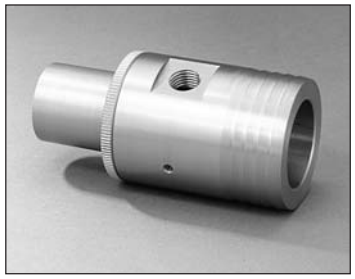
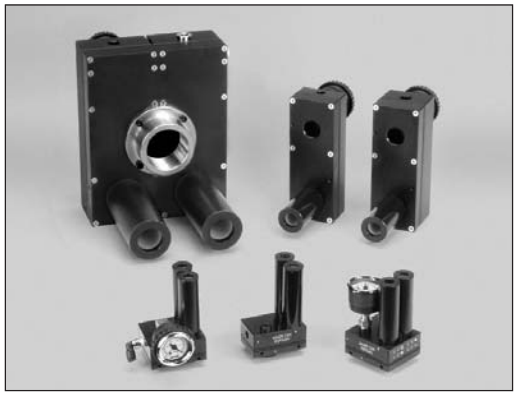




3

Section

Air Powered Vacuum Generators & Accessories

Air Vacuum Generators

Air Powered Vacuum Generators (Ejectors)

Air Powered Vacuum Generators (Ejectors or Venturis) are available from ANVER in various flow rates and vacuum generating capacities. This modular series allows remarkable flexibility in fulfilling a variety of applications. Each system uses compressed air to draw a vacuum with optional built-in electric or pneumatic control valves. The 'economizer' version conserves energy by using compressed air only when needed.

ANVER single stage venturi vacuum generators may be used anywhere that more conventional vacuum systems are used. Actually, several characteristics make these generators well suited for many tasks, including low cost, no maintenance, quiet operation, small size, light weight, and flow rates up to nearly 12 SCFM while generating up to 90% vacuum (27 in. Hg).

Single Stage vs. Multi-Stage Air Vacuum Generators

In general, multi-stage generators have been recommended for porous materials or anywhere a high flow rate and low vacuum is necessary. Grouping single stage type generators can achieve the same results. This configuration also adds an extra measure of safety by allowing separate control of each cup or series of cups. For most situations, the single stage generator is preferable to the multi-stage generator based on price, size, and maintenance.

Single Stage Air Vacuum Generators vs. Electric Vacuum Pumps

Electric powered vacuum pumps are presently used in many situations. However, using an air powered generator has many advantages, especially when compressed air is already available. Air power is more economical when intermittent vacuum is required. For many situations, choosing these single stage generators over electric vacuum pumps has many benefits, including price, size, noise of operation, and maintenance.

Advantages:

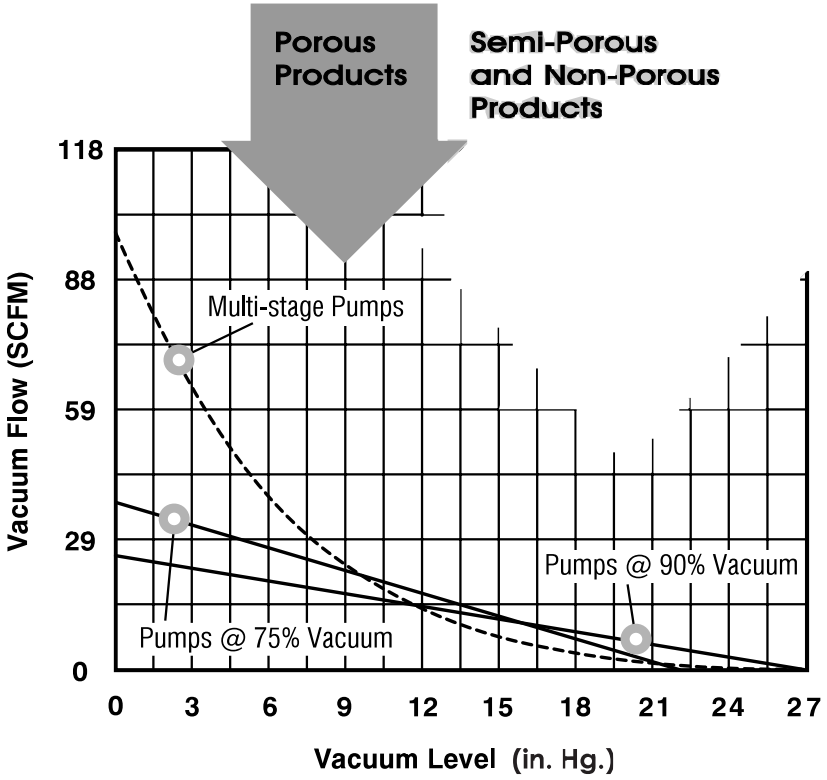
- **Excellent reliability**
- **Large capacity systems**
- **Compact**
- **Quiet operation**
- **Lightweight**
- **Rapid cycling**
- **No maintenance**
- **Leak proof, internal air connections**
- **Easy connection to existing compressed air network**
- **Explosion proof w/pneumatic controls**
- **Energy efficient 'economizer' version**
- **PLC connections possible**

Applications

- **Robotics**
- **Pick-and-Place**
- **Packaging - box and bag opening**
- **Packaging - filling containers**
- **Bottle Handling**
- **Light Metals (Foil) Handling**
- **Food Products - bagging**
- **Wooden furniture - lifting or handling**
- **Plastics - removing from molds**
- **Air quality sampling**
- **Liquid measuring and transferring**

and Many, Many More.....

When choosing a vacuum generator, factors to be considered are the required vacuum level, vacuum flow, and the ratio between them, generally referred to as vacuum characteristics. The chart below compares the general performance and application of the main types of air vacuum generators offered in today's market. Data reflects equivalent air consumption for each generator.



Air Powered Vacuum Generators &

Choosing A Generator - A Comparison of Features

Seconds To Evacuate 1 Cubic Foot

Vacuum (in. Hg)

Model	3	6	9	12	15	18	21	24	27
VR05	25.5	54.4	87.8	127.4	175.6	237.9	325.6	475.7	974.4
VR07	15.0	31.7	51.3	74.2	102.5	138.8	190.0	277.5	568.3
VR09	8.5	18.1	29.2	42.5	58.6	79.3	108.5	158.6	324.8
JB12H	4.2	9.1	14.7	21.2	29.2	39.6	54.4	79.3	162.5
JB15H	2.5	5.7	9.1	13.3	18.4	24.9	34.0	49.8	101.9
JB20H	1.7	3.4	5.4	7.9	10.8	14.7	20.1	29.4	60.3
JB25H	0.8	2.0	3.1	4.5	6.2	8.2	11.3	16.7	34.0
JB30H	0.8	1.4	2.5	3.7	4.8	6.8	9.1	13.3	27.2

Model	3	6	9	12	15	18	21	24	25
JV07	15.0	31.7	51.3	74.2	102.5	138.8	190.0	277.5	376.5
JV09	8.5	18.1	29.2	42.5	58.6	79.3	108.5	158.6	213.4

Model	3	6	9	12	15	18	21	22.5
JB12M	3.1	6.8	11.0	16.7	24.1	35.1	58.9	94.0
JB15M	2.0	4.0	6.5	9.9	14.2	20.7	34.8	55.8
JB20M	1.1	2.5	4.0	5.9	8.8	12.7	21.5	34.0
JB25M	0.8	1.7	2.5	4.0	5.7	8.2	13.6	21.8
JB30M	0.6	1.1	2.0	2.8	4.2	6.2	10.5	16.4

Standard Features

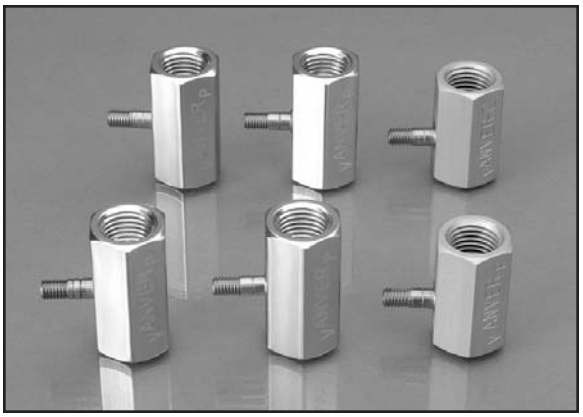
Model	JV	JVC	VR	JB	JBC	JBD	JR	JRC	JBDS	JBS	JECS	JEDS
Air Supply Port *	M5 4T**	M5 4T**	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT	¼"NPT
Vacuum Port *	M5 4T**	M5 4T**	M6 ⅛"NPT	½"NPT	½"NPT	½"NPT	½"NPT	½"NPT	½"NPT	½"NPT	½"NPT	½"NPT
Air Supply Valve	**N**	**Y**	N	N	Y	Y	N	Y	Y	N	Y	Y
Check Valve-Vacuum	**N**	**N**	N	N	N	N	N	N	Y	Y	Y	Y
Blow-off	**N**	N	N	N	N	Y	Y	Y	Y	Y	N	Y
Blow-off Valve	**N**	**N**	N	N	N	Y	N	N	Y	N	N	Y
Check Valve-Blow-off	**N**	**N**	N	N	N	N	N	N	Y	N	N	Y

** Adapters for different port sizes available*

*** 4T = 5/32" [4mm] type Push-connect fitting*

Vacuum Pumps and Vacuum Generators

Miniature Vacuum Pumps

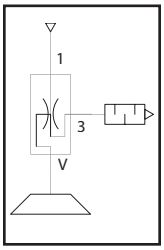


Features:
- Compact - size of a fitting
- Economical
- Simple Mounting and construction
- No Moving Parts to break down
- Low Air Consumption
- Lightweight yet rugged

VR Series

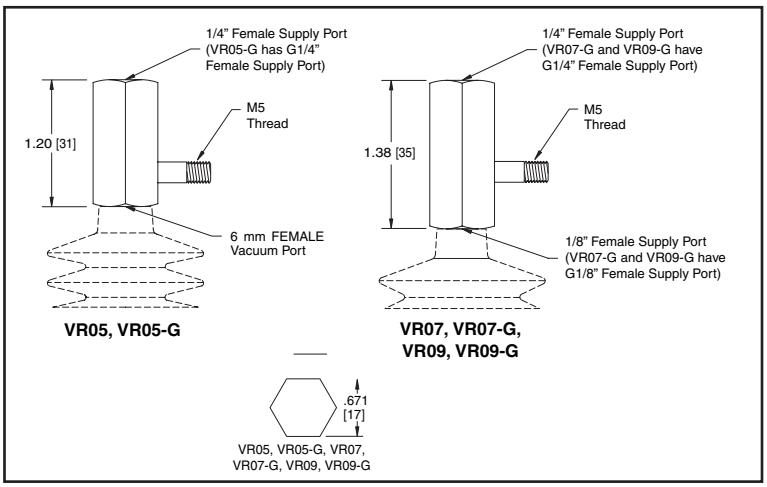
With the ANVER series of Mini-Vacuum Pumps, you can connect compressed air directly at your vacuum cup. This creates a vacuum at the load, which minimizes the potential for loss of vacuum through tubing. These mini vacuum generators can be used to transform a vacuum cup into a complete lifting system. Several mini-generators can be mounted to a compressed air manifold system to pick up large groupings of separate items or one load. If some items are missing, the others will not lose vacuum, because they are supplied separately. Simply shut off the exhaust port or the supply of compressed air to release the load. ANVER recommends using the VR05 for cups with a diameter of up to 1 inch (25 mm), and the VR07 or VR09 for cups between 1 inch (25 mm) and 4 inches (102 mm). Any model may be used on all small cups, and all systems should be tested for suitability.

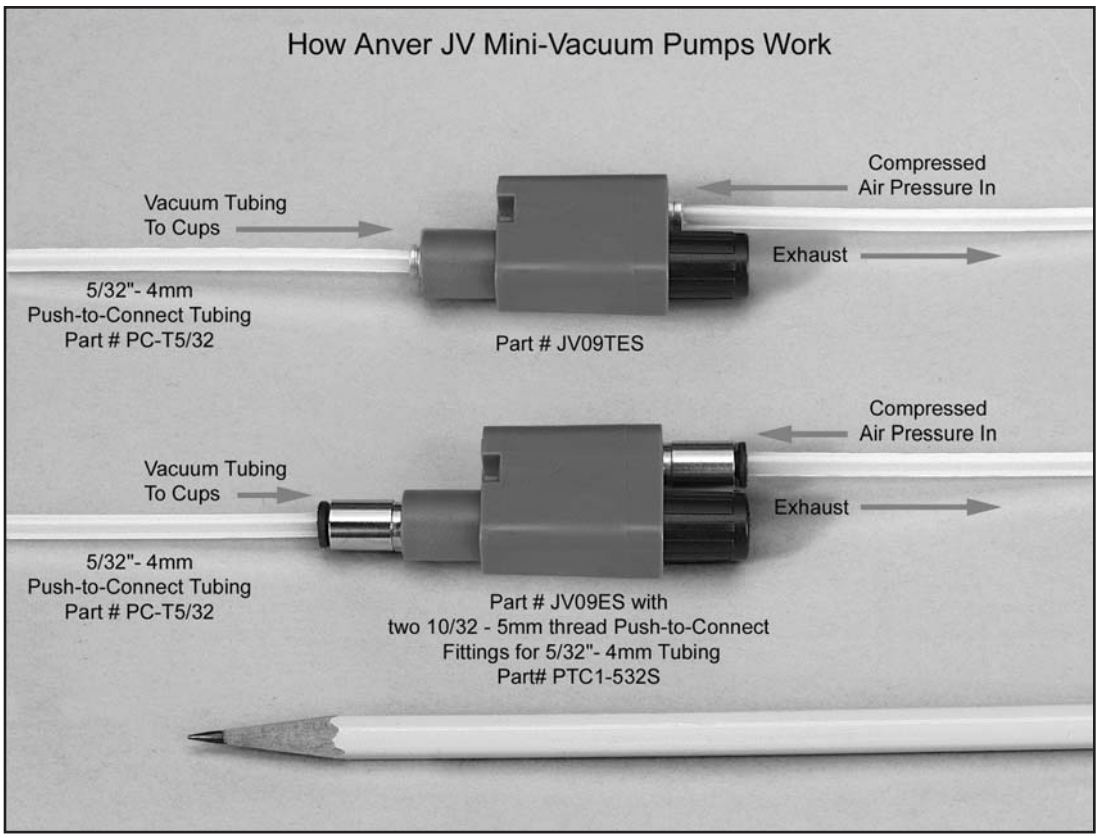
Can be mounted right on the suction cup for millisecond attach and release packaging applications.



Important: Keep in mind that if you use VR valves right on a cup and you loose compressed air power you have no check valve in the system and thus no way to stop a load from letting go.

ANVER Item No.	Top Supply Port Thread	Bottom Vacuum Port Thread	Side Exhaust Port Thread	Vacuum Flow scfm (l/min.)	Max. Vacuum Level in. Hg (mm Hg)	Air Consumption scfm (l/min.)	Supply Pressure (psi)
VR05	1/4" NPT Female	6 mm Female	M5 Male	0.50 (14)	26 (660)	0.74 (21)	72.5
VR05-G	G 1/4" Female	6 mm Female	M5 Male	0.50 (14)	26 (660)	0.74 (21)	72.5
VR07	1/4" NPT Female	1/8" NPT Female	M5 Male	0.50 (14)	26 (660)	0.74 (21)	72.5
VR07-G	G 1/4" Female	G 1/8" Female	M5 Male	0.50 (14)	26 (660)	0.74 (21)	72.5
VR09	1/4" NPT Female	1/8" NPT Female	M5 Male	0.74 (21)	26 (660)	1.27 (36)	72.5
VR09-G	G 1/4" Female	G 1/8" Female	M5 Male	0.74 (21)	26 (660)	1.27 (36)	72.5





JV Series Advanced Mini Vacuum Pumps

ANVER JV Series Mini Vacuum Generators are ideal for use as vacuum pumps where space is limited or for use as a lightweight stand alone vacuum pump such as in robotic applications. Their small size permits mounting close to the load pick-up point, decreasing response time and minimizing air consumption. Thermoplastic construction insures excellent performance characteristics while providing an economical vacuum solution for many design applications.

The JV Series are mini venturi vacuum generators. The vacuum control of these vacuum pumps is served through a separate manual or automatic control valve situated on the compressed air supply line. Available with 5 mm female threads (which 10/32 fits right in) or with 5/32" (4 mm) O.D. Tube Connection Ports.

JV Series pumps are suggested for use anywhere vacuum is required and where a simple, low maintenance and weight design is desired.

Features:

- High speed, high 26" hg. vacuum and excellent flow for the size of the pump
- Minimum Space Requirements. They are only 1 3/4” (45mm) long!
- Available with or without valves or silencers, installation is straightforward
- Can be Manifold Mounted or used individually - one per vacuum cup, inline fashion
- Economical, Lightweight, Quiet Operation - The JV pump weighs only 16 grams!
- Low Air Consumption and no moving parts to wear out.
- Thermoplastic bodies handle temperature and moisture variances well
- A proven design Made in the USA by ANVER Corp

Ordering Information:

The JV Series Mini Vacuum Generators are available in two model sizes each available with a standard M5 female thread port connection (which 10/32 fits right in) or an optional push-to-connect vacuum and pressure port connection (T designation) for 5/32" (4 mm) O.D. Tubing. The Models JV07 and JV09 denote the basic vacuum generator only. Adding a control valve for the air supply can transform the basic generator into a compact vacuum system (JV07CE&D and JV09CE&D designations) with built-in 24VDC vacuum control. The control valve is mounted directly to the vacuum generator body, and all air passages are internal to the system.

Specifications:

Model (Series	Max Vacuum Level	Vacuum Flow:	Air Consumption
JV07 Series	26 in. Hg (660 mm Hg)	0.50 scfm (14 l/min.)	0.74 scfm (21 l/min.)
JV09 Series	26 in. Hg (660 mm Hg)	0.74 scfm (21 l/min.)	1.27 scfm (36 l/min.)

Requires: 50 Micron, Filtered, Non-lubricated, Dry Compressed Air. Optimum Operating Pressure is 5 bar (72.5 psi)
Operating Temperature: -10 to +80°C (14 to 176°F)

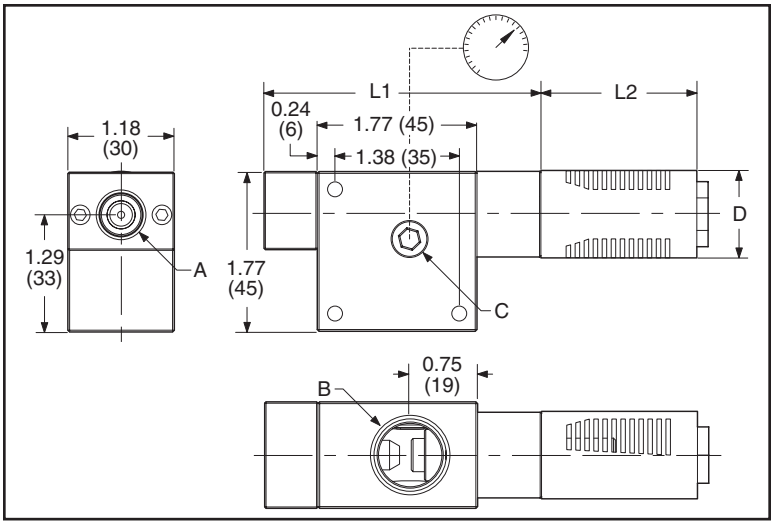
Model Number	Description
JV Series Basic Vacuum Generators	
JV07	Mini Vacuum Generator with M5 - 10/32 Ports
JV07T	Mini Vacuum Generator with 5/32" (4 mm) O.D. Tubing
JV09	Mini Vacuum Generator with M5 - 10/32 Ports
JV09T	Mini Vacuum Generator with 5/32" (4 mm) O.D. Tubing
JV Series Basic Vacuum Generators with Muffler	
JV07ES	JV07 Mini Vacuum Generator with muffler, with M5 - 10/32 Ports
JV07TES	JV07T Mini Vacuum Generator with muffler, 5/32" (4 mm) O.D. Tubing
JV09ES	JV09 Mini Vacuum Generator with M5 - 10/32 Ports and muffler
JV09TES	JV09T Mini Vacuum Generator with muffler, 5/32" (4 mm) O.D. Tubing

Model Number	Description
JV Series Vacuum Generators with Single Valve to Control Vacuum	
JV07CE	JV07 Mini Vacuum Generator with 24vdc Vacuum Control Valve, with M5 - 10/32 Ports
JV07CET	JV07T Mini Vacuum Generator with 24vdc Vacuum Control Valve, 5/32" (4 mm) O.D. Tubing
JV09CE	JV09 Mini Vacuum Generator with 24vdc Vacuum Control Valve, with M5 - 10/32 Ports
JV09CET	JV09T Mini Vacuum Generator with 24vdc Vacuum Control Valve, 5/32" (4 mm) O.D. Tubing
JV Series Vacuum Generators with Double Valves to Control Vacuum and Blow-Off	
JV07CED	JV07 Mini Vacuum Generator with 24vdc Vacuum & Blow Off Control Valves, with M5 - 10/32 Ports
JV09CED	JV09 Mini Vacuum Generator with 24vdc Vacuum & Blow Off Control Valves, with M5 - 10/32 Ports
JV07TCED	JV07T Mini Vacuum Generator with 24vdc Vacuum & Blow Off Control Valves, 5/32" (4 mm) O.D. Tubing
JV09TCED	JV09T Mini Vacuum Generator with 24vdc Vacuum & Blow Off Control Valves, 5/32" (4 mm) O.D. Tubing

Model Number	Description
Accessories for JV Series Mini Vacuum Generators	
JVM-2	Two Station Manifold for JV Series Mini Vacuum Generators
JVM-4	Four Station Manifold for JV Series Mini Vacuum Generators
JVEM	Optional Exhaust Muffler for JV Series Mini-Vacuum Generators (for use with JV Series Generators in stand-alone applications only). The muffler presses on to the body and locks in place.
JVSF	Optional Sensor Fitting, allows for the addition of a Remote Mounted Vacuum Sensor for precision control or system monitoring (for use with M5 10/32 thread port models).

Vacuum Cups and Suction Cups

JB Series Single-Stage Vacuum Pumps



Shown to the left is the main line of JB series vacuum generators. These pumps can handle the majority of applications more economically than most air vacuum pumps. The vacuum control of these generators is served through a manual or automatic control valve situated on the compressed air supply line (not included in this version).

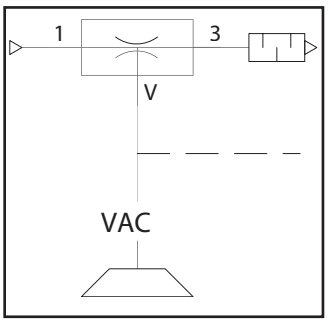
Usage:
This system is recommended for use where vacuum is required on an intermittent basis or when a basic, low cost functional design is desired. As these pumps have no internal moving parts, they are extremely reliable and require no maintenance. Just keep debris out with a filter and use dry clean air and these pumps will work almost indefinitely.

Specifications:

Compressed Air: 50 Micron, Filtered, Non-lubricated
Operating Temperature: -10 to 80°C (14 to 176°F)
Optimum Operating Pressure: 5 bar (72.5 psi)

Features/Available Options:

- Vacuum Level: 90% (27" Hg)
- Vacuum Gauge
- Mufflers
- Vacuum Port Extension
- Vacuum Switches
- Control Valve
- Pilot: 24V DC, Pneumatic, or 100V 60 Hz AC



Part No.	Nozzle Size	A Air Inlet	B Vacuum Port	C Optional Gauge Port	D in. (mm)	L1 In (mm)	L2 In (mm)	Air Consumption scfm (ml/min.)	Vacuum Flow scfm (ml/min.)	Vacuum Level in Hg (-mmHg)
JB12	12	1/4" NPT	1/2" NPT	1/8" NPT	0.76 (19)	3.22 (81.8)	1.37 (35)	2.10 (59)	1.90 (54)	27 (690)
JB12-X	12	G 1/4"	G 1/2"	G 1/8"	0.76 (19)	3.22 (81.8)	1.37 (35)	2.10 (59)	1.90 (54)	27 (690)
JB15	15	1/4" NPT	1/2" NPT	1/8" NPT	0.76 (19)	3.63 (92.2)	1.37 (35)	3.20 (91)	2.65 (75)	27 (690)
JB15-X	15	G 1/4"	G 1/2"	G 1/8"	0.76 (19	3.63 (92.2)	1.37 (35)	3.20 (91)	2.65 (75)	27 (690)
JB20	20	1/4" NPT	1/2" NPT	1/8" NPT	0.95 (24)	4.65 (118.1)	1.83 (47)	6.10 (170)	4.50 (130)	27 (690)

* Recommended for applications where debris may be present.

Part No.	Nozzle Size	A Air Inlet	B Vacuum Port	C Optional Gauge Port	D in. (mm)	L1 In (mm)	L2 In (mm)	Air Consumption scfm (ml/min.)	Vacuum Flow scfm (ml/min.)	Vacuum Level in Hg (-mmHg)
JB20-X	20	G 1/4"	G 1/2"	G 1/8"	0.95 (24)	4.65 (118.1)	1.83 (47)	6.10 (170)	4.50 (130)	27 (690)
JB25	25	1/4" NPT	1/2" NPT	1/8" NPT	0.95 (24)	5.22 (132.2)	1.83 (47)	9.20 (260)	7.06 (200)	27 (690)
JB25-X	25	G 1/4"	G 1/2"	G 1/8"	0.95 (24)	5.22 (132.2)	1.83 (47)	9.20 (260)	7.06 (200)	27 (690)
JB30	30	1/4" NPT	1/2" NPT	1/8" NPT	1.34 (34)	6.37 (161.8)	3.81 (97)	14.0 (400)	9.50 (270)	27 (690)
JB30-X	30	G 1/4"	G 1/2"	G 1/8"	1.34 (34)	6.37 (161.8)	3.81 (97)	14.0 (400)	9.50 (270)	27 (690

Ordering Information and Example:

JB
Series
JB

12
Nozzle
12
15
20
25
30

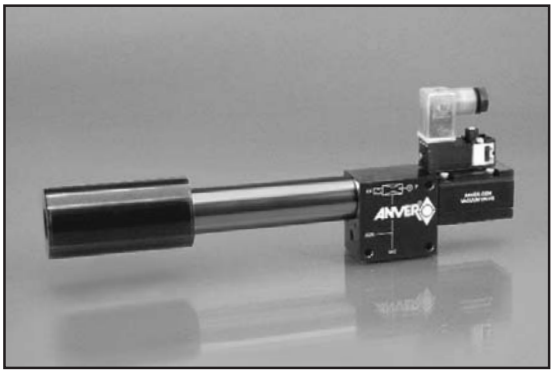
H
Vacuum Level
H = 90%-Standard

G
Accessories
D = Electrical Vacuum Switch w/Display
G = Gauge
L = Electrical Vacuum Switch w/LED
M = Electro-mechanical Vacuum Switch
N = Pneumatic Vacuum Switch
V = Vacuum Port Extension

Example: Model **JB12HG** is a **JB** Series Vacuum Generator with Nozzle Size **12**, Standard (**H**) Vacuum Level, and Optional Vacuum **G**auge

Vacuum Cups and Suction Cups

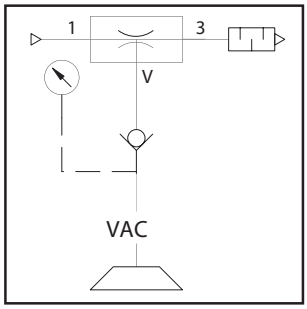
JBC Series Single-Stage Vacuum Pumps



The addition of a control valve for the air supply transforms the basic JB series vacuum generator into a compact vacuum system, with built-in vacuum control. The control valve is mounted directly to the vacuum generator body and all air passages are internal to the system.

Usage:

This vacuum generator is recommended for use where compact size and precise control are important. Pneumatic control is available for explosion proof operation as well as additional voltages. Consult factory for assistance in choosing the proper vacuum generator for your application.

