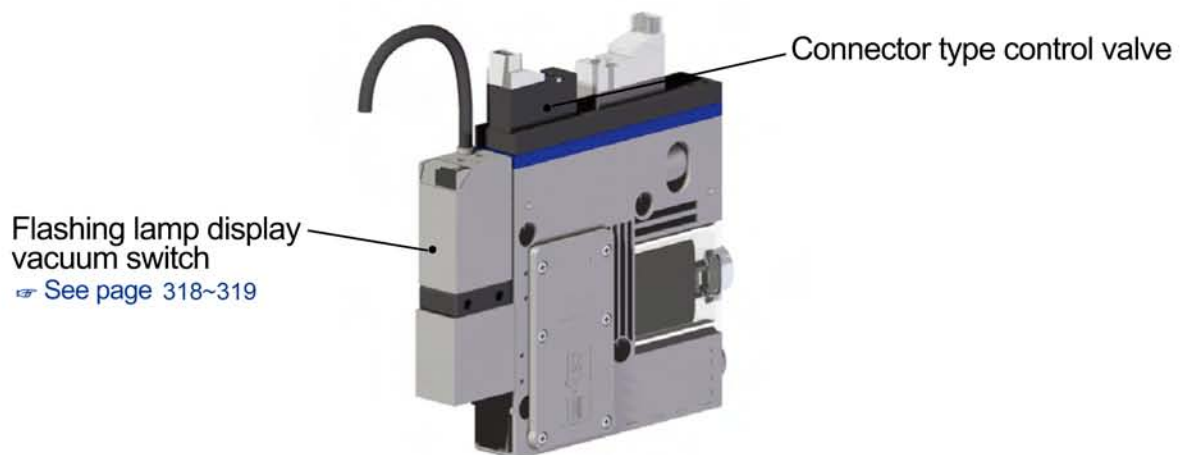
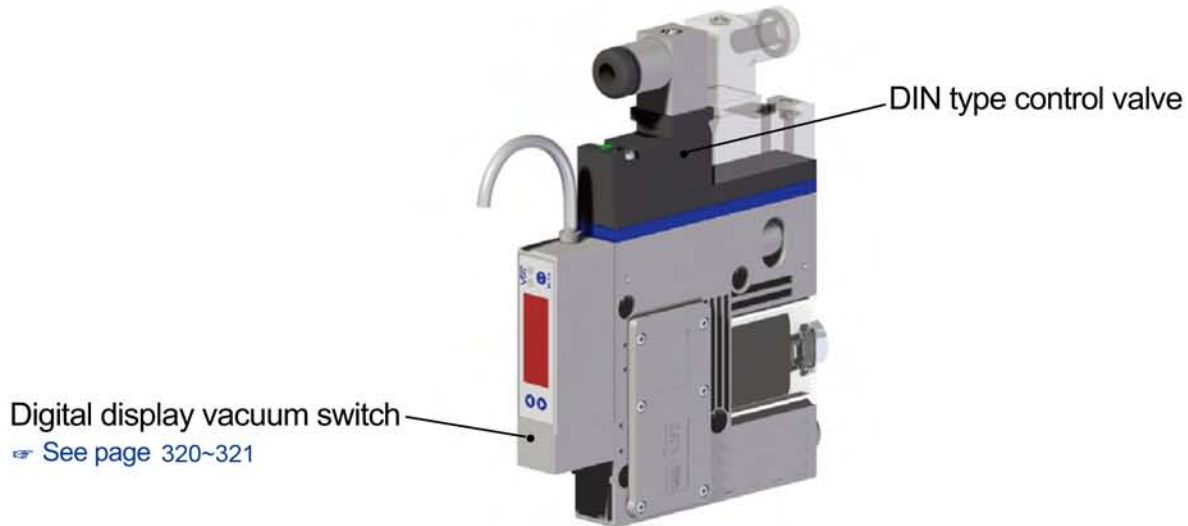
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VKX73	0.1	0.3	0.57	0.9	1.34	1.84	2.58	3.81	7.2
VKX74	0.06	0.2	0.38	0.6	0.89	1.23	1.72	2.54	4.8
VKM73	0.08	0.21	0.38	0.59	0.88	1.29	1.98	3.87	
VKM74	0.05	0.14	0.25	0.39	0.59	0.86	1.32	2.58	

VACUUM PUMPS

The composition of the Mega keyboard pump

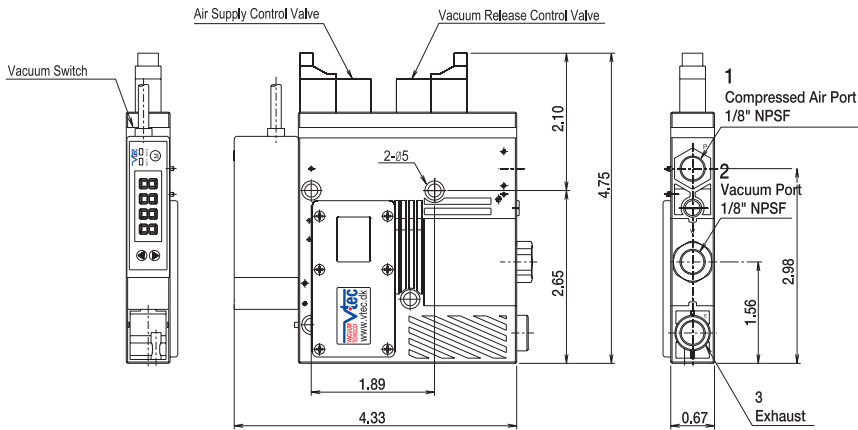


Selectable wide range of valves and switches.

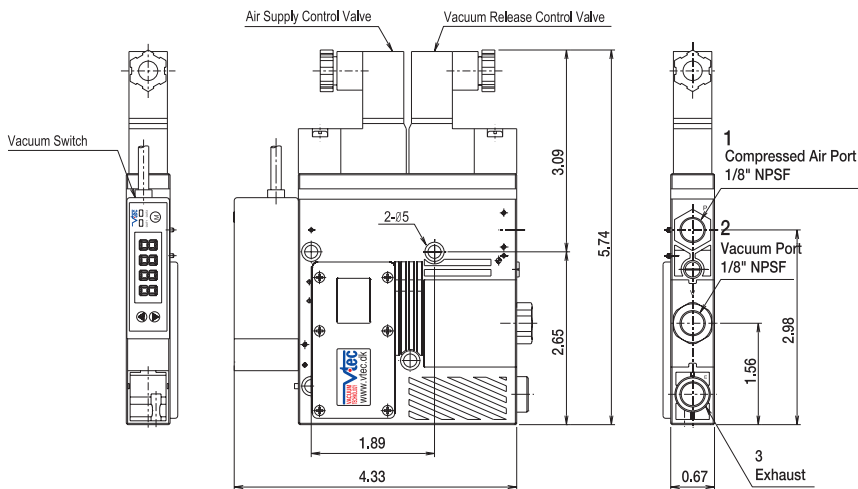


Dimensional Information

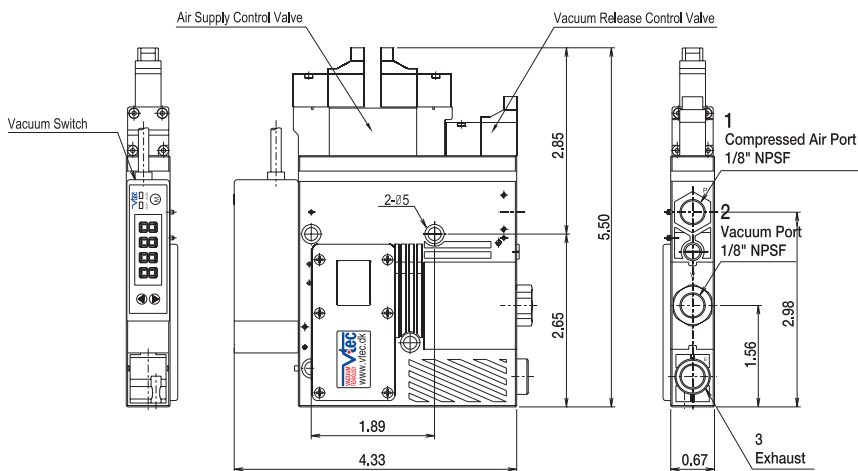
Single unit Control valve Connector type / Digital vacuum switch



Single unit Control valve DIN type / Digital vacuum switch



Single unit Control valve double solenoid type / Digital vacuum switch

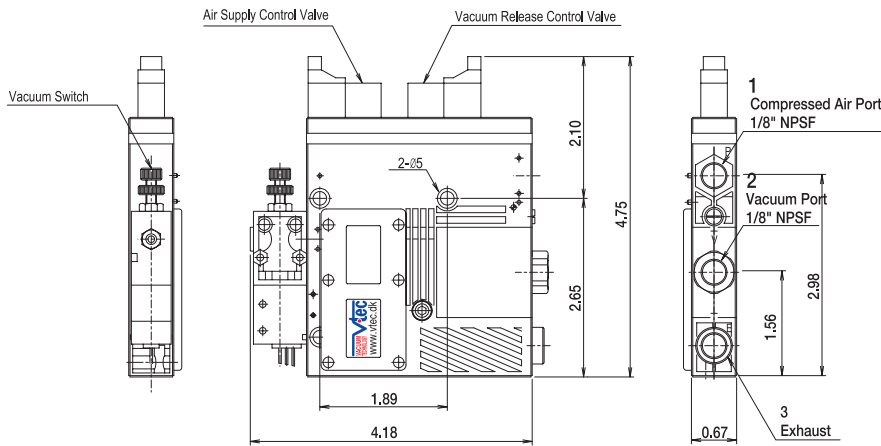


[Measure unit : inch]

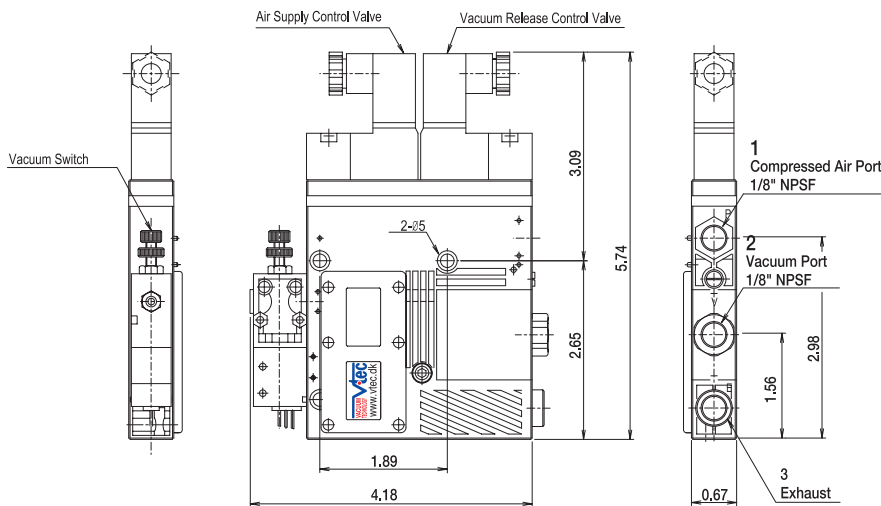
VACUUM PUMPS

Dimensional Information

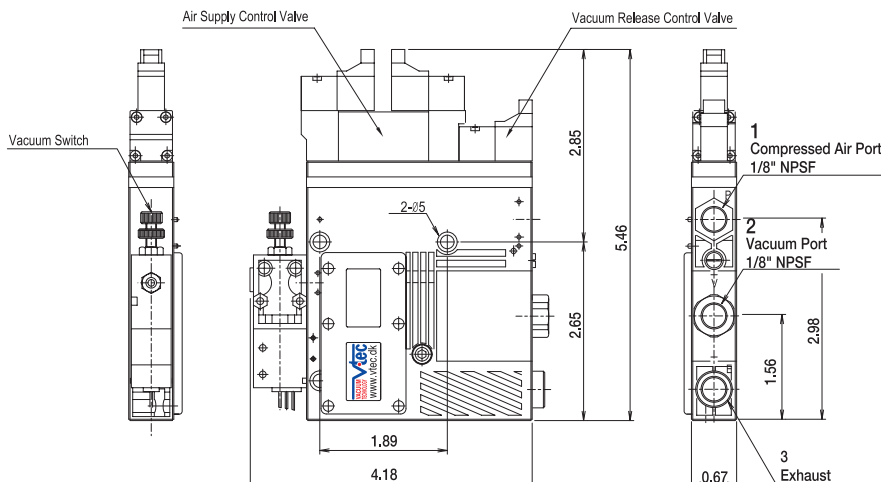
**Single unit
Control valve Connector type / Mechanical vacuum switch**



**Single unit
Control valve DIN type / Mechanical vacuum switch**



**Single unit
Control valve double solenoid type / Mechanical vacuum switch**

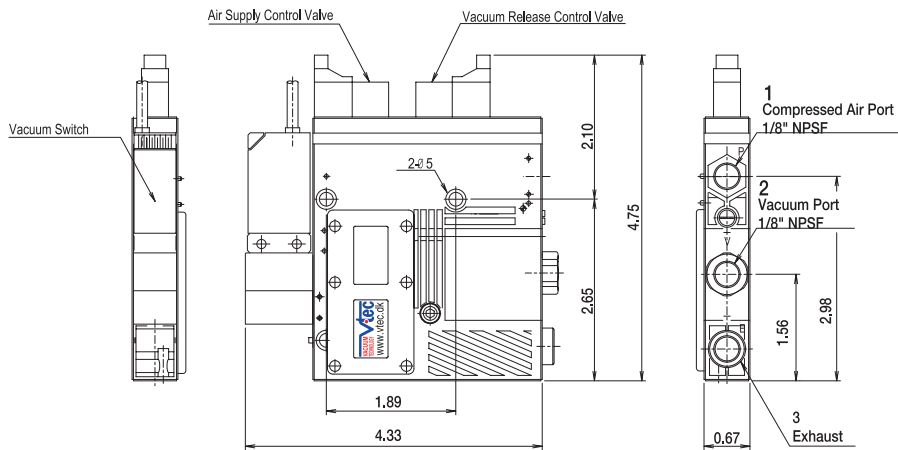


[Measure unit : inch]

Dimensional Information

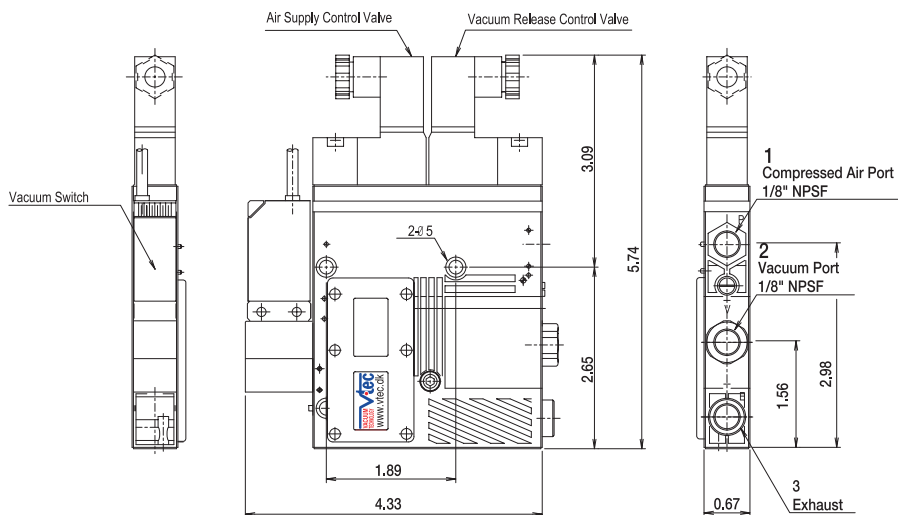
Single unit

Control valve Connector type / Flashing lamp display vacuum switch



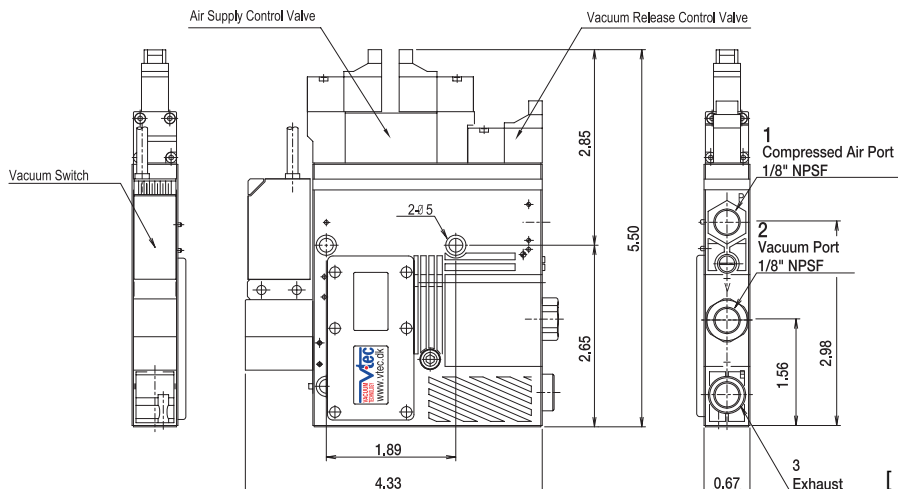
Single unit

Control valve DIN type / Flashing lamp display vacuum switch



Single unit

Control valve double solenoid type / Flashing lamp display vacuum switch

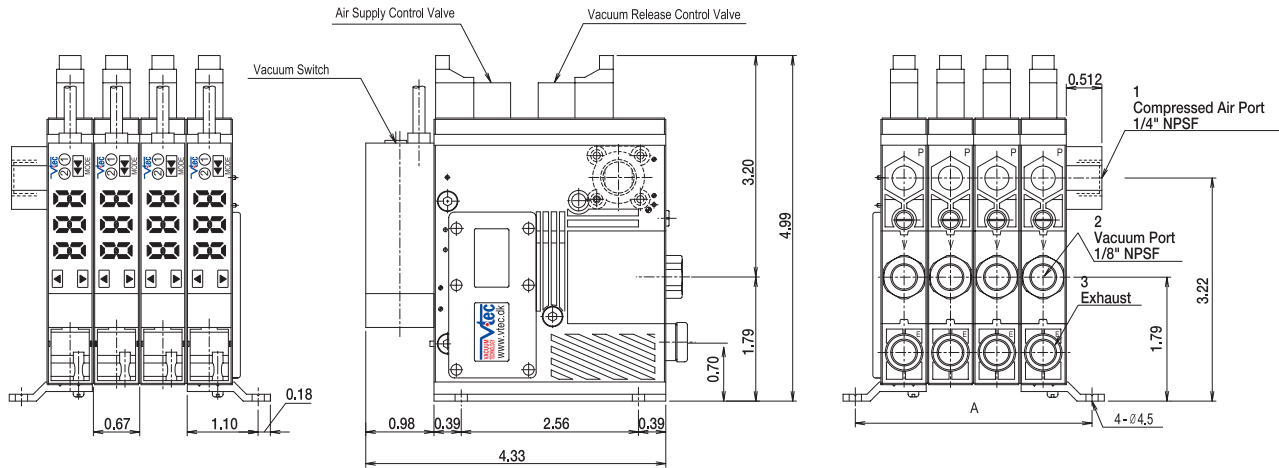


[Measure unit : inch]

Dimensional Information

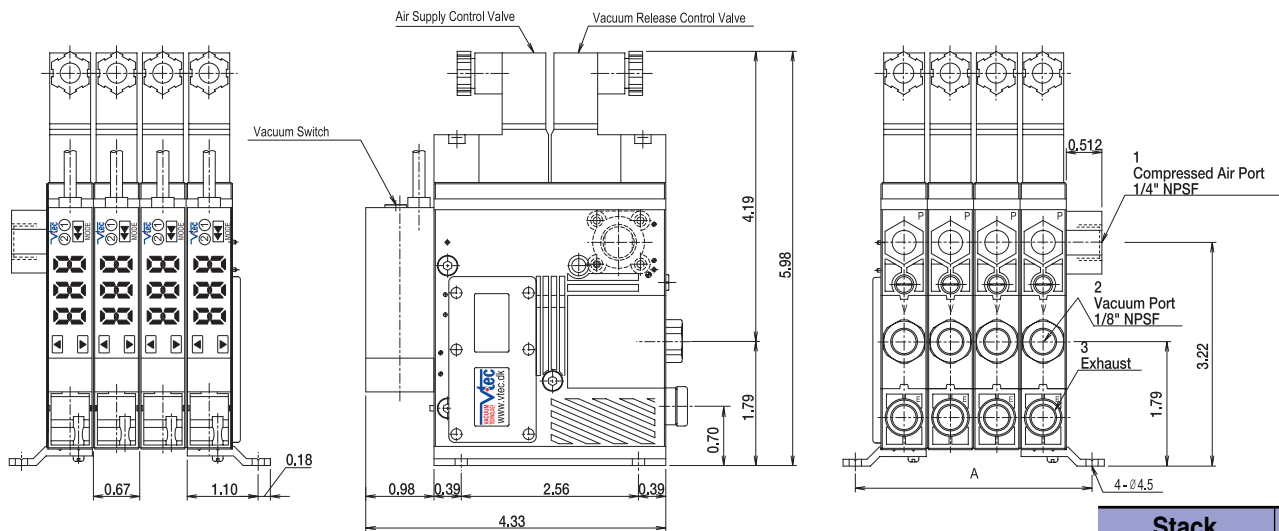
Manifold unit

Control valve Connector type / Digital vacuum switch



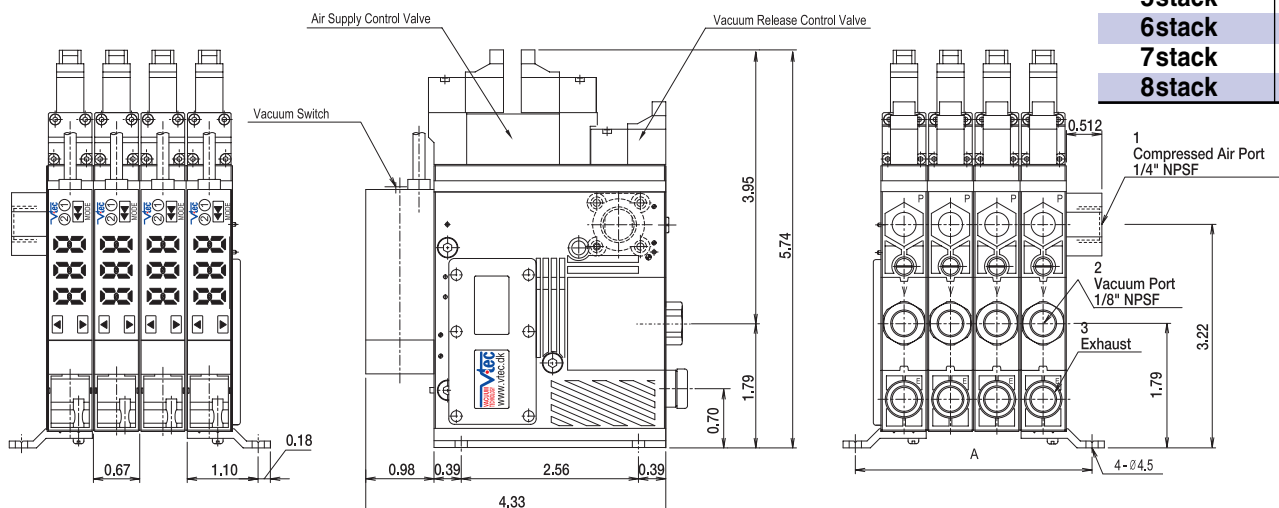
Manifold unit

Control valve DIN type / Digital vacuum switch



Manifold unit

Control valve double solenoid type / Digital vacuum switch

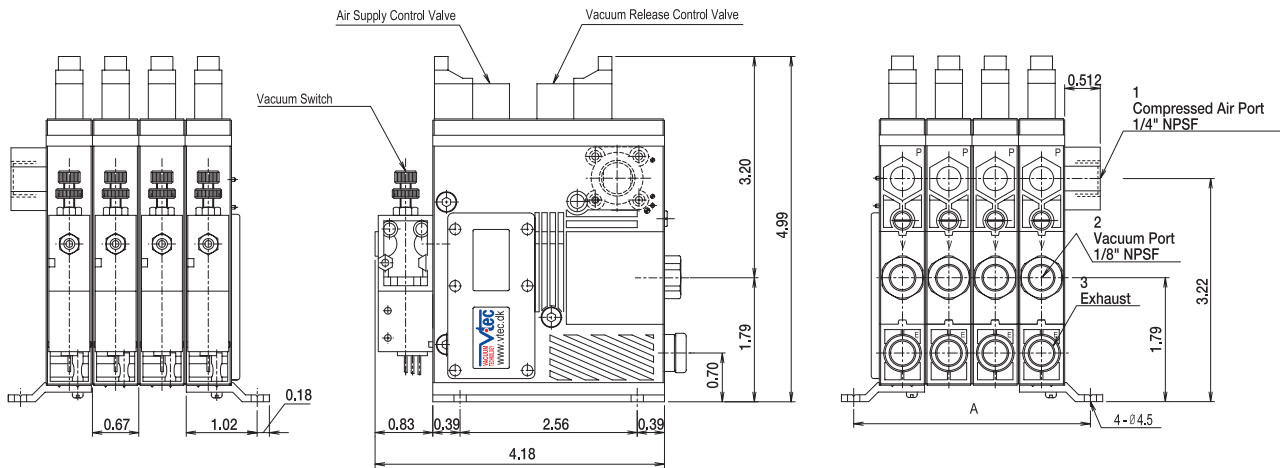


Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

Dimensional Information

Manifold unit

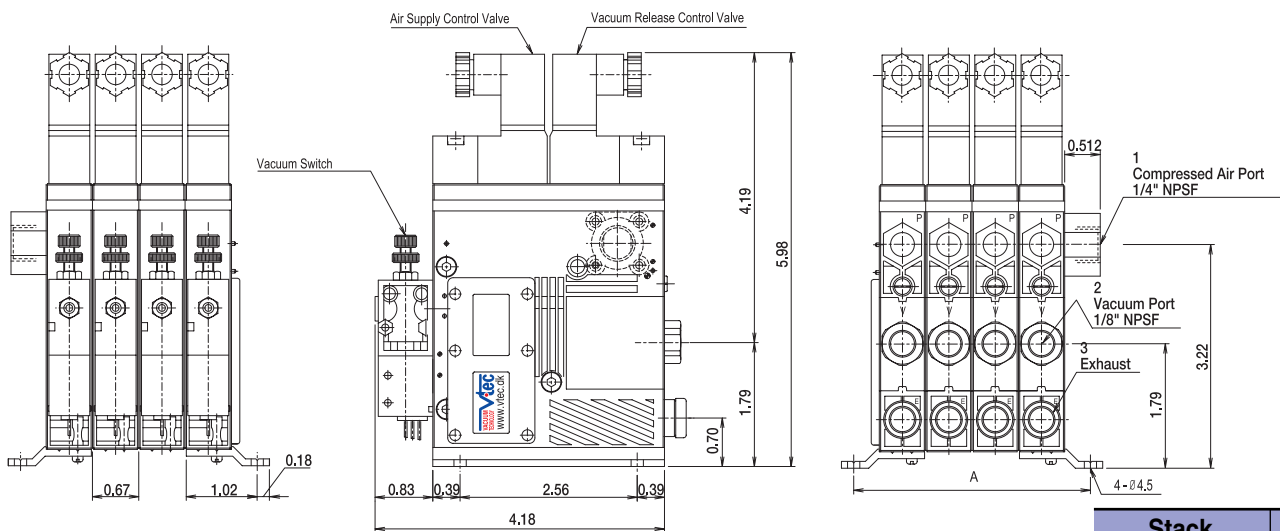
Control valve Connector type / Mechanical vacuum switch



Manifold unit

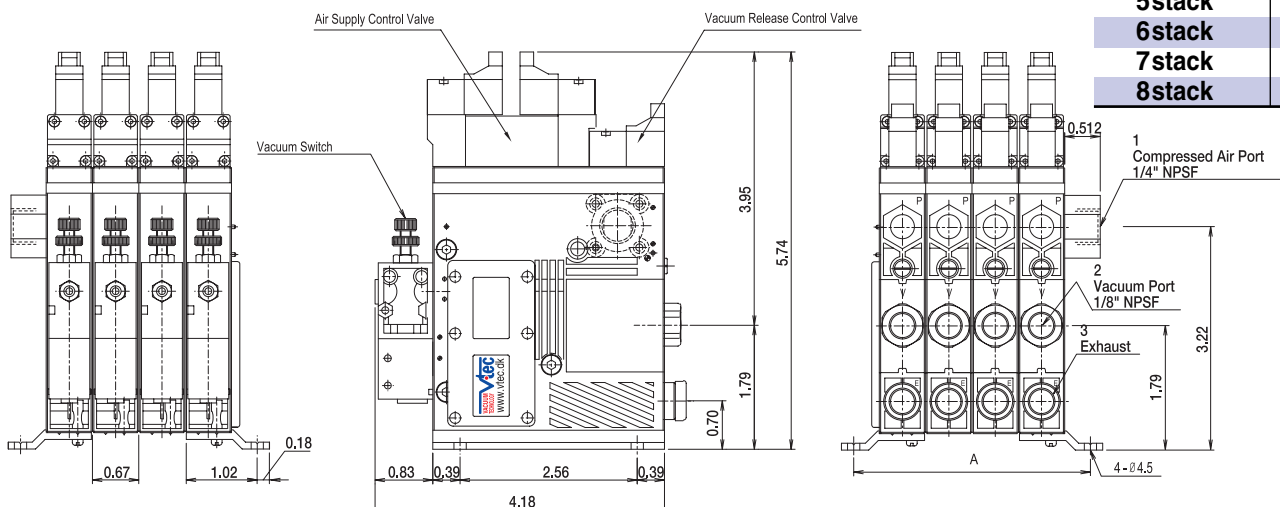
Control valve DIN type / Mechanical vacuum switch

[Measure unit : inch]



Manifold unit

Control valve double solenoid type / Mechanical vacuum switch

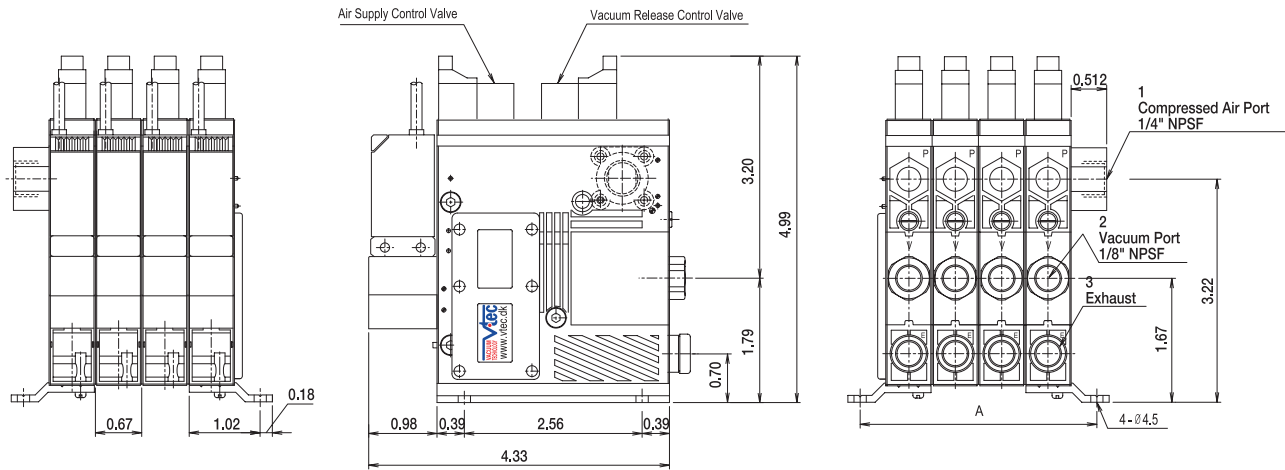


Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

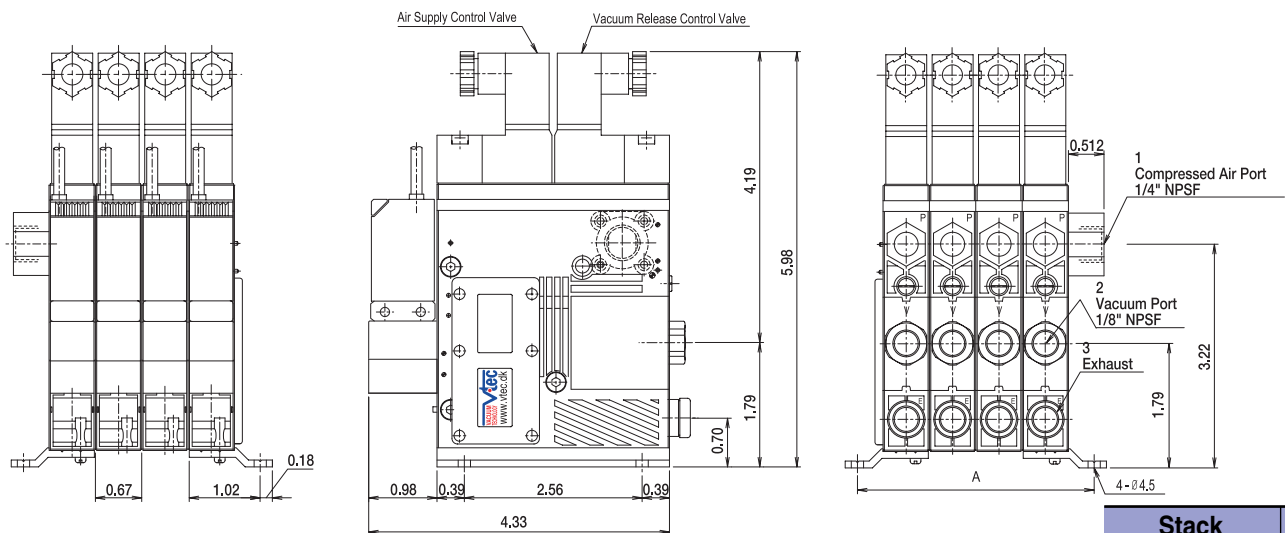
VACUUM PUMPS

Dimensional Information

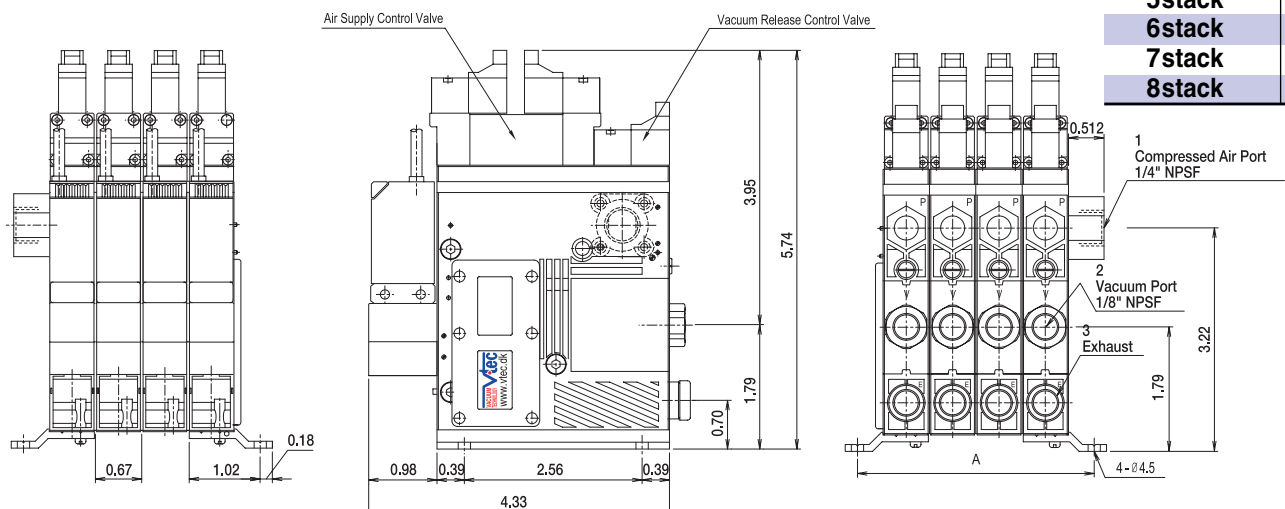
Manifold unit Control valve Connector type / Flashing lamp display vacuum



Manifold unit [Measure unit : inch] Control valve DIN type / Flashing lamp display vacuum switch



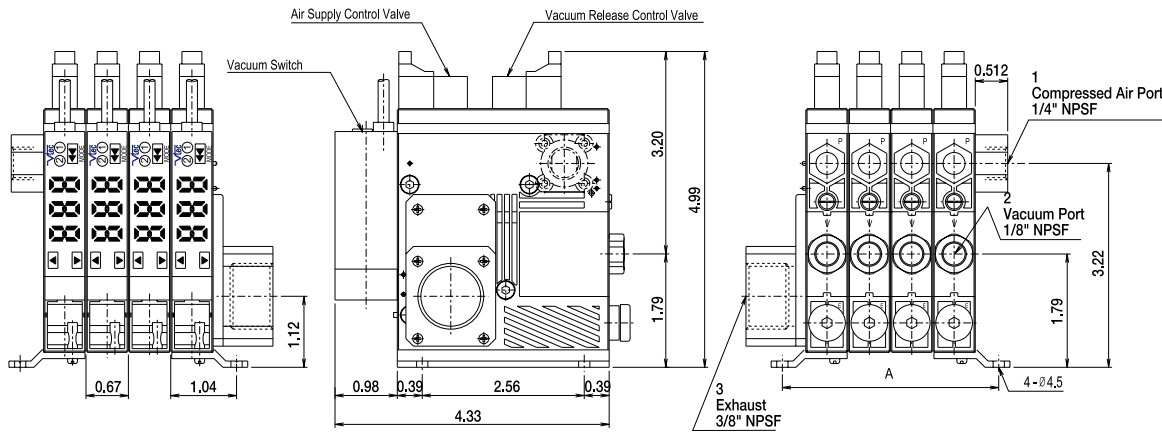
Manifold unit Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

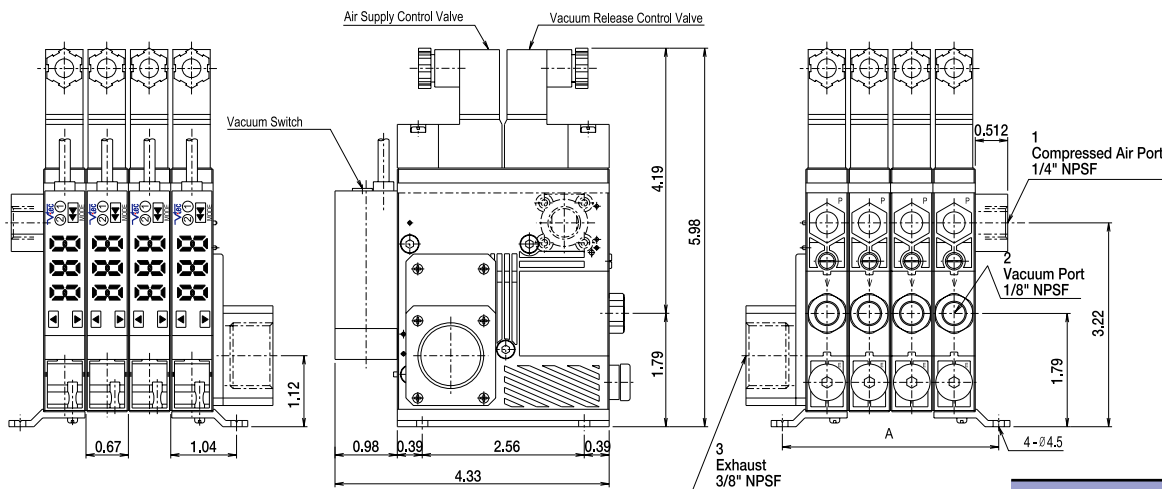
Dimensional Information

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

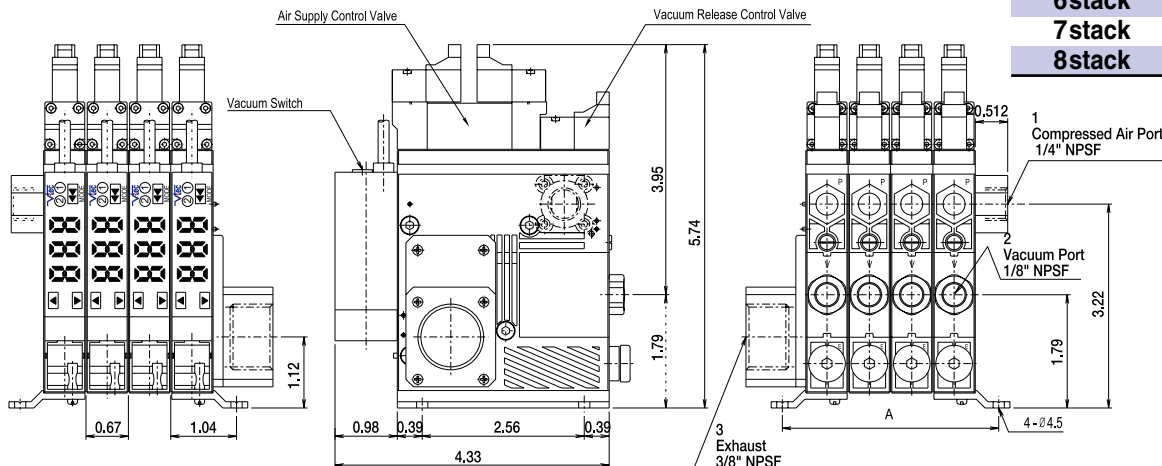


Manifold unit with central exhaust Control valve DIN type / Digital vacuum switch

[Measure unit : inch]



