

# **PROPORTION** *AIR*



## **RMV Series Volume Boosters**

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RMV series are vacuum-only volume boosters designed for systems that require pressure under atmosphere, high flow, and high relief. These units can be installed in an inaccessible location with a control regulator in an accessible location.

**Exclusively vacuum control • Dirt Tolerant • Rugged**

# Features

- Inline mounting
- Diaphragm design for precise vacuum control
- High-relief characteristics up to 200 SCFM
- Balanced valve minimizes effect of pressure changes of inlet pressure
- Self-relieving (non-relieving optional)
- Integral pilot regulator porting

# Sizes



**RMV002**  
**1/4" Port**



**RMV006**  
**3/4" Port**



**RMV003**  
**3/8" Port**



**RM008**  
**1" Port**



**RMV004**  
**1/2" Port**



**RMV00A**  
**1-1/4" Port**

# Technical Information

## Specifications

Type.....Relieving diaphragm  
 Fluids.....Compressed air, inert gasses  
 Forward flow  
     -002,-003,-004.....25 SCFM  
     -006,-008,-00A.....75 SCFM  
 Recommended filtration .....40 micron nominal  
 Recommend inlet pressure .....110% of outlet pressure  
     4-6 in HG (2-3 psi) more than range  
 Outlet pressure adjustment ranges.....0 to 29 inches Hg vacuum  
 Operating temperature range.....32 to 175 °F (0 to 79 °C)

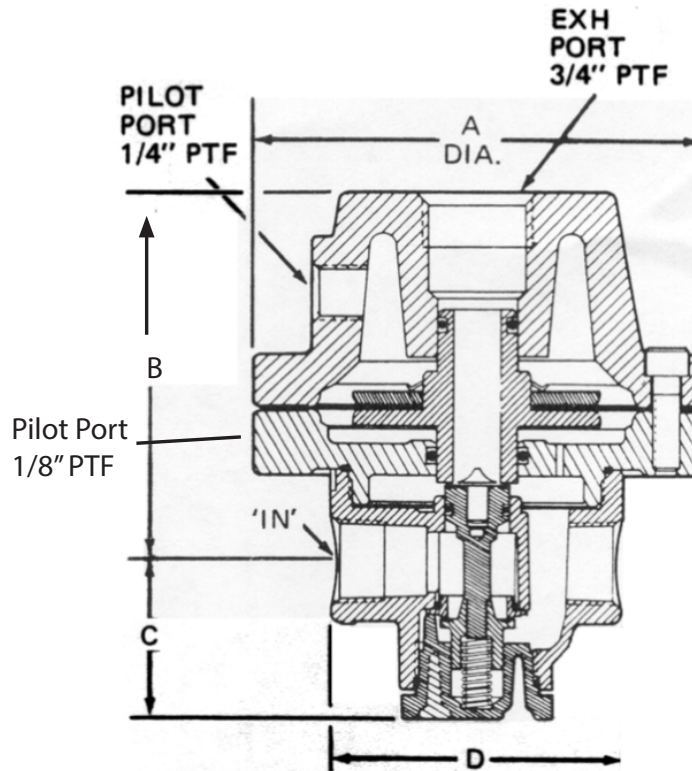
## Ports

Body .....Zinc  
 Main Ports .....1/4, 3/8, 1/2, 3/4, 1, 1-1/4 PTF  
 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  
 Pilot Port.....1/4" PTF  
 Exhaust Port.....3/4" PTF

## Materials

Body .....Zinc  
 Bonnet.....Aluminum  
 Bottom Plug .....Acetal  
 Valve.....Brass  
 Elastomers.....Nitrile

# Dimensions



| Port Size     | A    | B    | C    | D    |
|---------------|------|------|------|------|
| 1/4, 3/8, 1/2 | 4.16 | 3.59 | 1.48 | 2.71 |
| 3/4, 1, 1-1/4 | 4.16 | 4.11 | 1.86 | 3.65 |

*\*all measurements in inches*

# Installation and Operation

## Installation

Connect primary vacuum to the IN port of the volume booster and to Proportion-Air pilot exhaust port. 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 port. 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 vacuum until the desired vacuum downstream of the volume booster is reached.

