Mid Series Segmented Vacuum Manifolds

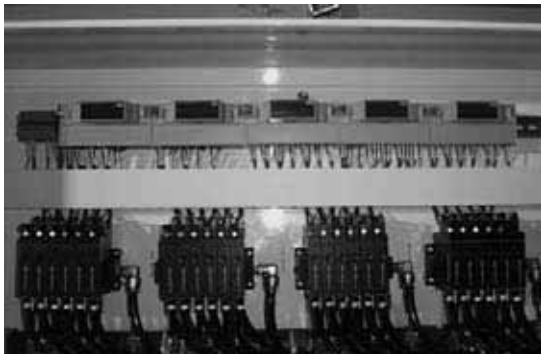
Segmented Manifold Series: VMS

Ideal Applications:

- Pick and place
- Robotic assembly
- Material handling

Features/Benefits:

- Precise control – control both the vacuum and the blow-off duration time.
- Fast response – no delay due to long plumbing lines; installs close to vacuum point
- Instantaneous vacuum as needed – minimal air consumption
- High productivity – cycle rates up to 2700/min
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No downtime
  - ~ No filters required



Flexible automation – Four, six station manifolds control an End-of-Arm Tool that configures different zones of cups to handle a wide variety of stamped metal parts. No tool change required.

VMSA3-90H-1-1-1-0

Standard Manifolds:

The VMS Mid Series Segmented Vacuum Manifolds are individual vacuum segments with a common air supply that provides independent vacuum to multiple locations.

Segments can be individually configured or they can all be the same. All segments offer integral NC solenoid control for vacuum creation. For added functionality, specify a valve for blow-off and a vacuum switch/sensor for part present/vacuum achieved feedback.

Design flexibility is further increased with our interchangeable venturi cartridge system that allows designers to optimize performance by choosing from 11 venturi cartridges. (see page 7).

Large internal flow paths allow ingested debris to pass through the segments without clogging. Push-to-connect air supply and vacuum lines save space and assembly time.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Segmented Manifold Options:

- Interchangeable Venturi cartridges – 11 different performance levels
- Miniature vacuum switches/sensors for reliable part detection/optional quick disconnects
- On-board integral control valves – 24vDC or 110vAC
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

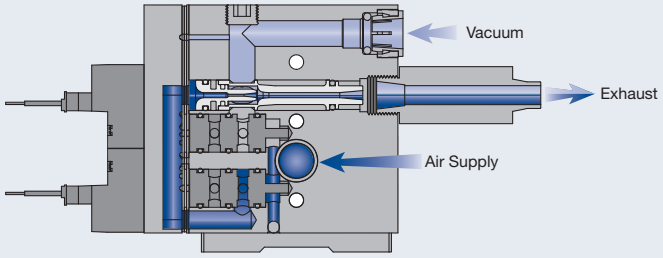
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

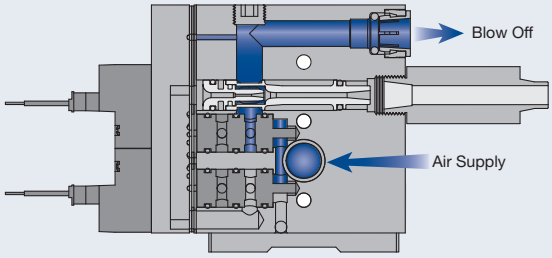
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: VMS

Compressed air is supplied to both N.C. solenoid valves simultaneously (if outfitted with blow-off function). To create vacuum, energize the first solenoid valve to allow the compressed air to flow to the venturi cartridge resulting in instant vacuum at the vacuum port.

To release the part, de-energize the vacuum solenoid while energizing the blow-off solenoid. Because the blow-off air is at line pressure a very powerful blow-off will be created.





Note: Each segment of the manifold operates independently, but uses a common air supply located on the standoff on both ends of the assembly. Both air supply ports may be used if the number of pump segments requires more volume.