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

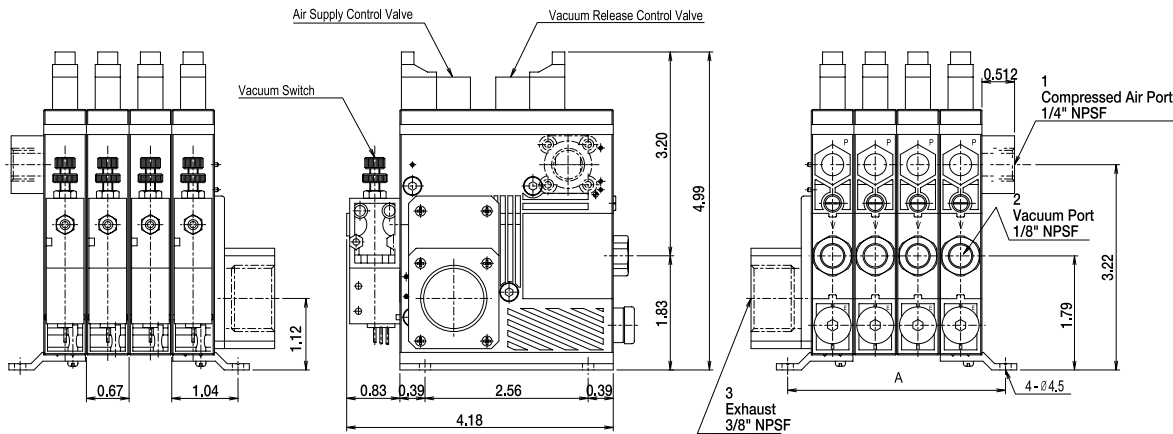


Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

Dimensional Information

Manifold unit with central exhaust

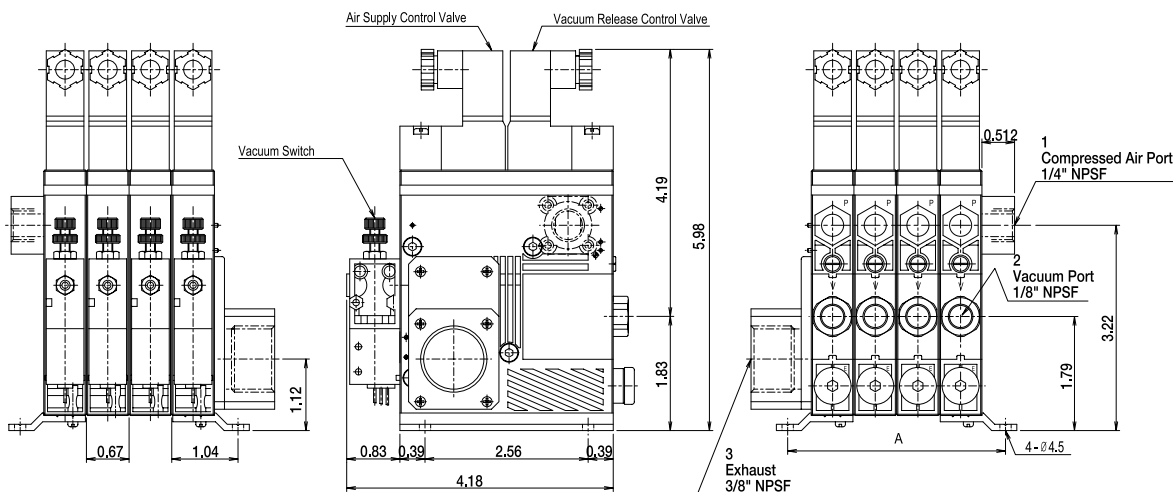
Control valve Connector type / Mechanical vacuum switch



Manifold unit with central exhaust

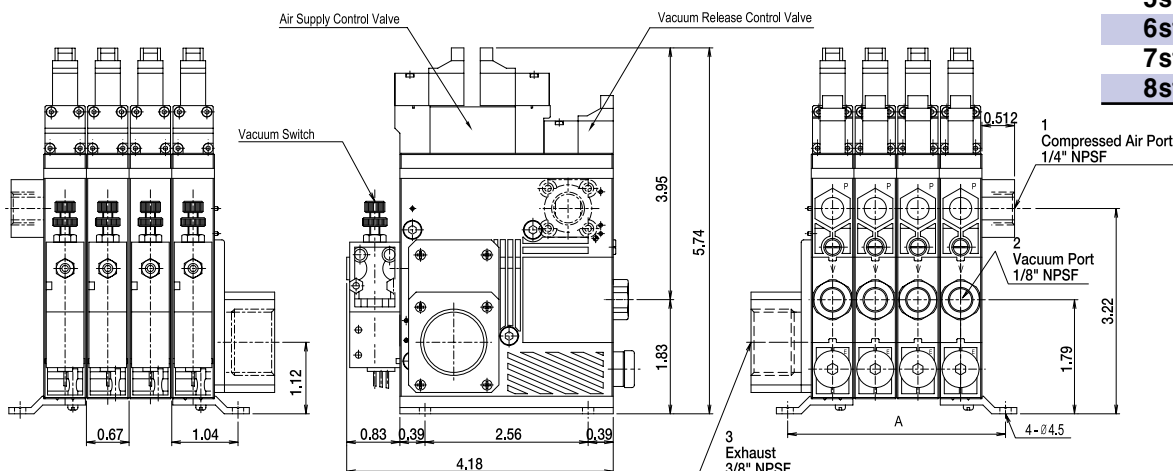
[Measure unit : inch]

Control valve DIN type / Mechanical vacuum switch



Manifold unit with central exhaust

Control valve double solenoid type / Mechanical vacuum switch

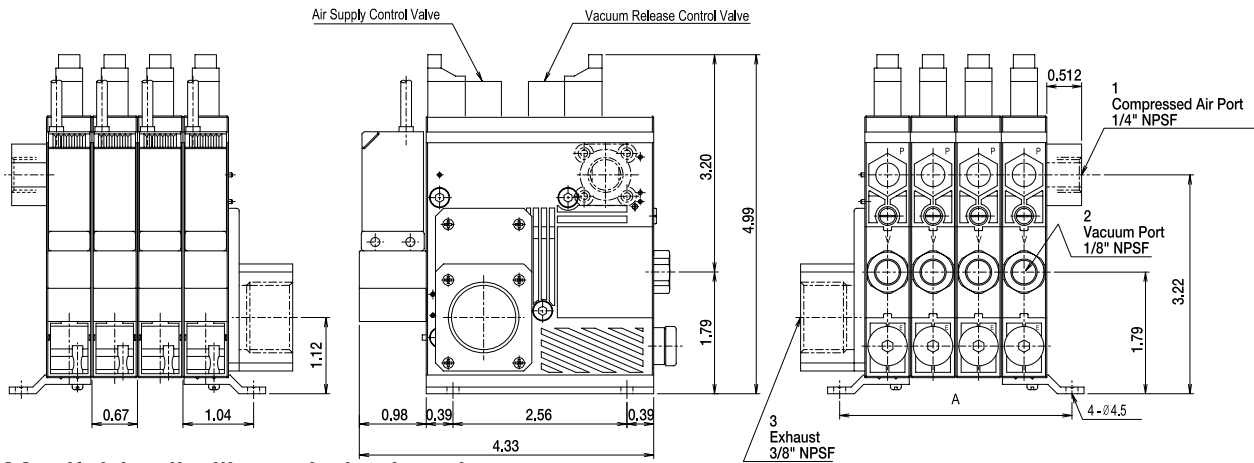


Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

Dimensional Information

Manifold unit with central exhaust

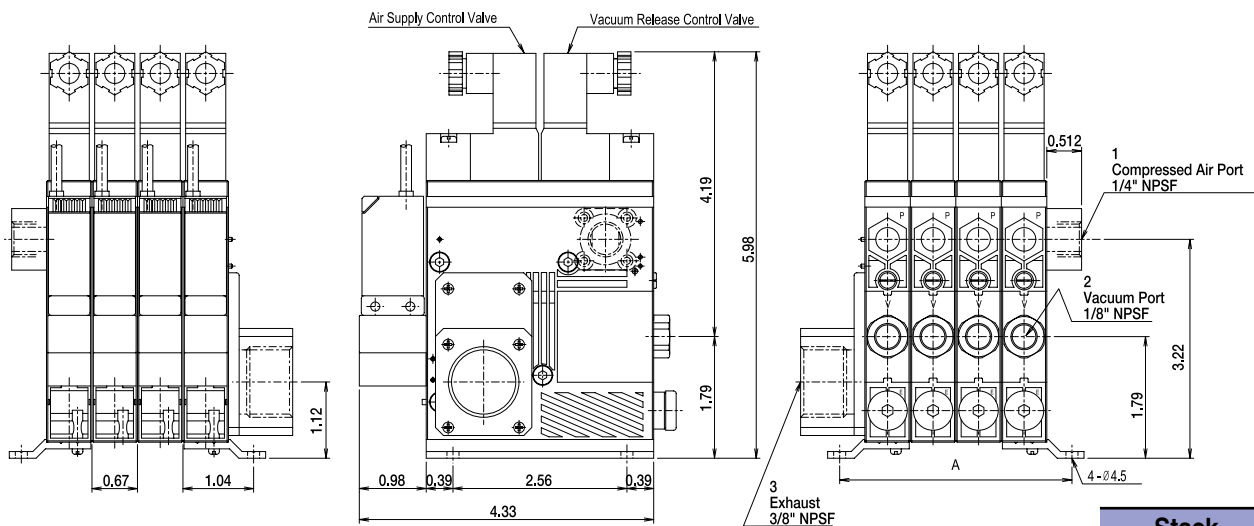
Control valve Connector type / Flashing lamp display vacuum switch



Manifold unit with central exhaust

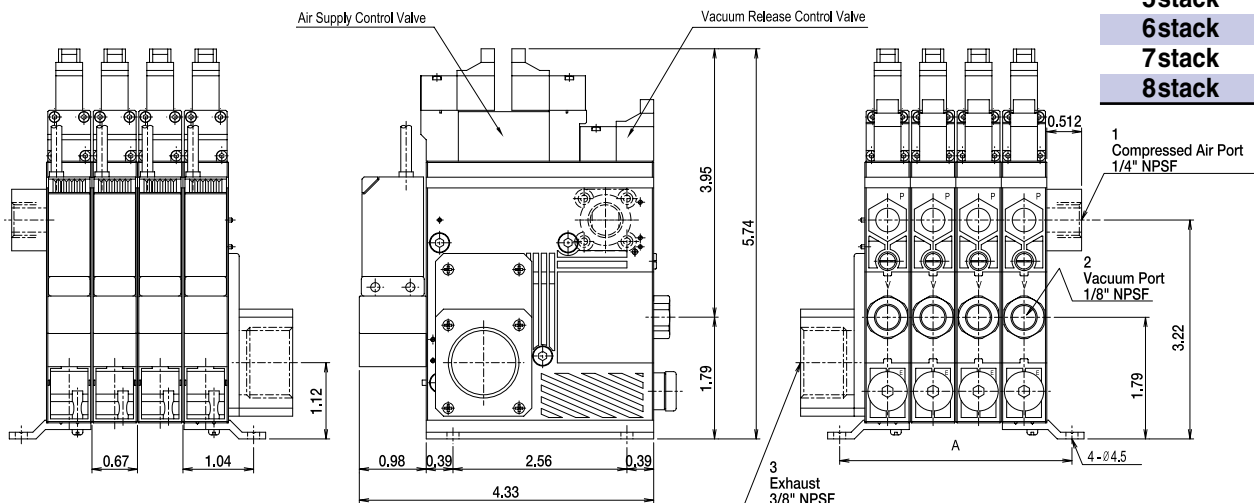
Control valve DIN type / Flashing lamp display vacuum switch

[Measure unit : inch]



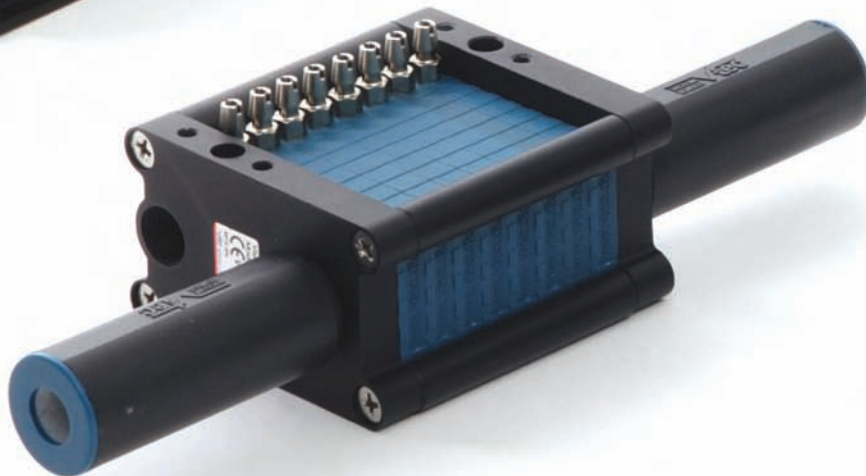
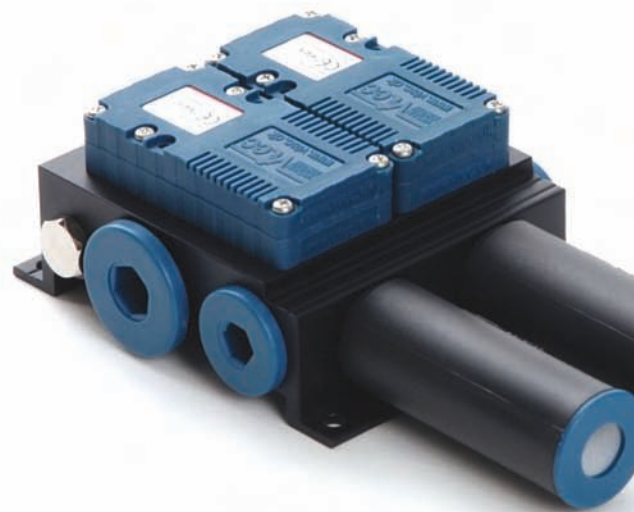
Manifold unit with central exhaust

Control valve double solenoid type / Flashing lamp display vacuum switch



Stack	A (inch)
2stack	2.08
3stack	2.75
4stack	3.42
5stack	4.09
6stack	4.76
7stack	5.43
8stack	6.09

VACUUM PUMPS

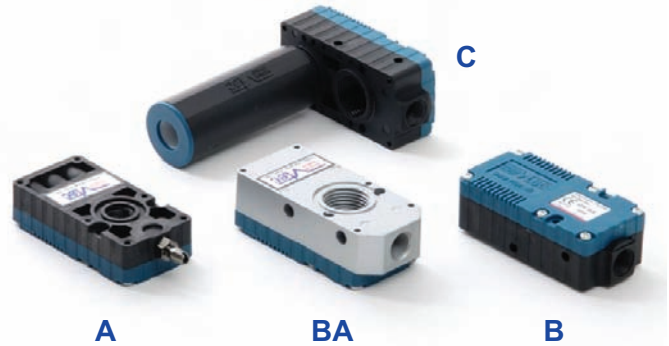


MINI PUMPS



M-Mini Pump

- Max. vacuum level : **-25.1 inHg** (-85 kPa)
- Max. flow rate : **7.77 scfm**(220 NI/min)
- Supply air pressure : **58~87 psi, Max 101.5 psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - NB 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
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

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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM5	25.1	1,31	0,53-0,75	50 - 65	-	>2	>5	>8
VTM10		2,62	1,06-1,49	55 - 68	-	>2	>8	>10
VTM20		5,27	2,12-2,96	60 - 68	-	>4	>10	>12
VTM30		7,77	3,18-4,45	60 - 68	-	>6	>12	>15

* Remarks : type weight = VTM5-A(B,BA,NBA,C,NC) : 0.92oz.(1.06, 1.97, 1.06, 1.48, 1.48)
 VTM10-A(B,BA,NBA,C,NC) : 0.99oz.(1.13, 2.04, 1.13, 2.04, 1.55, 1.55)
 VTM20-B(BA,NB,NBA,C,NC) : 1.45oz.(2.78, 1.45, 2.78, 1.87, 1.87)
 VTM30-B(BA,NB,NBA,C,NC) : 2.17oz.(3.45, 2.17, 3.45, 2.54, 2.54)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

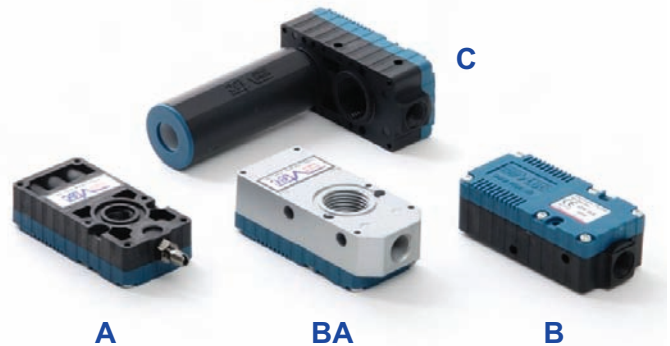
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
VTM5	1,31	0,92	0,57	0,50	0,36	0,29	0,22	0,09	0,03
VTM10	2,62	1,84	1,10	0,99	0,71	0,57	0,43	0,17	0,05
VTM20	5,27	3,5	2,19	1,91	1,42	1,14	0,78	0,38	0,10
VTM30	7,77	5,2	3,25	2,58	2,12	1,66	1,14	0,57	0,15

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
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 : **-27.46 inHg** (-93 kPa)
- Max. flow rate : **6.53 scfm** (185 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 NB - A3 CL - S1 - V



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 : 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTX5	27,46	1,14	0,77-0,85	50 - 65	-	>2	>5	>8
VTX10		2,19	1,53-1,7	55 - 68	-	>2	>8	>10
VTX20		4,38	3,06-3,4	63 - 68	-	>4	>10	>12
VTX30		6,54	4,58-5,09	60 - 68	-	>6	>12	>15

* Remarks : type weight = VTX5-A(B,BA,NB,NBA,C,NC) : 0,92oz.(1,06, 1,97, 1,06, 1,48, 1,48)
 VTX10-A(B,BA,NB,NBA,C,NC) : 0,99oz.(1,13, 2,04, 1,13, 2,04, 1,55, 1,55)
 VTX20-B(BA,NB,NBA,C,NC) : 1,45oz.(2,78, 1,45, 2,78, 1,87, 1,87)
 VTX30-B(BA,NB,NBA,C,NC) : 2,17oz.(3,45, 2,17, 3,45, 2,54, 2,54)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

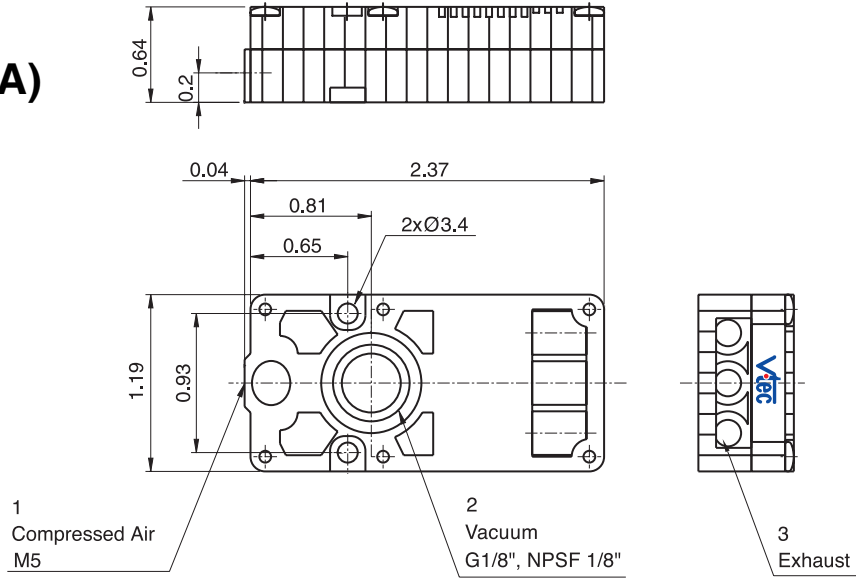
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VTX5	1,14	0,64	0,32	0,29	0,25	0,22	0,18	0,110	0,05
VTX10	2,19	1,28	0,64	0,57	0,5	0,39	0,32	0,22	0,09	0,04
VTX20	4,38	2,55	1,24	1,14	0,96	0,78	0,64	0,43	0,17	0,07
VTX30	6,54	3,82	1,84	1,66	1,45	1,17	0,92	0,64	0,26	0,1

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
	VTX5	0,258	0,796	1,156	2,4	3,56	4,91	6,896	10,16
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

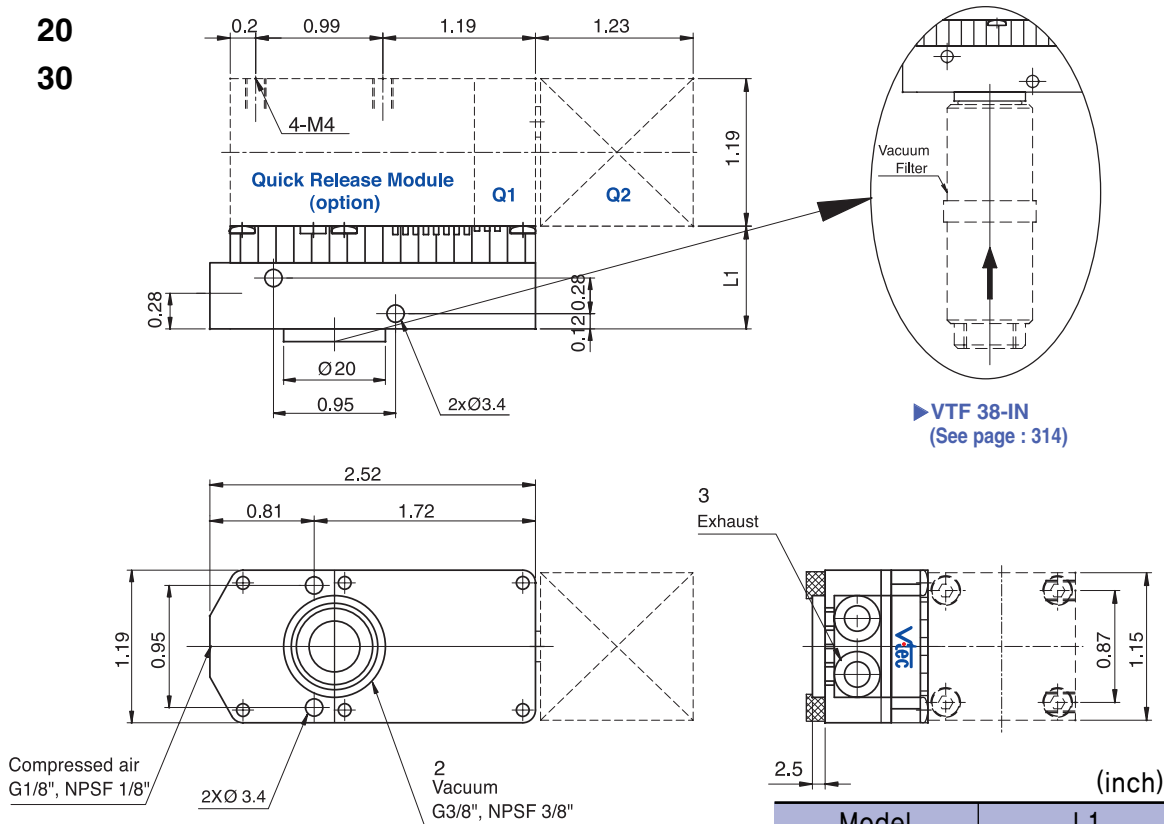
Dimensional Information

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



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

20
30



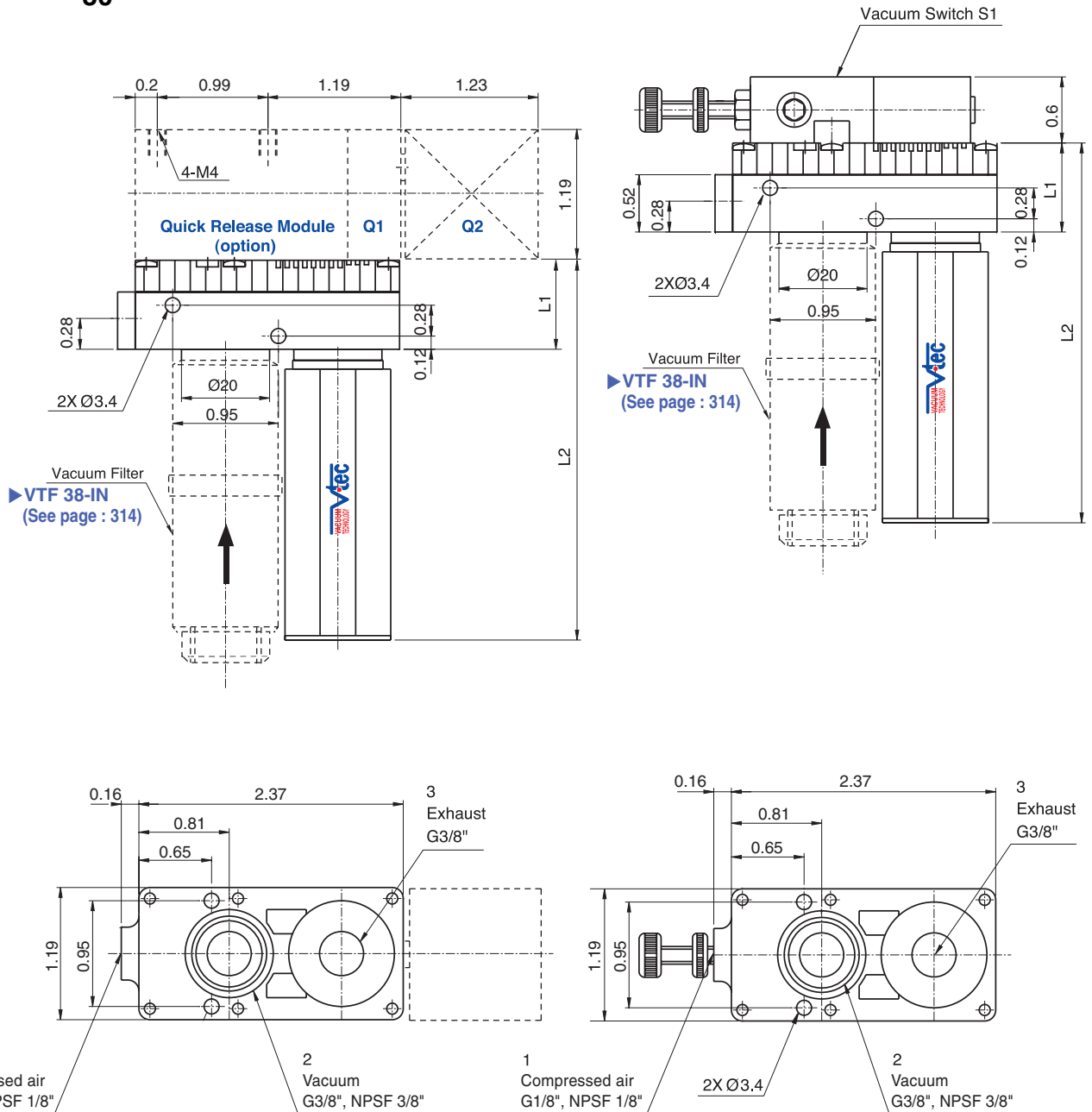
[Measure unit : inch]

Model	L1
VTM(X)5	0,8
VTM(X)10	0,8
VTM(X)20	1,08
VTM(X)30	1,37

Dimensional Information

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

with switch S1



[Measure unit : inch]

	(inch)	
Model	L1	L2
VTM(X)5	0.8	3.4
VTM(X)10	0.8	3.4
VTM(X)20	1.08	3.68
VTM(X)30	1.37	3.97

VACUUM PUMPS

One-Line Pump

- Max. vacuum level** : VTOX pump -27.46 inHg (-93kPa)
VTOM pump -25.1 inHg (-85kPa)
- Max. flow rate** : VTOX pump 1.13 scfm x N Stack
VTOM pump 1.23 scfm x N Stack (35 NI/min x N Stack)
- Supply air pressure** : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F ~ 176 °F
- 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 N6 - A3 R3 - CL - V



① Model-Vacuum Flow

- **VTOX5** - 0.85 scfm
- VTOM5 - 0.95 scfm
- **VTOX10** - 1.13 scfm
- VTOM10 - 1.24 scfm

③ Air supply control valve

- A1 - AC110V
- A2 - AC220V
- **A3** - 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'**
(See page : 336, 337)

② Vacuum Stack

- N4 - 4 stack
- N5 - 5 stack
- **N6** - 6 stack
- N7 - 7 stack
- N8 - 8 stack
- N9 - 9 stack
- N10 - 10 stack
- N11 - 11 stack
- N12 - 12 stack
- N13 - 13 stack
- N14 - 14 stack
- N15 - 15 stack
- N16 - 16 stack

④ Vacuum release control Valves

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

※ Remark :

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

⑥ Sealing

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

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)/each stack	air consumption (scfm)/each stack	noise level (dBA)	weight (oz.) each stack	min hose inner \varnothing (within 6.5ft.)	
						air supply	vacuum
VTOX5	27.46	0.85	0.76~0.85	55~65	1.31	> 8~10	> 2.5
VTOX10		1.13	1.53~1.70	60~65	1.31	> 8~12	> 2.5
VTOM5	25.1	0.95	0.53~0.74	55~65	1.31	> 8~10	> 2.5
VTOM10		1.24	1.06~1.48	60~65	1.31	> 8~12	> 2.5

※ Remark : unit weight (16.8 OZ. + each stack weight)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

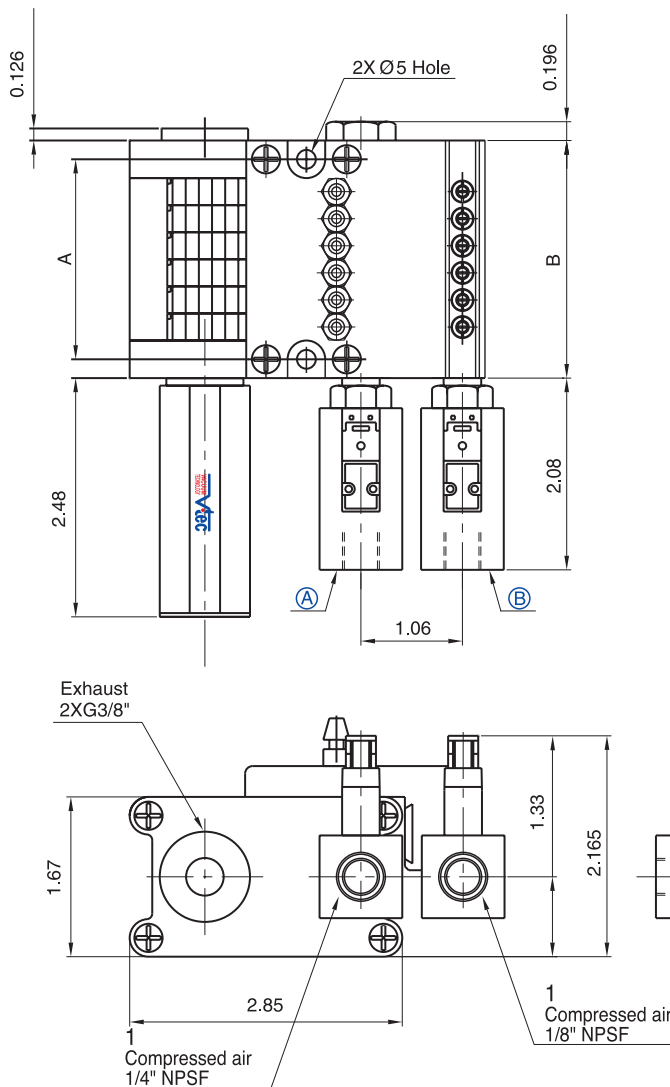
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VTOX5	0.85	0.46	0.32	0.28	0.25	0.18	0.14	0.10	0.04
VTOX10	1.13	0.74	0.60	0.53	0.49	0.39	0.32	0.19	0.08	0.03
VTOM5	0.95	0.57	0.46	0.42	0.39	0.28	0.21	0.08	0.02	
VTOM10	1.24	1.02	0.88	0.81	0.67	0.57	0.42	0.17	0.05	

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
	VTOX5	0,277	0,848	1,619	2,688	3,889	5,46	7,45	13,95
VTOX10	0,187	0,508	0,912	1,388	1,989	2,65	3,64	5,29	9,79
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

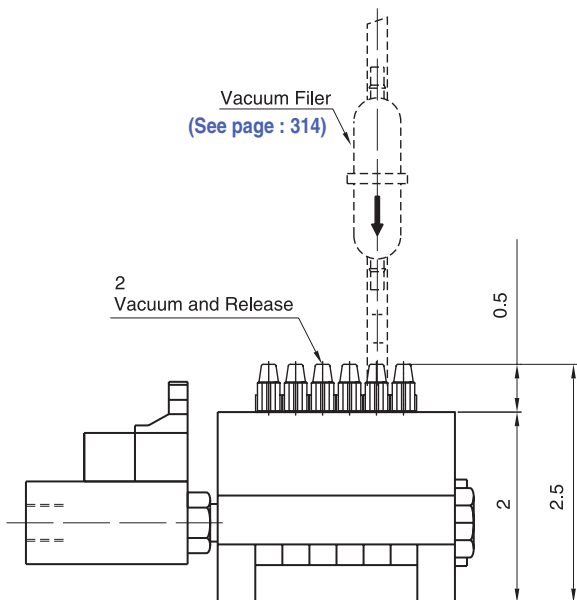
**VTOX 5
10**



(inch)

VTOX 5,10	A	B
4 stack	1.51	1.90
5 stack	1.79	2.19
6 stack	2.09	2.48
7 stack	2.36	2.76
8 stack	2.66	3.05
9 stack	2.94	3.34
10 stack	3.23	3.62
11 stack	3.48	3.88
12 stack	3.78	4.17
13 stack	4.06	4.46
14 stack	4.37	4.76
15 stack	4.65	5.04
16 stack	4.93	5.35

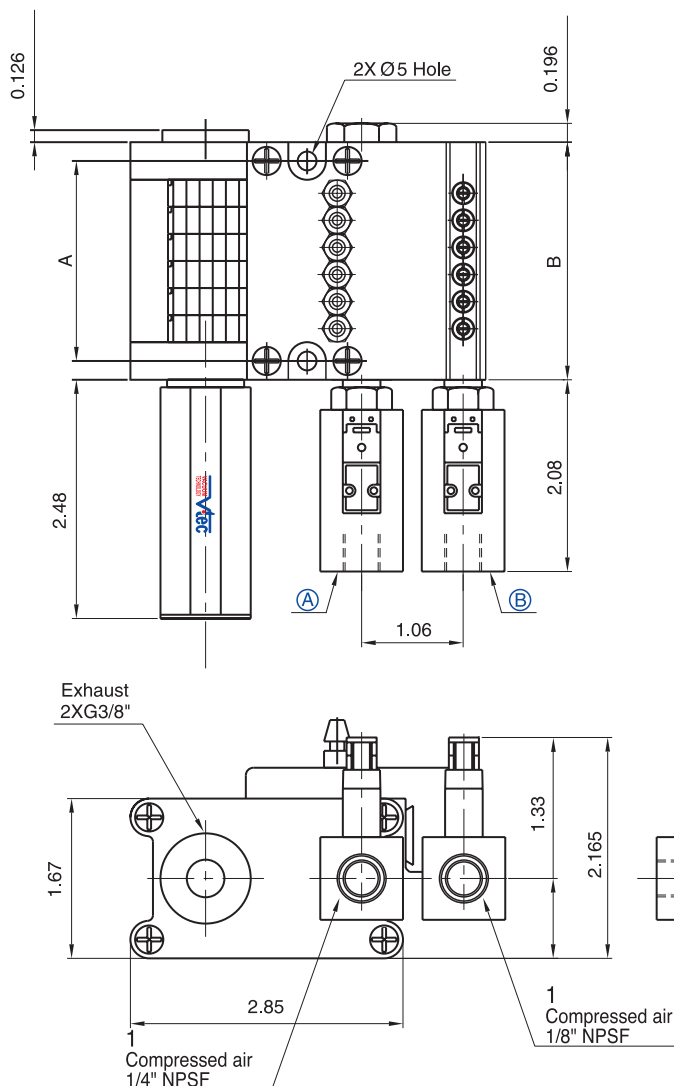
Remark : (A) - Air supply (vacuum) control vavle
(B) - Vacuum release control valve



[Measure unit : inch]

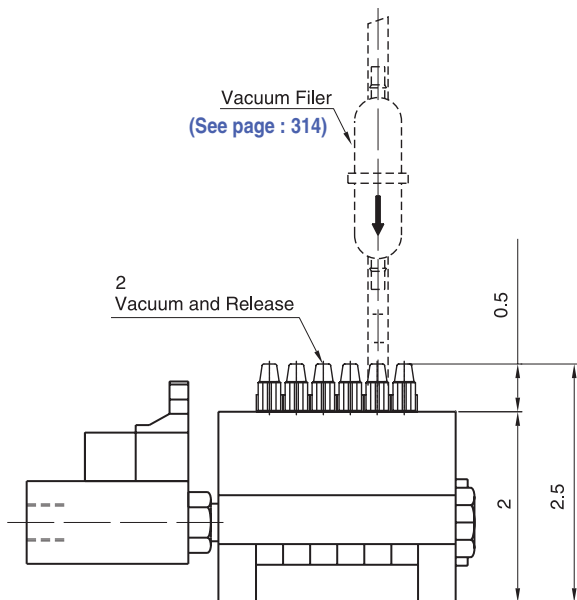
Dimensional Information

VTOM 5 10



	(inch)	
VTOM 5,10	A	B
4 stack	1.51	1.90
5 stack	1.79	2.19
6 stack	2.09	2.48
7 stack	2.36	2.76
8 stack	2.66	3.05
9 stack	2.94	3.34
10 stack	3.23	3.62
11 stack	3.48	3.88
12 stack	3.78	4.17
13 stack	4.06	4.46
14 stack	4.37	4.76
15 stack	4.65	5.04
16 stack	4.93	5.35

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



[Measure unit : inch]

M-Minimultiple Pump

- Max. vacuum level** : -25.1 inHg (-85kPa)
- Max. flow rate** : 1.23 scfm x N stack (351 NI/min x N Stack)
- Supply air pressure** : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F ~ +176 °F
- 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 N6 - A3 CL - 4 - V

- ①
- ②
- ③
- ④
- ⑤
- ⑥

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**

- N2 – 2 stack N10 – 10 stack
- N3 – 3 stack N11 – 11 stack
- N4 – 4 stack N12 – 12 stack
- N5 – 5 stack N13 – 13 stack
- **N6** – 6 stack N14 – 14 stack
- N7 – 7 stack N15 – 15 stack
- N8 – 8 stack N16 – 16 stack
- N9 – 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM5x2stack	25.1	0,95X2	1,06–1,48	55–60	2,36	> 2	> 2,5	3/8" x1
VTM5x3stack		0,95X3	1,59–2,22	55–60	2,82	> 2	> 2,5	3/8" x1
VTM5x4stack		0,95X4	2,12–2,97	55–60	8,71	> 4	> 2,5	3/8" x1
VTM5x5stack		0,95X5	2,65–3,71	60–65	8,99	> 4	> 2,5	3/8" x1
VTM5x6stack		0,95X6	3,18–4,45	60–65	9,91	> 4	> 2,5	3/8" x1
VTM5x7stack		0,95X7	3,71–5,19	60–65	10,54	> 4	> 2,5	3/8" x1
VTM5x8stack		0,95X8	4,24–5,93	60–65	11,18	> 6	> 2,5	3/8" x1
VTM5x9stack		0,95X9	4,77–6,67	60–65	11,81	> 6	> 2,5	3/8" x1
VTM5x10stack		0,95X10	5,30–7,42	60–65	12,45	> 6	> 2,5	3/8" x1
VTM5x11stack		0,95X11	5,83–8,16	60–65	13,08	> 6	> 2,5	3/8" x1
VTM5x12stack		0,95X12	6,36–8,90	60–65	13,72	> 6	> 2,5	3/8" x2
VTM5x13stack		0,95X13	6,89–9,64	60–65	14,7	> 6	> 2,5	3/8" x2
VTM5x14stack		0,95X14	7,42–10,38	60–65	15,34	> 8	> 2,5	3/8" x2
VTM5x15stack		0,95X15	7,95–11,12	60–65	15,97	> 10	> 2,5	3/8" x2
VTM5x16stack		0,95X16	8,48–11,87	60–65	16,61	> 10	> 2,5	3/8" x2
VTM10x2stack		25.1	1,24X2	2,12–2,97	55–60	2,36	> 4	> 4
VTM10x3stack	1,24X3		3,18–4,45	60–65	2,82	> 4	> 4	3/8" x1
VTM10x4stack	1,24X4		4,24–5,93	60–65	8,71	> 6	> 4	3/8" x1
VTM10x5stack	1,24X5		5,30–7,42	60–65	8,99	> 6	> 4	3/8" x1
VTM10x6stack	1,24X6		6,36–8,90	60–65	9,91	> 6	> 4	3/8" x2
VTM10x7stack	1,24X7		7,42–10,38	60–65	10,54	> 8	> 4	3/8" x2
VTM10x8stack	1,24X8		8,48–11,87	60–65	11,53	> 8	> 4	3/8" x2
VTM10x9stack	1,24X9		9,54–13,35	60–65	12,16	> 10	> 4	3/8" x2
VTM10x10stack	1,24X10		10,60–14,83	60–65	12,8	> 10	> 4	3/8" x2
VTM10x11stack	1,24X11		11,65–16,32	60–65	13,43	> 10	> 4	3/8" x2
VTM10x12stack	1,24X12		12,71–17,80	60–65	14,07	> 10	> 4	3/8" x2

VACUUM PUMPS

Vacuum flow in (scfm) at different Vacuum level (-inHg)