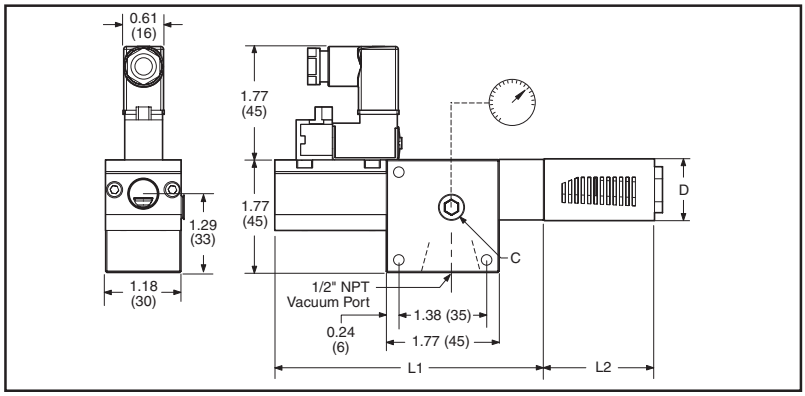


Available Options:

- Vacuum Gauge
- Vacuum Port Extension
- Vacuum Switches

Specifications:

Compressed Air:	50 Micron, Filtered, Non-lubricated
Operating Temp.:	32° to 140°F (0° to 60° C)
Optimum Operating Pressure:	5 bar = 72.5 psi
Mechanical Life:	15 million cycles
Operating Frequency:	2 Hz max.
Operating Mode:	N.C. normally closed N.O. 24VDC on request
Valve Material:	Anodized Aluminum, Brass Nozzle
Seals Material:	Nitrile NBR



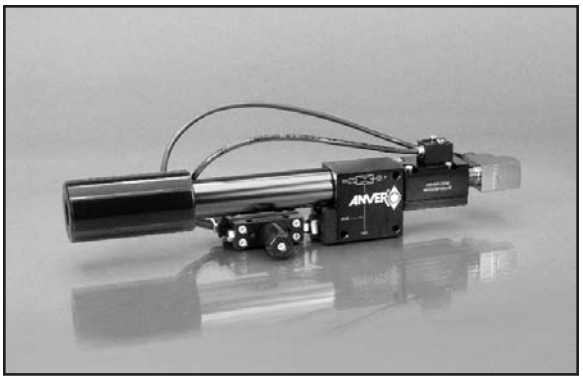
Nozzle Size	D in. (mm)	L1 in. (mm)	L2 in. (mm)	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mmHg)
12	0.76 (19)	4.37 (111.0)	1.37 (35)	2.10 (59)	1.90 (54)	27 (690)
15	0.76 (19)	4.98 (121.5)	1.37 (35)	3.20 (91)	2.65 (75)	27 (690)
20	0.95 (24)	5.80 (147.3)	1.83 (47)	6.10 (170)	4.50 (130)	27 (690)
25	0.95 (24)	6.37 (162.0)	1.83 (47)	9.20 (260)	7.06 (200)	27 (690)
30	1.34 (34)	7.52 (191.0)	3.81 (97)	14.0 (400)	9.50 (270)	27 (690)

Ordering Information and Example:

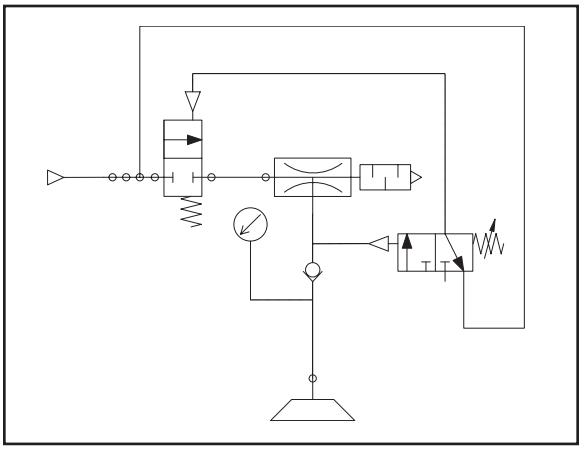
JB	12	H	C	P	G
Series	**Nozzle**	**Vacuum Level**	**Control Valve**	**Pilot**	**Accessories**
JB	12 15 20 25 30	H=90%-Standard	Supply Only	E = 24V DC P = Pneumatic Z = 110V 60Hz	D = Electrical Vacuum Switch w/Display G = Gauge L = Electrical Vacuum Switch M = Electro-mechanical Vacuum Switch N = Pneumatic Vacuum Switch V = Vacuum Port Extension

Vacuum Cups and Suction Cups

JEHCSP Series Single-Stage Vacuum Pumps



Note: This system requires a separate on and off valve in the circuit to release the load.



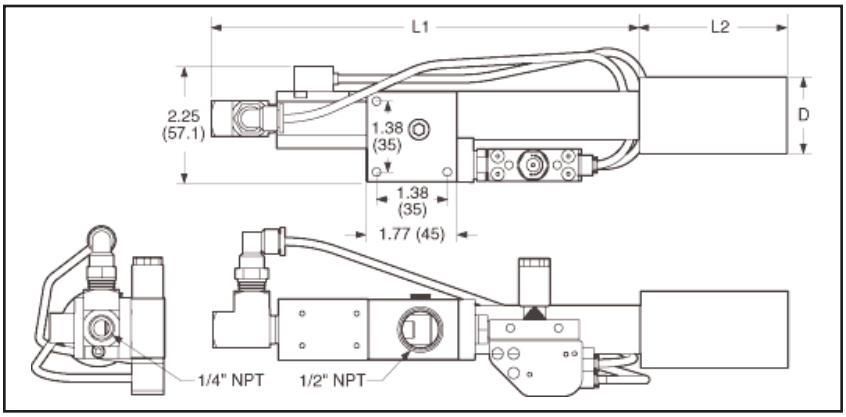
Equip your vacuum generator with an air supply control valve and a fast-acting vacuum switch to save energy. It uses compressed air only when required to maintain the programmed level. Whenever the vacuum level drops 5% below the preset level, the generator is reactivated. Included is a fast acting check valve that prevents leakage.

Usage:

The "Economizer" series brings a new level of efficiency to the handling and holding of non-porous materials and objects. Use this system when the loss of vacuum is unacceptable. The JEHCSP is equipped with pneumatic control for explosion-proof operation.

Specifications:

Compressed Air: 50 Micron, Filtered, Non-lubricated
Operating Temp.: 0 to 60°C = 32 to 140°F
Optimum Operating Pressure: 5 bar = 72.5 psi
Mechanical Life: 15 million cycles
Valve Material: Anodized Aluminum, Brass Nozzle
Seals Material: Nitrile NBR



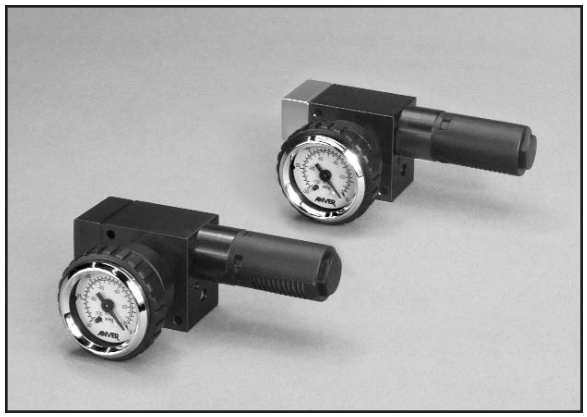
Nozzle Size	D in. (mm)	L1 in. (mm)	L2 in. (mm)	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mmHg)
12	0.76 (19)	5.94 (151)	1.41 (36)	2.10 (59)	1.90 (54)	27 (690)
15	0.76 (19)	6.37 (162)	1.41 (36)	3.20 (91)	2.65 (75)	27 (690)
20	0.95 (24)	5.79 (147)	1.81 (46)	6.10 (170)	4.50 (130)	27 (690)
25	0.95 (24)	5.79 (147)	1.81 (46)	9.20 (260)	7.06 (200)	27 (690)
30	1.52 (38)	8.56 (217)	2.89 (73)	14.0 (400)	9.50 (270)	27 (690)

Ordering Information and Example:

JE	12	H	CS	P
Series	**Nozzle**	**Vacuum Level**	**Control Valve**	**Pilot**
JE	12 15 20 25 30	H=90%-Standard	Supply and Check Valve	P = Pneumatic

Vacuum Cups and Suction Cups

JBS Series Single-Stage Vacuum Pumps



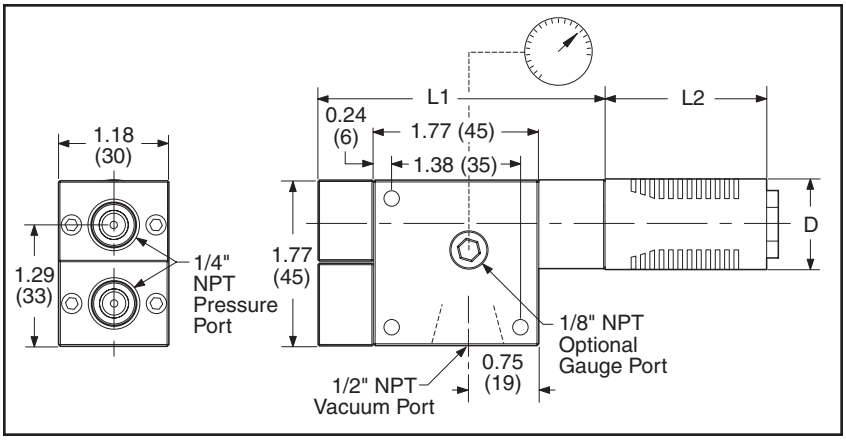
The JBS Series vacuum generating system provides dual inlet ports for air supply and blow-off. Once a vacuum is obtained, the check valves hold that vacuum until the system is opened by a compressed air signal to the blow-off port.

Usage:
Use this system for hold-down applications. Check Valves are only effective on non-porous applications in a leak-free system.

Available Features:
- Vacuum Gauge
- Vacuum Port Extension
- Vacuum Switches

Specifications:

Compressed Air:	50 Micron, Filtered, Non-lubricated
Operating Temp.:	14° to 176°F (-10° to 80°C)
Optimum Operating Pressure:	5 bar = 72.5 psi



Nozzle Size	D in. (mm)	L1 in. (mm)	L2 in. (mm)	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mmHg)
12	0.76 (19)	4.37 (111.0)	1.37 (35)	2.10 (59)	1.90 (54)	27 (690)
15	0.76 (19)	4.98 (121.5)	1.37 (35)	3.20 (91)	2.65 (75)	27 (690)
20	0.95 (24)	5.80 (147.3)	1.83 (47)	6.10 (170)	4.50 (130)	27 (690)
25	0.95 (24)	6.37 (162.0)	1.83 (47)	9.20 (260)	7.06 (200)	27 (690)
30	1.34 (34)	7.52 (191.0)	3.81 (97)	14.0 (400)	9.50 (270)	27 (690)

Ordering Information and Example:

JB — **Series**
JE

12 — **Nozzle**
12
15
20
25

H — **Vacuum Level**
H=90%-Standard

S — **Double Supply Ports and Check Valves**

V — **Accessories**
D = Electrical Vacuum Switch w/Display
G = Gauge
L = Electrical Vacuum Switch w/LED
M = Electro-mechanical Vacuum Switch
N = Pneumatic Vacuum Switch
V = Vacuum Port Extension

Vacuum Cups and Suction Cups

JBD Series Single-Stage Vacuum Pumps

Note: JBD Shown with Electronic Vacuum Switch.

These pumps are also available with internal safety check valves.

Specifications:

Compressed Air:	50 Micron, Filtered, Non-lubricated
Operating Temp.:	32° to 140° F (0° to 60° C)
Optimum Operating Pressure:	5 bar = 72.5 psi
Mechanical Life:	15 million cycles
Operating Frequency:	2 Hz max.
Operating Mode:	N.C. normally closed
	N.O. 24 VDC on request
Valve Material:	Delrin 100, black
Seals Material:	Nitrile NBR

ANVER JBD series vacuum generators allow you to create a vacuum generating system with separate controls for the air supply and blow-off. The two valves are mounted to the generator body, and all air passages are internal, creating a compact, leak-proof system. The blow-off feature can be regulated in time through control programming, or in volume, with a built-in adjustable needle valve.

Usage:
Recommended for single- or multiple-cup vacuum systems that require pre-cleaning of the object to be handled and/or quick release of load. It is also useful in decreasing the overall operating cycle time by allowing you to break the vacuum seal quickly. Specify pneumatic control for explosion proof operation.

Available Features:

- Vacuum Gauge
- Vacuum Port Extension
- Vacuum Switches

Ordering Information and Example:

JB	12	H	D	P	G
Series	**Nozzle**	**Vacuum Level**	**Dual Control Valve**	**Pilot**	**Accessories**
JB	12	H=90%-Standard,	Supply and Vacuum	E = 24V DC	D = Electrical Vacuum Switch w/Display
	15	on request		P = Pneumatic	G = Gauge
	20			Z = 110V 60Hz	L = Electrical Vacuum Switch
	25				M = Electro-mechanical Vacuum Switch
	30				N = Pneumatic Vacuum Switch
					V = Vacuum Port Extension

Nozzle Size	D in. (mm)	L1 in. (mm)	L2 in. (mm)	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mmHg)
12	0.76 (19)	4.37 (111.0)	1.37 (35)	2.10 (59)	1.90 (54)	27 (690)
15	0.76 (19)	4.78 (121.5)	1.37 (35)	3.20 (91)	2.65 (75)	27 (690)
20	0.95 (24)	5.80 (147.3)	1.83 (47)	6.10 (170)	4.50 (130)	27 (690)
25	0.95 (24)	6.37 (162.0)	1.83 (47)	9.20 (260)	7.06 (200)	27 (690)
30	1.34 (34)	7.52 (191.0)	3.81 (97)	14.0 (400)	9.50 (270)	27 (690)

Nozzle Size	L1 In (mm)	L2 In (mm)	Air Consumption scfm (ml/min.)	Vacuum Flow scfm (ml/min.)	Vacuum Level in Hg (-mmHg)
12	5.94 (151)	1.41 (36)	2.10 (59)	1.90 (54)	27 (690)
15	6.37 (162)	1.41 (36)	3.20 (91)	2.65 (75)	27 (690)
20	5.79 (147)	1.81 (46)	6.10 (170)	4.50 (130)	27 (690)
25	5.79 (147)	1.81 (46)	9.20 (260)	7.06 (200)	27 (690)
30	8.56 (217)	2.89 (73)	14.0 (400)	9.50 (270)	27 (690)

Ordering Information and Example:

JE	12	H	CS	P
Series	**Nozzle**	**Vacuum Level**	**Control Valve**	**Pilot**
JE	12 15 20 25 30	H=90%-Standard	Supply and Check Valve	P = Pneumatic

Vacuum Pumps and Vacuum Generators

Q-VP Series Modular Venturi Vacuum Pumps

Features and Available Options:

- Lightweight and Compact
- Powerful 28" Hg Vacuum
- 2 Compact Body Designs allow placement close to the vacuum point
- Optional Adjustable Vacuum Sensor provides electrical signal for switching
- Optional Vacuum Gauge allows for visual monitoring, useful for troubleshooting and in setting the vacuum sensor
- Modular Venturi Cartridge Design for Design Flexibility
- QVP Line Features NO Moving Parts
- Ideal for Pick and Place Applications, Degassing and Vessel Evacuation

In response to the need for improved automation and material handling methods in modern industry, ANVER has introduced the Q-VP Series of Modular Venturi Vacuum Pumps.

The Q-VP Series provides an unprecedented level of design flexibility by applying a modular component model to venturi construction. Integrating a venturi vacuum pump, sensors, and solenoid valves into one unit, the Q-VP Series offers complete vacuum systems which can efficiently interface with computerized control systems.

The Q-VP00 Series vacuum pumps feature high vacuum venturis in several compact, lightweight configurations that are ideal for space-critical pick and place applications. Other typical applications include the rapid evacuation of small vessels in purging operations and for water/air analyzers. These compact pumps require little space for installation, and can be installed in close proximity to the vacuum point to ensure rapid response time.

Maximizing the possibilities of every application design, the Q-VP10 and Q-VP20 Series are composed of modular components, allowing today's designers to incorporate only those features needed for their specific application. This adaptability is further extended by the using a cartridge venturi system in which any of eleven venturis can be inserted into any of four body styles. Even without optional accessories, this represents 32 possible configurations.

The Q-VP10/Q-VP20 Mid-Sized Series is the most commonly used style of venturi used in pick and place applications.

Vacuum Pumps and Vacuum Generators

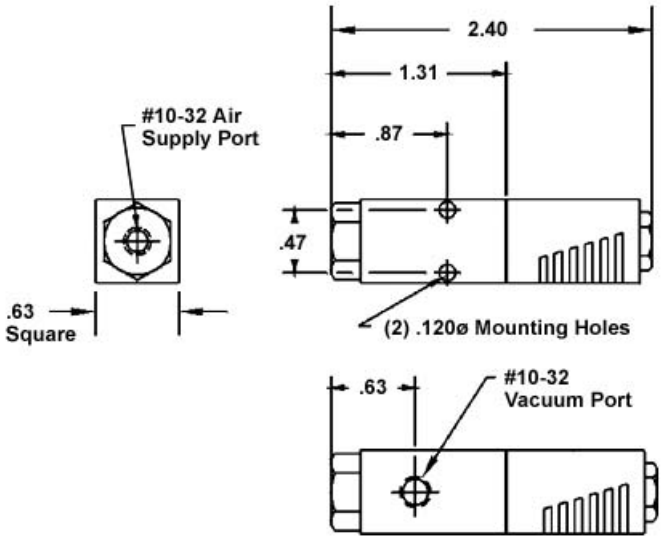
Q-VP00 Modular Venturi Vacuum Pumps

Q-VP00 Modular Venturi Pumps with Silencers

The Q-VP00 Series vacuum pumps feature high vacuum venturis in several compact, lightweight configurations that are ideal for space-critical pick and place applications. Other typical applications include the rapid evacuation of small vessels in purging operations and for water/air analyzers. These compact pumps require little space for installation, and can be installed in close proximity to the vacuum point to insure rapid response time.

Features and Available Options:

- Compact and Lightweight
- Features Powerful 28 "Hg Vacuum



H Series Performance Data: The "H" Series (H for "High"):
Vacuum levels of up to 28"Hg for applications involving non-porous materials (steel, plastic, glass, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI							
		0”	3”	6”	9”	12”	15”	18”	20”
Q-VP00-60H	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)							
	0”	3”	6”	9”	12”	15”	18”	20”
Q-VP00-60H	0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00

Vacuum Pumps and Vacuum Generators

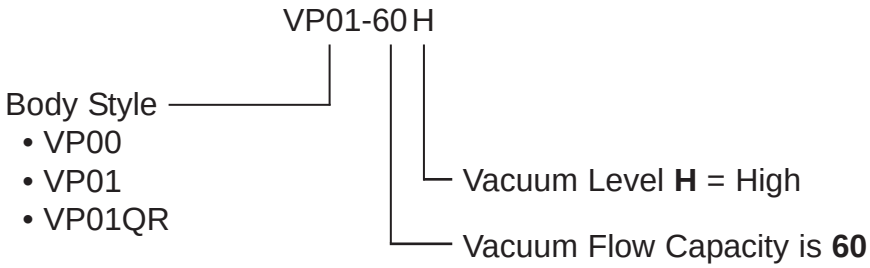
Q-VP00 Modular Venturi Vacuum Pumps

Additional Specifications:

Medium:	Filtered (50 Micron) unlubricated air
Operating Pressure:	80 PSI
Operating Temperature:	15°F - 140°F
Operating Noise Level:	68 dBA
Material:	Anodized Aluminum, Brass and Buna-N

Ordering Information:

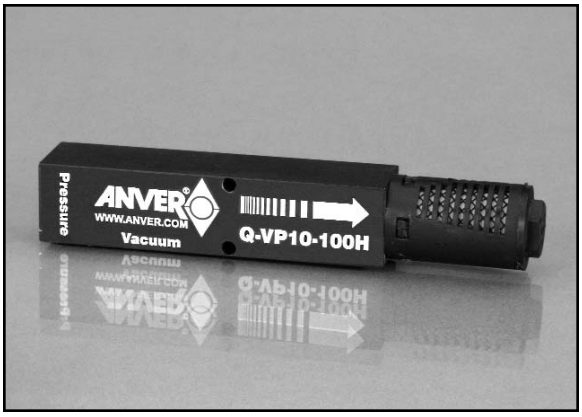
1. Choose a body style based on the features and accessories needed for your application.
2. Venturi size is 60Hz.
3. If required, indicate the valve operating voltage.
4. Order using the following formula:



These Venturi pumps are designed to operate at peak efficiency at 80 PSI. Systems requiring operation at 60 PSI should be ordered with the designate -60 at the end of the Part number, i.e. VP00-60H-60.

Vacuum Pumps and Vacuum Generators

Q-VP10 Modular Venturi Vacuum Pumps



Q-VP10 Modular Venturi Pumps with Silencers

Maximizing the possibilities of every application design, the Q-VP10 and Q-VP20 Series are composed of modular components, allowing today's designers to incorporate only those features needed for their specific application.
This adaptability is further extended by the using a cartridge venturi system in which any of eleven venturis can be inserted into any of four body styles.
Even without optional accessories, this represents 32 possible configurations.
(The Q-VP10/Q-VP20 Mid-Sized Series is the most commonly used style of venturi used in pick and place applications).

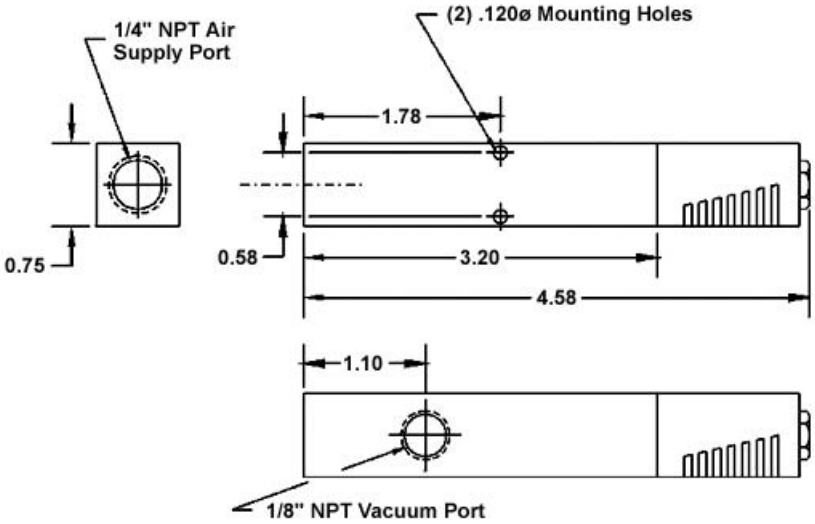
Select the Venturi that best suits your application based on four performance characteristics: Vacuum Level, Vacuum Flow, Evacuation Speed and Air Consumption. (see Below)

To simplify selection, Venturi performance has been divided into two categories:

"M" for medium, and "H" for High, Vacuum applications.

Features and Available Options:

- Compact Body Design allows placement close to the vacuum point



M Series Performance Data: The "M" Series (M for "Medium"):
Vacuum levels of up to 20"Hg for applications involving porous materials (cardboard, wood, fabric, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI							
		0”	3”	6”	9”	12”	15”	18”	20”
Q-VP10-60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
Q-VP10-90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
Q-VP10-100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
Q-VP10-150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00

M Series Performance Data: *(Continued)*

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)							
	0”	3”	6”	9”	12”	15”	18”	20”
Q-VP10-60M	0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
Q-VP10-90M	0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
Q-VP10-100M	0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
Q-VP10-150M	0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

H Series Performance Data: The "H" Series (H for "High"):

Vacuum levels of up to 28"Hg for applications involving non-porous materials (steel, plastic, glass, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI										
		0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP10-60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
Q-VP10-90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
Q-VP10-100H	2.80	2.00	1.85	1.57	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
Q-VP10-150H	4.80	3.20	2.80	2.30	2.30	2.00	1.90	1.60	1.40	1.30	0.60	0.00

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)										
	0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP10-60H	0.00	15.00	29.80	50.60	74.30	102.80	135.90	183.20	245.90	410.20	790.80
Q-VP10-90H	0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
Q-VP10-100H	0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
Q-VP10-150H	0.00	2.30	3.80	6.50	10.20	14.10	21.30	44.90	55.00	81.00	125.00

Vacuum Pumps and Vacuum Generators

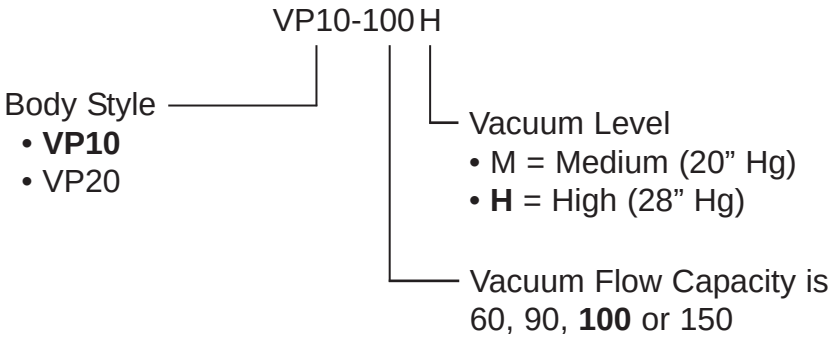
Q-VP10 Modular Venturi Vacuum Pumps

Additional Specifications:

Medium:	Filtered (50 Micron) unlubricated air
Operating Pressure:	80 PSI
Operating Temperature:	15°F - 140°F
Operating Noise Level:	72 dBA
Material:	Anodized Aluminum, Brass and Buna-N

Ordering Information:

1. Choose a body style based on the features and accessories needed for your application.
2. Venturi size is based on vacuum level and flow requirements.
3. If required, indicate the valve operating voltage.
4. Order using the following formula:



These Venturi pumps are designed to operate at peak efficiency at 80 PSI. Systems requiring operation at 60 PSI should be ordered with the designate -60 at the end of the Part number, i.e. VP00-60H-60.

Vacuum Pumps and Vacuum Generators

Q-VP20 Modular Venturi Vacuum Pumps

Q-VP20 Modular Venturi Pumps with Silencers

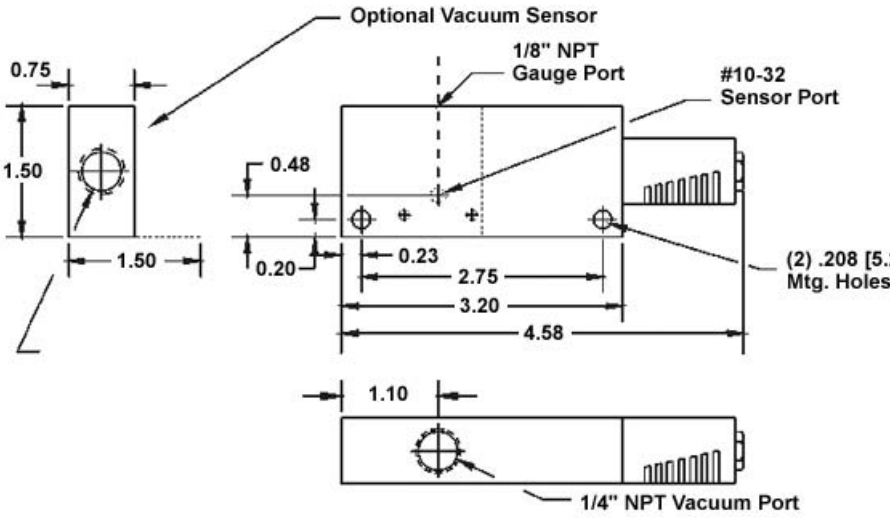
Maximizing the possibilities of every application design, the Q-VP10 and Q-VP20 Series are composed of modular components, allowing today's designers to incorporate only those features needed for their specific application. This adaptability is further extended by the using a cartridge venturi system in which any of eleven venturis can be inserted into any of four body styles. Even without optional accessories, this represents 32 possible configurations. The Q-VP10/Q-VP20 Mid-Sized Series is the most commonly used style of venturi used in pick and place applications.

Select the Venturi that best suits your application based on four performance characteristics: Vacuum Level, Vacuum Flow, Evacuation Speed and Air Consumption. (see Below)

To simplify selection, Venturi performance has been divided into two categories:"M" for medium, and "H" for High, Vacuum applications.

