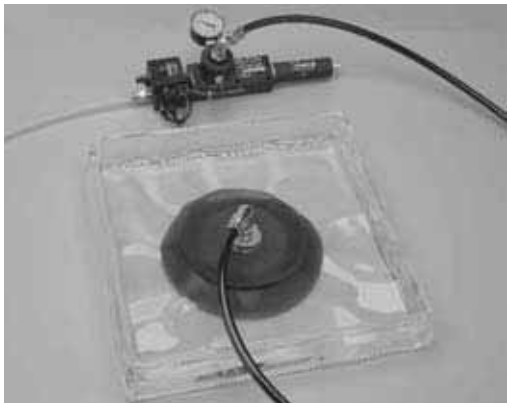
FastVac Pumps with Air Saver Technology

On-Demand Vacuum – Saves Air – Safe Operation

Mid and Max Series Venturi Pumps



Air Saver pumps safely handle non-porous products i.e. glass handling operations

VP80-200H-AS

Ideal Applications:

- Pick and place
- Press transfer lines – load and unload
- Vacuum clamping and chucking
- Vacuum bagging
- Vessel evacuation
- Vacuum forming

Features/Benefits:

- Powerful vacuum up to 28"Hg [948mbar] – rapid evacuation
- Energy efficient – compressed air on only when needed, automatic shut-off
- Intrinsically safe to operate – all pneumatic – no electricity required
- High vacuum flows provide dependable vacuum holding force
- Reliable – operates trouble free:
  - ~ No moving parts to wear or clog
  - ~ No maintenance
  - ~ No downtime
  - ~ Quiet

Standard Pump:

Vaccon's Air Saver Pumps are an all-pneumatic system that minimizes compressed air usage by creating, monitoring and maintaining vacuum for safe energy efficient operations.

For pick and place applications handling non-porous materials, the Air Saver pumps will maintain a strong holding force, conserve compressed air, and hold the part even if the compressed air supply is interrupted providing an extra level of safety when handling large loads.

For vessel evacuation applications such as wood and composite clamping, Air Saver pumps maintain vacuum for long periods of time and only consume compressed air to overcome system leaks resulting in 90% air savings.

The system includes a venturi vacuum pump, vacuum check valve, air piloted air valve and all-pneumatic vacuum switch. The switch is adjustable from 0 to 28"Hg [948mbar] and the hysteresis is 3"Hg [102mbar].

Performance Level Designations:

"**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

Pump Options:

- Interchangeable venturi cartridges – 8 different performance levels – VP20-AS only
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] option

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**

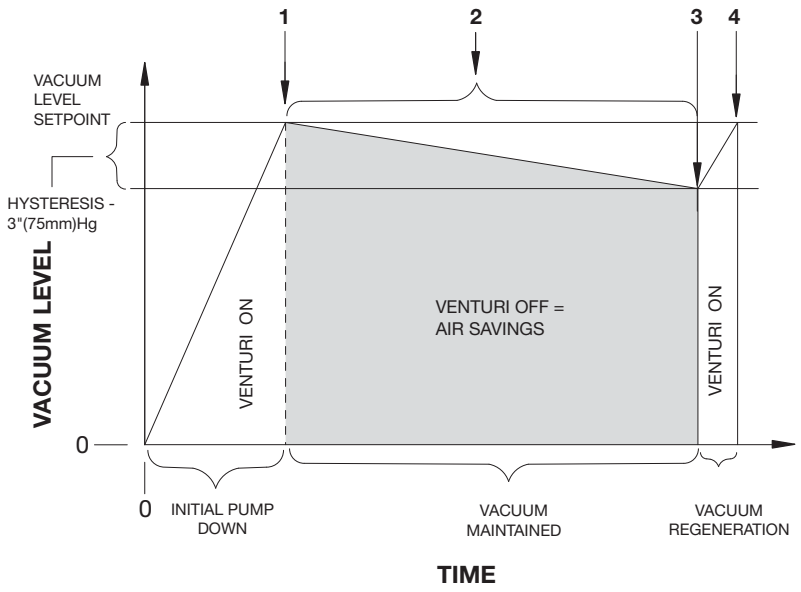
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: Air Saver Pumps

The pneumatic vacuum switch is the brain within the Air Saver system. It constantly monitors and controls the vacuum level as required based on customer specifications. Minimizing leaks in plumbing lines and connections extends the "venturi off" cycle and maximizes air savings. Below is a brief overview of the air saver cycle.