-inHg \ Model	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
VTM5x1stack	0,95	0,57	0,46	0,42	0,39	0,28	0,21	0,08	0,02
VTM10x1 stack	1,24	1,02	0,88	0,81	0,67	0,57	0,42	0,17	0,05

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

-inHg \ Model	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
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 : **-27.46 inHg** (-93 kPa)
- Max. flow rate : **1.13scfm x N stack** (32 NI/min x N stack)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- Noise level : 55~65 dBA



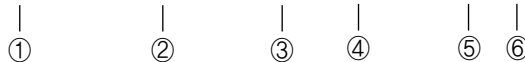
Main Advantages

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 N6 - A3 CL - 4 V



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

- N2** – 2 stack **N10** – 10 stack
- N3** – 3 stack **N11** – 11 stack
- N4** – 4 stack **N12** – 12 stack
- N5** – 5 stack **N13** – 13 stack
- **N6** – 6 stack **N14** – 14 stack
- N7** – 7 stack **N15** – 15 stack
- N8** – 8 stack **N16** – 16 stack
- N9** – 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 : 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)

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTX5x2stack	27,46	0,85X2	1,53-1,7	55-60	2,36	>2	>2,5	3/8"X1
VTX5x3stack		0,85X3	2,29-2,55	55-60	2,82	>2	>2,5	3/8"X1
VTX5x4stack		0,85X4	2,98-3,4	60-63	8,71	>4	>2,5	3/8"X1
VTX5x5stack		0,85X5	3,82-4,24	60-63	8,99	>4	>2,5	3/8"X1
VTX5x6stack		0,85X6	4,58-5,09	60-63	9,91	>4	>2,5	3/8"X1
VTX5x7stack		0,85X7	5,34-5,94	60-63	10,55	>4	>2,5	3/8"X1
VTX5x8stack		0,85X8	6,11-6,79	60-63	11,18	>6	>2,5	3/8"X1
VTX5x9stack		0,85X9	6,87-7,63	60-63	11,81	>6	>2,5	3/8"X1
VTX5x10stack		0,85X10	7,63-8,48	60-63	12,45	>6	>2,5	3/8"X1
VTX5x11stack		0,85X11	8,4-9,33	60-63	13,09	>6	>2,5	3/8"X1
VTX5x12stack		0,85X12	9,16-10,18	60-63	13,72	>6	>2,5	3/8"X2
VTX5x13stack		0,85X13	9,92-11,02	60-63	14,71	>6	>2,5	3/8"X2
VTX5x14stack		0,85X14	10,68-11,87	60-63	15,34	>8	>2,5	3/8"X2
VTX5x15stack		0,85X15	11,45-12,72	60-63	15,98	>10	>2,5	3/8"X2
VTX5x16stack		0,85X16	12,21-13,57	60-63	16,61	>10	>2,5	3/8"X2
VTX10x2stack		27,46	1,14X2	3,06-3,4	60-63	2,36	>4	>4
VTX10x3stack	1,14X3		4,58-5,09	63-65	2,82	>4	>4	3/8"X1
VTX10x4stack	1,14X4		6,11-6,79	63-65	8,71	>6	>4	3/8"X1
VTX10x5stack	1,14X5		7,63-8,48	63-65	8,99	>6	>4	3/8"X1
VTX10x6stack	1,14X6		9,16-10,18	63-65	9,91	>6	>4	3/8"X2
VTX10x7stack	1,14X7		10,68-11,87	63-65	10,55	>6	>4	3/8"X2
VTX10x8stack	1,14X8		12,21-13,57	63-65	11,53	>8	>4	3/8"X2
VTX10x9stack	1,14X9		13,74-15,25	63-65	12,17	>10	>4	3/8"X2
VTX10x10stack	1,14X10		15,26-16,91	63-65	12,80	>10	>4	3/8"X2
VTX10x11stack	1,14X11		16,79-18,65	63-65	13,44	>10	>4	3/8"X2
VTX10x12stack	1,14X12		18,31-20,35	63-65	14,07	>10	>4	3/8"X2

VACUUM PUMPS

Vacuum flow in (scfm) at different Vacuum level (-inHg)

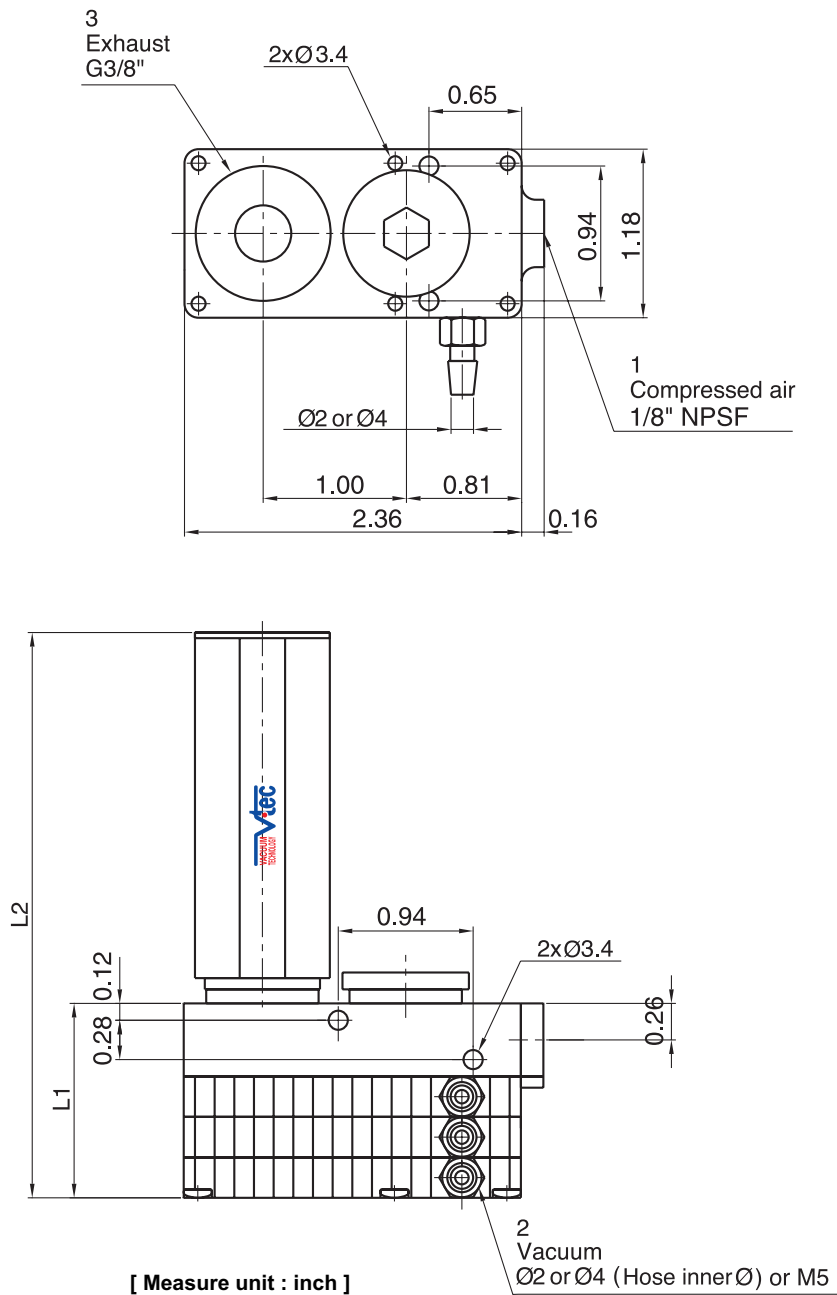
-inHg \ Model	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTX5x1stack	0,85	0,46	0,32	0,29	0,25	0,18	0,15	0,1	0,05	0,02
VTX10x1stack	1,14	0,75	0,61	0,53	0,5	0,39	0,32	0,2	0,09	0,04

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

-inHg \ Model	2.59	2.95	8.85	11.81	14.76	17.71	20.67	23.62	26.57
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

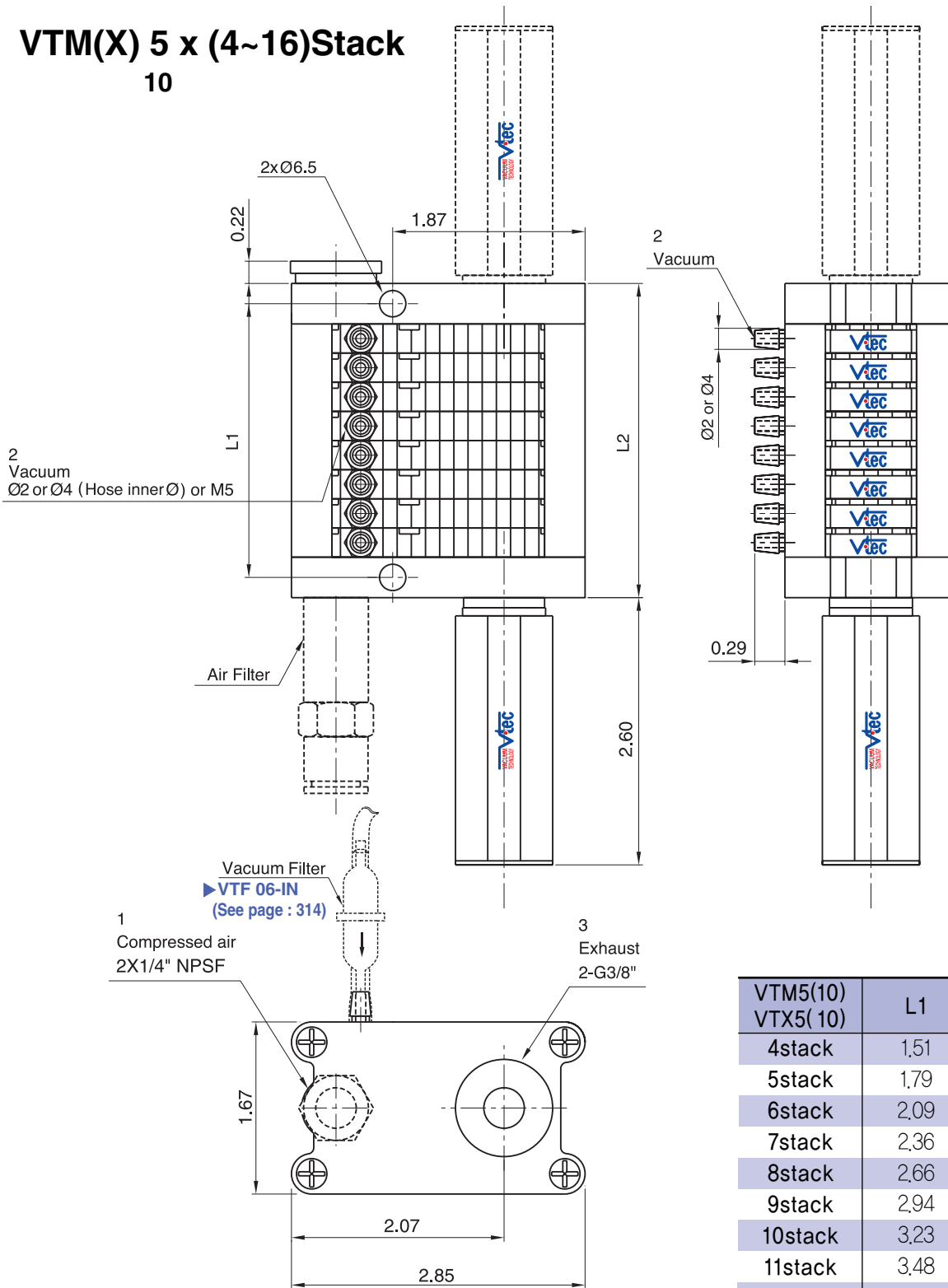


(inch)

	L1	L2
VTM5(10)		
VTX5(10)		
2stack	1.08	3.68
3stack	1.36	3.96

Dimensional Information

VTM(X) 5 x (4~16)Stack
10



[Measure unit : inch]

	(inch)	
	L1	L2
VTM5(10) VTX5(10)		
4stack	1.51	1.90
5stack	1.79	2.19
6stack	2.09	2.48
7stack	2.36	2.76
8stack	2.66	3.05
9stack	2.94	3.34
10stack	3.23	3.62
11stack	3.48	3.88
12stack	3.78	4.17
13stack	4.06	4.46
14stack	4.37	4.76
15stack	4.65	5.04
16stack	4.93	5.32

VACUUM PUMPS

M-Midimultiple Pump

- Max. vacuum level : **-25.1 inHg** (-85kPa)
- Max. flow rate : **7.77 scfm x N stack** (220 NI/min x N stack)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F~ 176 °F
- 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 - NB - 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)		min hose inner Ø (within 6.5ft)		
					B, NB	C, NC	air supply	vacuum	exhaust
VTM10x2	25.1	2.61x2	2.12-2.97	50-60	13.40	13.86	>4	>8	3/8" x2
VTM10x3		2.61x3	3.18-4.45	50-60	18.77	19.22	>6	>8	3/8" x3
VTM10x4		2.61x4	4.24-5.93	55-60	24.52	24.97	>6	>8	3/8" x4
VTM10x5		2.61x5	5.30-7.42	60-65	29.98	30.44	>6	>8	3/8" x5
VTM10x6		2.61x6	6.36-8.90	60-65	35.20	35.66	>8	>8	3/8" x6
VTM20x2		25.1	5.26x2	4.24-5.93	50-60	14.07	14.53	>6	>10
VTM20x3	5.26x3		6.36-8.90	55-60	19.75	20.21	>6	>10	3/8" x3
VTM20x4	5.26x4		8.48-11.87	60-65	25.93	26.38	>8	>10	3/8" x4
VTM20x5	5.26x5		10.60-14.8	60-65	31.71	32.17	>10	>10	3/8" x5
VTM20x6	5.26x6		12.71-17.80	60-68	37.32	37.78	>10	>10	3/8" x6
VTM30x2	25.1		7.77x2	6.36-8.90	55-60	14.85	15.31	>6	>12
VTM30x3		7.77x3	9.54-13.35	60-65	20.39	21.16	>8	>12	3/8" x3
VTM30x4		7.77x4	12.71-17.8	60-65	27.34	27.80	>10	>12	3/8" x4
VTM30x5		7.77x5	15.89-22.25	60-68	33.40	33.86	>10	>12	3/8" x5
VTM30x6		7.77x6	19.07-26.70	60-68	39.37	39.82	>10	>12	3/8" x6

* Remarks : BA(NBA)type weight = B type weight+(0.91 oz.Xstack)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
VTM10x1 Stack	2.61	1.84	0.99	0.99	0.71	0.57	0.42	0.17	0.05
VTM20x1 Stack	5.26	3.50	1.91	1.91	1.41	1.13	0.78	0.37	0.10
VTM30x1 Stack	7.77	5.19	2.58	2.58	2.12	1.66	1.13	0.57	0.14

VACUUM PUMPS

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
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 : **-27.46 inHg** (-93 kPa)
- Max. flow rate : **6.53 scfm x N stack** (185 NI/min x N stack)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - NB - 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)		min hose inner Ø (within 6.5ft.)		
					B,NB	C,NC	air supply	vacuum	exhaust
VTX10 x 2	27,46	2,19x2	3,06-3,4	50-60	13,40	13,87	>4	>8	3/8" x 2
VTX10 x 3		2,19x3	4,58-5,09	50-60	18,77	19,23	>6	>8	3/8" x 3
VTX10 x 4		2,19x4	6,11-6,79	55-60	24,52	24,98	>6	>8	3/8" x 4
VTX10 x 5		2,19x5	7,63-8,48	60-65	29,98	30,45	>6	>8	3/8" x 5
VTX10 x 6		2,19x6	9,16-10,18	60-65	35,20	35,67	>8	>8	3/8" x 6
VTX20 x 2		27,46	4,38x2	6,11-6,79	50-60	14,07	14,54	>6	>10
VTX20 x 3	4,38x3		9,16-10,18	55-60	19,75	20,22	>6	>10	3/8" x 3
VTX20 x 4	4,38x4		12,21-13,57	60-65	25,93	26,39	>8	>10	3/8" x 4
VTX20 x 5	4,38x5		15,26-16,96	60-65	31,72	32,17	>10	>10	3/8" x 5
VTX20 x 6	4,38x6		18,31-20,35	60-65	37,32	37,78	>10	>10	3/8" x 6
VTX30 x 2	27,46		6,54x2	9,16-10,18	55-60	14,86	15,31	>6	>12
VTX30 x 3		6,54x3	13,74-15,26	60-65	20,71	21,17	>8	>12	3/8" x 3
VTX30 x 4		6,54x4	18,31-20,35	60-65	27,34	27,8	>10	>12	3/8" x 4
VTX30 x 5		6,54x5	22,89-25,43	60-65	33,41	33,87	>10	>12	3/8" x 5
VTX30 x 6		6,54x6	27,47-30,52	60-65	39,37	39,83	>10	>12	3/8" x 6

* Remarks : BA(NBA) type weight = B type weight+(0,91oz.xstack)

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VTX10 x1Stack	2,19	1,28	0,64	0,57	0,5	0,39	0,32	0,22	0,09
VTX20 x1Stack	4,38	2,55	1,24	1,14	0,96	0,78	0,64	0,43	0,17	0,07
VTX30 x1Stack	6,54	3,82	1,84	1,66	1,45	1,17	0,92	0,64	0,26	0,1

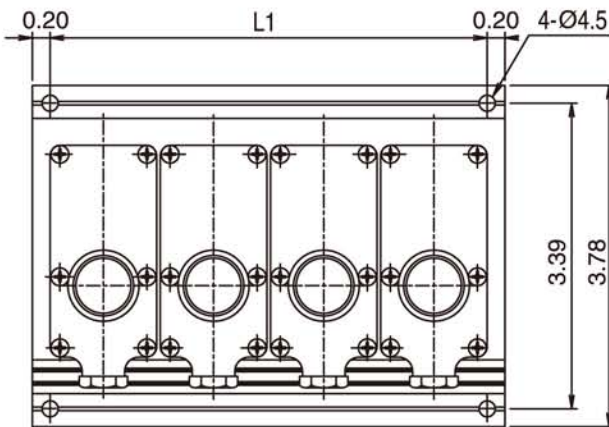
VACUUM PUMPS

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

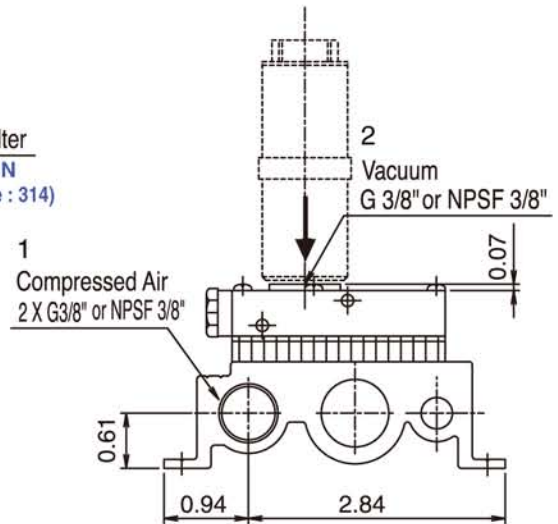
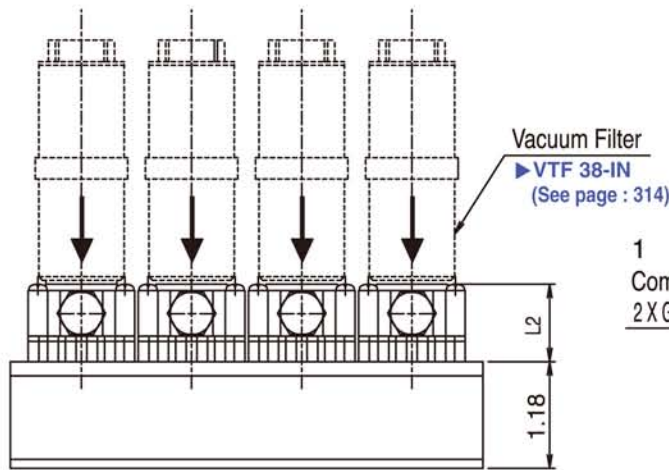
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
	VTX10 x1Stack	0,129	0,398	0,758	1,2	1,78	2,455	3,445	5,08
VTX20 x1Stack	0,064	0,199	0,379	0,6	0,89	1,227	1,722	2,54	4,797
VTX30 x1Stack	0,048	0,149	0,284	0,44	0,673	0,917	1,287	1,906	3,595

Dimensional Information

VTM(X) 10 x (2~6)-NB
20 B
30



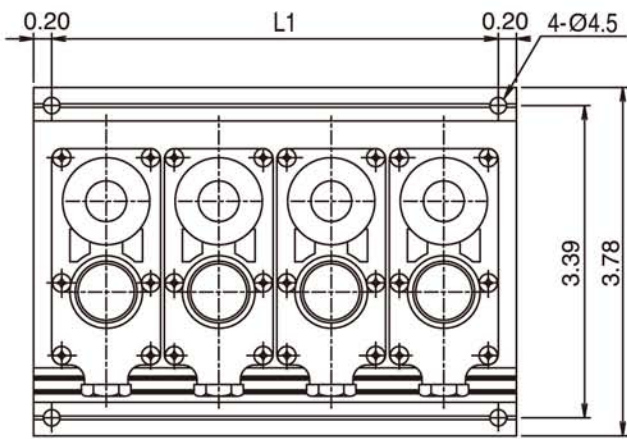
(inch)		
Model	L1	L2
VTM(X)10x2-B,NB	2.4	0.86
VTM(X)10x3-B,NB	3.62	0.86
VTM(X)10x4-B,NB	4.84	0.86
VTM(X)10x5-B,NB	6.06	0.86
VTM(X)10x6-B,NB	7.28	0.86
VTM(X)20x2-B,NB	2.4	1.14
VTM(X)20x3-B,NB	3.62	1.14
VTM(X)20x4-B,NB	4.84	1.14
VTM(X)20x5-B,NB	6.06	1.14
VTM(X)20x6-B,NB	7.28	1.14
VTM(X)30x2-B,NB	2.4	1.43
VTM(X)30x3-B,NB	3.62	1.43
VTM(X)30x4-B,NB	4.84	1.43
VTM(X)30x5-B,NB	6.06	1.43
VTM(X)30x6-B,NB	7.28	1.43



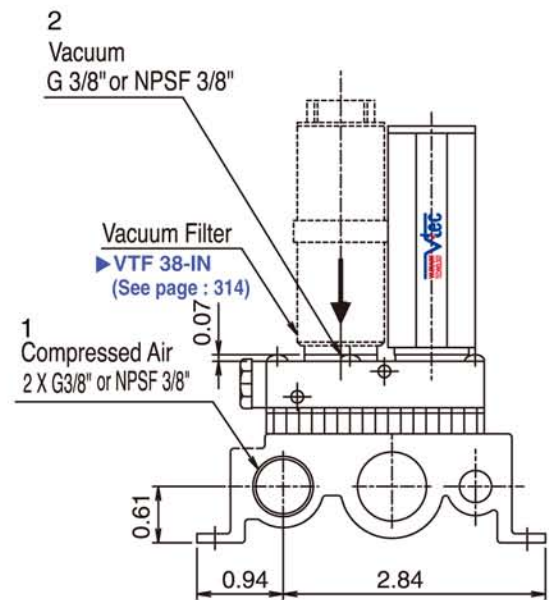
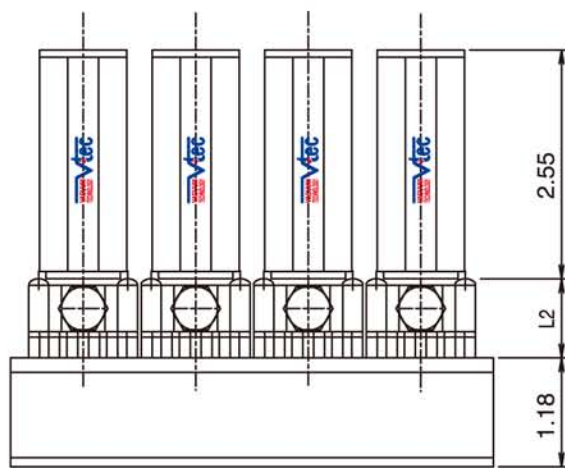
[Measure unit : inch]

Dimensional Information

VTM 10 x (2~6)-NC
20 C
30



	(inch)	
Model	L1	L2
VTM(X) 10x2-C,NC	2.4	0.86
VTM(X) 10x3-C,NC	3.62	0.86
VTM(X) 10x4-C,NC	4.84	0.86
VTM(X) 10x5-C,NC	6.06	0.86
VTM(X) 10x6-C,NC	7.28	0.86
VTM(X) 20x2-C,NC	2.4	1.14
VTM(X) 20x3-C,NC	3.62	1.14
VTM(X) 20x4-C,NC	4.84	1.14
VTM(X) 20x5-C,NC	6.06	1.14
VTM(X) 20x6-C,NC	7.28	1.14
VTM(X) 30x2-C,NC	2.4	1.43
VTM(X) 30x3-C,NC	3.62	1.43
VTM(X) 30x4-C,NC	4.84	1.43
VTM(X) 30x5-C,NC	6.06	1.43
VTM(X) 30x6-C,NC	7.28	1.43



[Measure unit : inch]

VACUUM PUMPS

M-Duplex Pump

- Max. vacuum level : **-25.1 inHg** (-85kPa)
- Max. flow rate : **13.77 scfm** (390 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 2 x 1/2" NPSF.

Order No.

VTM20KD - 1 - C V

① ② ③ ④

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 **Connection Port**

	Compressed Air	Vacuum
• 1	1/8" NPSF	1/2" NPSF

③ **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

④ **Sealing**

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

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM20KD	25.1	5.27	2.12-2.97	57 - 58	6.31	>4	>10	>12
VTM30KD		7.77	3.18-4.45	57 - 58	6.70	>6	>10	>15
VTM40KD		10.32	4.24-5.94	57 - 60	11.32	>6	>12	>15
VTM50KD		12.05	5.3-7.63	58 - 63	11.61	>8	>12	>18
VTM60KD		13.78	6.36-8.9	60 - 65	11.92	>8	>15	>18

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62
VTM20KD	5.27	3.5	2.19	1.91	1.42	1.14	0.78	0.38	0.1
VTM30KD	7.77	5.2	3.25	2.58	2.12	1.66	1.14	0.57	0.15
VTM40KD	10.32	7.07	3.80	3.29	2.83	2.23	1.52	0.75	0.2
VTM50KD	12.05	8.06	4.77	4.07	3.54	2.8	2.12	0.85	0.24
VTM60KD	13.78	9.05	9.15	4.84	4.21	3.32	2.27	1.14	0.31

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

Model \ -inHg	2.59	5.9	8.85	11.81	14.76	17.71	20.67	23.62
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 : **-27.46 inHg** (-93 kPa)
- Max. flow rate : **1.72 scfm**(392 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 1 - 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 Connection port

	Compressed Air	Vacuum
• 1	1/8" NPSF	1/2" NPSF

③ 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

④ Sealing

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

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTX20KD	27.46	4,379	3,051-3,390	57 - 60	6,314	>4	>10	>12
VTX30KD		6,534	4,577-5,086	57 - 63	6,702	>6	>10	>15
VTX40KD		8,723	6,103-6,781	60 - 63	11,323	>6	>12	>15
VTX50KD		10,242	7,628-8,476	60 - 65	11,605	>8	>12	>18
VTX60KD		11,725	9,154-10,171	60 - 65	11,923	>8	>15	>18

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTX20KD	4,379	2,543	1,236	1,130	0,954	0,777	0,636	0,424	0,170	0,064
VTX30KD	6,534	3,814	1,836	1,660	1,448	1,165	0,918	0,636	0,254	0,095
VTX40KD	8,723	5,086	2,437	2,225	1,907	1,554	1,236	0,812	0,339	0,127
VTX50KD	10,242	6,039	3,037	2,755	2,331	1,942	1,519	1,024	0,424	0,159
VTX60KD	11,725	6,993	3,602	3,284	2,755	2,296	1,801	1,201	0,509	0,191

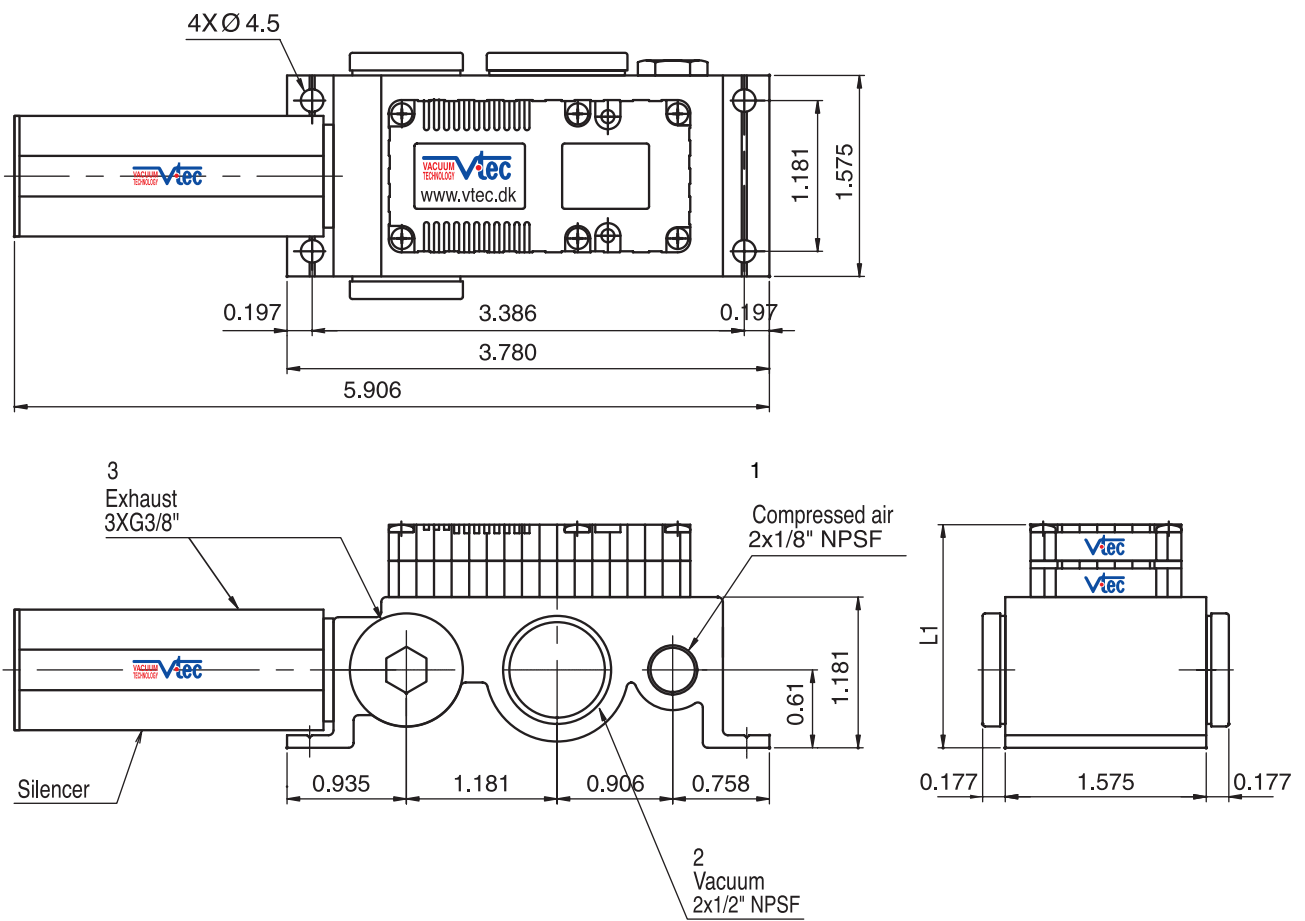
Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg	2.95	150	5.9	11.81	14.76	17.71	20.67	23.62	26.57
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

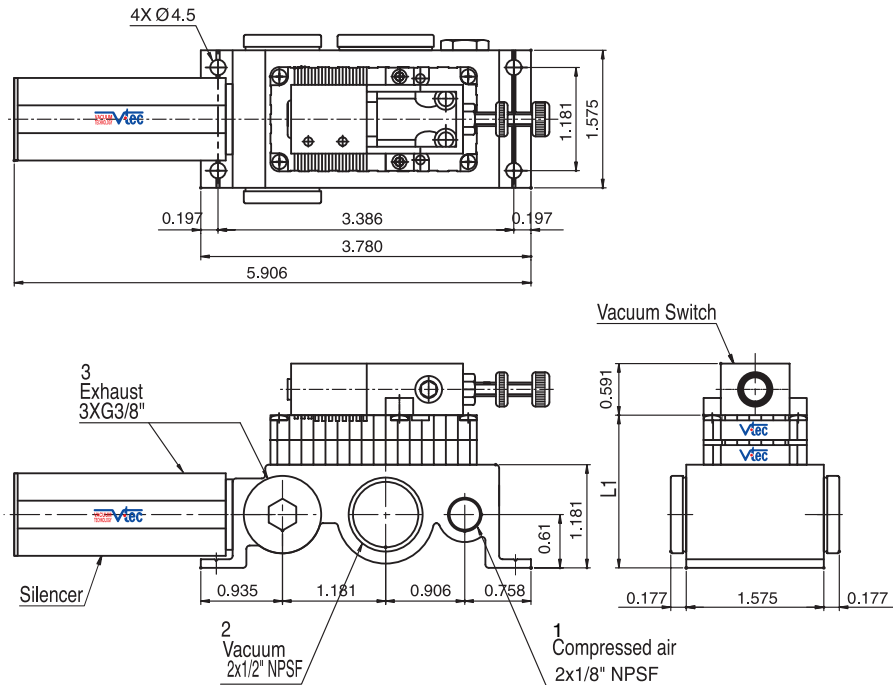


[Measure unit : inch]

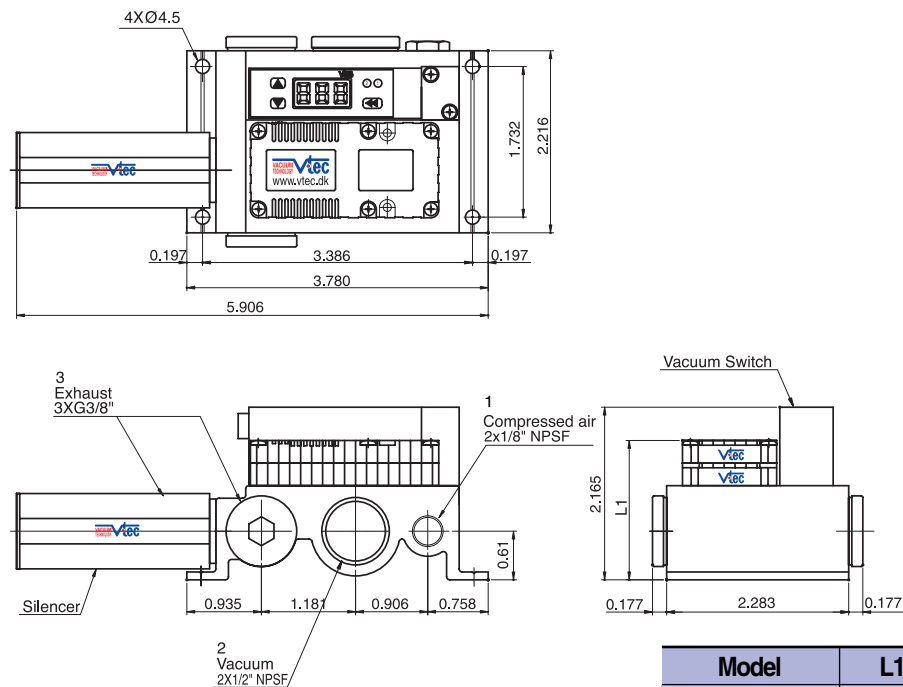
Model	L1 (inch)
VTM(X)20KD	1.748
VTM(X)30KD	2.03

Dimensional Information

with switch S1



with switch → (P)C,(P)G, (P)GA



Model	L1 (inch)
VTM(X)20KD	1.748
VTMI(X)30KD	2.03

[Measure unit : inch]

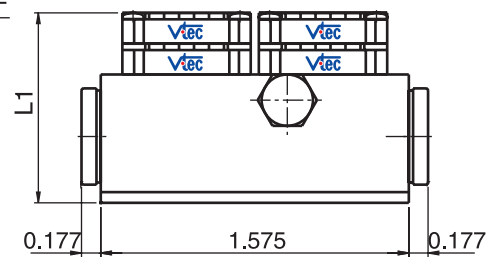
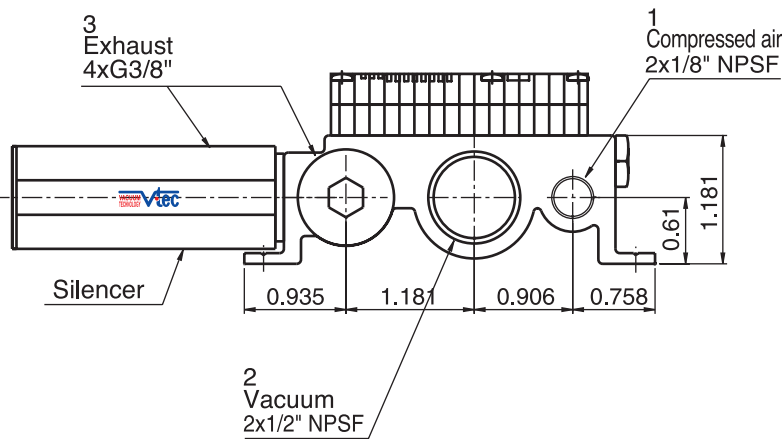
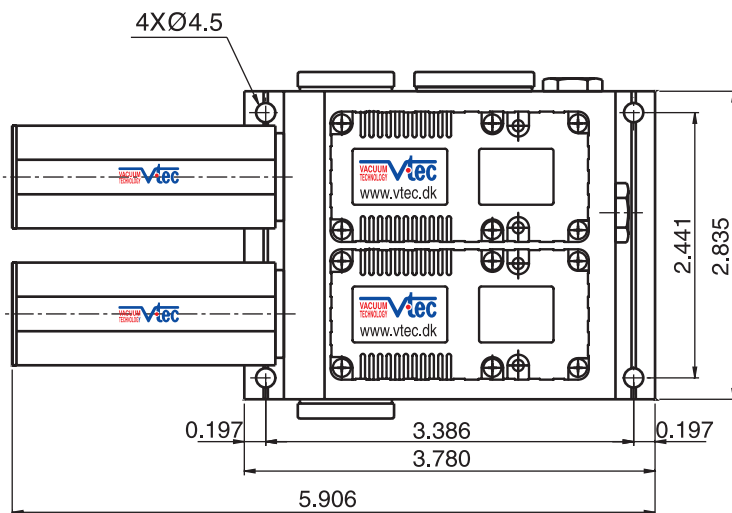
Dimensional Information

Standard

VTM(X) 40KD

50

60

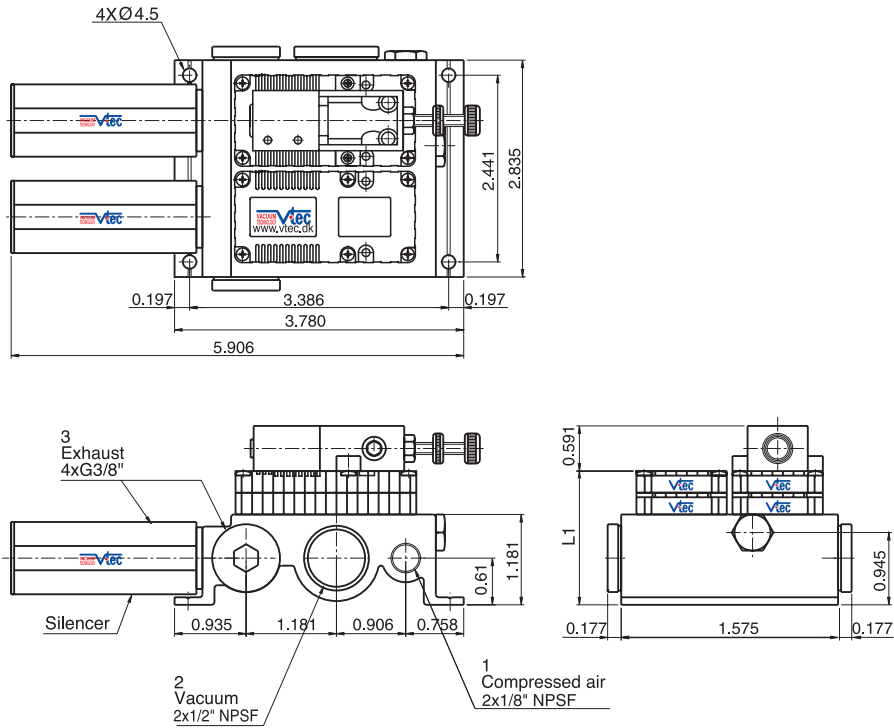


[Measure unit : inch]

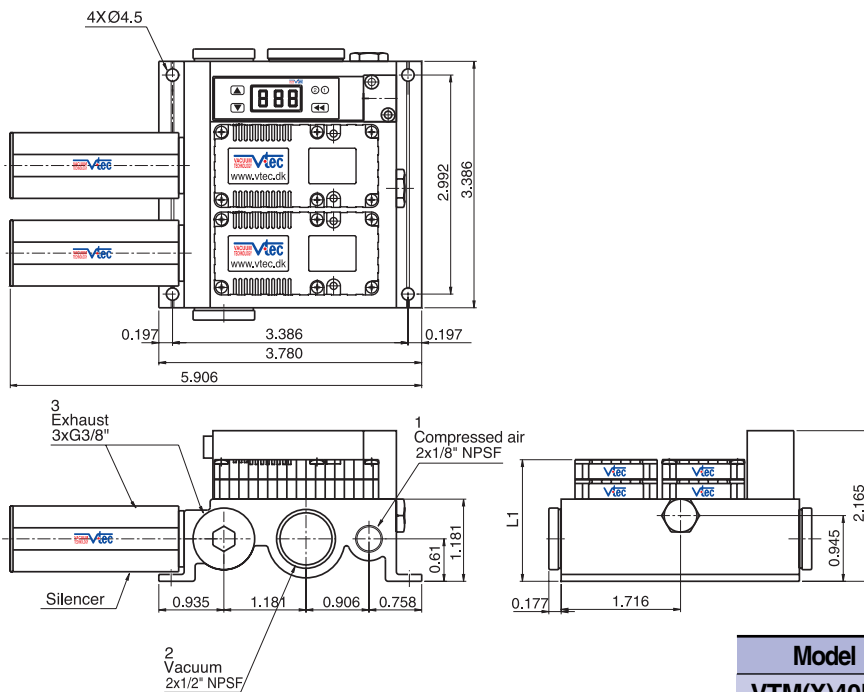
Model	L1 (inch)
VTM(X)40KD	1.748
VTM(X)50KD	2.031
VTM(X)60KD	2.031

