

Model Number 420TAAV090

Air/Gas Pressure Booster



The Model 420TAAV090 air/gas pressure booster system uses shop air to boost the pressure of an air or gas stream. The drive air piston reciprocates automatically and drives the gas compressor piston. The booster is non-lubricated and uses filled Teflon® piston seals and rod seals. It requires no electricity, cooling water, or air-line lubricator and is explosion proof.

The maximum discharge pressure (MDP) is equal to piston area ratio in combination with the drive air pressure (DA) and process gas (PG) pressure. The maximum discharge pressure equation is listed below.

$$(10.8 \times DA + 3.1 \times PG) / 1.4 = MDP$$

The graphs which follow show the maximum flowrate capability for a range of air and gas supply pressures and discharge pressures.

The boosted gas flowrate and discharge pressure can be controlled by throttling the drive air flowrate and/or regulating the drive air pressure. When there is no demand for high pressure gas, the booster stalls when it reaches the maximum discharge pressure. When there is a need for high pressure gas the pressure in the discharge line drops which causes the booster to restart automatically.

10:1 Maximum boost ratio

Shop air driven

No electricity is required

Explosion proof

Aluminum construction

Stainless steel hardware

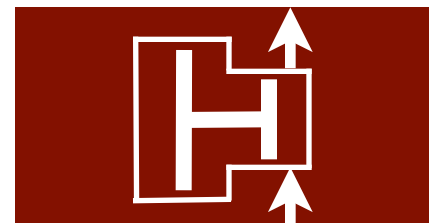
MPS
MIDWEST
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SYSTEMS

Midwest Pressure Systems, Inc.

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Model Number 420TAAV090		
Process Cylinder Specifications	Bore diameter & stroke - in (mm)	2 (50.8) & 4 (102)
	Maximum gas discharge pressure - psi (bar)	1,305 (90)
	Gas temperature range - °F (°C)	-15 to 250 (-26 to 121)
	Maximum recommended cycle rate - cpm (Note 1)	100
	Gas displacement per cycle - cf (l)	0.0073 (.207)
	Maximum gas displacement - cfm (lpm)	.73 (20.7)
	Maximum Pressure boost (multiple of drive air pressure)	9
	Gas inlet and discharge connection FNPT	1/4
Seal vent connections FNPT	1/8	
Drive Cylinder Specifications	Bore diameter & stroke - in (mm)	4 (102) & 4 (102)
	Maximum drive pressure - psi (bar) (Note 2)	125 (8.6)
	Air temperature range - °F (°C)	32 to 167 (0 to 75)
	Air displacement per cycle - cf (l)	0.054 (1.53)
	Maximum air displacement - cfm (lpm)	5.4 (153)
	Drive air inlet connections FNPT	1/2
	Drive air exhaust connections FNPT	1/2

Note 1:

A cycle consists of a forward and reverse stroke.

Note 2:

Nitrogen or clean inert gas may also be used for the drive gas.