Determine the maximum vacuum level desired, then adjust the switch to the vacuum level setpoint.

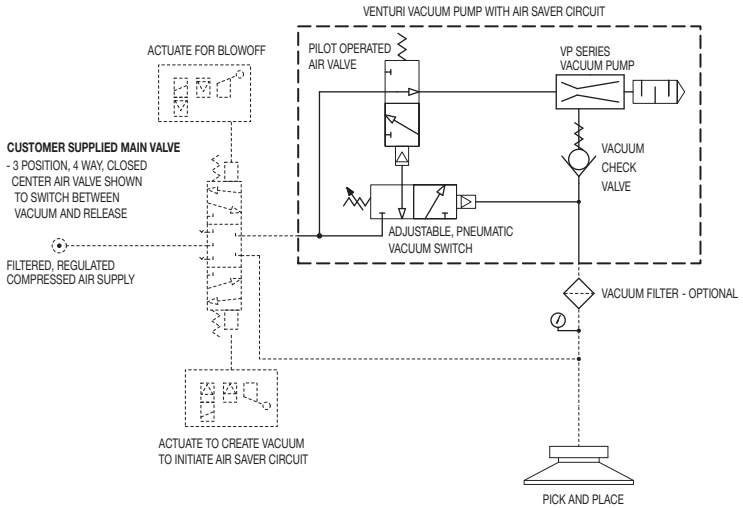
1. Once the vacuum level set-point is reached, the switch turns the pump off, stopping the flow of air to the venturi – air savings.
2. The integral check valve maintains the vacuum level.
3. Should there be a leak and the vacuum level decrease (Hysteresis 3"Hg [102mbar]), the pneumatic switch automatically re-energizes the venturi to bring the system back to the pre-set vacuum level set-point.
4. Then the switch de-energizes the venturi pump, (stopping the flow of air to the venturi – air savings) and the air saving cycle starts again.



Although compressed air savings will vary by application and system design, typically Vaccon Air Saver pumps will achieve a 90% energy cost savings.

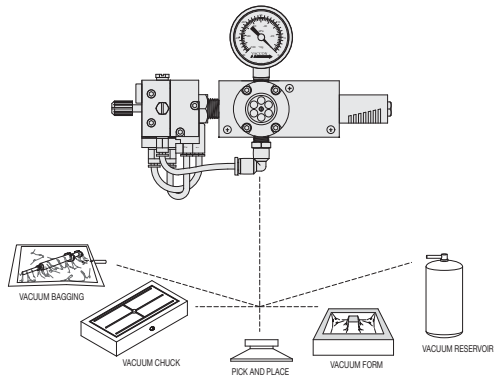
Vaccon Air Saver Circuit for Pick & Place/Part Release Applications

System Schematic with 3 Position Closed Center 4 Way Valve



Design Tip: For applications requiring a gentle part-release, cycle the blow-off valve for a short duration time. For applications requiring a rapid blow-off, cycle the valve for a longer duration.

Sizing an Air Saver Pump



To select a pump:

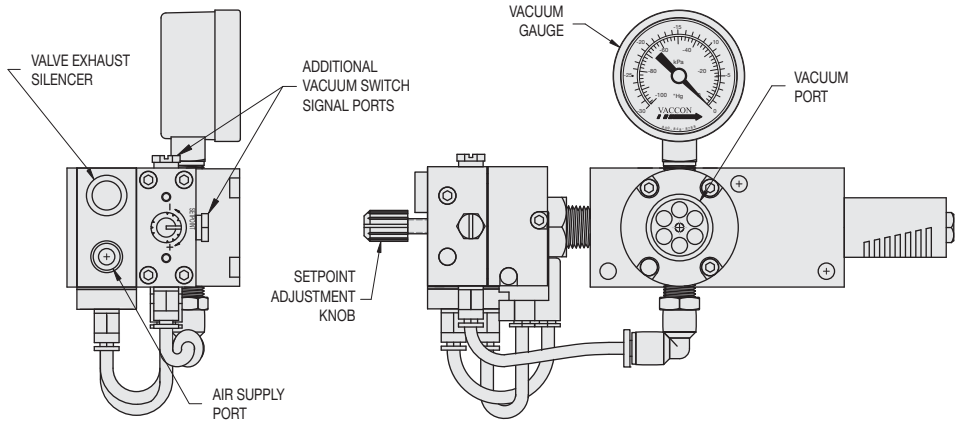
1. Determine the desired evacuation time (speed)
2. Calculate the total volume of air to be evacuated in the system including vacuum lines, vessel/cavity size, cups, etc.
3. Determine the desired vacuum level, "Hg/mbar