Dimensional Information

with swithc S1



with switch → (P)C, (P)G, (P)GA



[Measure unit : inch]

Model	L1 (inch)
VTM(X)40KD	1.748
VTM(X)50KD	2.031
VTM(X)60KD	2.031

Conveying Pump (Air Movers)

VTRA Pump

- Max. vacuum level* : **-24.92 inHg** (-84.8kPa)
- Max. flow rate* : **119.9 scfm** (3396 NI/min)
- Supply air pressure* : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- 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* : -9.98 inHg (-33.8 kPa)
- Max. flow rate* : 164.9 scfm (4670 NI/min)
- Supply air pressure* : 58~87 psi, max 101.5psi
(4~6bar, max 7bar)
- 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 375N - AL

- ①
- ②

- ① Vacuum pump
 - VTRA 250N
 - **VTRA 375N**
 - VTRA 500N
 - VTRA 750N
- ② Material
 - **AL** - Aluminum
 - SS - Stainless steel

VTRF 5-6N - AL

- ①
- ②

- ① Vacuum pump
 - VTRF 2-3N
 - VTRF 3-3N
 - **VTRF 5-6N**
 - VTRF 7-6N
 - VTRF 15-3N
 - VTRF 15-6N
- ② Material
 - **AL** - Aluminum
 - SS - Stainless steel

VTRA Air consumption vs, Vacuum level (-inHg) scfm, 79.77psi

Model \ -inHg	4.99	9.98	14.97	19.93	24.92
VTRA250N	3,991	6,004	8,299	9,712	12,008
VTRA375N	6,180	11,478	16,987	20,978	28,960
VTRA500N	12,008	22,002	27,971	32,986	44,993
VTRA750N	22,991	30,796	43,969	62,970	89,952

VTRA Vacuum flow vs, Vacuum level (-inHg) scfm

Model \ -inHg	4.99	9.98	14.97	19.93	24.92
VTRA250N	9,995	8,582	7,205	5,792	4,485
VTRA375N	29,984	25,993	22,002	18,506	13,985
VTRA500N	59,968	45,971	39,979	34,999	22,991
VTRA750N	119,936	86,950	69,750	50,962	39,979

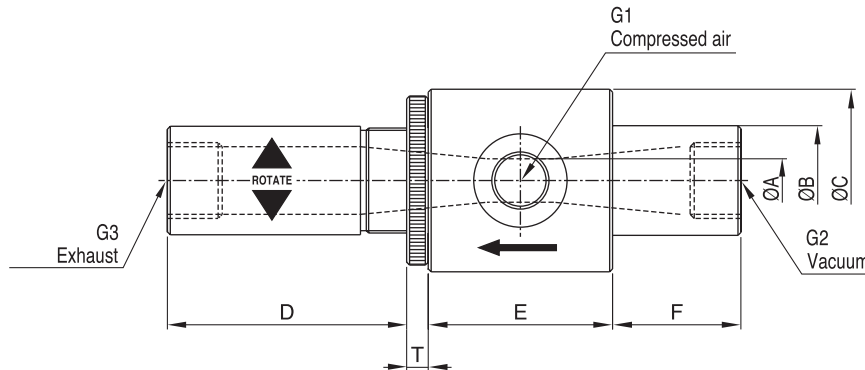
VACUUM PUMPS

VTRF series performance data

Model	air velocity (ft/sec)	vacuum flow (scfm)	vacuum level (-inHg)	air consumption (scfm)	
				40.611 psi	79.771 psi
VTRF2-3N	490	9,995	7,973	3,108	6,004
VTRF3-3N	328	14,974	4,489	3,496	6,004
VTRF5-6N	362	29,984	9,981	13,985	23,980
VTRF7-6N	326	59,968	7,973	27,971	47,960
VTRF15-3N	224	164,929	1,299	13,985	23,980
VTRF15-6N	272	199,893	2,510	27,971	47,960

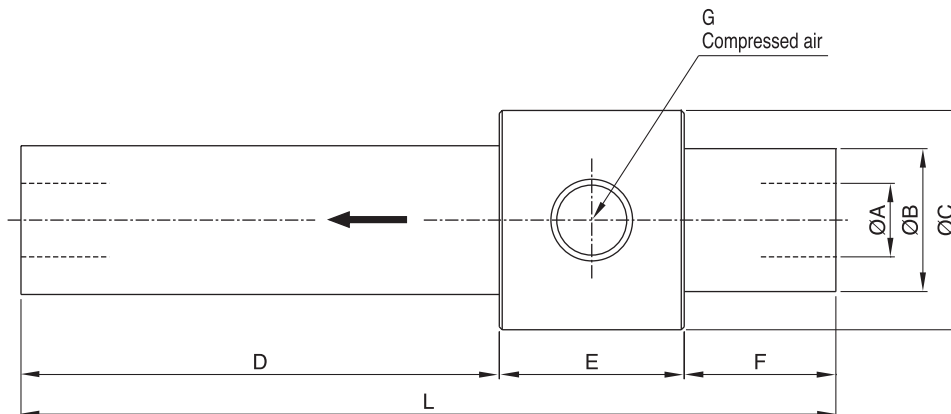
Dimensional Information

VTRA Series



Model	Dimension									
	ØA	ØB	ØC	D	E	F	T	G1	G2	G3
VTRA250N	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")	1/8" NPSF	1/4" NPSF	1/4" NPSF
VTRA375N	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")	3/8" NPSF	1/2" NPSF	1/2" NPSF
VTRA500N	12,7 (0,5")	31,4 (1,236")	50 (1,968")	63,5 (2,5")	50,8 (2")	38 (1,496")	5 (0,196")	3/8" NPSF	1/2" NPSF	3/4" NPSF
VTRA750N	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")	1/2" NPSF	3/4" NPSF	1" NPSF

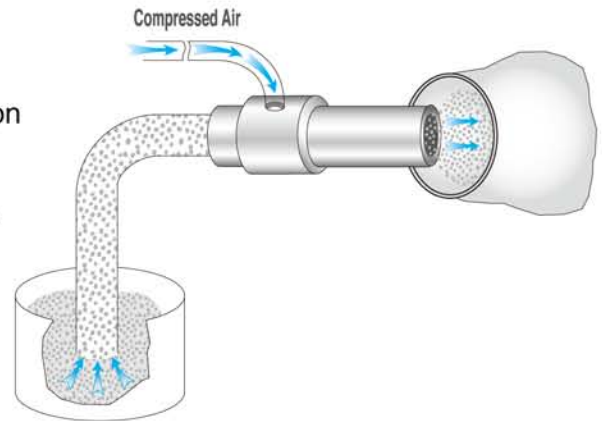
VTRF Series



Model	Dimension							
	ØA	ØB	ØC	D	E	F	L	G
VTRF2-3N	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")	1/8" NPSF
VTRF3-3N	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")	1/8" NPSF
VTRF5-6N	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")	1/4" NPSF
VTRF7-6N	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")	3/8" NPSF
VTRF15-3N	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")	3/8" NPSF
VTRF15-6N	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")	3/8" NPSF

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



L-Classic Pump

- Max. vacuum level : **-26.87 inHg** (-91 kPa)
- Max. flow rate : **48.43 scfm** (1370 NI/min)
- Supply air pressure : **43.5~87 psi, max 101.5psi**
(3~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- Noise level : 50~65 dBA



Main Advantages

This is most significant model base 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 maximum reduce the energy usage. VITON® & EPDM seals can be also stipulated as option.

Order No.

VTM25L - N1434 A - AS - A3 R3 - CL SG2 N V



① Model – Capacity equivalent to electricity motor pump size

- **VTM25L** – 0.25KW
- VTM50L – 0.50KW
- VTM75L – 0.75KW
- VTM100L – 1.00KW
- VTM125L – 1.25KW
- VTM150L – 1.50KW

② Connection plate



	Air port	Vacuum port	Mat I
N 1412 A	NPT1/4"	NPT1/2"	Aluminum
• N 1434 A	NPT1/4"	NPT3/4"	
N 1401 A	NPT1/4"	NPT 1"	
N1812 P	NPT1/8"	NPT1/2"	All PPS
N1834 P	NPT1/8"	NPT3/4"	

※ Remark :

- Air supply port with air control valve or AS-kit : NPSF 1/4"
- PPS Mat I is available in VTM25L ~ VTM100L

③ Air saving Kit

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

※ Remark : When ever apply AS-Kit Vacuum release control valve & vacuum switch is not applicable

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'**
(See page : 336, 337)

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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM25L	26.87	12,89	4,03	50 – 65	22,68	>4	>12	>12
VTM50L		21,96	8,05	50 – 65	22,71	>6	>15	>15
VTM75L		29,7	12,08	50 – 65	26,81	>8	>19	>22
VTM100L		37,43	16,10	50 – 65	26,84	>8	>19	>22
VTM125L		42,2	20,13	60 – 65	30,94	>10	>25	>32
VTM150L		48,38	24,16	60 – 65	90,97	>10	>25	>32

Vacuum flow in (scfm) at different Vacuum level (-inHg)

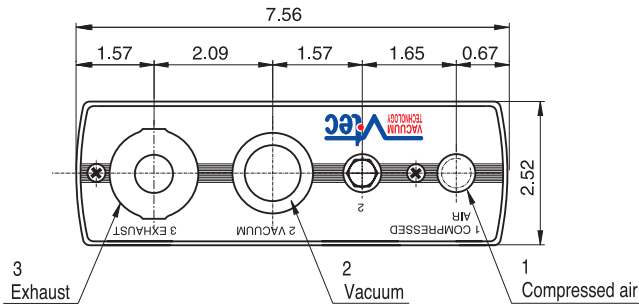
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTM25L	12,891	5,969	4,379	2,684	1,519	1,165	0,883	0,6	0,247	0,028
VTM50L	21,967	11,549	8,335	5,262	2,931	2,296	1,731	1,165	0,494	0,057
VTM75L	29,701	16,987	12,502	7,805	4,309	3,426	2,578	1,731	0,742	0,085
VTM100L	37,436	22,391	15,857	10,348	5,686	4,556	3,39	2,26	0,954	0,113
VTM125L	42,203	27,865	18,435	12,714	6,816	5,368	4,238	2,847	1,176	0,134
VTM150L	48,384	33,092	20,802	14,762	8,37	6,604	5,086	3,433	1,399	0,153

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

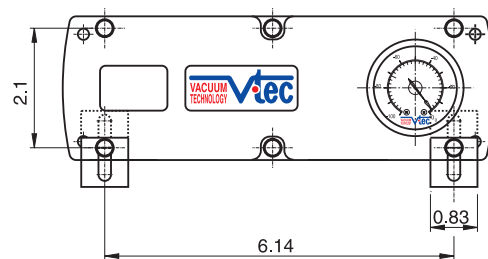
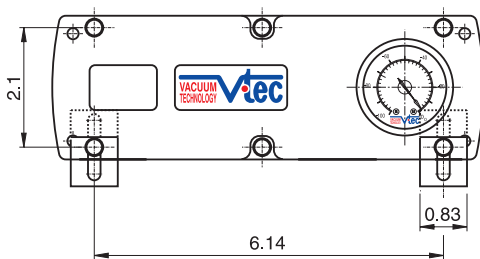
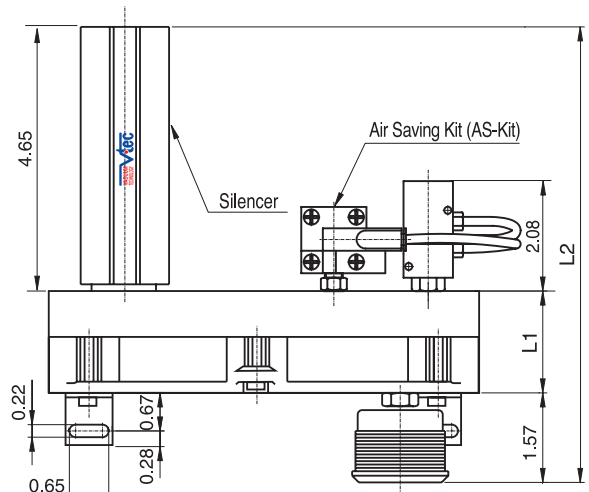
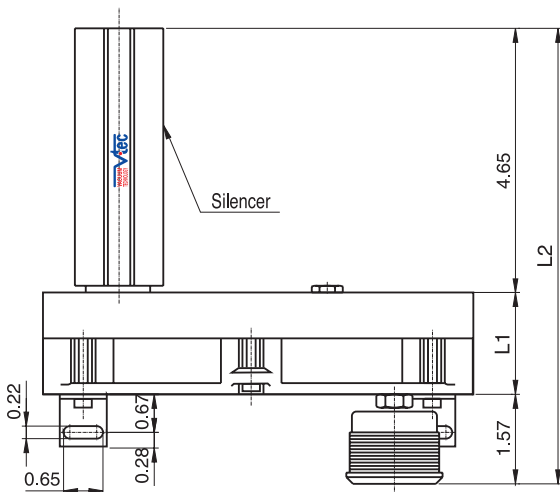
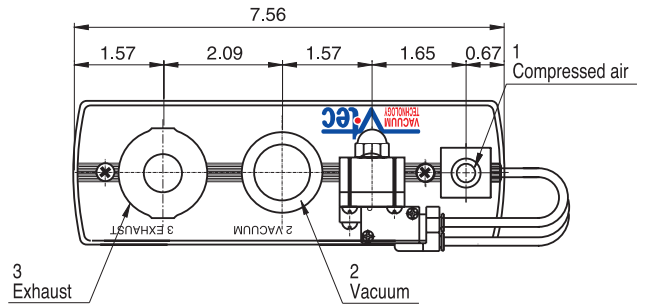
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTM25L	0,02	0,056	0,12	0,24	0,425	0,66	1,02	1,64	4,6
VTM50L	0,013	0,032	0,062	0,12	0,221	0,33	0,51	0,85	2,3
VTM75L	0,01	0,024	0,047	0,09	0,159	0,248	0,383	0,62	1,73
VTM100L	0,007	0,016	0,031	0,06	0,106	0,165	0,255	0,41	1,15
VTM125L	0,0061	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 : inch]

(inch)

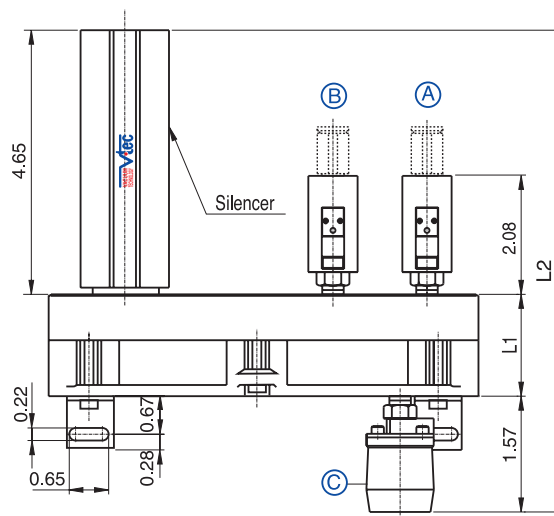
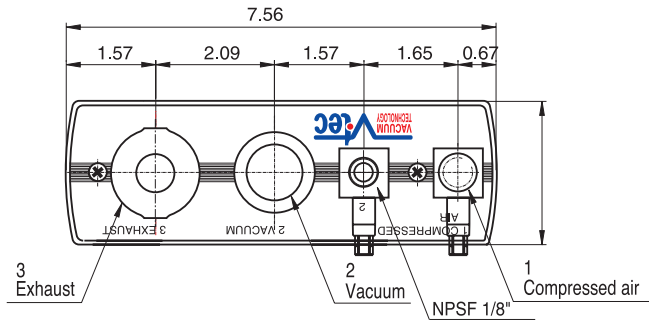
Port 1 : NPT1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTM25L	1.79	8.01
VTM50L	1.79	8.01
VTM75L	2.56	8.78
VTM100L	2.56	8.78
VTM125L	3.33	9.55
VTM150L	3.33	9.55

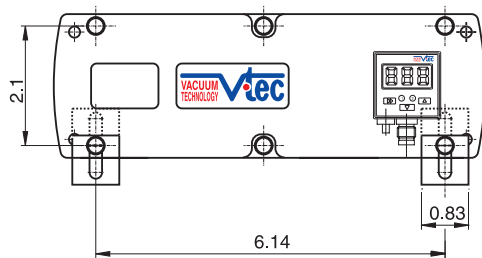
Port 1 : NPSF1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

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



Port 1 : NPSF 1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(inch)	
Model	L1	L2
VTM25L	1.79	8.13
VTM50L	1.79	8.13
VTM75L	2.56	8.9
VTM100L	2.56	8.9
VTM125L	3.33	9.67
VTM150L	3.33	9.67

VL-Classic Pump

- Max. vacuum level : **-23.62 inHg** (-80 kPa)
- Max. flow rate : **72.78 scfm** (2061 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 - N1434 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	Mat I
N 1412 A	NPT1/4"	NPT1/2"	Aluminum
• N 1434 A	NPT1/4"	NPT3/4"	
N 1401 A	NPT1/4"	NPT 1"	
N1812 P	NPT1/8"	NPT1/2"	All PPS
N1834 P	NPT1/8"	NPT3/4"	

※ Remark :

- Air supply port with air control valve or AS-kit
VTL25~VTL150 : NPSF 1/4"
VTL175~VTL200 : NPSF 3/8"
- PPS Mat I is available in VTL25 ~ VTL125

③ Air saving Kit

No mark	- Standard
• AS	- Air saving kit attached

※ Remark : When ever apply AS-Kit Vacuum release control valve & vacuum switch is not applicable

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'
(See page : 336, 337)

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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5 ft.)		
						air supply	vacuum	exhaust
VTL25	23.62	13.39	2.75-3.71	50 - 65	22.68	>4	>12	>12
VTL50		22.96	5.51-7.42	50 - 65	22.71	>6	>15	>15
VTL75		28.96	8.26-11.12	50 - 65	26.81	>8	>19	>22
VTL100		34.96	11.02-14.83	50 - 65	26.84	>8	>19	>22
VTL125		38.50	13.77-18.54	60 - 65	30.94	>10	>25	>32
VTL150		46.02	16.53-22.25	60 - 65	30.97	>10	>25	>32
VTL175		59.40	19.28-25.96	60 - 65	35.06	>10	>32	>40
VTL200		72.79	22.04-29.67	60 - 65	35.10	>10	>32	>40

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67
VTL25	13.39	7.06	4.91	3.32	1.80	1.41	0.99	0.64
VTL50	22.96	13.21	9.39	6.22	3.60	2.72	1.98	1.27
VTL75	28.96	17.31	13.07	8.65	4.87	4.10	3.25	1.73
VTL100	34.96	21.44	16.07	11.41	6.96	5.37	3.85	2.44
VTL125	38.50	26.49	19.32	13.77	8.51	6.78	4.87	3.07
VTL150	46.02	32.03	21.68	16.10	9.96	8.05	5.72	3.60
VTL175	59.40	37.44	23.94	18.12	11.09	9.43	6.67	4.17
VTL200	72.79	42.98	25.75	20.27	12.82	10.38	7.70	4.73

VACUUM PUMPS

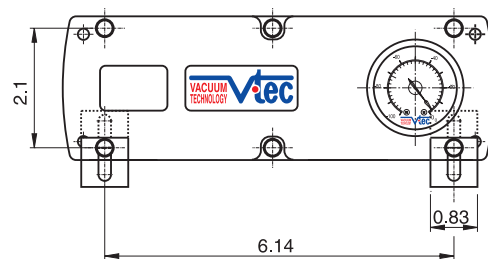
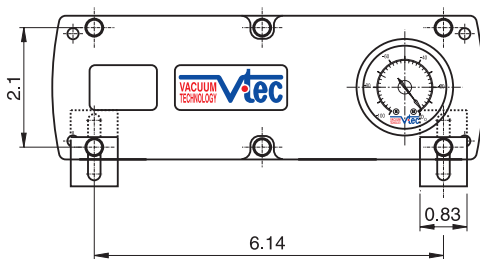
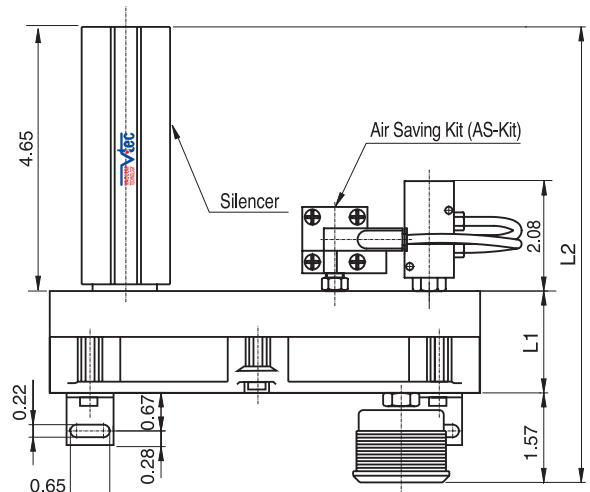
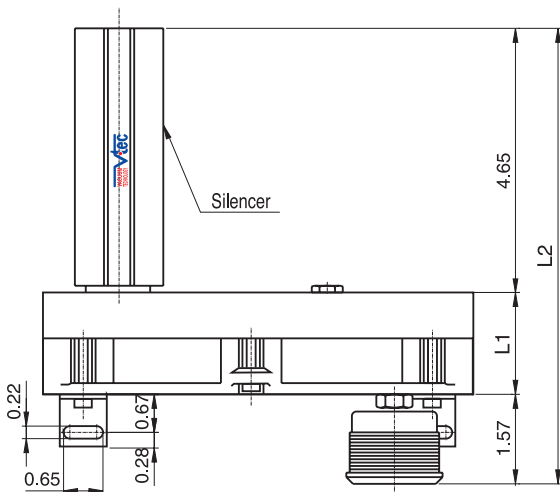
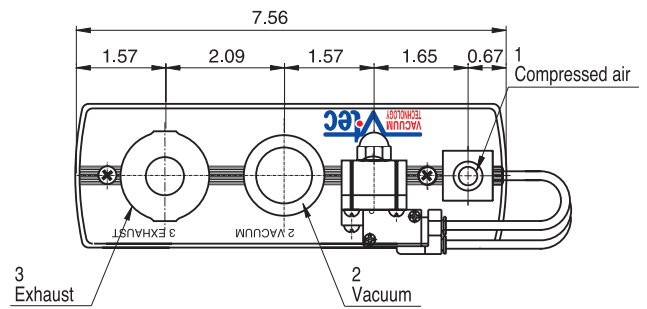
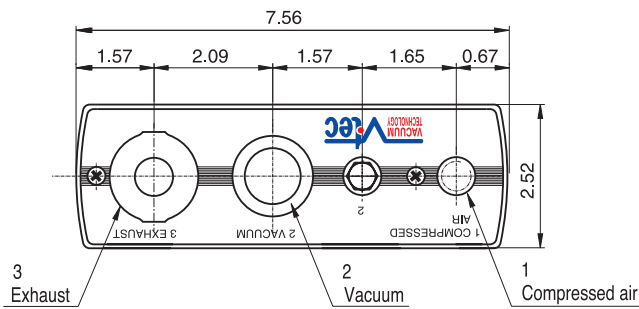
Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67
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



(inch)

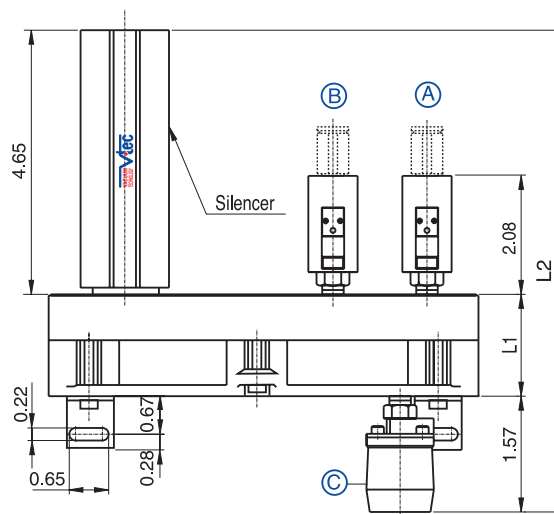
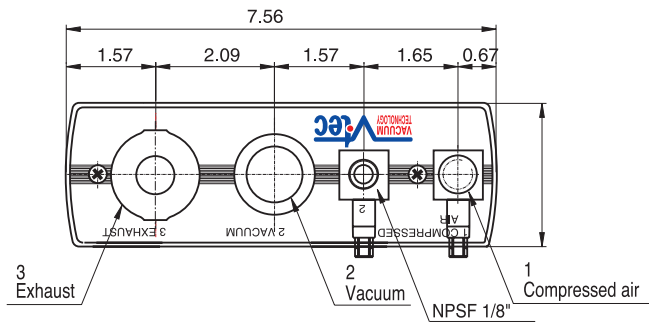
Port 1 : NPT1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTL25	1.79	8.01
VTL50	1.79	8.01
VTL75	2.56	8.78
VTL100	2.56	8.78
VTL125	3.33	9.55
VTL150	3.33	9.55
VTL175	4.09	10.31
VTL200	4.09	10.31

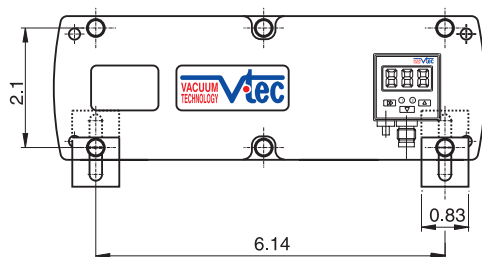
Port 1 : VTL25~VTL150 : NPSF 1/4"
 VTL175~VTL200 : NPSF 3/8"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

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



Port 1 : VTL25~VTL150 : NPSF 1/4"
 VTL175~VTL200 : NPSF 3/8"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	(inch)	
	L1	L2
VTL25	1.79	8.13
VTL50	1.79	8.13
VTL75	2.56	8.9
VTL100	2.56	8.9
VTL125	3.33	9.67
VTL150	3.33	9.67
VTL175	4.09	10.43
VTL200	4.09	10.43

M-Classic Pump

- Max. vacuum level : **-27.17 inHg** (-92 kPa)
- Max. flow rate : **55.8 scfm** (1580NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ +176 °F
- 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 - N1434 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
 - VTN100 – 1.00KW
 - VTM125 – 1.25KW
 - VTN150 – 1.50KW
 - VTM175 – 1.75KW
 - VTM200 – 2.00KW

- ② **Connection plate**
- | | Air port | Vacuum port | Mat I |
|------------|----------|-------------|----------|
| N 1412 A | NPT1/4" | NPT1/2" | Aluminum |
| • N 1434 A | NPT1/4" | NPT3/4" | |
| N 1401 A | NPT1/4" | NPT 1" | |
| N1812 P | NPT1/8" | NPT1/2" | All PPS |
| N1834 P | NPT1/8" | NPT3/4" | |
- ※ Remark :
- Air supply port with air control valve or AS-kit
VTM25~VTM150 : NPSF 1/4"
VTM175~VTM200 : NPSF 3/8"
 - PPS Mat I is available in VTM25 ~ VTM125

- ③ **Air saving Kit**
- | | |
|---------|------------|
| No mark | – Standard |
|---------|------------|
- **AS** – Air saving kit attached
- ※ Remark : When ever apply AS-Kit Vacuum release control valve & vacuum switch is not applicable

- 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'**
(See page : 336, 337)

- 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM25	27.17	13.74	2.75-3.81	50 - 65	21.87	>4	>12	>12
VTM50		22.85	5.30-7.42	50 - 65	21.94	>6	>15	>15
VTM75		31.43	8.05-11.23	50 - 65	28.01	>8	>19	>22
VTM100		38.85	10.60-14.83	50 - 65	28.04	>8	>19	>22
VTM125		42.38	13.35-18.65	60 - 65	33.02	>10	>25	>32
VTM150		48.74	15.89-22.25	60 - 65	33.40	>10	>25	>32
VTM175		52.62	18.65-26.10	60 - 65	40.49	>10	>32	>40
VTM200		55.80	21.19-29.67	60 - 65	40.57	>12	>32	>40

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTM25	13.74	7.77	5.19	2.61	1.31	0.95	0.64	0.35	0.18	0.03
VTM50	22.85	14.13	9.85	5.16	2.58	1.91	1.27	0.71	0.35	0.06
VTM75	31.43	21.19	12.93	7.77	3.88	2.90	1.91	1.06	0.53	0.08
VTM100	38.85	26.49	15.60	10.28	5.16	3.85	2.54	1.41	0.71	0.11
VTM125	42.38	31.79	18.72	12.57	6.43	4.77	3.18	1.77	0.88	0.14
VTM150	48.74	36.02	21.08	14.69	7.70	5.72	3.81	2.12	1.06	0.17
VTM175	52.62	39.55	23.10	16.63	8.97	6.67	4.45	2.47	1.24	0.20
VTM200	55.80	42.38	24.76	18.40	10.24	7.63	5.09	2.83	1.41	0.23

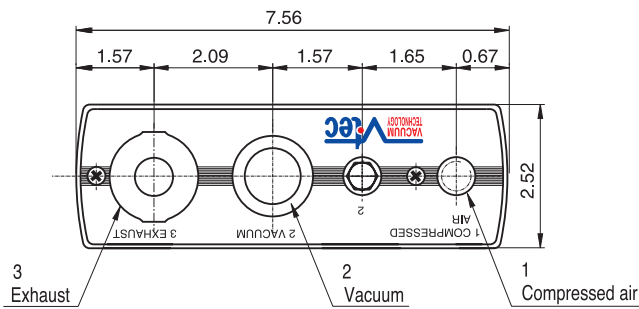
VACUUM PUMPS

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

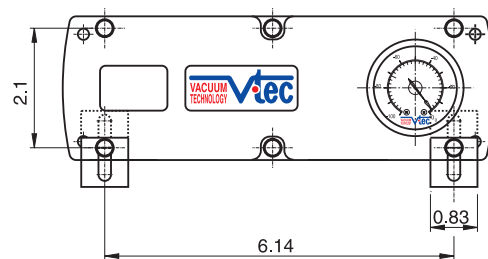
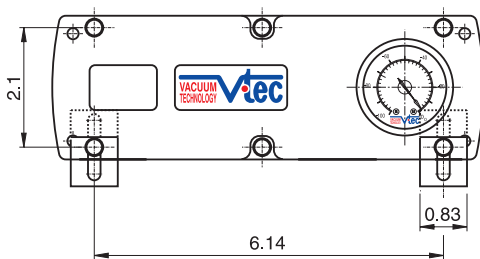
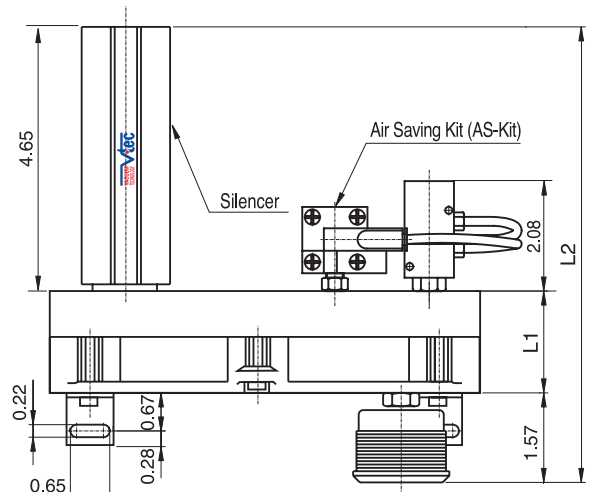
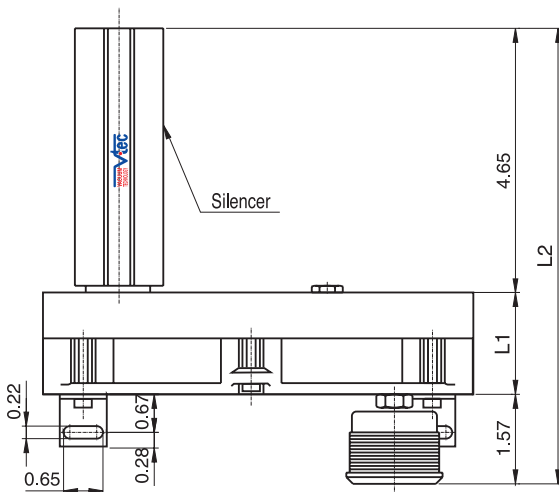
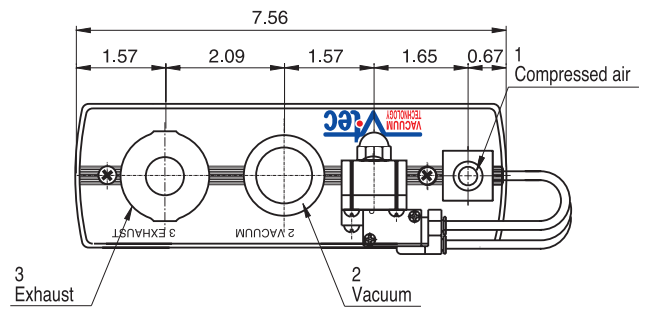
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTM25	0.019	0.048	0.11	0.239	0.416	0.686	1.122	1.91	4.21
VTM50	0.012	0.03	0.066	0.125	0.209	0.345	0.593	1.05	2.19
VTM75	0.009	0.023	0.05	0.094	0.157	0.259	0.445	0.788	1.644
VTM100	0.006	0.015	0.033	0.063	0.105	0.173	0.297	0.526	1.097
VTM125	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



(inch)

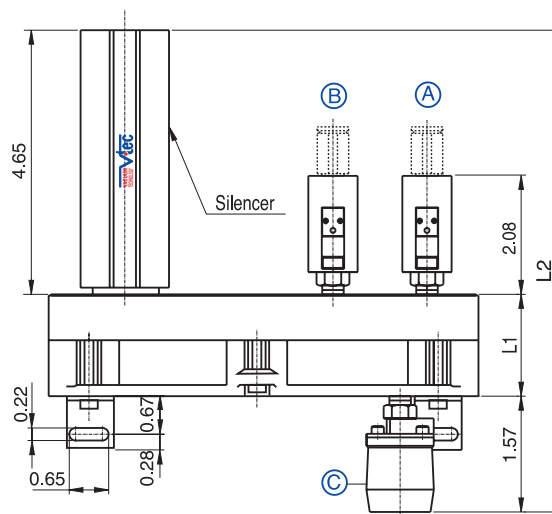
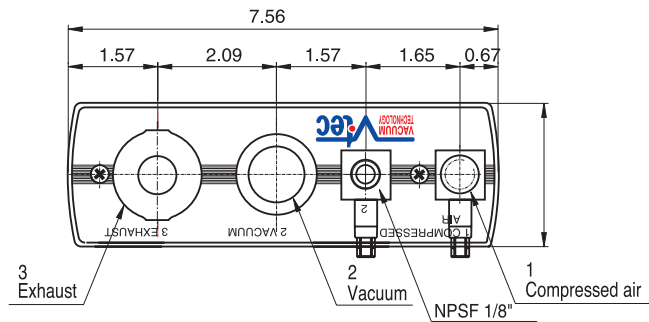
Port 1 : NPT1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	L1	L2
VTM25	1.79	8.01
VTM50	1.79	8.01
VTM75	2.56	8.78
VTM100	2.56	8.78
VTM125	3.33	9.55
VTM150	3.33	9.55
VTM175	4.09	10.31
VTM200	4.09	10.31

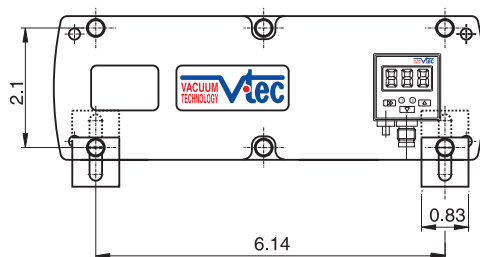
Port 1 : VTM25~VTM150 : NPSF 1/4"
 VTM175~VTM200 : NPSF 3/8"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

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



Port 1 : VTM25~VTM150 : NPSF 1/4"
 VTM175~VTM200 : NPSF 3/8"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	(inch)	
	L1	L2
VTM25	1.79	8.13
VTM50	1.79	8.13
VTM75	2.56	8.90
VTM100	2.56	8.90
VTM125	3.33	9.67
VTM150	3.33	9.67
VTM175	4.09	10.43
VTM200	4.09	10.43

X-Classic Pump

- Max. vacuum level : **-28.64 inHg** (-97kPa)
- Max. flow rate : **18.4 scfm** (521 NI/min)
- Supply air pressure : **58-87 psi, max 101.5psi**
(4-6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : **-4 °F ~ +176 °F**
- 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 - N1434 A - AS - A3 R3 - CL - SG2 N V

①	②	③	④	⑤	⑥	⑦	⑧	⑨																					
① Model – Capacity equivalent to electricity motor pump size			④ Air supply control valve			⑦ Vacuum switch																							
<ul style="list-style-type: none"> • VTX25 – 0.25KW VTX50 – 0.50KW VTX75 – 0.75KW 			<ul style="list-style-type: none"> A1 – AC 110V A2 – AC 220V • A3 – DC 24V D1* – AC 110V D2* – AC 220V D3* – DC 24V 			<ul style="list-style-type: none"> 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 																							
② Connection plate			D.* : Double solenoid valve Double solenoid valve is available only with 'DN' or 'DL', section ⑥			* Remark : ① S..(P) ↳ Output type : PNP open collector. ② VCM8 42 : M8-4Pin female connector, only for type S2(P)																							
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Air port</th> <th>Vacuum port</th> <th>Mat'l</th> </tr> </thead> <tbody> <tr> <td>N 1412 A</td> <td>NPT1/4"</td> <td>NPT1/2"</td> <td rowspan="3">Aluminum</td> </tr> <tr> <td>• N 1434 A</td> <td>NPT1/4"</td> <td>NPT3/4"</td> </tr> <tr> <td>N 1401 A</td> <td>NPT1/4"</td> <td>NPT 1"</td> </tr> <tr> <td>N1812 P</td> <td>NPT1/8"</td> <td>NPT1/2"</td> <td rowspan="2">All PPS</td> </tr> <tr> <td>N1834 P</td> <td>NPT1/8"</td> <td>NPT3/4"</td> </tr> </tbody> </table>				Air port	Vacuum port	Mat'l	N 1412 A	NPT1/4"	NPT1/2"	Aluminum	• N 1434 A	NPT1/4"	NPT3/4"	N 1401 A	NPT1/4"	NPT 1"	N1812 P	NPT1/8"	NPT1/2"	All PPS	N1834 P	NPT1/8"	NPT3/4"	⑤ Vacuum release control valve			⑧ Non-return valve		
	Air port	Vacuum port	Mat'l																										
N 1412 A	NPT1/4"	NPT1/2"	Aluminum																										
• N 1434 A	NPT1/4"	NPT3/4"																											
N 1401 A	NPT1/4"	NPT 1"																											
N1812 P	NPT1/8"	NPT1/2"	All PPS																										
N1834 P	NPT1/8"	NPT3/4"																											
* Remark : • Air supply port with air control valve or AS-kit : NPSF 1/4"			<ul style="list-style-type: none"> R1 – AC110V R2 – AC220V • R3 – DC24V 			<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>No mark</td> <td>– Standard</td> </tr> <tr> <td>• N</td> <td>– Non-return valve</td> </tr> </table>			No mark	– Standard	• N	– Non-return valve																	
No mark	– Standard																												
• N	– Non-return valve																												
③ Air saving Kit			⑥ Solenoid Terminal			⑨ Sealing																							
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>No mark</td> <td>– Standard</td> </tr> <tr> <td>• AS</td> <td>– Air saving kit attached</td> </tr> </table>			No mark	– Standard	• AS	– Air saving kit attached	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>DN</td> <td>– DIN type without lead wire</td> </tr> <tr> <td>DL</td> <td>– DIN type with lamp without lead wire</td> </tr> <tr> <td>• CL*</td> <td>– Connector type with lamp & 0.3m lead wire</td> </tr> <tr> <td>2B*</td> <td>– DIN type with '2 in 1' BUS cable (Air control v/v + Vacuum release v/v)</td> </tr> <tr> <td>3B*</td> <td>– DIN type with '3 in 1' BUS cable (Air control v/v + Vacuum release v/v + Digital switch)</td> </tr> </table>			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)	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>No mark</td> <td>– Standard (NBR)</td> </tr> <tr> <td>• V</td> <td>– Viton®</td> </tr> <tr> <td>E</td> <td>– EPDM</td> </tr> </table>			No mark	– Standard (NBR)	• V	– Viton®	E	– EPDM	
No mark	– Standard																												
• AS	– Air saving kit attached																												
DN	– DIN type without lead wire																												
DL	– DIN type with lamp without lead wire																												
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No mark	– Standard (NBR)																												
• V	– Viton®																												
E	– EPDM																												
* Remark : When ever apply AS-Kit Vacuum release control valve & vacuum switch is not applicable			* 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'
(See page : 336, 337)