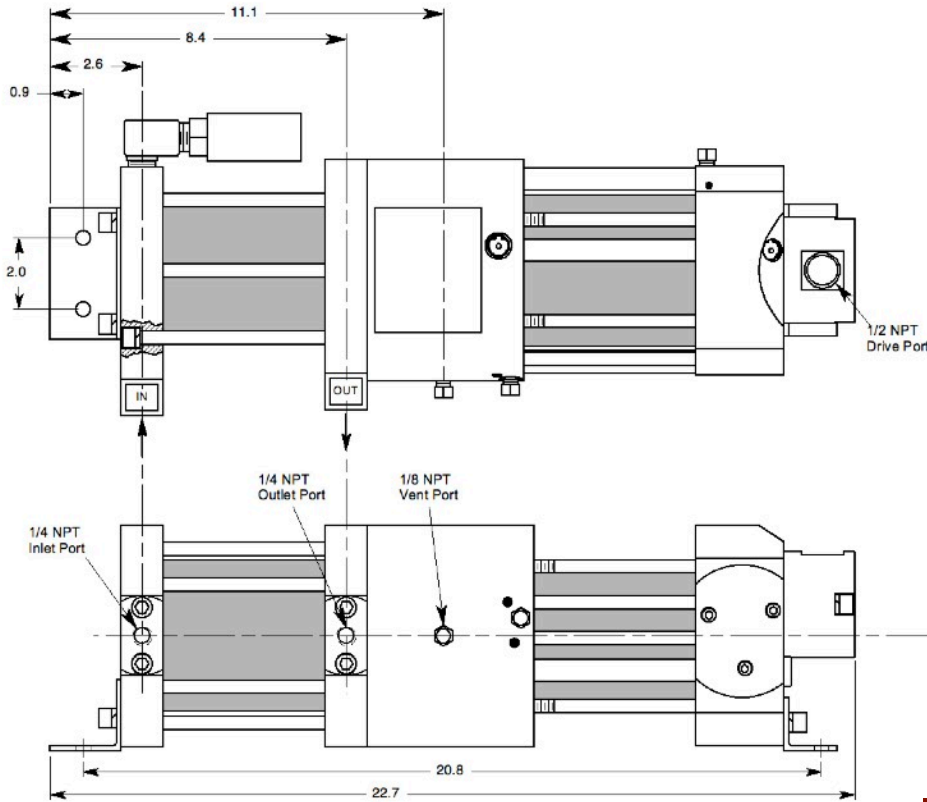
OPTIONS

-AC

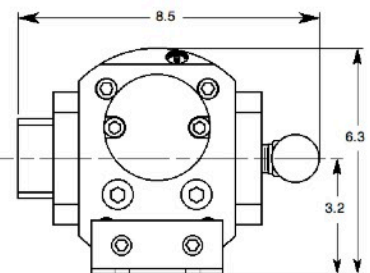
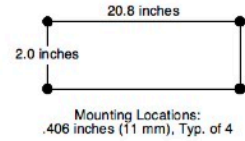
Air controls for air pressure booster consisting of filter, pressure regulator, drive pressure gauge, shutoff valve and boost air connection.

-ACG

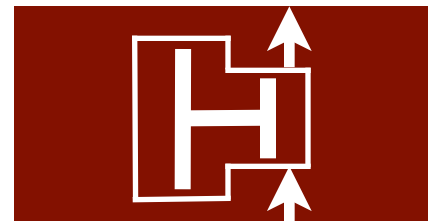
Air controls for gas pressure booster consisting of filter, pressure regulator, drive pressure gauge and shutoff valve.



All dimensions are in inches
Approximate weight of 31 Lbs.

