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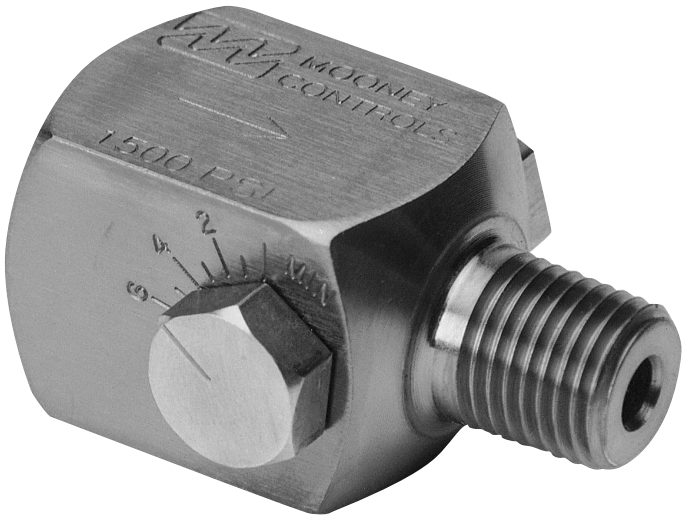
Type 24/24S Restrictor

Instruction Manual (Rev.D)



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Scope

This manual provides installation, operation and maintenance instructions for the Type 24/24S **Mooney**™ Restrictor. Instructions for the **Flowgrid**™ Pilot and Valve will be found in separate manuals.

Product Description

The Type 24/24S Mooney Restrictor is an integral part of a pilot system for the Flowgrid Regulator. It is usually located in the pilot supply and affects the response rate, stability, and sensitivity of the regulator. The restrictor is available in both steel and stainless steel constructions with a stainless steel rotor. The Type 24/24S Restrictor can be used in many other liquid and gas applications.

Installation

The following instructions apply to mounting the Type 24/24S Mooney Restrictor on the Flowgrid Pilot and connecting to the pilot system. Refer to the Flowgrid Valve and Pilot I/O/M manuals for start up procedures.

⚠WARNING

Personal injury, equipment damage, or leakage due to explosion of accumulated gas or bursting of pressure containing parts, may result if this RESTRICTOR is overpressured, or is installed where service conditions could exceed the limits given in the specification of the nameplate, or where conditions exceed any ratings of the adjacent piping or piping connections. Verify the limitations of valve, pilot, and restrictor to ensure these devices are not overpressured. To avoid such injury or damage, provide pressure relieving or pressure limiting devices (as required by Title 49, Part 192, of the U.S. code of Federal Regulations, by the National Fire Codes of the National Fire Protection Association, or by other applicable codes), to prevent service conditions from exceeding those limits. Additionally, physical damage to the valve/regulator could break the pilot or restrictor off the main valve, causing personal injury and/or property damage due to explosion of accumulated gas. To avoid such injury and damage, install the regulator in a safe location.

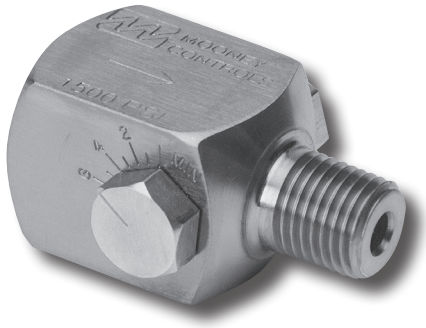

Figure 1. Type 24 Mooney Restrictor

1. **Personnel:** Installation of the Restrictor should be made by qualified personnel familiar with high pressure piping and pilot operated regulators.
2. **Prior Inspection:** Inspect the Restrictor for any damage that might have occurred in shipping. If already mounted on a regulator make sure the regulator body, pilot lines, and inlet piping are clear and free of foreign material.
3. **Orientation:** The Type 24/24S Mooney Restrictor should be installed so that the adjustment indicator markings face the side of the regulator that provides easiest access for pilot adjustment and valve maintenance.
4. **Restrictor Mounting:** Apply pipe dope to the 1/4” NPT threads on the male end of the restrictor and screw directly into the INLET port of the PILOT.

   Note: To avoid galling when stainless steel to stainless steel connections are made, use a lubricant (such as NEVER SEEZ by Bostik1). For best results, lightly lubricate the female threads. Mixing the lubricant with pipe dope is also acceptable. When tightening, do not exceed more than 1/4 turn past the point the threads start to bind.
5. **Restrictor Inlet:** A Filter (such as the Type 30 Mooney filter) upstream of the restrictor is recommended. Run 3/8 inch tubing from the supply tap to the inlet of the restrictor.

Start-up and Operation

1. Adjustment of the restrictor affects the response rate, stability, and sensitivity of the regulator. CLOSING the pilot restrictor (moving adjustment towards MIN setting) will result in higher gain (narrower proportional band), more sensitivity, and slower closing speeds. OPENING the pilot restrictor (moving the adjustment towards MAX setting) will result in less gain (increased proportional band), less sensitivity, and faster closing speeds.

⚠WARNING

The Rotor Core and Rotor Retainer are designed to move together during adjustment. If debris, rust, ice or other elements are preventing the Rotor Retainer from moving during adjustment, the unit may come unscrewed after multiple adjustments. Care should be taken to ensure tightness of components and proper movement during adjustment.

Note: The Type 24/24S Mooney Restrictor itself does not require any special start-up procedures.

