

# Type MR108 Direct-Operated Backpressure Regulators



P1202\_1

TYPE MR108 WITH  
LOW-PRESSURE ACTUATOR



P1203\_1

TYPE MR108 WITH  
HIGH-PRESSURE ACTUATOR

Figure 1. Type MR108 Direct-Operated Backpressure Regulators

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## Features

- Large Flow
- Variety of Cage Options to Meet Application Requirements
- Fast Response
- Steel and Stainless Steel Constructions Meet API 614 Requirements
- Available Constructions to Meet NACE MR0175-2003 and MR0103 Requirements for Sour Gas Service Capability
- Multiple Trim Materials Available
- ANSI/FCI 70-3-2004 Class VI Shutoff
- Multiple End Connection Options
- $P_1 = P_2$  on High-Pressure Actuator
- Suitable for High-Temperature Applications up to 250°F / 121°C
- Drain Valve
- Pressure-Loaded Actuator
- Bleed valve (for High-Pressure Actuator only)



## Specifications

The Specifications section on this page provides the ratings and other specifications for the Type MR108. The following information is stamped on the nameplate fastened on the regulator at the factory: type; body size; maximum inlet, outlet and differential pressure; maximum pressure above setpoint; maximum casing pressure; maximum temperature; spring range; cage type; and trim and diaphragm material.

### Body Sizes and End Connection Styles

See Table 1

### Shutoff Classification per ANSI/FCI 70-3-2004

Class VI (Soft Seat)

### Maximum Inlet, Outlet and Emergency

#### Casing Pressure<sup>(1)</sup>

See Table 5

### Backpressure Control Ranges

5 to 300 psig / 0.34 to 20.7 bar; See Table 2

### Construction Materials

See Table 3

### Maximum Setpoint

**Low-Pressure Actuator:** 35 psig / 2.4 bar

**High-Pressure Actuator:**

*Nitrile (NBR) and Ethylene Propylene (EPDM)*

*Diaphragm:* 300 psig / 20.7 bar

*Fluorocarbon (FKM) Diaphragm:* 150 psig / 10.3 bar

### Maximum Differential Pressures

**Low-Pressure Actuator:** 70 psig / 4.8 bar

**High-Pressure Actuator:** 400 psig / 27.6 bar or maximum inlet pressure, whichever is lower

### Maximum Pressure Over Setpoint to Avoid Internal Parts Damage<sup>(1)</sup>

**Low-Pressure Actuator:** 20 psig / 1.4 bar

**High-Pressure Actuator:** 120 psig / 8.3 bar

### Flow and Sizing Coefficients

See Table 4

### C<sub>v</sub> Coefficients

See Tables 6 through 11

### Capacities

See Tables 12 through 19

### Temperature Capabilities<sup>(1)</sup>

**Nitrile (NBR):** -20 to 180°F / -29 to 82°C

**Fluorocarbon (FKM):** 20 to 250°F / -7 to 121°C<sup>(2)</sup>

**Ethylene Propylene (EPDM):** -20 to 225°F / -29 to 107°C<sup>(3)</sup>

### Pressure Registration

External

### Upstream Control Line Connection Size

1/2 NPT

### Spring Case Vent

Type Y602-12

### Pressure-Loaded Spring Case Vent Connection

1/2 NPT

### Approximate Weights

#### For Type MR108 with Low-Pressure Actuator

NPS 1 / DN 25: 88 lbs / 40 kg

NPS 2 / DN 50: 118 lbs / 54 kg

NPS 3 / DN 80: 167 lbs / 76 kg

NPS 4 / DN 100: 176 lbs / 80 kg

#### For Type MR108 with High-Pressure Actuator

NPS 1 / DN 25: 78 lbs / 35 kg

NPS 2 / DN 50: 107 lbs / 49 kg

NPS 3 / DN 80: 156 lbs / 71 kg

NPS 4 / DN 100: 166 lbs / 75 kg

### Options

- Inlet Pressure Gauge Tap on Body
- Pressure-Loaded Actuator
- Drain Valve
- NACE Construction
- Bleed Valve (For High-Pressure Actuator only)
- Ethylene Propylene (EPDM) Elastomer Trim Parts

1. The pressure/temperature limits in this Bulletin or any applicable standard limitation should not be exceeded.

2. Fluorocarbon (FKM) is limited to 200°F / 93°C in hot water.

3. Ethylene Propylene (EPDM) is limited to 20 to 225°F / -7 to 107°C when used with Low Pressure Actuator.

**Table 1. Body Sizes and End Connection Styles**

| BODY MATERIAL                          | END CONNECTION STYLE                                |                                          |
|----------------------------------------|-----------------------------------------------------|------------------------------------------|
|                                        | NPS 1 and 2 / DN 25 and 50 Body Sizes               | NPS 3 and 4 / DN 80 and 100 Body Sizes   |
| Cast Iron                              | NPT, CL125 FF or CL250 RF                           | CL125 FF or CL250 RF                     |
| WCC Steel <sup>(1)(2)</sup>            | NPT, CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 RF | CL150 RF, CL300 RF, CL600 RF or PN 16 RF |
| CF8M Stainless steel <sup>(1)(2)</sup> | NPT, CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 RF | CL150 RF, CL300 RF, CL600 RF or PN 16 RF |
| CF3M Stainless steel <sup>(1)(2)</sup> | NPT, CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 RF | CL150 RF, CL300 RF, CL600 RF or PN 16 RF |

1. Optional NACE construction available.

2. Constructions meet API 614 requirements.

## Introduction

The Type MR108 regulators are direct-operated, backpressure, high-capacity, multi-purpose regulators. They are designed to handle pressures up to 400 psig / 27.6 bar and temperatures up to 250°F / 121°C.

This product provides a fast, simple, reliable and economical backpressure control in multi-purpose applications suitable for different flow media including liquid, air and gas. Applications include lube oil systems and any application where speed of response is critical, minimum differential pressure is a concern or fluid is not free of impurities. Type MR108 backpressure regulators with low-pressure actuators can be set up to 35 psig / 2.4 bar and the high-pressure actuator version can be set to 150 psig / 10.3 bar for constructions with Fluorocarbon (FKM) diaphragm and 300 psig / 20.7 bar for constructions with Nitrile (NBR) diaphragm.

The units are available in 4 sizes, NPS 1 through 4 / DN 25 through 100 and are available in several end connection configurations to meet demands on application requirements.

Available with 3 different cage options: linear cage for accurate control at low flow conditions, high capacity linear cage for medium flow application with high-turndown requirements and quick-opening cage for high flow applications.

The Type MR108 with Steel or Stainless steel body construction has been designed to meet API 614 as required by lube oil manufacturers.

## Features

**Large Flow**—Able to pass large flow rates with a minimum pressure buildup.

**Stability**—The Type MR108 regulator's cage-guided metal plug design provides superior control stability of delivery pressure.

**Fast Response**—Direct-operated for fast response to meet the most demanding pressure and flow requirements.

**Easy Drain**—Feature allows you to drain the system without expensive spool pieces saving you time and space.

**Easy Bleed**—Feature allows you to purge the air trapped underneath the diaphragm, improving speed of response and stability. Recommended when the regulator is installed in the upright position.

**Steel and Stainless Steel Constructions Meet API 614 Requirements**—Steel and Stainless steel body constructions comply with the recommendations of API Standard 614.

**Available Constructions to Meet NACE MR0175-2003 and NACE MR0103 Requirements for Sour Gas Service Capability**—Optional materials are available for applications handling sour gases. These constructions comply with the recommendations of NACE International Standards MR0175 and MR0103.

**Multiple Trim Materials Available**—416, 316 and 316L Stainless steel options are available to meet wider application requirements including demands from lube oil and cooling water applications.

**ANSI/FCI 70-3-2004 Class VI Shutoff**—Soft-seat valve plug seals for tight shutoff.

**Multiple End Connection Options**—Type MR108 is available in several end connection configurations to meet demands on application requirements.

**P<sub>1</sub> = P<sub>2</sub> on High-Pressure Actuator**—Inlet pressure rating equals outlet pressure rating on high-pressure actuator constructions up to 400 psig / 27.6 bar.

## Principle of Operation

Refer to Figure 2. The Type MR108 is a multi-purpose backpressure regulator. Upstream pressure is registered externally through a 1/2 NPT control line connection located at the low-pressure actuator bonnet or high-pressure actuator lower casing. When inlet pressure rises above the set pressure, the pressure under the actuator diaphragm increases and opens the regulator. This pressure overcomes the regulator setting (which is set by the regulator control spring). Through the action of the actuator stem, the valve plug is pulled upward moving away from the seat ring and allowing fluid to escape through the cage into the downstream system. When inlet pressure drops back to set pressure, pressure under the actuator diaphragm decreases. The control spring and the valve spring forces push the actuator stem downward, the valve plug moves closer to the seat ring and the flow decreases downstream as the regulator closes in response to the decreased pressure underneath the diaphragm.



**TYPE MR108 WITH LOW-PRESSURE ACTUATOR**



### TYPE MR108 WITH HIGH-PRESSURE ACTUATOR

**Figure 2. Type MR108 Backpressure Regulator Operational Schematic**

**Table 2. Backpressure Control Ranges**

| ACTUATOR TYPE | SPRING RANGE              |                             | SPRING PART NUMBER | SPRING COLOR CODE | SPRING WIRE DIAMETER |      | SPRING FREE LENGTH |     | MAXIMUM PRESSURE OVER SETPOINT TO AVOID INTERNAL PARTS DAMAGE |     |
|---------------|---------------------------|-----------------------------|--------------------|-------------------|----------------------|------|--------------------|-----|---------------------------------------------------------------|-----|
|               | psig                      | bar                         |                    |                   | In.                  | mm   | In.                | mm  | psig                                                          | bar |
| Low Pressure  | 5 to 14                   | 0.34 to 0.97                | GE42909X012        | White             | 0.44                 | 11.2 | 9.70               | 246 | 20                                                            | 1.4 |
|               | 8 to 24                   | 0.55 to 1.7                 | GE42910X012        | Silver            | 0.50                 | 12.7 |                    |     |                                                               |     |
|               | 12 to 30                  | 0.83 to 2.1                 | GE42911X012        | Orange            | 0.56                 | 14.2 |                    |     |                                                               |     |
|               | 15 to 35                  | 1.0 to 2.4                  | GE43002X012        | Red               | 0.63                 | 16.0 |                    |     |                                                               |     |
| High Pressure | 25 to 40                  | 1.7 to 2.8                  | GE42906X012        | Blue              | 0.33                 | 8.38 |                    |     | 120                                                           | 8.3 |
|               | 35 to 70                  | 2.4 to 4.8                  | GE42907X012        | Green             | 0.38                 | 9.65 |                    |     |                                                               |     |
|               | 55 to 120                 | 3.8 to 8.3                  | GE42909X012        | White             | 0.44                 | 11.2 |                    |     |                                                               |     |
|               | 90 to 200 <sup>(1)</sup>  | 6.2 to 13.8 <sup>(2)</sup>  | GE42910X012        | Silver            | 0.50                 | 12.7 |                    |     |                                                               |     |
|               | 175 to 300 <sup>(1)</sup> | 12.1 to 20.7 <sup>(2)</sup> | GE43002X012        | Red               | 0.63                 | 16.0 |                    |     |                                                               |     |

1. Maximum setpoint is limited to 150 psig / 10.3 bar for constructions with Fluorocarbon (FKM) diaphragm.  
2. Not applicable for constructions with Fluorocarbon (FKM) diaphragm.

**Table 3. Construction Materials**

| PART                            | STANDARD                                                          | OPTIONAL                                                             |
|---------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------|
| Body                            | WCC Steel <sup>(1)</sup>                                          | Cast Iron, CF8M, CF3M Stainless steel                                |
| Body Flange                     | WCC Steel <sup>(1)</sup>                                          | CF8M, CF3M Stainless steel                                           |
| Actuator Casing - Low Pressure  | AISI 1010 Steel <sup>(1)</sup>                                    | 316/316L Stainless steel                                             |
| Actuator Casing - High Pressure | WCC Steel <sup>(1)</sup>                                          | CF3M/CF8M Stainless steel                                            |
| Internal Stiffener Plate        | AISI 1010 Steel <sup>(1)</sup>                                    | 316/316L Stainless steel                                             |
| Spring Case                     | WCC Steel                                                         | CF3M/CF8M Stainless steel                                            |
| Spring Case Spacer              | Zinc-plated Steel                                                 | Stainless steel                                                      |
| Cage                            | CF3M/CF8M (Quick Opening), CF8M (Linear) Stainless steel          |                                                                      |
| Valve Plug and Seat Ring        | 416 Stainless steel                                               | 316, 316L, S20910 (Nitronic 50) Stainless steel (NPS 1 / DN 25 only) |
| Closing Spring                  | Inconel® X750                                                     |                                                                      |
| Stem                            | S17400 H1075 Stainless steel                                      | S20910 (Nitronic 50) Stainless steel                                 |
| Lower Diaphragm Support         | S17400 H1075 Stainless steel                                      |                                                                      |
| Diaphragm and Seals             | Nitrile (NBR)                                                     | Fluorocarbon (FKM), Ethylene Propylene (EPDM)                        |
| Upper Diaphragm Plate           | Cast Iron                                                         |                                                                      |
| Control/Set Spring              | Steel Alloy <sup>(1)</sup>                                        |                                                                      |
| Spring Seats                    | Zinc-plated Steel                                                 |                                                                      |
| Bolting                         | SA194 Grade B7/NCF (Body to Bonnet)<br>SAE Grade 5/NCF (Actuator) | Stainless steel                                                      |
| Adjusting Screw                 | Zinc-plated Steel                                                 | Stainless steel                                                      |

1. Powder coated.

**Table 4. Wide Open Flow and Sizing Coefficients**

| BODY SIZE                                |     | WIDE OPEN COEFFICIENT      |                | IEC SIZING COEFFICIENT |                |                |                |                |
|------------------------------------------|-----|----------------------------|----------------|------------------------|----------------|----------------|----------------|----------------|
|                                          |     | Line Size Equals Body Size |                | C <sub>1</sub>         | K <sub>m</sub> | F <sub>L</sub> | X <sub>T</sub> | F <sub>d</sub> |
| NPS                                      | DN  | C <sub>g</sub>             | C <sub>v</sub> |                        |                |                |                |                |
| Linear Cage                              |     |                            |                |                        |                |                |                |                |
| 1                                        | 25  | 463                        | 13.7           | 34                     | 0.81           | 0.9            | 0.73           | 0.36           |
| 2                                        | 50  | 761                        | 22.5           | 33.8                   | 0.75           | 0.87           | 0.72           | 0.24           |
| 3                                        | 80  | 997                        | 30.5           | 32.7                   | 0.78           | 0.88           | 0.68           | 0.22           |
| 4                                        | 100 | 934                        | 27.5           | 34                     | 0.77           | 0.88           | 0.75           | 0.18           |
| High-Capacity Linear Cage <sup>(1)</sup> |     |                            |                |                        |                |                |                |                |
| 2                                        | 50  |                            | 43.6           |                        | 0.8            | 0.89           |                |                |
| 3                                        | 80  |                            | 69.3           |                        | 0.73           | 0.85           |                |                |
| 4                                        | 100 |                            | 71.5           |                        | 0.71           | 0.84           |                |                |
| Quick Opening Cage                       |     |                            |                |                        |                |                |                |                |
| 1                                        | 25  | 597                        | 17.5           | 34.1                   | 0.81           | 0.9            | 0.73           | 0.43           |
| 2                                        | 50  | 1740                       | 48.2           | 36.1                   | 0.81           | 0.9            | 0.82           | 0.34           |
| 3                                        | 80  | 3540                       | 103.1          | 34.4                   | 0.76           | 0.87           | 0.75           | 0.32           |
| 4                                        | 100 | 4300                       | 135.9          | 31.6                   | 0.72           | 0.85           | 0.65           | 0.3            |

- Shaded areas represents that for High-Capacity Linear Cage, only C<sub>v</sub>, K<sub>m</sub>, F<sub>L</sub> are available.  
1. Recommend for use in liquid applications only.