VMS Manifold Segment Standard Specifications:

Body Material:	Anodized Aluminum, Buna-N, Brass, Acetal (For silencer material, see page 236)
Cartridge Material:	Nylon, Buna-N (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-23°~122° F [-5°~50°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Pilot Valve Specifications

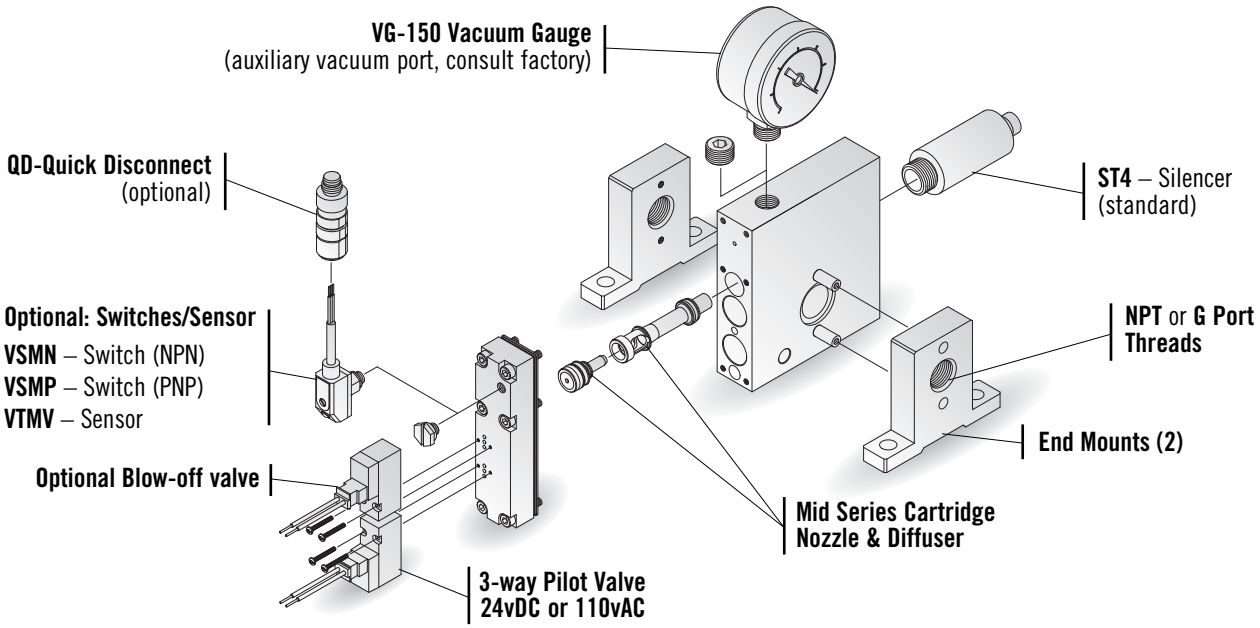
Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material:	Copper, Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	45 cycles per second
Electrical Connection:	2 pole plug-in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

VMS Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	3/8" O.D. [10mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF250F. See page 282.	
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VMS Segmented Manifold Mid-Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to specify segments with the same options:

To order a 5 station manifold with all segments configured the same, specify the total number of segments first and then the letter "A" for "all the same."

Segment 1: **VMS 5 A - 60 H - 0 - 0 - 0 - 0**

How to specify segments with different options:

Segment numbers are left to right when facing the vacuum port. Please see next page.

To order a 3-station manifold with different configurations, specify the total number of segments after "VMS"and then list each line separately.

How to Specify:

Segment 1: **VMS3 - 1 - 60 H - 1 - 0 - 0 - 1**

Segment 2: **VMS3 - 2 - 90 M - 1 - 1 - 0 - 1**

Segment 3: **VMS3 - 3 - 100 H - 1 - 0 - 0 - 1**

P/N	Thread
VMS	NPT
I-VMS	G-Port

P/N	Segments
(1-10) A	Total number of segments, followed by "A" – all segments the same.
1	Segment 1
2	Segment 2
3	Segment 3

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Switch/Sensor
0	None (Standard)
1	VSMN – Switch NPN
2	VSMP – Switch PNP
3	VTMV – Sensor
4	VSMN-QD Switch w/Quick Disconnect
5	VSMP-QD Switch w/Quick Disconnect
6	VTMV-QD Sensor w/Quick Disconnect 0-5VDC Output

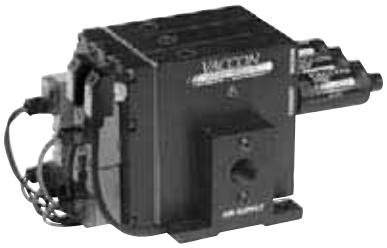
P/N	Blow-off
0	None (Standard)
1	Full

P/N	Operating Pressure
0	80 PSI [5.5 BAR] (Standard)
1	60 PSI [4.0 BAR]

P/N	Valve Voltage
0	24vDC
1	110vAC

For complete Performance Data, see page 148.