   Application ex.: Evacuate 2 cu.ft. of air in 1 minute (60 sec) at a vacuum level of 21"Hg

   Formula: Time (60 sec)/Cu. ft (2) = 30 seconds per cu.ft. (evacuation speed)

Consult pump Performance Data beginning on page 148. Under the evacuation time chart, look for 21" Hg and find the evacuation time that is closest to 30 seconds. In this example, a VP80-200H would be the best model with an evacuation time of 20 seconds.

Standard Air Saver Circuit Schematic: VP20-AS Pump Shown

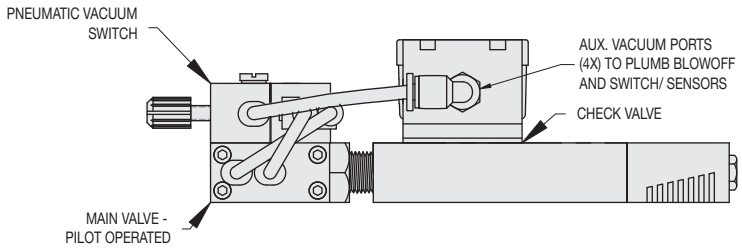


On-line Configurator and CAD Drawings @ www.vaccon.com

New powerful design tool saves you time by configuring the pump you need on-line.

When complete, simply download the CAD drawing in any one of 13 different CAD formats and insert it right into your design.

Get the pump you need, in the format you like!



All Air-Saver Pumps pumps are Fractional and Metric T-Slot compatible.

How to Specify:

VP20 - 100 - H - ___ - AS

P/N	Thread
VP20	NPT
I-VP20	G-Port
VP80	NPT
I-VP80	G-Port
VP90	NPT
I-VP90	G-Port

P/N	Max. Flow Level	
-60	(VP20 only)	
-90	(VP20 only)	
-100	(VP20 only)	
-150	(VP20 only)	
-200	(VP80 only)	
-250	(VP80 only)	
-300	(VP90 only)	
-350	(VP90 only)	80 PSI only

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
-60	60 PSI [4.1 Bar]

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

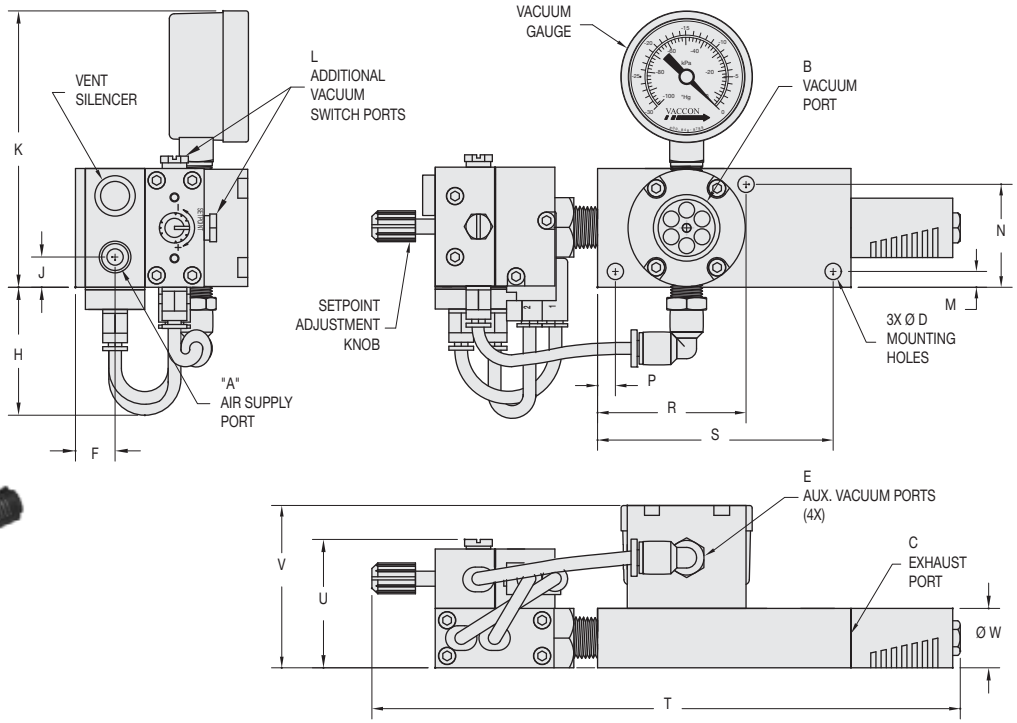
For complete Performance Data, see page 150.