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**Table 5. Maximum Inlet, Outlet and Emergency Casing Pressures<sup>(1)</sup>**

| BODY MATERIAL                                                                                                                                                                                                                                                               | END CONNECTION | MAXIMUM INLET PRESSURE |     |                                       |      | MAXIMUM OUTLET PRESSURE |     |                                       |      | MAXIMUM EMERGENCY CASING PRESSURE |     |                                       |      |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------|-----|---------------------------------------|------|-------------------------|-----|---------------------------------------|------|-----------------------------------|-----|---------------------------------------|------|--|--|
|                                                                                                                                                                                                                                                                             |                | Low-Pressure Actuator  |     | High-Pressure Actuator <sup>(2)</sup> |      | Low-Pressure Actuator   |     | High-Pressure Actuator <sup>(2)</sup> |      | Low-Pressure Actuator             |     | High-Pressure Actuator <sup>(2)</sup> |      |  |  |
|                                                                                                                                                                                                                                                                             |                | psig                   | bar | psig                                  | bar  | psig                    | bar | psig                                  | bar  | psig                              | bar | psig                                  | bar  |  |  |
| Cast Iron                                                                                                                                                                                                                                                                   | NPT            | 70                     | 4.8 | 340                                   | 23.4 | 70                      | 4.8 | 340                                   | 23.4 | 70                                | 4.8 | 340                                   | 23.4 |  |  |
|                                                                                                                                                                                                                                                                             | CL125 FF       |                        |     | 175                                   | 12.1 |                         |     | 175                                   | 12.1 |                                   |     | 175                                   | 12.1 |  |  |
|                                                                                                                                                                                                                                                                             | CL250 RF       |                        |     | 400                                   | 27.6 |                         |     | 400                                   | 27.6 |                                   |     | 400                                   | 27.6 |  |  |
| WCC Steel                                                                                                                                                                                                                                                                   | NPT            | 70                     | 4.8 | 400                                   | 27.6 | 70                      | 4.8 | 400                                   | 27.6 | 70                                | 4.8 | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL150 RF       |                        |     | 245                                   | 16.9 |                         |     | 245                                   | 16.9 |                                   |     | 245                                   | 16.9 |  |  |
|                                                                                                                                                                                                                                                                             | CL300 RF       |                        |     | 400                                   | 27.6 |                         |     | 400                                   | 27.6 |                                   |     | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL600 RF       |                        |     | 245                                   | 16.9 |                         |     | 245                                   | 16.9 |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16 RF       |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16/25/40 RF |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             |                |                        |     | 400                                   | 27.6 |                         |     | 400                                   | 27.6 |                                   |     | 400                                   | 27.6 |  |  |
| CF8M Stainless steel                                                                                                                                                                                                                                                        | NPT            | 70                     | 4.8 | 400                                   | 27.6 | 70                      | 4.8 | 400                                   | 27.6 | 70                                | 4.8 | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL150 RF       |                        |     | 225                                   | 15.5 |                         |     | 225                                   | 15.5 |                                   |     | 225                                   | 15.5 |  |  |
|                                                                                                                                                                                                                                                                             | CL300 RF       |                        |     | 400                                   | 27.6 |                         |     | 400                                   | 27.6 |                                   |     | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL600 RF       |                        |     | 225                                   | 15.5 |                         |     | 225                                   | 15.5 |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16 RF       |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16/25/40 RF |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | 400            | 27.6                   | 400 | 27.6                                  | 400  | 27.6                    |     |                                       |      |                                   |     |                                       |      |  |  |
| CF3M Stainless steel                                                                                                                                                                                                                                                        | NPT            | 70                     | 4.8 | 400                                   | 27.6 | 70                      | 4.8 | 400                                   | 27.6 | 70                                | 4.8 | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL150 RF       |                        |     | 185                                   | 12.7 |                         |     | 185                                   | 12.7 |                                   |     | 185                                   | 12.7 |  |  |
|                                                                                                                                                                                                                                                                             | CL300 RF       |                        |     | 400                                   | 27.6 |                         |     | 400                                   | 27.6 |                                   |     | 400                                   | 27.6 |  |  |
|                                                                                                                                                                                                                                                                             | CL600 RF       |                        |     | 185                                   | 12.7 |                         |     | 185                                   | 12.7 |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16 RF       |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | PN 16/25/40 RF |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |
|                                                                                                                                                                                                                                                                             | 400            | 27.6                   | 400 | 27.6                                  | 400  | 27.6                    |     |                                       |      |                                   |     |                                       |      |  |  |
| 1. Pressure ratings are based on a maximum operating temperature of 250°F / 121°C.<br>2. Maximum inlet, outlet and emergency pressures for constructions with Fluorocarbon (FKM) diaphragm are limited to 230 psig / 15.8 bar or the body rating limit, whichever is lower. |                |                        |     |                                       |      |                         |     |                                       |      |                                   |     |                                       |      |  |  |

1. Pressure ratings are based on a maximum operating temperature of 250°F / 121°C.

2. Maximum inlet, outlet and emergency pressures for constructions with Fluorocarbon (FKM) diaphragm are limited to 230 psig / 15.8 bar or the body rating limit, whichever is lower.

## Overpressure Condition

Depending upon construction, backpressure control ratings are from 5 to 300 psig / 0.34 to 20.7 bar. The maximum inlet pressure can be found in Table 5. System operation within these limitations does not eliminate the possibility of damage from external sources or from debris in the flow line. The backpressure regulator should be inspected for damage regularly and after any overpressure condition.

## Installation

### Note

**Not all codes or regulations will permit these units to be used as final overpressure protection devices.**

Vertical installation with the actuator installed directly above or below the main valve is recommended but for optimal performance the actuator should be installed below the main valve. The use of a bleed valve is recommended for liquid installations that require the high pressure actuator to be mounted above the main valve. The unit will operate in horizontal installations with actuator on the side, however, this could result in premature wear of parts. Orientation of the two vents should always be down. Vents may be rotated after regulator installation to reposition so that the vent screens are down.

A control line must be installed to allow inlet pressure to register on the actuator's diaphragm. The size of the control line is indicated in the Specification sections above and should be installed four to eight pipe diameter before the backpressure regulator and in an area of pipe that is free of turbulence.

An instruction manual is provided with every regulator shipped. Refer to this for detailed installation, operation, adjustment and maintenance instructions. The instruction manual includes a complete listing of individual parts and recommended spare parts.

## Applications

### Note

**A linear cage is recommended for applications where low flow stability is a concern but it will limit the overall capacity of the regulator.**

**A high-capacity linear cage is recommended for liquid applications that require a higher capacity than the linear cage and are expected to have a large turndown ratio between minimum and maximum operating flow conditions.**

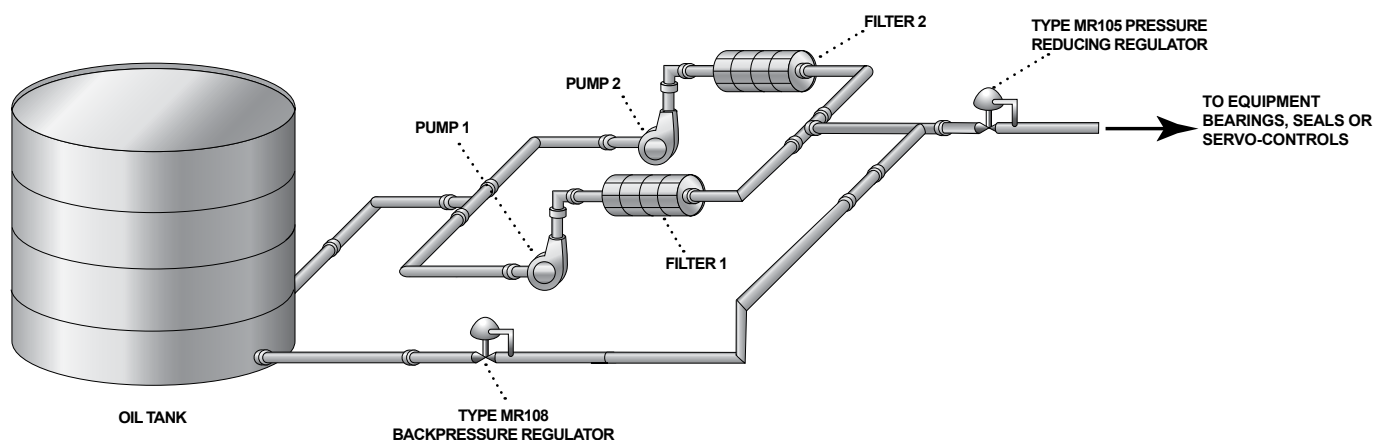


Figure 3. Lube Oil Skid Diagram

## Lube Oil Skids (Figure 3)

Lube oil skids maintain oil flow to bearings, seals and servo-controls on critical turbomachinery assets such as air and gas compressors, steam turbines, power recovery turbines and power generating equipment. These skids are essential in keeping lube oil clean at all times and ensure maximum service life for the equipment. Because it is critical to maintain a constant flow and pressure of oil to the equipment, it is normally equipped with two pumps – the main pump and the auxiliary pump, which will take over in case of main pump failure – and filters.

In normal condition, the skids operate in the following manner:

- Lube oil is stored in the tank at atmospheric pressure.
- It is then fed to the main pump (Pump 1) which pressurizes the lube oil.
- Oil then goes through a filter.
- After filtration, oil flow is split such that a fraction is sent to a backpressure regulator to limit the supply pressure to the pressure reducing regulator. 20% of the pump rate flows through the backpressure regulator, sending back oil to the oil tank.
- The pressure reducing regulator decreases the pressure to a safe and allowable range. Flow through this regulator is 80% of pump rate.
- Oil flows to large rotating equipment lubricating bearings, e.g. turbines and compressors.

The loss of pressure or flow to the bearings or these turbomachinery assets may shut down the equipment or even the whole plant. Failure of the main pump or filter results in the following upset operation:

- Auxiliary pump (Pump 2) and filter system is brought into operation while main pump is in operation.
- Auxiliary pump ramp up rate is one second.
- Auxiliary pump produces a pressure spike that is beyond the limitations of the pressure reducing regulator.
- The backpressure regulator relieves the excess pressure back to the oil tank. Flow rate is 120% of total pump rate.

Main pump can now be shut down to allow repair of the system. High capacity direct-operated regulators are recommended for this type of application where speed of response is critical. The Type MR108 can provide fast response to the pressure spikes as described above while maintaining a constant delivery pressure of oil to the bearing.

## Universal NACE Compliance

Optional materials are available for applications handling sour gases. These constructions comply with the recommendations of NACE International Sour Service Standards.

The manufacturing processes and materials used by Regulator Technologies assure that all products specified for sour gas service comply with the chemical, physical and metallurgical requirements of NACE MR0175 and/or NACE MR0103. Customers have the responsibility to specify correct materials. Environmental limitations may apply and shall be determined by the user.

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**Table 6. Typical  $C_v$  Coefficient With Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE, COLOR CODE                 | RELIEF PRESSURE SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|------------------------------------------|-------------------------|------|----------------------------------------|------|------|------|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                          |                         |      | % Pressure Buildup Over Relief Setting |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|                                          |                         |      | NPS 1 / DN 25 Body                     |      |      |      | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                          |                         |      | 10%                                    | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
|                                          | psig                    | bar  | $C_v$                                  |      |      |      | $C_v$              |      |      |      | $C_v$              |      |      |      | $C_v$               |      |      |      |
| 5 to 14 psig / 0.34 to 0.97 bar (White)  | 5                       | 0.34 | 1.7                                    | 1.7  | 4.3  | 5.3  | 4.3                | 8.2  | 11.0 | 15.5 | 5.3                | 8.7  | 12.0 | 16.4 | 5.1                 | 8.2  | 12.9 | 16.6 |
|                                          | 10                      | 0.69 | 1.8                                    | 3.2  | 10.8 | 11.2 | 8.1                | 15.0 | 22.5 | 22.5 | 8.3                | 15.6 | 23.3 | 30.5 | 8.7                 | 16.5 | 25.0 | 27.5 |
| 8 to 24 psig / 0.55 to 1.7 bar (Silver)  | 10                      | 0.69 | 1.8                                    | 2.3  | 11.4 | 11.8 | 5.1                | 7.2  | 13.6 | 19.0 | 5.8                | 10.0 | 14.6 | 19.9 | 5.7                 | 10.7 | 15.3 | 20.8 |
|                                          | 20                      | 1.4  | 6.4                                    | 10.0 | 13.1 | 13.2 | 7.0                | 17.1 | 22.5 | 22.5 | 9.5                | 17.7 | 27.5 | 30.5 | 10.0                | 19.4 | 27.5 | 27.5 |
| 13 to 30 psig / 0.89 to 2.1 bar (Orange) | 15                      | 1.0  | 6.4                                    | 8.5  | 9.5  | 10.0 | 4.7                | 8.5  | 13.1 | 18.8 | 6.0                | 10.3 | 15.6 | 21.1 | 5.9                 | 10.6 | 15.6 | 21.6 |
|                                          | 25                      | 1.7  | 5.9                                    | 8.0  | 10.5 | 13.2 | 6.9                | 14.6 | 22.5 | 22.5 | 8.5                | 15.7 | 24.0 | 30.5 | 8.4                 | 16.6 | 25.3 | 27.5 |
|                                          | 30                      | 2.1  | 5.9                                    | 10.8 | 13.1 | 13.1 | 8.2                | 18.0 | 22.5 | 22.5 | 9.6                | 17.7 | 28.4 | 30.5 | 9.7                 | 19.2 | 27.5 | 27.5 |
| 15 to 35 psig / 1.0 to 2.4 bar (Red)     | 15                      | 1.0  | 2.0                                    | 6.8  | 7.9  | 8.7  | 3.9                | 7.5  | 10.4 | 14.2 | 5.0                | 7.9  | 11.3 | 15.1 | 4.7                 | 7.8  | 11.3 | 14.8 |
|                                          | 25                      | 1.7  | 5.5                                    | 6.4  | 9.8  | 13.5 | 5.5                | 10.6 | 16.8 | 22.5 | 6.4                | 11.8 | 17.3 | 24.0 | 6.3                 | 12.2 | 18.2 | 24.7 |
|                                          | 35                      | 2.4  | 4.2                                    | 10.6 | 13.3 | 12.9 | 7.1                | 14.5 | 22.5 | 22.5 | 7.8                | 15.3 | 23.7 | 30.5 | 8.1                 | 15.9 | 23.9 | 27.5 |