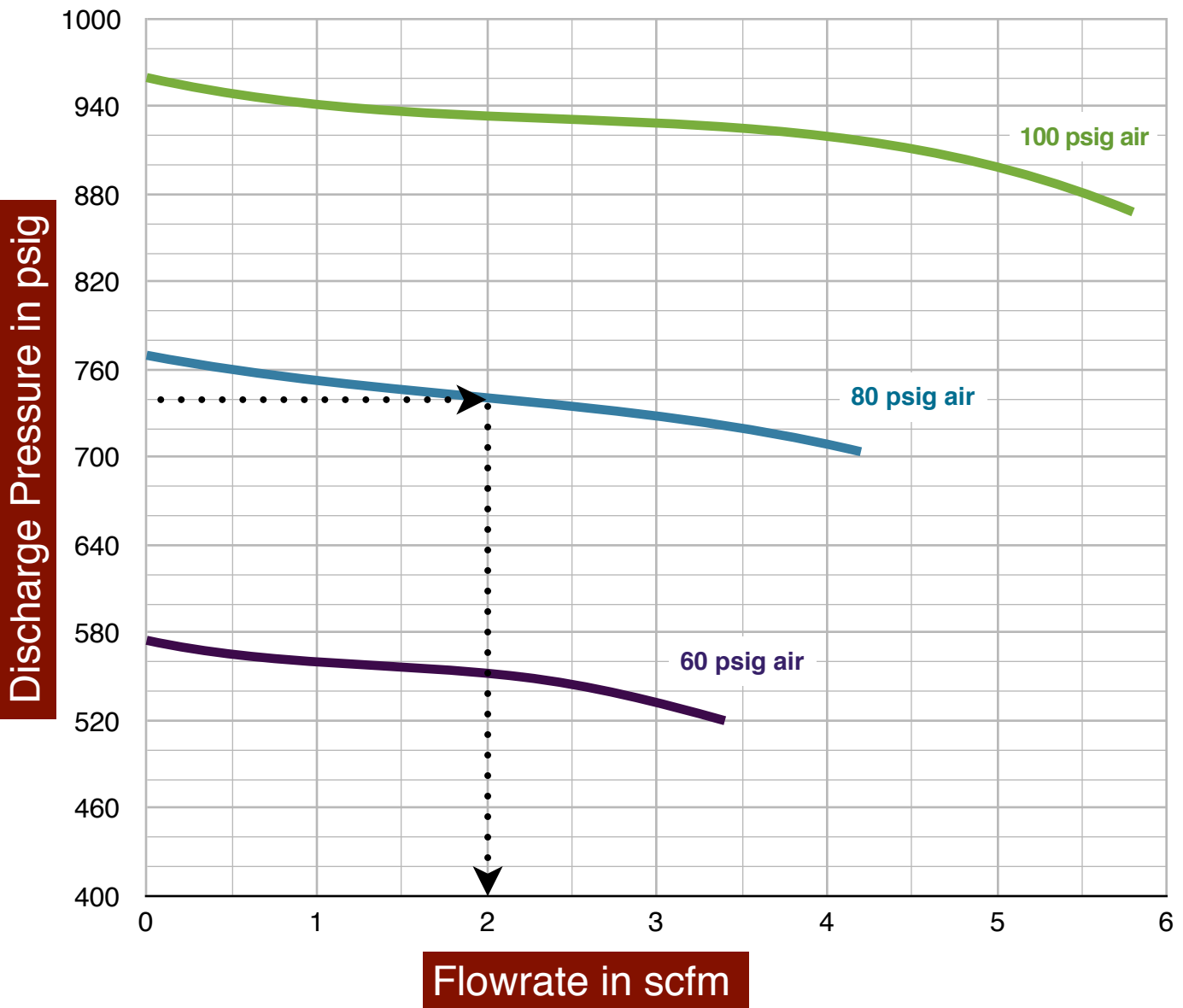


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Shop Air Pressure Boosting

Drive air pressure and supply pressure are the same



Use the curves above to determine Model 420TAAV090 air/gas pressure booster's maximum discharge flowrate for a given set of operating conditions. In the example shown above, a maximum discharge pressure of 740 psi is desired and an 80 psig supply is available. Follow the 740 psi line until it intersects with the 80 psig supply

curve. Draw a vertical line from the intersection down to the bottom line to determine the maximum flow rate of 2.0 SCFM. The booster can operate at any flowrate from zero to the maximum flowrate. It will automatically adjust its operating speed as long as the required flowrate is in this range.

