

# Masoneilan™ 78 Series

Air Filter Regulator

Instruction Manual (Rev.H)



**THESE INSTRUCTIONS PROVIDE THE CUSTOMER/OPERATOR WITH IMPORTANT PROJECT-SPECIFIC REFERENCE INFORMATION IN ADDITION TO THE CUSTOMER/OPERATOR'S NORMAL OPERATION AND MAINTENANCE PROCEDURES. SINCE OPERATION AND MAINTENANCE PHILOSOPHIES VARY, BAKER HUGHES COMPANY (AND ITS SUBSIDIARIES AND AFFILIATES) DOES NOT ATTEMPT TO DICTATE SPECIFIC PROCEDURES, BUT TO PROVIDE BASIC LIMITATIONS AND REQUIREMENTS CREATED BY THE TYPE OF EQUIPMENT PROVIDED.**

**THESE INSTRUCTIONS ASSUME THAT OPERATORS ALREADY HAVE A GENERAL UNDERSTANDING OF THE REQUIREMENTS FOR SAFE OPERATION OF MECHANICAL AND ELECTRICAL EQUIPMENT IN POTENTIALLY HAZARDOUS ENVIRONMENTS. THEREFORE, THESE INSTRUCTIONS SHOULD BE INTERPRETED AND APPLIED IN CONJUNCTION WITH THE SAFETY RULES AND REGULATIONS APPLICABLE AT THE SITE AND THE PARTICULAR REQUIREMENTS FOR OPERATION OF OTHER EQUIPMENT AT THE SITE.**

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## Safety Information

### Important - Please read before installation

These instructions contain **DANGER**, **WARNING**, and **CAUTION** labels, where necessary, to alert you to safety related or other important information. Read the instructions carefully before installing and maintaining your control valve. **DANGER** and **WARNING** hazards are related to personal injury. **CAUTION** hazards involve equipment or property damage. Operation of damaged **equipment can, under certain operational conditions, result in degraded process system performance that can lead to injury or death. Total compliance with all DANGER, WARNING, and CAUTION notices is required for safe operation.**



This is the safety alert symbol. It alerts you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



When used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in property damage.

**Note: Indicates important facts and conditions.**

## About this Manual

- The information in this manual is subject to change without prior notice.
- The information contained in this manual, in whole or part, shall not be transcribed or copied without Baker Hughes's written permission.
- Please report any errors or questions about the information in this manual to your local supplier.
- These instructions are written specifically for the model 78 air filter regulator, and do not apply for other valves outside of this product line.

## Warranty

Items sold by Baker Hughes are warranted to be free from defects in materials and workmanship for a period of one year from the date of shipment provided said items are used according to Baker Hughes recommended usages. Baker Hughes reserves the right to discontinue manufacture of any product or change product materials, design or specifications without notice.

### **Note: Prior to installation:**

- The valve must be installed, put into service and maintained by qualified and competent professionals who have undergone suitable training.
- All surrounding pipe lines must be thoroughly flushed to ensure all entrained debris has been removed from the system.
- Under certain operating conditions, the use of damaged equipment could cause a degradation of the performance of the system which may lead to personal injury or death.
- Changes to specifications, structure, and components used may not lead to the revision of this manual unless such changes affect the function and performance of the product.

# Product Description

The Model 78 Series pressure regulators are compact, lightweight, high-performance pressure reducing instruments. They are used primarily for supplying a stable source of air to process control equipment such as current to pneumatic transducers and control valve positioners.