**Table 7. Typical  $C_v$  Coefficient With Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE, COLOR CODE                  | RELIEF PRESSURE SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|-------------------------------------------|-------------------------|------|----------------------------------------|------|------|------|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                           |                         |      | % Pressure Buildup Over Relief Setting |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|                                           |                         |      | NPS 1 / DN 25 Body                     |      |      |      | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                           |                         |      | 10%                                    | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
|                                           | psig                    | bar  | $C_v$                                  |      |      |      | $C_v$              |      |      |      | $C_v$              |      |      |      | $C_v$               |      |      |      |
| 25 to 40 psig / 1.7 to 2.8 bar (Blue)     | 25                      | 1.7  | 3.1                                    | 5.3  | 8.2  | 11.3 | 5.0                | 8.0  | 12.3 | 16.2 | 5.1                | 8.8  | 12.7 | 17.9 | 4.4                 | 6.9  | 9.8  | 13.4 |
|                                           | 35                      | 2.4  | 4.0                                    | 8.2  | 11.3 | 12.7 | 5.3                | 9.9  | 14.7 | 19.7 | 6.6                | 11.1 | 17.8 | 24.1 | 5.3                 | 9.1  | 13.3 | 19.4 |
|                                           | 40                      | 2.8  | 4.5                                    | 8.5  | 11.4 | 12.4 | 5.6                | 10.7 | 16.1 | 21.9 | 7.2                | 12.6 | 19.9 | 27.4 | 5.6                 | 9.8  | 15.7 | 21.2 |
| 35 to 70 psig / 2.4 to 4.8 bar (Green)    | 35                      | 2.4  | 3.1                                    | 5.2  | 7.7  | 10.0 | 4.4                | 6.9  | 10.2 | 13.7 | 5.2                | 8.0  | 11.6 | 15.9 | 4.4                 | 6.6  | 9.5  | 12.6 |
|                                           | 50                      | 3.4  | 3.9                                    | 6.6  | 10.3 | 12.3 | 4.6                | 8.5  | 12.8 | 17.8 | 6.1                | 10.8 | 16.6 | 22.7 | 5.0                 | 8.6  | 14.0 | 19.0 |
|                                           | 70                      | 4.8  | 4.4                                    | 9.1  | 12.7 | 12.7 | 5.9                | 11.0 | 17.2 | 22.5 | 7.5                | 14.2 | 21.6 | 29.5 | 6.3                 | 12.8 | 18.7 | 24.5 |
| 55 to 120 psig / 3.8 to 8.3 bar (White)   | 55                      | 3.8  | 3.1                                    | 5.2  | 7.6  | 10.4 | 4.2                | 7.0  | 10.1 | 13.6 | 5.2                | 8.3  | 11.9 | 16.5 | 4.2                 | 6.6  | 9.2  | 13.7 |
|                                           | 75                      | 5.2  | 3.5                                    | 6.5  | 10.5 | 10.5 | 5.0                | 8.7  | 13.1 | 17.7 | 6.0                | 10.1 | 15.6 | 21.4 | 5.1                 | 8.5  | 14.2 | 18.2 |
|                                           | 120                     | 8.3  | 4.8                                    | 10.1 | 12.1 | 12.1 | 6.4                | 12.3 | 19.0 | 22.5 | 7.9                | 15.1 | 23.3 | 29.8 | 6.2                 | 13.7 | 20.6 | 27.2 |
| 90 to 200 psig / 6.2 to 13.8 bar (Silver) | 100                     | 6.9  | 3.2                                    | 5.5  | 8.6  | 11.6 | 4.5                | 7.8  | 11.3 | 15.0 | 5.5                | 8.9  | 13.2 | 18.0 | 5.1                 | 7.5  | 12.0 | 15.4 |
|                                           | 150                     | 10.3 | 4.1                                    | 8.3  | 9.9  | 9.9  | 5.8                | 10.4 | 15.5 | 21.2 | 6.3                | 11.9 | 18.3 | 26.0 | 5.3                 | 10.1 | 16.0 | 22.7 |
|                                           | 200                     | 13.8 | 5.3                                    | 10.2 | 9.8  | 9.8  | 6.7                | 12.6 | 19.4 | 22.5 | 7.9                | 15.3 | 23.8 | 29.8 | 6.5                 | 13.9 | 21.9 | 27.2 |
| 175 to 300 psig / 12.1 to 20.7 bar (Red)  | 175                     | 12.1 | 3.1                                    | 5.3  | 7.8  | 10.2 | 4.2                | 6.8  | 9.8  | 13.1 | 5.0                | 7.7  | 11.3 | 15.3 | 4.8                 | 7.0  | 9.8  | 13.5 |
|                                           | 250                     | 17.2 | 4.0                                    | 7.5  | 11.5 | 11.5 | 4.7                | 8.0  | 11.9 | 16.5 | 5.9                | 10.4 | 15.8 | 21.9 | 5.4                 | 9.8  | 15.0 | 20.3 |
|                                           | 300                     | 20.7 | 4.4                                    | 8.7  | 11.9 |      | 5.2                | 9.1  | 12.4 |      | 6.6                | 12.3 | 18.8 |      | 6.0                 | 11.1 | 17.3 |      |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 8. Typical  $C_v$  Coefficient With High Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE, COLOR CODE                 | RELIEF PRESSURE SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|------------------------------------------|-------------------------|------|----------------------------------------|-----|-----|-----|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                          |                         |      | % Pressure Buildup Over Relief Setting |     |     |     |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|                                          |                         |      | NPS 1 / DN 25 Body                     |     |     |     | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                          | psig                    | bar  | 10%                                    | 20% | 30% | 40% | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
|                                          |                         |      | $C_v$                                  |     |     |     | $C_v$              |      |      |      | $C_v$              |      |      |      | $C_v$               |      |      |      |
| 5 to 14 psig / 0.34 to 0.97 bar (White)  | 5                       | 0.34 |                                        |     |     |     | 9.8                | 18.3 | 26.8 | 35.2 | 13.6               | 23.3 | 35.3 | 45.4 | 14.1                | 25.3 | 36.9 | 50.3 |
|                                          | 10                      | 0.69 |                                        |     |     |     | 17.0               | 33.9 | 41.6 | 42.5 | 23.5               | 44.5 | 64.6 | 68.7 | 25.9                | 47.6 | 66.8 | 69.2 |
| 8 to 24 psig / 0.55 to 1.7 bar (Silver)  | 10                      | 0.69 |                                        |     |     |     | 12.2               | 21.9 | 29.6 | 38.8 | 16.3               | 28.0 | 41.6 | 54.3 | 17.5                | 32.0 | 45.2 | 58.8 |
|                                          | 20                      | 1.4  |                                        |     |     |     | 19.5               | 36.5 | 42.5 | 42.7 | 26.2               | 47.4 | 66.5 | 67.3 | 30.7                | 54.9 | 68.4 | 68.4 |
| 13 to 30 psig / 0.89 to 2.1 bar (Orange) | 15                      | 1.0  |                                        |     |     |     | 12.6               | 23.2 | 33.3 | 42.3 | 16.2               | 28.3 | 42.3 | 55.2 | 18.5                | 32.8 | 47.1 | 61.3 |
|                                          | 25                      | 1.7  |                                        |     |     |     | 17.4               | 34.3 | 42.7 | 42.5 | 23.8               | 43.1 | 62.8 | 65.9 | 26.3                | 47.7 | 66.3 | 67.1 |
|                                          | 30                      | 2.1  |                                        |     |     |     | 19.1               | 39.0 | 42.3 | 42.2 | 26.1               | 48.2 | 65.7 | 65.7 | 28.9                | 53.2 | 66.6 | 66.2 |
| 15 to 35 psig / 1.0 to 2.4 bar (Red)     | 15                      | 1.0  |                                        |     |     |     | 9.7                | 16.6 | 24.6 | 32.0 | 13.3               | 21.7 | 31.3 | 41.2 | 14.5                | 24.0 | 34.4 | 45.4 |
|                                          | 25                      | 1.7  |                                        |     |     |     | 14.4               | 25.8 | 37.9 | 42.5 | 17.5               | 31.6 | 47.2 | 60.5 | 19.5                | 35.2 | 51.6 | 66.1 |
|                                          | 35                      | 2.4  |                                        |     |     |     | 16.9               | 34.2 | 41.8 | 41.6 | 22.6               | 41.4 | 59.6 | 65.1 | 25.6                | 46.3 | 65.2 | 65.6 |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 9. Typical  $C_v$  Coefficient With High-Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE, COLOR CODE                  | RELIEF PRESSURE SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|-------------------------------------------|-------------------------|------|----------------------------------------|-----|-----|-----|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                           |                         |      | % Pressure Buildup Over Relief Setting |     |     |     |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|                                           |                         |      | NPS 1 / DN 25 Body                     |     |     |     | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                           | psig                    | bar  | 10%                                    | 20% | 30% | 40% | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
|                                           |                         |      | $C_v$                                  |     |     |     | $C_v$              |      |      |      | $C_v$              |      |      |      | $C_v$               |      |      |      |
| 25 to 40 psig / 1.7 to 2.8 bar (Blue)     | 25                      | 1.7  |                                        |     |     |     | 11.2               | 19.2 | 27.1 | 35.5 | 13.5               | 22.1 | 30.9 | 41.1 | 15.3                | 22.8 | 31.2 | 42.8 |
|                                           | 35                      | 2.4  |                                        |     |     |     | 12.1               | 22.3 | 32.0 | 41.2 | 15.5               | 26.8 | 38.4 | 49.7 | 17.4                | 29.5 | 42.7 | 53.1 |
|                                           | 40                      | 2.8  |                                        |     |     |     | 14.2               | 25.3 | 37.2 | 41.9 | 16.6               | 28.4 | 40.2 | 52.0 | 18.5                | 30.6 | 44.0 | 54.8 |
| 35 to 70 psig / 2.4 to 4.8 bar (Green)    | 35                      | 2.4  |                                        |     |     |     | 9.8                | 16.9 | 24.0 | 32.2 | 13.1               | 20.8 | 28.9 | 37.1 | 14.8                | 22.8 | 31.3 | 39.4 |
|                                           | 50                      | 3.4  |                                        |     |     |     | 11.3               | 20.5 | 29.9 | 38.7 | 15.4               | 25.6 | 36.2 | 45.4 | 17.4                | 28.0 | 38.8 | 48.9 |
|                                           | 70                      | 4.8  |                                        |     |     |     | 13.5               | 25.6 | 37.1 | 40.6 | 17.7               | 30.8 | 42.4 | 53.5 | 21.1                | 33.5 | 45.5 | 57.9 |
| 55 to 120 psig / 3.8 to 8.3 bar (White)   | 55                      | 3.8  |                                        |     |     |     | 9.4                | 16.0 | 22.9 | 30.9 | 13.1               | 20.3 | 28.3 | 36.5 | 14.0                | 21.9 | 31.3 | 39.2 |
|                                           | 75                      | 5.2  |                                        |     |     |     | 11.4               | 19.8 | 29.2 | 32.0 | 15.0               | 24.7 | 34.9 | 44.4 | 16.0                | 28.0 | 38.5 | 49.2 |
|                                           | 120                     | 8.3  |                                        |     |     |     | 13.7               | 26.5 | 39.9 | 40.3 | 18.5               | 31.9 | 44.8 | 58.0 | 21.3                | 35.9 | 50.0 | 61.4 |
| 90 to 200 psig / 6.2 to 13.8 bar (Silver) | 100                     | 6.9  |                                        |     |     |     | 9.5                | 16.0 | 23.2 | 31.5 | 13.7               | 21.8 | 30.4 | 39.0 | 14.0                | 23.1 | 32.3 | 41.3 |
|                                           | 150                     | 10.3 |                                        |     |     |     | 12.1               | 21.8 | 32.9 | 39.7 | 16.6               | 28.0 | 39.7 | 51.0 | 18.6                | 29.8 | 42.2 | 54.3 |
|                                           | 200                     | 13.8 |                                        |     |     |     | 13.6               | 26.5 | 38.6 | 39.7 | 19.2               | 33.2 | 46.8 | 59.0 | 20.2                | 34.5 | 49.9 | 60.8 |
| 175 to 300 psig / 12.1 to 20.7 bar (Red)  | 175                     | 12.1 |                                        |     |     |     | 9.1                | 15.2 | 22.0 | 29.1 | 12.7               | 19.8 | 27.6 | 35.5 | 13.8                | 21.1 | 29.4 | 37.4 |
|                                           | 250                     | 17.2 |                                        |     |     |     | 11.0               | 19.7 | 29.6 | 37.0 | 15.2               | 25.0 | 35.6 | 45.8 | 15.5                | 25.6 | 36.4 | 47.5 |
|                                           | 300                     | 20.7 |                                        |     |     |     | 12.5               | 23.6 | 35.0 |      | 16.7               | 28.5 | 40.5 |      | 16.9                | 28.7 | 41.4 |      |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