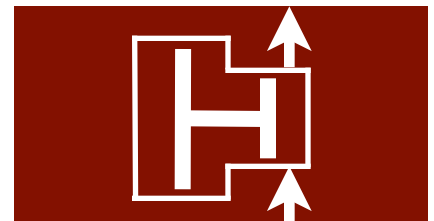


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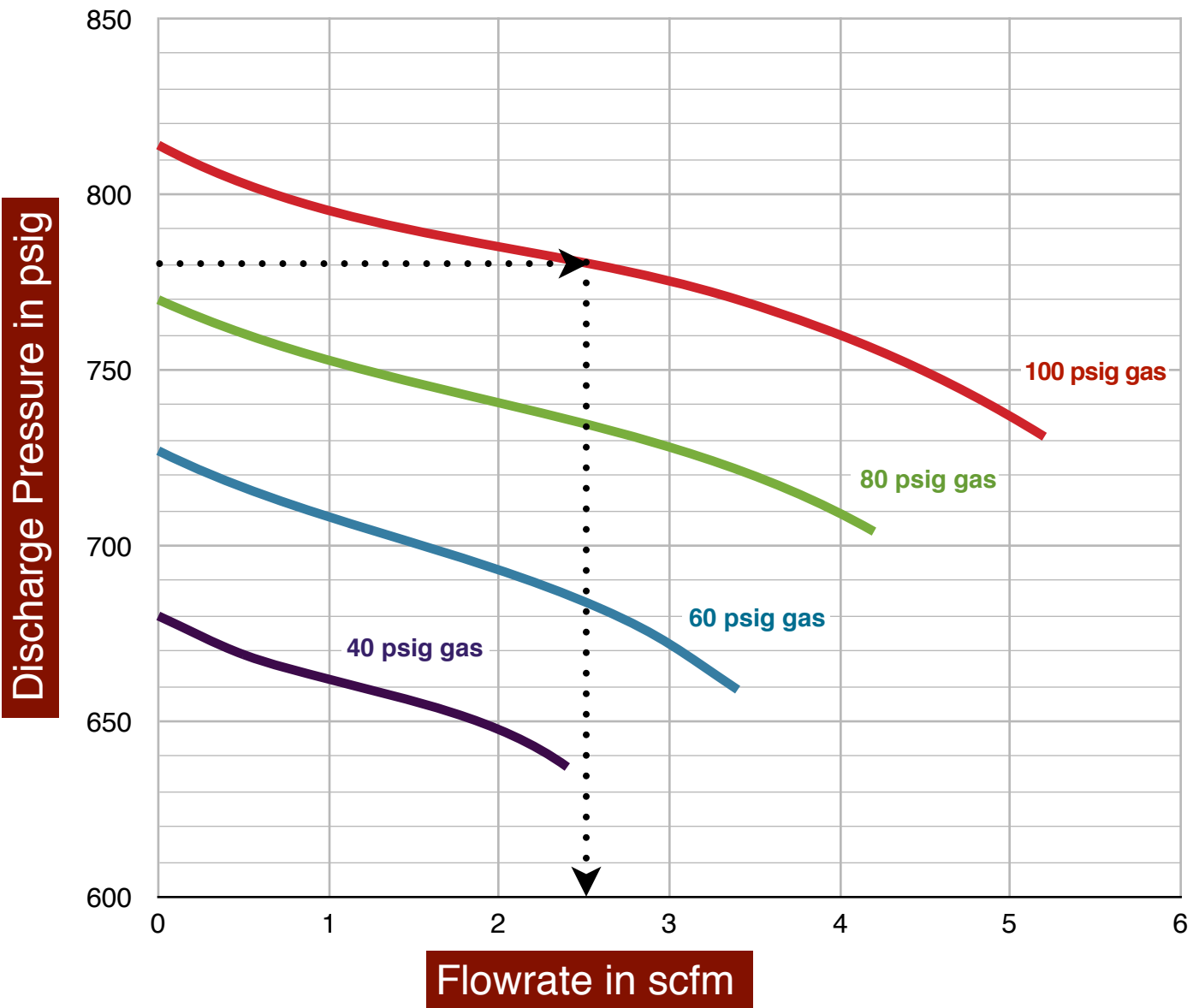
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Gas Pressure Boosting

Drive air pressure is 80 psig - Gas supply pressures from 60 to 100psig



Use the curves above to determine Model 420TAAV090 air/gas pressure booster's maximum discharge flowrate for a given set of operating conditions. In the example shown above, a maximum discharge pressure of 780 psi is desired. Note that the drive air pressure is 80 psi for all points on the curve. With a gas supply pressure of 100 psig is available. Follow the 780 psi line until it

intersects with the 100 psi gas supply curve. Draw a vertical line from the intersection down to the bottom line to determine the maximum flow rate of 2.5 SCFM. The booster can operate at any flowrate from zero to the maximum flowrate. It will automatically adjust its operating speed as long as the required flowrate is in this range.



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