

# Marshall Excelsior



## Gas Connections

### MEGR-1627 HIGH FLOW GAS REGULATOR

#### **Instruction Manual- Look Inside For:**

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**APPLICATIONS**

- Farm Tap Regulation
- Monitoring Regulators
- Gate Regulators
- Pressure Reducing Regulators
- Fuel Gas Regulators
- Gas Gathering Regulators

**MATERIALS OF CONSTRUCTION**

**Body, Bonnet, Diaphragm Case** . . . . . Cast Ductile Iron Body/Aluminum Bonnet and Diaphragm Case

**Diaphragm** . . . . . Nitrile (low pressure) or Neoprene (high pressure)

**Seat** . . . . .Nitrile

**Orifice** . . . . .Aluminum

**SPECIFICATIONS**

**Maximum Inlet:**

Nitrile Seat . . . . .1000 PSIG (ductile iron)

**Outlet** . . . . .5–500 PSIG

**Port Sizes** . . . . .3/4", 1", 2" NPT

**Orifice Sizes** . . . . .1/8", 3/16", 1/4", 3/8", 1/2"

**Outlet Range** . . . . . Flow Range \*

5–20 PSIG . . . . .189–28,000

15–40 PSIG . . . . .630-44,700

35–80 PSIG . . . . .750-89,500

70–150 PSIG . . . . . 1,500-108,000

140–250 PSIG . . . . . 2,000-60,000

240–500 PSIG . . . . . 2,800-88,000

\* (SCFH of 0.63 Propane)

**Temperature Range** . . . . .–20° to 180°F (–18° to 82°C)

**Approximate Weight** . . . . .1" 5.3 lbs, 2.39 kg  
2" 8.8 lbs, 3.96 kg

## DESCRIPTION

The MEGR-1627 is a self-operated pressure-reducing regulator for both low and high pressure gas applications. These regulators are designed to be used with compressed gas, compressed air, and a variety of other gases.

### Warning!

Personal injury and /or property and equipment damage may result from escaping gases if the regulator is installed where the pressures or conditions may exceed the limits of the regulator or the piping and piping connections. Always install the regulator in a safe location.

It is recommended that a pressure relieving or limiting device be installed as required by any appropriate code, regulation, or standard to prevent operating conditions from exceeding any of those limits.

## INSTALLATION

Qualified personnel only should perform installation, operation, and maintenance per NFPA 54 & 58 and other local, State and Federal Regulations. The regulator can be mounted in any position, however the flow through the body must be in the direction of the arrow cast into the body surface. Also make sure to position the regulator to prevent any contamination or debris from entering the screened vent. Install a three-way bypass valve should continuous operation be required during maintenance. Prior to installation inspect the regulator and the piping lines for any debris or contamination. After installation periodically inspect the regulator for damage, especially after any overpressure condition. The MEGR-1627 does not have an internal relief, thus a pressure relieving or limiting device must be provided to prevent the inlet pressure from exceeding the outlet pressure limit.

### Warning!

It is not unusual for a regulator to vent some gas to atmosphere. In applications involving flammable or hazardous gases, it may become necessary to vent the regulator to a safe, or remote location. These gases may accumulate and cause property damage, or personal injury as a result of a fire or explosion. Periodically check the vent opening and line for any restrictions due to clogging or condensation.

When installing a MEGR-1627M, make sure the control line is attached before operating the regulator. The control line should have a 3/8" minimum diameter, and be connected to a section of pipe (preferably straight) a distance downstream equivalent to approximately 10 times the diameter of the outlet piping. In certain instances a hand valve may be needed to dampen pulsations in the control line.

## REMOTE VENT LINE INSTALLATION

The MEGR-1627 is provided with a vent assembly installed in the 3/4" NPT bonnet vent port. For remote venting, use the largest diameter piping possible. For best results, limit the number of bends and keep the line as short as possible. For the regulator to operate properly, the vent opening should remain free of any debris or foreign matter.