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**Table 10. Typical  $C_v$  Coefficient With Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | C <sub>v</sub> AT % BUILDUP |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|---------------------------------------------------------------|-------------------------------|------|-----------------------------|------|------|------|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                                               |                               |      | NPS 1 / DN 25 Body          |      |      |      | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                                               | psig                          | bar  | 10%                         | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 5.76                        | 10.7 | 13.8 | 16   | 12.3               | 24.6 | 33.9 | 41.8 | 26.5               | 41.5 | 59.4 | 74.0 | 23.2                | 32.9 | 44.4 | 54.1 |
|                                                               | 10                            | 0.69 | 11.2                        | 15.8 | 16.9 | 17.2 | 23.2               | 40.7 | 48.2 | 48.2 | 40.3               | 71.1 | 94.0 | 103  | 34.1                | 54.8 | 79.2 | 96.9 |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 7.28                        | 13.0 | 15.2 | 16.4 | 16.6               | 29.2 | 40.8 | 47.6 | 29.9               | 50.0 | 69.6 | 85.0 | 28.6                | 44.4 | 60.0 | 75.5 |
|                                                               | 20                            | 1.4  | 11.7                        | 15.6 | 16.7 | 16.9 | 28.0               | 47.1 | 48.2 | 48.2 | 47.7               | 76.8 | 97.1 | 103  | 44.2                | 73.5 | 98.1 | 124  |
| 12 to 30 psig /<br>0.83 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 6.57                        | 12.3 | 15.5 | 16.8 | 16.7               | 29.1 | 41.9 | 48.2 | 30.1               | 51.3 | 68.6 | 81.6 | 30.9                | 48.8 | 66.7 | 83.3 |
|                                                               | 25                            | 1.7  | 12.1                        | 15.7 | 17.3 | 17.5 | 25.0               | 43.1 | 48.2 | 48.2 | 42.3               | 67.0 | 87.6 | 101  | 43.1                | 72.9 | 98.6 | 124  |
|                                                               | 30                            | 2.1  | 12.8                        | 16.1 | 17.0 | 17.0 | 27.1               | 45.5 | 48.2 | 48.2 | 46.4               | 73.4 | 95.8 | 103  | 46.1                | 80.4 | 113  | 132  |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 6.45                        | 10.6 | 13.9 | 15.2 | 13.0               | 22.2 | 31.0 | 39.5 | 24.9               | 40.1 | 56.8 | 69.3 | 26.5                | 41.4 | 54.7 | 68.8 |
|                                                               | 25                            | 1.7  | 9.05                        | 13.6 | 15.7 | 16.3 | 19.0               | 33.6 | 43.6 | 48.2 | 30.9               | 53.8 | 73.2 | 89.4 | 36.2                | 59.7 | 82.1 | 102  |
|                                                               | 35                            | 2.4  | 10.7                        | 15.5 | 16.4 | 16.8 | 24.3               | 42.0 | 48.2 | 48.2 | 41.9               | 65.9 | 89.1 | 102  | 45.0                | 74.1 | 103  | 127  |

**Table 11. Typical  $C_v$  Coefficient With Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | C <sub>v</sub> at % BUILDUP |      |      |      |                    |      |      |      |                    |      |      |      |                     |      |      |      |
|----------------------------------------------------------------|-------------------------------|------|-----------------------------|------|------|------|--------------------|------|------|------|--------------------|------|------|------|---------------------|------|------|------|
|                                                                |                               |      | NPS 1 / DN 25 Body          |      |      |      | NPS 2 / DN 50 Body |      |      |      | NPS 3 / DN 80 Body |      |      |      | NPS 4 / DN 100 Body |      |      |      |
|                                                                | psig                          | bar  | 10%                         | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                | 20%  | 30%  | 40%  | 10%                 | 20%  | 30%  | 40%  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 5.56                        | 9.38 | 12.7 | 14.7 | 12.9               | 24.2 | 36.3 | 42.4 | 21.9               | 34.3 | 47.3 | 57.5 | 27.2                | 45.7 | 57.7 | 70.4 |
|                                                                | 35                            | 2.4  | 8.16                        | 13.7 | 15.7 | 17.0 | 18.8               | 34.3 | 43.8 | 48.2 | 26.1               | 41.2 | 55.1 | 71.2 | 34.6                | 50.3 | 68.5 | 84.6 |
|                                                                | 40                            | 2.8  | 7.59                        | 14.5 | 16.9 | 17.5 | 19.0               | 38.0 | 45.9 | 48.2 | 28.0               | 43.3 | 59.6 | 79.4 | 39.0                | 55.8 | 74.0 | 95.0 |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 5.54                        | 10.4 | 14.5 | 15.5 | 13.6               | 23.0 | 33.1 | 41.2 | 21.7               | 34.2 | 43.7 | 53.2 | 29.1                | 44.3 | 57.4 | 68.1 |
|                                                                | 50                            | 3.4  | 8.02                        | 13.5 | 15.8 | 17.0 | 16.1               | 32.4 | 42.7 | 47.4 | 25.6               | 38.2 | 52.3 | 68.2 | 33.1                | 49.1 | 66.3 | 84.4 |
|                                                                | 70                            | 4.8  | 10.3                        | 15.8 | 17.1 | 17.5 | 24.4               | 41.1 | 48.2 | 48.2 | 27.9               | 46.8 | 69.3 | 87.8 | 35.5                | 57.6 | 83.5 | 109  |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 6.01                        | 11.7 | 14.7 | 16.1 | 14.0               | 24.6 | 36.0 | 42.9 | 23.7               | 33.8 | 44.6 | 57.4 | 29.7                | 42.2 | 56.4 | 71.0 |
|                                                                | 75                            | 5.2  | 7.58                        | 14.2 | 16.2 | 17.0 | 16.7               | 31.4 | 42.9 | 48.2 | 25.2               | 38.3 | 55.7 | 71.4 | 31.3                | 48.6 | 67.2 | 87.3 |
|                                                                | 120                           | 8.3  | 13.2                        | 16.6 | 17.5 | 17.5 | 28.7               | 43.9 | 48.2 | 48.2 | 30.0               | 54.1 | 77.6 | 96.8 | 37.3                | 65.6 | 92.4 | 117  |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 7.92                        | 13.8 | 16.0 | 16.9 | 16.4               | 29.8 | 40.5 | 48.0 | 22.8               | 35.3 | 50.0 | 64.1 | 28.8                | 44.2 | 60.8 | 75.6 |
|                                                                | 150                           | 10.3 | 12.7                        | 16.0 | 16.9 | 17.1 | 21.5               | 39.1 | 46.8 | 48.2 | 26.4               | 47.7 | 68.1 | 87.7 | 34.5                | 58.8 | 82.5 | 106  |
|                                                                | 200                           | 14.8 | 14.7                        | 16.8 | 17.3 | 17.3 | 27.4               | 43.9 | 48.2 | 48.2 | 32.9               | 58.6 | 80.6 | 97.9 | 40.6                | 72.3 | 104  | 130  |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 7.90                        | 13.5 | 15.7 | 16.6 | 14.4               | 26.3 | 35.6 | 42.0 | 20.6               | 33.7 | 48.1 | 62.5 | 27.2                | 43.7 | 59.7 | 76.2 |
|                                                                | 250                           | 17.2 | 11.3                        | 15.5 | 16.8 | 17.0 | 19.5               | 34.2 | 43.5 | 47.1 | 26.4               | 45.5 | 65.9 | 82   | 33.4                | 55.2 | 77.4 | 97.5 |
|                                                                | 300                           | 20.7 | 12.9                        | 16.7 | 17.1 |      | 22.8               | 39.5 | 48.2 |      | 30.2               | 52.9 | 71.1 |      | 34.8                | 58.9 | 84.8 |      |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 12. Typical Air Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF AIR |                    |        |                    |        |                    |        |                    |                    |                    |        |                    |         |                    |         |                    |
|---------------------------------------------------------------|-------------------------------|------|------------------------------------------------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------------------|--------------------|--------|--------------------|---------|--------------------|---------|--------------------|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting         |                    |        |                    |        |                    |        |                    |                    |                    |        |                    |         |                    |         |                    |
|                                                               |                               |      | NPS 1 / DN 25 Body                             |                    |        |                    |        |                    |        |                    | NPS 2 / DN 50 Body |                    |        |                    |         |                    |         |                    |
|                                                               |                               |      | 10%                                            |                    | 20%    |                    | 30%    |                    | 40%    |                    | 10%                |                    | 20%    |                    | 30%     |                    | 40%     |                    |
|                                                               | psig                          | bar  | SCFH                                           | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH               | Nm <sup>3</sup> /h | SCFH   | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 3100                                           | 84                 | 6100   | 160                | 8200   | 220                | 9900   | 270                | 6800               | 180                | 14,300 | 380                | 20,600  | 550                | 26,500  | 710                |
|                                                               | 10                            | 0.69 | 9000                                           | 240                | 13,300 | 360                | 14,900 | 400                | 15,800 | 420                | 19,000             | 510                | 35,300 | 940                | 46,100  | 1240               | 54,000  | 1450               |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 5800                                           | 160                | 10,900 | 290                | 13,400 | 360                | 15,100 | 400                | 13,600             | 370                | 25,300 | 680                | 37,100  | 990                | 45,300  | 1210               |
|                                                               | 20                            | 1.4  | 14,300                                         | 380                | 20,200 | 540                | 22,800 | 610                | 24,200 | 650                | 35,600             | 950                | 63,600 | 1700               | 79,100  | 2120               | 86,300  | 2310               |
| 12 to 30 psig /<br>0.83 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 6700                                           | 180                | 13,300 | 360                | 17,500 | 470                | 20,000 | 530                | 17,600             | 470                | 32,500 | 870                | 49,200  | 1320               | 61,000  | 1640               |
|                                                               | 25                            | 1.7  | 17,200                                         | 460                | 23,700 | 640                | 27,600 | 740                | 29,500 | 790                | 37,100             | 990                | 68,000 | 1820               | 87,200  | 2340               | 99,900  | 2680               |
|                                                               | 30                            | 2.1  | 20,600                                         | 550                | 27,600 | 740                | 30,800 | 820                | 32,600 | 870                | 45,900             | 1230               | 82,000 | 2200               | 102,000 | 2740               | 112,000 | 3000               |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 6600                                           | 180                | 11,300 | 300                | 15,800 | 420                | 18,000 | 480                | 13,700             | 370                | 24,800 | 660                | 36,400  | 980                | 48,800  | 1310               |
|                                                               | 25                            | 1.7  | 12,800                                         | 340                | 20,400 | 550                | 25,100 | 670                | 27,300 | 730                | 28,300             | 760                | 53,000 | 1420               | 73,000  | 1960               | 89,800  | 2410               |
|                                                               | 35                            | 2.4  | 19,200                                         | 520                | 29,800 | 800                | 33,500 | 900                | 36,200 | 970                | 46,100             | 1230               | 85,000 | 2280               | 109,000 | 2920               | 124,000 | 3330               |

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**Table 12. Typical Air Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN SCFH / Nm <sup>3</sup> /h OF AIR |                    |         |                    |         |                    |         |                    |                     |                    |         |                    |         |                    |         |                    |
|---------------------------------------------------------------|-------------------------------|------|------------------------------------------------|--------------------|---------|--------------------|---------|--------------------|---------|--------------------|---------------------|--------------------|---------|--------------------|---------|--------------------|---------|--------------------|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting         |                    |         |                    |         |                    |         |                    |                     |                    |         |                    |         |                    |         |                    |
|                                                               |                               |      | NPS 3 / DN 80 Body                             |                    |         |                    |         |                    |         |                    | NPS 4 / DN 100 Body |                    |         |                    |         |                    |         |                    |
|                                                               |                               |      | 10%                                            |                    | 20%     |                    | 30%     |                    | 40%     |                    | 10%                 |                    | 20%     |                    | 30%     |                    | 40%     |                    |
|                                                               | psig                          | bar  | SCFH                                           | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH                | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h | SCFH    | Nm <sup>3</sup> /h |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 14,500                                         | 390                | 23,800  | 640                | 35,600  | 950                | 46,200  | 1240               | 12,500              | 330                | 18,400  | 490                | 26,000  | 700                | 32,900  | 880                |
|                                                               | 10                            | 0.69 | 32,400                                         | 870                | 60,200  | 1610               | 83,500  | 2240               | 99,800  | 2670               | 26,400              | 710                | 44,600  | 1200               | 67,400  | 1810               | 86,100  | 2310               |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 24,100                                         | 640                | 42,300  | 1130               | 61,800  | 1660               | 78,900  | 2120               | 22,200              | 590                | 36,200  | 970                | 51,100  | 1370               | 67,100  | 1800               |
|                                                               | 20                            | 1.4  | 58,900                                         | 1580               | 100,000 | 2690               | 134,000 | 3590               | 154,000 | 4130               | 51,400              | 1380               | 90,400  | 2420               | 127,000 | 3410               | 169,000 | 4530               |
| 12 to 30 psig /<br>0.83 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 30,900                                         | 830                | 55,600  | 1490               | 78,300  | 2100               | 97,700  | 2620               | 30,200              | 810                | 50,200  | 1350               | 72,100  | 1930               | 94,300  | 2530               |
|                                                               | 25                            | 1.7  | 60,600                                         | 1630               | 102,000 | 2730               | 141,000 | 3780               | 172,000 | 4600               | 57,900              | 1550               | 104,000 | 2780               | 148,000 | 3970               | 197,000 | 5270               |
|                                                               | 30                            | 2.1  | 75,600                                         | 2030               | 127,000 | 3410               | 176,000 | 4720               | 201,000 | 5400               | 70,100              | 1880               | 130,000 | 3480               | 194,000 | 5200               | 239,000 | 6410               |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 25,600                                         | 690                | 43,500  | 1170               | 64,800  | 1740               | 82,900  | 2220               | 25,900              | 690                | 42,700  | 1140               | 59,100  | 1580               | 77,900  | 2090               |
|                                                               | 25                            | 1.7  | 44,300                                         | 1190               | 81,900  | 2190               | 118,000 | 3160               | 152,000 | 4070               | 48,700              | 1300               | 85,000  | 2280               | 123,000 | 3310               | 162,000 | 4340               |
|                                                               | 35                            | 2.4  | 76,300                                         | 2050               | 128,000 | 3430               | 184,000 | 4930               | 223,000 | 5970               | 76,400              | 2050               | 134,000 | 3590               | 198,000 | 5310               | 259,000 | 6930               |

