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OPERATION MANUAL

M40

Pneumatic Precision Regulator for huge flows

*** VERSION 1.0 ***
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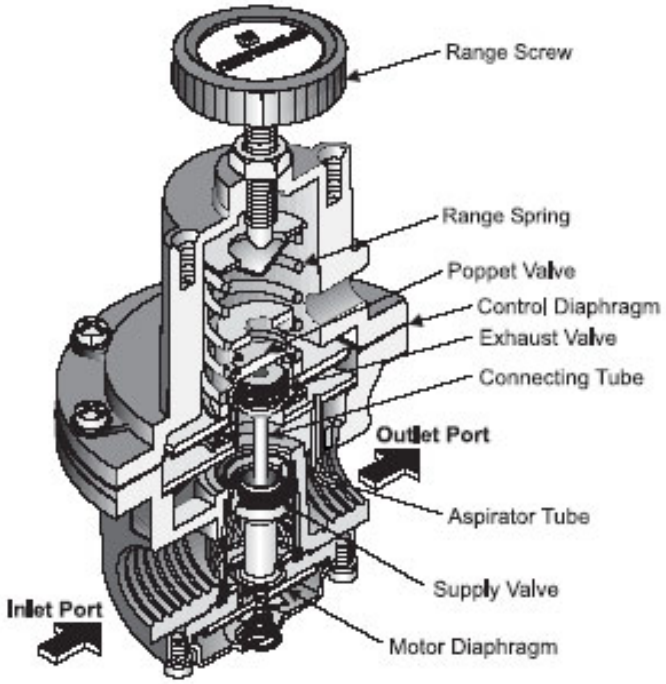
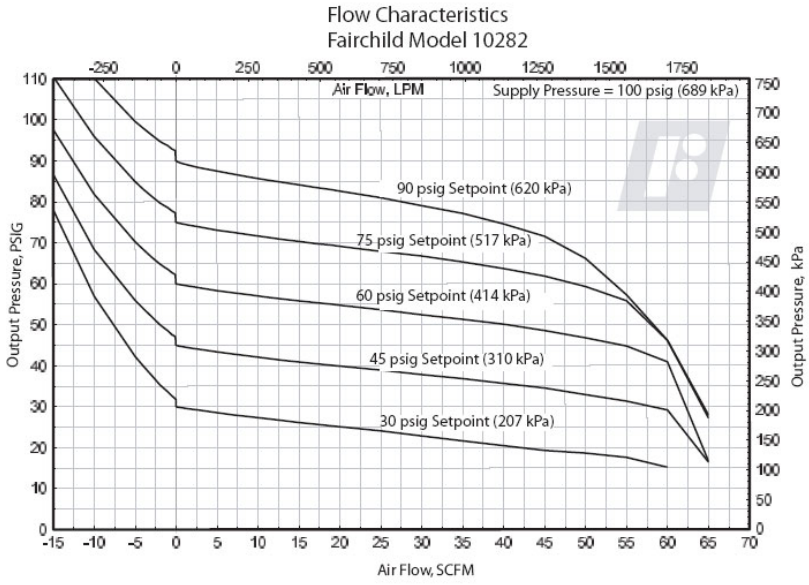
GENERAL INFORMATION

- Control sensitivity of 0,2 % F.S. allows use in precision processes
- Pressure balanced supply valve prevents supply pressure changes from affecting the set point.
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- An aspirator tube compensates downstream pressure droop under flow conditions.
- Canadian Registration Number (CRN) certification for all territories and provinces.



Model 40 Series Regulator Detail Drawing



OPERATING PRINCIPLES

The M40 pneumatic precision regulator is a direct acting proportional regulator for overpressure with control ranges of 0,035 to 17 bar and flow ranges of 4200 Sl/min at 7 bar primary pressure. Between the spring-diaphragm-system and the counteracting output pressure arises a force balance, which keeps the outlet pressure almost constant for large input pressure changes. This is supported by the continuous bleeding of a small amount of air through a relief valve, which prevents the regulator from friction caused pausing. In addition to small pressure dependency the regulator therefore shows high control sensitivity and fast response behaviour.

SPECIFICATIONS

Pressure Control Ranges

Upper Limits of Output or Set –Point Pressure:	0,7 / 2 / 4 / 10 / 17 bar
Input or Primary Pressure:	> 150 % F.S. (max. 18 bar)

Response Behaviour

Response Sensivity:	1/2" Water Column
Supply Pressure Effect:	Less than 7 mbar @ 7 bar change in supply pressure

Operating Conditions

Input Pressure:	0 to 18 bar over pressure
Temperature:	Operation: -20 … +70°C Storage: -40 ... + 90°C
Humidity:	0 ... 90 % R.H. (non-condensing)
Medium:	Air

Media Compatibility

Clean, dry, oil-free air; humidity non-condensing.

Flow Behaviour

Air Mass Flow at 7 bar Primary Pressure and 1,5 bar Set-Point Pressure: 4200 Sl/min

Exhaust Capacity with Output Pressure 0,35 bar over Set Point Pressure 1,5 bar: 1100 Sl/min

Approximated flows with fully opened valve for standard cond. (1013mbar abs, 0 °C, 0% R.H.) .

Enclosure

Dimensions	Knob Height incl.:	115 x 205 mm (ØxH)
Material	Housing:	Aluminium, anodised
	Control Knob:	Plastic
	Valve Assembly:	Zinc-plated steel, brass
	Diaphragm:	Buna-N auf Dacron
Weight:	Total:	≈ 1000 g

Process Connections

Pressure	Standard:	3/8“i NPT (2 x)
	Optional:	1/2“i NPT (2 x) **or** 3/4“i NPT (2 x)
Manometer:		1/4“i NPT (2 x)

Mounting Options

Pipe- or panel mounting. Installation through mounting brackets regard below.