# Numbering System

| Model No. | Pressure Range                        | Description                        |
|-----------|---------------------------------------|------------------------------------|
| 78-4      | 5-40 psi (35-280 kPa), (0.35-2.8 bar) | Air Loading with Relief and Filter |
| 78-40     | 5-100 psi (35-700 kPa), (0.35-7 bar)  | Air Loading with Relief and Filter |

# Specifications

|                           |  |
|---------------------------|--|
| Inlet Pressure Rating     | 210 psi (1.5 MPa, 15 bar) maximum                                      |
| Pressure Set Range        | 5-40 psi (35-280 kPa, 0.35-2.8 bar) 5-100 psi (35-700 kPa, 0.35-7 bar) |
| Connection                | 1/4 NPT  |
| Rated Cv                  | 0.25   |
| Filter Element            | Sintered Porous Polyethylene (5µ)                                      |
| Ambient Temperature Range | -40° to +83°C (-40° to +182°F)   |
| Low Temperature Range     | -50°C to +60°C (-58°F to 140°F)  |
| High Temperature Range    | 0°C to 100°C (32°F to 212°F)   |
| Air Consumption           | 0.004 scfm (100 sccm)  |
| Weight                    | 14 oz. (0.4 kg)  |
| Materials of Construction | See Table next page  |

## WARNING

Do not install this Regulator in air lines which exceed 210 psi (1.5 MPa, 15 bar) pressure.

# Certifications

This instrument is certified in:

- Azerbaijan (AzSERTCENTER)
- Armenia
- Belarus
- Kazakhstan
- Russian Federation (CU-TR Ex)
- Uzbekistan (UZSTANDART)
- and is also ATEX compliant.

# Installation

Clean the lines thoroughly to remove all dirt, scale or other foreign matter before installing the regulator. Install with flow in direction of flow arrows on regulator body. The airset should be installed with the drain cock facing down. Regulator should be installed as close as possible to device utilizing the reduced pressure to minimize pressure drop. Do not use piping or tubing smaller than the regulator connections since this will restrict flow and reduce capacity.

It is recommended that pressure gauges be installed on the inlet and outlet sides of the regulator as an aid in adjusting the pressure and in monitoring of working pressures.

# Operation

Prior to applying supply pressure, loosen knob lock screw and turn pressure set knob counterclockwise. Turn on supply pressure. Output pressure should be zero. Slowly rotate set knob clockwise until desired pressure is reached. Tighten knob locking screw to ensure that pressure remains set at desired value. When changing output from a higher to lower pressure, initially go to lower than desired pressure, then increase to desired pressure. Re-tighten knob lock-screw.

# Maintenance

It is recommended that the drain cock be opened at regular intervals to drain any fluid that may have collected in the dripwell. The interval between draining will have to be determined based on the actual rate of accumulation of fluid.

It is recommended that pressure gauges be installed on the inlet and outlet sides of the regulator as an aid in adjusting the pressure and in monitoring of working pressures.

## WARNING

The relief valve feature should not be confused with any auxiliary safety valve which might be needed for complete protection of air operated equipment. It is intended only to provide more uniform controlled pressure and to permit adjusting the outlet pressure downward without venting the line.

## WARNING

Prior to performing maintenance on the regulator, shut off the inlet and outlet pressures and remove the spring compression by turning the setting knob fully counterclockwise. Open the drain cock carefully to relieve any retained pressure and drain the dripwell. It is recommended that the regulator be removed from the line for repairs.

# ⚠ CAUTION

When draining the dripwell, open the drain cock slowly and collect the fluid in a suitable container for safe disposal.

## NOTE:

- *Considering the high labor costs involved in replacing internal parts, it may be more economical to stock complete units.*
- *Care must be taken to avoid damage to the plug and stem assembly.*