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**Table 13. Typical Air Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN SCFH / Nm³/h OF AIR      |      |         |       |         |       |         |       |                    |       |         |        |         |        |         |        |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|------|---------|-------|---------|-------|---------|-------|--------------------|-------|---------|--------|---------|--------|---------|--------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |      |         |       |         |       |         |       |                    |       |         |        |         |        |         |        |
|                                                                |                               |      | NPS 1 / DN 25 Body                     |      |         |       |         |       |         |       | NPS 2 / DN 50 Body |       |         |        |         |        |         |        |
|                                                                |                               |      | 10%                                    |      | 20%     |       | 30%     |       | 40%     |       | 10%                |       | 20%     |        | 30%     |        | 40%     |        |
|                                                                |                               |      | psig                                   | bar  | SCFH    | Nm³/h | SCFH    | Nm³/h | SCFH    | Nm³/h | SCFH               | Nm³/h | SCFH    | Nm³/h  | SCFH    | Nm³/h  | SCFH    | Nm³/h  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 7900                                   | 210  | 14,100  | 380   | 20,200  | 540   | 24,700  | 660   | 19,200             | 510   | 38,200  | 1000   | 60,600  | 1600   | 74,800  | 2000   |
|                                                                | 35                            | 2.4  | 14,700                                 | 390  | 26,300  | 700   | 32,000  | 860   | 36,700  | 980   | 35,700             | 960   | 69,300  | 1900   | 94,200  | 2500   | 111,000 | 3000   |
|                                                                | 40                            | 2.8  | 15,100                                 | 400  | 30,900  | 830   | 38,000  | 1000  | 43,000  | 1200  | 39,800             | 1100  | 85,300  | 2300   | 110,000 | 2900   | 127,000 | 3400   |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 9900                                   | 270  | 19,900  | 530   | 29,500  | 790   | 33,500  | 900   | 25,700             | 690   | 46,500  | 1200   | 71,200  | 1900   | 93,900  | 2500   |
|                                                                | 50                            | 3.4  | 18,900                                 | 510  | 34,200  | 920   | 42,600  | 1100  | 48,700  | 1300  | 40,300             | 1100  | 86,800  | 2300   | 122,000 | 3300   | 144,000 | 3900   |
|                                                                | 70                            | 4.8  | 31,900                                 | 860  | 52,900  | 1400  | 61,300  | 1600  | 68,600  | 1800  | 80,400             | 2200  | 146,000 | 3900   | 189,000 | 5100   | 211,000 | 5700   |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 15,300                                 | 410  | 31,900  | 850   | 42,800  | 1100  | 50,000  | 1300  | 37,700             | 1000  | 71,300  | 1900   | 111,000 | 3000   | 141,000 | 3800   |
|                                                                | 75                            | 5.2  | 25,000                                 | 670  | 50,600  | 1400  | 61,400  | 1600  | 69,100  | 1900  | 58,500             | 1600  | 118,000 | 3200   | 173,000 | 4600   | 211,000 | 5700   |
|                                                                | 120                           | 8.3  | 65,700                                 | 1800 | 89,500  | 2400  | 102,000 | 2700  | 109,000 | 2900  | 152,000            | 4100  | 251,000 | 6700   | 302,000 | 8100   | 325,000 | 8700   |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 33,500                                 | 900  | 63,000  | 1700  | 78,700  | 2100  | 88,600  | 2400  | 73,600             | 2000  | 144,000 | 3900   | 211,000 | 5600   | 267,000 | 7200   |
|                                                                | 150                           | 10.3 | 77,400                                 | 2100 | 106,000 | 2800  | 120,000 | 3200  | 130,000 | 3500  | 139,000            | 3700  | 274,000 | 7300   | 353,000 | 9500   | 404,000 | 10,800 |
|                                                                | 200                           | 14.8 | 117,000                                | 3100 | 145,000 | 3900  | 162,000 | 4300  | 173,000 | 4600  | 231,000            | 6200  | 402,000 | 10,800 | 477,000 | 12,800 | 513,000 | 13,800 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 55,600                                 | 1500 | 103,000 | 2800  | 129,000 | 3400  | 146,000 | 3900  | 107,000            | 2900  | 212,000 | 5700   | 311,000 | 8300   | 392,000 | 10,500 |
|                                                                | 250                           | 17.2 | 111,000                                | 3000 | 166,000 | 4400  | 193,000 | 5200  | 211,000 | 5700  | 203,000            | 5500  | 387,000 | 10,400 | 532,000 | 14,300 | 618,000 | 16,600 |
|                                                                | 300                           | 20.7 | 151,000                                | 4000 | 212,000 | 5700  | 235,000 | 6300  |         |       | 283,000            | 7600  | 532,000 | 14,300 | 704,000 | 18,900 |         |        |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

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**Table 13. Typical Air Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN SCFH / Nm³/h OF AIR      |      |         |        |         |        |           |        |                     |        |         |        |           |        |           |        |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|------|---------|--------|---------|--------|-----------|--------|---------------------|--------|---------|--------|-----------|--------|-----------|--------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |      |         |        |         |        |           |        |                     |        |         |        |           |        |           |        |
|                                                                |                               |      | NPS 3 / DN 80 Body                     |      |         |        |         |        |           |        | NPS 4 / DN 100 Body |        |         |        |           |        |           |        |
|                                                                |                               |      | 10%                                    |      | 20%     |        | 30%     |        | 40%       |        | 10%                 |        | 20%     |        | 30%       |        | 40%       |        |
|                                                                |                               |      | psig                                   | bar  | SCFH    | Nm³/h  | SCFH    | Nm³/h  | SCFH      | Nm³/h  | SCFH                | Nm³/h  | SCFH    | Nm³/h  | SCFH      | Nm³/h  | SCFH      | Nm³/h  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 31,400                                 | 840  | 52,200  | 1400   | 76,100  | 2000   | 97,700    | 2600   | 36,600              | 980    | 65,100  | 1700   | 86,800    | 2300   | 112,000   | 3000   |
|                                                                | 35                            | 2.4  | 47,500                                 | 1300 | 80,100  | 2100   | 114,000 | 3000   | 156,000   | 4200   | 58,700              | 1600   | 90,900  | 2400   | 132,000   | 3500   | 172,000   | 4600   |
|                                                                | 40                            | 2.8  | 56,400                                 | 1500 | 93,200  | 2500   | 136,000 | 3700   | 192,000   | 5200   | 73,000              | 2000   | 112,000 | 3000   | 158,000   | 4200   | 214,000   | 5700   |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 39,600                                 | 1100 | 66,400  | 1800   | 90,300  | 2400   | 116,000   | 3100   | 49,400              | 1300   | 80,100  | 2100   | 110,000   | 3000   | 138,000   | 3700   |
|                                                                | 50                            | 3.4  | 61,200                                 | 1600 | 98,000  | 2600   | 143,000 | 3800   | 198,000   | 5300   | 73,700              | 2000   | 117,000 | 3100   | 169,000   | 4500   | 228,000   | 6100   |
|                                                                | 70                            | 4.8  | 87,700                                 | 2400 | 159,000 | 4300   | 252,000 | 6700   | 340,000   | 9100   | 104,000             | 2800   | 182,000 | 4900   | 282,000   | 7600   | 393,000   | 10,500 |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 61,100                                 | 1600 | 93,700  | 2500   | 132,000 | 3500   | 181,000   | 4800   | 71,400              | 1900   | 109,000 | 2900   | 155,000   | 4200   | 208,000   | 5600   |
|                                                                | 75                            | 5.2  | 84,200                                 | 2300 | 138,000 | 3700   | 215,000 | 5800   | 294,000   | 7900   | 97,400              | 2600   | 163,000 | 4400   | 241,000   | 6500   | 334,000   | 9000   |
|                                                                | 120                           | 8.3  | 151,000                                | 4100 | 295,000 | 7900   | 455,000 | 12,200 | 608,000   | 16,300 | 175,000             | 4700   | 333,000 | 8900   | 505,000   | 13,500 | 687,000   | 18,400 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 97,500                                 | 2600 | 163,000 | 4400   | 249,000 | 6700   | 341,000   | 9100   | 115,000             | 3100   | 191,000 | 5100   | 282,000   | 7500   | 374,000   | 10,000 |
|                                                                | 150                           | 10.3 | 163,000                                | 4400 | 319,000 | 8600   | 491,000 | 13,200 | 678,000   | 18,200 | 199,000             | 5300   | 366,000 | 9800   | 554,000   | 14,900 | 762,000   | 20,400 |
|                                                                | 200                           | 14.8 | 265,000                                | 7100 | 513,000 | 13,800 | 762,000 | 20,400 | 993,000   | 26,600 | 305,000             | 8200   | 590,000 | 15,800 | 914,000   | 24,500 | 1,224,000 | 32,800 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 147,000                                | 3900 | 260,000 | 7000   | 401,000 | 10,800 | 559,000   | 15,000 | 180,000             | 4800   | 314,000 | 8400   | 463,000   | 12,400 | 634,000   | 17,000 |
|                                                                | 250                           | 17.2 | 263,000                                | 7000 | 492,000 | 13,200 | 770,000 | 20,600 | 1,030,000 | 27,600 | 310,000             | 8300   | 557,000 | 14,900 | 843,000   | 22,600 | 1,140,000 | 30,600 |
|                                                                | 300                           | 20.7 | 359,000                                | 9600 | 682,000 | 18,300 | 990,000 | 26,500 |           |        | 384,000             | 10,300 | 707,000 | 18,900 | 1,100,000 | 29,500 |           |        |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 14. Typical Water Capacities with Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                    |     |     |     |     |     |     |     |
|---------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|-----|-----|-----|-----|-----|-----|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                    |     |     |     |     |     |     |     |
|                                                               |                               |      | NPS 1 / DN 25 Body                     |     |     |     |     |     |     |     | NPS 2 / DN 50 Body |     |     |     |     |     |     |     |
|                                                               |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                |     | 20% |     | 30% |     | 40% |     |
|                                                               | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                | LPM | GPM | LPM | GPM | LPM | GPM | LPM |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 4                                      | 15  | 4   | 15  | 11  | 42  | 14  | 53  | 10                 | 38  | 20  | 76  | 28  | 106 | 41  | 155 |
|                                                               | 10                            | 0.69 | 6                                      | 23  | 11  | 42  | 39  | 148 | 42  | 159 | 27                 | 102 | 52  | 197 | 87  | 329 | 93  | 352 |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 6                                      | 23  | 8   | 30  | 41  | 155 | 44  | 167 | 17                 | 64  | 25  | 95  | 49  | 185 | 71  | 269 |
|                                                               | 20                            | 1.4  | 30                                     | 114 | 49  | 185 | 67  | 254 | 70  | 265 | 33                 | 125 | 84  | 318 | 124 | 469 | 129 | 488 |
| 13 to 30 psig /<br>0.90 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 26                                     | 98  | 36  | 136 | 42  | 159 | 46  | 174 | 19                 | 72  | 36  | 136 | 58  | 220 | 86  | 326 |
|                                                               | 25                            | 1.7  | 31                                     | 117 | 44  | 167 | 60  | 227 | 78  | 295 | 36                 | 136 | 80  | 303 | 134 | 507 | 144 | 545 |
|                                                               | 30                            | 2.1  | 34                                     | 129 | 65  | 246 | 82  | 310 | 85  | 322 | 47                 | 178 | 108 | 409 | 151 | 572 | 157 | 594 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 8                                      | 30  | 29  | 110 | 35  | 132 | 40  | 151 | 16                 | 61  | 32  | 121 | 46  | 174 | 65  | 246 |
|                                                               | 25                            | 1.7  | 29                                     | 110 | 35  | 132 | 56  | 212 | 80  | 303 | 29                 | 110 | 58  | 220 | 96  | 363 | 136 | 515 |
|                                                               | 35                            | 2.4  | 26                                     | 98  | 69  | 261 | 90  | 341 | 90  | 341 | 44                 | 167 | 94  | 356 | 154 | 583 | 169 | 640 |

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**Table 14. Typical Water Capacities with Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator) (continued)**

| SPRING RANGE,<br>COLOR CODE                                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                     |     |     |     |     |     |     |     |
|---------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|-----|-----|-----|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                     |     |     |     |     |     |     |     |
|                                                               |                               |      | NPS 3 / DN 80 Body                     |     |     |     |     |     |     |     | NPS 4 / DN 100 Body |     |     |     |     |     |     |     |
|                                                               |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                 |     | 20% |     | 30% |     | 40% |     |
|                                                               | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                 | LPM | GPM | LPM | GPM | LPM | GPM | LPM |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>(White)                 | 5                             | 0.34 | 12                                     | 47  | 21  | 81  | 31  | 116 | 43  | 164 | 12                  | 45  | 20  | 76  | 33  | 125 | 44  | 167 |
|                                                               | 10                            | 0.69 | 28                                     | 104 | 54  | 204 | 84  | 318 | 117 | 443 | 29                  | 110 | 57  | 216 | 90  | 341 | 109 | 413 |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>(Silver)                 | 10                            | 0.69 | 19                                     | 73  | 35  | 132 | 53  | 199 | 75  | 282 | 19                  | 72  | 37  | 140 | 55  | 208 | 78  | 295 |
|                                                               | 20                            | 1.4  | 45                                     | 169 | 87  | 327 | 140 | 531 | 171 | 646 | 47                  | 178 | 95  | 360 | 147 | 556 | 153 | 579 |
| 13 to 30 psig /<br>0.90 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 24                                     | 92  | 44  | 165 | 69  | 260 | 97  | 366 | 24                  | 91  | 45  | 170 | 69  | 261 | 99  | 375 |
|                                                               | 25                            | 1.7  | 44                                     | 168 | 86  | 325 | 137 | 519 | 185 | 700 | 44                  | 167 | 91  | 344 | 144 | 545 | 169 | 640 |
|                                                               | 30                            | 2.1  | 55                                     | 208 | 106 | 403 | 178 | 672 | 206 | 780 | 56                  | 212 | 115 | 435 | 176 | 666 | 183 | 693 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>(Red)                    | 15                            | 1.0  | 20                                     | 76  | 34  | 128 | 50  | 190 | 69  | 262 | 19                  | 72  | 33  | 125 | 50  | 189 | 68  | 257 |
|                                                               | 25                            | 1.7  | 34                                     | 128 | 64  | 244 | 99  | 374 | 142 | 537 | 33                  | 125 | 67  | 254 | 104 | 394 | 146 | 553 |
|                                                               | 35                            | 2.4  | 48                                     | 182 | 99  | 375 | 160 | 605 | 220 | 832 | 50                  | 189 | 103 | 390 | 161 | 609 | 197 | 746 |

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**Table 15. Typical Water Capacities with Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                    |     |     |     |     |      |     |      |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|-----|-----|-----|------|-----|------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                    |     |     |     |     |      |     |      |
|                                                                |                               |      | NPS 1 / DN 25 Body                     |     |     |     |     |     |     |     | NPS 2 / DN 50 Body |     |     |     |     |      |     |      |
|                                                                |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                |     | 20% |     | 30% |      | 40% |      |
|                                                                | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                | LPM | GPM | LPM | GPM | LPM  | GPM | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 16                                     | 61  | 29  | 110 | 47  | 178 | 67  | 254 | 26                 | 98  | 44  | 167 | 70  | 265  | 96  | 363  |
|                                                                | 35                            | 2.4  | 25                                     | 95  | 53  | 201 | 76  | 288 | 89  | 337 | 33                 | 125 | 64  | 242 | 99  | 375  | 138 | 522  |
|                                                                | 40                            | 2.8  | 30                                     | 114 | 59  | 223 | 82  | 310 | 93  | 352 | 37                 | 140 | 74  | 280 | 116 | 439  | 164 | 621  |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 19                                     | 72  | 34  | 129 | 52  | 197 | 70  | 265 | 27                 | 102 | 45  | 170 | 69  | 261  | 96  | 363  |
|                                                                | 50                            | 3.4  | 29                                     | 110 | 51  | 193 | 83  | 314 | 103 | 390 | 34                 | 129 | 66  | 250 | 103 | 390  | 149 | 564  |
|                                                                | 70                            | 4.8  | 39                                     | 148 | 83  | 314 | 121 | 458 | 121 | 458 | 52                 | 197 | 101 | 382 | 164 | 621  | 224 | 848  |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 24                                     | 91  | 42  | 159 | 64  | 242 | 91  | 344 | 33                 | 125 | 57  | 216 | 85  | 322  | 119 | 450  |
|                                                                | 75                            | 5.2  | 32                                     | 121 | 62  | 235 | 104 | 394 | 104 | 394 | 45                 | 170 | 83  | 314 | 129 | 488  | 181 | 685  |
|                                                                | 120                           | 8.3  | 55                                     | 208 | 121 | 458 | 151 | 572 | 151 | 572 | 74                 | 280 | 147 | 556 | 237 | 897  | 298 | 1128 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 34                                     | 129 | 60  | 227 | 98  | 371 | 137 | 519 | 47                 | 178 | 85  | 322 | 129 | 488  | 177 | 670  |
|                                                                | 150                           | 10.3 | 53                                     | 201 | 112 | 424 | 138 | 522 | 138 | 522 | 75                 | 284 | 139 | 526 | 216 | 818  | 307 | 1162 |
|                                                                | 200                           | 13.8 | 78                                     | 295 | 158 | 598 | 158 | 598 | 158 | 598 | 99                 | 375 | 195 | 738 | 313 | 1185 | 378 | 1431 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 43                                     | 163 | 77  | 291 | 118 | 447 | 160 | 606 | 58                 | 220 | 99  | 375 | 148 | 560  | 205 | 776  |
|                                                                | 250                           | 17.2 | 66                                     | 250 | 130 | 492 | 208 | 787 | 208 | 787 | 78                 | 295 | 139 | 526 | 215 | 814  | 308 | 1166 |
|                                                                | 300                           | 20.7 | 80                                     | 303 | 166 | 628 | 235 | 889 | 245 | 927 | 94                 | 356 | 173 | 655 | 245 | 927  |     |      |

 - Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

- continued -

**Table 15. Typical Water Capacities with Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |      |     |      |                     |     |     |     |     |      |     |      |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|------|-----|------|---------------------|-----|-----|-----|-----|------|-----|------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |      |     |      |                     |     |     |     |     |      |     |      |
|                                                                |                               |      | NPS 3 / DN 80 Body                     |     |     |     |     |      |     |      | NPS 4 / DN 100 Body |     |     |     |     |      |     |      |
|                                                                |                               |      | 10%                                    |     | 20% |     | 30% |      | 40% |      | 10%                 |     | 20% |     | 30% |      | 40% |      |
|                                                                | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM  | GPM | LPM  | GPM                 | LPM | GPM | LPM | GPM | LPM  | GPM | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 27                                     | 100 | 48  | 183 | 73  | 275  | 106 | 400  | 23                  | 87  | 38  | 144 | 56  | 212  | 79  | 299  |
|                                                                | 35                            | 2.4  | 41                                     | 155 | 72  | 273 | 120 | 453  | 169 | 640  | 33                  | 125 | 59  | 223 | 90  | 341  | 136 | 515  |
|                                                                | 40                            | 2.8  | 48                                     | 180 | 87  | 331 | 143 | 542  | 205 | 777  | 37                  | 140 | 68  | 257 | 113 | 428  | 159 | 602  |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 32                                     | 121 | 52  | 196 | 78  | 295  | 111 | 421  | 27                  | 102 | 43  | 163 | 64  | 242  | 88  | 333  |
|                                                                | 50                            | 3.4  | 45                                     | 171 | 83  | 316 | 134 | 508  | 190 | 720  | 37                  | 140 | 67  | 254 | 113 | 428  | 159 | 602  |
|                                                                | 70                            | 4.8  | 66                                     | 249 | 130 | 493 | 206 | 781  | 292 | 1104 | 55                  | 208 | 117 | 443 | 178 | 674  | 243 | 920  |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 41                                     | 154 | 68  | 255 | 101 | 380  | 145 | 547  | 33                  | 125 | 54  | 204 | 78  | 295  | 120 | 454  |
|                                                                | 75                            | 5.2  | 55                                     | 206 | 96  | 364 | 154 | 583  | 219 | 830  | 46                  | 174 | 81  | 307 | 140 | 530  | 186 | 704  |
|                                                                | 120                           | 8.3  | 91                                     | 345 | 181 | 685 | 291 | 1100 | 387 | 1464 | 71                  | 269 | 164 | 621 | 257 | 973  | 352 | 1332 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 58                                     | 220 | 97  | 367 | 151 | 570  | 213 | 808  | 54                  | 204 | 82  | 310 | 137 | 519  | 182 | 689  |
|                                                                | 150                           | 10.3 | 82                                     | 308 | 160 | 604 | 255 | 966  | 377 | 1427 | 68                  | 257 | 136 | 515 | 223 | 844  | 329 | 1245 |
|                                                                | 200                           | 13.8 | 117                                    | 444 | 238 | 900 | 384 | 1454 | 499 | 1890 | 96                  | 363 | 216 | 818 | 353 | 1336 | 455 | 1722 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 69                                     | 260 | 112 | 423 | 170 | 643  | 239 | 906  | 67                  | 254 | 101 | 382 | 148 | 560  | 212 | 802  |
|                                                                | 250                           | 17.2 | 98                                     | 370 | 180 | 682 | 286 | 1081 | 409 | 1547 | 89                  | 337 | 170 | 643 | 270 | 1022 | 379 | 1435 |
|                                                                | 300                           | 20.7 | 120                                    | 453 | 233 | 882 | 372 | 1408 |     |      | 109                 | 413 | 211 | 799 | 342 | 1294 |     |      |

 - Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 16. Typical Water Capacities with High Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                    |     |     |     |     |      |     |      |
|------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|-----|-----|-----|------|-----|------|
|                                                |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                    |     |     |     |     |      |     |      |
|                                                |                               |      | NPS 1 / DN 25 Body                     |     |     |     |     |     |     |     | NPS 2 / DN 50 Body |     |     |     |     |      |     |      |
|                                                |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                |     | 20% |     | 30% |      | 40% |      |
|                                                | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                | LPM | GPM | LPM | GPM | LPM  | GPM | LPM  |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>(White)  | 5                             | 0.34 |                                        |     |     |     |     |     |     |     | 23                 | 87  | 45  | 170 | 68  | 259  | 93  | 352  |
|                                                | 10                            | 0.69 |                                        |     |     |     |     |     |     |     | 56                 | 213 | 118 | 445 | 150 | 568  | 159 | 603  |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>(Silver)  | 10                            | 0.69 |                                        |     |     |     |     |     |     |     | 40                 | 153 | 76  | 287 | 107 | 403  | 145 | 550  |
|                                                | 20                            | 1.4  |                                        |     |     |     |     |     |     |     | 92                 | 347 | 179 | 677 | 217 | 819  | 226 | 856  |
| 13 to 30 psig /<br>0.83 to 2.1 bar<br>(Orange) | 15                            | 1.0  |                                        |     |     |     |     |     |     |     | 51                 | 194 | 98  | 372 | 147 | 557  | 194 | 733  |
|                                                | 25                            | 1.7  |                                        |     |     |     |     |     |     |     | 91                 | 346 | 188 | 711 | 243 | 921  | 252 | 953  |
|                                                | 30                            | 2.1  |                                        |     |     |     |     |     |     |     | 110                | 416 | 234 | 885 | 264 | 1000 | 273 | 1034 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>(Red)     | 15                            | 1.0  |                                        |     |     |     |     |     |     |     | 39                 | 149 | 71  | 267 | 109 | 411  | 147 | 555  |
|                                                | 25                            | 1.7  |                                        |     |     |     |     |     |     |     | 76                 | 287 | 141 | 534 | 216 | 818  | 252 | 952  |
|                                                | 35                            | 2.4  |                                        |     |     |     |     |     |     |     | 105                | 397 | 222 | 840 | 282 | 1067 | 291 | 1103 |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

- continued -

**Table 16. Typical Water Capacities with High Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator) (continued)**

| "SPRING<br>RANGE,<br>COLOR<br>CODE"            | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM/LPM OF WATER         |     |     |      |     |      |     |      |                     |     |     |      |     |      |     |      |
|------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|------|-----|------|-----|------|---------------------|-----|-----|------|-----|------|-----|------|
|                                                |                               |      | % Pressure Buildup Over Relief Setting |     |     |      |     |      |     |      |                     |     |     |      |     |      |     |      |
|                                                |                               |      | NPS 3 / DN 80 Body                     |     |     |      |     |      |     |      | NPS 4 / DN 100 Body |     |     |      |     |      |     |      |
|                                                |                               |      | 10%                                    |     | 20% |      | 30% |      | 40% |      | 10%                 |     | 20% |      | 30% |      | 40% |      |
|                                                | psig                          | bar  | GPM                                    | LPM | GPM | LPM  | GPM | LPM  | GPM | LPM  | GPM                 | LPM | GPM | LPM  | GPM | LPM  | GPM | LPM  |
| 5 to 14 psig /<br>0.34 to 0.97 bar<br>(White)  | 5                             | 0.34 | 32                                     | 121 | 57  | 216  | 90  | 341  | 120 | 454  | 33                  | 125 | 62  | 235  | 94  | 356  | 133 | 503  |
|                                                | 10                            | 0.69 | 78                                     | 295 | 154 | 583  | 233 | 882  | 257 | 973  | 86                  | 326 | 165 | 625  | 241 | 912  | 259 | 980  |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>(Silver)  | 10                            | 0.69 | 54                                     | 204 | 97  | 367  | 150 | 568  | 203 | 768  | 58                  | 220 | 111 | 420  | 163 | 617  | 220 | 833  |
|                                                | 20                            | 1.4  | 123                                    | 466 | 232 | 878  | 339 | 1283 | 356 | 1347 | 144                 | 545 | 269 | 1018 | 349 | 1321 | 362 | 1370 |
| 13 to 30 psig /<br>0.83 to 2.1 bar<br>(Orange) | 15                            | 1.0  | 66                                     | 250 | 120 | 454  | 187 | 708  | 253 | 958  | 75                  | 284 | 139 | 526  | 208 | 787  | 281 | 1064 |
|                                                | 25                            | 1.7  | 125                                    | 473 | 236 | 893  | 358 | 1355 | 390 | 1476 | 138                 | 522 | 261 | 988  | 378 | 1431 | 397 | 1503 |
|                                                | 30                            | 2.1  | 150                                    | 568 | 289 | 1094 | 410 | 1552 | 426 | 1612 | 166                 | 628 | 319 | 1207 | 416 | 1575 | 429 | 1624 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>(Red)     | 15                            | 1.0  | 54                                     | 204 | 92  | 348  | 138 | 522  | 189 | 715  | 59                  | 223 | 102 | 386  | 152 | 575  | 208 | 787  |
|                                                | 25                            | 1.7  | 92                                     | 348 | 173 | 655  | 269 | 1018 | 358 | 1355 | 102                 | 386 | 193 | 731  | 294 | 1113 | 391 | 1480 |
|                                                | 35                            | 2.4  | 140                                    | 530 | 268 | 1014 | 402 | 1522 | 456 | 1726 | 159                 | 602 | 300 | 1136 | 440 | 1665 | 459 | 1737 |

**Table 17. Typical Water Capacities with High Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE,<br>COLOR CODE                     | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                    |     |     |      |     |      |     |      |
|-------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|-----|------|-----|------|-----|------|
|                                                 |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                    |     |     |      |     |      |     |      |
|                                                 |                               |      | NPS 1 / DN 25 Body                     |     |     |     |     |     |     |     | NPS 2 / DN 50 Body |     |     |      |     |      |     |      |
|                                                 |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                |     | 20% |      | 30% |      | 40% |      |
|                                                 | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                | LPM | GPM | LPM  | GPM | LPM  | GPM | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>(Blue)     | 25                            | 1.7  |                                        |     |     |     |     |     |     |     | 59                 | 223 | 105 | 398  | 155 | 585  | 210 | 796  |
|                                                 | 35                            | 2.4  |                                        |     |     |     |     |     |     |     | 75                 | 283 | 145 | 548  | 216 | 816  | 288 | 1091 |
|                                                 | 40                            | 2.8  |                                        |     |     |     |     |     |     |     | 95                 | 358 | 175 | 663  | 268 | 1014 | 313 | 1185 |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>(Green)    | 35                            | 2.4  |                                        |     |     |     |     |     |     |     | 61                 | 231 | 109 | 414  | 162 | 612  | 225 | 853  |
|                                                 | 50                            | 3.4  |                                        |     |     |     |     |     |     |     | 84                 | 316 | 159 | 602  | 241 | 913  | 324 | 1226 |
|                                                 | 70                            | 4.8  |                                        |     |     |     |     |     |     |     | 119                | 450 | 234 | 886  | 354 | 1340 | 402 | 1521 |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>(White)   | 55                            | 3.8  |                                        |     |     |     |     |     |     |     | 73                 | 276 | 130 | 492  | 193 | 732  | 272 | 1028 |
|                                                 | 75                            | 5.2  |                                        |     |     |     |     |     |     |     | 103                | 391 | 188 | 712  | 288 | 1090 | 328 | 1243 |
|                                                 | 120                           | 8.3  |                                        |     |     |     |     |     |     |     | 158                | 598 | 318 | 1205 | 498 | 1885 | 523 | 1978 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>(Silver) | 100                           | 6.9  |                                        |     |     |     |     |     |     |     | 99                 | 376 | 176 | 665  | 265 | 1003 | 373 | 1411 |
|                                                 | 150                           | 10.3 |                                        |     |     |     |     |     |     |     | 156                | 589 | 292 | 1105 | 460 | 1739 | 575 | 2178 |
|                                                 | 200                           | 13.8 |                                        |     |     |     |     |     |     |     | 201                | 762 | 410 | 1551 | 622 | 2355 | 664 | 2511 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>(Red)  | 175                           | 12.1 |                                        |     |     |     |     |     |     |     | 126                | 475 | 221 | 835  | 332 | 1258 | 456 | 1726 |
|                                                 | 250                           | 17.2 |                                        |     |     |     |     |     |     |     | 182                | 688 | 342 | 1294 | 533 | 2019 | 692 | 2617 |
|                                                 | 300                           | 20.7 |                                        |     |     |     |     |     |     |     | 227                | 858 | 448 | 1695 | 690 | 2613 |     |      |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