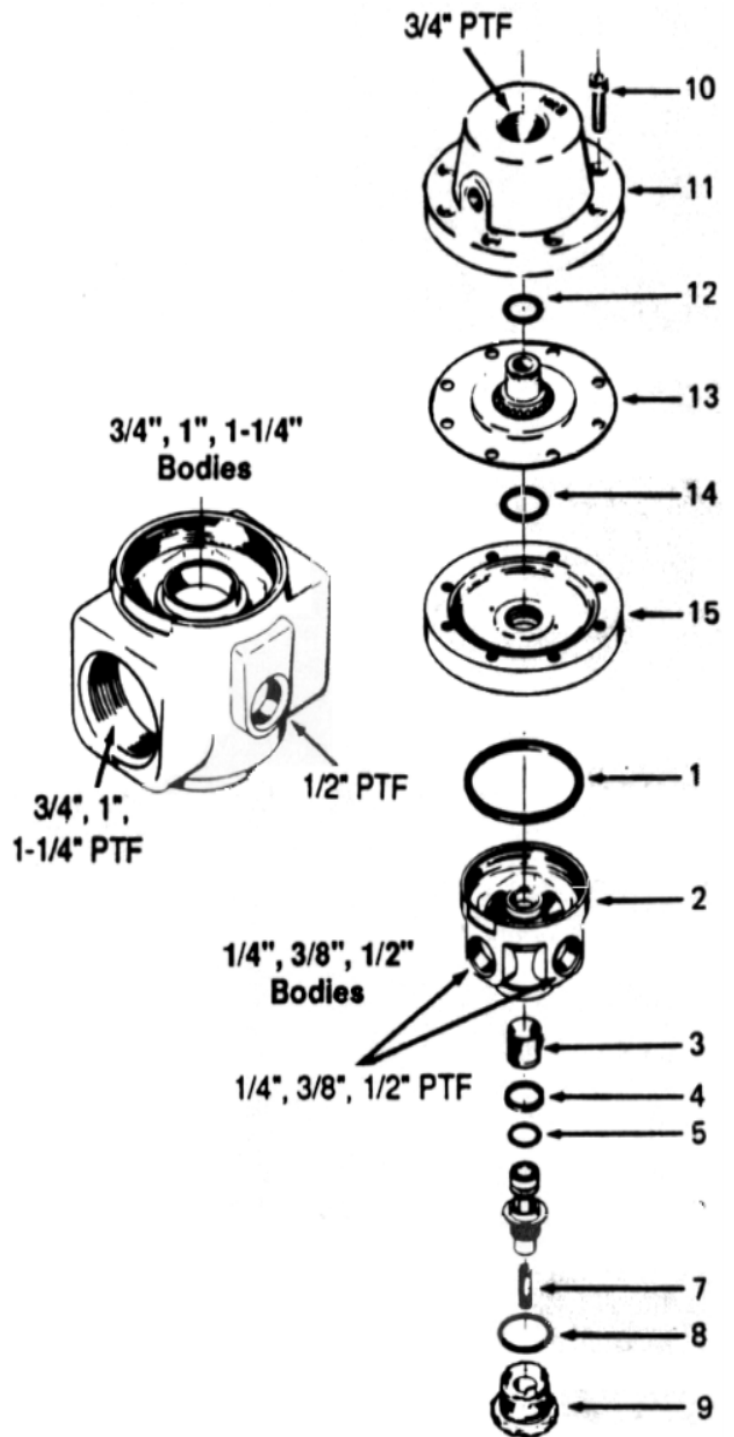
## Maintenance

Shut off inlet pressure to the Proportion-Air pilot and RMV-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.



### Port Size:

| Parts:                                       | Port Size:          |                     |
|--|---------------------|---------------------|
|  | 1/4", 3/8",<br>1/2" | 3/4", 1",<br>1-1/4" |
| Complete Kit<br>(Items 1,3,4,5,6,8,12,13,14) | H4158-01            | H4158-02            |
| Elastomer Kit<br>(Items 1,3,4,5,8,12,14)     | H4158-03            | H4158-04            |
| Mounting Bracket                             | BKT-05              | BKT-06              |

# Configuration

|                      |                       |                      |   |                  |                |
|----------------------|-----------------------|----------------------|---|------------------|----------------|
| <b>RMV Series</b>    | <b>PRESSURE RANGE</b> | 0 to 29.9"hg         |   | <b>PORT SIZE</b> | 1/4" to 1-1/4" |
|                      | <b>MAX FLOW</b>       | 45 SCFM (21 Lit/sec) |   |                  |                |
| Example Part Number  | RMV00                 | 4                    | N | BR               | 02             |
| Section Reference -> |                       | 1                    | 2 | OPTIONS          |                |

| 1 | Port Size |
|---|-----------|
| 2 | 1/4"      |
| 3 | 3/8"      |
| 4 | 1/2"      |
| 6 | 3/4"      |
| 8 | 1"        |
| A | 1-1/4"    |

| 2 | Thread Type |
|---|-------------|
| N | NPT         |
| P | BSPP        |

| Options |   |
|---------|---|
| BR      | Bracket Installed ( <i>BKT-05, ports 2, 3, 4; BKT-06, ports 6, 8, A</i> ) |
| QR      | Quick Response  |
| O2      | Oxygen Cleaned ( <i>Port sizes 2, 3 &amp; 4 only</i> )                    |
| O3      | Oxygen Cleaned for Non-Oxygen use ( <i>Port sizes 2, 3 &amp; 4 only</i> ) |