Standard: VP20-(60, 90, 100, 150) (M, H) -AS Pump

Specifications:

Weight 15 oz [425 g]
Noise Level 64 dB

VP20-100H-AS



Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP20-AS	1/8 NPT F	1/2 NPT F	1/4 NPT F	0.21	1/8 NPT F	0.50	1.62	3.82	3.49	10-32 F	0.20	1.30	0.23	1.88	2.95	7.43	1.62	2.05	0.75
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP20-AS	G 1/8	G 1/2	G 1/4	5.2	G 1/8	12.7	41.1	97.0	88.6	M5	5.1	33.0	5.7	47.6	74.9	188.7	41.2	52.1	19.1

Air Saver Pump Standard Specifications:

Pump Body Material: Anodized Aluminum (For silencer material, see pages 233-236)
Cartridge Material: VP20- Nylon, Buna-N O-Ring, VP80's & 90's – Aluminum
Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -30°~250° F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

Air Saver Operating and Installation Instructions:

Supply Line & Vacuum Line – VP20: 60 & 90 Cartridges = 1/4" O.D. [6mm] tube recommended
100 & 150 Cartridges= 3/8" O.D. [8mm] tube recommended

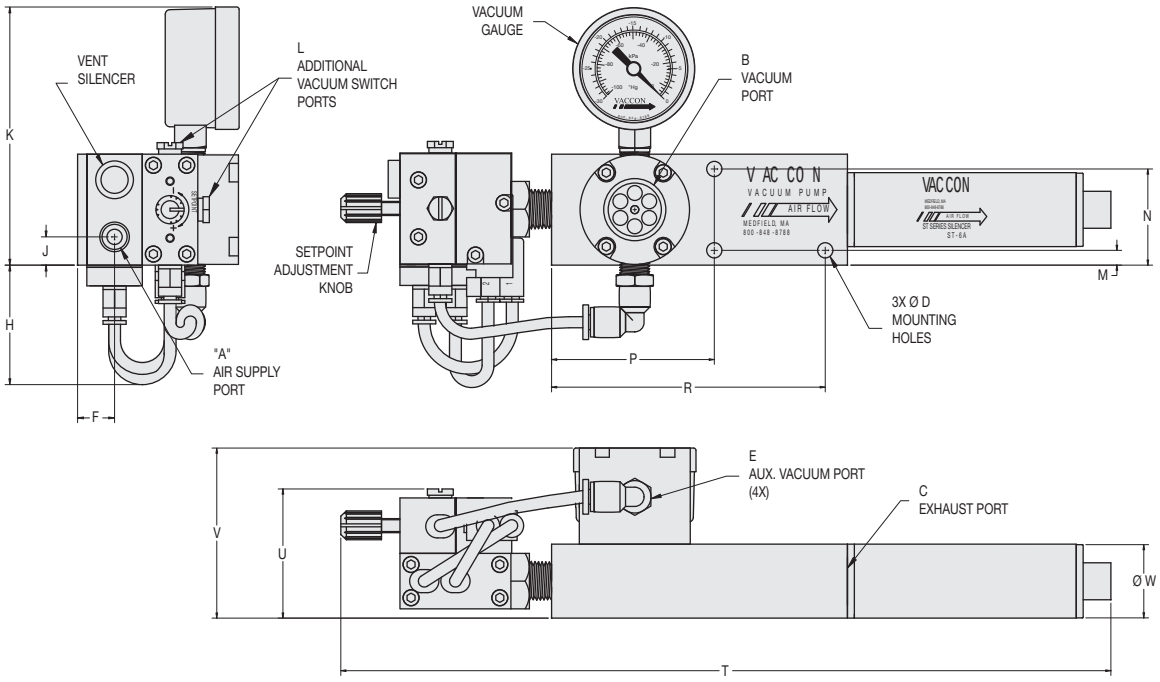
VP80: 80-200 = 3/8" O.D. [10mm] tube preferred
80-250 = 1/2" O.D. [12mm] tube preferred