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTX25	28.64	6.53	5.30~7.42	55 – 60	22.33	>4	>12	>12
VTX50		12.89	8.05~11.23	60 – 65	22.33	>6	>15	>15
VTX75		18.40	10.10~14.83	60 – 65	28.08	>8	>19	>22

Vacuum flow in (scfm) at different Vacuum level (-inHg)

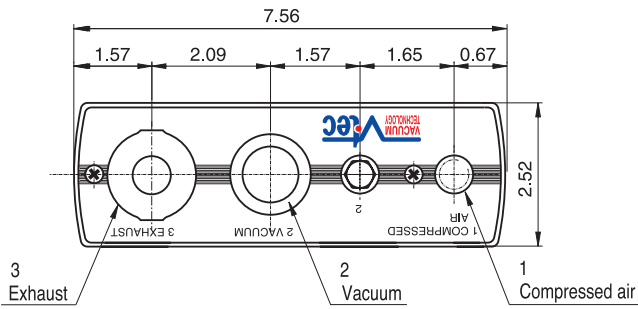
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
VTX25	6.53	5.23	3.71	2.33	1.24	0.95	10.74	0.53	0.42	0.15	0.05
VTX50	12.89	10.31	7.31	4.66	2.44	1.91	1.48	1.06	0.81	0.30	0.11
VTX75	18.40	14.97	10.91	6.98	3.60	12.86	2.22	1.59	1.24	0.44	0.16

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

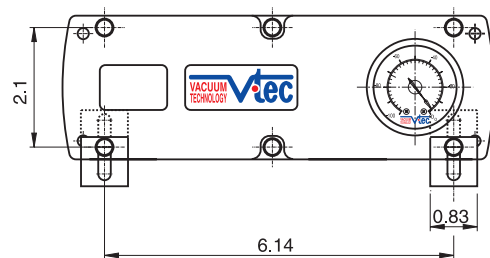
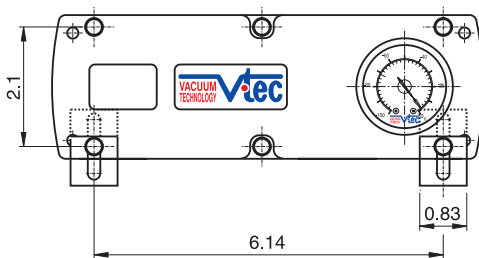
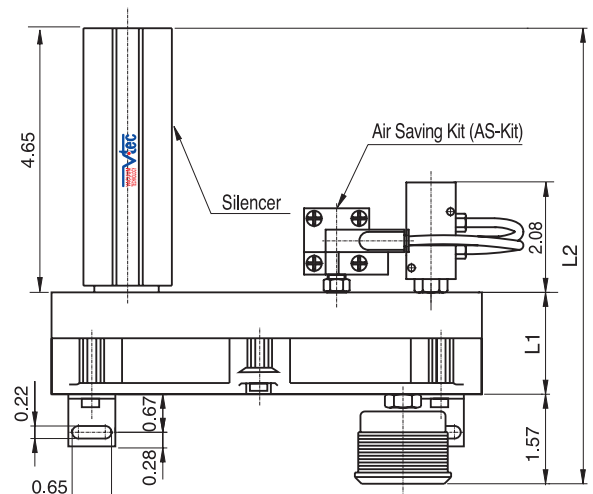
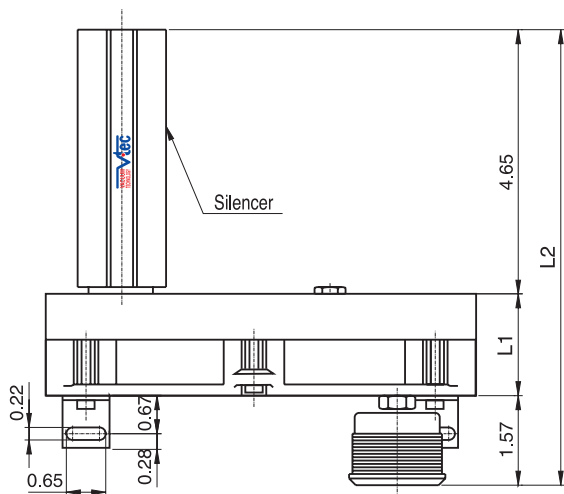
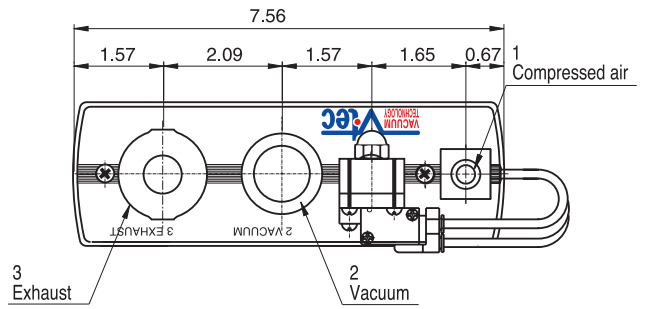
Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
VTX25	0.028	0.068	0.134	0.26	0.49	0.736	1.126	1.598	2.7	3.76
VTX50	0.014	0.035	0.067	0.13	0.25	0.368	0.563	0.799	1.35	1.88
VTX75	0.011	0.023	0.046	0.095	0.167	0.246	0.376	0.533	0.9	1.264

Dimensional Information

Standard



with AS - KIT



[Measure unit : inch]

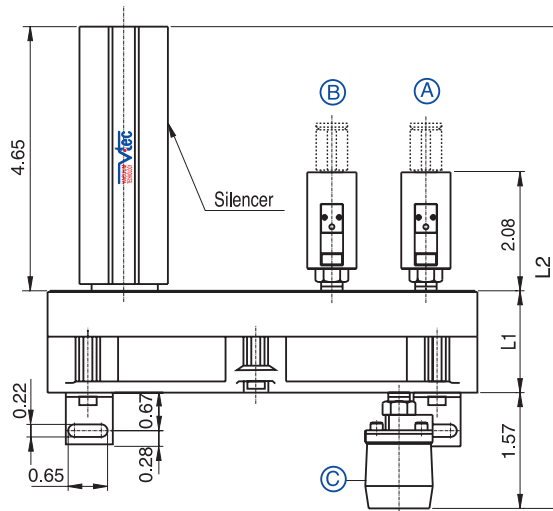
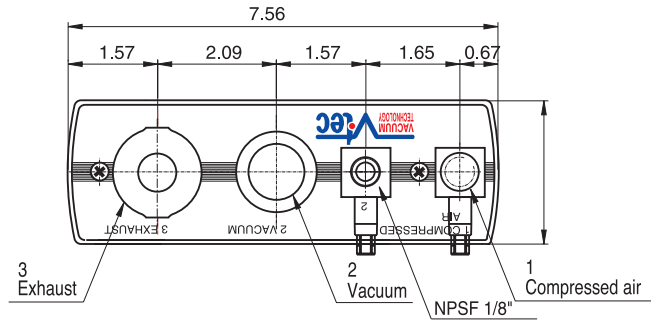
Port 1 : NPT1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

Model	(inch)	
	L1	L2
VTX25	1.79	8.01
VTX50	1.79	8.01
VTX75	2.56	8.78

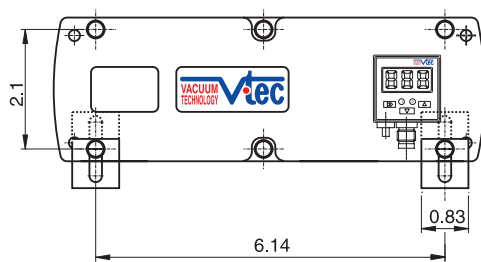
Port 1 : NPSF 1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

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



Port 1 : NPSF 1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(inch)	
Model	L1	L2
VTX25	1.79	8.13
VTX50	1.79	8.13
VTX75	2.56	8.90

[Measure unit : inch]

MM - Midiflex Pump

- Max. vacuum level : **-27.17 inHg** (-92 kPa)
- Max. flow rate : **77.69 scfm** (2200 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- Noise level : 55~65 dBA



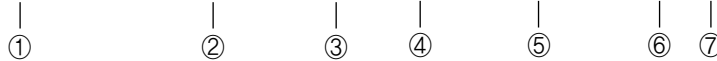
Main Advantages

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 3/4 NPSF 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 - N34 - AS A3 - SG2 - N V



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

- **VTMM100** – 1KW
- VTMM150 – 1.5KW
- VTMM200 – 2KW
- VTMM200F – 2KW

② **Vacuum port**

- **N34** – 2X3/4" NPSF (VTMM100, 150, 200)
- N01 – 1" NPSF (VTMM100, 150, 200)
- N02 – 1 1/2" NPT (VTMM200F)

③ **Air saving kit**

- 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTMM100	27.17	45,56	10,6-14,84	55~60	84,27	>8	>19	>22
VTMM150		61,46	15,9-22,25	55~65	90,23	>10	>25	>32
VTMM200		75,94	21,2-27,55	55~65	105,15	>10	>32	>40
VTMM200F		77,7	21,2-27,55	55~65	114,99	>10	>32	>40

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTMM100	45,56	29,81	19,85	10,28	5,16	3,85	2,55	1,42	0,71	0,12
VTMM150	61,46	42,6	24,73	14,84	7,63	5,73	6,36	2,12	0,96	0,16
VTMM200	75,94	54,04	35,67	18,37	10,25	7,63	5,09	2,83	1,42	0,23
VTMM200F	77,7	54,39	35,89	18,65	10,25	7,63	5,09	2,83	1,42	0,23

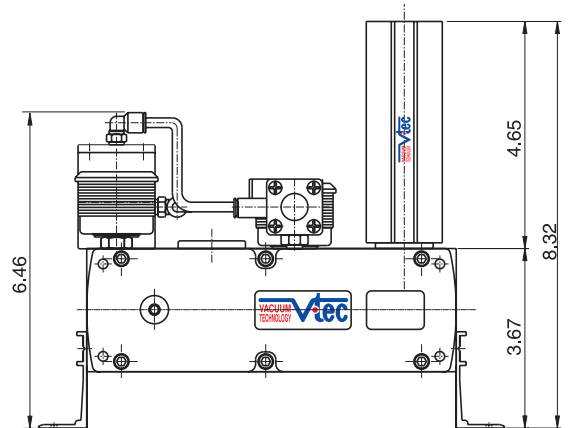
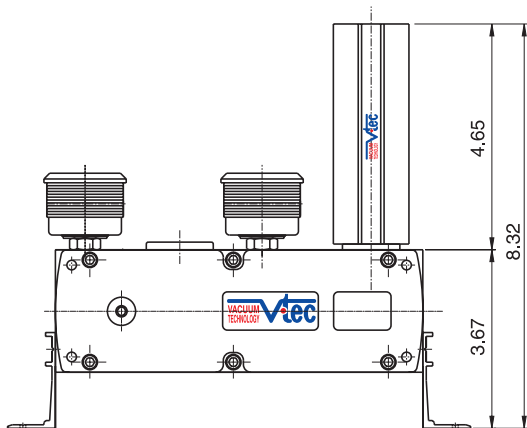
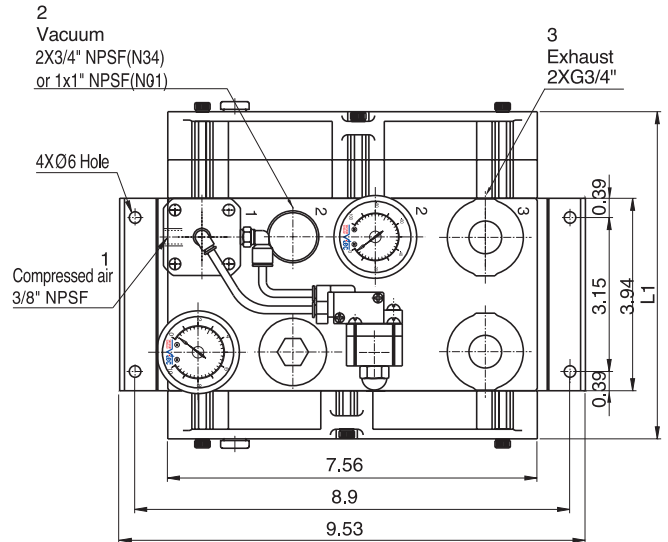
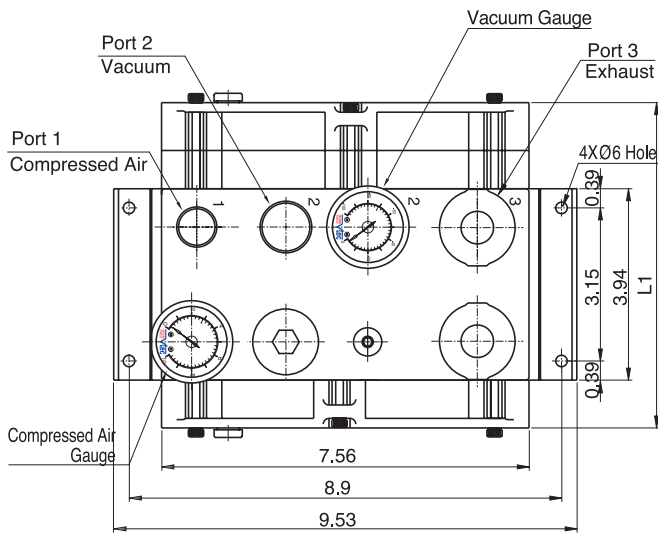
Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
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



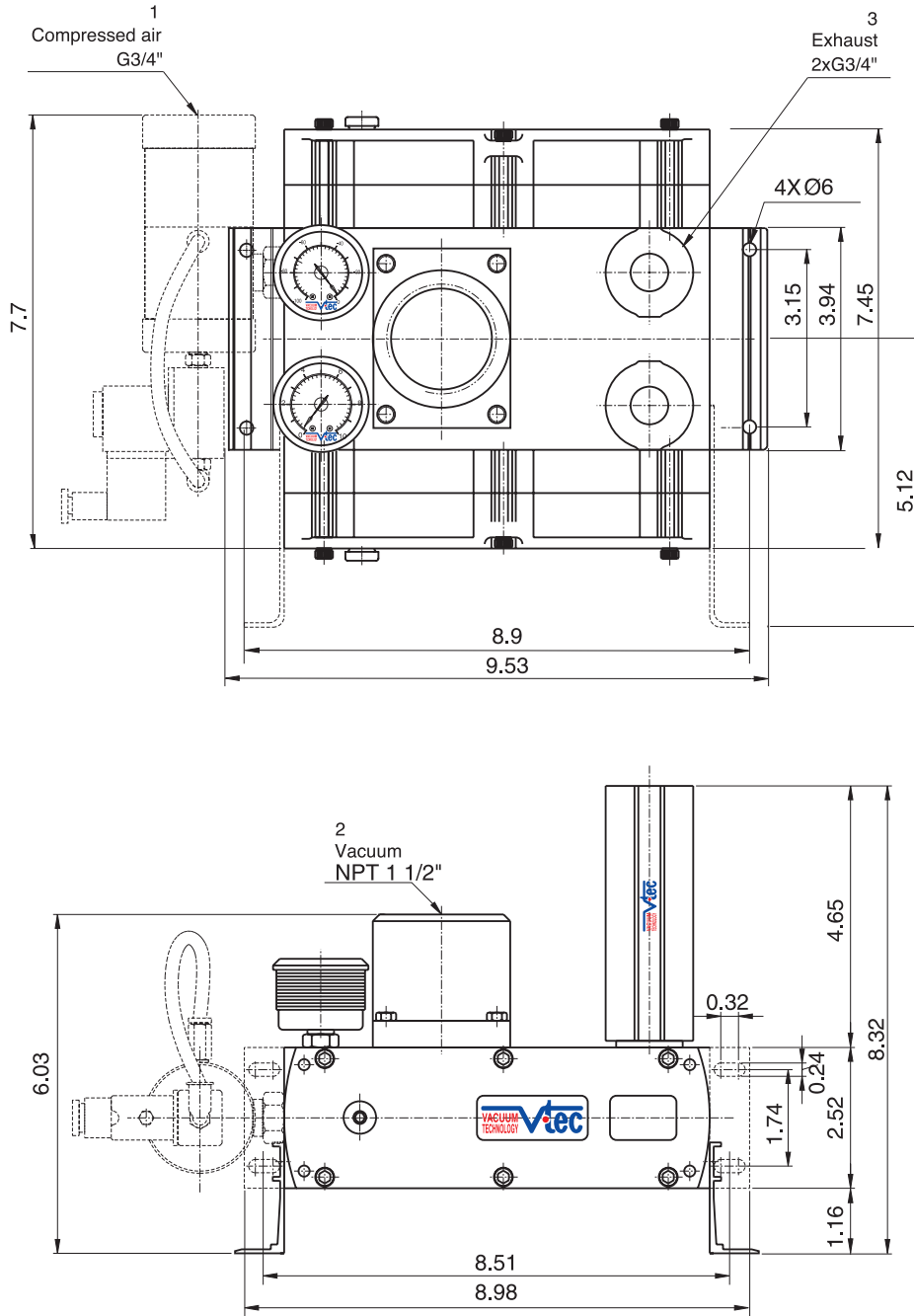
Port1 : 1/2" NPSF
Port2 : 2x3/4" NPSF(N34), 1x1" NPSF (N01)
Port3 : 2xG3/4"

[Measure unit : inch]

(inch)	
Model	L1
VTMM100	5.91
VTMM150	6.67
VTMM200	7.44

Dimensional Information

VTMM 200F with air supply control valve



[Measure unit : inch]

MX - Midiflex Pump

- Max. vacuum level : **-28.64inHg** (-97kPa)
- Max. flow rate : **47.85 scfm** (1355 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - N34 - 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**

- **N34** – 2X3/4" NPSF
- N01** – 1" NPSF

③ **Air saving kit**

- 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTMX100	28.64	24.54	17.8-21.19	63 ~ 68	84.3	>8	>19	>22
VTMX200		36.62	26.67-31.78	63 ~ 68	89.9	>10	>25	>32
VTMX300		47.85	35.6-42.38	63 ~ 68	121.2	>10	>32	>40

Vacuum flow in (scfm) at different Vacuum level (-inHg)

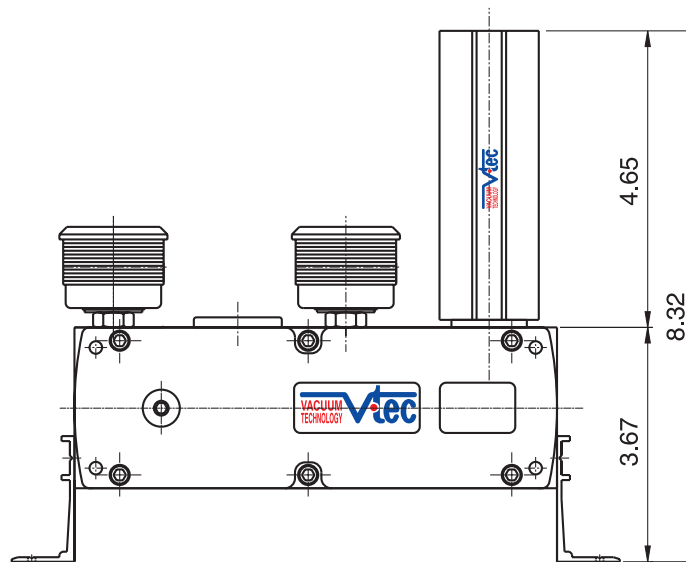
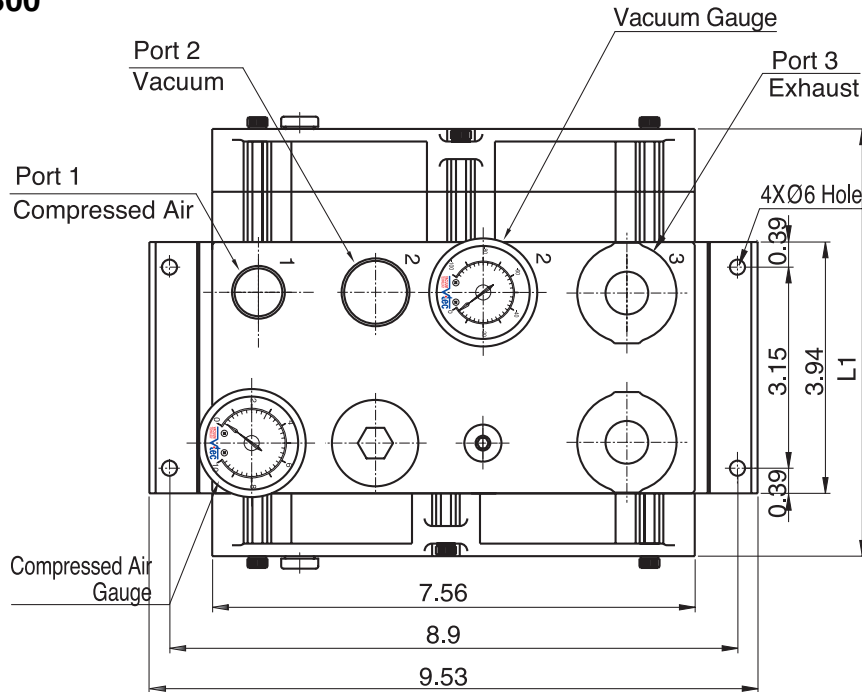
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05
VTMX100	24.54	20.06	14.51	9.18	4.91	3.81	2.96	2.12	1.59	0.6	0.21
VTMX200	36.62	29.8	21.72	14.05	7.45	5.72	4.45	3.17	2.43	0.91	0.31
VTMX300	47.85	38.7	28.71	18.71	10.2	7.62	5.93	4.23	3.25	1.16	0.42

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	28.05
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**



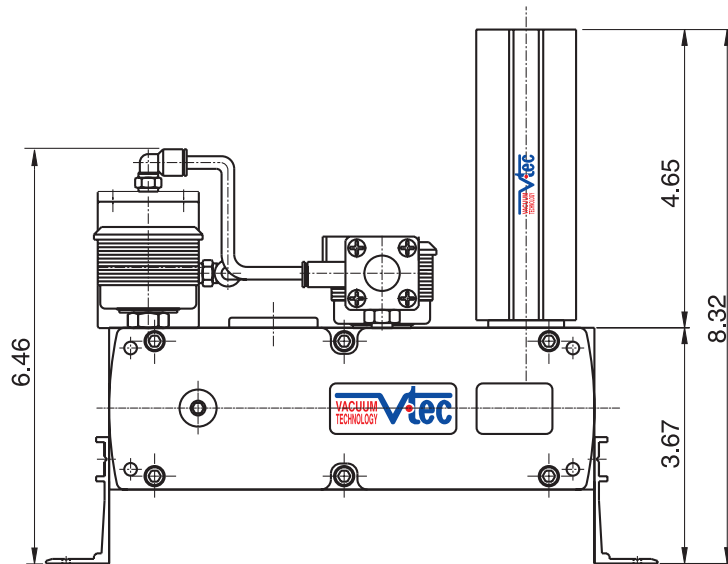
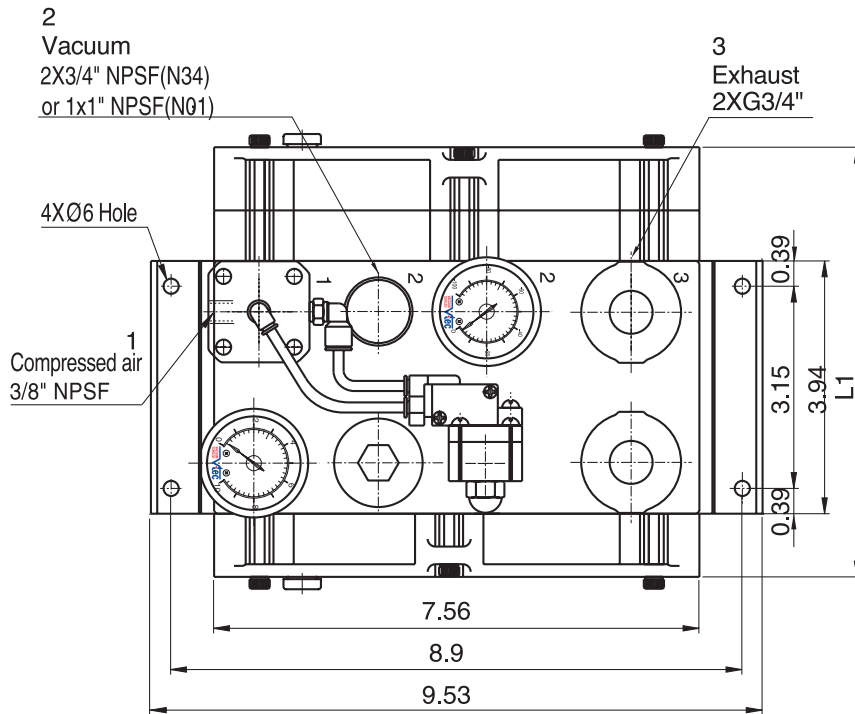
[Measure unit : inch]

- Port1 : 1/2" NPSF
- Port2 : 2x3/4" NPSF(N34), 1X1" NPSF(N01)
- Port3 : 2xG3/4"

Model	L1 (inch)
VTMX100	5.91
VTMX200	6.67
VTMX300	8.2

Dimensional Information

with AS - KIT



[Measure unit : inch]

Model	L1 (inch)
VTMX100	5.91
VTMX200	6.67
VTMX300	8.2

VACUUM PUMPS

H - Classic / H - Midiflex Pump

- Max. vacuum level : **-29.76 inHg** (-100.8 kPa)
- Max. flow rate : **36.8 scfm** (1042 NI/min)
- Supply air pressure : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - N1434 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	N 1412 A	NPT1/4"	NPT1/2"	Aluminium
	N 1434 A	NPT1/4"	NPT3/4"	
	N 1401 A	NPT1/4"	NPT 1"	
	N 1812 P	NPT1/8"	NPT1/2"	
VTH300	N 1834 P	NPT1/8"	NPT3/4"	All PPS
	N 34	G1/2"	2X3/4" NPSF	
	N 01	G1/2"	1" NPSF	

- ※ Remark :
- Air supply port with air control valve or AS-kit
VTH50, VTH150 : NPSF 1/4"
VTH300 : NPSF 3/8"
 - PPS Mat'l is available with VTH50, VTH150

- ③ Air saving Kit
- No mark – Standard
 - AS – Air saving kit attached

※ Remark : When ever apply AS-Kit Vacuum release control valve & vacuum switch is not applicable

- 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'
(See page : 336, 337)

- 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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTH50	29.76	6.53	4.24-5.51	60-65	22.29	>8	>12	>12
VTH150		18.40	14.83-16.10	60-65	27.51	>8	>15	>15
VTH300		36.80	30.73-32.21	60-65	94.60	>10	>19	>22

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
VTH50	6.53	5.19	3.74	2.33	1.13	0.74	0.53	0.34	0.28	0.13	0.04	0.01
VTH150	18.40	14.94	10.84	6.99	3.7	2.75	1.91	1.38	0.95	0.28	0.13	0.02
VTH300	36.80	29.88	21.68	13.99	7.42	5.51	3.81	2.75	1.91	0.55	0.25	0.03

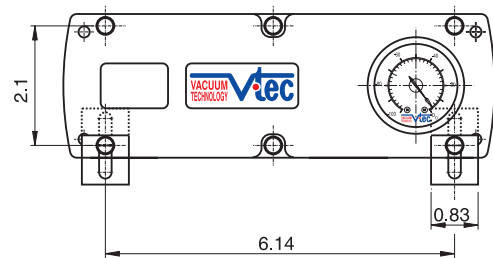
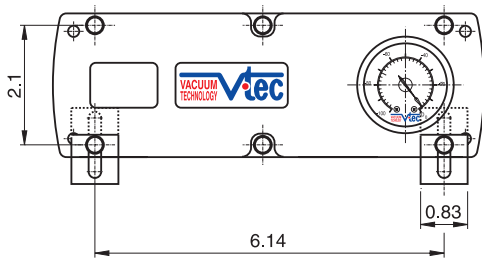
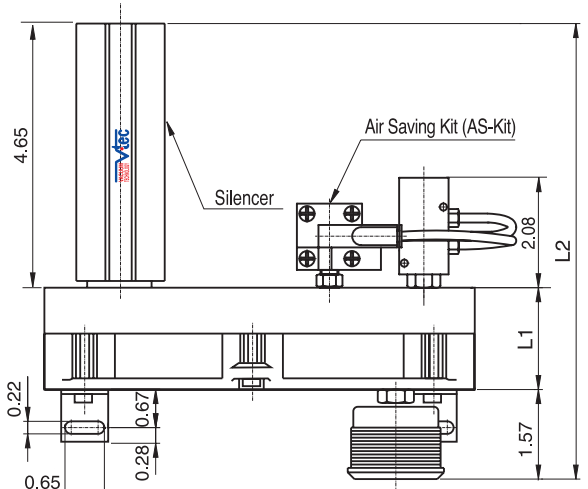
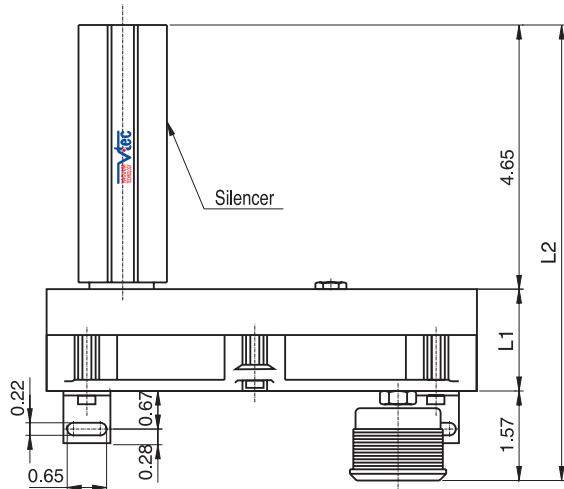
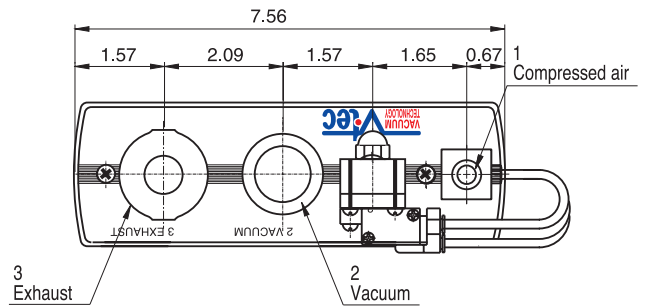
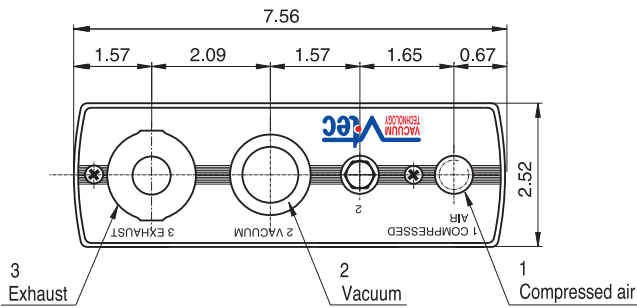
Time in seconds to evacuate to vacuum level (sec/l)

Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57	28.05	29.23
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 : inch]

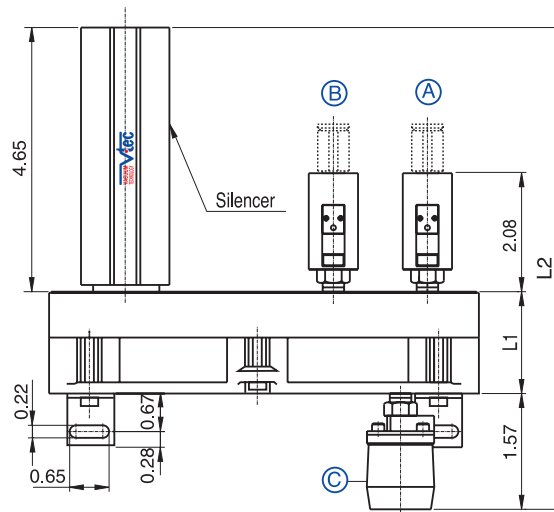
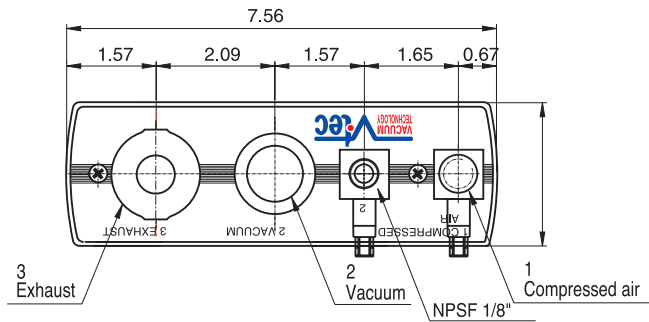
Port 1 : NPT1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

	(inch)	
Model	L1	L2
VTH50	1.79	8.01
VTH150	2.56	8.78

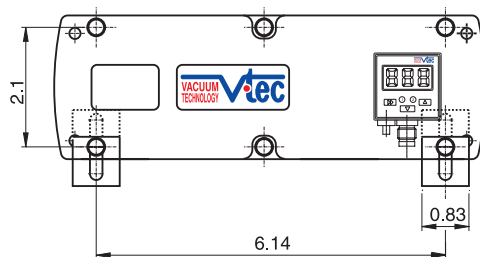
Port 1 : NPSF 1/4"
 Port 2 : NPT1/2", NPT3/4", NPT 1"
 Port 3 : G3/4"

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



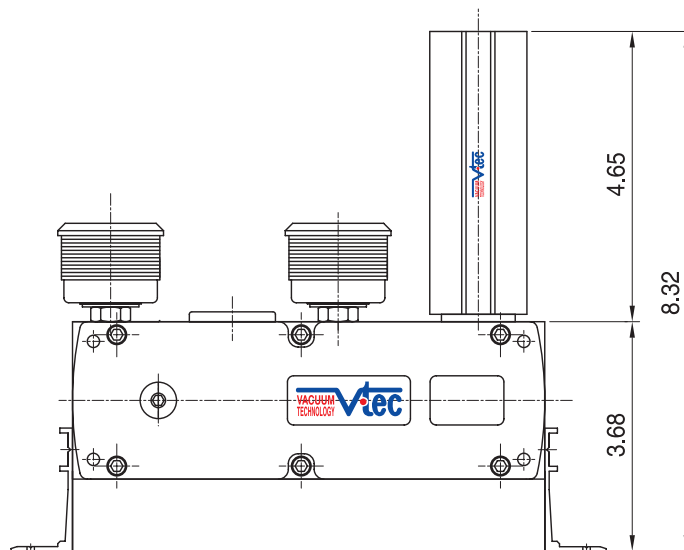
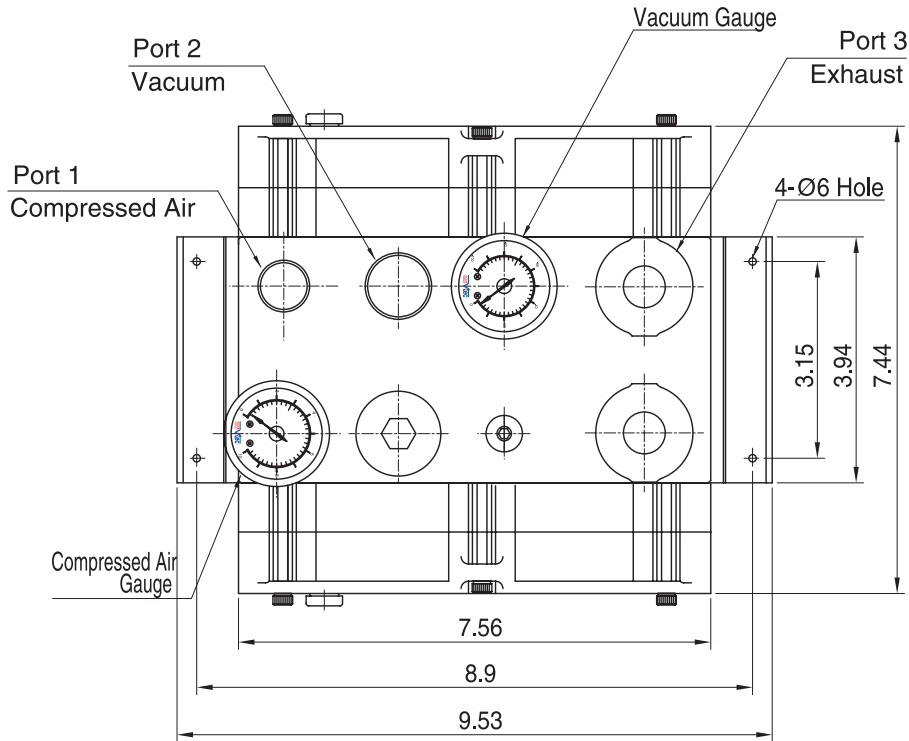
[Measure unit : inch]

- Port 1 : NPSF 1/4"
- Port 2 : NPT1/2", NPT3/4", NPT 1"
- Port 3 : G3/4"

	(inch)	
Model	L1	L2
VTH50	1.79	8.13
VTH150	2.56	8.9

Dimensional Information

Standard
VTH 300

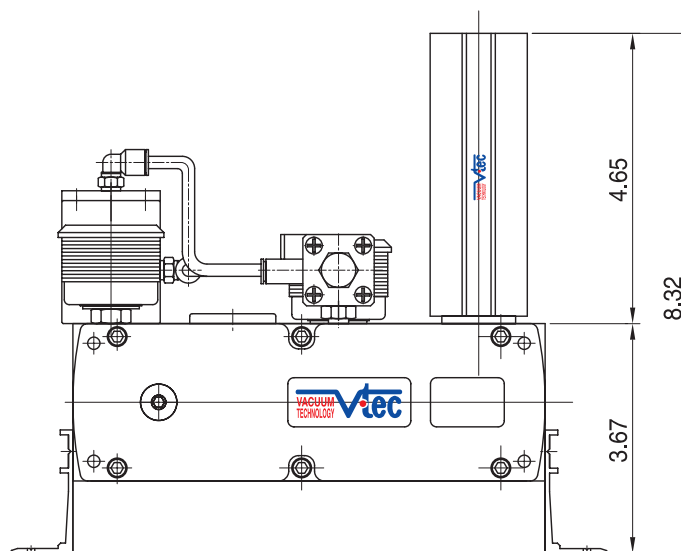
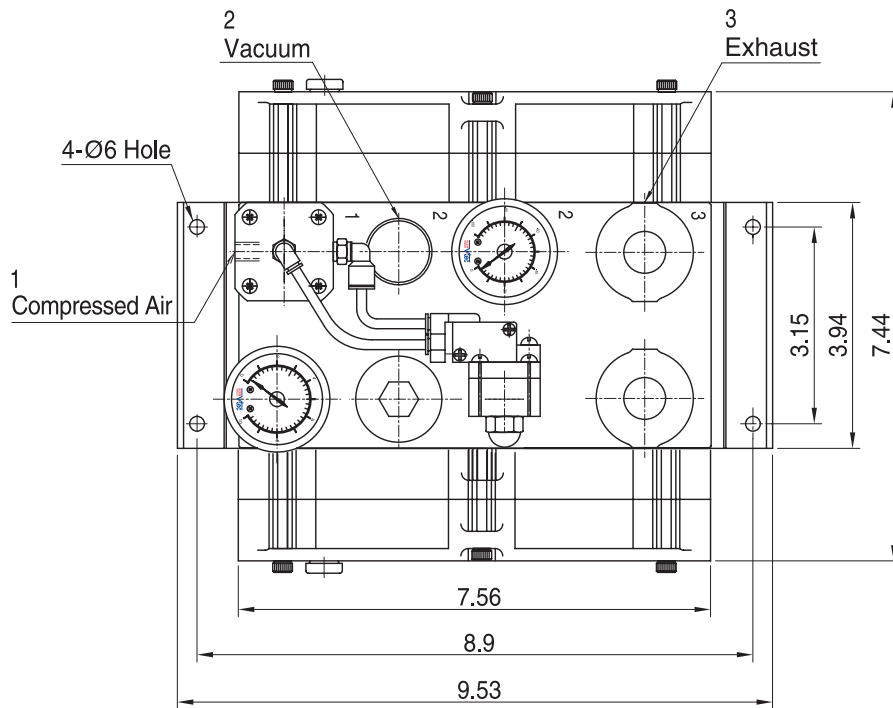


[Measure unit : inch]

- Port1 : 1/2" NPSF
- Port2 : 2x3/4" NPSF(N34), 1x1" NPSF(N01)
- Port3 : 2xG3/4"

Dimensional Information

with AS - KIT



[Measure unit : inch]

- Port1 : 3/8" NPSF
- Port2 : 2x3/4" NPSF(N34), 1x1" NPSF(N01)
- Port3 : 2xG3/4"

L - Maxflex Pump

- Max. vacuum level** : -26.87 inHg (-91 kPa)
- Max. flow rate** : 215.4 scfm (6100 NI/min)
- Supply air pressure** : 43.5~87 psi, max 101.5psi
(3~6bar, max 7bar)
- Supply air type** : Dry compressed air
- Working temperature** : -4 °F ~ 176 °F
- 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 - 1 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 **Vacuum port**

- **1** – Dry seal thread (NPT)
- No mark – BSP thread (G)

③ **Air saving kit**

- 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 S₁(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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTM150LEF	26.87	59,34	24,16	55~65	110,87	>8	>25	>32
VTM200LEF		74,17	32,21	55~65	114,99	>10	>32	>40
VTM300LEF		91,83	48,32	55~68	129,10	>12	>40	>60
VTM400LEF		112,31	64,42	55~68	204,06	>12	>40	>60
VTM500LEF		148,34	80,53	60~68	221,34	>14	>45	>70
VTM600LEF		176,94	96,63	60~68	234,25	>14	>50	>70
VTM800LEF		215,44	128,84	60~68	264,45	>15	>50	>75