| Repair Kits - RM and RMV Series |                                  |
|---------------------------------|----------------------------------|
| H4158-01                        | Complete Kit - RM002, 3, 4       |
| H4158-02                        | Complete Kit - RM006, 8, A       |
| RMH5890-01                      | Complete Kit - RM00B, C          |
| H2250-50                        | Main Valve - RM002, 3, 4         |
| H2264-50                        | Main Valve - RM006, 8, A         |
| RMH5893-50                      | Main Valve - RM00B, C            |
| H387453                         | Diaphragm - RM002, 3, 4, 6, 8, A |
| RMH5945-61                      | Diaphragm - RM00B, C             |
| H4158-03                        | Elastomer Kit - RM002, 3, 4      |
| H4158-04                        | Elastomer Kit - RM006, 8, A      |
| RMH5945-40                      | Elastomer Kit - RM00B, C         |



## **SAFETY PRECAUTIONS**

*Please read the following safety information before installing or operating any Proportion-Air, Inc. equipment or accessories. To confirm safety, observe 'ISO 4414: Pneumatic Fluid Power - General rules relating to systems' and other safety practices.*

### **WARNING**

Improper operation could result in serious injury or loss of life!

#### **1. PRODUCT COMPATIBILITY**

Proportion-Air, Inc. products and accessories are for use in industrial pneumatic applications with compressed air media. The compatibility of the equipment is the responsibility of the end user. Product performance and safety are the responsibility of the person who determined the compatibility of the system. Also, this person is responsible for continuously reviewing the suitability of the products specified for the system, referencing the latest catalog, installation manual, Safety Precautions and all materials related to the product.

#### **2. EMERGENCY SHUTOFF**

Proportion, Inc. products cannot be used as an emergency shutoff. A redundant safety system should be installed in the system to prevent serious injury or loss of life.

#### **3. EXPLOSIVE ATMOSPHERES**

Products and equipment should not be used where harmful, corrosive or explosive materials or gases are present. Unless certified, Proportion-Air, Inc. products cannot be used with flammable gases or in hazardous environments.

#### **4. AIR QUALITY**

Clean, dry air is not required for Proportion-Air, Inc. products. However, a 40 micron particulate filter is recommended to prevent solid contamination from entering the product.

#### **5. TEMPERATURE**

Products should be used with a media and ambient environment inside of the specified temperature range of 32°F to 158°F. Consult factory for expanded temperature ranges.

#### **6. OPERATION**

Only trained and certified personnel should operate electronic and pneumatic machinery and equipment. Electronics and pneumatics are very dangerous when handled incorrectly. All industry standard safety guidelines should be observed.

#### **7. SERVICE AND MAINTENANCE**

Service and maintenance of machinery and equipment should only be handled by trained and experienced operators. Inspection should only be performed after safety has been confirmed. Ensure all supply pressure has been exhausted and residual energy (compressed gas, springs, gravity, etc.) has been released in the entire system prior to removing equipment for service or maintenance.

### **CAUTION**

Improper operation could result in serious injury to people or damage to equipment!

#### **1. PNEUMATIC CONNECTION**

All pipes, pneumatic hose and tubing should be free of all contamination, debris and chips prior to installation. Flush pipes with compressed air to remove any loose particles.

#### **2. THREAD SEALANT**

To prevent product contamination, thread tape is not recommended. Instead, a non-migrating thread sealant is recommended for installation. Apply sealant a couple threads from the end of the pipe thread to prevent contamination.

#### **3. ELECTRICAL CONNECTION**

To prevent electronic damage, all electrical specifications should be reviewed and all electrical connections should be verified prior to operation.

### **EXEMPTION FROM LIABILITY**

**1. Proportion-Air, Inc.** is exempted from any damages resulting from any operations not contained within the catalogs and/or instruction manuals and operations outside the range of its product specifications.

**2. Proportion-Air, Inc.** is exempted from any damage or loss whatsoever caused by malfunctions of its products when combined with other devices or software.

**3. Proportion-Air, Inc.** and its employees shall be exempted from any damage or loss resulting from earthquakes, fire, third person actions, accidents, intentional or unintentional operator error, product misapplication or irregular operating conditions.

**4. Proportion-Air, Inc.** and its employees shall be exempted from any damage or loss, either direct or indirect, including consequential damage or loss, claims, proceedings, demands, costs, expenses, judgments, awards, loss of profits or loss of chance and any other liability whatsoever including legal expenses and costs, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

### **WARRANTY**

Proportion-Air, Inc. products are warranted to the original purchaser only against defects in material or workmanship for eighteen (18) months 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.

# **PROPORTION**

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Handcrafted in the USA

ISO 9001-2015 Certified