VP90: 90-300 & 90-350 Cartridges – minimum = 1/2" O.D. [12mm] tube preferred

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends (see page 282):
VP20's = VF125LPM or VF250F
VP80's = VF375F
VP90's = VF500F

Mounting Holes: Mounting holes accept 10-32 [M5] screws

VP80-200 (M, H) -AS Pump



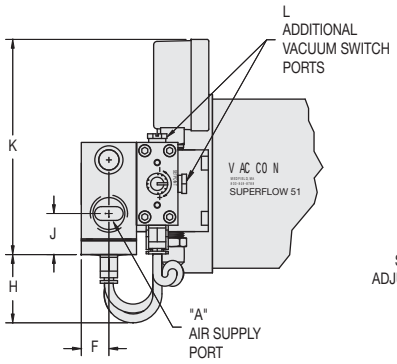
VP80-200M-AS

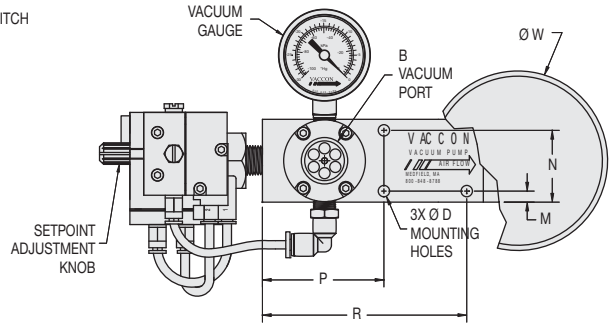
Specifications:

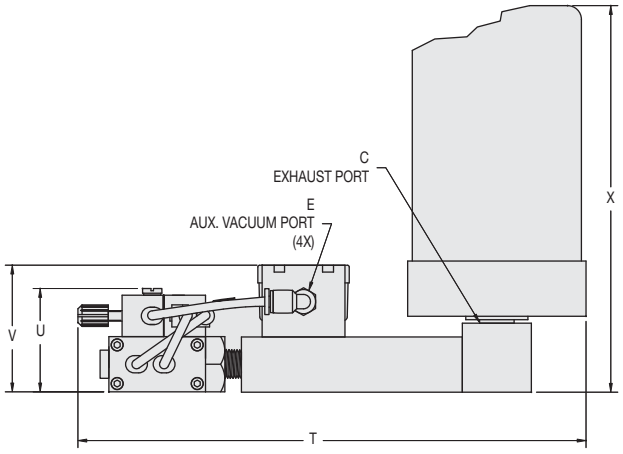
Weight 1 lb 5 oz [595g]
Noise Level 72 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP80-200-AS	1/8 NPT F	1/2 NPT F	3/8 NPT F	0.21	1/8 NPT F	0.50	1.62	3.82	3.49	10-32 F	0.20	1.30	2.20	3.70	N/A	10.41	1.75	2.30	1.00
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP80-200-AS	G 1/8	G 1/2	G 3/8	5.2	G 1/8	12.7	41.1	97.0	88.6	M5	5.1	33.0	55.9	94.0	N/A	264.5	44.3	58.4	25.4