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTM150LEF	59,34	29,6	22,68	15,52	8,65	6,74	5,09	3,44	1,4	0,16
VTM200LEF	74,17	44,5	31,79	20,69	11,53	8,99	6,79	4,58	1,87	0,21
VTM300LEF	91,83	63,58	44,5	31,03	17,3	13,48	10,18	6,87	3,25	0,31
VTM400LEF	112,31	84,77	56,79	41,36	23,06	17,97	13,57	9,16	3,73	0,41
VTM500LEF	148,34	104,19	71,34	51,71	28,82	22,47	16,96	11,45	4,67	0,51
VTM600LEF	176,94	121,85	86,53	62,06	34,59	26,96	20,35	13,74	5,6	0,62
VTM800LEF	215,44	148,34	117,96	82,72	46,13	35,96	27,13	18,31	7,46	0,82

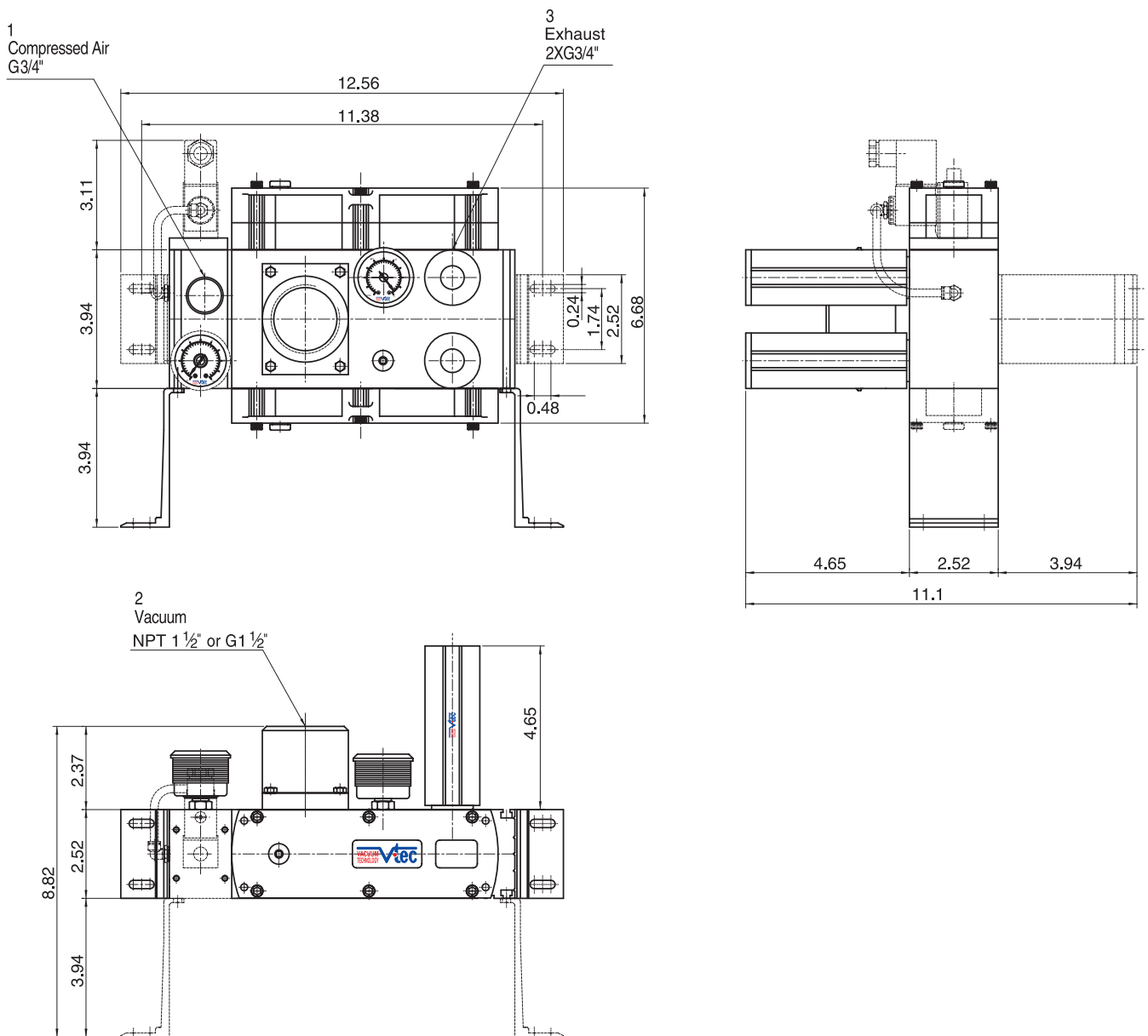
VACUUM PUMPS

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
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

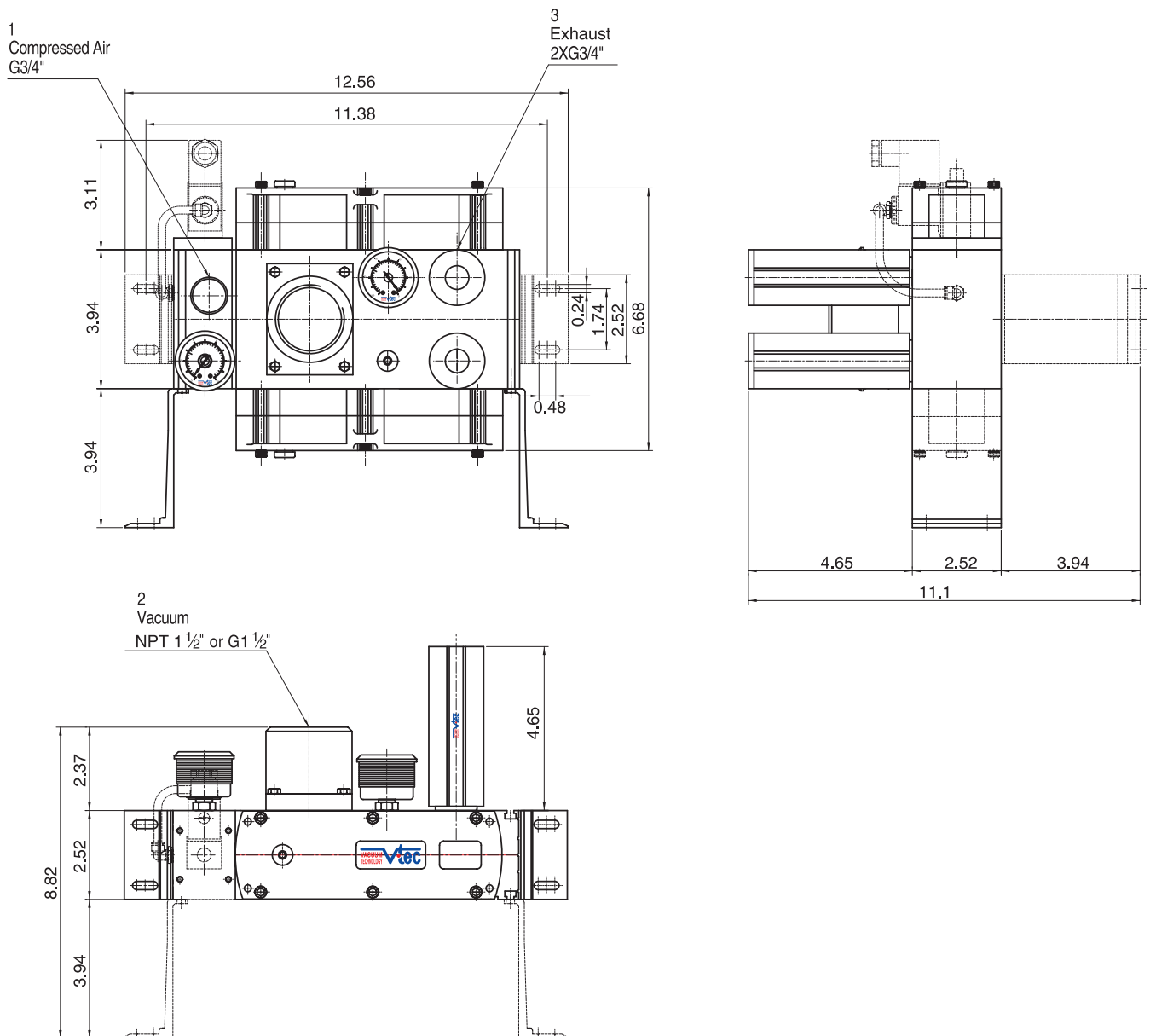
VTM150LEF



[Measure unit : inch]

Dimensional Information

VTM200LEF



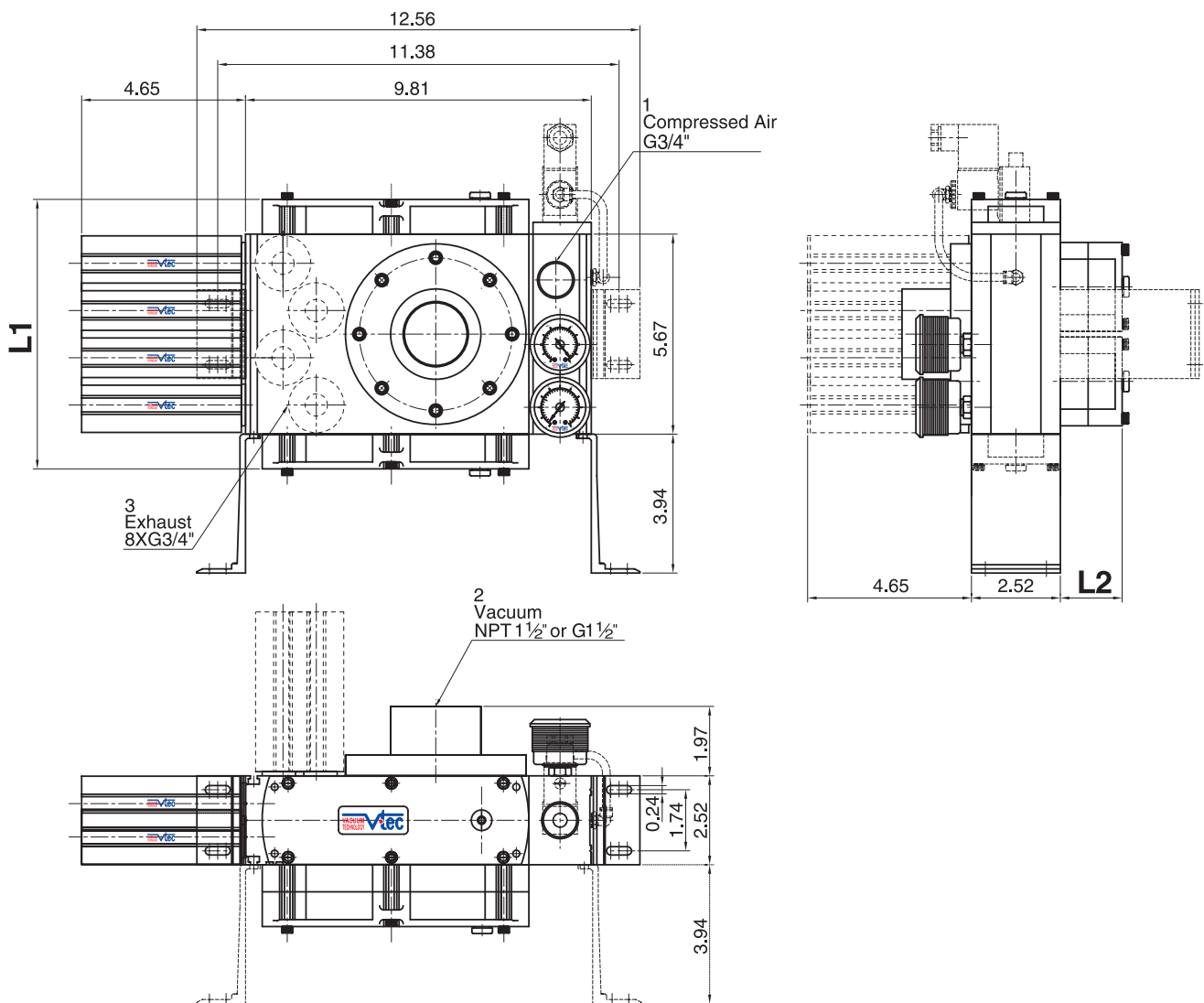
VACUUM PUMPS

[Measure unit : inch]

Dimensional Information

VTM300LEF

400
500



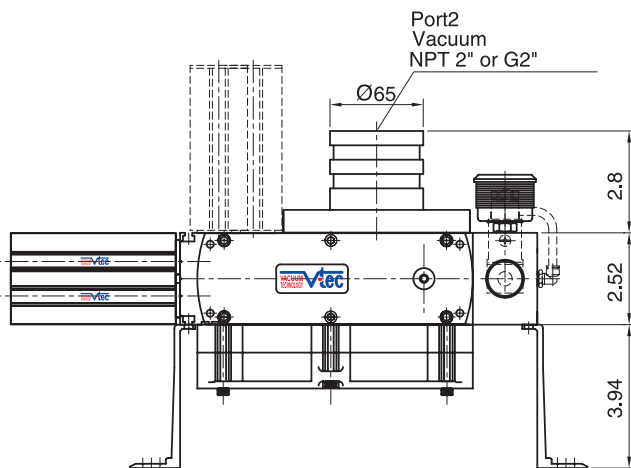
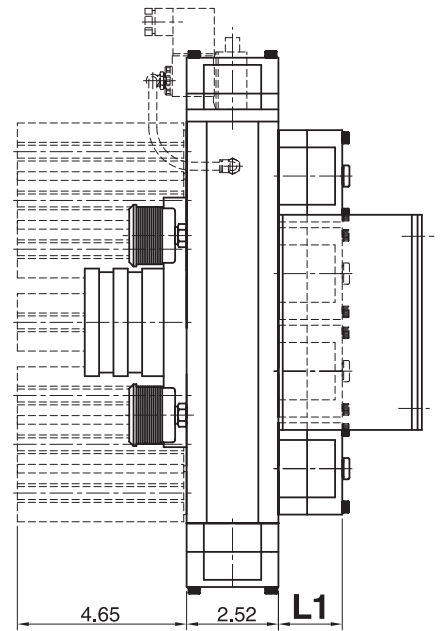
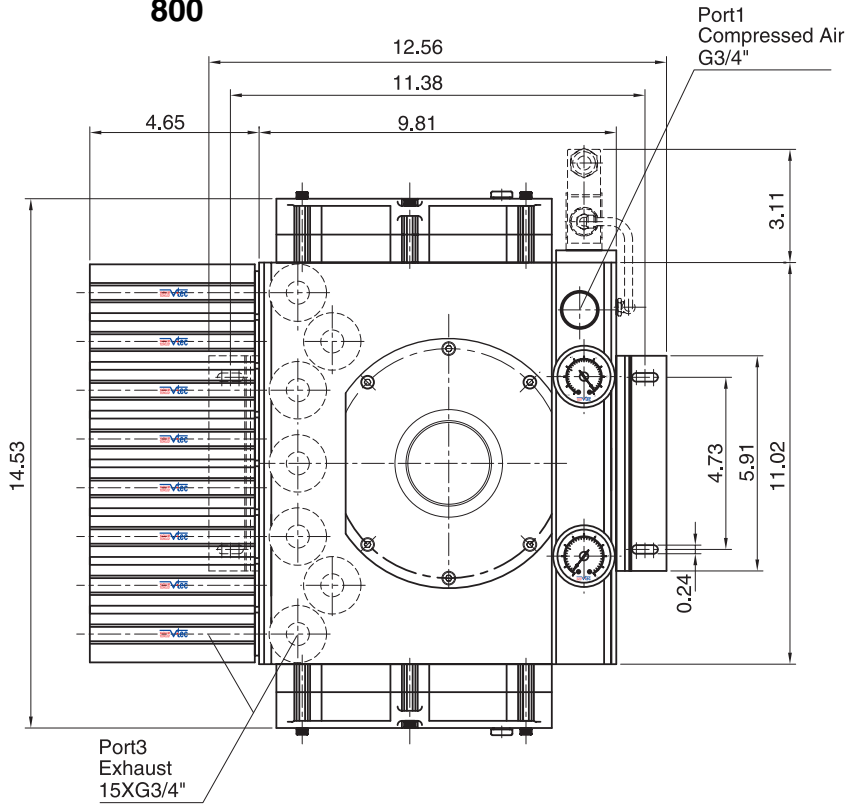
[Measure unit : inch]

(inch)

Model	L1	L2
VTM300LEF	7.64	1.76
VTM400LEF	9.18	1.76
VTM500LEF	9.18	2.52

Dimensional Information

VTM600LEF
800



[Measure unit : inch]

(inch)	
Model	L1
VTM600LEF	1.76
VTM800LEF	2.52

VACUUM PUMPS

M - Maxflex Pump

- Max. vacuum level : -27.17 inHg (-92 kPa)
- Max. flow rate : 388.5 scfm (11000 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi (4~6bar, max 7bar)
- Supply air type : Dry compressed air
- Working temperature : -4 °F ~ 176 °F
- 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 - 1 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 **Vacuum port**

- **1** – Dry seal thread (NPT)
- No mark – BSP thread (G)

③ **Air saving kit**

- 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

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)

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 (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTMM200EF	27,17	77,697	21,190–27,547	55~65	150,620	>10	>32	>40
VTMM300EF		116,545	31,785–44,499	55~65	196,720	>12	>40	>60
VTMM400EF		155,393	42,380–59,332	55~65	209,492	>12	>40	>60
VTMM500EF		194,242	52,975–74,165	65~68	221,344	>14	>45	>70
VTMM600EF		233,090	63,570–88,998	65~68	408,437	>14	>50	>70
VTMM800EF		310,787	84,760–118,664	65~68	433,870	>15	>50	>75
VTMM1000EF		388,483	105,950–146,211	65~68	557,329	>18	>65	>90

Vacuum flow in (scfm) at different Vacuum level (-inHg)

Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.71	20.67	23.62	26.57
VTMM200EF	77,697	54,388	35,882	18,647	10,242	7,628	5,086	2,825	1,413	0,226
VTMM300EF	116,545	81,582	62,899	28,006	15,363	11,443	7,628	4,238	2,119	0,339
VTMM400EF	155,393	108,775	71,905	37,365	20,484	15,257	10,171	5,651	2,825	0,452
VTMM500EF	194,242	135,969	89,881	46,724	25,605	19,071	12,714	7,063	3,532	0,565
VTMM600EF	233,090	163,163	107,892	56,083	30,726	22,885	15,257	8,476	4,238	0,678
VTMM800EF	310,787	217,692	143,951	74,836	40,967	30,514	20,342	11,301	5,651	0,904
VTMM1000EF	388,483	271,938	179,762	93,448	51,209	38,142	25,428	14,127	7,063	1,130

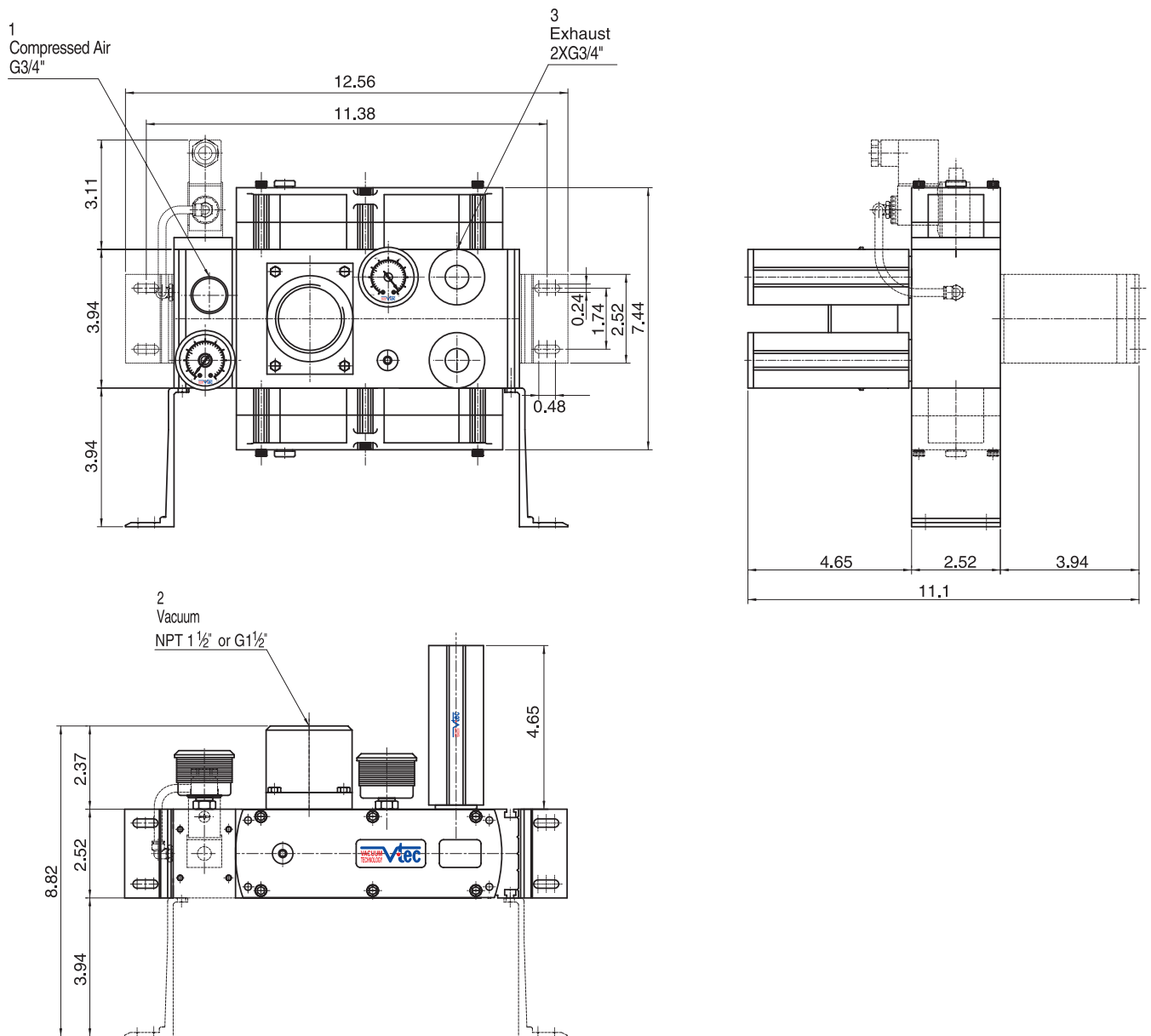
VACUUM PUMPS

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
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

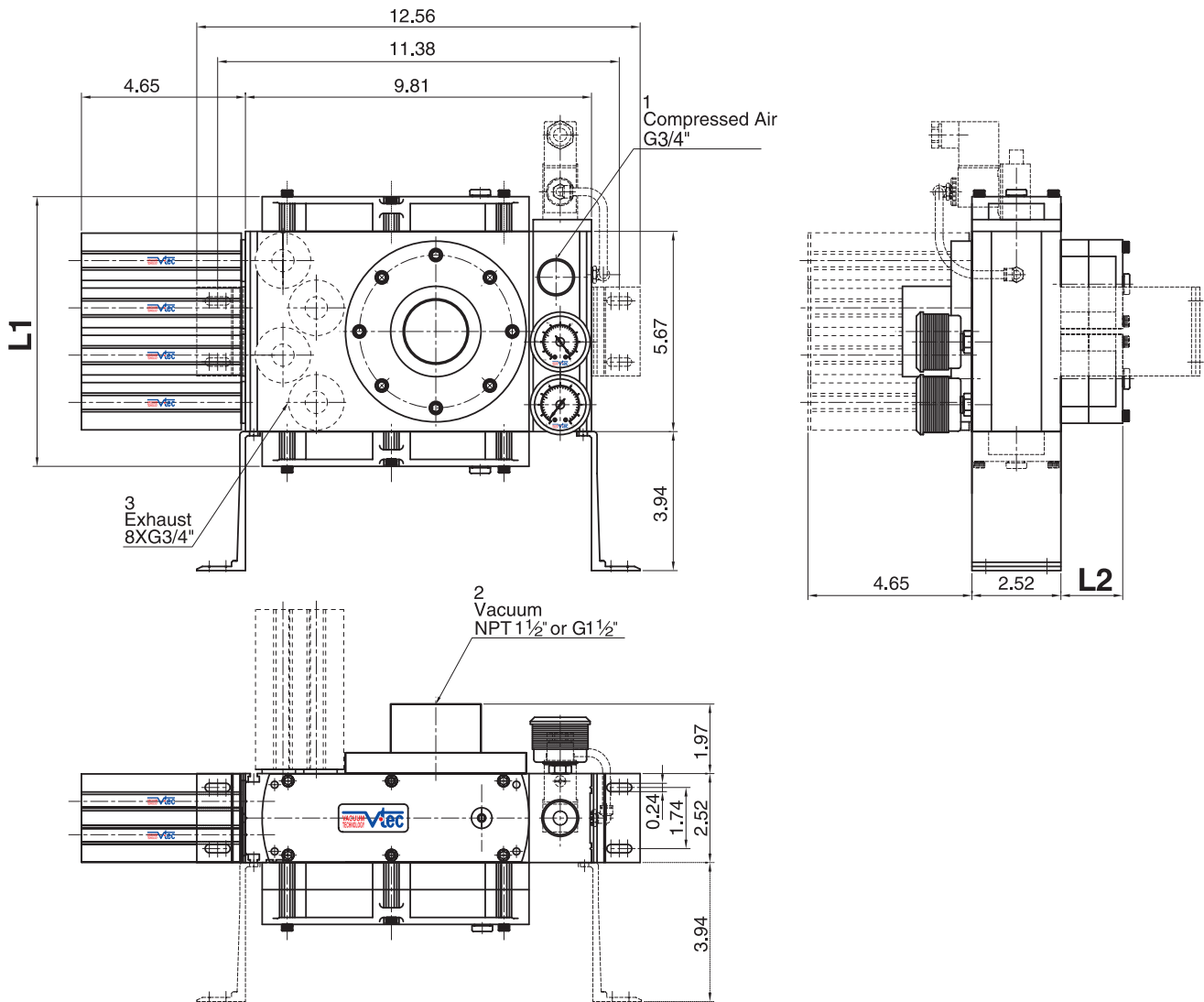


[Measure unit : inch]

Dimensional Information

VTMM300EF

400
500



[Measure unit : inch]

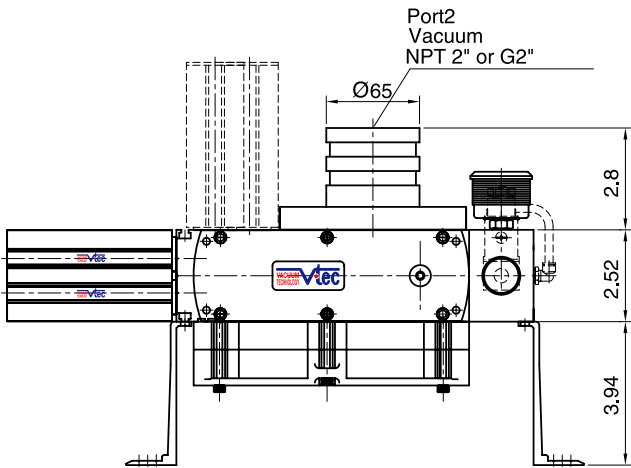
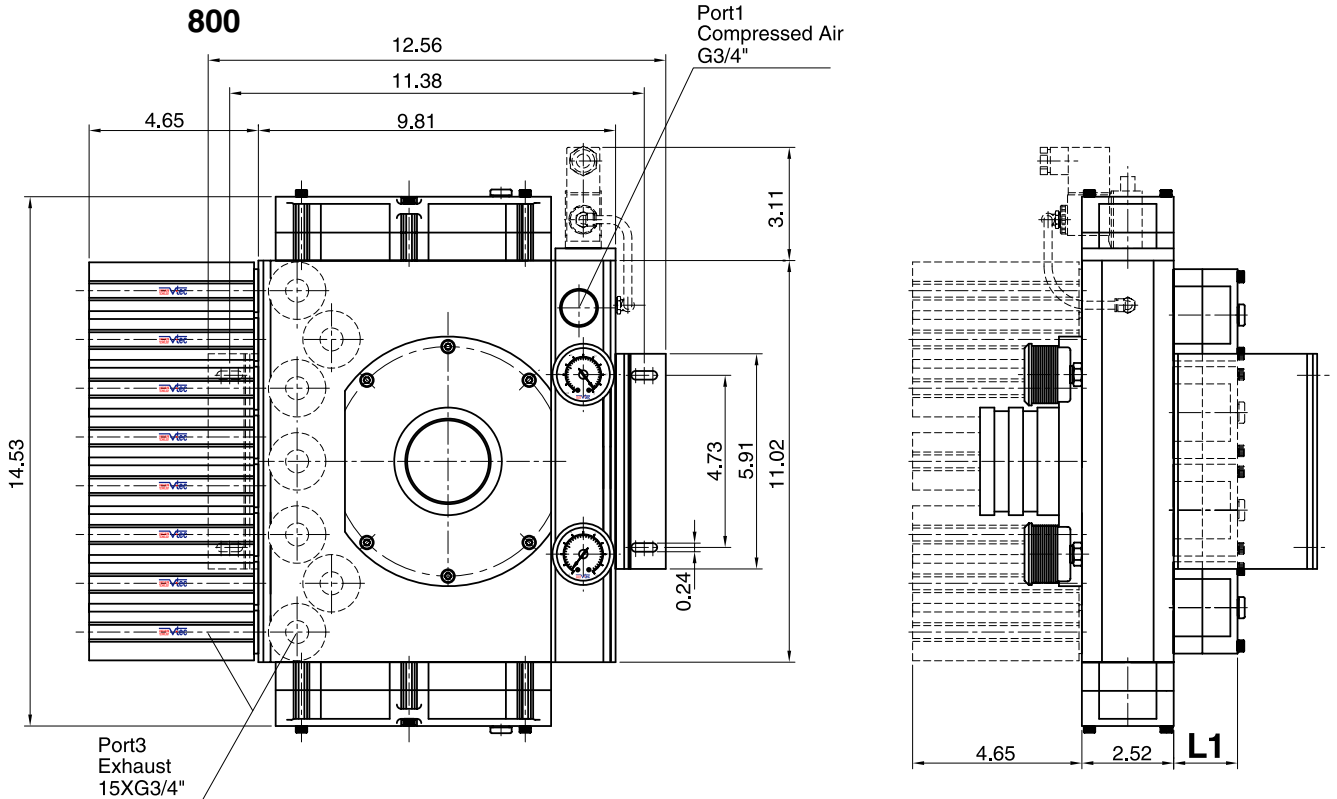
(inch)

Model	L1	L2
VTMM300-EF	7.638	1.752
VTMM400-EF	9.173	1.752
VTMM500-EF	9.173	2.539

VACUUM PUMPS

Dimensional Information

VTMM600EF

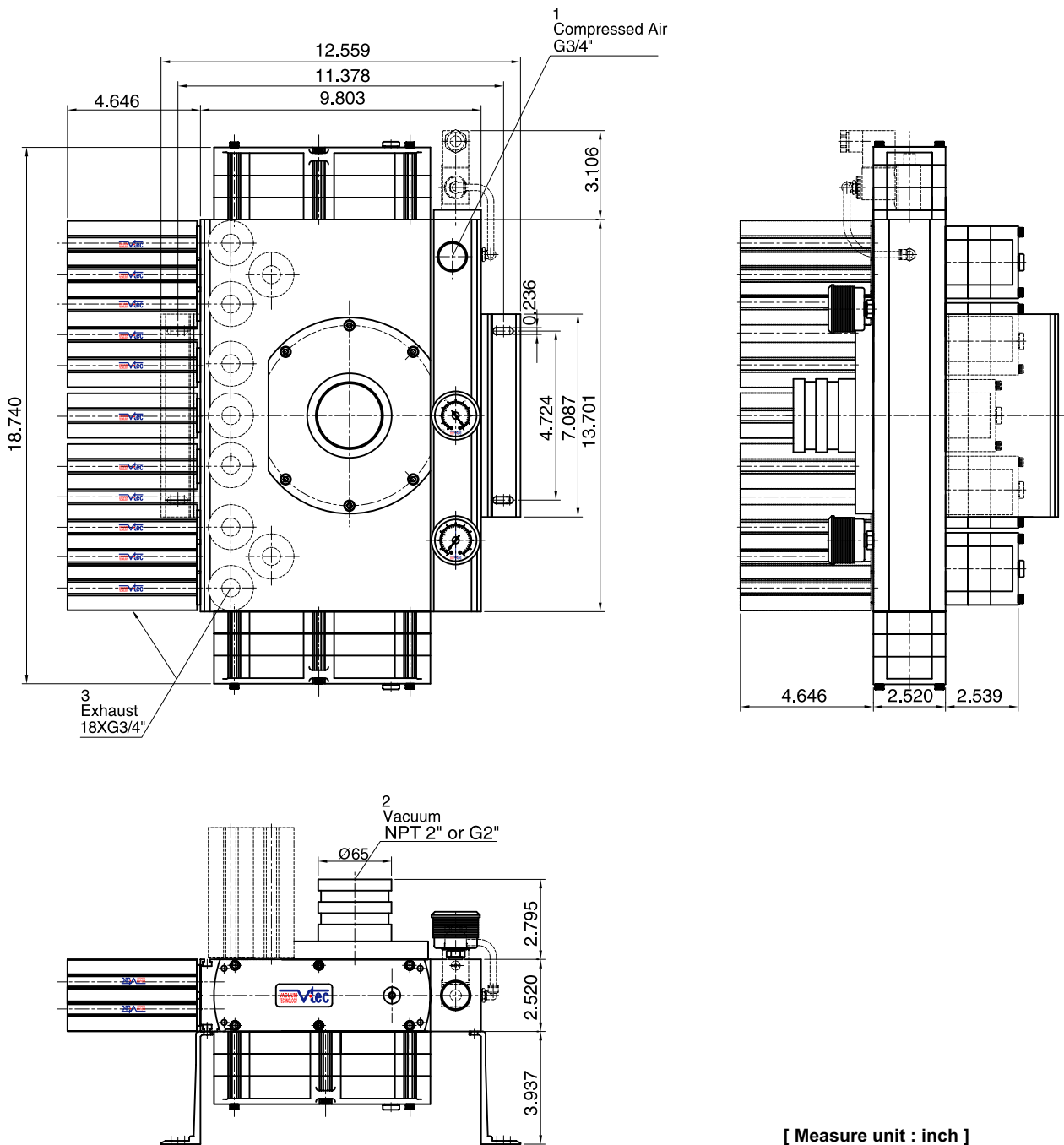


[Measure unit : inch]

(inch)	
Model	L1 (mm)
VTMM600-EF	1.752
VTMM800-EF	2.520

Dimensional Information

VTMM1000EF



VACUUM PUMPS



MEGA PUMPS



Mega Pump

- Max. vacuum level* : **-27.17 inHg** (-92 kPa)
- Max. flow rate* : **510.6 scfm** (14460 NI/min)
- Supply air pressure* : **58~87 psi, max 101.5psi**
(4~6bar, max 7bar)
- Supply air type* : Dry compressed air
- Working temperature* : -4 °F ~ 176 °F
- Noise level* : 68~76 dBA

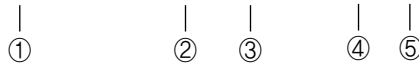


Main Advantages

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 - 1 AS - N V



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

- **VTML200** – 2KW
- VTML400 – 4KW
- VTML600 – 6KW
- VTML800 – 8KW
- VTML1000 – 10KW
- VTML1200 – 12KW

② **Vacuum port**

- **1** – Dry seal thread (NPT)
- No mark – BSP thread (G)

④ **Non return valve**

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

③ **Air saving kit**

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

⑤ **Sealing**

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

Characteristics

Model	max. vacuum (-inHg)	Max. vacuum flow (scfm)	air consumption (scfm)	noise level (dBA)	weight (oz.)	min hose inner Ø (within 6.5ft.)		
						air supply	vacuum	exhaust
VTML200	27.17	85,12	21,2–27,55	68–76	173,76	>10	>32	>40
VTML400		170,23	42,39–59,34	68–76	180,46	>12	>40	>60
VTML600		255,34	63,58–89	68–76	208,12	>14	>50	>70
VTML800		340,46	84,77–78,67	68–76	236,34	>15	>50	>75
VTML1000		425,57	105,96–146,22	68–76	275,14	>18	>65	>90
VTML1200		510,68	127,15–173,76	68–76	310,40	>20	>75	>100

Vacuum flow in (scfm) at different Vacuum level (-inHg)

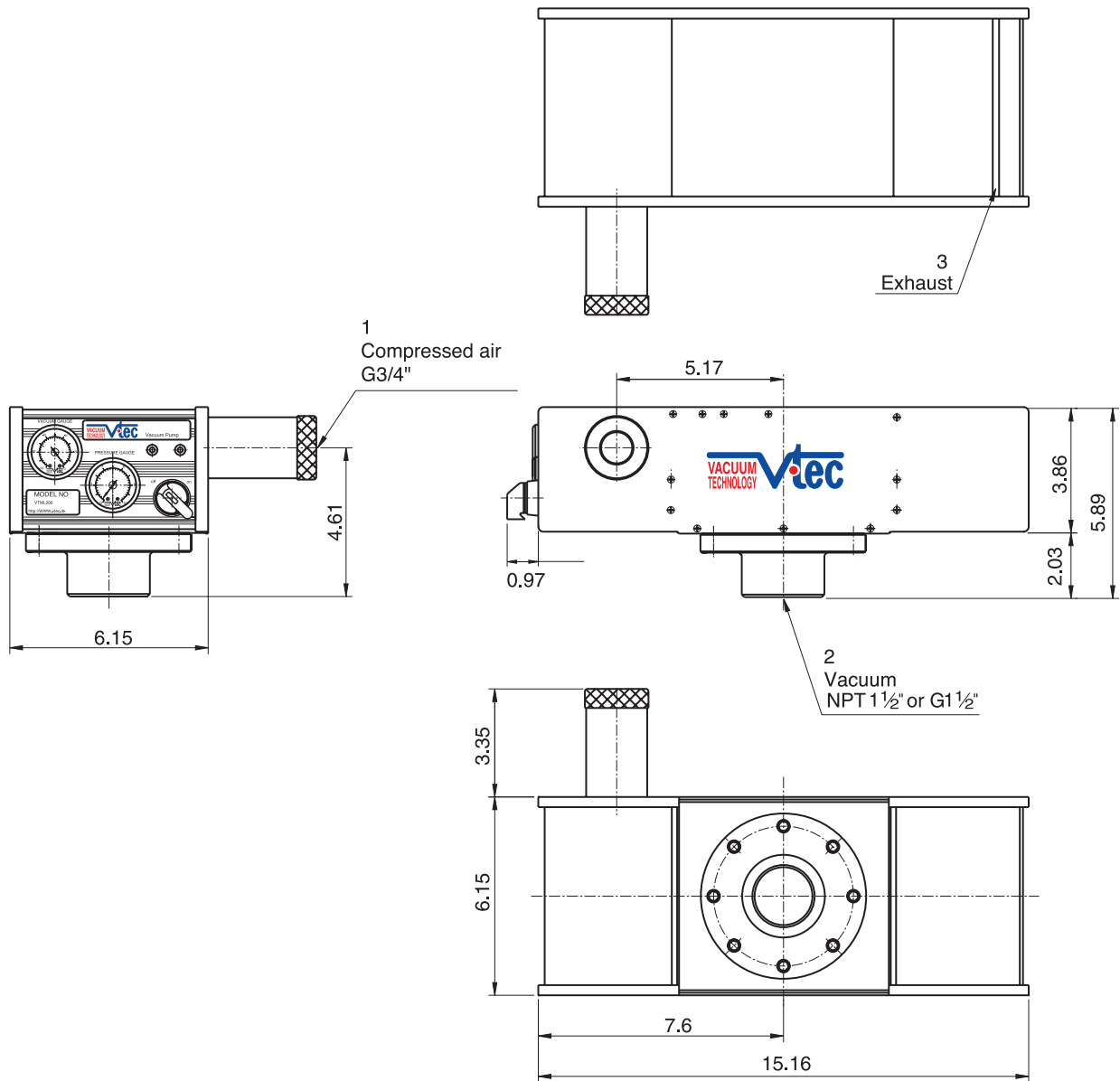
Model \ -inHg	0	2.95	5.9	8.85	11.81	14.76	17.76	20.67	23.62	26.57
VTML200	85,12	59,62	39,41	20,49	10,25	7,63	5,09	2,83	1,42	0,23
VTML400	170,23	119,23	78,83	40,97	20,49	15,26	10,18	5,65	2,83	0,46
VTML600	255,34	178,85	118,25	61,46	30,73	22,89	15,26	8,48	4,24	0,68
VTML800	340,46	238,45	157,66	81,94	40,97	30,52	20,35	11,31	5,66	0,90
VTML1000	425,57	298,08	197,07	102,43	51,21	38,15	25,43	14,13	7,07	1,14
VTML1200	510,68	357,69	236,49	122,91	61,46	45,78	30,52	16,96	8,48	1,36

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

Model \ -inHg	2.95	5.9	8.85	11.81	14.76	17.76	20.67	23.62	26.57
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

