

## RM-Series Volume Boosters



- ◆ Diaphragm type pilot operated regulator
- ◆ High relief flow
- ◆ Flows up to 550 SCFM
- ◆ Outlet pressure up to 300 psig
- ◆ Vacuum service
- ◆ Rapid response option available

### DESCRIPTION

RM-series volume boosters are diaphragm operated, air piloted, self-venting regulators. They are designed for general applications that require superior pressure regulation, rapid response to changing flow demands, and excellent stability. Using QB, BB, or MM series pressure controllers in conjunction with the RM-series volume booster gives a precision pressure control package with high forward and reverse flow capacity. If faster response is required, the RM-series can be modified with a special reduced volume bonnet. The RM-series volume boosters can also be used in vacuum applications where high flow and precise vacuum control is required.

### OPERATION

Proportion-Air pilot is used to introduce pressure into the pilot chamber of the RM-SERIES volume booster. This pilot pressure causes the main valve to open introducing a downstream pressure. The downstream pressure acts under the diaphragm of the volume booster and when the pressure under the diaphragm is approximately equal to that acting above the diaphragm, the valve will close and the desired output pressure will be achieved. Should downstream pressure exceed the desired regulated pressure, the excess pressure will cause the diaphragm to move upward, opening the vent hole sealed between valve stem and diaphragm, venting the excess pressure to atmosphere out the exhaust port.

### **WARNING**

These products are intended for use in industrial compressed inert gas systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

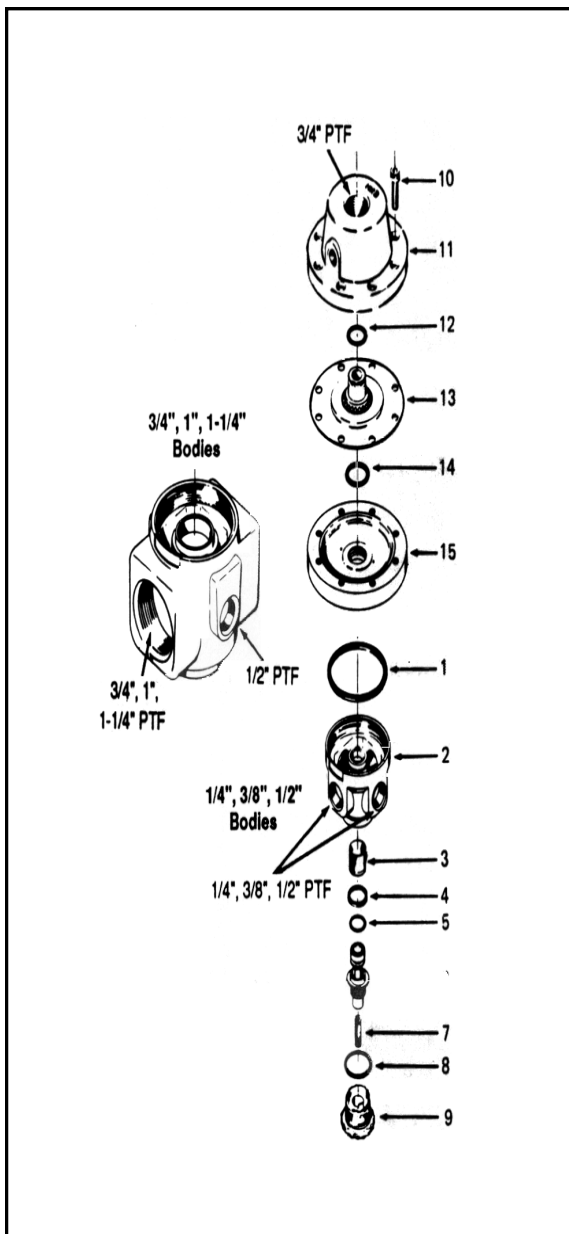
# INSTALLATION

Connect primary air to the IN port of the volume booster and to Proportion-Air pilot. Connect pilot output line to pilot port in side of volume booster bonnet. Use 1/4" OD tubing for the pilot output. Plug unused gauge ports. Install a muffler in the EXH port to protect internal parts from contamination and to reduce noise.

Before turning on system pressure, make sure dome pressure is 0 psig. Turn on system pressure and then increase Proportion-Air pilot pressure until the desired pressure downstream of the volume booster is reached.

# MAINTENANCE

## RM002 through RM00A



# DISASSEMBLY INSTRUCTIONS

Shut off inlet pressure to the Proportion-Air pilot and RM-Series volume booster. Reduce pressure in pilot, volume booster and connecting pipes to zero.