Standard VP80-250 (M, H) -AS Pump







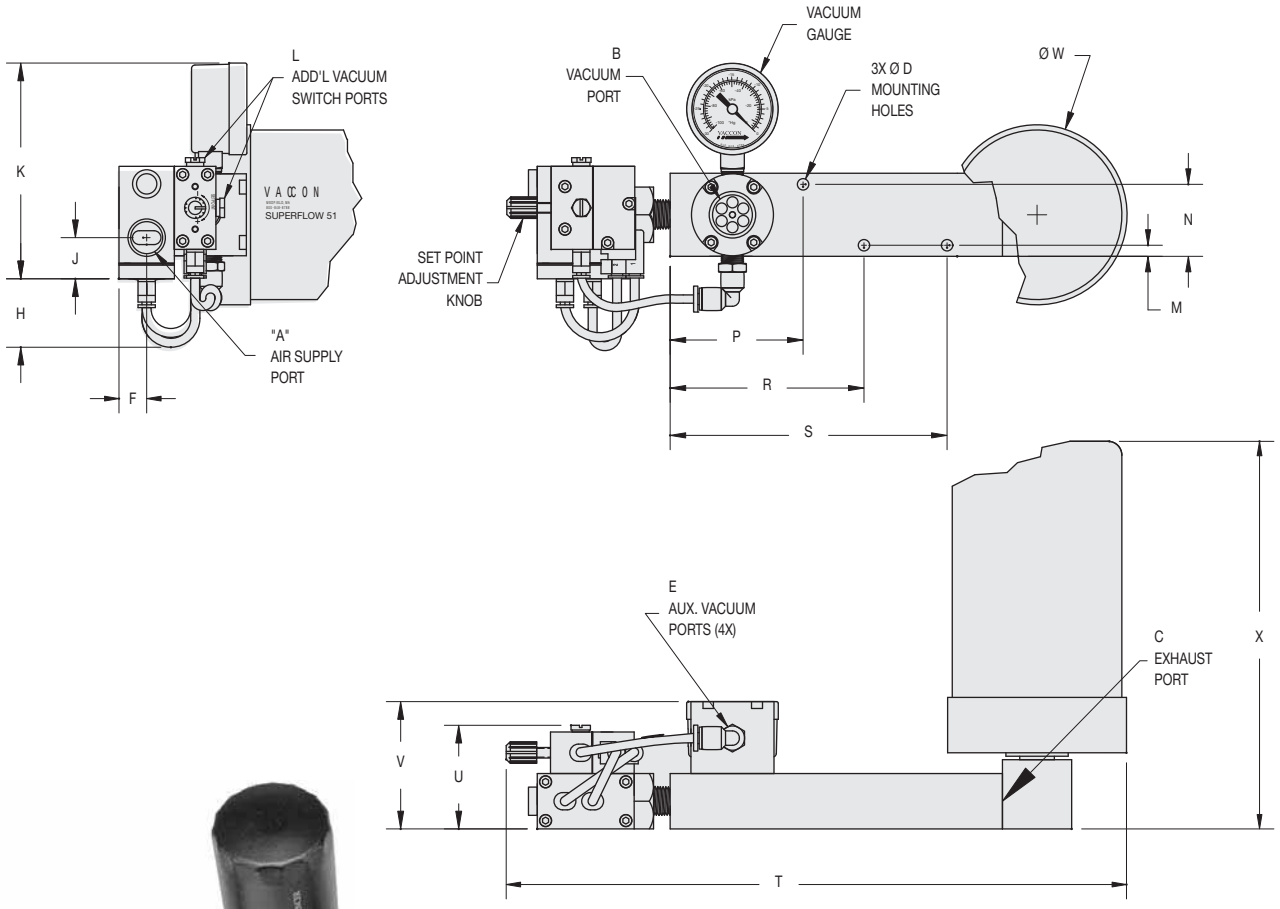
VP80-250H-AS

Specifications:

Weight 2 lb 4 oz [1021 g]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP80-250-AS	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	1/8 NPT F	0.50	1.26	0.74	3.90	10-32 F	0.20	1.30	2.20	3.70	N/A	9.20	1.87	2.30	3.23	7.00
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP80-250-AS	G 3/8	G 1/2	G 1/2	5.2	G 1/8	12.7	32.0	18.9	99.0	M5	5.1	33.0	55.9	94.0	N/A	233.7	47.5	58.4	82.0	177.8

Standard: VP90-300 or 350 (M, H) -AS Pump



VP90-350H-AS

Specifications:

Weight 2 lb 9 oz [1162 g]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP-90-300/350-AS	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	1/8 NPT F	0.50	1.24	0.74	3.90	10-32 F	0.20	1.30	2.40	3.50	5.00	11.20	1.87	2.30	3.23	7.00
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP-90-300/350-AS	G 3/8	G 1/2	G 1/2	5.2	G 1/8	12.7	31.4	18.9	99.0	M5	5.1	33.0	61.0	88.9	127.0	284.5	47.5	58.4	82.0	177.8