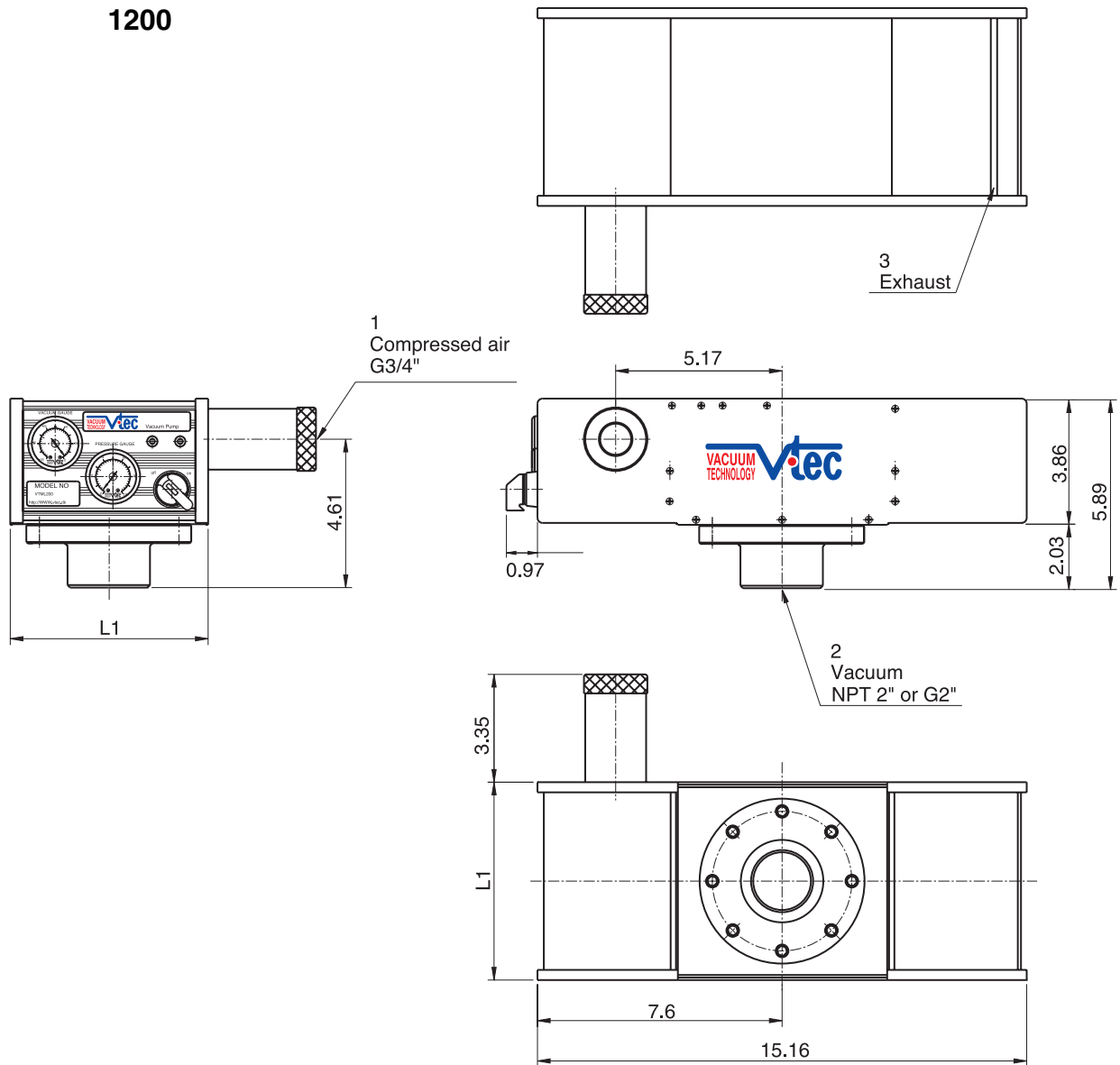


[Measure unit : inch]

Dimensional Information

VTML600

- 800**
- 1000**
- 1200**



VACUUM PUMPS

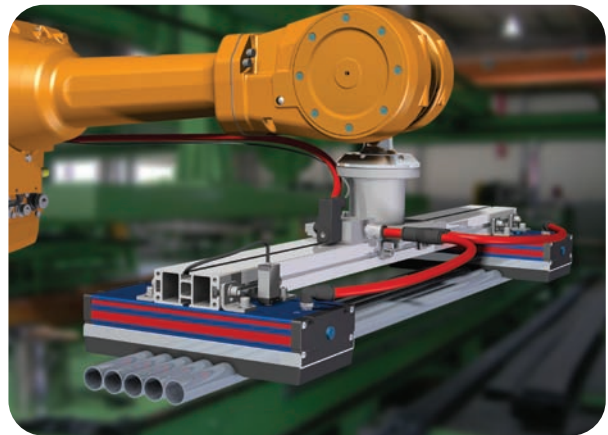
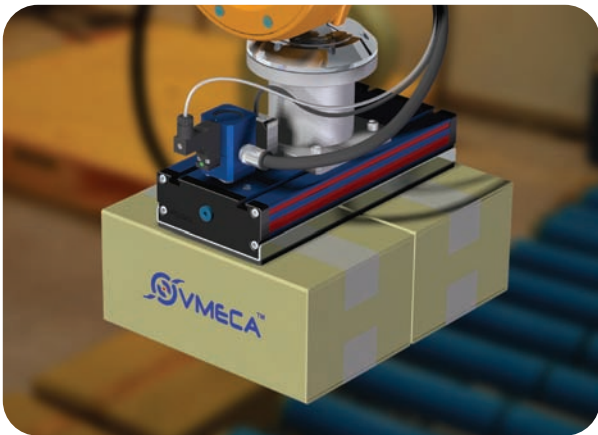
[Measure unit : inch]

(inch)

Model	L1
VTML600	8.67
VTML800	11.19
VTML1000	13.71
VTML1200	16.23

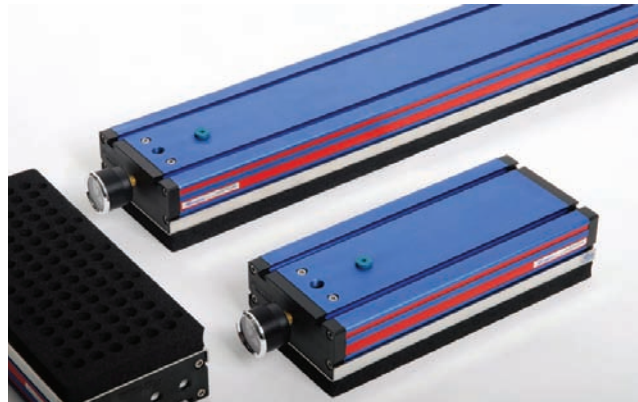
V-GRIP SYSTEM





VG-Series

- Max. vacuum level : -22.15 inHg (-75 kPa)
- Max. flow rate : 51.1 scfm (1,448 NI/min)
- Supply air pressure : 58~87 psi, max 101.5psi (4~6bar, max 7bar)
- Air consumption : 14.6 scfm (416 NI/min)
- Supply air type : Dry compressed air
- Working temperature : -4 °F~ 176 °F
- Noise level : 55~65 dBA

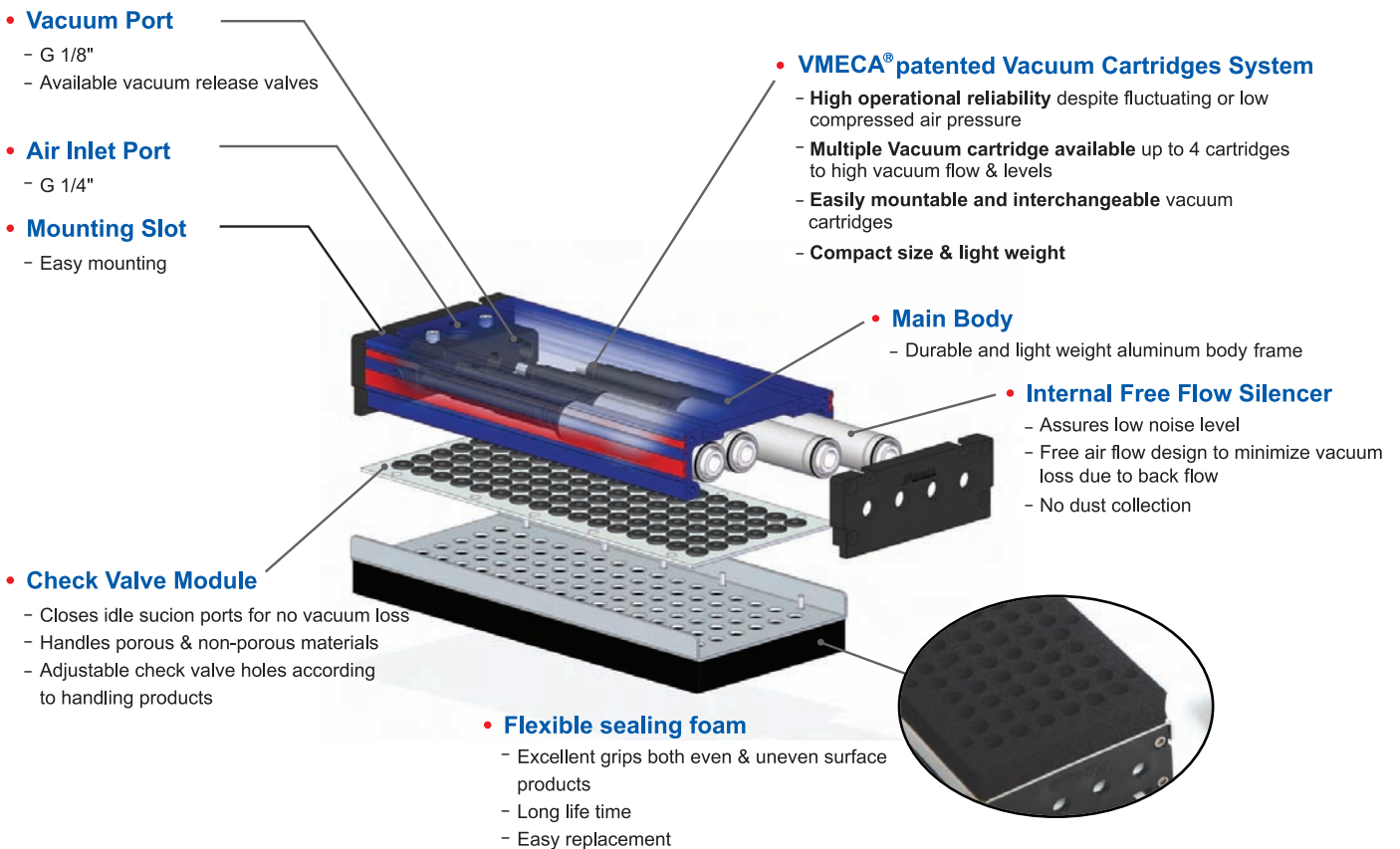


Features

- 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

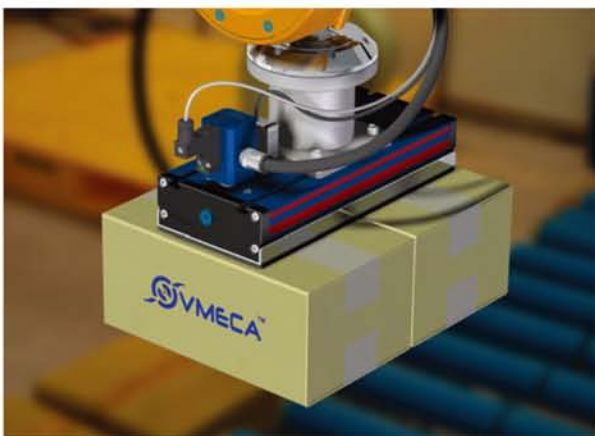
TYPE	Air inlet pressure (psi)	Air consumption (scfm)	Max.Vacuum Flows (scfm)	Max.Vacuum level (-inHg)
VG 130x300 L2 ES..	87	7,3	25,5	22,1
VG 130x300 L4 ES..	87	11	38,3	22,1
VG 130x300 L4 ES..	87	14,6	51,1	22,1

TYPE	Holding force at 40% Sealing (lb.f)**	Holding force at 60% Sealing (lb.f)**	Holding force at 80% Sealing (lb.f)**	Weight (NET) oz.*
VG 130x300 L2 ES..	60,7	92,1	137,1	100,5
VG 130x300 L3 ES..	69,7	118	158,4	100,1
VG 130x300 L4 ES..	107,9	159,6	213,5	100,1

** NOTE : Actual figures might be different according to surface and porousness of product

* Weight of Flange mount not included

Application



V-GRIP SYSTEM

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

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

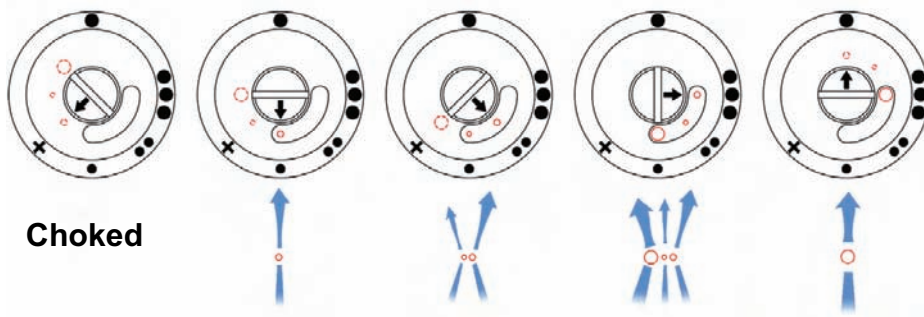
- R1 - G1/8", N/C, AC110V
- R2 - G1/8", N/C, AC220V
- **R3** - G1/8", N/C, DC24V

⑧ Vacuum switch

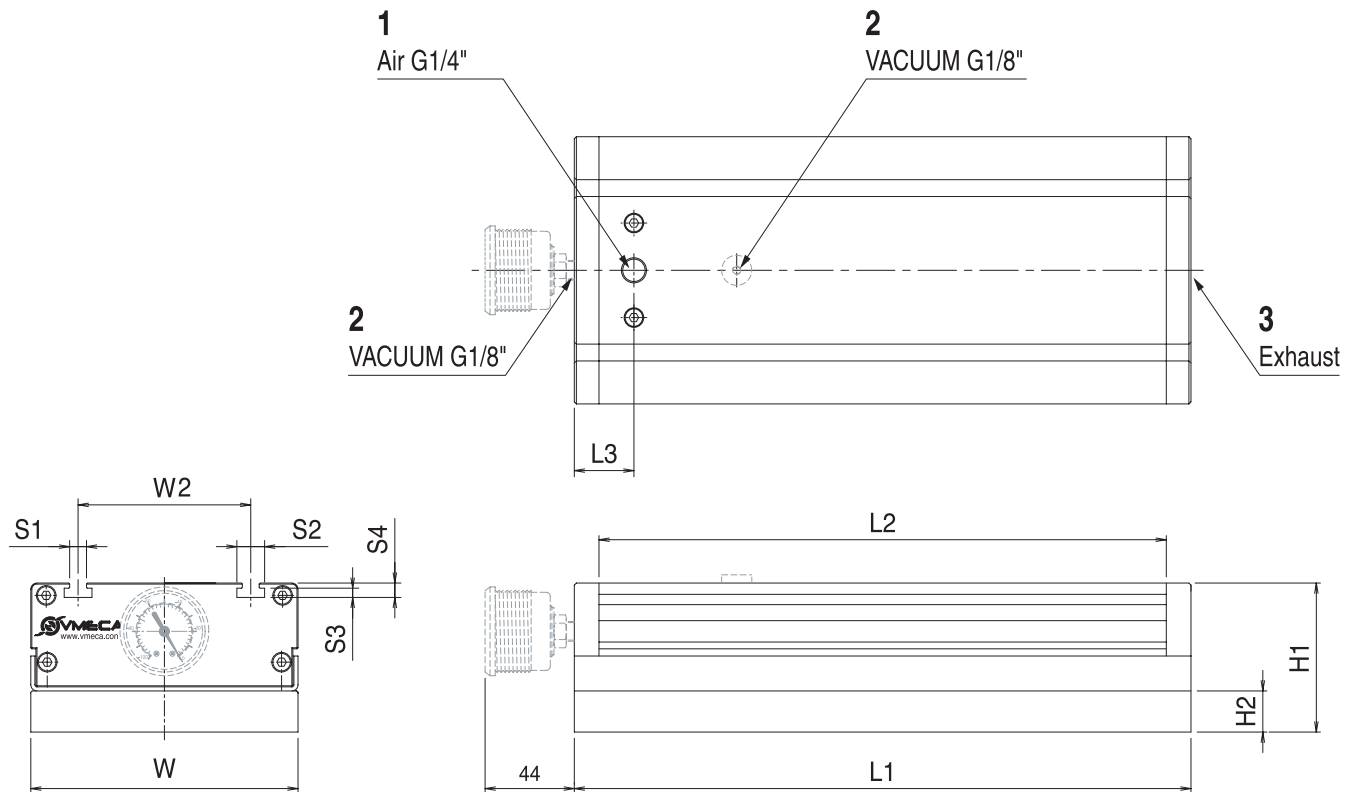
- **G** - Dial gauge attached
- - Not attached
- S2(P) - Digital output 2points, No analog supply.
M8-4Pin male connector.(0.3m lead wire)
- SG2(P) - Digital output 2 points, No analog supply.
Grommet type 4-Core 2m lead wire.
- SG3(P) - Digital output 2 points, Analog supply.
Grommet type 5-Core 2m 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 130*300...	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)

ACCESSORIES



Vacuum filter

P.314-317



Vacuum switch

P.318-325



Air / & Vacuum Control Valve

P.326-329



Pressure Gauge

P.330



Vacuum Gauge

P.331



Silencers

P.332



Air/Vacuum Manifold

P.333-335



BUS Cables

P.336,337

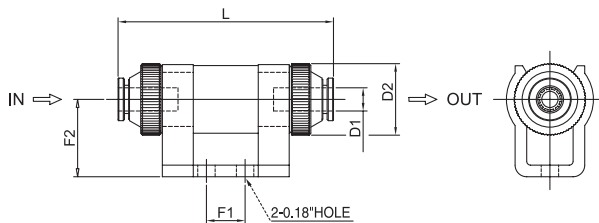
Line Vacuum Filter (LV-filter)

- 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 inch(O.D)	Removal efficiency (μ)	Filtration area (in ²)	Working temperature	Weight (oz.)	Filter Element Model
VTF-0706	0.236	10	0.012	32°F ~ 140°F	0.88	VTFE-0706
VTF-1208	0.315	10	0.019	32°F ~ 140°F	1.39	VTFE-1208



(inch)

Model	L	D1	D2	F1	F2
VTF-0706	2.185	0.24	0.73	0.39	0.78
VTF-1208	2.57	0.315	0.885	0.55	0.95

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 Online pump & Multiple stack pumps**.

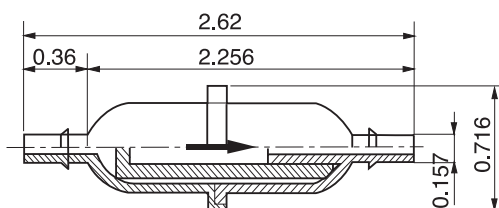
The 3/8" Version can be screwed directly into the Mini type vacuum pump as well as any other port using a 3/8"-BSP connection, when used with **the mini pumps & midimultiple pumps** it provides a very compact set up.



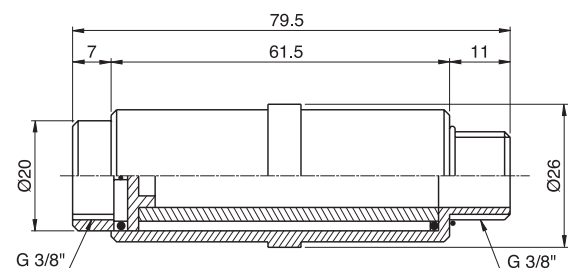
Operating specifications

Model	Port Size	Internal Volume (in ³)	Removal efficiency (μ)	Material	Working temperature	Weight (oz.)
VTF06-IN	0.157" (inner)	0.244	20	PP, PE	32°F~176°F	0.14
VTF38-IN	3/8"	1.22	20	PP, PE	32°F~176°F	0.49

VTF06-IN



VTF38-IN



[Measure unit : inch]

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.

VTF34N - 2

① ②

① Model

VTF38N

VTF12N

• VTF34N

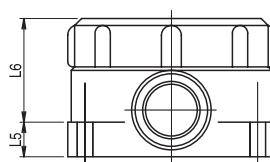
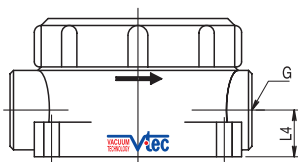
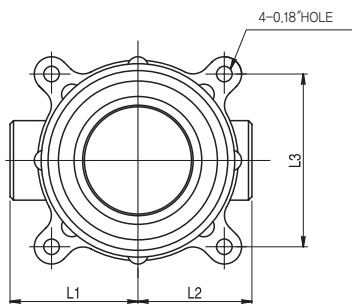
② Element material

1 - Paper

• 2 - Polyester(PE)

Characteristics

Model	Port Size	Internal Volume (in ³)	Removal Efficiency (μ)	Material	Working Temperature	Weight (oz.)	Filter Element Model
VTF38N - 1	3/8"NPT	2.13	Paper:2 Polyester:5	PA	-14.8°F~219.2°F	2.82	VTFE341
VTF38N - 2	3/8"NPT	2.13				2.82	VTFE342
VTF12N - 1	1/2"NPT	9.15		PC		7.76	VTFE501
VTF12N - 2	1/2"NPT	9.15		PE		7.76	VTFE502
VTF34N - 1	3/4"NPT	9.76		Paper		7.05	VTFE501
VTF34N - 2	3/4"NPT	9.76				7.05	VTFE502



(inch)

Model	L1	L2	L3	L4	L5	L6	G
VTF38N-1(2)	1.45	1.3	1.97	0.53	0.39	1.18	3/8"NPT
VTF12N-1(2)	2.24	2.05	2.99	0.75	0.39	1.85	1/2"NPT
VTF34N-1(2)	2.24	2.05	2.99	0.75	0.39	1.85	3/4"NPT

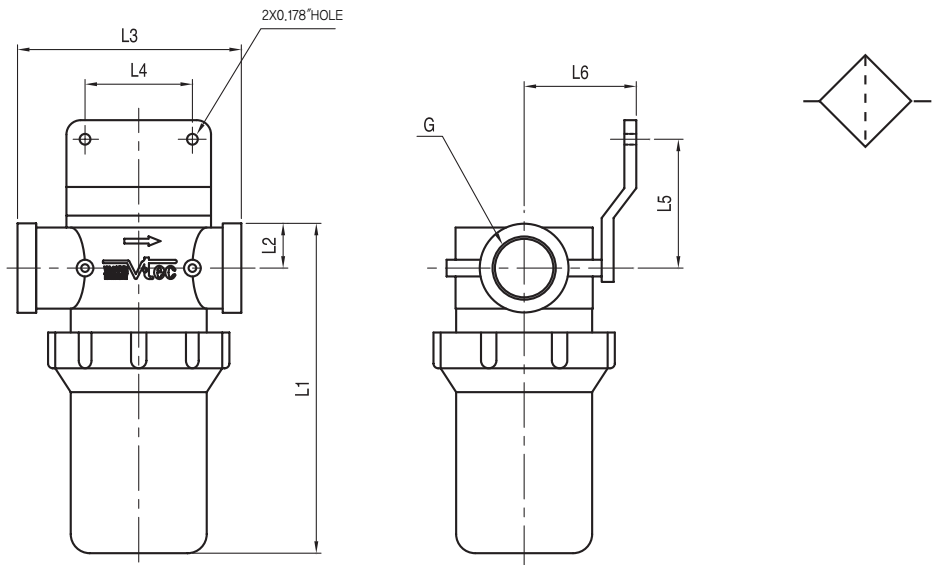
Bowl Vacuum Filter

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 : inch]

Model	Internal Volume (in ³)	Removal Efficiency (μ)	Material	Working Temperature	G	L1	L2	L3	L4	L5	L6	Weight (oz.)	Filter Element Model
VTF 38N-96	12.5	20	PA PC PE	-4°F ~212°F	3/8" NPT	5.5	0.73	3.54	1.75	2.04	1.85	7.97	VTFE27.5-39096
VTF 38N-141	16.4				7.28	0.73	3.54	1.75	2.04	1.85	10.1	VTFE27.5-39141	
VTF 12N-96	12.5				1/2" NPT	5.5	0.73	3.54	1.75	2.04	1.85	8.11	VTFE27.5-39096
VTF 12N-141	16.4				7.28	0.73	3.54	1.75	2.04	1.85	9.49	VTFE27.5-39141	
VTF 34N-96	12.5				3/4" NPT	5.5	0.73	3.54	1.75	2.04	1.85	7.5	VTFE27.5-39096
VTF 34N-141	16.4				7.28	0.73	3.54	1.75	2.04	1.85	9.1	VTFE27.5-39141	
VTF 01N-118	30.2				1" NPT	7.2	1.22	4.92	2.75	2.56	2.64	21.87	VTFE47.4-62118
VTF 01N-154	41.2				8.6	1.22	4.92	2.75	2.56	2.64	24.34	VTFE47.4-62154	
VTF 02N-118	30.2				1 1/2" NPT	7.2	1.22	4.92	2.75	2.56	2.64	19.9	VTFE47.4-62118
VTF 02N-154	41.2				8.6	1.22	4.92	2.75	2.56	2.64	22.4	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

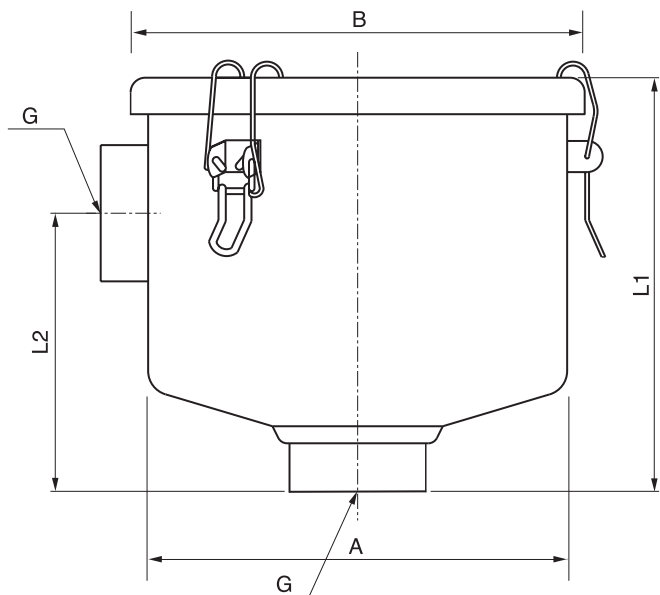
- **VFS34**
- VFS01
- VFS02
- VFS03

② Element material

- no mark - paper
- **P** - polyester(PE)

Model	A	B	L1	L2	G
VFS34	5.08	5.79	4.37	2.68	3/4"NPT"
VFS01	5.08	5.79	4.37	2.68	1"NPT"
VFS02	6.8	7.36	6.77	4.64	1 1/2"NPT"
VFS03	7.64	8.74	10.11	5	2"NPT"

[Measure Unit : inch]



Operating specifications

Model	Port Size	Internal Volume (in ³)	Removal efficiency (μ)	Material	Working temperature	Weight (oz.)	Filter Element Model	
							paper	polyester
VFS34	3/4"NPT"	73.2	paper : 2 polyester : 5	Steel paper or polyester	-14.8°F~219.2°F	35.3	VFSE34	VFSPE34
VFS01	1"NPT"	73.2				35.3	VFSE34	VFSPE34
VFS02	1 1/2"NPT"	183				74	VFSE02	VFSPE02
VFS03	2"NPT"	396.6				172.8	VFSE03	VFSPE03

Order No.

V16 - 1 - 03

① ②

① Pressure range

- 1 – Negative pressure
(-29,8~0 inHg)

② Output type

- 02 – PNP Open Collector
- 03 – NPN Open Collector

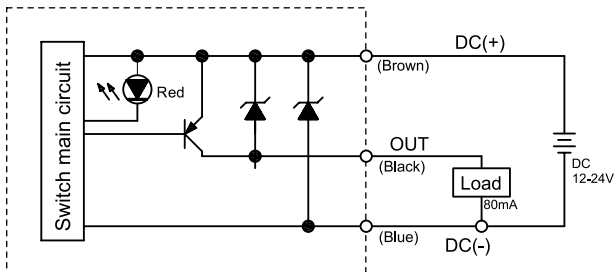


Operating specifications

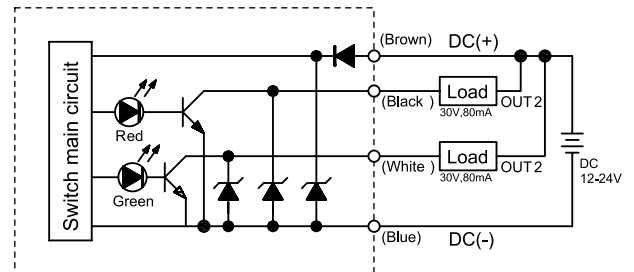
Specifications	Model	V16 - 1 - 02	V16 - 1 - 03
Applicable fluid		Air, Non corrosive gases, Incombustible gases	
Pressure range		-29,8 ~ 0 inHg	
Withstand pressure		147,65 inHg	
Pressure port		1/8" PT, M5 Female	
Power supply voltage		12~24 VDC ±10%, Ripple (P-P) 10% or less	
Power consumption		Max,21mA	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. (°F)	Operation : 32°F~122°F, Storage : -4 °F~140°F (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. (77°F)	
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		1,76oz. (Including 1m lead wire)	

Circuit diagram

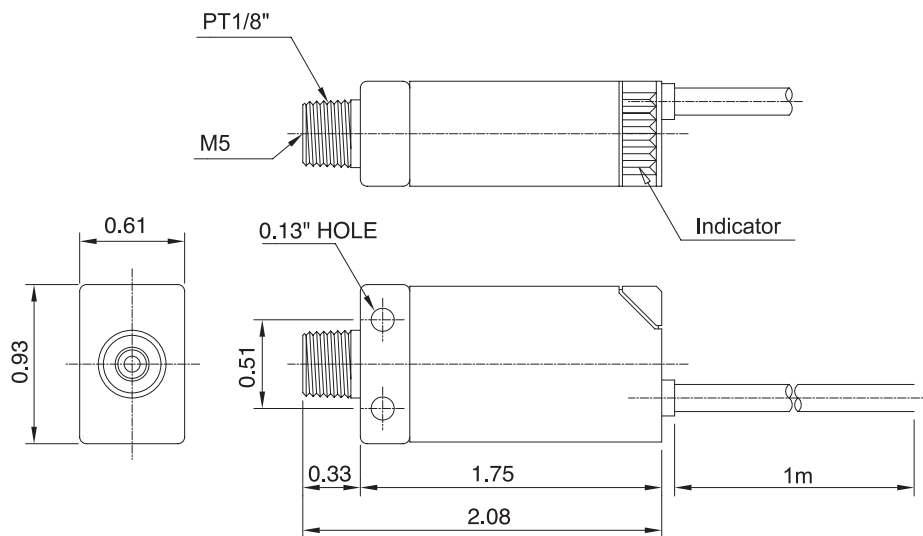
V16-1-02
PNP output



V16-1-03
NPN output



Dimension



[Measure Unit : inch]



Order No.

V17 - P C
 ① ② ③

① Pressure range

- **V17** – Negative pressure (-29.9 ~ 0 inHg)

② Output type

- No mark – NPN Open Collector
- **P** – PNP Open Collector

③ Analog output & Cable specification

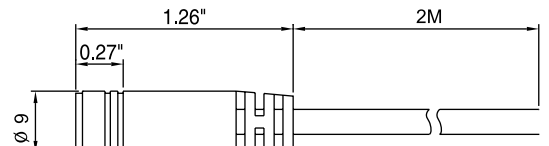
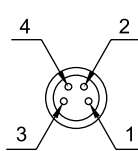
- **C** – No analog supply, M8, 4-Pin male connector
- G** – No analog supply, Grommet type 4-Core 2m lead wire
- GA** – Analog supply, Grommet type 5-Core 2m lead wire



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)



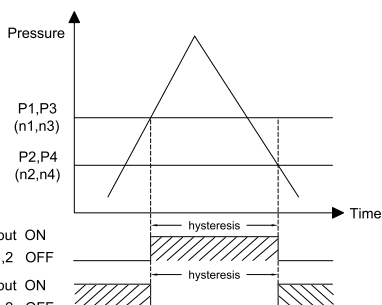
specifications

Specifications	Model	V17 - ② G	V17 - ② C	V17 - ② GA
Applicable fluid		Air, Non corrosive gases, Incombustible gases		
Pressure range		-29.9 ~ 0 inHg		
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 currnt : 80mA Max. supply volatage : 30VDC Residual voltage : ≤1V(load currnt 80mA)	PNP : open collector 2 output Max. load currnt : 80mA Max. supply volatage : 24VDC Residual voltage : ≤1V(load currnt 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. (°F)	Operation : 32°F~122°F, Storage : -4°F~140°F(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 (77°F) at temp. Range			
Hysteresis mode	Adjustable			
Window comparator mode	Fixed (3digit)			
Indicator accuracy	≤±2% F.S. ±1 digit (ambient temp.:77±37.4°F)			
Cable	Oil-resistance cable (0.15mm ²)			
Weight (oz.)		2.65	1.23	2.64

Operating mode

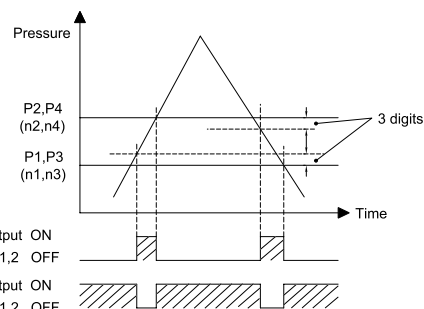
Hysteresis mode :

Output hysteresis valve can be pre-setted.



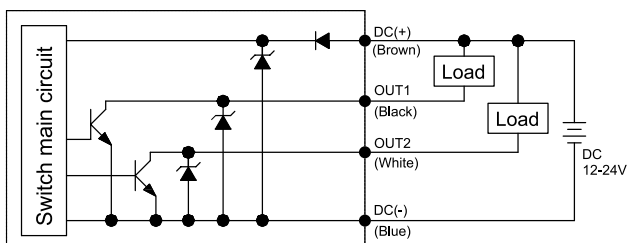
Window comparator mode :

Within pressure setting range, Pressure transfer output can be ON or OFF.

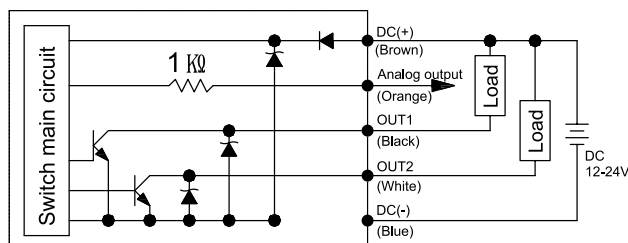


Circuit diagram

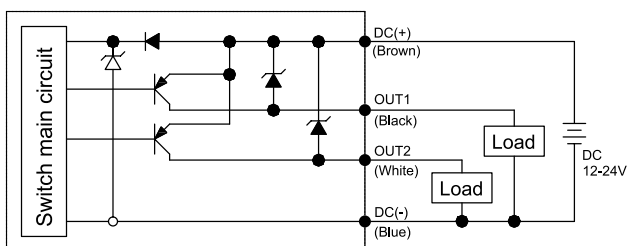
V17-C, V17-G NPN output



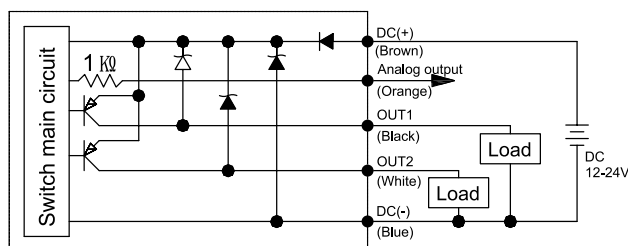
V17-GA NPN output



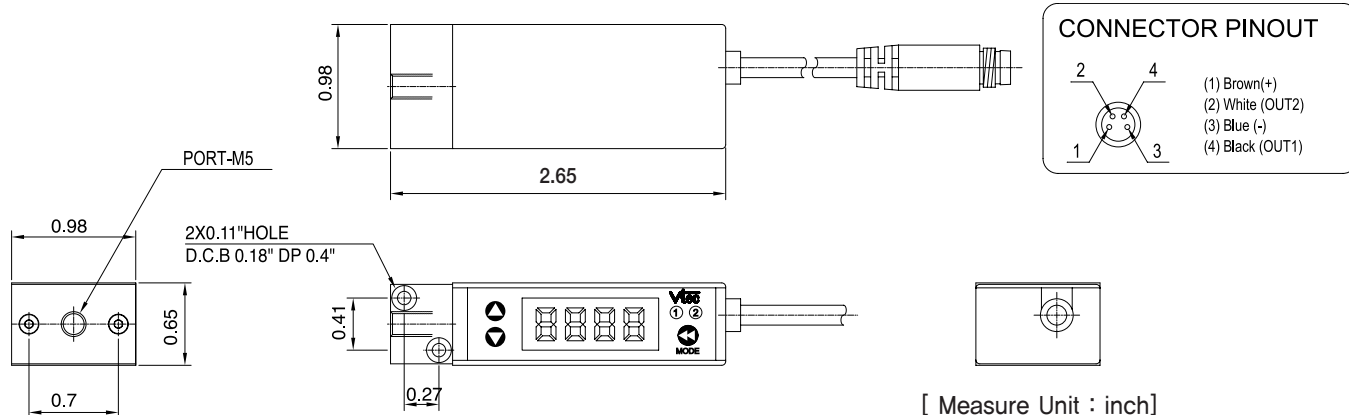
V17 PG PNP output



V17-PGA PNP output

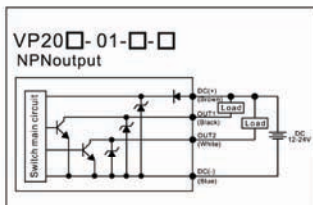


Dimension

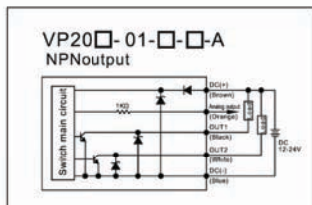


Circuit diagram and examples of connection

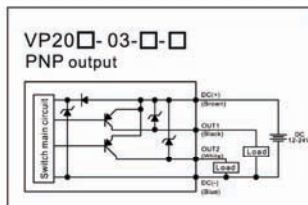
NPN output



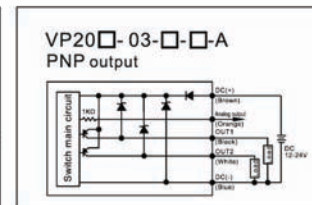
NPN output with analog supply



PNP output

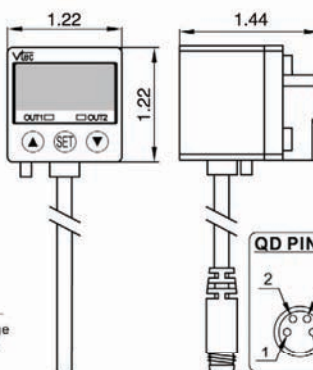
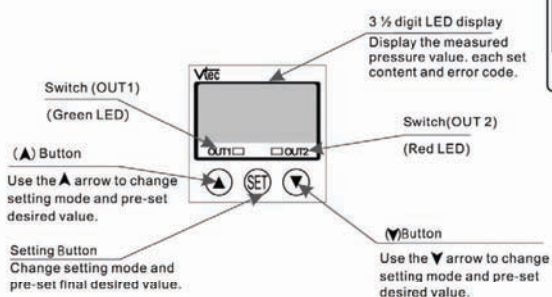


PNP output with analog supply



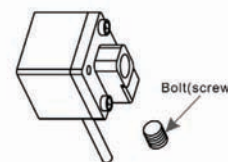
Dimensional information

► Body



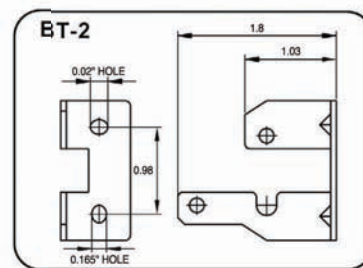
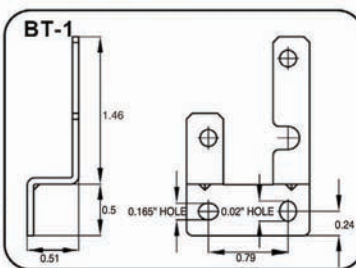
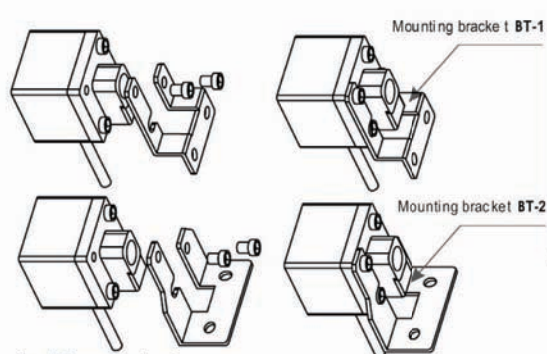
► Installation

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.

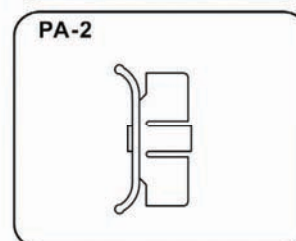
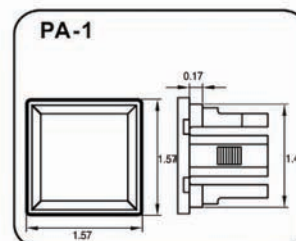
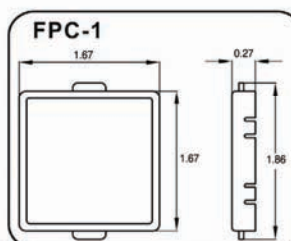
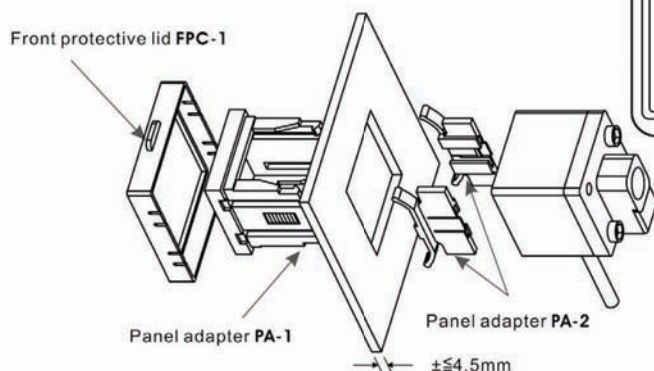


[Measure Unit : inch]

► Mounting bracket



► Panel type



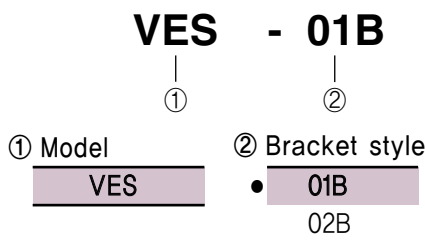
Electro-Mechanical Vacuum Switches

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.