Features and Available Options:

- Compact Body Design allows placement close to the vacuum point



M Series Performance Data: The "M" Series (M for "Medium"):
Vacuum levels of up to 20"Hg for applications involving porous materials (cardboard, wood, fabric, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI							
		0”	3”	6”	9”	12”	15”	18”	20”
Q-VP20-60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
Q-VP20-90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
Q-VP20-100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
Q-VP20-150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00

M Series Performance Data: *(Continued)*

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)							
	0”	3”	6”	9”	12”	15”	18”	20”
Q-VP20-60M	0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
Q-VP20-90M	0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
Q-VP20-100M	0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
Q-VP20-150M	0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

H Series Performance Data: The "H" Series (H for "High"):

Vacuum levels of up to 28"Hg for applications involving non-porous materials (steel, plastic, glass, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI										
		0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP20-60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
Q-VP20-90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
Q-VP20-100H	2.80	2.00	1.85	1.57	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
Q-VP20-150H	4.80	3.20	2.80	2.30	2.30	2.00	1.90	1.60	1.40	1.30	0.60	0.00

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)										
	0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP20-60H	0.00	15.00	29.80	50.60	74.30	102.80	135.90	183.20	245.90	410.20	790.80
Q-VP20-90H	0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
Q-VP20-100H	0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
Q-VP20-150H	0.00	2.30	3.80	6.50	10.20	14.10	21.30	44.90	55.00	81.00	125.00

Vacuum Pumps and Vacuum Generators

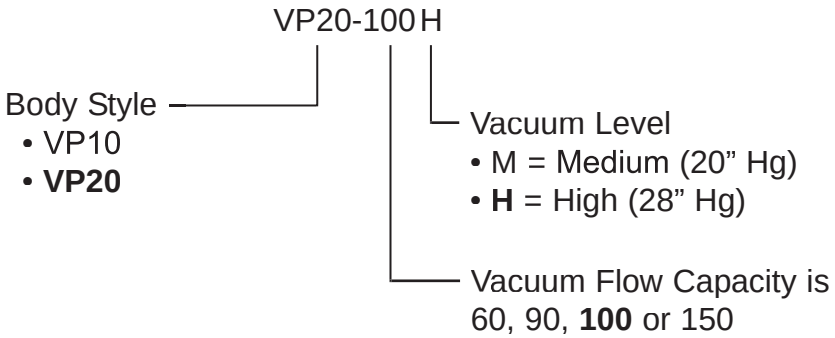
Q-VP20 Modular Venturi Vacuum Pumps

Additional Specifications:

Medium:	Filtered (50 Micron) unlubricated air
Operating Pressure:	80 PSI
Operating Temperature:	15°F - 140°F
Operating Noise Level:	72 dBA
Material:	Anodized Aluminum, Brass and Buna-N

Ordering Information:

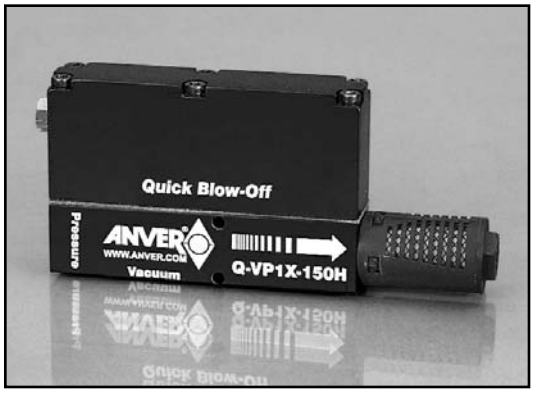
1. Choose a body style based on the features and accessories needed for your application.
2. Venturi size is based on vacuum level and flow requirements.
3. If required, indicate the valve operating voltage.
4. Order using the following formula:



These Venturi pumps are designed to operate at peak efficiency at 80 PSI. Systems requiring operation at 60 PSI should be ordered with the designate -60 at the end of the Part number, i.e. VP00-60H-60.

Vacuum Pumps and Vacuum Generators

Q-VP1X Modular Venturi Vacuum Pumps



Q-VP1X High Speed Blow-Off Vacuum Pumps

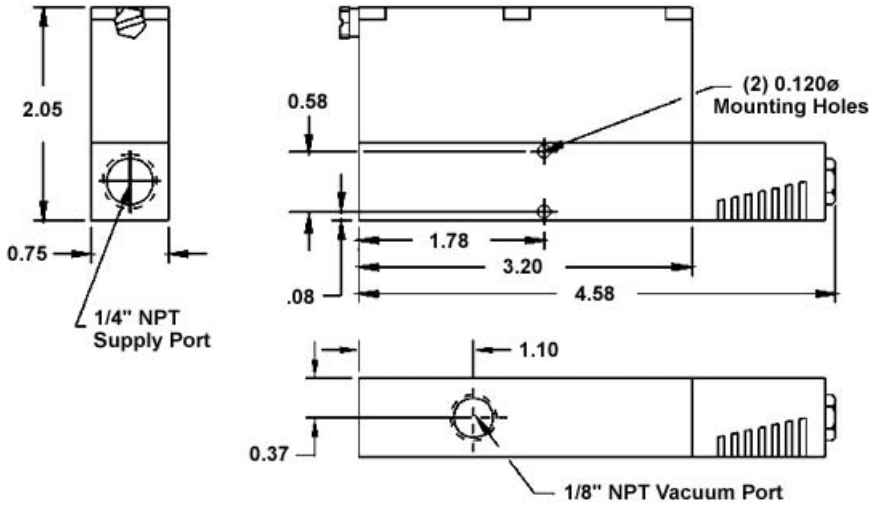
ANVER's Q-VP1X vacuum pumps with high speed blow-off are ideal for space-critical pick and place applications which require high-speed part release. In addition to offering extremely rapid blow-off capabilities, these compact Q-VP1X pumps incorporate the same first-rate construction quality and excellent operational performance for which the Q-VP pumps are known. No external plumbing or assembly on-site is required.

Select the Venturi that fits your application best, based on four performance parameters: Vacuum Level, Vacuum Flow, Evacuation Speed and Air Consumption. (see Below)

To simplify selection, Venturi performance has been divided into two categories:"M" for medium, and "H" for High, Vacuum applications.

Features and Available Options:

- Exceptionally Rapid Part Release
- Pinpoint Part Positioning
- Easy One-step Installation
- No Assembly or External Plumbing Required
- Automatically Cleans Vacuum Lines



M Series Performance Data: The "M" Series (M for "Medium"):
Vacuum levels of up to 20"Hg for applications involving porous materials (cardboard, wood, fabric, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI							
		0”	3”	6”	9”	12”	15”	18”	20”
Q-VP1X-60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
Q-VP1X-90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
Q-VP1X-100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
Q-VP1X-150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00

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M Series Performance Data: *(Continued)*

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)							
	0”	3”	6”	9”	12”	15”	18”	20”
Q-VP1X-60M	0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
Q-VP1X-90M	0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
Q-VP1X-100M	0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
Q-VP1X-150M	0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

H Series Performance Data: The "H" Series (H for "High"):

Vacuum levels of up to 28"Hg for applications involving non-porous materials (steel, plastic, glass, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI										
		0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP1X-60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
Q-VP1X-90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
Q-VP1X-100H	2.80	2.00	1.85	1.57	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
Q-VP1X-150H	4.80	3.20	2.80	2.30	2.30	2.00	1.90	1.60	1.40	1.30	0.60	0.00

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)										
	0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP1X-60H	0.00	15.00	29.80	50.60	74.30	102.80	135.90	183.20	245.90	410.20	790.80
Q-VP1X-90H	0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
Q-VP1X-100H	0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
Q-VP1X-150H	0.00	2.30	3.80	6.50	10.20	14.10	21.30	44.90	55.00	81.00	125.00

Vacuum Pumps and Vacuum Generators

Q-VP1X Modular Venturi Vacuum Pumps

Additional Specifications:

Medium:	Compressed Air or other gases
Operating Pressure:	80 PSI
Operating Temperature:	15°F - 140°F
Operating Noise Level:	72 dBA
Material:	Anodized Aluminum, Brass and Buna-N

Ordering Information:

1. Choose a body style based on the features and accessories needed for your application.
2. Venturi size is based on vacuum level and flow requirements.
3. If required, indicate the valve operating voltage.
4. Order using the following formula:

VP1X-60H

- Body Style
  - • **VP1X**
  - • VP2X
- Vacuum Level
  - • M = Medium (20” Hg)
  - • **H** = High (28” Hg)
- Vacuum Flow Capacity is 60, 90, **100** or 150

These Venturi pumps are designed to operate at peak efficiency at 80 PSI. Systems requiring operation at 60 PSI should be ordered with the designate -60 at the end of the Part number, i.e. VP00-60H-60.

Vacuum Pumps and Vacuum Generators

Q-VP2X Modular Venturi Vacuum Pumps

Q-VP2X High Speed Blow-Off Vacuum Pumps

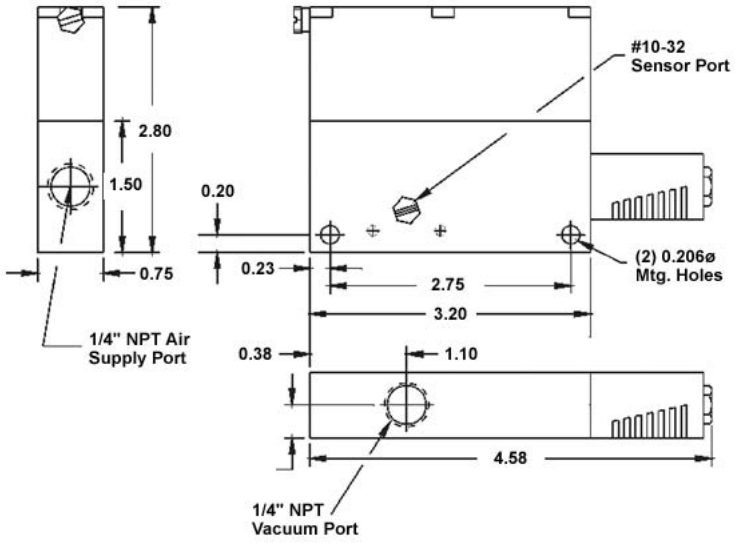
ANVER's Q-VP1X vacuum pumps with high speed blow-off are ideal for space-critical pick and place applications which require high-speed part release. In addition to offering extremely rapid blow-off capabilities, these compact Q-VP1X pumps incorporate the same first-rate construction quality and excellent operational performance for which the Q-VP pumps are known. No external plumbing or assembly on-site is required.

Select the Venturi that fits your application best, based on four performance parameters: Vacuum Level, Vacuum Flow, Evacuation Speed and Air Consumption. (see Below)

To simplify selection, Venturi performance has been divided into two categories:"M" for medium, and "H" for High, Vacuum applications.

Features and Available Options:

- Exceptionally Rapid Part Release
- Pinpoint Part Positioning
- Easy One-step Installation
- No Assembly or External Plumbing Required
- Automatically Cleans Vacuum Lines



M Series Performance Data: The "M" Series (M for "Medium"):
Vacuum levels of up to 20"Hg for applications involving porous materials (cardboard, wood, fabric, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI							
		0”	3”	6”	9”	12”	15”	18”	20”
Q-VP2X-60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
Q-VP2X-90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
Q-VP2X-100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
Q-VP2X-150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00

M Series Performance Data: *(Continued)*

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)							
	0”	3”	6”	9”	12”	15”	18”	20”
Q-VP2X-60M	0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
Q-VP2X-90M	0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
Q-VP2X-100M	0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
Q-VP2X-150M	0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

H Series Performance Data: The "H" Series (H for "High"):

Vacuum levels of up to 28"Hg for applications involving non-porous materials (steel, plastic, glass, etc.)

Model Number	Air Consumption (SCFM) @ 80 PSI	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI										
		0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP2X-60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
Q-VP2X-90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
Q-VP2X-100H	2.80	2.00	1.85	1.57	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
Q-VP2X-150H	4.80	3.20	2.80	2.30	2.30	2.00	1.90	1.60	1.40	1.30	0.60	0.00

Model Number	Evacuation Time (Seconds) Based on 1 CU.FT Volume ("Hg)										
	0”	3”	6”	9”	12”	15”	18”	21”	24”	27”	28”
Q-VP2X-60H	0.00	15.00	29.80	50.60	74.30	102.80	135.90	183.20	245.90	410.20	790.80
Q-VP2X-90H	0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
Q-VP2X-100H	0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
Q-VP2X-150H	0.00	2.30	3.80	6.50	10.20	14.10	21.30	44.90	55.00	81.00	125.00

Vacuum Pumps and Vacuum Generators

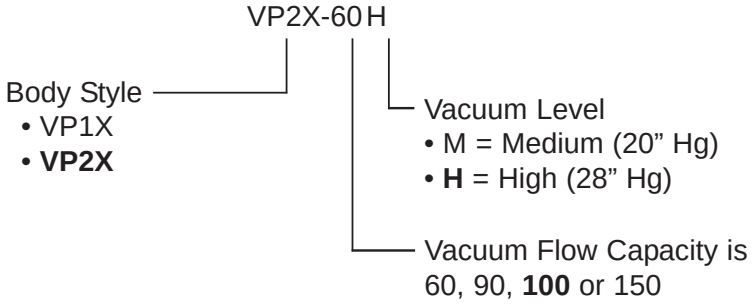
Q-VP2X Modular Venturi Vacuum Pumps

Additional Specifications:

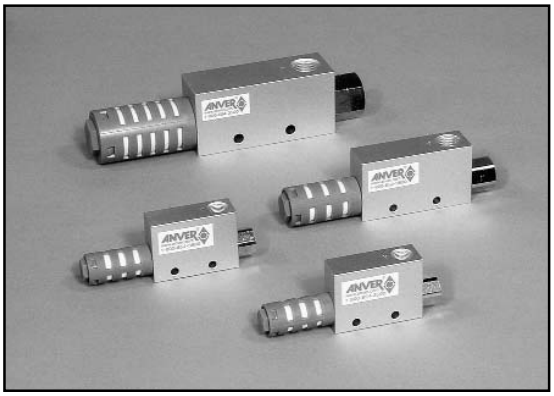
Medium:	Compressed Air or other gases
Operating Pressure:	80 PSI
Operating Temperature:	15°F - 140°F
Operating Noise Level:	72 dBA
Material:	Anodized Aluminum, Brass and Buna-N

Ordering Information:

1. Choose a body style based on the features and accessories needed for your application.
2. Venturi size is based on vacuum level and flow requirements.
3. If required, indicate the valve operating voltage.
4. Order using the following formula:



These Venturi pumps are designed to operate at peak efficiency at 80 PSI. Systems requiring operation at 60 PSI should be ordered with the designate -60 at the end of the Part number, i.e. VP00-60H-60.

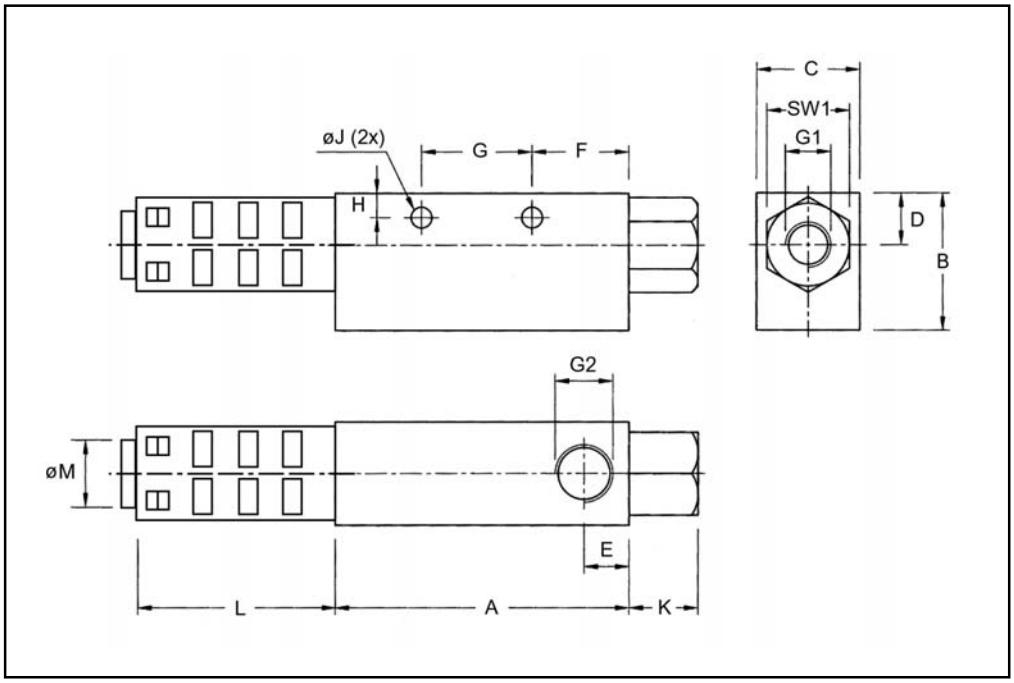


ANVER Item No.	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mm Hg)	Weight oz. (g)
C-CV05HS	0.46 (13)	0.21 (6)	26 (660)	2.8 (79)
C-CV05LS	0.46 (13)	0.40 (11)	17 (432)	2.8 (79)
C-CV10HS	1.55 (44)	0.95 (27)	27 (686)	2.8 (79)
C-CV10LS	1.55 (44)	1.50 (42)	17 (432)	2.8 (79)
C-CV15HS	3.53 (100)	2.22 (63)	27 (686)	4.9 (139)
C-CV15LS	3.53 (100)	3.49 (99)	17 (432)	4.9 (139)
C-CV20HS	6.36 (180)	3.88 (110)	27 (686)	12.3 (349)
C-CV20LS	6.36 (180)	5.38 (150)	17 (432)	12.3 (349)
C-CV25HS	9.36 (265)	5.65 (160)	27 (686)	25.6 (726)
C-CV25LS	9.36 (265)	8.80 (250)	17 (432)	25.6 (726)
C-CV30HS	13.60 (385)	7.90 (225)	27 (686)	29.8 (845)
C-CV30LS	13.60 (385)	12.0 (350)	17 (432)	29.8 (845)

Vacuum Pumps and Vacuum Generators

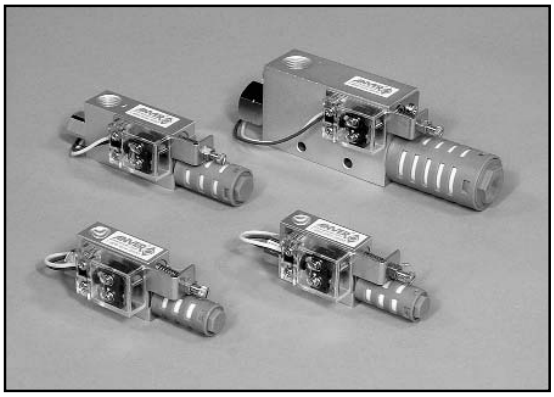
Single Stage Vacuum Pumps Basic Generator

ANVER Item No.	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)	L in. (mm)	M in. (mm)	G1	G2
C-CV05HS/LS	1.77 (45)	1.29 (33)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV10HS/LS	1.77 (45)	1.29 (33)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV15HS/LS	2.48 (63)	1.38 (35)	0.78 (20)	0.43 (11)	0.39 (10)	0.78 (20)	0.98 (25)	0.19 (5)	0.18 (4.5)	0.59 (15)	1.79 (45.5)	0.78 (20)	G-1/4	G-1/4
C-CV20HS/LS	3.34 (85)	1.57 (40)	1.18 (30)	0.59 (15)	0.51 (13)	1.10 (25)	1.26 (32)	0.27 (7)	0.23 (6)	0.78 (20)	2.38 (60.5)	1.18 (30)	G-1/4	G-3/8
C-CV25HS/LS	3.93 (100)	2.36 (60)	1.57 (40)	0.78 (20)	0.63 (16)	0.78 (20)	1.96 (50)	0.21 (5.5)	0.23 (6)	0.67 (17)	3.78 (96)	1.57 (40)	G-3/8	G-1/2
C-CV30HS/LS	4.64 (118)	2.36 (60)	1.57 (40)	0.78 (20)	0.78 (20)	1.29 (33)	1.96 (50)	0.21 (5.5)	0.23 (6)	0.78 (20)	3.78 (96)	1.57 (40)	G-1/2	G-3/4



Vacuum Pumps and Vacuum Generators

Single Stage Vacuum Pumps Basic Generator

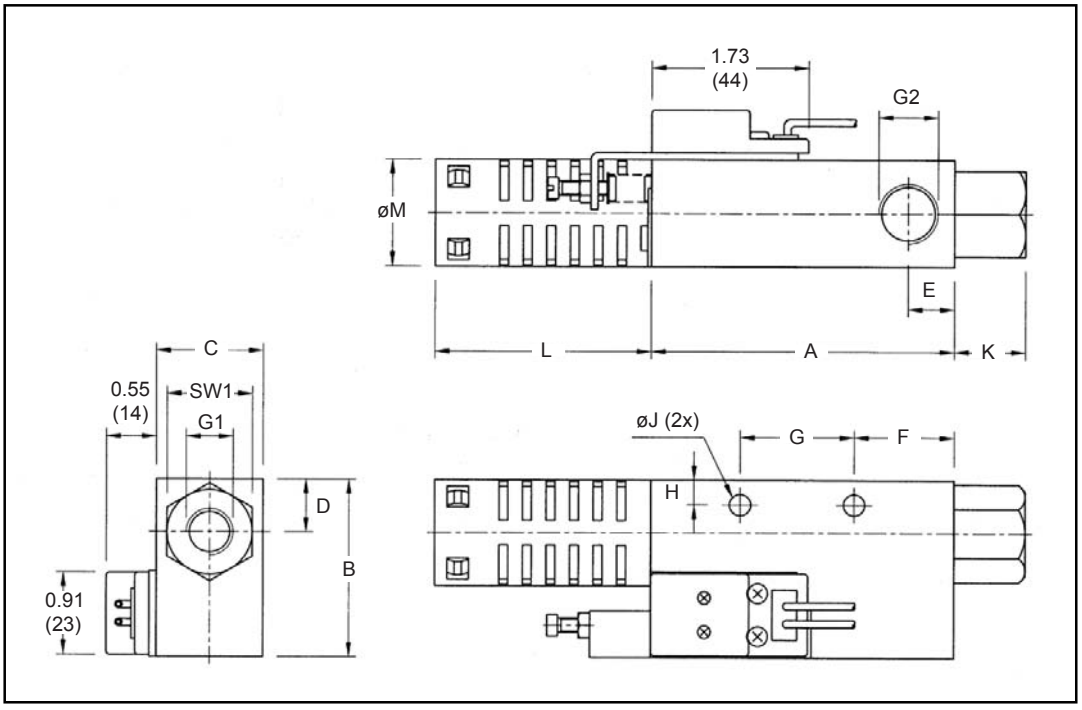


ANVER Item No.	Air Consumption scfm (nl/mn)	Vacuum Flow scfm (nl/mn)	Vacuum Level in Hg (-mmHg)	Weight oz. (g)
C-CV05HSCK	0.46 (13)	0.21 (6)	26 (660)	4.2 (119)
C-CV05LSCK	0.46 (13)	0.40 (11)	17 (432)	4.2 (119)
C-CV10HSCK	1.55 (44)	0.95 (27)	27 (686)	4.2 (119)
C-CV10LSCK	1.55 (44)	1.50 (42)	17 (432)	4.2 (119)
C-CV15HSCK	3.53 (100)	2.22 (63)	27 (686)	6.7 (190)
C-CV15LSCK	3.53 (100)	3.49 (99)	17 (432)	6.7 (190)
C-CV20HSCK	6.36 (180)	3.88 (110)	27 (686)	16.1 (456)
C-CV20LSCK	6.36 (180)	5.38 (150)	17 (432)	16.1 (456)

Vacuum Pumps and Vacuum Generators

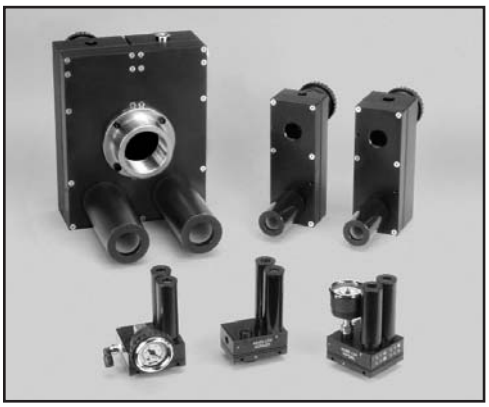
Single Stage Vacuum Pumps Basic Generator

ANVER Item No.	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)	L in. (mm)	M in. (mm)	G1	G2
C-CV05HSCK	1.77 (45)	1.29 (33)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV05LSCK	1.77 (45)	1.29 (33)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV10HSCK	1.77 (45)	1.29 (33)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV10LSCK	1.77 (45)	1.29 (39)	0.63 (16)	0.39 (10)	0.31 (8)	0.55 (14)	0.78 (20)	0.18 (4.5)	0.16 (4.2)	0.39 (10)	1.41 (36)	0.73 (18.5)	G-1/8	G-1/8
C-CV15HSCK	2.48 (63)	1.38 (35)	0.78 (20)	0.43 (11)	0.39 (10)	0.78 (20)	0.98 (25)	0.19 (5)	0.18 (4.5)	0.59 (15)	1.79 (45.5)	0.78 (20)	G-1/4	G-1/4
C-CV15LSCK	2.48 (63)	1.38 (35)	0.78 (20)	0.43 (11)	0.39 (10)	0.78 (20)	0.98 (25)	0.19 (5)	0.18 (4.5)	0.59 (15)	1.79 (45.5)	0.78 (20)	G-1/4	G-1/4
C-CV20HSCK	3.34 (85)	1.57 (40)	1.18 (30)	0.59 (15)	0.51 (13)	1.10 (32)	1.26 (32)	0.27 (7)	0.23 (6)	0.78 (20)	2.38 (60.5)	1.18 (30)	G-1/4	G-3/8
C-CV20LSCK	3.34 (85)	1.57 (40)	1.18 (30)	0.59 (15)	0.51 (13)	1.10 (32)	1.26 (32)	0.27 (7)	0.23 (6)	0.78 (20)	2.38 (60.5)	1.18 (30)	G-1/4	G-3/8



Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps

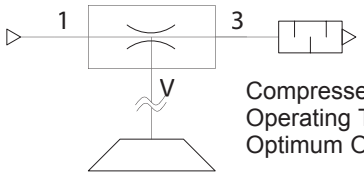


Usage:
ANVER MSP Series Multi-Stage Pneumatically-Driven Vacuum Pumps operate on the Venturi Principle. They are ideally designed for applications requiring high flows at moderate vacuum levels. MSP Vacuum Pumps provide vacuum levels down to 27 in. Hg, and flows to 340 SCFM. Their highly efficient operation make MSP Vacuum Pumps suitable for a wide range of applications, particularly in the Packaging and Material Handling Industries, as well as in the Industrial Automation and Laboratory environments.

Classic Style Vacuum Pump Offers High Flow at Moderate Vacuum with Low Noise Levels

Features:
- A good choice for High Flow at Moderate Vacuum Levels
- Minimum Space Requirements
- Economical Proven Design, Low Air Consumption
- Lightweight yet Precise Aluminum Construction with Brass Nozzles
- Quiet Operation as Each Pump is Supplied With Muffler
- All Vacuum Pumps from the MSP 025 model and larger include a Top Quality ANVER Vacuum Gauge as Standard
- "G" to "NPT" adapters provided where required

Specifications:
The below information is for only the basic vacuum generator with vacuum gauge and muffler. The vacuum control of these generators is served through a manual or automatic control valve situated on the compressed air supply line.



