Limited Warranty

Precision Medical, Inc. warrants that the Medical Gas Flowmeter (the Product) will be free of defects in workmanship and/or material for the following period:

<table>
<thead>
<tr>
<th>Part</th>
<th>Warranty Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Tube and Housing</td>
<td>Lifetime of the product</td>
</tr>
<tr>
<td>Needle Valve</td>
<td>Five (5) years from shipment</td>
</tr>
<tr>
<td>All other parts of the Medical Gas Flowmeter not identified in (a) or (b) above</td>
<td>One (1) year from shipment</td>
</tr>
</tbody>
</table>

Warranty does not cover breakage / abuse.

If you do not understand this manual, do NOT USE the Flowmeter and contact your Provider.

Warning

Do NOT smoke in an area where oxygen is being administered.
Do NOT use near any flammable gases or liquids.
Do NOT use or store oils, greases, organic lubricants or any combustible materials near or on the Flowmeter.
Do NOT use or store any flammable or explosive gases near or on the Flowmeter.
Protect and maintain the Flowmeter and its accessories.
Avoid exposure to extreme temperatures.
Do not tamper with Flowmeter or Flowmeter accessories.
Do not use or store in a wet or damp area.
Do not allow the Flowmeter to become dry.
Do not bend, twist, or stretch the Flowmeter.
Do not expose the Flowmeter to any water.
Do not use or store the Flowmeter in any environment where it may be exposed to direct sunlight.
Do not use or store the Flowmeter in any environment where it may be exposed to extreme temperatures.
Do not use or store the Flowmeter in any environment where it may be exposed to corrosive substances.
Do not use or store the Flowmeter in any environment where it may be exposed to chemicals.

Operating Instructions

The Flowmeter is intended for use by physicians, respiratory therapists, and other authorized hospital personnel to administer selected doses of medical gases to a patient.

Read All Instructions Before Using

This manual instructs a Professional to install and operate the Flowmeter. This is provided for your safety and to prevent damage to the Flowmeter. If you do not understand this manual, do NOT USE the Flowmeter and contact your Provider.

SAVE THESE INSTRUCTIONS

Federal (USA) law restricts this device to sale by or on the order of a physician.

Precision Medical

300 Held Drive
Northampton, PA 18067 USA
Tel: (+001) 610-262-6090
Fax: (+001) 610-262-6080
ISO 13485 Certified
www.precisionmedical.com

ALWAYS follow ANSI and CGA standards for Medical Gas Products and Flowmeters and Oxygen Handling.

Certified Under the American National Standards Institute's The symbol indicates the device complies with the requirements of Directive 93/42/EEC concerning medical devices and all applicable International Standards.
### Specifications

<table>
<thead>
<tr>
<th>Flow Range</th>
<th>Graduations</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 200 cc</td>
<td>20 cc</td>
<td>0-100 cc ±10 cc</td>
</tr>
<tr>
<td>0 – 1 l/min</td>
<td>.1 l/min</td>
<td>0-1 ±.05 l/min</td>
</tr>
<tr>
<td>0 – 3.5 l/min</td>
<td>.125 (0-1) l/min</td>
<td>0-3.5 ±.15 l/min</td>
</tr>
<tr>
<td>0 – 5 l/min</td>
<td>.25 l/min</td>
<td>0-5 ± .20 l/min</td>
</tr>
<tr>
<td>0 – 6 l/min</td>
<td>.5 l/min</td>
<td>0-6 ± .50 l/min</td>
</tr>
<tr>
<td>0 – 8 l/min</td>
<td>.5 l/min</td>
<td>0-8 ± .25 l/min</td>
</tr>
<tr>
<td>0 – 15 l/min</td>
<td>.5 (0-5) l/min</td>
<td>0-5 ± .25 l/min</td>
</tr>
<tr>
<td>0 – 26 l/min</td>
<td>1 l/min</td>
<td>2-4 ±.50 l/min</td>
</tr>
<tr>
<td>3 – 35 l/min</td>
<td>1 (3-15) l/min</td>
<td>3-35 ±10% of reading</td>
</tr>
<tr>
<td>0 – 70 l/min</td>
<td>5 l/min</td>
<td>0-70 ±10% of reading</td>
</tr>
</tbody>
</table>

**Flush Flow** is the output of the flowmeter when the flow indicator is beyond the highest calibrated graduation. The Flush Flow range is as indicated on the flowmeter labeling.

**Transport / Storage Requirements**

-40°F (−40°C) to 140°F (60°C)

The gas and inlet pressures are indicated on the Flow Tube or Flowmeter body.