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**Table 17. Typical Water Capacities with High Capacity Linear Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE     | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |      |     |      |     |      |      |      |                     |      |     |      |     |      |      |      |
|-------------------------------------------------|-------------------------------|------|----------------------------------------|------|-----|------|-----|------|------|------|---------------------|------|-----|------|-----|------|------|------|
|                                                 |                               |      | % Pressure Buildup Over Relief Setting |      |     |      |     |      |      |      |                     |      |     |      |     |      |      |      |
|                                                 |                               |      | NPS 3 / DN 80 Body                     |      |     |      |     |      |      |      | NPS 4 / DN 100 Body |      |     |      |     |      |      |      |
|                                                 |                               |      | 10%                                    |      | 20% |      | 30% |      | 40%  |      | 10%                 |      | 20% |      | 30% |      | 40%  |      |
|                                                 | psig                          | bar  | GPM                                    | LPM  | GPM | LPM  | GPM | LPM  | GPM  | LPM  | GPM                 | LPM  | GPM | LPM  | GPM | LPM  | GPM  | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>(Blue)     | 25                            | 1.7  | 71                                     | 269  | 121 | 458  | 176 | 666  | 243  | 920  | 80                  | 303  | 125 | 473  | 178 | 674  | 253  | 958  |
|                                                 | 35                            | 2.4  | 96                                     | 363  | 174 | 659  | 259 | 980  | 348  | 1317 | 108                 | 409  | 191 | 723  | 288 | 1090 | 372  | 1408 |
|                                                 | 40                            | 2.8  | 110                                    | 416  | 197 | 746  | 290 | 1098 | 389  | 1472 | 123                 | 466  | 212 | 802  | 317 | 1200 | 410  | 1552 |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>(Green)    | 35                            | 2.4  | 81                                     | 307  | 135 | 511  | 195 | 738  | 260  | 984  | 92                  | 348  | 148 | 560  | 211 | 799  | 276  | 1045 |
|                                                 | 50                            | 3.4  | 114                                    | 431  | 198 | 749  | 292 | 1105 | 380  | 1438 | 129                 | 488  | 217 | 821  | 313 | 1185 | 409  | 1548 |
|                                                 | 70                            | 4.8  | 155                                    | 587  | 282 | 1067 | 404 | 1529 | 530  | 2006 | 185                 | 700  | 307 | 1162 | 434 | 1643 | 573  | 2169 |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>(White)   | 55                            | 3.8  | 102                                    | 386  | 165 | 625  | 239 | 905  | 320  | 1211 | 109                 | 413  | 178 | 674  | 265 | 1003 | 344  | 1302 |
|                                                 | 75                            | 5.2  | 136                                    | 515  | 234 | 886  | 345 | 1306 | 455  | 1722 | 145                 | 549  | 266 | 1007 | 380 | 1438 | 504  | 1908 |
|                                                 | 120                           | 8.3  | 212                                    | 802  | 383 | 1450 | 560 | 2120 | 752  | 2846 | 245                 | 927  | 431 | 1631 | 624 | 2362 | 796  | 3013 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>(Silver) | 100                           | 6.9  | 144                                    | 545  | 239 | 905  | 347 | 1313 | 461  | 1745 | 147                 | 556  | 253 | 958  | 368 | 1393 | 489  | 1851 |
|                                                 | 150                           | 10.3 | 213                                    | 806  | 375 | 1419 | 554 | 2097 | 739  | 2797 | 239                 | 905  | 400 | 1514 | 589 | 2229 | 787  | 2979 |
|                                                 | 200                           | 13.8 | 285                                    | 1079 | 514 | 1945 | 755 | 2858 | 987  | 3736 | 299                 | 1132 | 534 | 2021 | 804 | 3043 | 1017 | 3849 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>(Red)  | 175                           | 12.1 | 176                                    | 666  | 287 | 1086 | 416 | 1575 | 556  | 2104 | 192                 | 727  | 306 | 1158 | 443 | 1677 | 586  | 2218 |
|                                                 | 250                           | 17.2 | 252                                    | 954  | 433 | 1639 | 642 | 2430 | 857  | 3244 | 257                 | 973  | 444 | 1681 | 656 | 2483 | 889  | 3365 |
|                                                 | 300                           | 20.7 | 304                                    | 1151 | 541 | 2048 | 800 | 3028 | 1069 | 4046 | 307                 | 1162 | 545 | 2063 | 818 | 3096 |      |      |

Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

**Table 18. Typical Water Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |     |     |     |     |     |                    |     |     |      |     |      |     |      |
|---------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|-----|------|-----|------|-----|------|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting |     |     |     |     |     |     |     |                    |     |     |      |     |      |     |      |
|                                                               |                               |      | NPS 1 / DN 25 Body                     |     |     |     |     |     |     |     | NPS 2 / DN 50 Body |     |     |      |     |      |     |      |
|                                                               |                               |      | 10%                                    |     | 20% |     | 30% |     | 40% |     | 10%                |     | 20% |      | 30% |      | 40% |      |
|                                                               | psig                          | bar  | GPM                                    | LPM | GPM | LPM | GPM | LPM | GPM | LPM | GPM                | LPM | GPM | LPM  | GPM | LPM  | GPM | LPM  |
| 5 to 14 psig /<br>0.35 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 15                                     | 57  | 27  | 100 | 36  | 140 | 40  | 150 | 27                 | 100 | 50  | 190  | 75  | 280  | 96  | 360  |
|                                                               | 10                            | 0.69 | 32                                     | 120 | 52  | 200 | 61  | 230 | 66  | 250 | 84                 | 320 | 140 | 510  | 180 | 670  | 210 | 790  |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 29                                     | 110 | 44  | 170 | 56  | 210 | 62  | 230 | 58                 | 220 | 100 | 380  | 140 | 510  | 160 | 610  |
|                                                               | 20                            | 1.4  | 60                                     | 230 | 81  | 310 | 89  | 340 | 92  | 350 | 130                | 470 | 210 | 810  | 270 | 1000 | 300 | 1100 |
| 12 to 30 psig /<br>0.83 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 31                                     | 120 | 51  | 190 | 65  | 250 | 74  | 280 | 76                 | 290 | 130 | 500  | 180 | 680  | 220 | 840  |
|                                                               | 25                            | 1.7  | 50                                     | 190 | 79  | 300 | 97  | 370 | 100 | 390 | 130                | 500 | 230 | 860  | 280 | 1100 | 330 | 1200 |
|                                                               | 30                            | 2.1  | 61                                     | 230 | 95  | 360 | 110 | 410 | 120 | 440 | 160                | 600 | 270 | 1000 | 330 | 1200 | 360 | 1400 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 34                                     | 130 | 49  | 190 | 64  | 240 | 72  | 270 | 57                 | 220 | 99  | 370  | 140 | 530  | 180 | 660  |
|                                                               | 25                            | 1.7  | 46                                     | 170 | 73  | 280 | 88  | 330 | 99  | 370 | 100                | 390 | 180 | 670  | 240 | 920  | 300 | 1100 |
|                                                               | 35                            | 2.4  | 64                                     | 240 | 100 | 380 | 120 | 440 | 120 | 470 | 160                | 590 | 270 | 1000 | 340 | 1300 | 390 | 1500 |

- continued -

**Table 18. Typical Water Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 Low-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                   | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |      |     |      |     |      |                     |      |     |      |     |      |     |      |
|---------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|------|-----|------|-----|------|---------------------|------|-----|------|-----|------|-----|------|
|                                                               |                               |      | % Pressure Buildup Over Relief Setting |     |     |      |     |      |     |      |                     |      |     |      |     |      |     |      |
|                                                               |                               |      | NPS 3 / DN 80 Body                     |     |     |      |     |      |     |      | NPS 4 / DN 100 Body |      |     |      |     |      |     |      |
|                                                               |                               |      | 10%                                    |     | 20% |      | 30% |      | 40% |      | 10%                 |      | 20% |      | 30% |      | 40% |      |
|                                                               | psig                          | bar  | GPM                                    | LPM | GPM | LPM  | GPM | LPM  | GPM | LPM  | GPM                 | LPM  | GPM | LPM  | GPM | LPM  | GPM | LPM  |
| 5 to 14 psig /<br>0.35 to 0.97 bar<br>GE42909X012<br>(White)  | 5                             | 0.34 | 51                                     | 190 | 92  | 350  | 130 | 480  | 160 | 620  | 69                  | 260  | 120 | 440  | 170 | 620  | 210 | 800  |
|                                                               | 10                            | 0.69 | 120                                    | 470 | 210 | 790  | 280 | 1100 | 370 | 1400 | 150                 | 560  | 270 | 1000 | 370 | 1400 | 460 | 1700 |
| 8 to 24 psig /<br>0.55 to 1.7 bar<br>GE42910X012<br>(Silver)  | 10                            | 0.69 | 90                                     | 340 | 150 | 570  | 210 | 790  | 270 | 1000 | 110                 | 410  | 190 | 720  | 270 | 1000 | 350 | 1300 |
|                                                               | 20                            | 1.4  | 190                                    | 720 | 330 | 1200 | 450 | 1700 | 520 | 2000 | 250                 | 940  | 430 | 1600 | 570 | 2200 | 680 | 2600 |
| 12 to 30 psig /<br>0.83 to 2.1 bar<br>GE42911X012<br>(Orange) | 15                            | 1.0  | 110                                    | 410 | 190 | 710  | 260 | 970  | 330 | 1200 | 140                 | 530  | 240 | 900  | 340 | 1300 | 440 | 1600 |
|                                                               | 25                            | 1.7  | 200                                    | 750 | 320 | 1200 | 460 | 1700 | 560 | 2100 | 250                 | 950  | 430 | 1600 | 590 | 2200 | 740 | 2800 |
|                                                               | 30                            | 2.1  | 240                                    | 910 | 390 | 1500 | 540 | 2000 | 630 | 2400 | 300                 | 1100 | 520 | 2000 | 710 | 2700 | 820 | 3100 |
| 15 to 35 psig /<br>1.0 to 2.4 bar<br>GE43002X012<br>(Red)     | 15                            | 1.0  | 91                                     | 340 | 150 | 580  | 210 | 810  | 270 | 1000 | 120                 | 470  | 200 | 740  | 280 | 1000 | 360 | 1400 |
|                                                               | 25                            | 1.7  | 160                                    | 590 | 270 | 1000 | 380 | 1400 | 480 | 1800 | 200                 | 750  | 350 | 1300 | 490 | 1900 | 630 | 2400 |
|                                                               | 35                            | 2.4  | 220                                    | 840 | 390 | 1500 | 540 | 2000 | 650 | 2500 | 280                 | 1100 | 490 | 1900 | 700 | 2600 | 890 | 3400 |

**Table 19. Typical Water Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |     |     |      |     |      |     |      |                    |      |     |      |     |      |     |      |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|-----|-----|------|-----|------|-----|------|--------------------|------|-----|------|-----|------|-----|------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |     |     |      |     |      |     |      |                    |      |     |      |     |      |     |      |
|                                                                |                               |      | NPS 1 / DN 25 Body                     |     |     |      |     |      |     |      | NPS 2 / DN 50 Body |      |     |      |     |      |     |      |
|                                                                |                               |      | 10%                                    |     | 20% |      | 30% |      | 40% |      | 10%                |      | 20% |      | 30% |      | 40% |      |
|                                                                |                               |      | psig                                   | bar | GPM | LPM  | GPM | LPM  | GPM | LPM  | GPM                | LPM  | GPM | LPM  | GPM | LPM  | GPM | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 30                                     | 110 | 63  | 240  | 84  | 320  | 97  | 370  | 68                 | 260  | 120 | 440  | 170 | 650  | 230 | 870  |
|                                                                | 35                            | 2.4  | 46                                     | 170 | 94  | 360  | 110 | 420  | 120 | 450  | 90                 | 340  | 190 | 730  | 240 | 920  | 310 | 1170 |
|                                                                | 40                            | 2.8  | 69                                     | 260 | 100 | 390  | 120 | 450  | 130 | 480  | 110                | 400  | 190 | 730  | 280 | 1050 | 350 | 1310 |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 37                                     | 140 | 74  | 280  | 95  | 360  | 110 | 410  | 82                 | 310  | 150 | 570  | 200 | 760  | 260 | 990  |
|                                                                | 50                            | 3.4  | 59                                     | 220 | 100 | 390  | 130 | 470  | 140 | 510  | 130                | 500  | 220 | 840  | 310 | 1180 | 380 | 1430 |
|                                                                | 70                            | 4.8  | 92                                     | 350 | 140 | 510  | 150 | 580  | 160 | 610  | 160                | 590  | 280 | 1070 | 400 | 1510 | 480 | 1830 |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 52                                     | 200 | 99  | 370  | 120 | 470  | 140 | 520  | 110                | 400  | 180 | 700  | 260 | 980  | 330 | 1230 |
|                                                                | 75                            | 5.2  | 96                                     | 360 | 140 | 530  | 160 | 610  | 170 | 640  | 150                | 560  | 250 | 940  | 340 | 1290 | 440 | 1670 |
|                                                                | 120                           | 8.3  | 150                                    | 580 | 190 | 730  | 210 | 780  | 220 | 810  | 220                | 820  | 390 | 1470 | 550 | 2080 | 650 | 2460 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 90                                     | 340 | 140 | 540  | 170 | 640  | 190 | 700  | 140                | 540  | 260 | 970  | 380 | 1420 | 480 | 1820 |
|                                                                | 150                           | 10.3 | 140                                    | 540 | 200 | 740  | 220 | 840  | 230 | 880  | 210                | 780  | 390 | 1480 | 550 | 2080 | 690 | 2610 |
|                                                                | 200                           | 14.8 | 190                                    | 730 | 240 | 920  | 260 | 970  | 270 | 1020 | 290                | 1110 | 510 | 1930 | 730 | 2760 | 810 | 3070 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 100                                    | 390 | 170 | 660  | 210 | 800  | 240 | 900  | 170                | 660  | 310 | 1160 | 440 | 1650 | 570 | 2150 |
|                                                                | 250                           | 17.2 | 160                                    | 620 | 240 | 890  | 270 | 1020 | 290 | 1100 | 250                | 950  | 430 | 1640 | 650 | 2460 | 770 | 2900 |
|                                                                | 300                           | 20.7 | 200                                    | 750 | 270 | 1020 | 300 | 1130 |     |      | 290                | 1090 | 540 | 2040 | 750 | 2820 |     |      |

 - Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

- continued -

**Table 19. Typical Water Capacities with Quick Opening Cage - Setpoint Made at 10% Flow (For Type MR108 High-Pressure Actuator) (continued)**

| SPRING RANGE,<br>PART NUMBER,<br>COLOR CODE                    | RELIEF<br>PRESSURE<br>SETTING |      | CAPACITIES IN GPM / LPM OF WATER       |      |     |      |      |      |      |      |                     |      |     |      |      |      |      |      |
|----------------------------------------------------------------|-------------------------------|------|----------------------------------------|------|-----|------|------|------|------|------|---------------------|------|-----|------|------|------|------|------|
|                                                                |                               |      | % Pressure Buildup Over Relief Setting |      |     |      |      |      |      |      |                     |      |     |      |      |      |      |      |
|                                                                |                               |      | NPS 3 / DN 80 Body                     |      |     |      |      |      |      |      | NPS 4 / DN 100 Body |      |     |      |      |      |      |      |
|                                                                |                               |      | 10%                                    |      | 20% |      | 30%  |      | 40%  |      | 10%                 |      | 20% |      | 30%  |      | 40%  |      |
|                                                                |                               |      | psig                                   | bar  | GPM | LPM  | GPM  | LPM  | GPM  | LPM  | GPM                 | LPM  | GPM | LPM  | GPM  | LPM  | GPM  | LPM  |
| 25 to 40 psig /<br>1.7 to 2.8 bar<br>GE42906X012<br>(Blue)     | 25                            | 1.7  | 110                                    | 430  | 170 | 650  | 230  | 870  | 280  | 1060 | 140                 | 530  | 210 | 810  | 290  | 1090 | 360  | 1370 |
|                                                                | 35                            | 2.4  | 150                                    | 570  | 240 | 890  | 330  | 1260 | 410  | 1550 | 170                 | 640  | 270 | 1000 | 360  | 1370 | 470  | 1780 |
|                                                                | 40                            | 2.8  | 170                                    | 640  | 270 | 1000 | 350  | 1340 | 450  | 1680 | 200                 | 750  | 310 | 1190 | 420  | 1570 | 530  | 2000 |
| 35 to 70 psig /<br>2.4 to 4.8 bar<br>GE42907X012<br>(Green)    | 35                            | 2.4  | 120                                    | 470  | 190 | 730  | 260  | 990  | 320  | 1220 | 150                 | 580  | 230 | 860  | 310  | 1170 | 390  | 1480 |
|                                                                | 50                            | 3.4  | 180                                    | 670  | 270 | 1020 | 370  | 1400 | 470  | 1770 | 210                 | 780  | 320 | 1230 | 430  | 1640 | 550  | 2060 |
|                                                                | 70                            | 4.8  | 220                                    | 830  | 370 | 1390 | 500  | 1900 | 620  | 2340 | 270                 | 1020 | 430 | 1630 | 590  | 2240 | 750  | 2850 |
| 55 to 120 psig /<br>3.8 to 8.3 bar<br>GE42909X012<br>(White)   | 55                            | 3.8  | 160                                    | 590  | 250 | 950  | 330  | 1260 | 430  | 1610 | 200                 | 750  | 300 | 1140 | 410  | 1540 | 510  | 1930 |
|                                                                | 75                            | 5.2  | 200                                    | 750  | 320 | 1220 | 450  | 1720 | 560  | 2130 | 250                 | 940  | 390 | 1480 | 530  | 2010 | 670  | 2530 |
|                                                                | 120                           | 8.3  | 310                                    | 1170 | 500 | 1880 | 670  | 2550 | 850  | 3210 | 380                 | 1450 | 590 | 2240 | 820  | 3080 | 1070 | 4030 |
| 90 to 200 psig /<br>6.2 to 13.8 bar<br>GE42910X012<br>(Silver) | 100                           | 6.9  | 220                                    | 840  | 360 | 1350 | 480  | 1810 | 590  | 2240 | 280                 | 1070 | 430 | 1630 | 580  | 2200 | 740  | 2820 |
|                                                                | 150                           | 10.3 | 310                                    | 1170 | 510 | 1920 | 700  | 2650 | 880  | 3320 | 390                 | 1460 | 610 | 2310 | 820  | 3110 | 1090 | 4140 |
|                                                                | 200                           | 14.8 | 410                                    | 1540 | 640 | 2440 | 910  | 3450 | 1190 | 4490 | 480                 | 1820 | 780 | 2940 | 1140 | 4300 | 1460 | 5530 |
| 175 to 300 psig /<br>12.1 to 20.7 bar<br>GE43002X012<br>(Red)  | 175                           | 12.1 | 280                                    | 1070 | 450 | 1690 | 590  | 2250 | 750  | 2850 | 360                 | 1370 | 540 | 2020 | 720  | 2720 | 930  | 3500 |
|                                                                | 250                           | 17.2 | 390                                    | 1490 | 620 | 2330 | 850  | 3200 | 1090 | 4130 | 480                 | 1810 | 760 | 2870 | 1070 | 4050 | 1400 | 5300 |
|                                                                | 300                           | 20.7 | 450                                    | 1700 | 730 | 2770 | 1030 | 3880 |      |      | 540                 | 2060 | 900 | 3390 | 1310 | 4940 |      |      |

 - Shaded areas indicate where pressure conditions exceed the pressure limit of the actuator.

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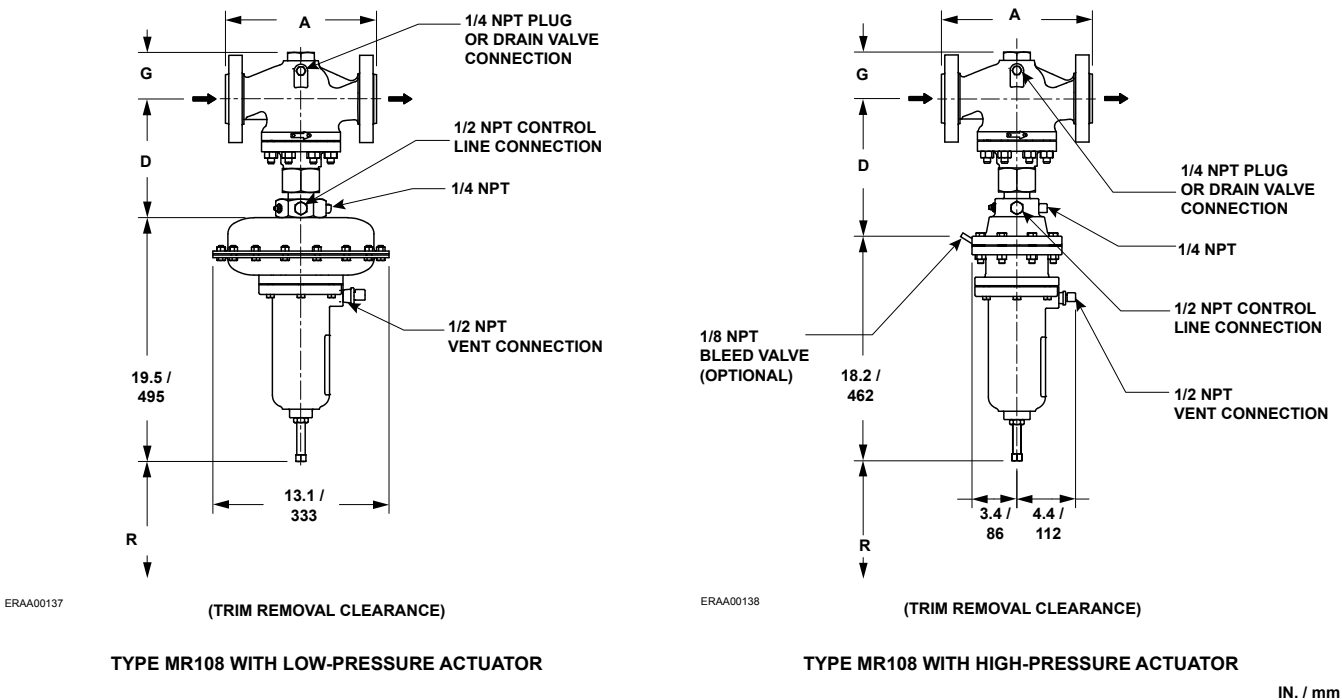


Figure 4. Type MR108 Dimensions

Table 20. Type MR108 with Low-Pressure Actuator Dimensions

| DIMENSION |     |             |                        |                        |             |                |            |           |           |
|-----------|-----|-------------|------------------------|------------------------|-------------|----------------|------------|-----------|-----------|
| Body Size |     | In. / mm    |                        |                        |             |                |            |           |           |
|           |     | A           |                        |                        |             |                | D          | G         | R         |
| NPS       | DN  | NPT         | CL125 FF /<br>CL150 RF | CL250 RF /<br>CL300 RF | CL600 RF    | PN 16/25/40 RF |            |           |           |
| 1         | 25  | 8.25 / 210  | 7.25 / 184             | 7.75 / 197             | 8.25 / 210  | 7.62 / 194     | 8.4 / 213  | 2.9 / 74  | 3.6 / 91  |
| 2         | 50  | 11.25 / 286 | 10.0 / 254             | 10.50 / 267            | 11.25 / 286 | 10.25 / 260    | 8.9 / 226  | 3.5 / 89  | 4.3 / 109 |
| 3         | 80  | ----        | 11.75 / 298            | 12.50 / 317            | 13.25 / 337 | 12.48 / 317    | 10.2 / 259 | 4.2 / 107 | 5.3 / 135 |
| 4         | 100 | ----        | 13.88 / 353            | 14.50 / 368            | 15.50 / 394 | 13.78 / 350    | 11.5 / 292 | 5.3 / 135 | 6.5 / 165 |

Table 21. Type MR108 with High-Pressure Actuator Dimensions

| DIMENSION |     |             |                        |                        |             |                |            |           |           |
|-----------|-----|-------------|------------------------|------------------------|-------------|----------------|------------|-----------|-----------|
| Body Size |     | In. / mm    |                        |                        |             |                |            |           |           |
|           |     | A           |                        |                        |             |                | D          | G         | R         |
| NPS       | DN  | NPT         | CL125 FF /<br>CL150 RF | CL250 RF /<br>CL300 RF | CL600 RF    | PN 16/25/40 RF |            |           |           |
| 1         | 25  | 8.25 / 210  | 7.25 / 184             | 7.75 / 197             | 8.25 / 210  | 7.62 / 194     | 9.9 / 251  | 2.9 / 74  | 3.6 / 91  |
| 2         | 50  | 11.25 / 286 | 10.0 / 254             | 10.50 / 267            | 11.25 / 286 | 10.25 / 260    | 10.3 / 262 | 3.5 / 89  | 4.3 / 109 |
| 3         | 80  | ----        | 11.75 / 298            | 12.50 / 317            | 13.25 / 337 | 12.48 / 317    | 11.6 / 295 | 4.2 / 107 | 5.3 / 135 |
| 4         | 100 | ----        | 13.88 / 353            | 14.50 / 368            | 15.50 / 394 | 13.78 / 350    | 13.0 / 330 | 5.3 / 135 | 6.5 / 165 |

## Ordering Information

Use the Specifications section on page 2 and carefully review the description to the right of each specification. Use this information to complete the Ordering Guide on this page. Specify the

desired selection wherever there is a choice to be made. Then send the Ordering Guide to your local Sales Office.

## Ordering Guide

### Body Size (Select One)

- ☐ NPS 1 / DN 25
- ☐ NPS 2 / DN 50
- ☐ NPS 3 / DN 80
- ☐ NPS 4 / DN 100

### Actuator Type (Select One)

- ☐ Low Pressure
- ☐ High Pressure

### Cage Type (Select One)

- ☐ Linear (All Sizes)
- ☐ High Capacity Linear Cage
- ☐ Quick Open

### Body Material and End Connection Style (Select One)

#### Cast Iron

- ☐ NPT (1 or 2 NPT only)
- ☐ CL125 FF
- ☐ CL250 RF

#### WCC Steel

- ☐ NPT (1 or 2 NPT only)
- ☐ CL150 RF
- ☐ CL300 RF
- ☐ CL600 RF
- ☐ PN 16 RF
- ☐ PN 16/25/40 RF (NPS 1 or 2 / DN 25 or 50 only)

#### CF8M Stainless Steel

- ☐ NPT (1 or 2 NPT only)
- ☐ CL150 RF
- ☐ CL300 RF
- ☐ CL600 RF
- ☐ PN 16 RF
- ☐ PN 16/25/40 RF (NPS 1 or 2 / DN 25 or 50 only)

#### CF3M Stainless Steel

- ☐ NPT (1 or 2 NPT only)
- ☐ CL150 RF
- ☐ CL300 RF
- ☐ CL600 RF
- ☐ PN 16 RF
- ☐ PN 16/25/40 RF (NPS 1 or 2 / DN 25 or 50 only)

### Diaphragm, O-rings and Seal Materials (Select One)

- ☐ Nitrile (NBR)
- ☐ Fluorocarbon (FKM)
- ☐ Ethylene Propylene (EPDM)

### Actuator Type and Set Pressure Range (Select One)

#### Low-Pressure Actuator

- ☐ 5 to 14 psig / 0.35 to 0.97 bar, White
- ☐ 8 to 24 psig / 0.55 to 1.7 bar, Silver
- ☐ 12 to 30 psig / 0.83 to 2.1 bar, Orange
- ☐ 15 to 35 psig / 1.0 to 2.4 bar, Red

#### High-Pressure Actuator

- ☐ 25 to 40 psig / 1.7 to 2.8 bar, Blue
- ☐ 35 to 70 psig / 2.4 to 4.8 bar, Green
- ☐ 55 to 120 psig / 3.8 to 8.3 bar, White
- ☐ 90 to 200 psig / 6.2 to 13.8 bar, Silver<sup>(1)</sup>
- ☐ 175 to 300 psig / 12.1 to 20.7 bar, Red<sup>(2)</sup>

### Optional

- ☐ Inlet Pressure Gauge Tap on Body
- ☐ Pressure-Loaded Actuator
- ☐ Drain Valve
- ☐ NACE Construction
- ☐ Bleed Valve (For High-Pressure Actuator Only)

### Main Valve Replacement Parts Kit (Optional)

- ☐ Yes, send one replacement parts kit to match this order.

### Actuator Replacement Parts Kit (Optional)

- ☐ Yes, send one replacement parts kit to match this order.

1. Maximum setpoint is limited to 150 psig / 10.3 bar for constructions with Fluorocarbon (FKM) diaphragm.  
2. Not applicable for constructions with Fluorocarbon (FKM) diaphragm.

## Ordering Guide (continued)

| Regulators Quick Order Guide                                                                                                            |                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| ***                                                                                                                                     | Readily Available for Shipment                                                                       |
| **                                                                                                                                      | Allow Additional Time for Shipment                                                                   |
| *                                                                                                                                       | Special Order, Constructed from Non-Stocked Parts. Consult your local Sales Office for Availability. |
| Availability of the product being ordered is determined by the component with the longest shipping time for the requested construction. |                                                                                                      |

| Specification Worksheet                               |                                                                                        |
|-------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Application:</b>                                   |                                                                                        |
| Specific Use                                          | _____                                                                                  |
| Line Size                                             | _____                                                                                  |
| Fluid Type                                            | _____                                                                                  |
| Specific Gravity                                      | _____                                                                                  |
| Temperature                                           | _____                                                                                  |
| <b>Pressure:</b>                                      |                                                                                        |
| Maximum Inlet Pressure                                | _____                                                                                  |
| Minimum Inlet Pressure                                | _____                                                                                  |
| Set Pressure                                          | _____                                                                                  |
| Maximum Flow                                          | _____                                                                                  |
| <b>Accuracy Requirements:</b>                         |                                                                                        |
| Less Than or Equal To:                                |                                                                                        |
| <input type="checkbox"/> 5%                           | <input type="checkbox"/> 10% <input type="checkbox"/> 20% <input type="checkbox"/> 40% |
| <b>Construction Material Requirements (if known):</b> |                                                                                        |
| _____                                                 |                                                                                        |
| _____                                                 |                                                                                        |

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