2. **Start-Up - All Regulators:** Generally widening the proportional band when initially starting up a regulator (restrictor setting of “4” or higher) is recommended. This will insure maximum stability when starting the regulator. Consult the instruction manual for the valve and pilot being used.

Maintenance

Restrictor parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and replacement of parts depends on severity of service conditions or the requirements of local, state, and federal regulations.

⚠WARNING

Before disassembly, make sure the regulator and restrictor have been isolated from the process by closing block valves on the inlet and outlet sides of the regulator. Safely release pressure and process fluid from body and pilot system. Failure to properly complete these steps may result in personal injury and property damage.

Disassembly

1. After depressurizing main valve, pilot system and restrictor remove Rotor assembly by loosening Rotor Retainer.
2. Inspect Rotor and O-Rings for defects and replace if necessary.

Assembly

1. Lubricate O-Rings with Parker O-Lube1 (or equivalent petroleum based lubricant) and place one on the Rotor Core and one on the Rotor Retainer.
2. Install Rotor Core back into the Restrictor Body and screw Rotor Retainer with O-Ring into place snugly.

   Note: Overtightening an O-Ring joint will not improve the seal. Screw in until metal parts make contact and snug slightly.

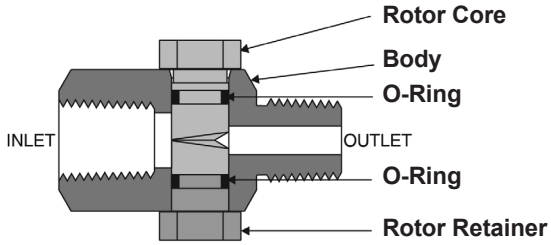

Figure 2

Type 24, 24S Mooney Restrictor Parts				
Item	**Description**	**Material**	**Part Number**	**Quantity**
1	Body	Steel (Zinc Plated) Stainless Steel	240-002-01240-002-02	11
2	Rotor Core	Stainless Steel	240-007-01	1
3	Rotor Retainer	Stainless Steel	240-006-01	1
4	O-Ring	NitrileViton	021-001-01021-011-02	22

Table 1

Notes

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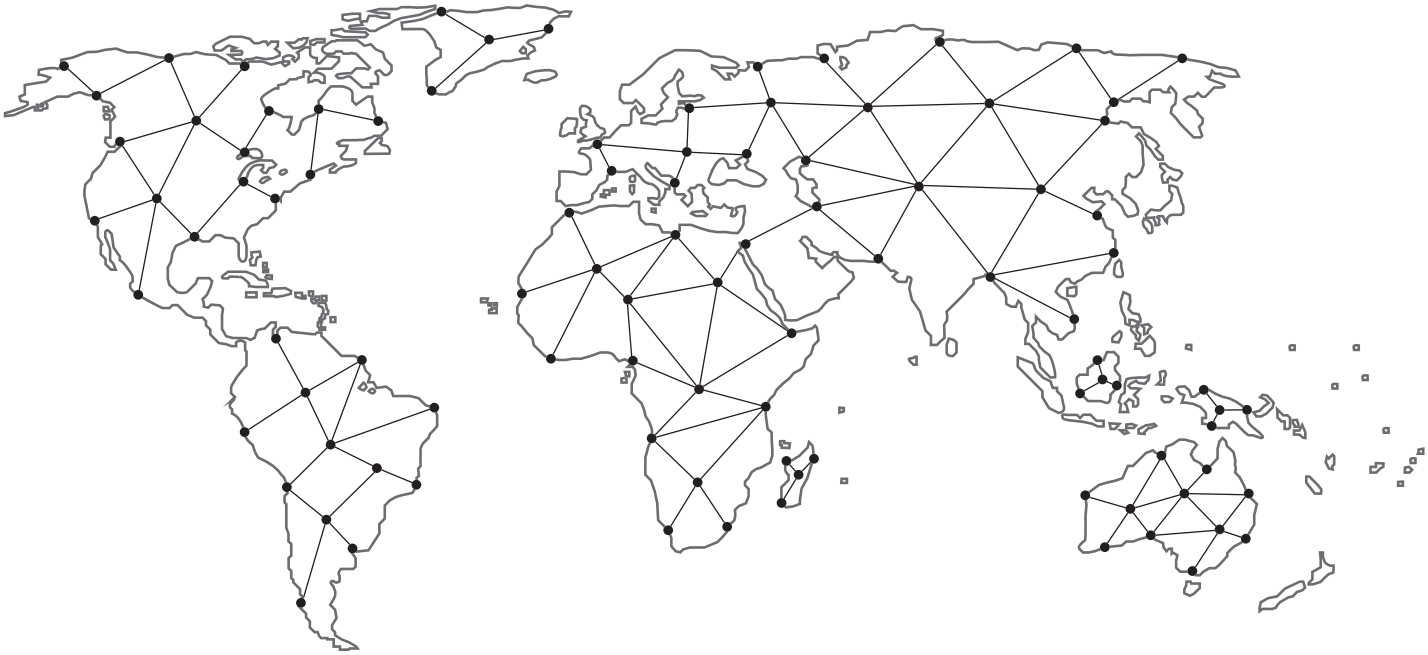
Find the nearest local Channel Partner in your area:

valves.bakerhughes.com/contact-us



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BHMY-24-24S-IOM-19576D-X-0221 02/2021

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