## STARTUP & ADJUSTMENT

### Warning!

The use of pressure gauges to prevent overpressure conditions, which might cause personal injury or equipment damage, is highly recommended. Before starting up the regulator, relieve the downstream pressure on the diaphragm. Failure to do so may result in personal injury or equipment damage.

When starting up the regulator, slowly open the upstream shutoff valve, and then slowly open the downstream shutoff valve. Check all piping and connections for leaks before making any final pressure adjustments. The nameplate provides the range of allowable pressure settings. For pressure settings outside the allowable range, change to the appropriate range spring and remember to change the nameplate accordingly.

**Note:** The use of a pressure measuring device is highly recommended when making any pressure adjustments with the regulator.

To make pressure adjustments, start by removing the adjustment screw protective cap, and loosening the locknut. Increasing the output pressure is achieved by turning the adjustment screw clockwise, while a counterclockwise turn decreases the output. Tighten the locknut and reinstall the adjustment screw cap.

TYPES MEGR-1627 & MEGR-1627M			
Outlet Pressure Range	Orifice Diameter (in)	Maximum Inlet Pressure (PSIG)	Maximum Differential Pressure (PSID)
<b>5-20 PSIG</b>	1/8	1000	1000
	3/16	750	750
	1/4	500	500
	3/8	300	300
	1/2	250	250
<b>15-40 PSIG</b>	1/8	1500*	1500*
	3/16	1000*	1000*
	1/4	750	750
	3/8	500	500
	1/2	300	300
<b>35-80 PSIG</b>	<b>1/8</b>	<b>1500*</b>	<b>1500*</b>
	3/16	1750*	1750*
	1/4	1500*	1500*
	3/8	1000	1000
	1/2	750	750
<b>70-150 PSIG</b>	1/8	2000*	2000*
	3/16	2000*	2000*
	1/4	1750*	1750*
	3/8	1250*	1250*
	1/2	750	750

**\*The maximum inlet pressure body rating is 1000 psig for ductile iron. The maximum valve disk inlet pressure rating is 1000 PSIG for nitrile.**

## **SHUTDOWN**

### **Warning!**

It is recommended that downstream pressure be released prior to performing a shutdown. Property damage or personal injury could result from an explosion from an overpressure condition on the diaphragm of the regulator.

Begin the shut down procedure by closing the nearest upstream shutoff valve. Next close the nearest downstream shutoff valve. Open the pressure relief valve located between the regulator and the downstream shutoff valve. On the MEGR-1627, pressure between the upstream shutoff valve and the regulator will relieve through the regulator. The MEGR-1627M requires relieving the pressure in the monitor line and downstream of the regulator prior to performing any maintenance.

## **MAINTENANCE**

Severity of conditions and the requirements of both state and federal laws determine the frequency to which the regulators need to be inspected. Debris in the process lines, exterior damage, and normal wear could require the replacement of parts such as the disk assembly, seat ring, and diaphragm. The procedures below will provide assistance when attempting to replace these parts.

### **Warning!**

When attempting any inspection or disassembly, relieve all pressure from the regulator and its adjacent piping so as to prevent personal injury or equipment damage as a result of an explosion or sudden pressure release.

## **BODY MAINTENANCE PROCEDURES**

### **Replacing the Seat Assembly and/or Seat Orifice:**

1. Remove the build screws (item 37) to separate the body (item 30) from the diaphragm case (item 14), exposing the seat assembly (item 28) and seat orifice (item 29).
2. Inspect the seat assembly (item 28) and the seat orifice (item 29) for damage, and if necessary, replace them.
3. To replace the seat assembly (item 28), remove the pin clip (item 23) which holds the seat assembly in place.
4. Assembly is the reverse of the above procedure. If replacing the seat orifice (item 29), apply thread locker (item 39) to the threads and torque to 16 ft/lbs. (aluminum case) and 25 ft/lbs. (steel case).

