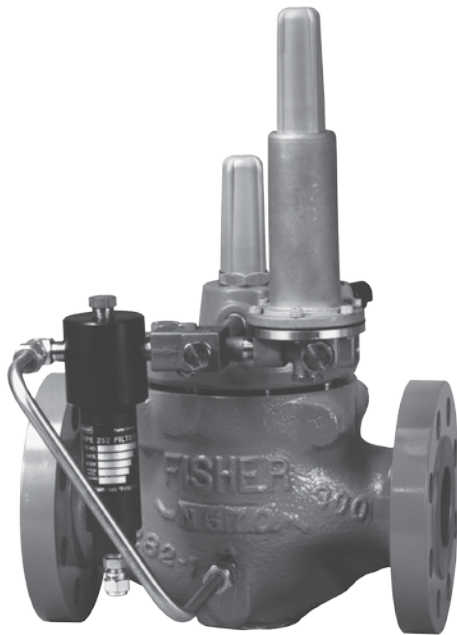


July 2017

EZR Series Pressure Reducing Regulator



W7399

TYPE EZR REGULATOR

Introduction

The Type EZR pilot-operated, pressure reducing regulator is designed for natural gas transmission/distribution systems and industrial/commercial applications. The Type EZR provides smooth, quiet operation, tight shutoff and long life, even in dirty service. Its internally actuated metal plug eliminates disadvantages associated with boot-style regulators and the specially engineered flow path deflects debris, protecting the seat from damage and erosion. The Type EZR is used in conjunction with a 161EB or 161AY Series pilot and Type 112 restrictor or with a PRX Series pilot (with integral restrictor). The Type EZR pressure reducing regulator can be converted to a high pressure relief valve or backpressure regulator by simply changing to a relief piloting system (refer to Bulletin 71.4:EZR).



W8136

TYPE EZROSX WITH INTEGRAL
SLAM-SHUT DEVICE

Figure 1. EZR Series Pressure Reducing Regulator

An optional inlet strainer prevents large particles from entering the main valve, limiting damage to internal parts. A Type 252 pilot supply filter (optional) can be added to keep pipeline debris from entering the pilot. For underpressure and/or overpressure protection, the Type EZR is available with an integral slam-shut device.