Compressed Air: 50 Micron, Filtered, Non-lubricated
Operating Temperature: -10 to 80°C (14 to 176°F)
Optimum Operating Pressure: 6 bar (87 psi)

ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Equivalent P-Series Pump Number	Vacuum Flow at Vacuum Level SCFM (L/min.) 0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP005	25 (635)	0.99 (28)	0.56 (16)	N/A	0.99 (28)	0.49 (14)	0.32 (9)	0.21 (6)	0.12 (3.4)	0.09 (2.6)	0.06 (1.7)	0.03 (0.9)	0.01 (0.3)
MSP010	25 (635)	1.98 (56)	1.13 (32)	N/A	1.98 (56)	0.99 (28)	0.64 (18)	0.42 (12)	0.24 (6.8)	0.18 (5.1)	0.12 (3.4)	0.06 (1.7)	0.02 (0.6)
MSP020	25 (635)	3.88 (110)	2.19 (60)	N/A	3.88 (110)	2.05 (58)	1.14 (32.3)	0.95 (26.9)	0.53 (15.0)	0.36 (10.2)	0.28 (7.9)	0.14 (4.0)	0.07 (2.0)
MSP020L	19.5 (495)	5.65 (160)	2.54 (72)	N/A	5.65 (160)	4.03 (114)	2.61 (74)	2.05 (58)	1.41 (40)	0.99 (28)	0.34 (9.6)	0.00 (0.0)	0.00 (0.0)
MSP025	27 (690)	10.60 (300)	3.35 (95)	**MLD25** 32.01.070 **(M25)** (M25B6-ENAF)	10.59 (300)	7.41 (210)	4.98 (141)	2.47 (70)	1.77 (50)	1.38 (39)	0.99 (28)	0.67 (20)	0.42 (12)
MSP040L	19.5 (495)	16.95 (480)	7.63 (216)	N/A	16.95 (480)	12.08 (342)	7.84 (222)	6.14 (174)	4.24 (120)	2.97 (84)	1.02 (29)	0.00 (0.0)	0.00 (0.0)
MSP040M	27.8 (706)	9.53 (270)	5.09 (144)	N/A	9.53 (270)	5.71 (162)	4.73 (134)	3.53 (100)	2.61 (74)	1.77 (50)	1.20 (34)	0.20 (5.7)	0.08 (2.3)
MSP050	27 (690)	17.65 (500)	6.71 (190)	**MLD50** 32.01.071 **(M50)** (M50B6-EN)	17.65 (500)	14.05 (398)	7.90 (224)	4.87 (138)	3.53 (100)	2.75 (78)	2.12 (60)	1.48 (42)	0.81 (23)
MSP100	27 (690)	31.70 (900)	13.41 (380)	**MLD100** 32.01.072 **(M100)** (M100B6-EN)	31.77 (900)	28.1 (796)	15.18 (430)	9.74 (276)	7.06 (200)	5.51 (156)	4.24 (120)	2.97 (84)	1.62 (46)
MSP150	27 (690)	74.13 (2100)	24.71 (700)	N/A	74.13 (2100)	52.95 (1500)	34.60 (980)	18.36 (520)	12.71 (360)	10.59 (300)	7.59 (215)	4.94 (140)	2.97 (84)

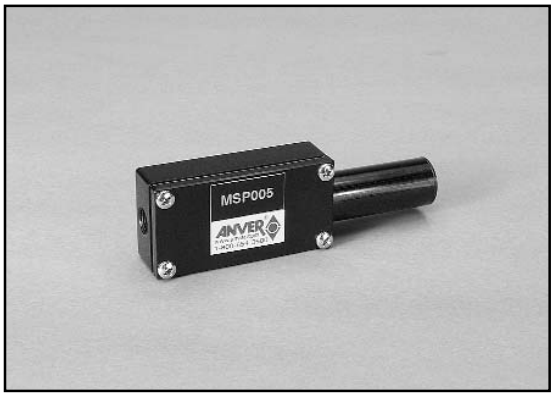
Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps

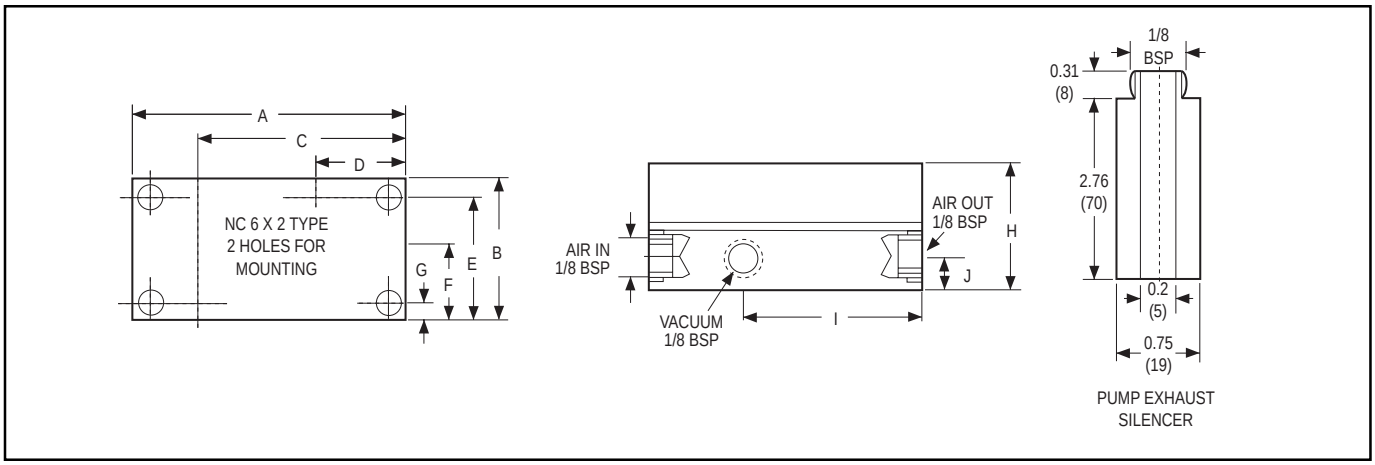
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Equivalent P-Series Pump Number	Vacuum Flow at Vacuum Level SCFM (L/min.)								
					0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP200	27 (690)	112.96 (3200)	33.53 (950)	**MLL200** 31.01.056U	112.96 (3200)	79.07 (2240)	52.24 (1480)	26.48 (750)	18.71 (530)	14.83 (420)	11.30 (320)	7.41 (210)	4.41 (125)
MSP400	27 (690)	148.26 (4200)	49.42 (1400)	**MLL400** 31.01.057U	148.26 (4200)	105.90 (3000)	69.19 (1960)	36.71 (1040)	25.42 (720)	20.47 (580)	15.18 (430)	9.88 (280)	5.93 (168)
MSP400-S	27 (690)	148.26 (4200)	49.42 (1400)	N/A	148.26 (4200)	105.90 (3000)	69.19 (1960)	36.71 (1040)	25.42 (720)	20.47 (580)	15.18 (430)	9.88 (280)	5.93 (168)
MSP800	27 (690)	338.88 (9600)	101.66 (2880)	**MLL800** 31.01.058U	338.88 (9596)	236.51 (6700)	157.09 (4448)	79.07 (2239)	56.13 (1590)	44.48 (1260)	33.54 (950)	22.24 (630)	13.41 (380)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps



MSP005

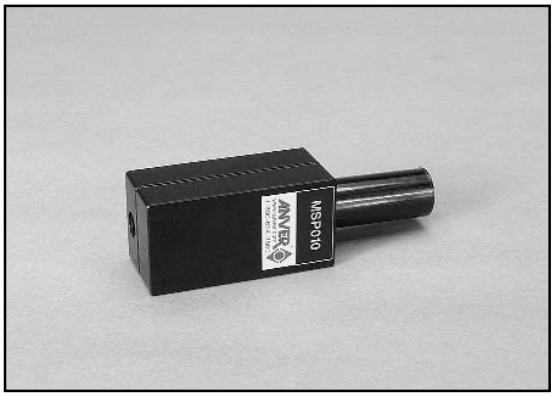


A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)
2.71 (69)	1.38 (35)	2.09 (53)	0.91 (23)	1.22 (31)	0.81 (20.50)	0.16 (4)	0.81 (20.50)

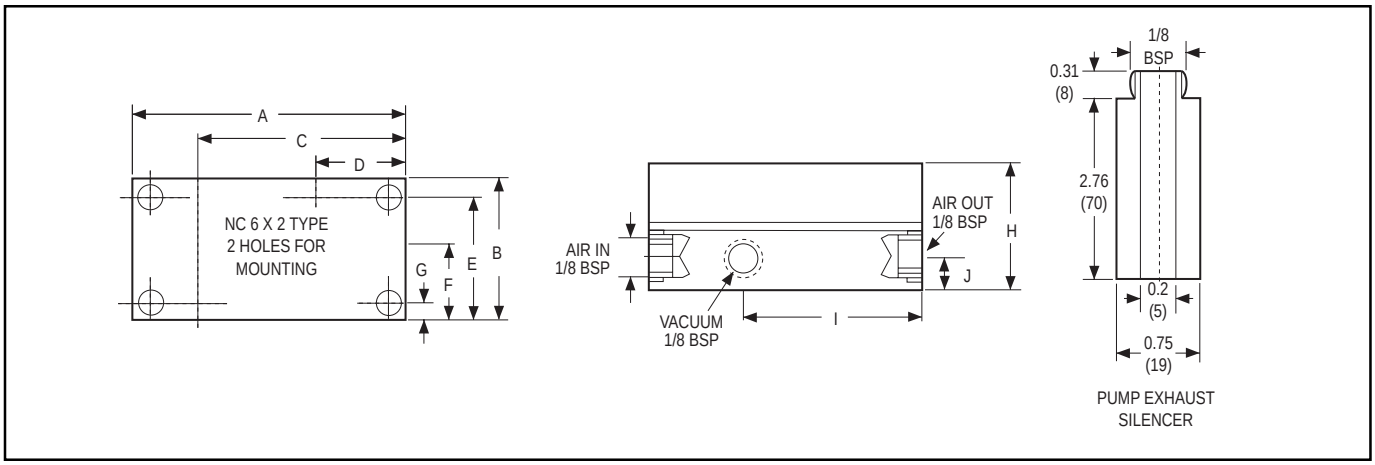
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min. 0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP005	25 (635)	0.99 (28)	0.56 (16)	0.99 (28)	0.49 (14)	0.32 (9)	0.21 (6)	0.12 (3.4)	0.09 (2.6)	0.06 (1.7)	0.03 (0.9)	0.01 (0.3)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps



MSP010

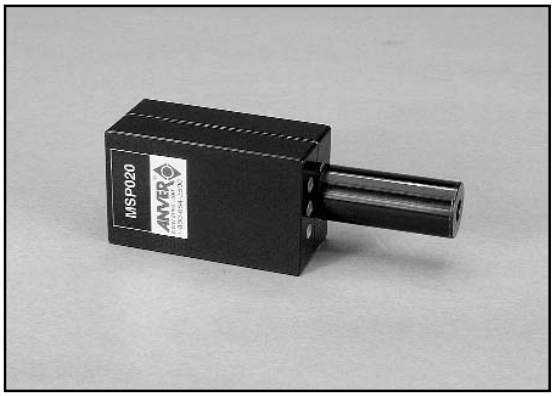


A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)
2.71 (69)	1.38 (35)	2.09 (53)	0.91 (23)	1.22 (31)	0.81 (20.50)	0.16 (4)	0.81 (20.50)

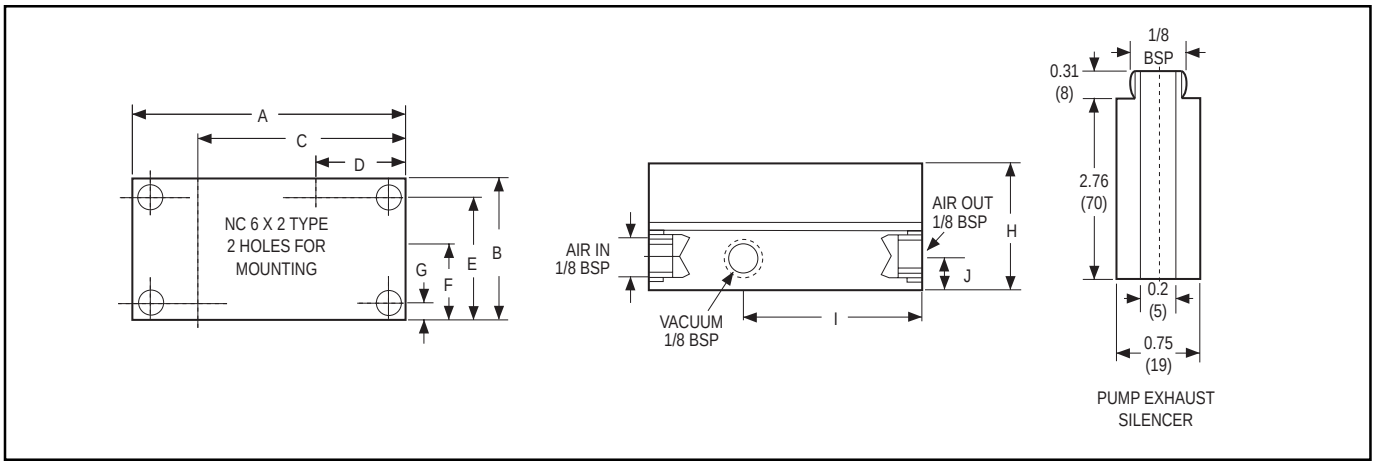
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP010	25 (635)	1.98 (56)	1.13 (32)	1.98 (56)	0.99 (28)	0.64 (18)	0.42 (12)	0.24 (6.8)	0.18 (5.1)	0.12 (3.4)	0.06 (1.7)	0.02 (0.6)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps



MSP020



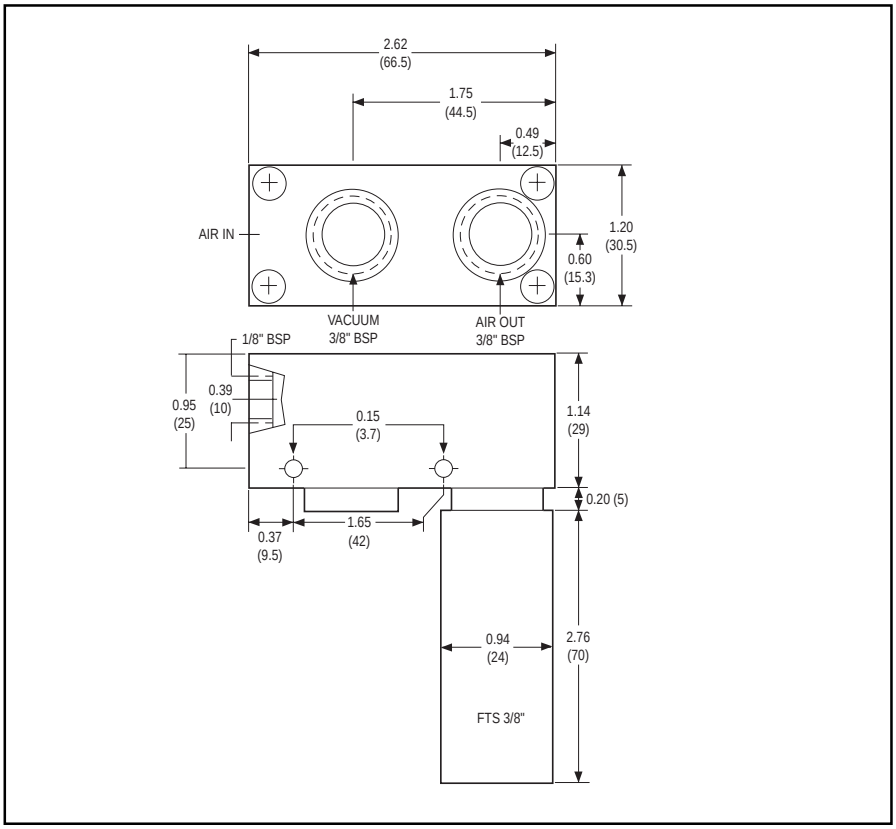
A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)
2.71 (69)	1.38 (35)	2.09 (53)	0.91 (23)	1.22 (31)	0.81 (20.50)	0.16 (4)	0.81 (20.50)

ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP020	25 (635)	3.88 (110)	2.19 (60)	3.88 (110)	2.05 (58)	1.14 (32.3)	0.95 (26.9)	0.53 (15.0)	0.36 (10.2)	0.28 (7.9)	0.14 (4.0)	0.07 (2.0)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Vacuum Pumps

MSP020L

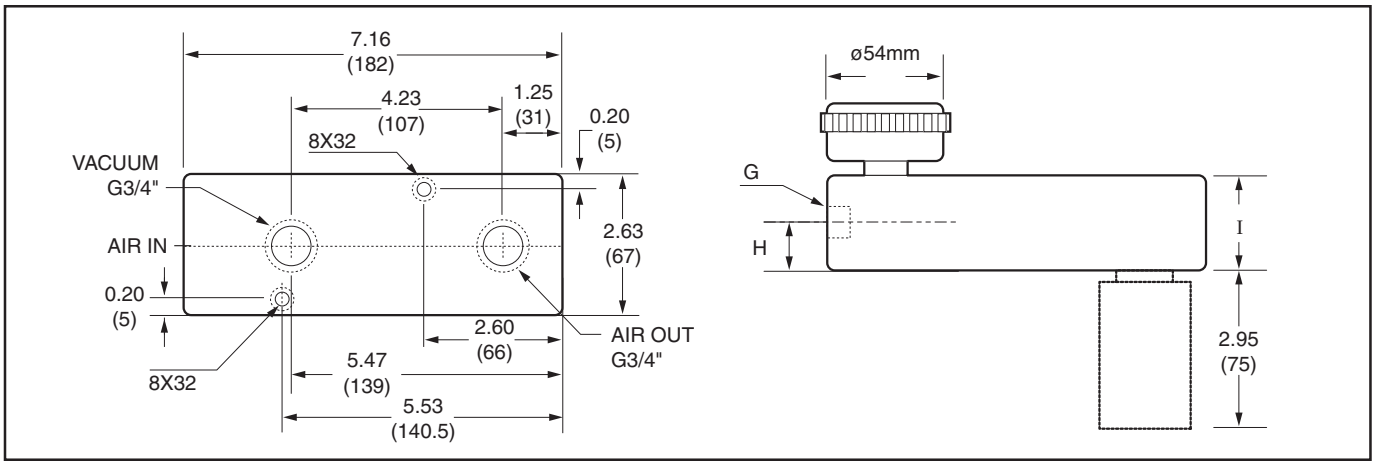


ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP020L	19.5 (495)	5.65 (160)	2.54 (72)	5.65 (160)	4.03 (114)	2.61 (74)	2.05 (58)	1.41 (40)	0.99 (28)	0.34 (9.6)	0.00 (0.0)	0.00 (0.0)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP025

MSP025



G BSPP)	H in. (mm)	I in. (mm)
1/4G	1.30 (33)	1.85 (47)

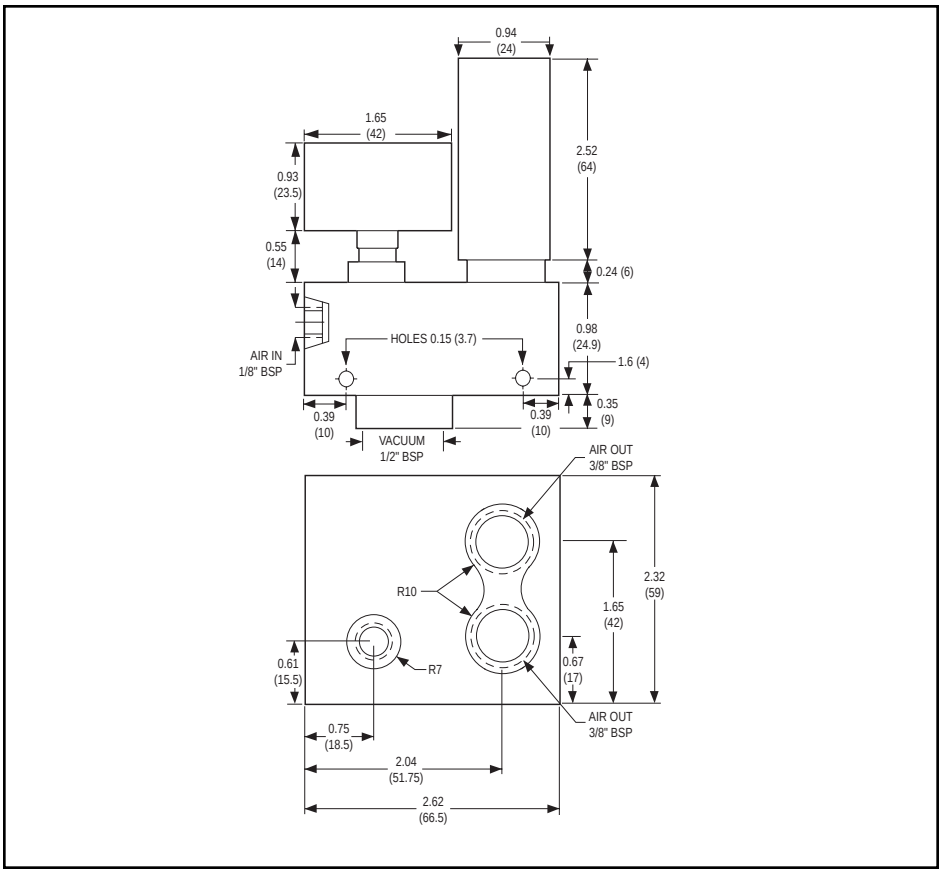
ANVER* Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP025	27 (690)	10.60 (300)	3.35 (95)	10.59 (300)	7.41 (210)	4.98 (141)	2.47 (70)	1.77 (50)	1.38 (39)	0.99 (28)	0.67 (20)	0.42 (12)

*** Equivalent "P" Series Pump Number:**
MLD25
32.01.070
(M25)
(M25B6-ENAF)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pumps MSP040L

MSP040L



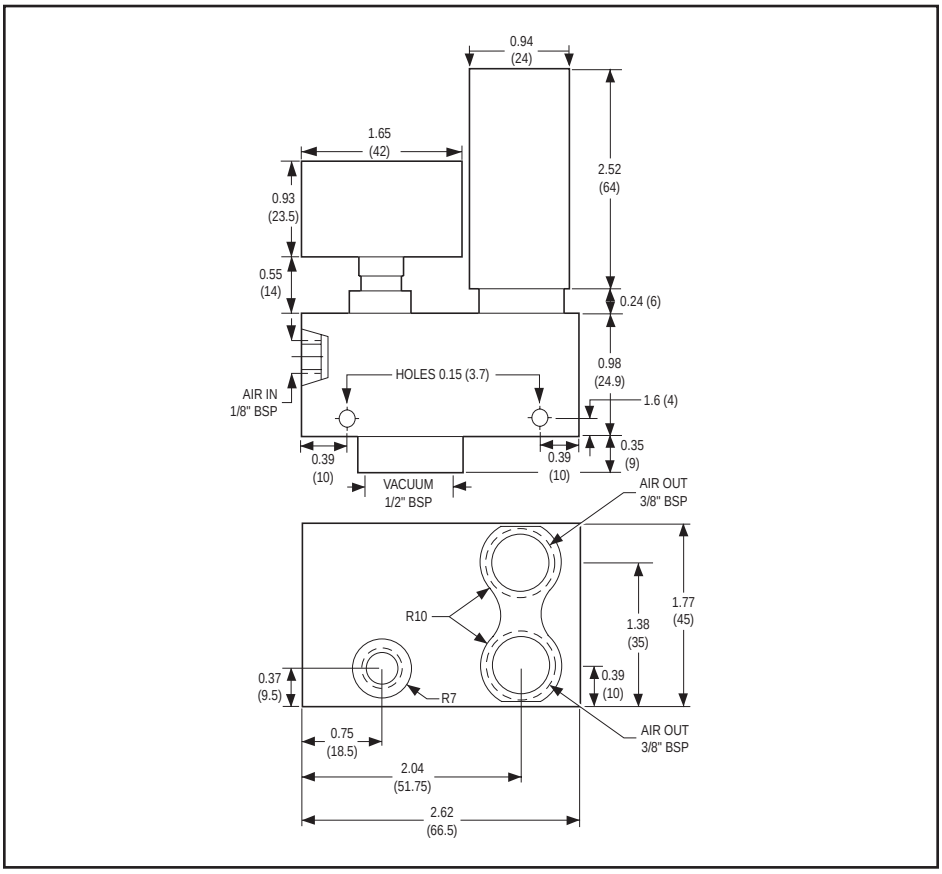
ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP040L	19.5 (495)	16.95 (480)	7.63 (216)	16.95 (480)	12.08 (342)	7.84 (222)	6.14 (174)	4.24 (120)	2.97 (84)	1.02 (29)	0.00 (0.0)	0.00 (0.0)

*** Equivalent "P" Series Pump Number:**
N/A

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP040M

MSP040M



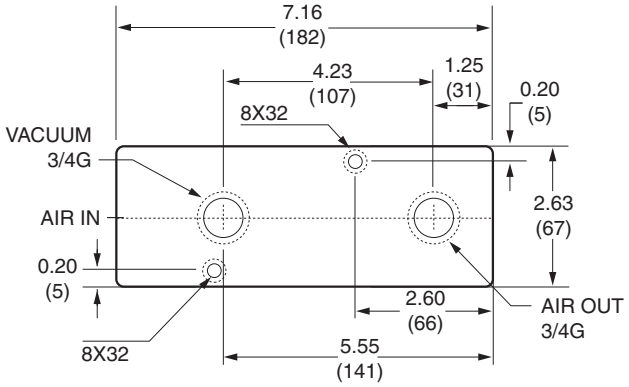
ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP040M	27.8 (706)	9.53 (270)	5.09 (144)	9.53 (270)	5.71 (162)	4.73 (134)	3.53 (100)	2.61 (74)	1.77 (50)	1.20 (34)	0.20 (5.7)	0.08 (2.3)

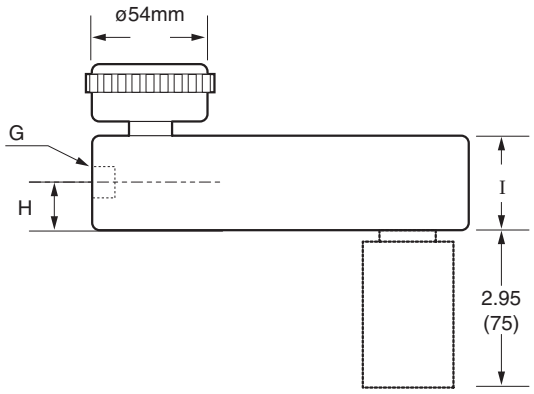
*** Equivalent "P" Series Pump Number:**
N/A

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP050

MSP050





G BSPP)	H in. (mm)	I in. (mm)
1/4G	1.30 (33)	1.85 (47)

ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP050	27 (690)	17.65 (500)	6.71 (190)	17.65 (500)	14.05 (398)	7.90 (224)	4.87 (138)	3.53 (100)	2.75 (78)	2.12 (60)	1.48 (42)	0.81 (23)

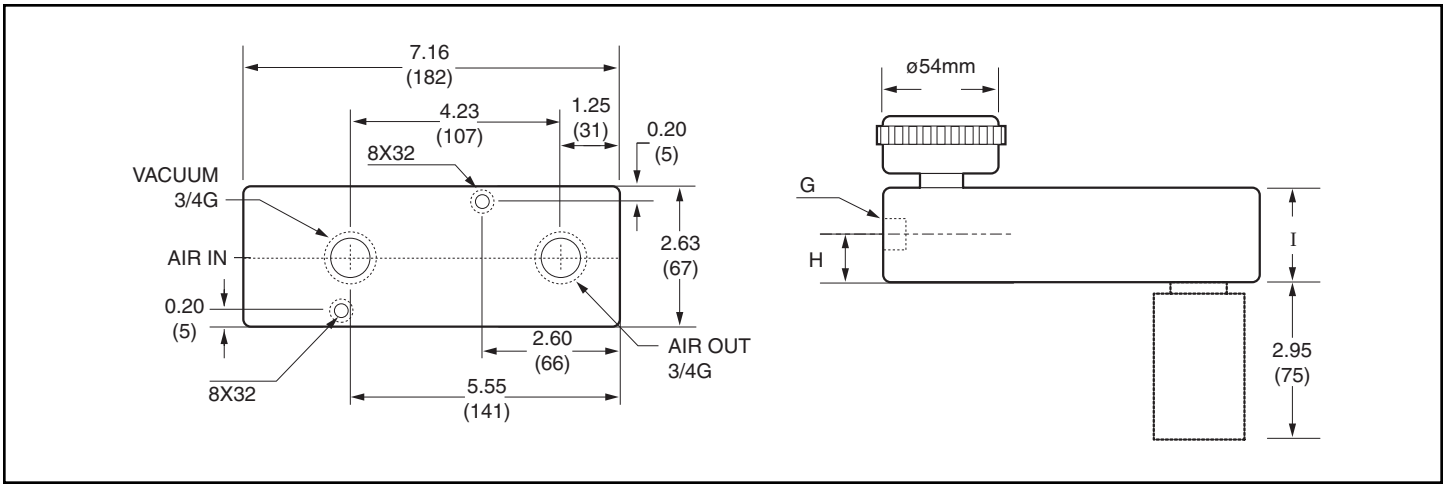
*** Equivalent "P" Series Pump Number:**

MLD50
32.01.071
(M50)
(M50B6-EN)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP100

MSP100



G (BSPP)	H in. (mm)	I in. (mm)
3/8G	1.65 (42)	2.63 (67)

ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP100	27 (690)	31.70 (900)	13.41 (380)	31.77 (900)	28.1 (796)	15.18 (430)	9.74 (276)	7.06 (200)	5.51 (156)	4.24 (120)	2.97 (84)	1.62 (46)