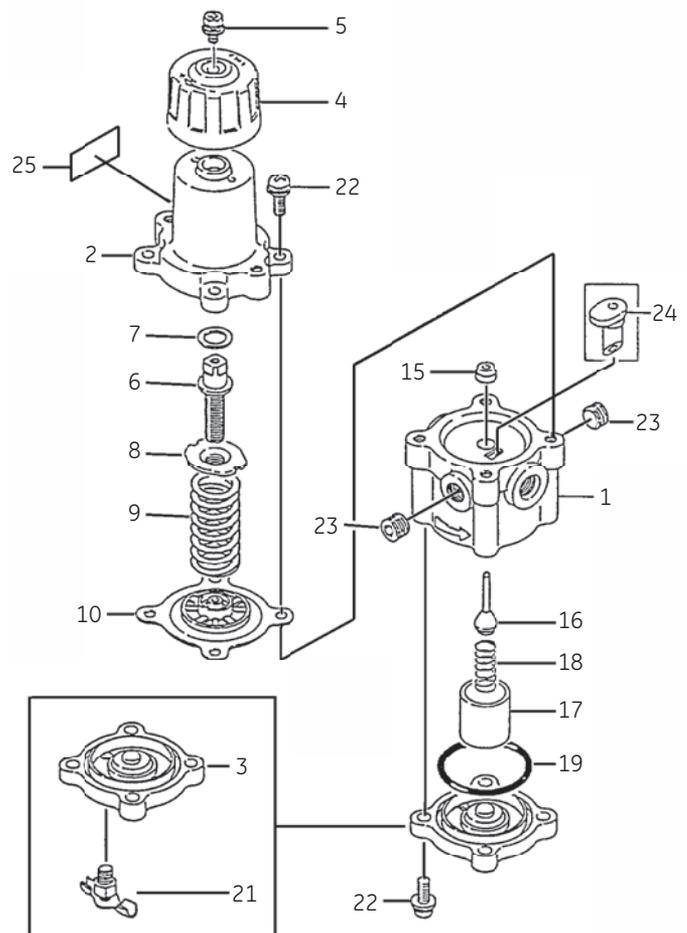
## Troubleshooting

If at any time the regulator fails to function properly it is recommended to replace rather than repair the device.

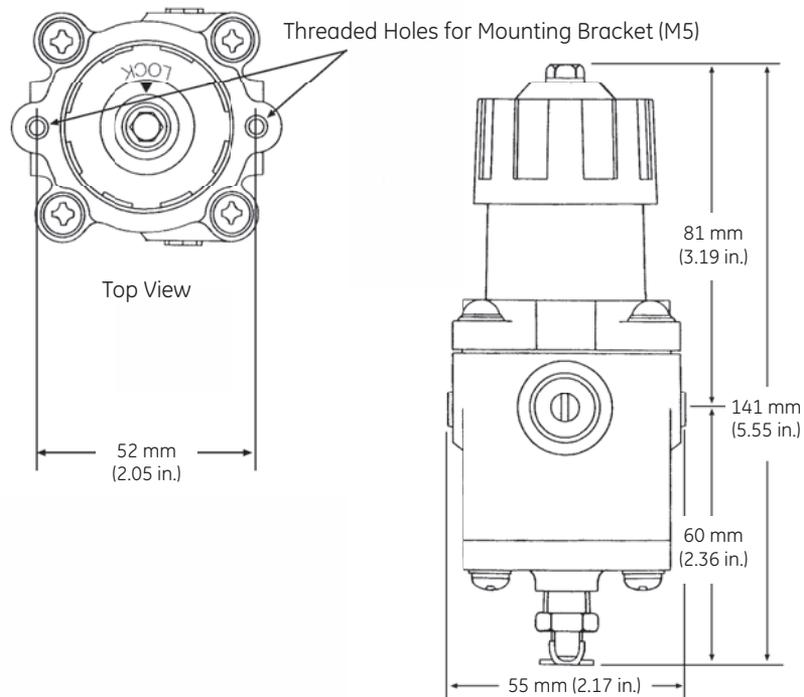
## Parts List and Materials of Construction

| No.             | Part            | Standard Material            |
|-----------------|-----------------|------------------------------|
| 1               | Body            | Aluminum Die Casting         |
| 2               | Spring Casing   | Aluminum Die Casting         |
| 3               | Bottom Cap      | Aluminum Die Casting         |
| 4               | Knob            | VALOX 420                    |
| 5               | Lock Screw      | Stainless Steel              |
| 6               | Adjusting Screw | Stainless Steel              |
| 7               | Spacer          | VALOX 420                    |
| 8               | Spring Button   | Zn-Cr Plated Carbon Steel    |
| 9               | Spring          | Coated Spring Steel          |
| 10 <sup>1</sup> | Diaphragm       | NBR                          |
| 15              | Plug Guide      | VALOX 420                    |
| 16 <sup>1</sup> | Plug            | Neoprene/416 Stainless Steel |
| 17 <sup>1</sup> | Filter          | Sintered Polyethylene        |
| 18 <sup>1</sup> | Port Spring     | Stainless Steel              |
| 19 <sup>1</sup> | "O"-Ring        | NBR                          |
| -               |                 |                              |
| 21              | Drain Cock      | Stainless Steel              |
| 22              | Screw           | Stainless Steel              |
| 23              | Pipe Plug       | Zinc Plated Carbon Steel     |
| 24              | Aspirator       | VALOX 420                    |
| 25              | Nameplate       | Aluminum                     |