Remove screws (10), bonnet (11), diaphragm (13), O-rings (12, 14), adapter (15) and O-ring (1). Unscrew bottom plug (9) and remove O-ring (8) and valve spring (7). Pull valve (6), O-rings (4, 5) and screen (3) out of body (2).

Clean parts using warm water and soap. Rinse all parts and dry thoroughly. Inspect parts carefully and replace worn or damaged parts.

When reassembling lubricate O-rings (1, 4, 5, 8, 12, 14) and their respective bores in the body (2), bottom plug (9), bonnet (11), and adapter (15) with a good quality O-ring grease. Tighten bottom plug (9) hand tight. Tighten bonnet screws (10) evenly, in a diametrically opposite sequence, to 50 - 70 inch-pounds torque.

PARTS	ports	
		1/4", 3/8"
	1/2"	1 1/4"
Major Repair Kit (Items 1,3,4,5,6,8,12,13,14)	H4158-01	H4158-02
Mounting Bracket	BKT-05	BKT-06

**\*\*KITS ARE STILL COMPATABLE WITH THE R-SERIES REGULATOR.**

# SPECIFICATIONS

TYPE.....Pilot Operated  
Relieving Diaphragm

MAX. INLET PRESSURE  
**RM002-RM00A**..... 400psig (27.6 bar)

OUTLET PRESSURE  
**RM002-RM004**..... 0-300psig (20.68 bar)  
**RM006-RM00A**..... 0-250psig (17.24 bar)

OPERATING TEMP..... 32 to 158 degree F  
(0 to 70 degree C)

RECOMMENDED FILTRATION 40 micron nominal

FLOW CAPACITY..... See graphs

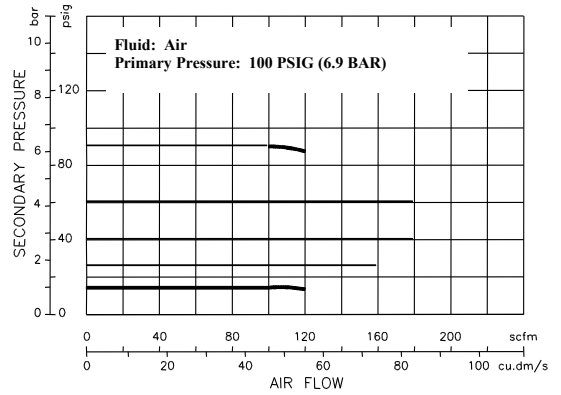
RELIEF FLOW CAPACITY..... 200 SCFM (5663 SLPM)

MATERIALS  
**RM002-RM00A:**  
Body: Zinc  
Bonnet: Aluminum  
Bottom Plug: Acetal  
Main Valve: Brass  
Elastomers: Nitrile

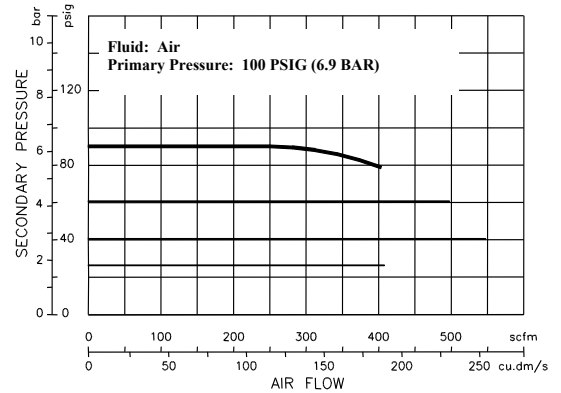
PORTS  
Main Ports: 1/4, 3/8, 1/2, 3/4, 1, 1-1/4  
Gauge Ports (Full Flow):  
With 1/4" Main Ports: 1/4" PTF  
With 3/8" Main Ports: 3/8" PTF  
With 1/2" thru 1-1/4" Main Ports: 1/2" PTF