EZR Series

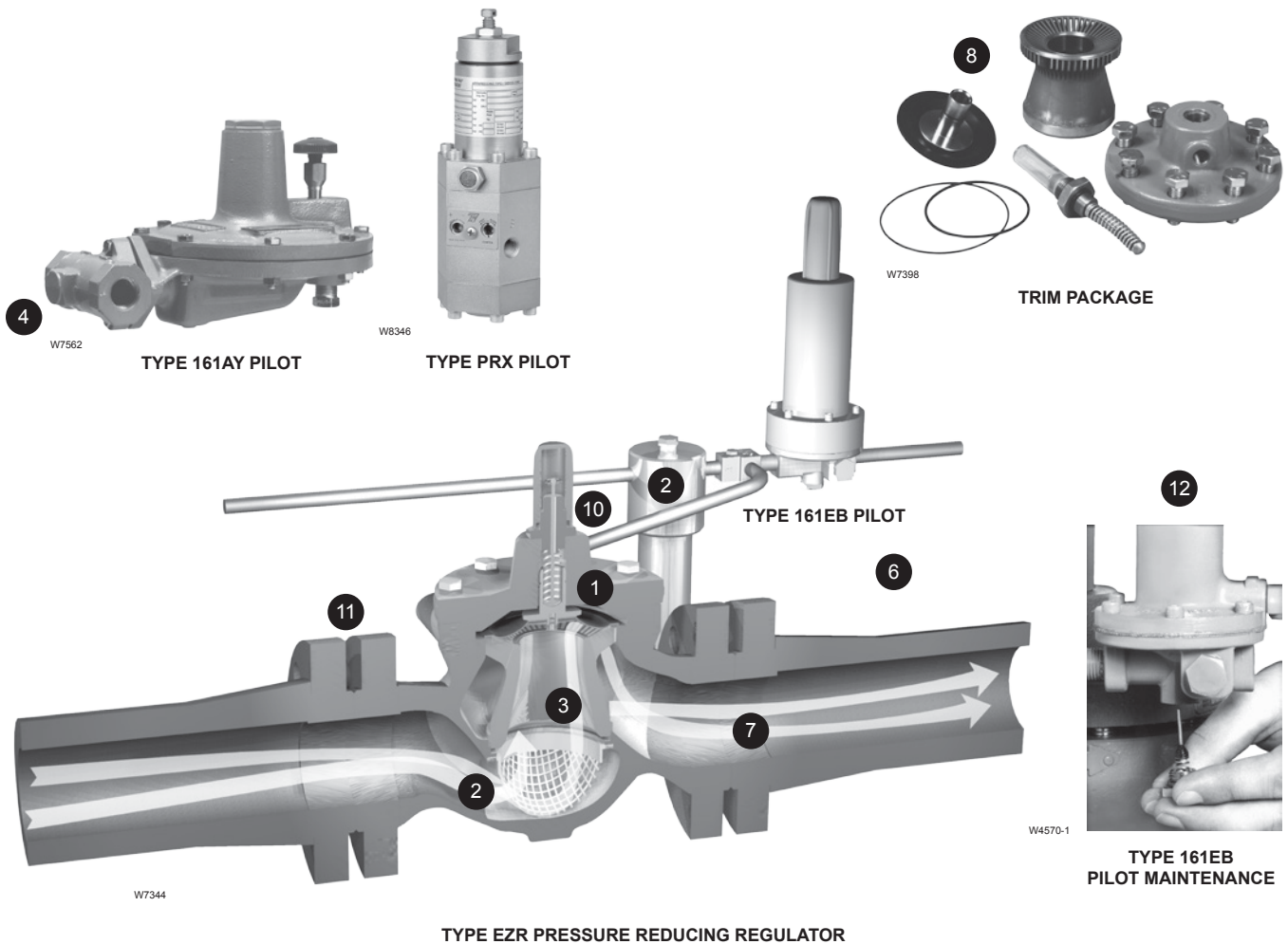


Figure 2. EZR Series Features and Benefits

Features and Benefits

- 1 Tight Shutoff**—The EZR Series uses a diaphragm and metal plug, eliminating the disadvantages of boot-style regulators. When open, the metal plug deflects particles and debris away from the diaphragm. The result is enhanced resistance to particle erosion, which provides excellent shutoff over an extended life. When closed, loading pressure and the main spring push the diaphragm onto the tapered-edged seat on the cage.
- 2 Debris Protection**—The specially engineered flow path, along with the metal plug, allows flow through the regulator without seat impingement. The addition of an optional inlet strainer prevents large particles from entering the regulator, eliminating damage to internal parts.
- 3 Quiet Operation**—The specially engineered flow path allows flow through the center of the cage and down through the cage slots—reduces operational noise, making the EZR Series an exceptionally quiet regulator.
- 4 High Accuracy**—Multiple outlet pressure ranges and narrow proportional bands offered by the 161EB Series, 161AY Series and Type PRX/120 pilots provide the EZR Series with tight, accurate control. For applications requiring tighter control, using a Type 161AYM, 161EBM or PRX/120 pilot will increase the accuracy of the regulator.

- 5 **Long Life**—The robust design of the EZR Series with its metal plug and specially engineered flow path allows flow through the regulator without seat impingement. The diaphragm design eliminates the possibility of taking a “set”, a common problem with boot-style regulators. To prevent damage, the diaphragm is fully supported in both the open and closed positions. These features enable the EZR Series components to work longer with less wear and tear.
- 6 **Full Usable Capacity**—Fisher™ branded regulators are laboratory tested. 100 percent of the published flow capacity can be used with confidence.
- 7 **Thorough Laboratory Testing**—Emerson Process Management Regulator Technologies, Inc. state-of-the-art flow laboratory allows thorough testing of all new designs. Tests are conducted on Fisher branded regulators for performance features such as flow, strength, shutoff, material compatibility and noise.
- 8 **Easy In-Line Maintenance**—Top-entry design reduces maintenance time. Trim parts can be inspected, cleaned and replaced without removing the body from the pipeline. No special alignment is required when replacing the diaphragm. The EZR Series incorporates E-body construction, making it easy to change existing E-body regulators and control valves with an EZR Series trim kit.
- 9 **O-ring Design**—The EZR Series uses elastomer O-rings instead of gaskets, reducing maintenance and assembly time.
- 10 **In-Service Travel Indicator**—The optional travel indicator responds to the precise movement of the diaphragm and plug assembly and shows the actual valve position. The travel indicator makes in-service inspection and troubleshooting easy. Also, it can be used for remote alarming and monitoring stem position when combined with the Type 4310 or 4320 wireless position monitor.
- 11 **Versatility**—The EZR Series uses the E-body, making available the standard construction materials and end connections (ASME and EN) used by other E-body regulators and control valves. The 161AY Series pilots can handle inlet pressures up to 150 psig / 10.3 bar and outlet pressure from 6 in. w.c. to 7 psig / 15 mbar to 0.48 bar. The 161EB Series pilots can handle inlet pressures up to 1500 psig / 103 bar and outlet pressures from 5 to 700 psig / 0.35 to 48.3 bar.