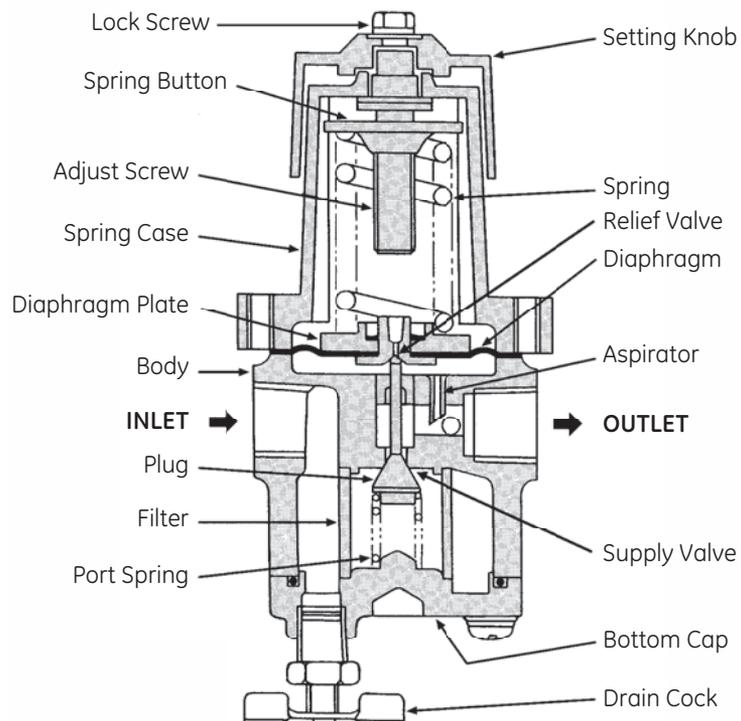
1. Recommended Spare Parts



## Dimensions



## Cut-Away View of 78 Series Pressure Regulator



## Notes

# Direct Sales Office Locations

**Australia**

Brisbane  
Phone: +61-7-3001-4319

Perth  
Phone: +61-8-6595-7018

Melbourne  
Phone: +61-3-8807-6002

**Brazil**

Phone: +55-19-2104-6900

**China**

Phone: +86-8400-7888

**France**

Courbevoie  
Phone: +33-1-4904-9000

**India**

Mumbai  
Phone: +91-22-8354790

New Delhi

Phone: +91-11-2-6164175

**Italy**

Phone: +39-081-7892-111

**Japan**

Tokyo  
Phone: +81-03-6871-9008

**Korea**

Phone: +82-31-620-1736

**Malaysia**

Phone: +60-3-2161-03228

**Mexico**

Phone: +52-55-3640-5060

**Russia**

Veliky Novgorod  
Phone: +7-8162-55-7898

Moscow

Phone: +7-495-585-1276

**Saudi Arabia**

Phone: +966-3-341-0278

**Singapore**

Phone: +65-6861-6100

**South Africa**

Phone: +27-83-387-9300

**South & Central  
America and the Caribbean**

Phone: +55-12-2134-1201

**Spain**

Phone: +34-935-877-605

**United Arab Emirates**

Phone: +971-4-8991-777

**United Kingdom**

Phone: +44-7919-382-156

**United States**

Houston, Texas  
Phone: +1-713-966-3600

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## Tech Field Support & Warranty:

Phone: +1-866-827-5378

[valvesupport@bakerhughes.com](mailto:valvesupport@bakerhughes.com)

[valves.bakerhughes.com](http://valves.bakerhughes.com)

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