# FLOW CHARACTERISTICS

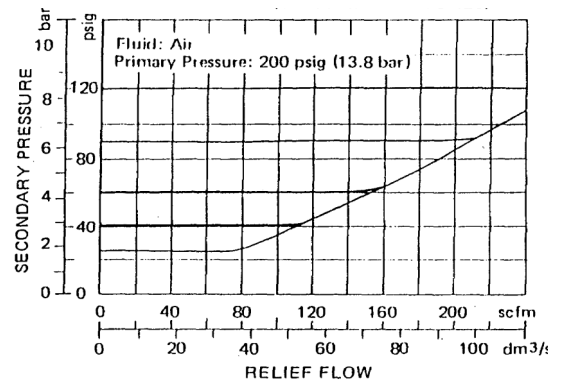
**FORWARD FLOW (RM002-RM004)**



**FORWARD FLOW (RM006-RM00A)**

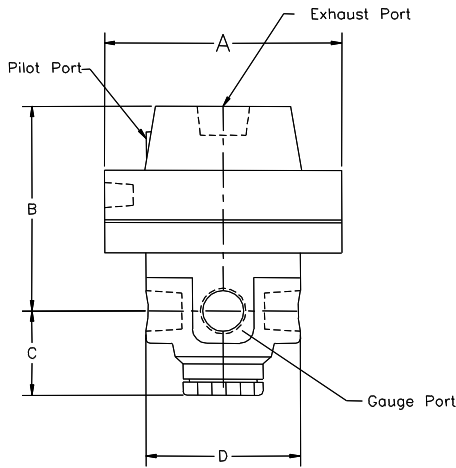


**RELIEF FLOW (RM002 - RM00A)**

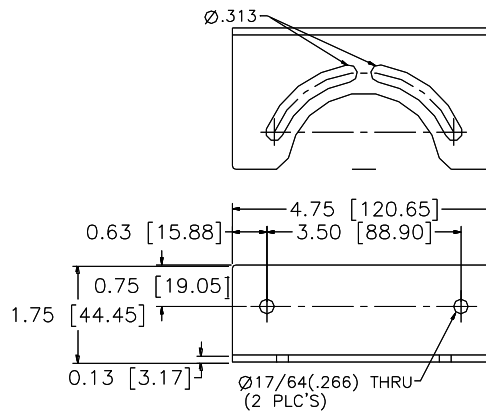


# DIMENSIONS in inches (mm)

## RM002-RM00A

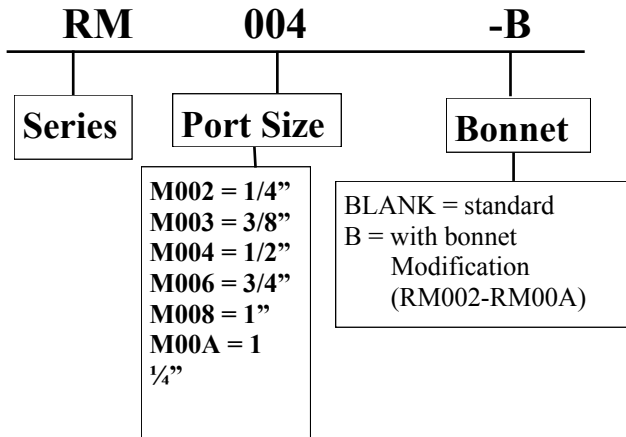


## MOUNTING BRACKET



Pipe Size*	A	B	C	D	Main Ports	Gauge Ports
1/4, 3/8, 1/2	4.16 (106)	3.59(91)	1.48(38)	2.71(69)	1/4 PTF 3/8 PTF	1/4 PTF 3/8 PTF
3/4, 1, 1 1/4	4.16 (106)	4.11(91)	1.86(38)	3.65(93)	1/2, 3/4, 1, 1 1/4PTF	1/2 PTF
* Pilot Port is 1/4" PTF & Exhaust Port is 3/4" PTF for all models (1/4" to 1 1/4")						

## ORDERING INFORMATION



### MOUNTING BRACKET:

BKT-05: RM002, RM003, RM004

BKT-06: RM006, RM008, RM00A

Proportion-Air products are warranted to the original purchaser only against defects in material or workmanship for one (1) year from the date of manufacture. The extent of Proportion-Air's liability under this warranty is limited to repair or replacement of the defective unit at Proportion-Air's option. Proportion-Air shall have no liability under this warranty where improper installation or filtration occurred. All specifications are subject to change without notice. **THIS WARRANTY IS GIVEN IN LIEU OF, AND BUYER HEREBY EXPRESSLY WAIVES, WARRANTIES OR LIABILITIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY OBLIGATION OF PROPORTION-AIR WITH REGARD TO CONSEQUENTIAL DAMAGES, WARRANTIES OF MERCHANTABILITY, DESCRIPTION, AND FITNESS FOR A PARTICULAR PURPOSE.**

**WARNING:** Installation and use of this product should be under the supervision and control of properly qualified personnel in order to avoid the risk of injury or death.

**PROPORTION-AIR, INC.**

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INRM-Series  
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