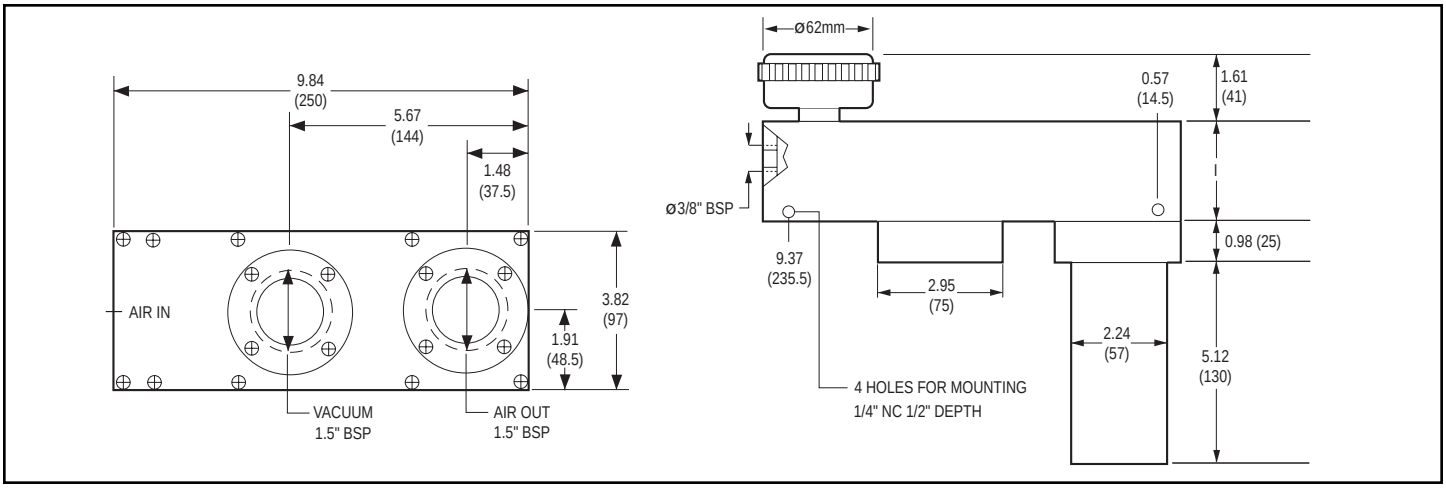
*** Equivalent "P" Series Pump Number:**

MLD100
32.01.072
(M100)
(M100B6-EN)

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP150

MSP150



	I in. (mm)
	3.39 (86)

ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP150	27 (690)	74.13 (2100)	24.71 (700)	74.13 (2100)	52.95 (1500)	34.60 (980)	18.36 (520)	12.71 (360)	10.59 (300)	7.59 (215)	4.94 (140)	2.97 (84)

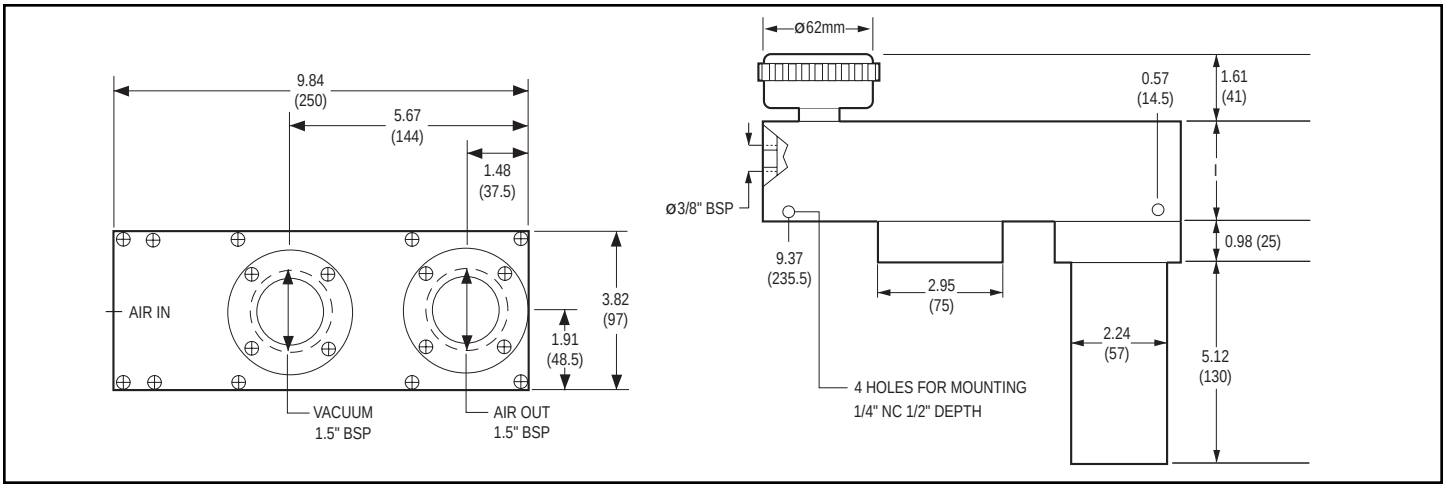
*** Equivalent "P" Series Pump Number:**

N/A

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP200

MSP200



	I in. (mm)
	2.56 (65)

ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP200	27 (690)	112.96 (3200)	33.53 (950)	112.96 (3200)	79.07 (2240)	52.24 (1480)	26.48 (750)	18.71 (530)	14.83 (420)	11.30 (320)	7.41 (210)	4.41 (125)

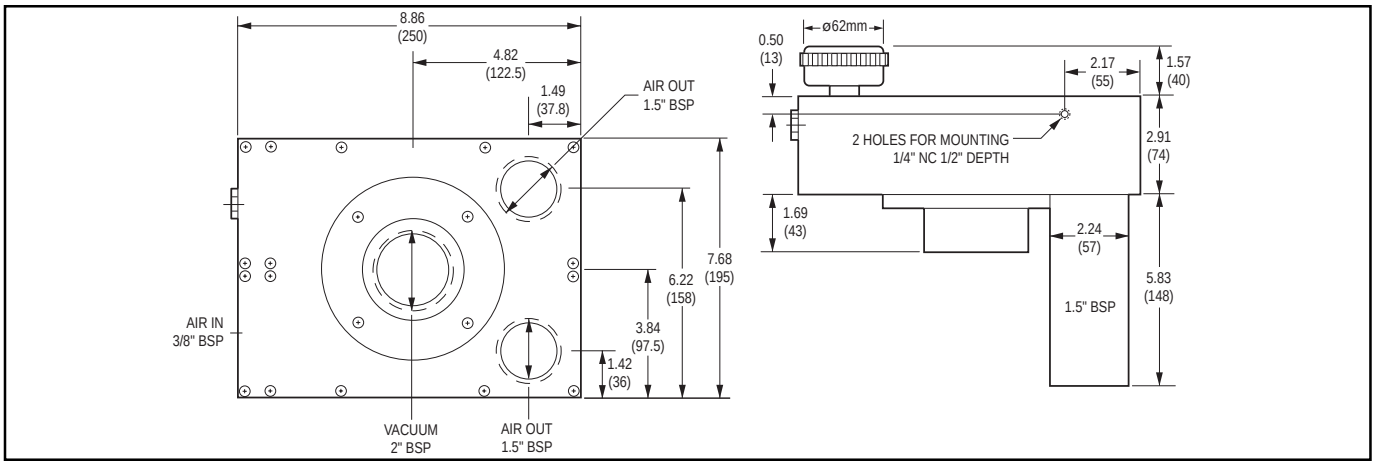
*** Equivalent "P" Series Pump Number:**

MLL200
31.01.056U

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP400

MSP400



ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP400	27 (690)	148.26 (4200)	49.42 (1400)	148.26 (4200)	105.90 (3000)	69.19 (1960)	36.71 (1040)	25.42 (720)	20.47 (580)	15.18 (430)	9.88 (280)	5.93 (168)

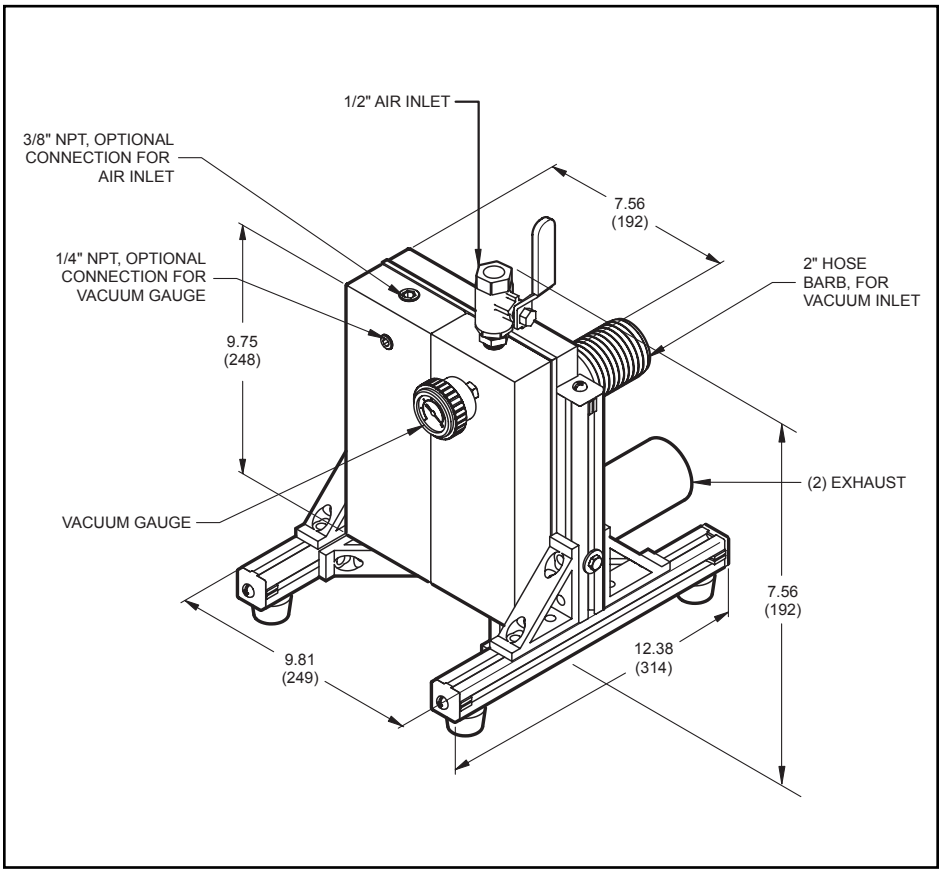
*** Equivalent "P" Series Pump Number:**

MLL400
31.01.057U

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP400-S

MSP400-S



ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Input Pressure psi (bar)	Unit Weight lb (kg)	Max. Vacuum Level @ Sea Level in. Hg (mbar)
MSP400-S	27 (690)	148.26 (4200)	49.42 (1400)	87 (6)	19 (8.6)	27 (914)

Vacuum Flow at Vacuum Level SCFM (L/min.)								
0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
148.26 (4200)	105.90 (3000)	69.19 (1960)	36.71 (1040)	25.42 (720)	20.47 (580)	15.18 (430)	9.88 (280)	5.93 (168)

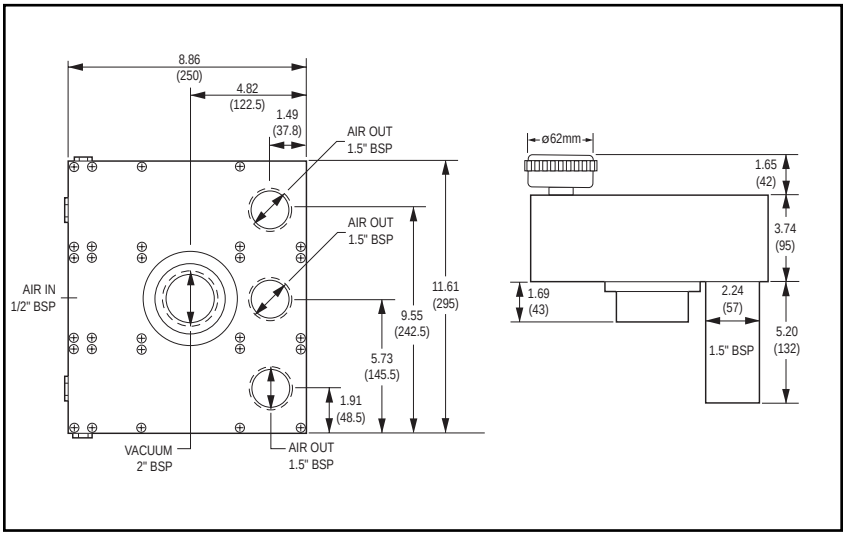
*** Equivalent "P" Series Pump Number:**

N/A

Vacuum Pumps and Vacuum Generators

MSP Series Multi-Stage Air Powered Pump MSP800

MSP800



ANVER Item No.*	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP800	27 (690)	338.88 (9600)	101.66 (2880)	338.88 (9596)	236.51 (6700)	157.09 (4448)	79.07 (2239)	56.13 (1590)	44.48 (1260)	33.54 (950)	22.24 (630)	13.41 (380)

*** Equivalent "P" Series Pump Number:**

MLL800
31.01.058U

Vacuum Pumps and Vacuum Generators

MSPX Series Multi-Stage Air Powered Vacuum Pumps

Revolutionary New Technology:

These Compressed Air Powered Vacuum Pumps feature a Built-In Silencer for the Smallest Package on the market today. The vacuum pumps also feature an industry standard (P-Style) mounting for all sizes. All MSPX Vacuum Pumps feature three vacuum inlet ports from which to choose, another Industry First from ANVER Corporation.

These Improved Classic Style Vacuum Pumps offer High Flows at Moderate Vacuum with an absolute Minimum Space Requirement. They are only a slightly higher db level than our classic MSP Style Vacuum Pumps with an External Silencer.

MSPX Series Multi-Stage Air Powered Vacuum Pumps with Internal Exhaust Silencer

Features:

- Small Package with Minimum Space Requirements
- All Vacuum Pumps include a Top Quality ANVER Vacuum Gauge as Standard
- A good choice for High Flow at Moderate Vacuum Levels
- Economical Proven Design, Low Air Consumption
- Lightweight yet Precise Aluminum and Sandwiched Composite Construction
- Multiple vacuum ports (four in all) are featured for greater versatility when plumbing into your system.
- All threaded ports are cut into high quality aluminum. Excellent Fit and Finish throughout.
- Operation is Quiet, as each vacuum pump has a unique muffler built right into the pump.
- This new technology incorporates an internal silencing system that makes it the smallest package size of any Multi-Stage Vacuum Pump on the market today.
- "G" to "NPT" adapters provided where required

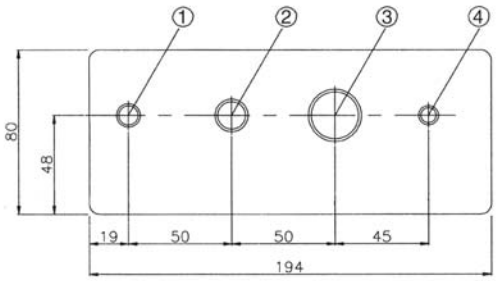
Specifications:

Compressed Air:	50 Micron, Filtered, Non-lubricated
Operating Temperature:	-20 to 80°C = -44 to 176°F
Feed Pressure:	58-80 psi (4-5.5 Bar)
Optimum Operating Pressure:	5 bar = 72.5 psi
Noise Level:	60-65 dBA

ANVER Item No.	Max. Vacuum Flow in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Length in (mm)	Width in (mm)	Height in (mm)
MSP025X	27 (690)	9.25 (262)	3.31 (94)	7.63 (194)	1.69 (43)	3.15 (80)
MSP050X	27 (690)	15.75 (446)	6.46 (183)	7.63 (194)	1.69 (43)	3.15 (80)
MSP075X	27 (690)	20.27 (574)	9.60 (272)	7.63 (194)	2.44 (62)	3.15 (80)
MSP100X	27 (690)	23.44 (664)	13.55 (385)	7.63 (194)	2.44 (62)	3.15 (80)

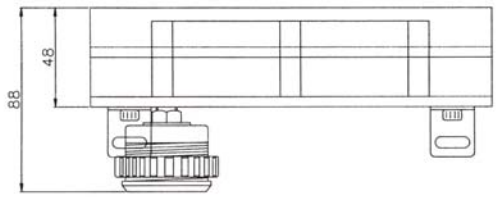
Vacuum Pumps and Vacuum Generators

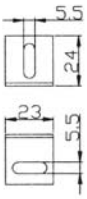
MSPX Series Pump MSP025X

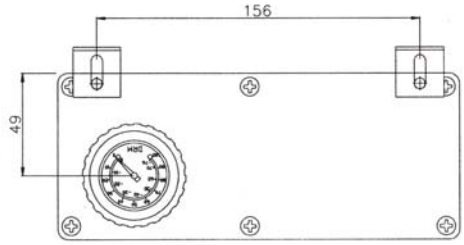


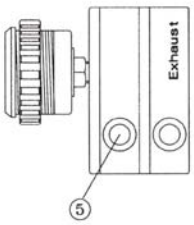
1. Compressed Air G1/4"
2. Vacuum G3/8"
3. Vacuum G3/4"
4. Vacuum G1/8"
5. Exhaust & Silencer

Units: mm





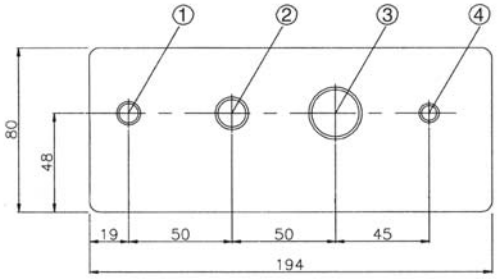




ANVER Item No.	Max. Vacuum Flow in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Length in (mm)	Width in (mm)	Height in (mm)
MSP025X	27 (690)	9.25 (262)	3.31 (94)	7.63 (194)	1.69 (43)	3.15 (80)

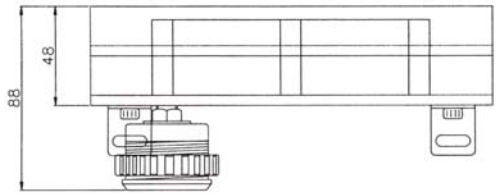
Vacuum Pumps and Vacuum Generators

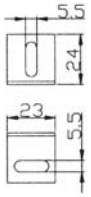
MSPX Series Pump MSP050X

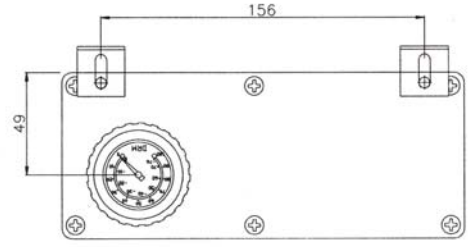


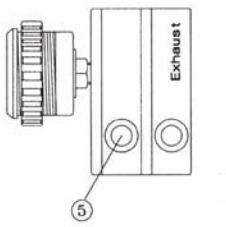
1. Compressed Air G1/4"
2. Vacuum G3/8"
3. Vacuum G3/4"
4. Vacuum G1/8"
5. Exhaust & Silencer

Units: mm





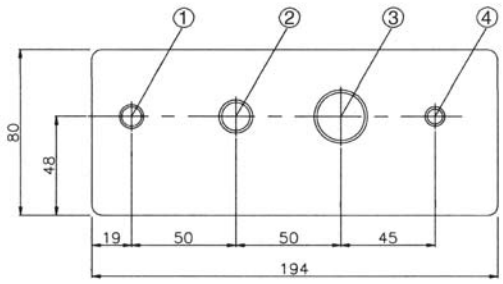




ANVER Item No.	Max. Vacuum Flow in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Length in (mm)	Width in (mm)	Height in (mm)
MSP050X	27 (690)	15.75 (446)	6.46 (183)	7.63 (194)	1.69 (43)	3.15 (80)

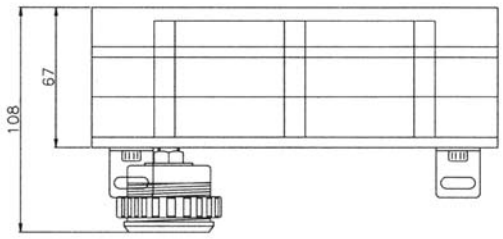
Vacuum Pumps and Vacuum Generators

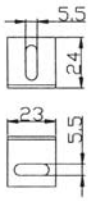
MSPX Series Pump MSP075X

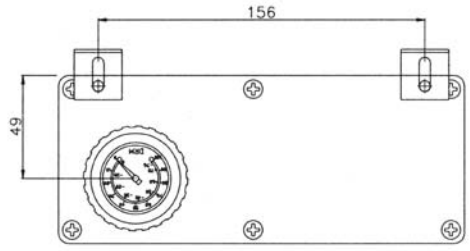


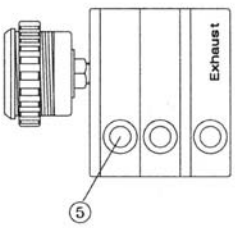
1. Compressed Air G1/4"
2. Vacuum G3/8"
3. Vacuum G3/4"
4. Vacuum G1/8"
5. Exhaust & Silencer

Units: mm





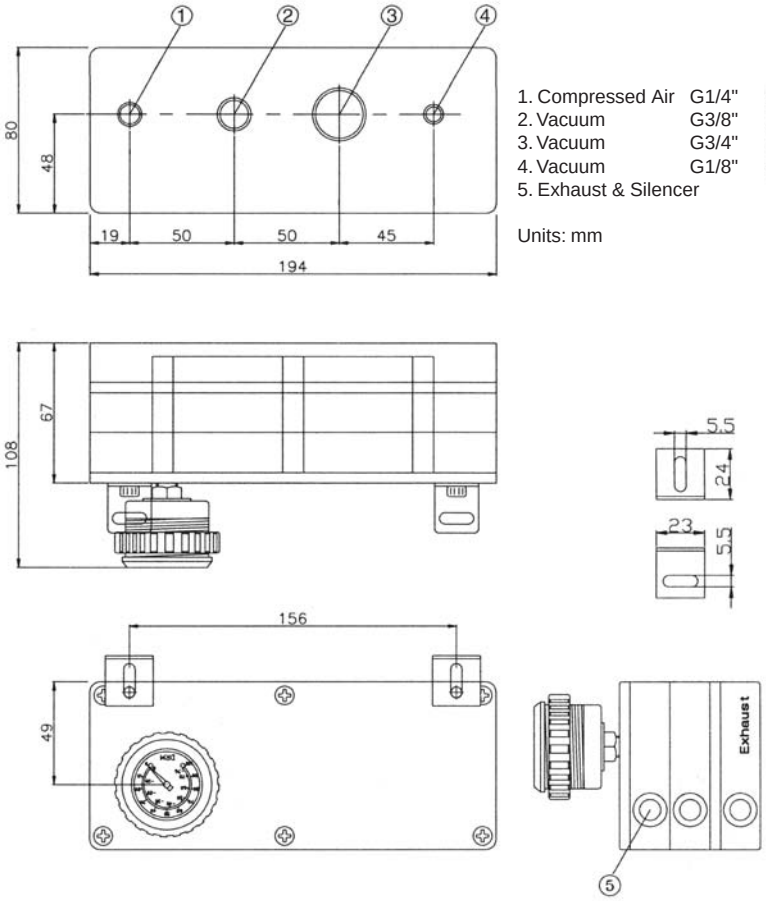




ANVER Item No.	Max. Vacuum Flow in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Length in (mm)	Width in (mm)	Height in (mm)
MSP075X	27 (690)	20.27 (574)	9.60 (272)	7.63 (194)	2.44 (62)	3.15 (80)

Vacuum Pumps and Vacuum Generators

MSPX Series Pump MSP100X



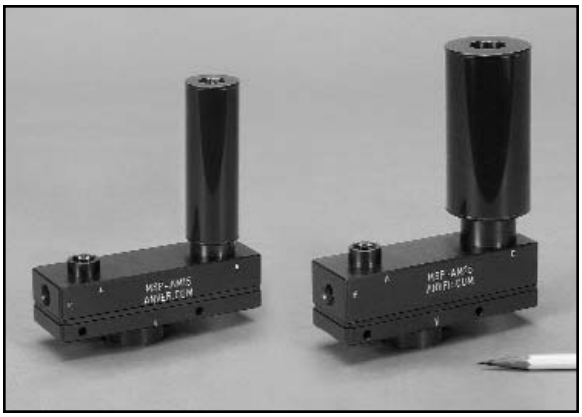
1. Compressed Air G1/4"
2. Vacuum G3/8"
3. Vacuum G3/4"
4. Vacuum G1/8"
5. Exhaust & Silencer

Units: mm

ANVER Item No.	Max. Vacuum Flow in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Length in (mm)	Width in (mm)	Height in (mm)
MSP100X	27 (690)	23.44 (664)	13.55 (385)	7.63 (194)	2.44 (62)	3.15 (80)

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps



MSP-AM Air-Miser - Ideal for Automation Applications

ANVER has developed a line of multi-stage air driven vacuum pumps that will deliver 27" Hg (90% vacuum) at the low pressure of 45 PSI (3.1 bar). Lower pressure equates to cost savings and increased operator safety.

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps are light-weight and compact making them ideal for automation applications. They fit inside a hand yet offer the performance of much larger pumps.

These Air-Miser pumps have super low air requirements. They are brand new and amazingly efficient.

"G" to "NPT" adapters provided where required.

ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)
MSP-AM10	27 (690)	3.88 (110)	0.99 (28)
MSP-AM15	27 (690)	7.60 (215)	1.97 (56)
MSP-AM20	27 (690)	9.88 (280)	2.97 (84)
MSP-AM25	27 (690)	11.80 (336)	3.95 (112)
MSP-AM50	27 (690)	19.50 (550)	7.45 (211)

ANVER Item No.	Air Consumption SCFM (nl /min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (nl /min.)								
		0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM10	0.99 (28)	3.88 (110)	1.94 (55)	1.13 (32)	0.74 (21)	0.40 (11.2)	0.30 (8.5)	0.21 (5.9)	0.13 (3.8)	0.06 (1.7)
MSP-AM15	1.97 (56)	7.60 (215)	3.88 (110)	2.19 (62)	1.45 (41)	0.79 (22.4)	0.60 (17)	0.42 (11.8)	0.25 (7.2)	0.12 (3.4)
MSP-AM20	2.97 (84)	9.88 (280)	3.81 (108)	2.80 (79.5)	1.70 (48)	1.18 (33.6)	0.88 (25.5)	0.63 (17.7)	0.38 10.8)	0.18 (5.1)
MSP-AM25	3.95 (112)	11.80 (336)	5.08 (144)	3.75 (106)	2.26 (64)	1.58 (44.8)	1.20 (34)	0.83 (23.6)	0.51 (14.4)	0.24 (6.8)
MSP-AM50	7.45 (211)	19.50 (550)	10.50 (298)	7.76 (220)	4.90 (139)	2.89 (82)	2.36 (67)	1.68 (48)	1.29 (36.5)	0.64 (18.2)

Vacuum Pumps and Vacuum Generators

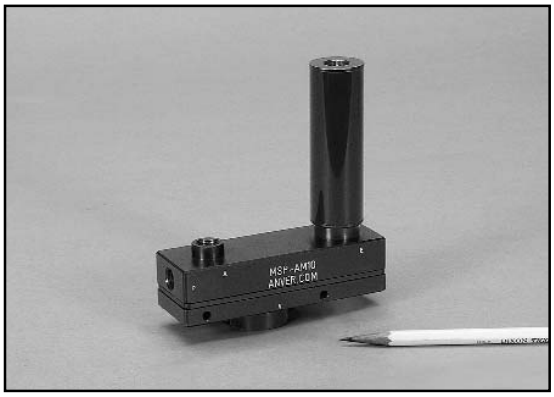
MSP-AM Series Multi-Stage Air Powered Vacuum Pumps

MSP-AM10 with optional Vacuum Gauge

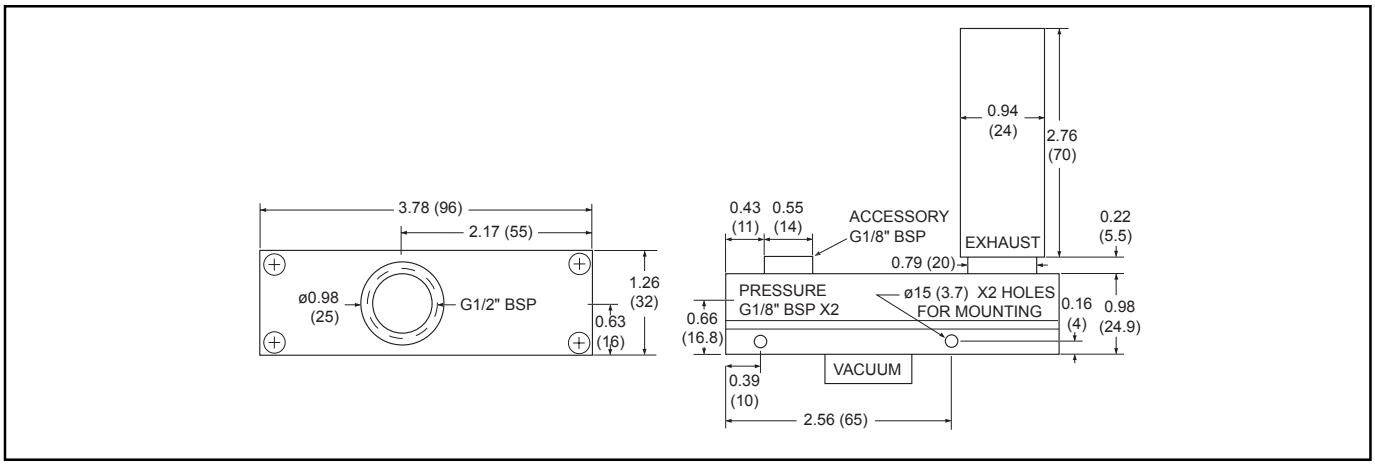
MSP-AM20 with optional Vacuum Switch

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps



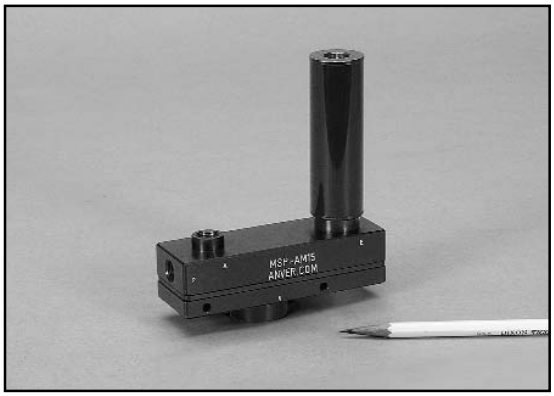
MSP-AM10



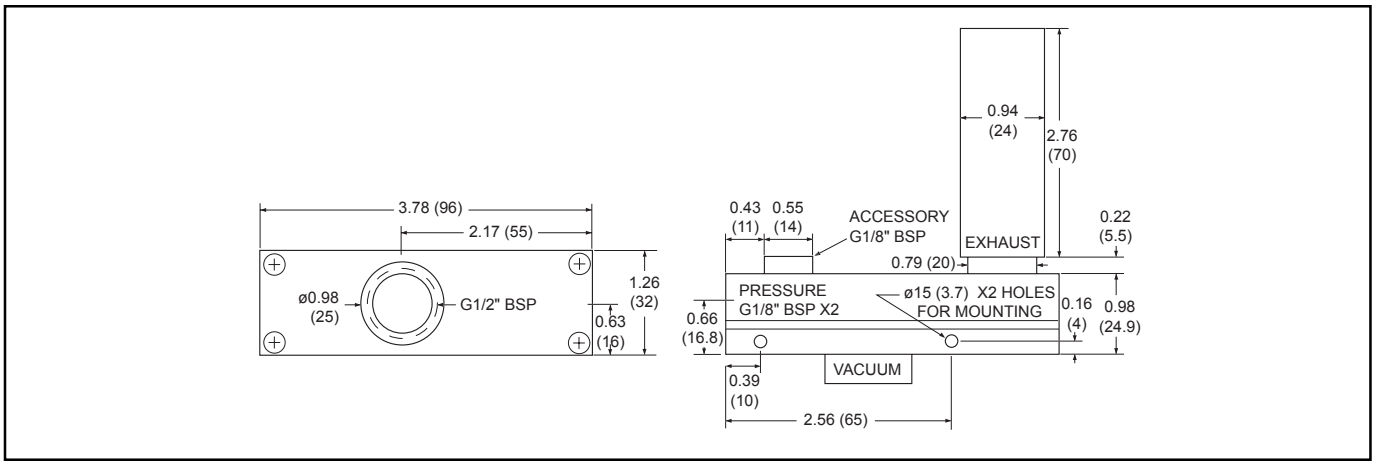
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM10	27 (690)	3.88 (110)	0.99 (28)	3.88 (110)	1.94 (55)	1.13 (32)	0.74 (21)	0.40 (11.2)	0.30 (8.5)	0.21 (5.9)	0.13 (3.8)	0.06 (1.7)

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps



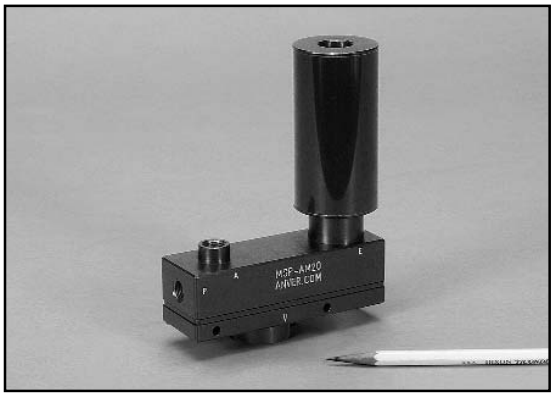
MSP-AM15



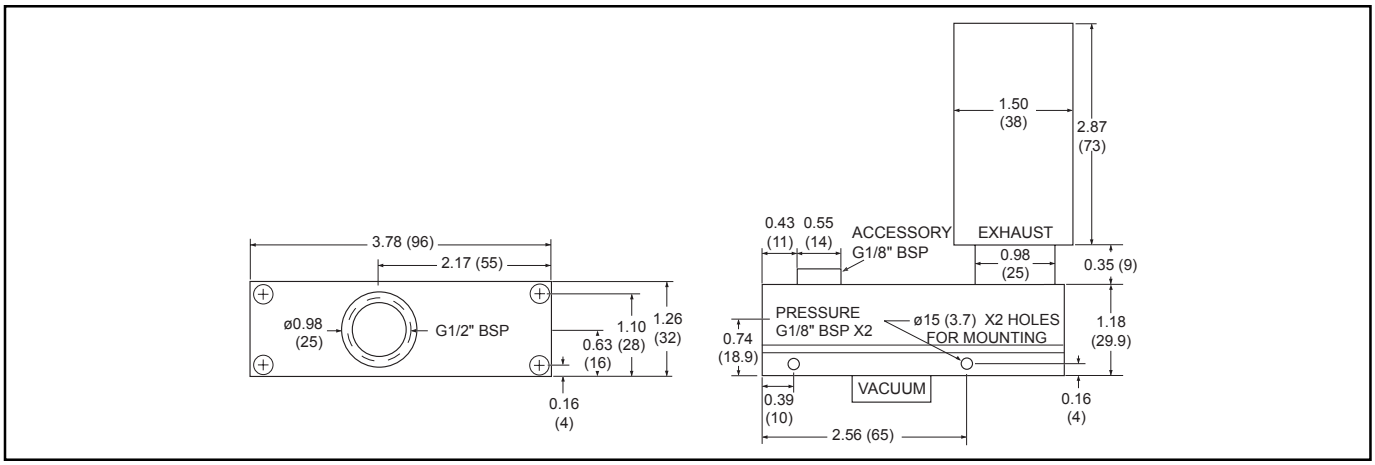
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM15	27 (690)	7.60 (215)	1.97 (56)	7.60 (215)	3.88 (110)	2.19 (62)	1.45 (41)	0.79 (22.4)	0.60 (17)	0.42 (11.8)	0.25 (7.2)	0.12 (3.4)

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps



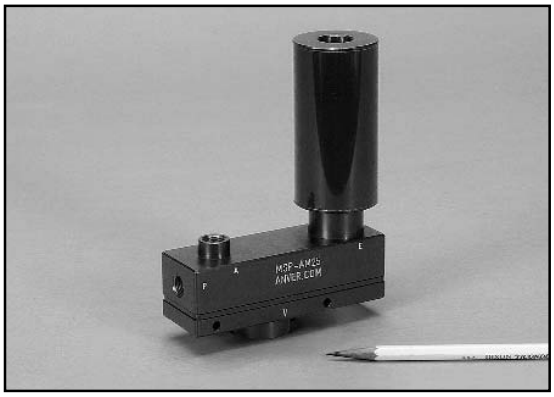
MSP-AM20



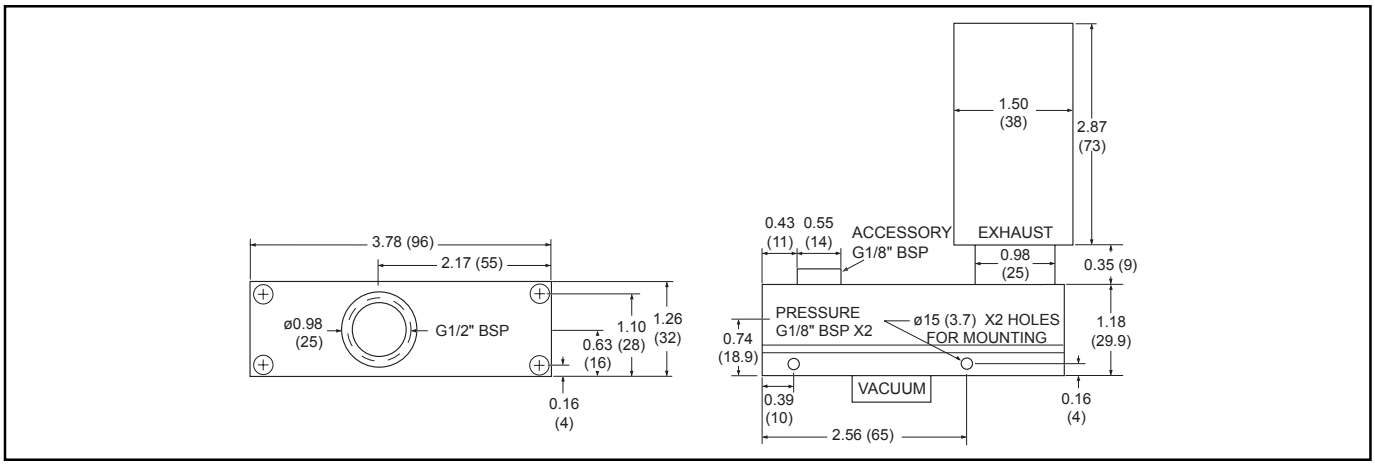
ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM20	27 (690)	9.88 (280)	2.97 (84)	9.88 (280)	3.81 (108)	2.80 (79.5)	1.70 (48)	1.18 (33.6)	0.88 (25.5)	0.63 (17.7)	0.38 (10.8)	0.18 (5.1)

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps



MSP-AM25

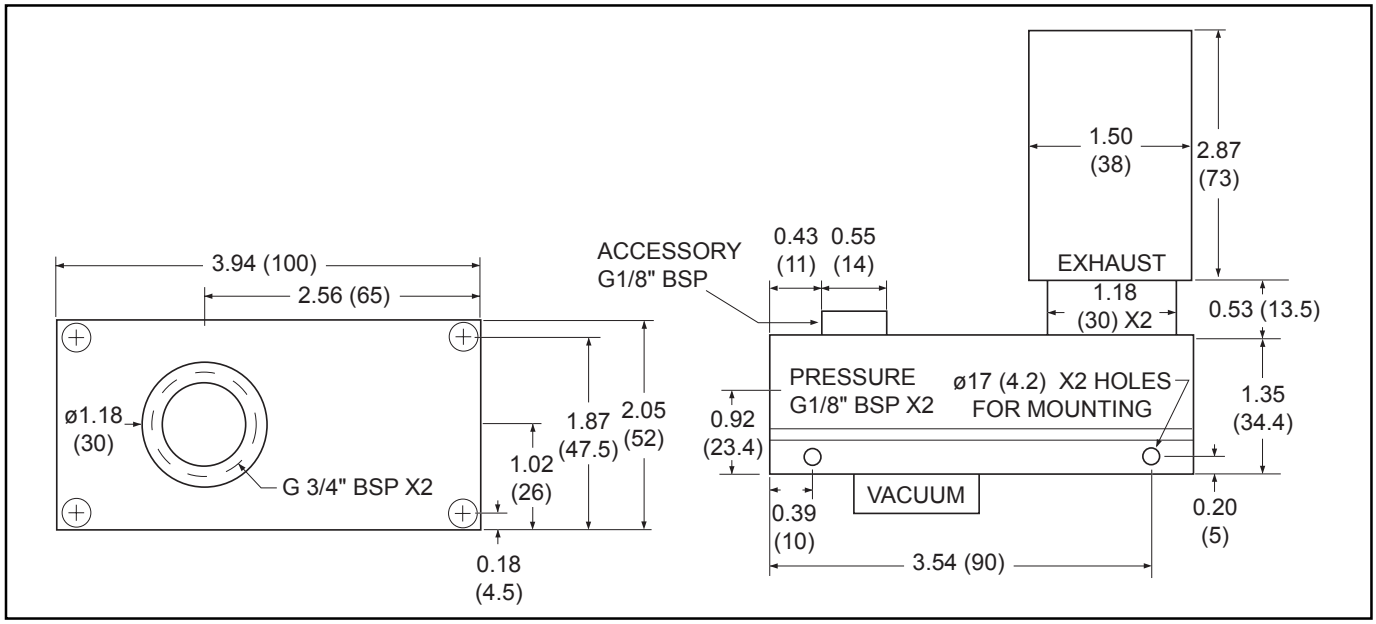


ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM25	27 (690)	11.80 (336)	3.95 (112)	11.80 (336)	5.08 (144)	3.75 (106)	2.26 (64)	1.58 (44.8)	1.20 (34)	0.83 (23.6)	0.51 (14.4)	0.24 (6.8)

Vacuum Pumps and Vacuum Generators

MSP-AM Series Multi-Stage Air Powered Vacuum Pumps

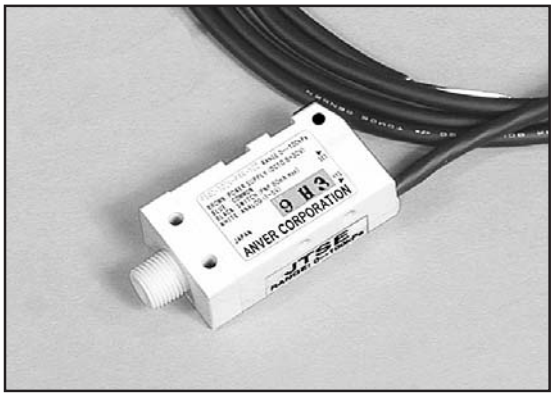
MSP-AM50



ANVER Item No.	Max. Vacuum in. Hg (mm Hg)	Vacuum Flow SCFM (L/min.)	Air Consumption SCFM (L/min.)	Vacuum Flow at Vacuum Level at 45 psi SCFM (L/min.)								
				0 Hg	3 Hg	6 Hg	9 Hg	12 Hg	15 Hg	18 Hg	21 Hg	24 Hg
MSP-AM50	27 (690)	19.50 (550)	7.45 (211)	19.50 (550)	10.50 (298)	7.76 (220)	4.90 (139)	2.89 (82)	2.36 (67)	1.68 (48)	1.29 (36.5)	0.64 (18.2)

Vacuum System Accessories

Vacuum and Pressure Switches

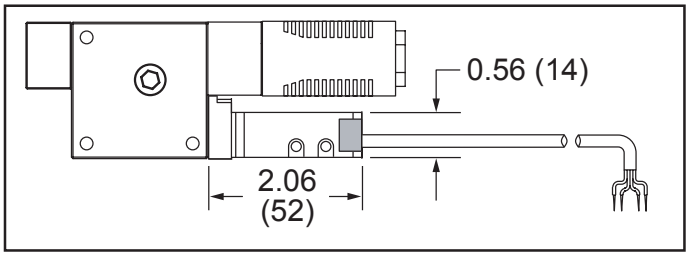


Electronic Vacuum Switch (JTSE)

The JTSE Electronic Vacuum Switch converts the vacuum level into digital output for connection to PLC systems as well as into analog output for the on/off control. The JTSE Switch will allow continuous feedback and adjustment capability over a 0 to 29.5 in Hg range. This switch features a PNP Open Collector Output Transistor Configuration. (For NPN configuration see ANVER Pressure Switch Model JTSE-NPN.) **Note:** ANVER standard unit is PNP.

Calculation Range: -1/0 bars
Overpressure: +3 bars

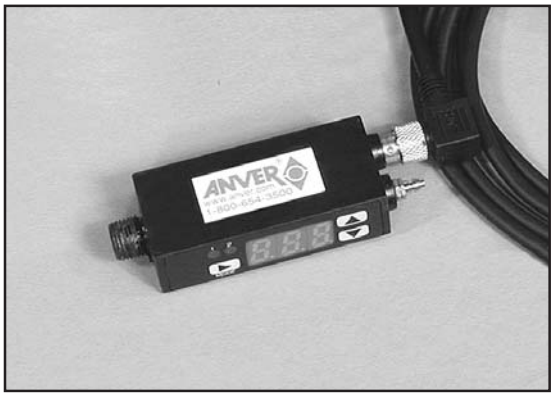
The JTSE Electronic Vacuum Switch connects easily and conveniently to ANVER JB Series Vacuum Generators under the nozzle and muffler.



Specifications	
Compatible Fluids	All non-corrosive, filtered, non-lubricated gases
Power Supply	10.8 - 30 V DC, regulated
Current Draw	30 mA at 24 V DC
Insulation Resistance	100 M ohms minimum at 500 V DC
Transistor Output	N.O. 28 V DC, 80 mA Maximum
Analog Output	1 ± 0.1 V~ 5 ± 0, 1 V DC
Accuracy At	± 0.5% of measuring scale at constant temperature
Output Display	Version A: 1 Adjustable hysteresis output - 1 analog output Version W: 2 outputs - constant hysteresis
Pressure Adjustment	Potentiometer, 3 turns
Hysteresis	A: 1 to 15%, 3/4 turn W: 2% of maximum range
Response time	1 ms
Materials	Polyacetal and silicone
Dielectric resistance	500 V AC, 1 minute
Operating Temperature	-4° to 158° F [storage: -4° to 176° F] (-20 to +70°C [storage: -20 to +80°C])
Protection Class	IP 40 - 35 at 85% humidity
Electrical Connection	Connector M8 (4 contacts) or cable (1.5 meters long)
Pneumatic Connection	M: M5 Female + seal groove R: R1/8 male + M5 female
Weight	1.76 oz. (50 g)

Vacuum System Accessories

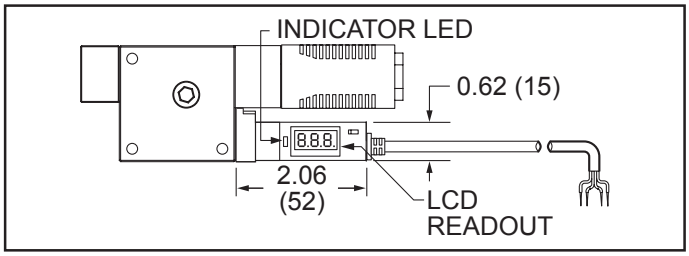
Vacuum and Pressure Switches



Electronic Vacuum Switch (JTSED)

The JTSED Electronic Vacuum Switch converts the vacuum level into digital output for connection to PLC systems as well as into analog output for the on/off control. The JTSED Electronic Vacuum Switch is identical to the JTSE switch except for the addition of a digital LED display. Vacuum Levels can be manually adjusted in PSI, bar, or in Hg over the full range of vacuum.

Input Voltage: 12 - 24 V DC
Accuracy: ±1.0%



Specifications	
Media	Non-Corrosive gases and Non-Lubricated air
Power Supply	10.8 ~ 30 V DC, ripple (P-P) 10% max., Reverse Voltage Protection
2 Switch Output	N.O. or N.C. separate selective, max. 125 mA, LED indication on display, PNP version, short circuit-proof
Display	3 digit 7-segment LED
Pressure Units	PSA 100 : bar, mmHg, inHg, kPa PSA 010 : bar, psi, kgf/cm², Mpa
Display Resolution	PSA 100 : 0.01 bar, 5 mmHg, 0.2 inHg, 1kPa PSA 010 : 0.1 bar, 1 psi, 0.05 kgf/cm², 0.01 MPa
Hysteresis	Hysteresis mode (0-100%) or Windows Comparator mode separate selective
Electrical Connection	Connector M8, 4-pin
Air Connection	M5 Female and G1/8" Male
Protection	IP 65 (without venting tube IP40)
Operation Accuracy	± 1% F.S.
Thermal Error	± 3% F.S. in range 0 ~ 50 °C (32 ~ 122 °F)
Response Time	< 5 ms
Current Consumption	< 55 mA
Dielectric Strength	1,000 V DC 1 min
Insulation Resistance	> 100 M ohm at 500 V DC

Vacuum System Accessories

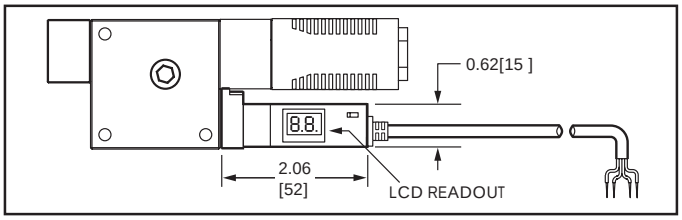
Vacuum and Pressure Switches

The JTSED-W Digital Vacuum Switch Mounts Easily and Conveniently under the nozzle and muffler of ANVER JB series Vacuum Generators. The Switch is provided with 4.9 ft (1.5m) of connection cable.

Electronic Vacuum Switch with Digital Readout (JTSED-W)

The JTSED-W Electronic Vacuum Switch converts the vacuum level into digital output for connection to PLC systems as well as into analog output for the on/off control. The JTSED-W Electronic Vacuum Switch is identical to the JTSE switch except for the addition of a digital LED display.

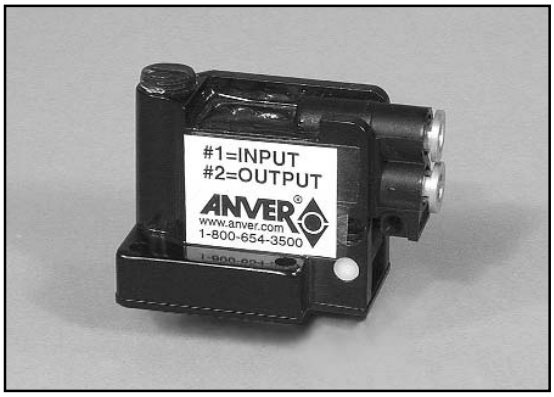
Input Voltage: 10 - 24 V DC
Accuracy: ±3.0% F.S.



Specifications	
Media	Non-Corrosive gases and Non-Lubricated air
Power Supply	10.8 ~ 26.4 V DC, ripple (P-P) 10% max., Reverse Voltage Protection
2 Switch Output	N.O. or N.C. separate selective, max. 125 mA, LED indication on display, PNP version
Display	2 digit
Pressure Units	kPa
Hysteresis	± 0.5% F.S.
Electrical Connection	Grommet Lead Wire
Air Connection	M5 Female and G1/8" Male - Standard
Operation Accuracy	± 3% F.S.
Thermal Error	± 3% F.S. in range 0 ~ 50 °C (32 ~ 122 °F)
Response Time	< 5 ms
Current Consumption	< 35 mA
Dielectric Strength	500 V AC 1 min
Insulation Resistance	> 100 M ohm at 500 V DC
Interference Emission	As Per DIN EN 50081-1
Immunity to Interference	As Per DIN EN 50082-2
Operating Temperature Range	0 ~ 60 °C (32 ~ 140 °F)
Storage Temperature Range	-10 ~ 70 °C (14 ~ 158 °F)
Operating Humidity Range	10 ~ 85 % RH
Vibration	10~55 Hz 1.5 mm (0.06"), XYZ, 2hrs
Mass	35 g (1.24 oz)
Weight	50 g (1.76 oz.)

Vacuum System Accessories

Vacuum and Pressure Switches



JTSPO/C Series Pneumatic Switches

The JTSPO/C Pneumatic Vacuum Switch is a three way piloted switch with an adjustable vacuum pilot setpoint. The adjustable pilot can be set to sense vacuum up to 29.9" Hg. Available in both Normally Open and Normally Closed models, the switch can be used in energy saver applications where low differential and fast response are required.

Maximum Vacuum: 29.9 in. Hg
Mounting: 1/8 in. NPT
Sensing Range: -3.5 to 28 in. Hg
Signal Pressure: 100 PSI Maximum

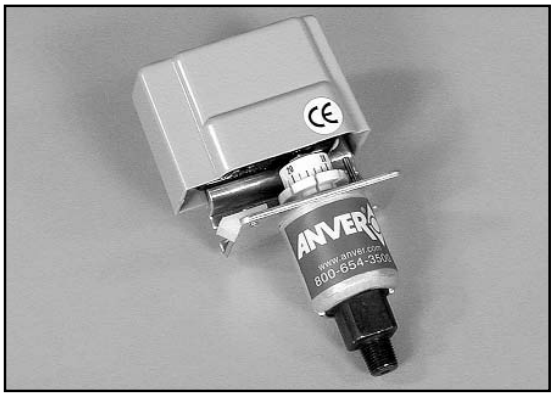
Electric Version Available Upon Request

ANVER Item No.	Equivalent to Competitor's Vacuum Switch Number
JTSPO (Normally Open)	31.16.013
JTSPC (Normally Closed)	31.16.014

Specifications	
Media	Filtered Air (5 micron)
Valve Type	3 Way (Exhaust to Atmosphere) Air Assisted Servo
Operating Pressure	Pilot: 28 Valve: 20-115 psi
Operating Speed	64 msec @ 90 psi Valve Input
Port	Pilot: 1/8"NPT Male Valve: 5/32"OD Female Push-to-Connect
Flow Rate	Cv = .06 Orifice = 0.080 2.5 CFM @ 100 psi
Supply Consumption	Approx. 275 cc/min @ 30 psi Valve Input, 700 cc/min @ 100 psi
Materials	Pilot: Polysulfone Body, Polyurethane Diaphragm, Stainless Spring Valve: Nylon Housing, Aluminum Plunger, Buna-N Seals
Operating Temperature	40 to 140°F (4 - 60°C)
Repeatability	Less than ± 2% of full scale pilot adj.
Effect of Supply	Less than 0.1 psi increase in pilot setpoint per 10 psi increase in supply

Vacuum System Accessories

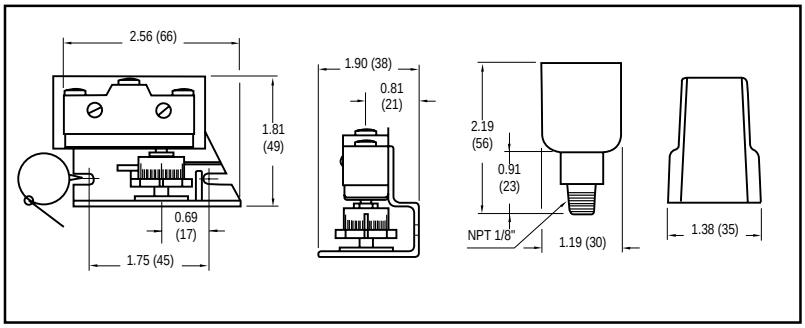
Vacuum and Pressure Switches



Electric Vacuum/Pressure Switch

ANVER's A-3116040 Vacuum / Pressure Switch is designed for Heavy Duty Applications requiring accuracy and a wide vacuum range with a NEMA 1 Enclosure. A shroud covers the internal wires while the calibration dial is easily accessible.