**NOTE:** Storage / Transport outside the specified range may cause damage to the flowmeter.

The effect on accuracy of flow due to variations in ambient temperature is standard accuracy +7.3% @ 32°F (0°C) and -3.0% @ 104°F (40°C).

The above Flowmeter models are calibrated at specified inlet pressure, 70°F (21°C), standard atmospheric pressure. International models are calibrated per specifications marked on Flow Tube or Flowmeter body.

Specifications are subject to change without prior notice.

---

**For the most current manual revision please visit our website:** www.precisionmedical.com

Tell us how we are doing!
Visit us at www.precisionmedical.com

---

**OPERATING INSTRUCTIONS**

**WARNING**

Read this User Manual before installing or operating the Flowmeter.

**CAUTION**

Inspect the Flowmeter for visual damage before use, **DO NOT USE** if damaged.

**NOTE:** Precision Medical, Inc. strongly recommends the use of kink proof Cannula.

1. Turn Knob to the “OFF” position.
2. Connect the Flowmeter to the appropriate gas source. The appropriate gas and pressure are specified on the Flow Tube or Flowmeter body.
3. Verify that the Float Ball is at the very bottom of the Flow Tube.
   **NOTE:** If the Float is not resting at the bottom of the Flow Tube, the product is leaking; consult the “TROUBLESHOOTING” Guide.
4. Adjust Flow: To increase - Turn Knob counterclockwise
   To decrease - Turn Knob clockwise
5. Set flow by aligning center of Float Ball with indicator lines on the Flow Tube.
6. Adjusting flow beyond the last calibrated indicator line will result in an undetermined flow.
7. To obtain maximum flush flow, turn Knob fully Counterclockwise.
   **NOTE:** Flush flow is any flow above the last calibrated line on the Flow Tube with an unrestricted flow, as indicated on flowmeter labeling.

---

**CAUTION**

- **DO NOT** over tighten Knob when turning off. This will cause damage to the Flowmeter.
- Pressures other than those indicated on the Flow Tube or Flowmeter body may affect the accuracy of the indicated flow.
- Gas Temperatures other than 70°F (21°C) may affect the accuracy of the indicated flow.
- Attaching accessories to the outlet (which may increase resistance to outlet flow) may change indicated flow but will not affect the accuracy of the flow.
- **ONLY** use appropriate gas specific indexed fittings to connect Flowmeter to gas source. Use Oxygen connections for oxygen Flowmeters; use air connections for air Flowmeters.
- **DO NOT** attempt to repair the 8MFA Flowmeters. There are no serviceable parts.

---

**CLEANING INSTRUCTIONS**

1. Disconnect all connections before cleaning.
2. Clean exterior surfaces of the Flowmeter with a cloth dampened with a mild detergent and water.
3. Wipe dry with a clean cloth.

---

**TROUBLESHOOTING**

If the Flowmeter fails to function, consult your Provider or Precision Medical, Inc.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will not shut off</td>
<td>• Leak</td>
<td>• Replace Tetraseal and/or Housing</td>
</tr>
<tr>
<td>Sticking Float Ball</td>
<td>• Defective Valve</td>
<td>• Replace Body Assembly</td>
</tr>
<tr>
<td>Unable to set desired flow</td>
<td>• Blocked Inlet</td>
<td>• Replace Body Assembly</td>
</tr>
<tr>
<td>Knob will not turn</td>
<td>• Valve seized</td>
<td>• Replace Body Assembly</td>
</tr>
</tbody>
</table>

8MFA Models **DO NOT have serviceable parts.**

---

**RETURNS**

Returned products require a Returned Goods Authorization (RGA) number. Any product returned to Precision Medical, Inc. must be packaged in a sealed container to prevent damage. Precision Medical, Inc. will not be responsible for goods damaged in transit. Return Policy available on the Internet, www.precisionmedical.com.

***Declaration of Conformity and Replacement Parts List available on internet:***

http://www.precisionmedical.com/documentation

---

**CAUTION**

**Applies to 1MFA and 8MFA Series MRI labeled Flowmeters only!**

- Indicates the device is MR Conditional and can be used in an MR Environment

**WARNING!** This product may be used near a MR Environment (e.g. in the MR System room near the scanner). It should not be utilized directly inside of the MR System (e.g. inside of the bore of the scanner). The device must be securely attached to a wall Gas Outlet.
- This information must be kept with the device.
- MRI Conditional with 1.5T MR systems.
- Service must be performed by qualified personnel.
- Flow meters must be kept to manufacturing specifications.
- Fittings must be kept MR conditional if serviced or replaced.
- MRI manufactures guidelines supersede this information
- Consult MRI Manufacture if used with an Open MRI.