Standard Manifold: VMS(#) – (60, 90, 100, 150) (L, M, H)

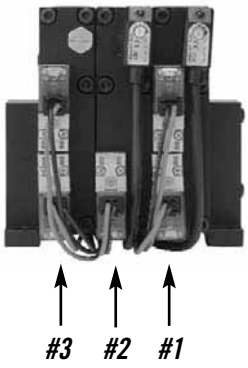


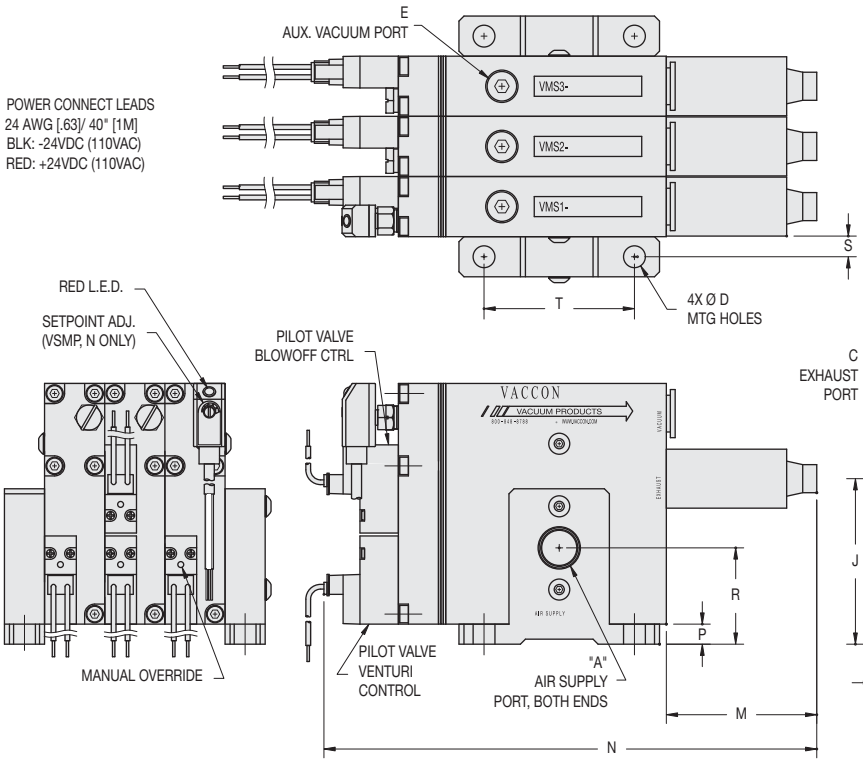
3 Station Manifold – VMS3 with options:

Segment 3 includes blow-off/no sensor

Segment 2 includes sensor/no blow-off

Segment 1 includes blow-off and sensor





Manifold segments are defined from left to right when facing the vacuum port.

Specifications:

Segment Weight	11.5 oz [326g]
End Mounts	3.8 oz [108g]
Noise Level	66 dB

Model #	Imperial Dimensions (in.)															
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
VMS	1/4 NPT	3/8 PTC*	1/4 NPT	0.27	1/8 NPT	0.75	0.50	2.06	2.87	3.25	1.88	6.14	0.25	1.20	0.25	1.88
Model #	**Metric Dimensions (mm)**															
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
I-VMS	G 1/4	10mm	G 1/4	6.9	G 1/8	19.1	12.7	52.4	73.0	82.6	47.6	156.0	6.4	30.5	6.4	47.6

*PTC – Push-to-connect fitting is standard. Consult factory for 1/4" NPT (G 1/4) threads.