A-3116040	EVS54 (31.16.040)



Specifications	
Vacuum Range	0 to 30 inHg
Output	SPDT Switch
Enclosure	NEMA 1
Pressure Connection	360 Alloy Aluminum
Current	15 Amps
Voltage	125/250/480 Vac
Differential	Fixed (1.5 to 3.5 inHg)
Max. Pressure	50 psi

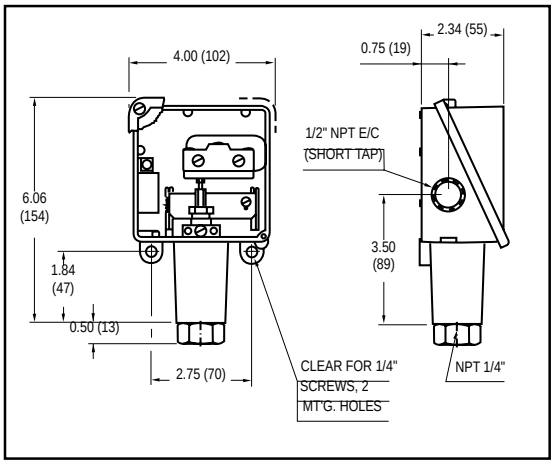
Electric Vacuum/Pressure Switch

ANVER's A-3116041 Vacuum/Pressure differential switches are activated when a bellows, diaphragm or piston sensor responds to a pressure change. This response, at a pre-determined set point, actuates a single snap acting switch, converting the pressure signal into an electrical signal. Control set point may be varied by turning the internal adjustment hex. (See adjustment)

Adjustment of A-3116041:

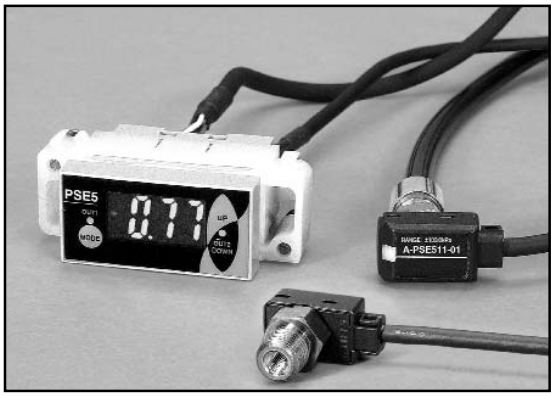
Remove Vacuum/Pressure switch cover. Adjust set point by turning 5/8" hex adjustment screw clockwise (in) to raise set point, or counter-clockwise (out) to lower set point. Tension on adjustment screw can be increased by tightening lock into it.

Note: UL Listed and CSA Approved



ANVER Item No.	Direct Replacement for Competitor's Switch No.
A-3116041	EVS100 (31.16.041)

Specifications	
Vacuum Range	0 to 30 inHg
Output	SPDT Switch
Enclosure	NEMA 4
Pressure Connection	1/4" Female NPT, Nickel Plated
Maximum Pressure	30 psi
Current	15 Amps
Voltage	125/250/480 Vac
Differential	Fixed (1.0 to 2.0 in. Hg)



A-PSE5 Series Digital Switch

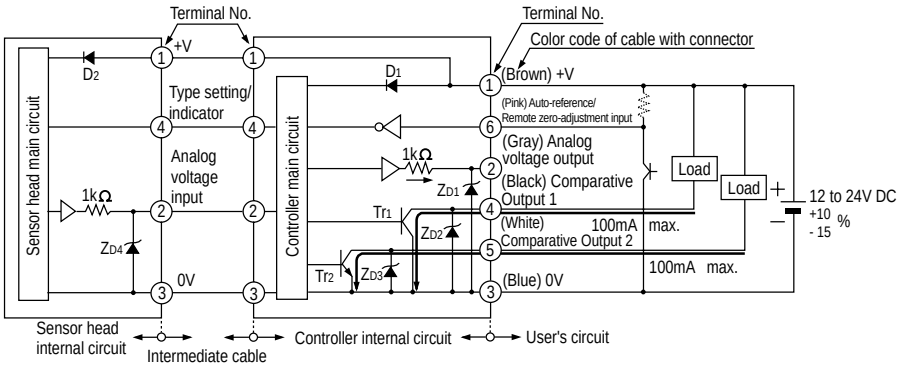
The A-PSE5 Series Digital Switch offers independent use of vacuum / pressure switch head. Data can be controlled by taking the analog voltage output (1 to 5V) from the sensor head and feeding it to a digital panel meter. Mounting the detachable head close to the detecting section minimizes piping and enables response time of 1ms, the fastest in the industry, as well as greatly decreasing tact time delay. In addition, the ultra-small and light-weight design of the head means it can easily be mounted on moving sections.

Features:

- 1ms Response - Fastest in the Industry
- Detachable Head
- Switch Head with operation Indicator
- Convenient Intermediate Cable
- Easy Mounting, Mobile Pressure Port
- Two Types of Output, NPN and PNP - for Worldwide Use

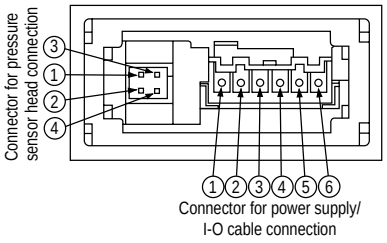
ANVER Item No.	Description
A-PSE511-01	Vacuum / Pressure Switch Head
A-PSE5	Vacuum / Pressure Switch Controller
A-PS5-CC3	Standard Intermediate Cable: 3m

I/O circuit diagram



Symbols... D_1, D_2: Reverse supply polarity protection diode
Z_{D1} to Z_{D4}: Surge absorption zener diode
Tr_1, Tr_2: NPN output transistor

Pin position



Connector for power supply/ I-O cable connection

1. +V
2. Analog voltage output
3. 0V
4. Comparative Output 1
5. Comparative Output 2
6. Auto-reference/ Remote zero-adjustment input

Specification for A-PSE5 Series Digital Switch appear on the subsequent pages.

Specifications for A-PSE511-01 Vacuum / Pressure Switch Head		
Vacuum Pressure	-101kPa type	
Rated Pressure Range (Note 1)	0 to -101.3kPa	
Pressure Withstandability	500kPa	
Applicable Fluid	Non-Corrosive Gas	
Supply Voltage	12 to 24 DC +10% to -15% Ripple P-P 10% or less	
Current Consumption	15mA or less (operation indicator off) / 17mA or less (operation indicator on)	
Analog Voltage Output	Output Voltage:	1 to 5V (over pressure range)
	Zero Point:	within 1V±2%F.S. (vacuum/positive pressure type) within 3V±3%F.S. (compound pressure type)
	Span:	within 4V±3.5%F.S.
	Linearity:	within ±1%F.S.
	Output Impedance:	1k ohm approx.
Environmental Resistance	Pollution Degree	3 (Industrial Environment)
	Protection	IP40 (IEC)
	Ambient Temperature	0 to +50°C (No Dew Condensation), Storage: -10 to +60°C
	Ambient Humidity	35 to 85% RH, Storage: 35 to 85% RH
	EMC	Emission: EN50081-2, Immunity: EN50082-2
	Voltage Withstandability	1,000V AC for one min. between all supply terminals connected together and enclosure
	Insulation Resistance	50M ohm, or more, with 500V DC megger
	Vibration Resistance	10 to 500Hz frequency, 3mm amplitude, or 5G in X, Y and Z directions for two hours each
	Shock Resistance	1,000m/s2 Acceleration in X, Y and Z direction for three times each
Operation indicator	Orange LED light	
Temperature Characteristics	Over Ambient Temperature Range +10 to +40°C: within ±1%F.S. of detected pressure at +25°C	
	Over Ambient Temperature Range 0 to +50°C: within ±3%F.S. of detected pressure at +25°C	
Voltage Characteristics	Within ±0.5%F.S. for ±10% fluctuation of the supply voltage	
Pressure Port	A-PSE11-01 NPT 1/8 male thread / 10-32UNF female thread	
Material	Enclosure: PBT, Pressure Port: Brass (nickel plated)	
Connecting Method	Connector	
Cable	0.2mm2 4-core connector attached oil resistant cabtyre cable, 100mm long	
Cable Extension	Extension up to total 10m is possible with 0.3mm2, or more, cable	
Weight	10g approx.	

Vacuum System Accessories

Vacuum and Pressure Switches

ANVER® CORPORATION

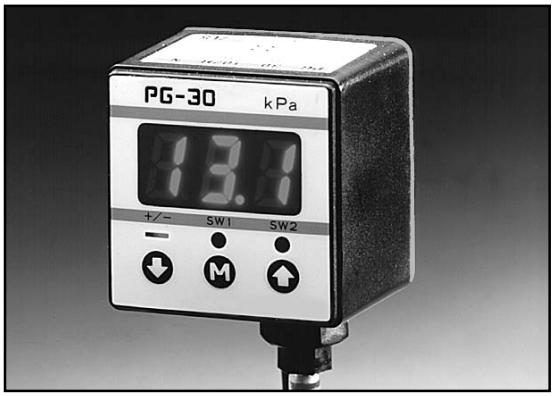
Specifications for A-PSE5 Vacuum / Pressure Switch Controller		
PNP Output Type	PSE5	
Rated Pressure Range (Note 1)	Vacuum Pressure: 0 to -101.3kPa	
Set Pressure Range (Note 1)	Vacuum Pressure: 101.3kPa (1.033 to -1.033kgf/cm2, 14.70 to -14.70psi, 1.013 to -101.3bar, 760 to -760mmHg, 29.9 to -29.9inHg)	
Supply Voltage/Current Consumption	12 to 24 DC +10% to -15% Ripple P-P 10% or less / 60mA or less (not including pressure sensor head)	
Sensor Supply Voltage	Same as Supply Voltage	
Comparative Output (Comparative Output 1 Comparative Output 2)	PNP Open-Collector Transistor (2 outputs) • Maximum source current: 100mA • Applied Voltage: Same as supply voltage (between comparative output and +V) • Residual Voltage: 2V or less (at 100mA source current)	
Utilization Category	DC-12 or DC-13	
Output Operation	NO/NC, selectable by key operation	
Output Modes	Equipped with 4 types of modes: hysteresis mode, window comparator mode, leak test mode, forced output mode (selectable by key operation)	
Hysteresis	1 digit (however, set response time is +2ms when auto-reference/remote zero-adjustment input is applied)	
Repeatability	Vacuum/positive pressure type sensor head: within ±0.2%F.S. ±1 digit (±3 digits)	
Response Time	1ms, 16ms, 128ms, 512ms, or less, selectable by key operation (however, set response time is ±2ms when auto-reference/remote zero-adjustment input is applied)	
Short-Circuit Protection	Incorporated	
Input	Pressure Sensor Head Input	Input Voltage Range: 1 to 5V DC (over rated pressure range)
	Auto-Reference/Remote Zero-Adjustment Input	Input Condition: PNP non-contact input [operates in High (rise) state] Signal Condition: High... 5 to 30V, Low... 0.4V or less, or open, High Level Input Time... 2ms or more
Analog Voltage Output	• Output Voltage: 1 to 5V DC (over rated pressure range) • Zero Point: within 1V ±2.5%F.S. (vacuum/positive pressure type) within 3V ±3.5%F.S. (compound pressure) • Span: within 4V ±4%F.S. • Linearity: within ±1%F.S. • Output Impedance: 1k ohm approx.	
Display	3½ digit LCD Display (with red and green backlight) (Display refresh cycle: 256ms, 512ms, or 1024ms selectable by key operation)	
Displayable Pressure Range	Vacuum Pressure: 5.1 to -101.3kPa (0.052 to -1.033kgf/cm2, 0.74 to - 14.70psi, 0.05 to -1013bar, 38 to -760mmHg, 1.5 to -29.9inHg)	
Operation Display	LCD Segment is red when comparative output is ON, and green when it is OFF (output is selected via supplementary settings)	
Analog Bar Display	Bar Display in steps of 14% F.S. approx.	
Operation Indicator	Orange LED (lights up when comparative output is ON), green LED (lights up when comparative output 2 is ON)	

Specifications for A-PSE5 Vacuum / Pressure Switch Controller (Cont.)

Environmental Resistance	Pollution Degree	3 (Industrial Environment)
	Protection	IP40 (IEC)
	Ambient Temperature	0 to +50°C (No dew condensation), Storage: -10 to +60°C
	Ambient Humidity	35 to 85% RH, Storage: 35 to 85% RH
	EMC	Emission: EN50081-2, Immunity: EN50082-2
	Voltage Withstandability	1,000V AC for one min. between all supply terminals connected together and enclosure
	Insulation Resistance	50M ohm, or more, with 500V DC megger between all supply terminals connected together and enclosure
	Vibration Resistance	10 to 150Hz frequency, 0.75mm amplitude, or 5G in X, Y and Z directions for two hours each
	Shock Resistance	100m/s2 Acceleration in X, Y and Z directions for three times each
Temperature Characteristics	Over Ambient Temperature Range 0 to +50°C: within ±0.5%F.S. of detected pressure at +25°C (not including pressure sensor head)	
Material	Front Case: ABS, LCD display section: PET, Rear cse: PBT	
Connecting Method	Connector	
Suitable Cable	Conductor Cross-Section Area (Note 2)	0.16 to 32mm2 (AWG#25 to #22)
	Lead Wire Diameter	ø1.2 to ø1.8mm
	Wire Material	Tin plated, soft, twisted, copper wire
Cable Extension	Extension up to total 100m is possible with 0.3mm2, or more, cable	
Weight	20g approx.	

Vacuum System Accessories

Vacuum and Pressure Switches



JTZSE Digital Control Switch

For Non-Corrosive Gases
Non-Corrosive Gases Model [Compound and Low Pressure]. This popular standard model is a compact multi-purpose compound pressure gauge specifically designed to cover negative to normal pressure. A Rear Mount Bracket option is available.

ANVER Model JTZSE-R2 Digital Control Switch

For Liquids or Gases
This special High Corrosion Resistant Model [Compound and Absolute Pressure] has pressure port attachments made of SUS 316L stainless steel for exact, accurate pressure control to cover a broad range of applications.

Features:

- Full 3-digit red LED display - gives a clear indication even in low light locations.
- Proven IP65 grade gauge body is suitable for industrial installations.
- Small, space-saving 30mm square face design.
- 2-point switch output with a total of eight operation modes possible.
- Analog output 1-5V in addition to the 2-point switch output.
- 8 different pressure units are available for selection.

Digital Vacuum / Pressure Control Switches Specifications

ANVER Item No.	Pressure Port	Diaphragm Material	Net Weight (Including 2 m cable)	Accessories
JTZSE	Aluminum die-casting Rc 1/8 female, 2 places	Silicone, Single Crystal	Approx. 80 g	Unit Seal, Seal Screw, M5 Connecting Joint Screw
JTZSE-R2	Mounting: R 1/4, with M5 Female	SUS316L	Approx. 150 g	Unit Seal

Pressure Reference: Gauge - Pressure Setting Range

ANVER Item No.	Rated Pressure Range	kPa	gf/cm sq	mmHg	mbar	psi	Breakdown Pressure
JTZSE	-100 to 1000 kPa	-999 to 999	-999 to 999	-760 to 760	n/a	-14.5 to 14.5	500 kPa
JTZSE-R2	-100 to 100 kPa	-99.9 to 99.9	-999 to 999	-760 to 760	-999 to 999	-14.5 to 14.5	300 kPa

Switch Output

ANVER Item No.	General Specifications	Hysteresis	Repeatability	Response	Short Circuit Protection
JTZSE JTZSE-R2	2-Point Output, NPN/PNP transistor open collector, Capacity: 30 V Dc 100 mA max., Residual Voltage: 1.2 V or below (At load current of 100 mA)	0 - 300 digits (adjustable)	+/- 0.2% F. S. +/- 1 digit	5 ms maximum	Provided

Output Mode Setting (Detected Pressure - Pin)

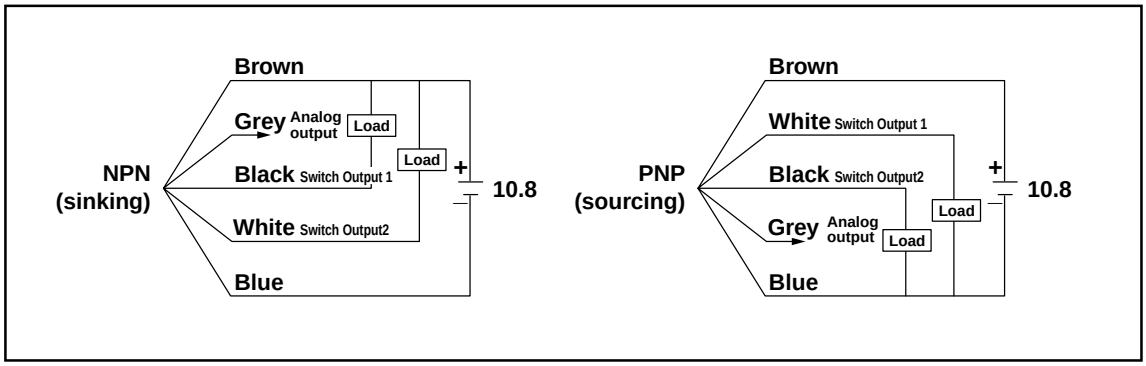
ANVER Item No.	Output Mode	R Mode	G Mode	V Mode	Output Voltage Vo
JTZSE	Pin (H)	+Pr	-Pr	-Pr	Vo(H)
JTZSE-R2	Pin (L)	-Pr	O	O	Vo(L)

Environmental Characteristics

ANVER Item No.	Protection Grade	Operating Temp. Range	Operating Humidity	Insulation Resistance	Dielectric Strength	Vibration	Shock
JTZSE JTZSE-R2	IP65 (Pressure Gauge Body): Conforming to IEC	-10° to 50° C (Storage Temp.: 20° to 70° C)	35 to 85% Relative Humidity	More than 100 M ohm at DC 500 V between wire bundle and pressure port	One minute at AC 500 V between wire bundle and pressure port (Leak current: Less than 1mA)	10-55 Hz Amplitude 0.75 mm, 3 directions, 2h each	+/-3% F. S. (0 ± 50° C)

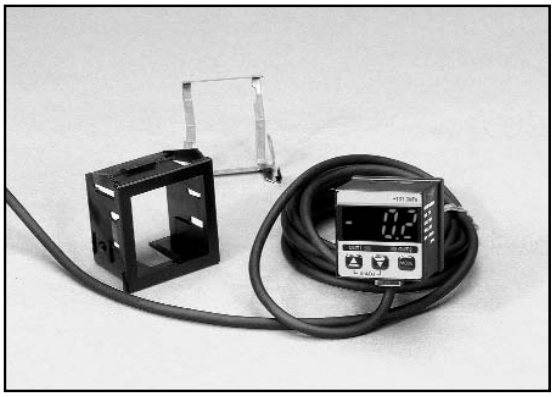
General

ANVER Item No.	Analog Output	Display	Negative Pressure Display	Switch State Indication
JTZSE JTZSE-R2	Output Voltage: 1 -5 V (Zero point 1V ± 0.2 V Span 4 V ± 0.2 V) Output Impedance: 10k ohm Resolution: 1/204	Full 3 digit LED (Sampling Cycle: 4/second)	Negative Pressure LED is on	Output 1 (green) and output 2 (red)light up when output is on: Thermal Error



Vacuum System Accessories

Vacuum and Pressure Switches



JTZSE4 Digital Control Switch

For Non-Corrosive Gases

Non-Corrosive Gases Model [Compound and Low Pressure]. This popular standard model is a compact multi-purpose compound pressure gauge specifically designed to cover negative to normal pressure. A Rear Mount Bracket option is available.

Features:
- Full 3-digit red LED display - gives a clear indication even in low light locations.
- Proven IP65 grade gauge body is suitable for industrial installations.
- Small, space-saving 30mm square face design.
- 2-point switch output with a total of eight operation modes possible.
- Analog output 1-5V in addition to the 2-point switch output.
- 8 different pressure units are available for selection.

Digital Vacuum / Pressure Control Switches Specifications

Pressure Port	Diaphragm Material	Net Weight (Including 2 m cable)	Accessories
Aluminum die-casting Rc 1/8 female, 2 places	Silicone, Single Crystal	Approx. 80 g (2.82 oz.)	Unit Seal, Seal Screw, M5 Connecting Joint Screw

Pressure Reference: Gauge - Pressure Setting Range

Rated Pressure Range	kPa	gf/cm sq	mmHg	mbar	psi	Breakdown Pressure
-100 to 1000 kPa	-999 to 999	-999 to 999	-760 to 760	n/a	-14.5 to 14.5	500 kPa

Switch Output

General Specifications	Hysteresis	Repeatability	Response	Short Circuit Protection
2-Point Output, PNP transistor open collector, Capacity: 30 V Dc 100 mA max., Residual Voltage: 1.2 V or below (At load current of 100 mA)	0 - 300 digits (adjustable)	+/- 0.2% F. S. +/- 1 digit	5 ms maximum	Provided

Output Mode Setting (Detected Pressure - Pin)

Output Mode	R Mode	G Mode	V Mode	Output Voltage Vo
Pin (H)	+Pr	-Pr	-Pr	Vo(H)

Environmental Characteristics

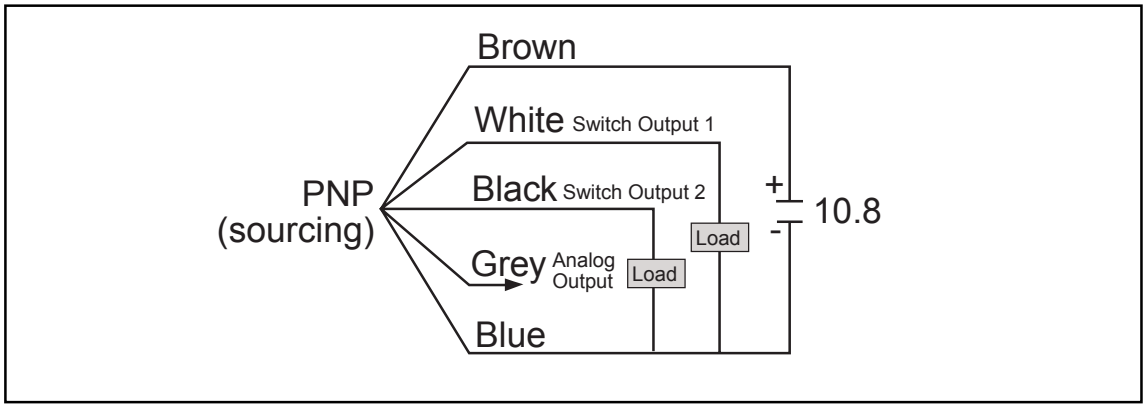
Protection Grade	Operating Temp. Range	Operating Humidity	Insulation Resistance	Dielectric Strength	Vibration	Shock
IP65 (Pressure Gauge Body): Conforming to IEC	-10° to 50° C (Storage Temp.: 20° to 70° C)	35 to 85% Relative Humidity	More than 100 M ohm at DC 500 V between wire bundle and pressure port	One minute at AC 500 V between wire bundle and pressure port (Leak current: Less than 1mA)	10-55 Hz Amplitude 0.75 mm, 3 directions, 2h each	+/-3% F. S. (0 ± 50° C)

General

Analog Output	Display	Negative Pressure Display	Switch State Indication
Output Voltage: 1 -5 V (Zero point 1V ± 0.2 V Span 4 V ± 0.2 V) Output Impedance: 10k ohm Resolution: 1/204	Full 3 digit LED (Sampling Cycle: 4/second)	Negative Pressure LED is on	Output 1 (green) and output 2 (red) light up when output is on: Thermal Error

Mounting Kit

ANVER Item No.	Description
JT2SE4-PMK	Mounting Kit for JTZSE4



Vacuum System Accessories

Electric Solenoid Air Valves

Electrically controlled valves, Series 3/2 A-EVC, for vacuum and compressed air applications

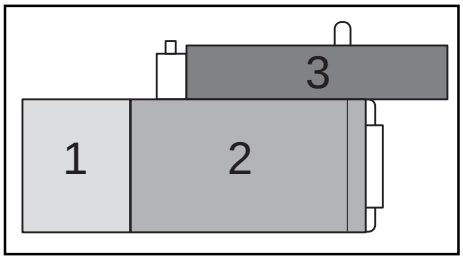
Three body styles to choose from:

- Manifold Mount A-DI: For mounting directly to a Mounting Plate. Gaskets and screws are included. Ports 1 and 2: 0.07", Port 3: M5.
- Body Ported A-DP: All body ports are M5.
- A-DG: G 1/8 male output port for mounting directly to suction cups, air cylinder, or the pilot port of a larger valve. Ports 1 and 3 are M5.

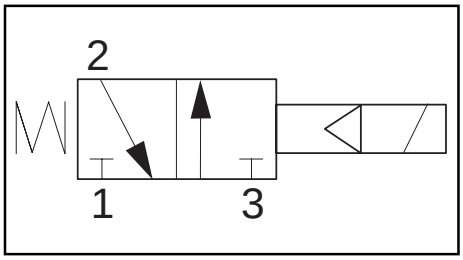
Specifications			
Nominal Dia. inch (mm):	0.031 (0.8 mm)	0.063 (1.6 mm)	0.090 (2.3 mm)
Flow SCFM (l/min.):	0.7 (20)	1.4 (40)	1.7 (48)
Pressure Range:	-14.5 to 101.5	-14.5 to 101.5	-14.5 to 14.5
Cycle Frequency in Hz:	>160	>160	>160
Rated Life Cycles:	100,000,000	100,000,000	100,000,000
Weight: ounce (g):	2 (56.7)	2 (56.7)	2 (56.7)
Supply VDC:	24	24	24
Medium:	Compressed air and vacuum, Filtration 40 micron, Non- lubricated		
Design:	Seat valve 3/2 N.O./N.C., Electrically operated, Manual control		
Working Temperature:	Solenoid 0.6W: -0.4°F to 149°F • Solenoid 2.5W: -0.4° to 122°F		Nickel, AL, SS, POM, Brass,
Material:	BR, CR		
Safety Classification:	With DIN socket IP65		

Vacuum System Accessories

Electric Solenoid Air Valves



E = Electric Contacts (Plug-In)
D = DIN Connector

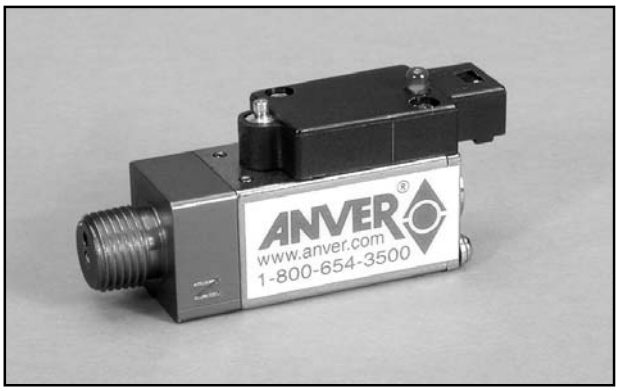


ANVER Item No.	Exact Replacement for Competitor's Solenoid Number	Valve Body (1)	Nominal Diameter	24V DC Solenoid Wattage (2)	Electrical Connector (3)	Valve Type
A-0100005	01.00..005	2/3 Interface	A-DI=0.8	0.6 W	E	A-DI 08 2406 SE
A-0100008	01.00..008	3/2 Interface	A-DI=0.8	0.6 W	LD	A-DI 08 2406 SD
A-0100011	01.00..011	3/2 M5	A-DP=0.8	0.6 W	EL	A-DP 08 2406 SE
A-0100014	01.00..014	3/2 M5	A-DP=0.8	0.6 W	DL	A-DP 08 2406 SD
A-0100012	01.00..012	3/2 M5	A-DP=1.6	2.5 W	EL	A-DP 16 2425 SE
A-0100015	01.00..015	3/2 M5	A-DP=1.6	2.5 W	DL	A-DP 16 2425 SD
A-0100013	01.00..013	3/2 M5	A-DP=2.3	2.5 W	EL	A-DP 23 2425 SE
A-0100016	01.00..016	3/2 M5	A-DP=2.3	2.5 W	DL	A-DP 23 2425 SD
A-0100040	01.00..040	3/2 G 1/8	A-DG=1.6	2.5 W	EL	A-DG 16 2425 SE
A-0100041	01.00..041	3/2 G 1/8	A-DG=1.6	2.5 W	DL	A-DG 16 2425 SD

Please order by Item No.
Example: For Valve Type A-DI 08 2406 SE, order Item No. A-0100005

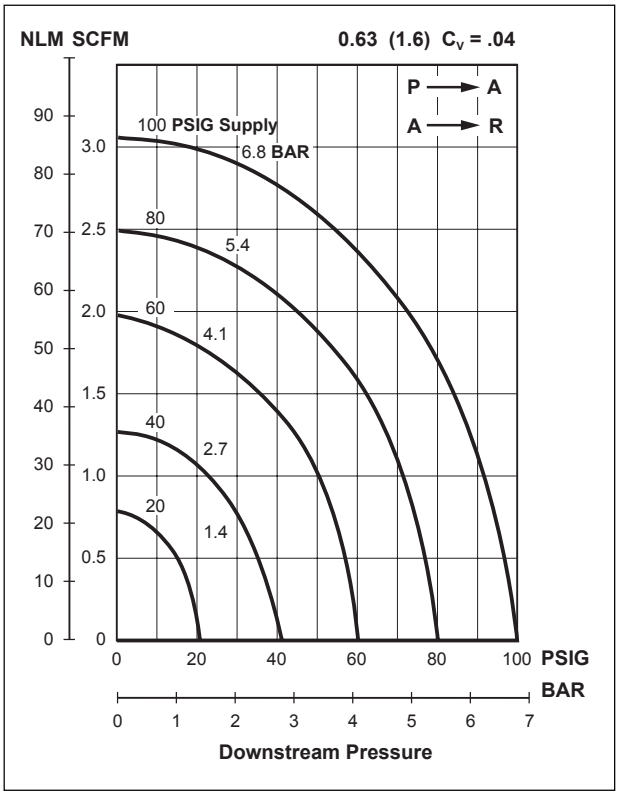
Vacuum System Accessories

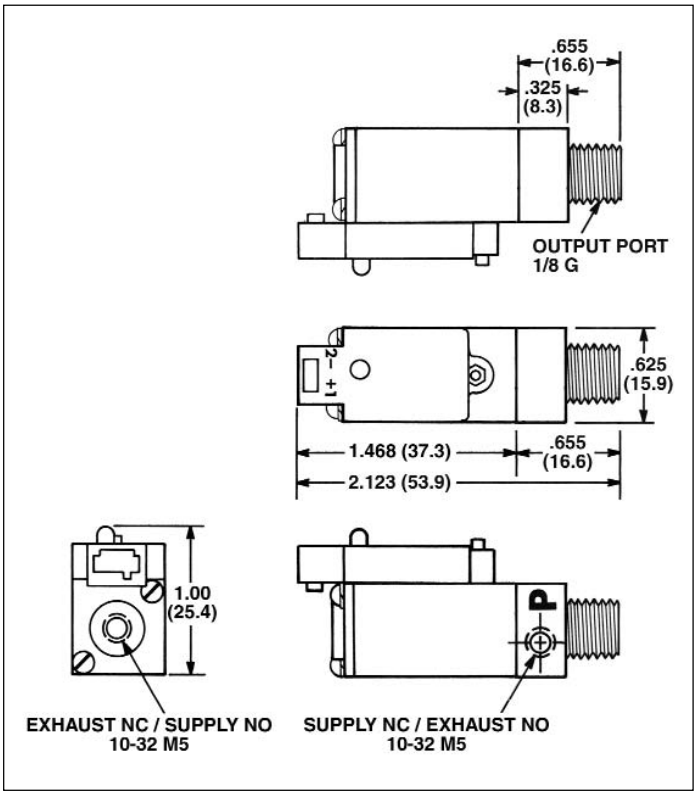
Electric Solenoid Air Valve A-0100040



MATERIALS:

Solenoid Housing . . . . . .Electroless Nickel
Pole Peice . . . . . .Electroless Nickel
Armature . . . . . .430F Solenoid Stainless
Seals . . . . . .Buna N and Neoprene
Valve Body . . . . . .Anodized Aluminum





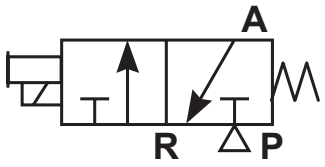
Valve Specifications, Second Page

Vacuum System Accessories

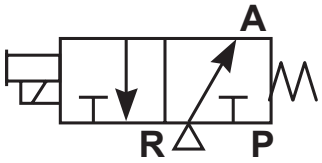
Electric Solenoid Air Valve A-0100040

Valve Symbols

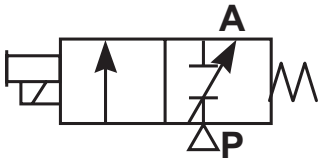
3 Way (3/2) NC
(Normally Not Passing)



3 Way (3/2) NO
(Normally Passing)



2 Way (2/2) NC
(Normally Not Passing)



NORMALLY CLOSED (NORMALLY NOT PASSING)
The valve is most often applied as a normally closed NC (normally not passing) valve. In this configuration a pneumatic supply should be connected to port P and the output port A should be connected to the device to be pressurized. The exhaust port R is the port at the end of the solenoid. The valve symbol is shown below.