### **Replacing the Stem Assembly (MEGR-1627):**

1. Remove the boost body (item 26), the nitrile stabilizer (item 27), and the stem guide (item 22).
2. Disconnect the stem (item 24) and remove it from the diaphragm case (item 14).
3. Inspect the stem o-ring (item 19), the stem backup rings (item 20), and the diaphragm case o-ring (item 25) and replace if necessary.
4. Assembly is the reverse of the above procedure.

### **Replacing the Stem Assembly (MEGR-1627M):**

1. Using a straight edge screwdriver, pry the throat block (item 35) out of the diaphragm case (item 14).
2. Inspect the throat block o-rings (item 34), throat block backup rings (item 36), stem o-ring (item 19), and stem backup rings (item 20), and replace if necessary.
3. Assembly is the reverse of the above procedure.

## **DIAPHRAGM & SPRING CASE AREA MAINTENANCE PROCEDURES**

### **Warning !**

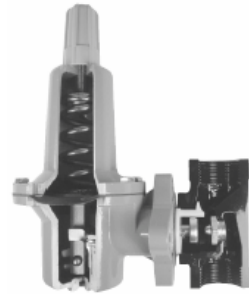
Before performing the following steps, insure that all spring pressure has been released from the diaphragm case.

1. Remove the adjustment screw cap (item 1), loosen the locking nut (item 3) on the adjustment screw (item 2) and by turning counterclockwise release all compression from the range spring (item 7).
2. Remove the bonnet build screws (item 9) and lift off the bonnet (item 4). Range springs may be changed at this time.
3. Slip the pusher post (item 13) out of the groove in the lever (item 15) and remove the diaphragm assembly (items 10, 11, 12, & 13).
4. Remove the lever screws (item 16) and remove the lever (item 15).
5. Remove the diaphragm screw (item 12) to access the diaphragm (item 11).
6. Inspect and replace any worn or suspect parts.
7. Assembly is the reverse of this procedure. Torque the diaphragm screw to 7 ft-lbs (MEGR-1627 & MEGR-1627M). Torque the spring case build screws to 7 ft-lbs. (MEGR-1627 aluminum), 12 ft-lbs. (MEGR-1627 steel).

	Spring & Diaphragm Casing Style	MEGR-1627		MEGR-1627M	
		PSIG	BAR	PSIG	BAR
Maximum pressure to spring and diaphragm casing to prevent leak to atmosphere. (internal parts damage may occur)	Die Cast Aluminum	250	17.2	N/A	N/A
Maximum pressure to spring and diaphragm casings to prevent burst of casings during abnormal operation. (leak to atmosphere and internal parts may occur)	Die Cast Aluminum	375	25.9	N/A	N/A
Maximum diaphragm casing over pressure to prevent damage to internal parts.	ALL	60	4.1	60	4.1

## **PARTS ORDERING**

When ordering replacement parts, always reference the Type number, which is found on the nameplate, and the item number of each needed part as found in the following parts list.



PARTS LIST	
ITEM	DESCRIPTION
1	Cover Adj. Screw
2	Adjustment Screw
3	Locknut
4	Bonnet
5	Vent Assembly
6	Spring Guide, Upper
7	Range Spring: 5-20 PSIG-YELLOW, 15-40 PSIG-GREEN, 35-80 PSIG-BLUE, 70-150 PSIG-RED, 140-250 PSIG-BLUE, 240-500 PSIG-RED
8	Spring Guide, Lower
9	Build Screw, Spring Case (8 Required)
10	Diaphragm Piston
11	Diaphragm
12	Screw, Diaphragm
13	Post, Pusher
14	Diaphragm Case
15	Lever
16	Lever Screw (2 Required)
17	Pin, Lever
18	Lever Retainer
19	Stem O-Ring
20	Stem Backup Ring (2 Required)

PARTS LIST	
ITEM	DESCRIPTION
21	Pin, Groove
22	Stem Guide
23	Pin Clip
24	Stem
25	Diaphragm Case O-Ring
26	Boost Body
27	Stabilizer
28	Seat Assembly
29	Orifice
30	Body
31	Nameplate (not shown)
37	Build Screw
39	Thread Locker
40	Name Plate Drive Screw (2 Required)(not shown)