INSTALLATION

Clean pipe lines to remove dirt and scale before installation is made. Apply minimum amount of pipe compound to male threads of air line to avoid possibility of getting compound into regulator. Install regulator in air line, body is fitted with a 3/8” NPTi (Standard), 1/2“ NPTi or 3/4“ NPTi (Optional) for inlet and outlet connections. Regulator can be mounted in any position without affecting its operation. Inlet and outlet connections are labeled (look for arrows denoting direction of flow on underside of unit) and should be tightened securely. Avoid undersized fittings that will limit flow through the regulator and cause pressure droop downstream. The use of a filter to remove dirt and entrained liquid in the air line ahead of the regulator is recommended for best performance. If an air line lubricator is used , it should be located downstream beyond the regulator in order to avoid interference with the regulator performance.

NOTICE

The presence of certain diester oils in the airlines may hasten deterioration of the elastomers and thus decrease the useful life of this unit.

ADJUSTMENTS

No field adjustments are necessary.

OPERATION

Relieve pressure on range spring before putting regulator into service for the first time. Turned in a clockwise direction, the screw compresses the range spring causing increased output pressure. For decreased output pressure turn the screw counterclockwise.

MAINTENANCE

The Regulator is easily disassembled for the occasional cleaning or removal of foreign matter. Before this is done, however, shut off valve upstream of the regulator to prevent escape of air when regulator is disassembled. There is no need to remove the regulator from the pipe line, remove the two screws on the bottom of the unit and pull out the inner valve assembly. Wash inner valve assembly with solvent exercising care to avoid damaging diaphragms and valve facings. Replace assembly carefully. The vent hole in the bonnet should be kept clear. The adjusting screw should be lubricated with Molycote type “G” grease.

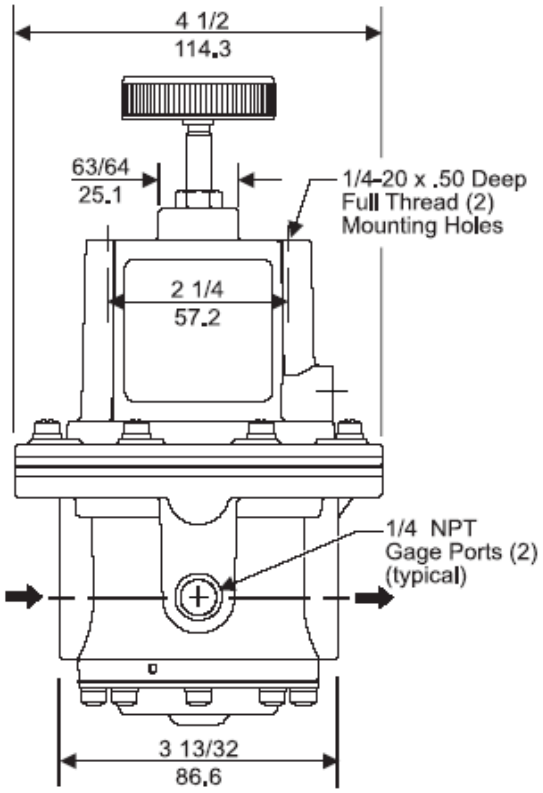
CAUTION

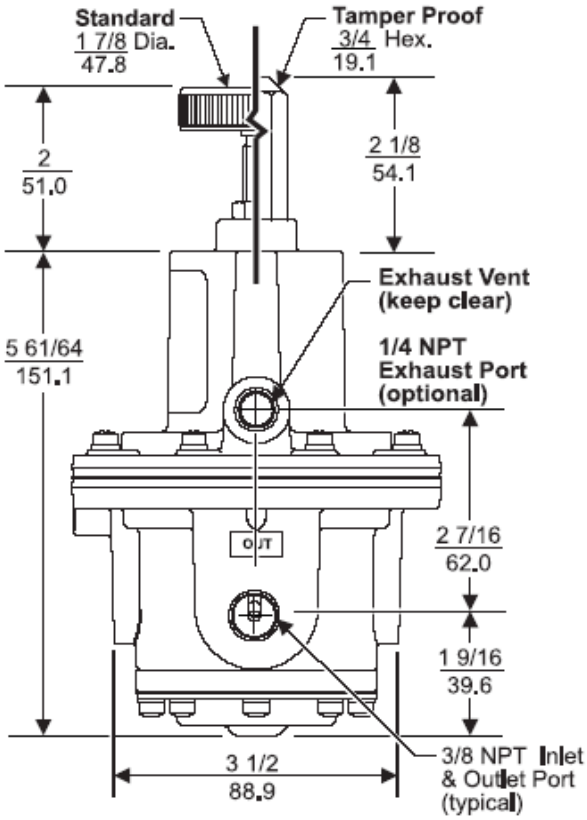
(Avoid such solvent as acetone, carbon tetrachloride, trichlorethylene)

TROUBLE SHOOTING

Problem	**Check**
Leakage	Body screw thightness Diaphragm
High Bleed	Relief pintle and relief seat for damage or contamination
Difficult to Adjust	Adjusting screw and ball Seal ring lubrication

DIMENSIONS





Mounting Bracket
Out off Zinc plated steel (sold separately) or
316 Stainless steel (sold separately)