NORMALLY OPEN (NORMALLY PASSING)
The valve can be used as a normally open NO (normally passing) valve by connecting the supply air to port R in the end of the solenoid and using port A for the output. The valve symbol is shown at left.

VACUUM APPLICATIONS
The valve is suitable for use in vacuum applications. Connect the vacuum source to port P for normally closed applications and to port R for normally open applications.

PRESSURE RANGE
The valves can be operated over the pressure ranges shown below.
Note: In order to achieve the highest operating performance, care should be taken to choose the optimum model for the application.

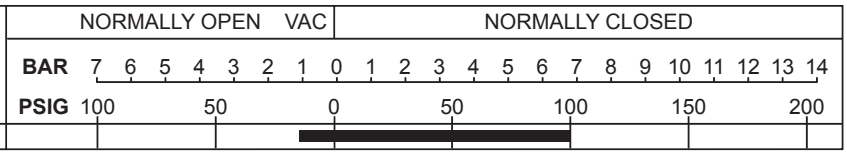
TEMPERATURE RANGE
0° to 122°F (-18° to 50°C)

SERVICE, FILTRATION AND LUBRICATION
The valves are designed for service on air and inert gases. Anver recommends 40 micron filtration. The valve is a direct acting poppet. Lubrication is not required but may be used.

MOUNTING
Valves can be mounted in any orientation and still achieve excellent performance.

Valve Characteristics

Valve Type	Valve Function	Orifice In (mm)	Power (Watts)	REM
D12	3 Way (3/.2)	.062 (1.6)	2.5	RED



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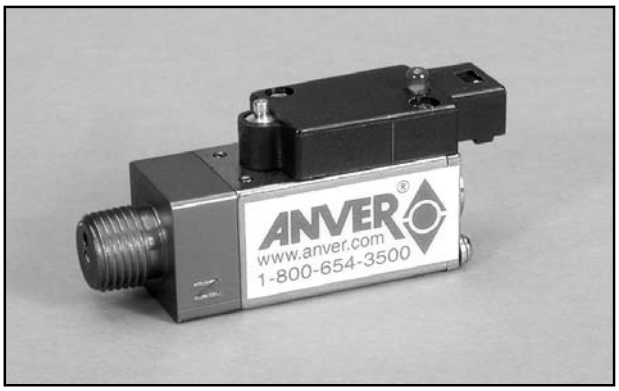
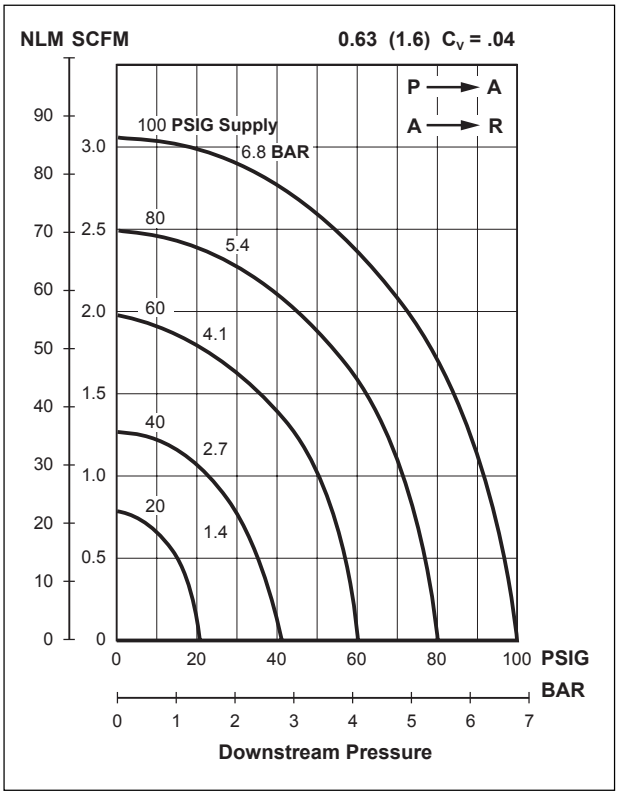
Vacuum System Accessories

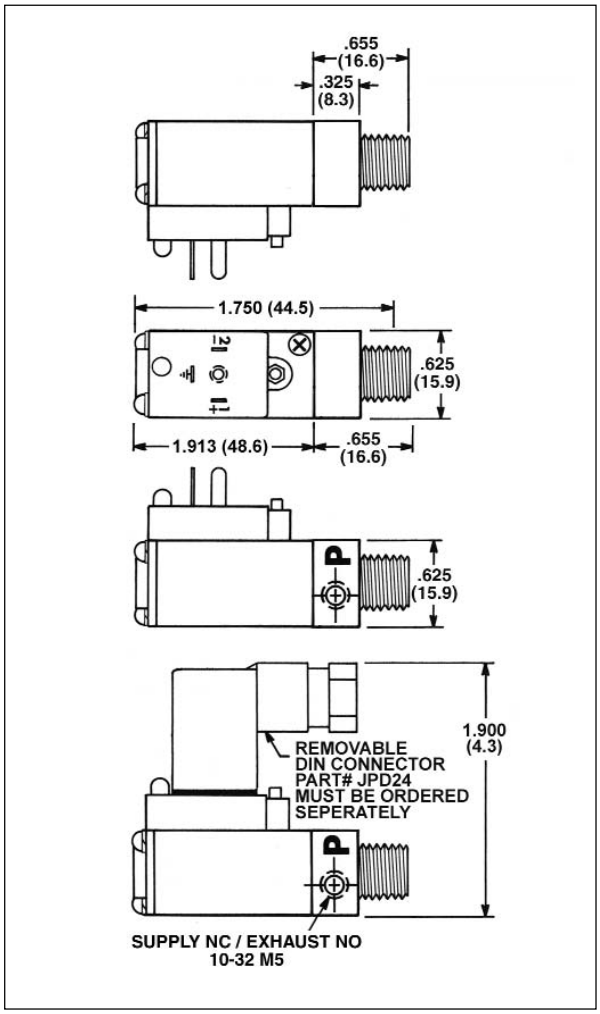
Electric Solenoid Air Valve A-0100041



MATERIALS:

Solenoid Housing . . . . . .Electroless Nickel
Pole Peice . . . . . .Electroless Nickel
Armature . . . . . .430F Solenoid Stainless
Seals . . . . . .Buna N and Neoprene
Valve Body . . . . . .Anodized Aluminum





Valve Specifications, Second Page

Vacuum System Accessories

Electric Solenoid Air Valve A-0100041

Valve Symbols

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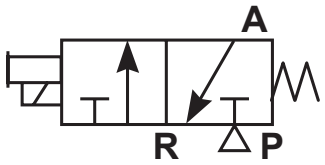

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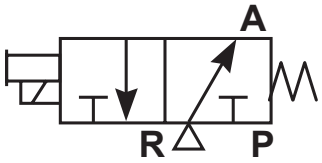
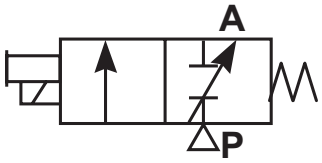
(Normally Passing)



2 Way (2/2) NC
(Normally Not Passing)



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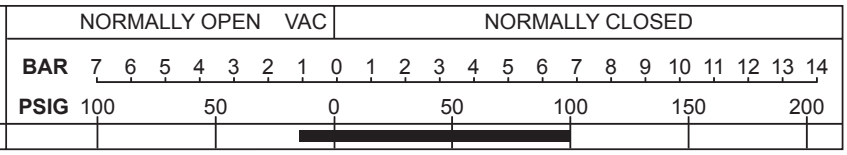

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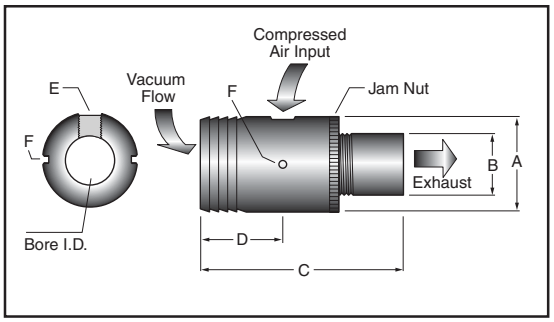
Vacuum Pumps & Vacuum Generators

Air Mover Style Vacuum Pumps



ANVER FT Series Adjustable Flow Tubes

ANVER Adjustable Flow Tubes provide an economical means of producing high vacuum flow and high exhaust flow using a minimal amount of compressed air. On the vacuum side, they can be used to generate high amounts of flow to rapidly evacuate large volumes of air. They can also be used where leakage is a major problem and other types of vacuum devices are unable to produce enough vacuum flow to compensate for the leakage. On the exhaust side, flow tubes can be efficient alternatives to expensive electric blowers or raw compressed air lines for parts cooling, blow-off and drying. Made of aluminum to precise CNC machine tolerances for consistent performance, ANVER Adjustable Flow Tubes have an anodized finish for protection against wear. A straight-through bore design allows all material to pass without clogging for maintenance-free operation.

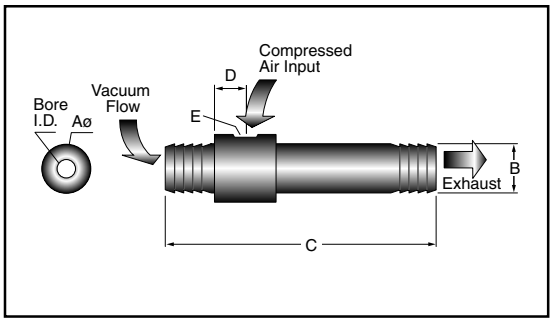
Features:
- Adjustable High Output Exhaust
- Adjustable High Vacuum Flow Creation
- Compact Size
- Low Air Consumption
- Instant On/Off
- Explosion-Proof
- No O-Rings or Gaskets

Typical Use:
- Air Bearing
- Fume Removal
- Cooling
- Drying
- Chip and Dust Removal
- Part Ejection
- Paper Feeding
- Tank Purging

ANVER Item No.	Bore I.D. in. (mm)	Air Usage SCFM (l/min.)	Output SCFM (l/min.)	Max. Vacuum in. Hg (mm Hg)	Amplification Ratio	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E Port	F Mounting	Adapter for G to NPT
FT020	0.25 (6.3)	3 (85)	18 (340)	5 (127)	6:1	1.25 (31.8)	0.56 (14.3)	2.75 (69.9)	1.50 (38.1)	G 1/8"	M4 x 0.7	1/8"G to 1/8" NPT
FT020-303SS	0.25 (6.3)	3 (85)	18 (340)	5 (127)	6:1	1.25 (31.8)	0.56 (14.3)	2.75 (69.9)	1.50 (38.1)	G 1/8"	M4 x 0.7	1/8"G to 1/8" NPT
FT050	0.50 (12.7)	9 (255)	75 (2124)	3 (76)	8:1	1.75 (44.3)	1.00 (25.4)	4.13 (104.8)	1.75 (44.5)	G 1/4"	M4 x 0.7	1/4"G to 1/4" NPT
FT075	0.75 (19.1)	9 (255)	110 (3115)	1.5 (38)	12:1	2.00 (50.8)	1.25 (31.8)	4.13 (104.8)	1.75 (44.5)	G 1/4"	M4 x 0.7	1/4"G to 1/4" NPT
FT100	1.00 (25.4)	9 (255)	145 (4106)	1 (25)	16:1	2.25 (57.2)	1.50 (38.1)	4.13 (104.8)	1.75 (44.5)	G 1/4"	M4 x 0.7	1/4"G to 1/4" NPT

Vacuum Pumps & Vacuum Generators

Air Mover Style Vacuum Pumps



ANVER TT Series Transfer Tubes

ANVER Transfer Tubes can provide a compact, low cost and effective method for the in-line conveyance of small components, odd shapes, powders or continuously fed material. These transfer tubes are designed to instantaneously provide air movement the moment compressed air is applied. By regulating the input air pressure, the transfer speed and output flow can be infinitely controlled. The instantaneous vacuum flow and high air velocity, along with the transfer tube's straight-through, smooth bore design, allow materials to pass through the tube at high speeds without clogging, providing a maintenance free method of material conveyance.

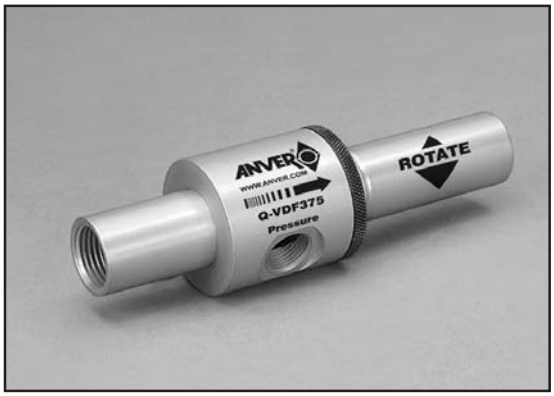
Features:
- Instant Flow
- Compact Size
- Maintenance Free
- Low Air Consumption
- Explosion Proof
- No O-Rings or Gaskets

Typical Use:
- Pneumatic Conveying
- Hopper Loading
- Bulk Loading
- Dust Removal
- Trim Waste Removal

ANVER Item No.	Bore I.D. in. (mm)	Air Usage SCFM (l/min.)	Output SCFM (l/min.)	Max. Vacuum in. Hg (mm Hg)	Velocity ft/sec (m/sec)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E Port	Optional Clamp	Adapter for G to NPT
TT03	0.375 (9.5)	10 (283)	15 (425)	6 (152)	395 (120)	1.25 (31.8)	0.75 (19.1)	3.75 (95.3)	0.50 (12.7)	1/8" BSP	CLAMP20P	1/8"G to 1/8" NPT
TT05	0.50 (12.7)	24 (680)	30 (850)	10 (254)	360 (110)	1.50 (38.1)	1.00 (25.4)	5.75 (146.1)	0.63 (15.9)	1/4" BSP	CLAMP25P	1/4"G to 1/4" NPT
TT07	0.75 (19.1)	48 (1359)	60 (1699)	8 (203)	325 (99)	2.00 (50.8)	1.25 (31.8)	8.00 (203.2)	1.00 (25.4)	1/4" BSP	CLAMP32P	1/4"G to 1/4" NPT
TT10	1.00 (25.4)	48 (1359)	95 (2690)	6 (152)	290 (88)	2.25 (57.2)	1.50 (38.1)	8.00 (203.2)	1.00 (25.4)	1/4" BSP	CLAMP40P	1/4"G to 1/4" NPT

Vacuum Pumps & Vacuum Generators

Air Mover Style Vacuum Pumps



ANVER Q-VDF Series Adjustable Flow Tubes

The Q-VDF Series of adjustable air powered vacuum pumps provide a combination of high vacuum flow rates of up to 120 SCFM, and vacuum levels of up to 25" Hg. Because of their straight-through design, the Q-VDF Series is recommended for handling porous materials and ideal for operation in contaminated situations.

This unit is noted for its ability to pass virtually all contaminants through the unit without obstruction. Q-VDF pumps can be used to pick and place materials as diverse as concrete block, and packaging materials that are coated with fine powder. They are typically used in air driven industrial vacuum cleaners to remove liquid and/or solid mixtures from sump areas. Q-VDF pumps are user-adjustable and eliminate the need for additional regulation of air lines to remotely vary the levels of vacuum or flow that is required.

Principles of Operation:

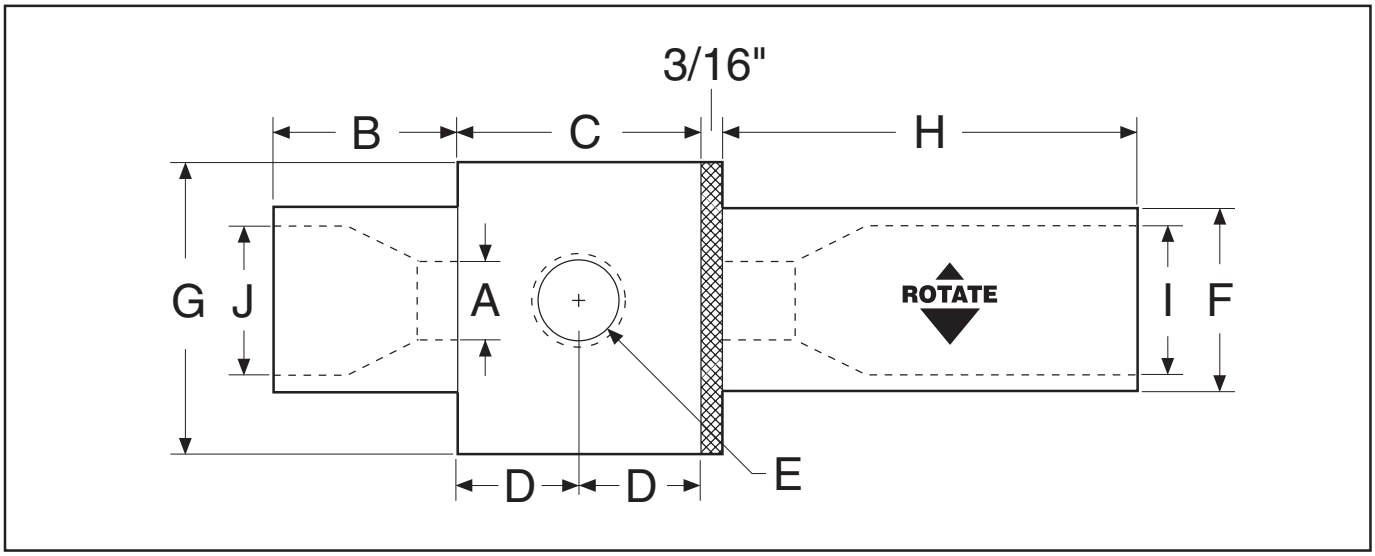
The variable performance of the Q-VDF pump is achieved by increasing the annular gap between the venturi nozzle and the diffuser. Rotating the diffuser section counter-clockwise will increase the opening, allowing more compressed air to flow through the unit and increasing both the vacuum flow and the vacuum level. The result is a variable vacuum pump that can be adjusted to meet an application's exact requirements.

ANVER Item No.	Air Consumption vs. Vacuum Level ("Hg) @ 80 PSI					
	0"	5"	10"	15"	20"	25"
Q-VDF100	0	0.70	1.20	1.30	2.10	2.60
Q-VDF150	0	1.30	1.70	2.40	3.20	4.50
Q-VDF200	0	2.40	3.70	4.70	6.00	6.80
Q-VDF250	0	4.00	6.00	8.30	9.70	12.00
Q-VDF375	0	6.20	11.50	17.00	21.00	29.00
Q-VDF500	0	12.00	22.00	28.00	33.00	45.00
Q-VDF750	0	23.00	30.80	44.00	63.00	90.00

ANVER Item No.	Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI					
	0"	5"	10"	15"	20"	25"
Q-VDF100	0	0.85	0.90	1.20	1.60	2.00
Q-VDF150	0	1.10	1.60	2.10	2.60	3.20
Q-VDF200	0	2.20	3.00	4.00	5.20	16.00
Q-VDF250	0	4.50	5.80	7.20	8.60	10.00
Q-VDF375	0	14.00	18.50	22.00	26.00	30.00
Q-VDF500	0	23.00	35.00	40.00	47.00	60.00
Q-VDF750	0	40.00	51.00	69.80	87.00	120.00

Vacuum Pumps & Vacuum Generators

Air Mover Style Vacuum Pumps

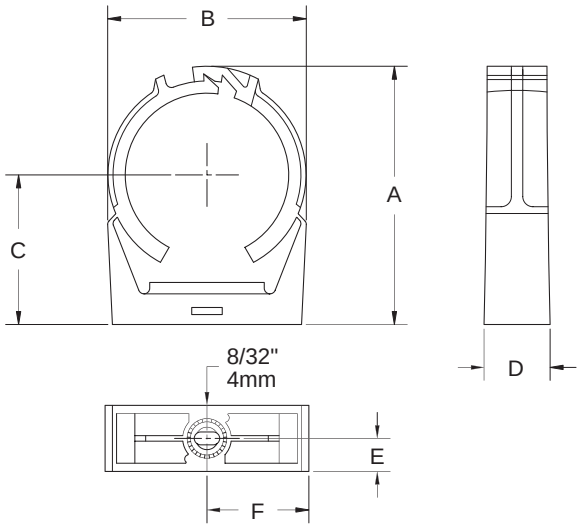


ANVER Item No.	A Barrel ID in. (mm)	B in. (mm)	C Collar Length in. (mm)	D in. (mm)	E Input	Adapter for G to NPT	F Barrel OD in. (mm)	G Collar OD in. (mm)	H in. (mm)	I Thread	J Thread
Q-VDF100	0.100 (2.5)	7/8 (22.2)	1-1/4 (31.8)	5/8 (15.9)	G1/8"	G1/8" to 1/8" NPT	3/4 (19.1)	1-1/4 (31.8)	1-1/2 (38.1)	G1/4"	G1/4"
Q-VDF150	0.150 (3.8)	7/8 (22.2)	1-1/4 (31.8)	5/8 (15.9)	G1/8"	G1/8" to 1/8" NPT	3/4 (19.1)	1-1/4 (31.8)	1-1/2 (38.1)	G1/4"	G1/4"
Q-VDF200	0.200 (5.1)	7/8 (22.2)	1-1/4 (31.8)	5/8 (15.9)	G1/8"	G1/8" to 1/8" NPT	3/4 (19.1)	1-1/4 (31.8)	1-1/2 (38.1)	G1/4"	G1/4"
Q-VDF250	0.250 (6.4)	7/8 (22.2)	1-1/4 (31.8)	5/8 (15.9)	G1/8"	G1/8" to 1/8" NPT	3/4 (19.1)	1-1/4 (31.8)	1-1/2 (38.1)	G1/4"	G1/4"
Q-VDF375	0.375 (9.5)	1-1/2 (38.1)	1-3/4 (44.5)	7/8 (22.2)	G3/8"	G3/8" to 3/8" NPT	1 (25.4)	1-3/4 (44.5)	2-3/4 (69.9)	G1/2"	G1/2"
Q-VDF500	0.500 (12.7)	1-1/2 (38.1)	2 (50.8)	1 (25.4)	G3/8"	G3/8" to 3/8" NPT	1-1/4 (31.8)	2 (50.8)	2-1/2 (63.5)	G3/4"	G1/2"
Q-VDF750	0.750 (19.1)	1-1/2 (38.1)	2 (50.8)	1 (25.4)	G1/2"	N/A	1-1/2 (38.1)	2-1/4 (57.2)	3-3/8 (85.7)	G1"	G3/4"

Vacuum System Accessories

CLAMP-P Adjustable Plastic Component Mounts

ANVER's CLAMP-P Series of Adjustable Plastic Component Mounts is ideal for the flexible, removable mounting of a wide variety of Components (Transfer Tubes, Air Movers, Mufflers, et al) quickly, easily and efficiently, with no special tools.



Part No.	Clamp's Inside Diameter Range in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)
CLAMP20P	0.77 - 0.87 (19.5 - 22)	1.59 (40.5)	1.04 (26.5)	1.00 (25.4)	0.81 (20.5)	0.40 (10.25)	0.52 (13.25)
CLAMP25P	0.98 - 1.10 (25 - 28)	1.83 (46.5)	1.28 (32.5)	1.14 (29)	0.81 (20.5)	0.40 (10.25)	0.64 (16.25)
CLAMP32P	1.26 - 1.38 (32 - 35)	2.22 (56.5)	1.58 (40)	1.38 (35)	0.85 (21.5)	0.42 (10.75)	0.79 (20)
CLAMP36P	1.42 - 1.54 (36 - 39)	2.42 (61.5)	1.95 (49.5)	1.50 (38)	0.85 (21.5)	0.42 (10.75)	0.97 (24.75)
CLAMP40P	1.57 - 1.71 (40 - 43.5)	2.60 (66)	1.89 (48)	1.58 (40)	0.85 (21.5)	0.42 (10.75)	0.95 (24)
CLAMP51P	2.01 - 2.17 (51 - 55)	3.17 (80.5)	2.42 (61.5)	1.89 (48)	0.93 (23.5)	0.46 (11.75)	1.21 (30.75)
CLAMP59P	2.32 - 2.50 (59 - 63.5)	3.56 (90.5)	2.78 (70.5)	2.13 (54)	0.93 (23.5)	0.46 (11.75)	1.39 (35.25)