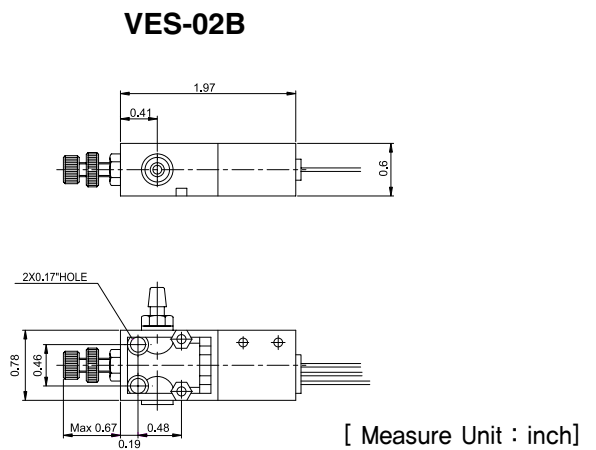
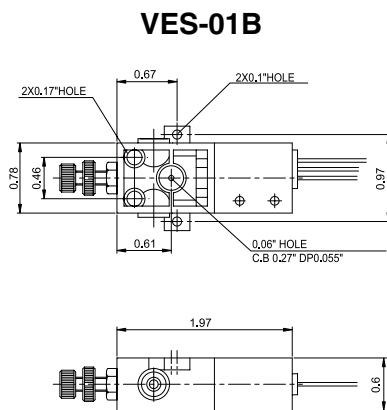


Order no.



Function	Adjustable
NO / NC	<p>Black ● NC : Normally Closed (Red)</p> <p>White ● NO : Normally Open (White)</p>

Dimensional Information



Operating specifications

Type	VES-01B, VES-02B
Fluid used	Air (non corrosive, inflammable gaseous body)
Output function	NO / NC
Pressure range	2.95~26.5 inHg (10~90kPa)
Hysteresis, kPa	±5
Range of operating temperature (°F)	14 °F~ 176°F
Cable	3 X 0.75mm ² X 0.5m
Weight (oz.)	1.06
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 pneumtical 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.



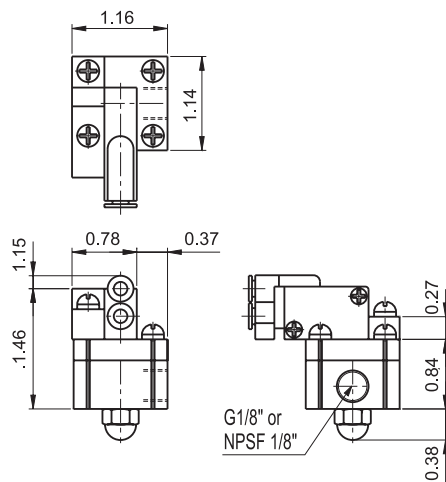
Order no.

VPS - 01

- ① Model
VPS
 - ② Function
 - 01(N) – Normally closed
 - 02(N) – Normally open
- * Remark : ..(N)
↳ NPSF Thread

Function	Adjustable
NC (normally closed)	
NO (normally open)	

Dimensional Information



[Measure Unit : inch]

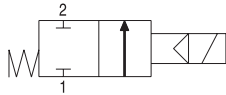
Operating specifications

Type	Model	VPS-01	VPS-02
Output function		NC (Normally closed)	NO (Normally open)
Pressure (psi)		21.7~116	
Signal range (-inHg)		4.43~28 (15~95kPa)	2.95~28 (10~95kPa)
Hysteresis (inHg)		3.54 (12kPa)	0.88 (3kPa)
Temperature (°F)		14°F ~ 140°F	
Weight (oz.)		2.43	
Vacuum connection		G1/8" or 1/8"NPSF	

VMS18D Control Valves

Features

2/2 way solenoid valve G1/8" or NPSF1/8" (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)
- VMS 18ND* (Diaphragm Valve)
- * NPSF Thread

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

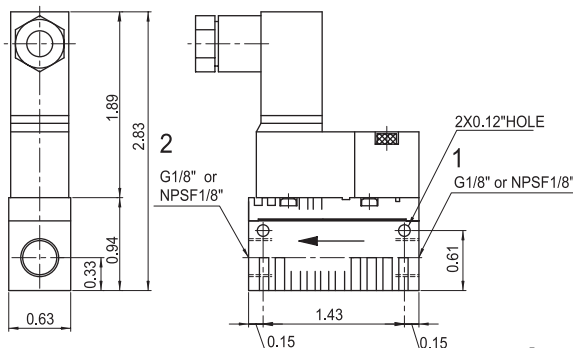
* Remark : Connector type control valve DC24V Only.

Operating specifications

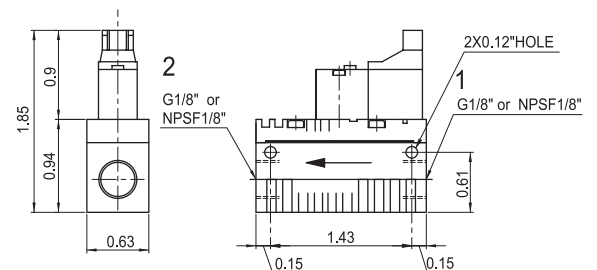
Type	VMS 18D
Connection	G1/8" or NPSF 1/8"
Normal flow (scfm)	18.2
Pressure range (psi)	36.3~101.5
Temperature range	32°F ~ 140°F
Materials	Ni, Al, SS, POM, CuZn, NBR, PA66, PUR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V – 50/60Hz
Power consumption	0.85W , 1.3W
Weight (oz.)	0.7

Dimensional Information

DIN type



Connector type

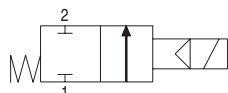


[Measure Unit : inch]

VMS14 Control Valves

Features

2/2 way solenoid valve G1/4" or 1/4"NPSF(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)
 - VMS 14N* (Piston Valve)
- * NPSF Thread

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

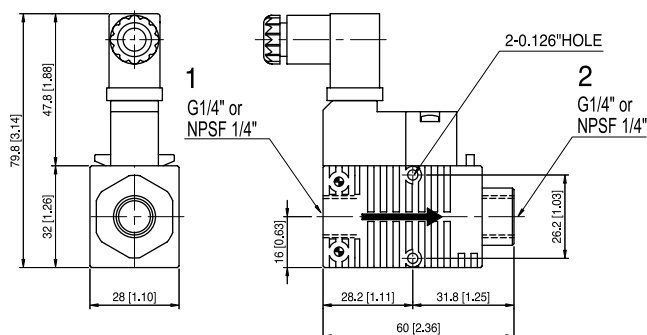
* Remark : Connector type control valve DC24V Only.

Operating specifications

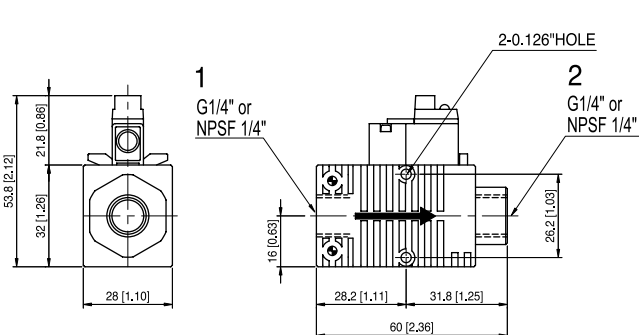
Type	VMS 14
Connection	G1/4" or NPSF1/4"
Normal flow (scfm)	49.8
Pressure range (psi)	36.3 ~ 101.5
Temperature range	0.4°F ~ 149°F
Materials	NYLON, AL, SUM, Ni, SS, CuZn, NBR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V – 50/60Hz
Power consumption	0.85W , 1.3W
Weight (oz.)	2.82

Dimensional Information

DIN type



Connector type

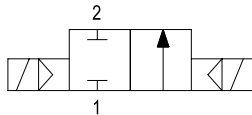


Measure Unit : mm [inch]

VMS14D Control Valves

Features

2/2 way double solenoid valve G1/4" or 1/4"NPSF 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
 - VMS 14ND*** - Double solenoid valve
- * NPSF Thread

② Voltage

- 1 - AC110V
- 2 - AC220V
- **3** - DC24V

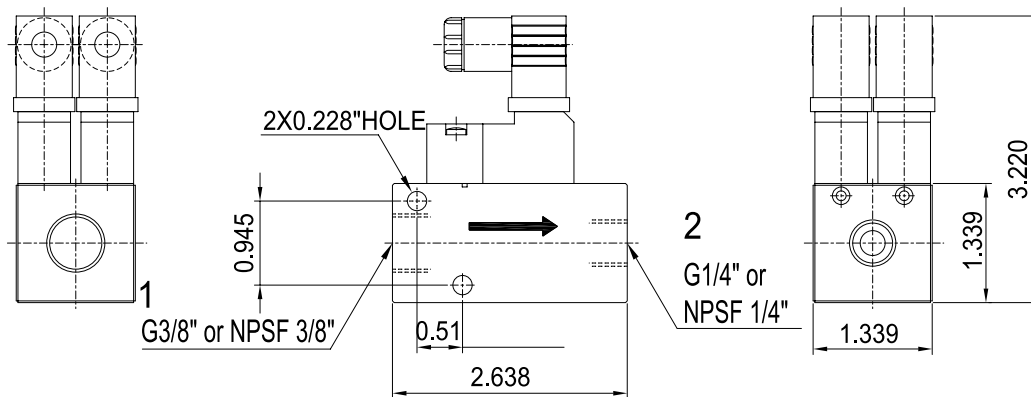
③ Solenoid terminal

- 1 - DIN type without lead wire
- **2** - DIN type with lamp without lead wire

Technical Data

Description	VMS 14D
Connection	IN : G3/8" or NPSF3/8" , OUT : G1/4" or NPSF1/4"
Normal flow (scfm)	50.5
Pressure range (psi)	29 ~101.5
Temperature range	-0.4°F ~ 149°F
Materials	AL, BS, NBR, POM, PPS, SS
Standard voltages	• DC : 24V • AC : 110V, 220V - 50/60Hz
Power consumption	2.3W
Weight (oz.)	11.3

Dimension

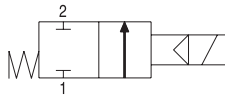


[Measure Unit : inch]

VMS 38 Control Valves

Features

2/2 way solenoid valve G3/8" or NPSF3/8" (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**
 - **VMS 38N***
- * NPSF Thread

② Voltage

- **1** - AC110V
- **2** - AC220V
- **3** - DC24V

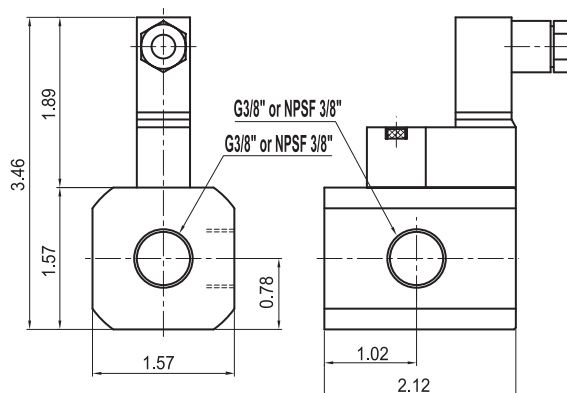
③ Solenoid terminal

- **1** - DIN type without lead wire
- **2** - DIN type with lamp without lead wire

Operating specifications

Type	VMS 38
Connection	G3/8" or NPSF3/8"
Normal flow (scfm)	52.9
Pressure range (psi)	36.3 ~ 101.5
Temperature range	- 0.4°F ~ 149°F
Materials	Ni, Al, SS, POM, CuZn, NBR, PPS
Standard voltages	• DC : 24V • AC : 110V, 220V - 50/60Hz
Power consumption	1.3W
Weight (oz.)	7.76

Dimensional Information



[Measure Unit : inch]

Pressure Gauge

- Compressed air : 0~140psi (0~10bar)
- Accuracy : ±2.5% Full scale
- Material : Brass, ABS, PMMA
- Weight (oz.) : 2.04(with nut), 1.83(without nut)

Features

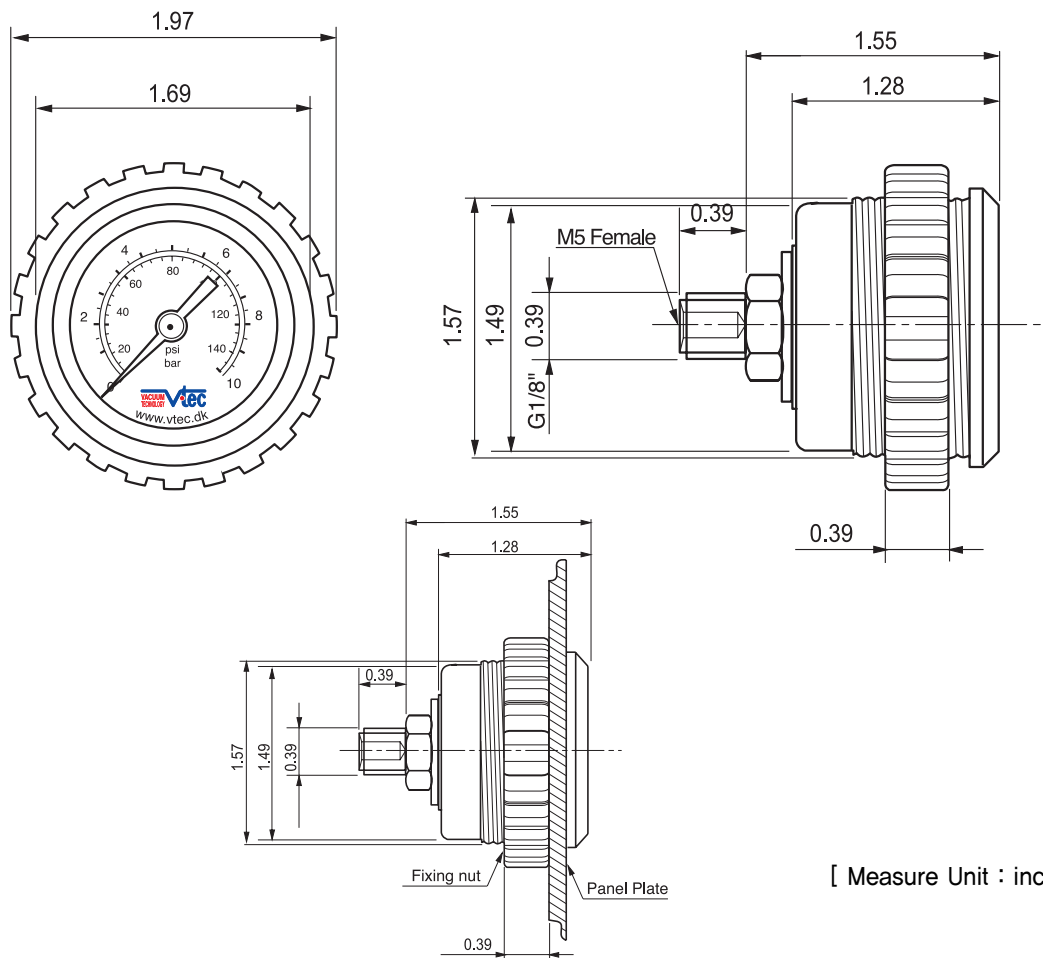
This pressure gauge are high quality & reach a very long life time. Specially, can be mounted directed into the panel plate with fixing nut.



Order no.

Model	Description	Weight (oz.)
VTPG-18 + N	with nut	2.04
VTPG-18	without nut	1.83

Dimensional Data



[Measure Unit : inch]

Vacuum Gauge

- Vacuum level : 0 to -760mmHg (0 to -100kPa)
- Accuracy : $\pm 1.6\%$ Full scale
- Material : Brass, ABS, PMMA
- Weight (oz.) : 2.04(with nut) , 1.83(without nut)

Features

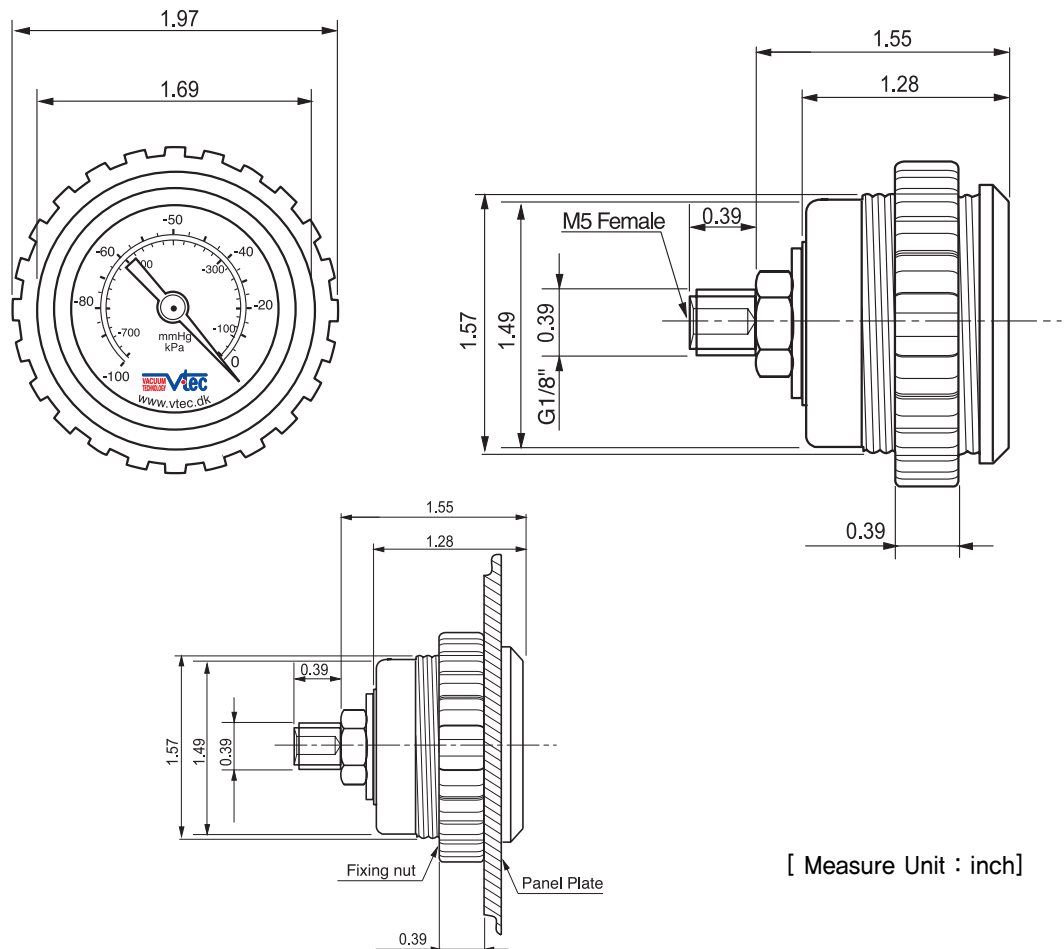
This vacuum gauges are high quality & reach a very long life time. Specially, can be mounted directed into the panel plate with fixing nut.



Order no.

Model	DISCRIPTION	Weight (oz.)
VTG-18 + N	with nut	2,04
VTG-18	without nut	1,83

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.

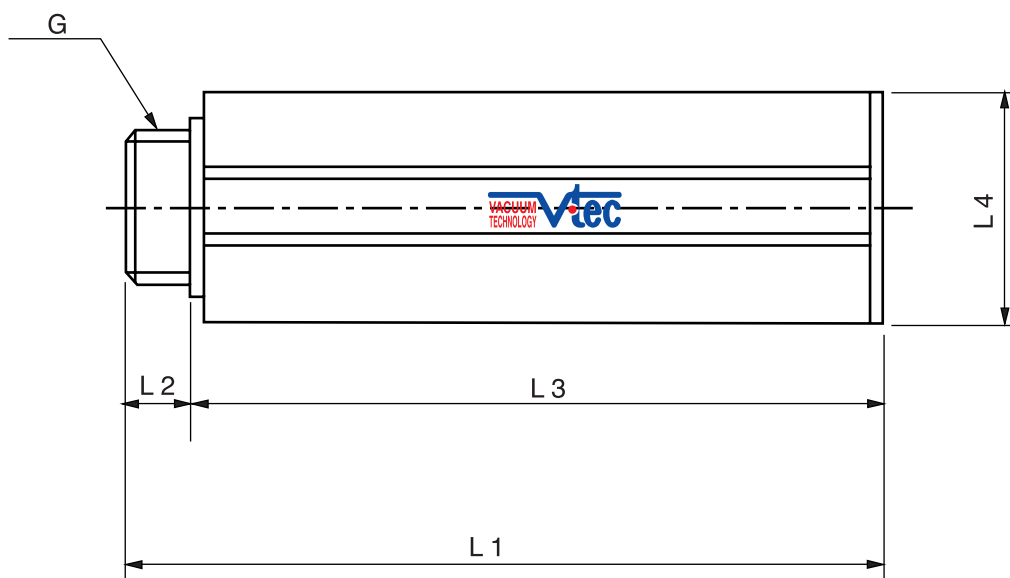
Six sizes are available ranging from 1/8" up to 1".



Order no.

Model	SIZE	L1	L2	L3	L4	G	Weight (oz.)
VTS18	G1/8"	1.89	0.22	1.66	0.63	G1/8"	0.14
VTS14	G1/4"	2.81	0.3	2.52	0.94	G1/4"	0.42
VTS38	G3/8"	2.81	0.3	2.52	0.94	G3/8"	0.46
VTS12	G1/2"	5.1	0.43	4.66	1.57	G1/2"	1.83
VTS34	G3/4"	5.1	0.43	4.66	1.57	G3/4"	1.9
VTS10	G1"	5.1	0.43	4.66	1.57	G1"	1.41

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.

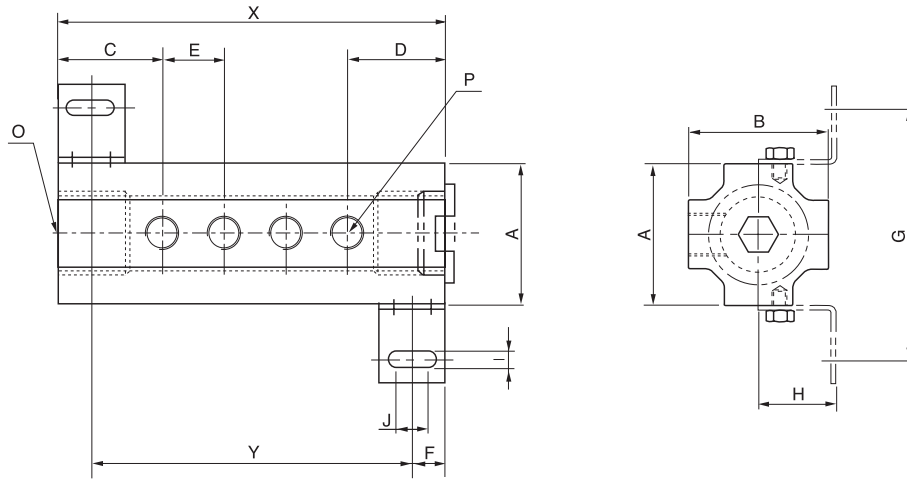
※ n : Port Quantity

MODEL	Supply Port Size	Manifold Port Size	(MAX) Manifold Port Q'ty
VTDF38N-18Xn	3/8" NPSF	1/8" NPSF	60
VTDF12N-18Xn	1/2" NPSF	1/8" NPSF	60
VTDF12N-14Xn	1/2" NPSF	1/4" NPSF	50
VTDF34N-18Xn	G3/4"	1/8" NPSF	60
VTDF34N-14Xn	G3/4"	1/4" NPSF	50
VTDF34N-38Xn	G3/4"	3/8" NPSF	45
VTDL38N-18Xn	3/8" NPSF	3/8" NPSF	120
VTDL12N-18Xn	1/2" NPSF	1/8" NPSF	120
VTDL12N-14Xn	1/2" NPSF	1/8" NPSF	100
VTDL34N-18Xn	G3/4"	1/4" NPSF	120
VTDL34N-14Xn	G3/4"	1/8" NPSF	100
VTDL34N-38Xn	G3/4"	1/4" NPSF	90
VTDC38N-18Xn	3/8" NPSF	1/8" NPSF	120
VTDC12N-18Xn	1/2" NPSF	1/8" NPSF	120
VTDC12N-14Xn	1/2" NPSF	1/4" NPSF	100
VTDC34N-18Xn	G3/4"	1/8" NPSF	120
VTDC34N-14Xn	G3/4"	1/4" NPSF	100
VTDC34N-38Xn	G3/4"	3/8" NPSF	90
VTDE38N-18Xn	3/8" NPSF	1/8" NPSF	180
VTDE12N-18Xn	1/2" NPSF	1/8" NPSF	180
VTDE12N-14Xn	1/2" NPSF	1/4" NPSF	150
VTDE34N-18Xn	G3/4"	1/8" NPSF	180
VTDE34N-14Xn	G3/4"	1/4" NPSF	150
VTDE34N-38Xn	G3/4"	3/8" NPSF	130

※ Please contact Vtec for special type.

Dimensional Information

VTDF Series
(Ports on top only)

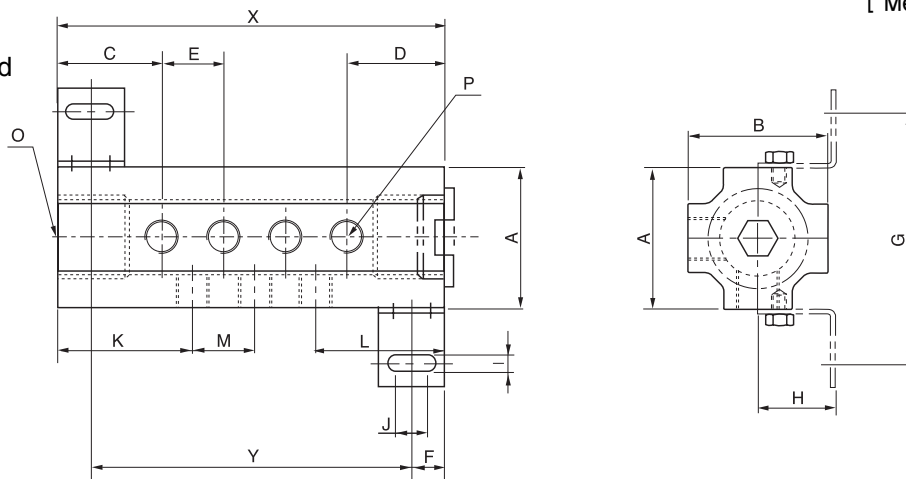


※ n : Port Quantity

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
VTDF38N-18Xn	3/8" NPSF	1/8" NPSF	60	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	(n X17)+1.02"	X-0.83"
VTDF12N-18Xn	1/2" NPSF	1/8" NPSF	60	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	(n X17)+1.02"	X-0.83"
VTDF12N-14Xn	1/2" NPSF	1/4" NPSF	50	1.38	1.38	0.75	0.75	0.87	0.41	2.64	0.71	0.22	0.39	(n X22)+0.63"	X-0.83"
VTDF34N-18Xn	G3/4"	1/8" NPSF	60	1.77	1.77	1.04	1.04	0.67	0.41	3.15	0.98	0.22	0.39	(n X17)+1.42"	X-0.83"
VTDF34N-14Xn	G3/4"	1/4" NPSF	50	1.77	1.77	1.14	1.14	0.87	0.41	3.15	0.98	0.22	0.39	(n X22)+1.42"	X-0.83"
VTDF34N-38Xn	G3/4"	3/8" NPSF	45	1.77	1.77	1.08	1.08	0.98	0.41	3.15	0.98	0.22	0.39	(n X25)+1.18"	X-0.83"

[Measure Unit : inch]

VTDL - Series
(Ports on top and one side)



※ n : Port Quantity

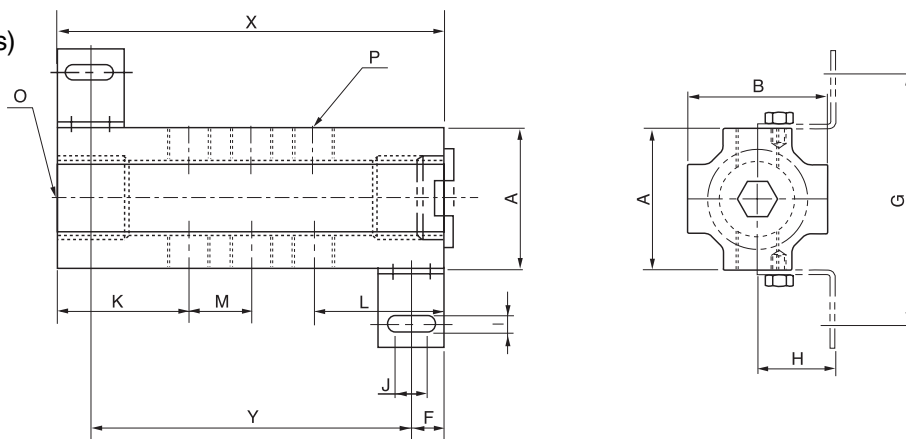
MODEL	Vacuum port size (O)	Manifold port size (P)	Manifold port Qty max.(n)	A	B	C	D	E	F	G	H	I	J	K	L	M	X	Y
VTDL38N-18Xn	3/8" NPSF	1/8" NPSF	120	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67	※ Please contact Vtec for the dimension.	
VTDL12N-18Xn	1/2" NPSF	1/8" NPSF	120	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67		
VTDL12N-14Xn	1/2" NPSF	1/4" NPSF	100	1.38	1.38	0.75	0.75	0.87	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.87		
VTDL34N-18Xn	G3/4"	1/8" NPSF	120	1.77	1.77	1.04	1.04	0.67	0.41	3.15	0.98	0.22	0.39	1.38	1.38	0.67		
VTDL34N-14Xn	G3/4"	1/4" NPSF	100	1.77	1.77	1.14	1.14	0.87	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.87		
VTDL34N-38Xn	G3/4"	3/8" NPSF	90	1.77	1.77	1.08	1.08	0.98	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.98		

[Measure Unit : inch]

Dimensional Information

VTDC - Series

(Ports on both sides)



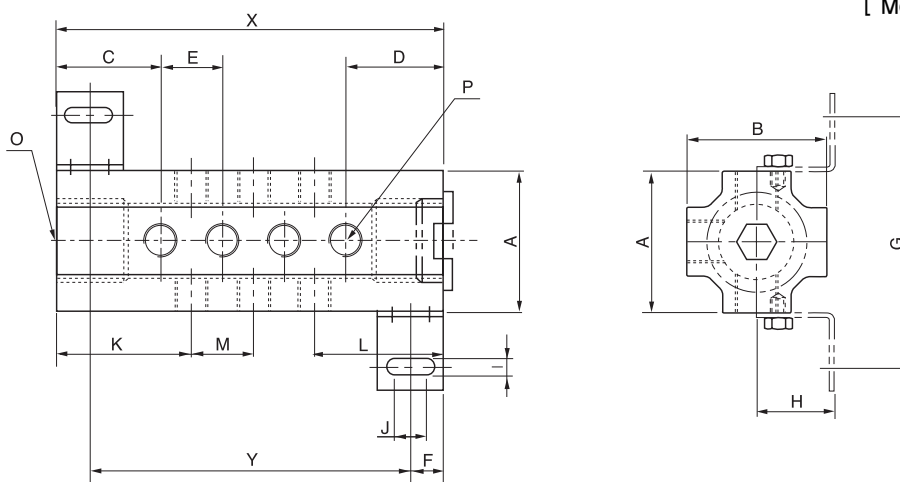
※ n : Port Quantity

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
VTDC38N-18Xn	3/8" NPSF	1/8" NPSF	120	1.38	1.38	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67	(n X 17)+1.7"	X-0.826"
VTDC12N-18Xn	1/2" NPSF	1/8" NPSF	120	1.38	1.38	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67	(n X 17)+1.7"	X-0.826"
VTDC12N-14Xn	1/2" NPSF	1/4" NPSF	100	1.38	1.38	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.87	(n X 22)+1.5"	X-0.826"
VTDC34N-18Xn	G3/4"	1/8" NPSF	120	1.77	1.77	0.41	3.15	0.98	0.22	0.39	1.38	1.38	0.67	(n X 17)+2.08"	X-0.826"
VTDC34N-14Xn	G3/4"	1/4" NPSF	100	1.77	1.77	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.87	(n X 22)+2.08"	X-0.826"
VTDC34N-38Xn	G3/4"	3/8" NPSF	90	1.77	1.77	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.98	(n X 25)+2.16"	X-0.826"

VTDE - Series

(Ports on top and both sides)

[Measure Unit : inch]



※ 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
VTDE38N-18Xn	3/8" NPSF	1/8" NPSF	180	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67	※ Please contact Vtec for the dimension.	
VTDE12N-18Xn	1/2" NPSF	1/8" NPSF	180	1.38	1.38	0.85	0.85	0.67	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.67		
VTDE12N-14Xn	1/2" NPSF	1/4" NPSF	150	1.38	1.38	0.75	0.75	0.87	0.41	2.64	0.71	0.22	0.39	1.18	1.18	0.87		
VTDE34N-18Xn	G3/4"	1/8" NPSF	180	1.77	1.77	1.04	1.04	0.67	0.41	3.15	0.98	0.22	0.39	1.38	1.38	0.67		
VTDE34N-14Xn	G3/4"	1/4" NPSF	150	1.77	1.77	1.14	1.14	0.87	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.87		
VTDE34N-38Xn	G3/4"	3/8" NPSF	130	1.77	1.77	1.08	1.08	0.98	0.41	3.15	0.98	0.22	0.39	1.57	1.57	0.98		

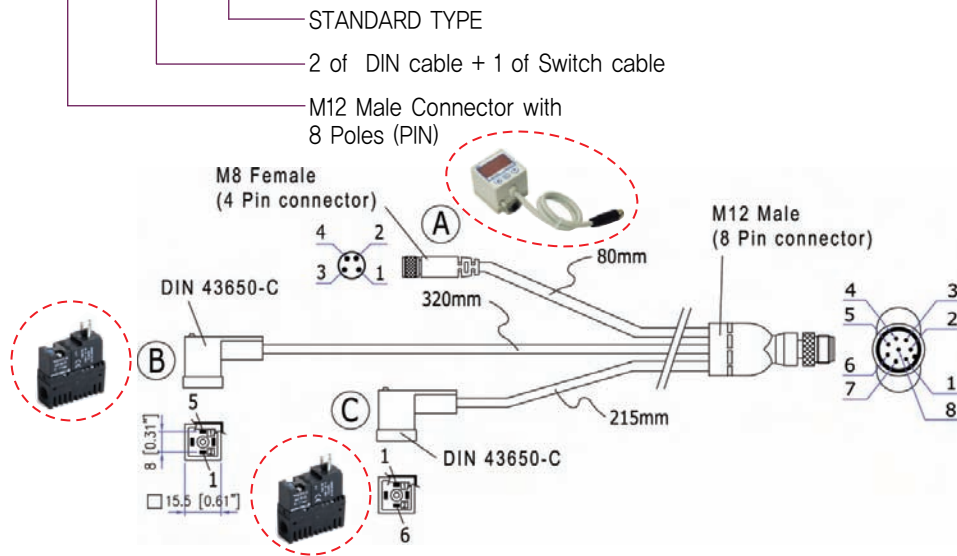
[Measure Unit : inch]

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

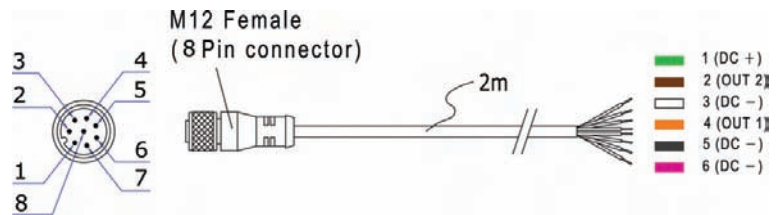
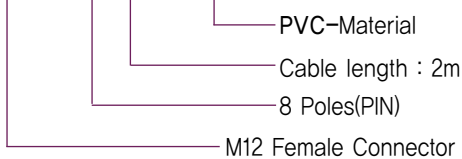


Specifications of DIN 43650-C	
Type of contact : Screw with conductor protection	Max. conductor section : 0.75 mm ²
Contact spacing : 8mm	Protection class : IP 65 assembled
Number of poles : 2 Poles	Fixing screw : M2.5 x 28.5
Cable material : PVC H03VVF	Profile gasket : NBR

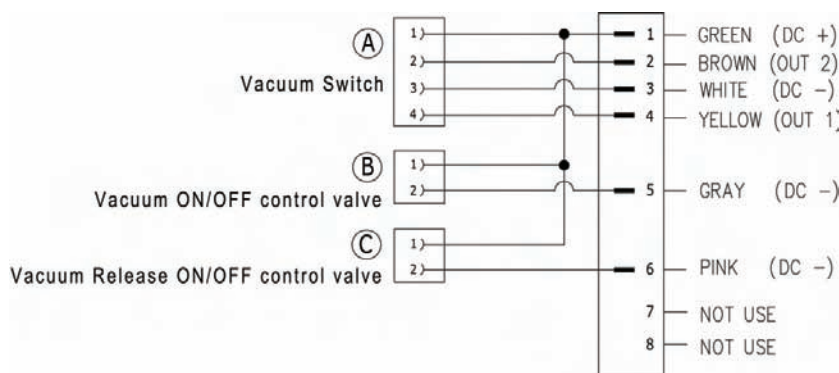
Order No.

- Connection Cables for BC M12..

VC M12 - 8 2 - PVC



Connection diagram

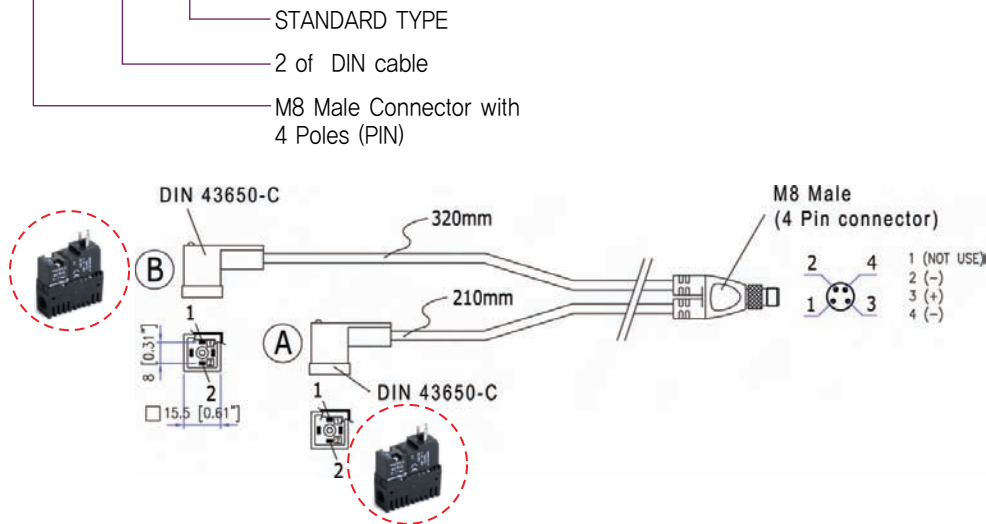


BUS Cables and Connection Cables for Vacuum Pumps

Order No.

- Bus Cables for '2 in 1' – Vacuum ON/OFF + Vacuum Release ON/OFF

BC M8 - 2D - 1

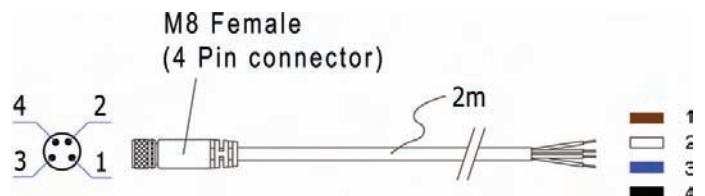
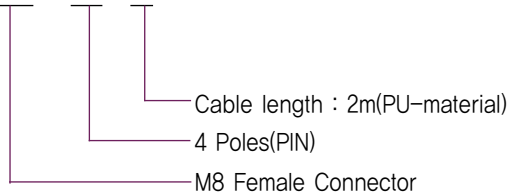


Specifications of DIN 43650-C	
Type of contact : Screw with conductor protection	Max. conductor section : 0.75 mm ²
Contact spacing : 8mm	Protection class : IP 65 assembled
Number of poles : 2 Poles	Fixing screw : M2.5 x 28.5
Cable material : PVC H03VVF	Profile gasket : NBR

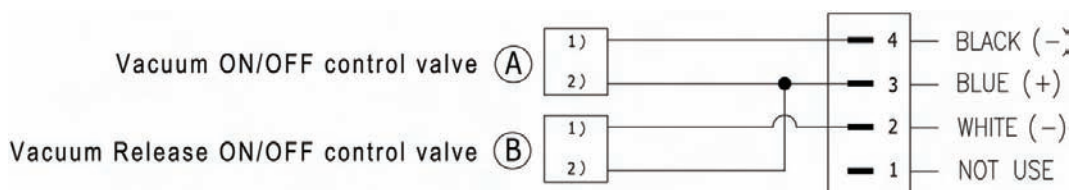
Order No.

- Connection Cables for BC M8..

VC M8 - 4 - 2



Connection diagram





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