Figure 2. EZR Series Features and Benefits (continued)

The Type PRX pilots can handle inlet pressures up to 1480 psig / 102 bar and outlet pressures up to 1000 psig / 69.0 bar.

By changing to a relief piloting system (6358 Series pilots), a Type EZR pressure reducing regulator easily becomes a very effective high volume relief valve or backpressure regulator (refer to Bulletin 71.4:EZR).

EZR Series

- 12 **Easily Maintained Pilots**—The pilots are designed to allow quick and simple in-line trim inspection and parts replacement.
- 13 **Powder Paint Coating**—Fisher™ regulators are powder paint coated providing superior impact, abrasion and corrosion resistance.
- 14 **Slam-shut device**— Type EZROX with slam-shut device provides either overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection by completely shutting off the flow at the downstream system.

Pilot Type Descriptions

Type 161AY—Low-pressure pilot with an outlet pressure range from 6 in. w.c. to 7 psig / 15 mbar to 0.48 bar. Pilot bleeds (exhausts) downstream through the sense (control) line.

Type 161AYM—The monitor version of the Type 161AY pilot. The pilot bleed (exhaust) is isolated from the sense (control) line. This pilot is used in monitoring systems requiring an isolated pilot bleed (exhaust).

Type 161EB—High accuracy pilot with an outlet pressure range from 5 to 350 psig / 0.34 to 24.1 bar. Pilot bleeds (exhausts) downstream through the sense (control) line.

Type 161EBM—The monitor version of the Type 161EB pilot. The pilot bleed (exhaust) is isolated from the sense (control) line. This pilot is used in monitoring systems requiring an isolated pilot bleed (exhaust).

Type PRX/120—Outlet pressure range of 14.5 to 435 psig / 1 to 30.0 bar. The Type PRX/120 can be used as the pilot on single stage pressure reducing regulators, as the monitor pilot or as the working pilot in wide-open monitor systems or as the working pilot for monitoring and working regulators in the working monitoring systems. The Type PRX has a double diaphragm which provides increased accuracy and sensitivity, an integral restrictor adjustment to allow adjustable opening and closing speeds and a damper adjustment to allow adjustments to make for inlet pressure variability and loading pressure oscillations.

Type PRX/120-AP—Outlet pressure range of 435 to 1000 psig / 30.0 to 69.0 bar. The Type PRX/120-AP can be used as the pilot on single stage pressure reducing regulators, as the monitor pilot or as the working pilot

in wide-open monitor systems or as the working pilot for monitoring and working regulators in the working monitoring systems.

Type PRX/125 (Monitor Pilot Only)—Identical to the Type PRX/120 except the restriction screw is removed. The Type PRX/125 can only be used as the monitor override pilot on working monitor applications. Always order with Type PRX-120 in working monitor applications.

Type PRX/125-AP (Monitor Pilot Only)—Identical to the Type PRX/120-AP except the restriction screw is removed. The Type PRX/125-AP can only be used as the monitor override pilot on working monitor applications. Always order with Type PRX/120-AP in working monitor applications.

Low Flow Application Considerations

When selecting pilots to use with the EZR Series:

Use the 161 Series pilots for applications where normal flow is typically 5% and greater of maximum rated flow. The accuracy and control of the 161 Series pilots can be increased using the series' monitor pilots (M).

When the potential for low flow (< 5% of maximum rated flow) for extended periods exists due to the regulator being oversized or operational constraints the Type PRX pilot is recommended.

Installation of an oversized regulator may make low flow operation difficult. The smallest Type EZR that meets the flow requirements should be selected. Reduced capacity trim reduces relief valve requirements by decreasing the maximum possible flow through the regulator but does not improve low flow performance. Additional details on how to set up the pilots for various flow rates is provided in the Type EZR Instruction Manual. If you have questions on which pilot to use for your application contact your local Sales Office.

Optional Pilot Supply Filter

The Type 252 pilot supply filter prevents pipeline debris from entering the pilot, a primary cause of pilot clogging. The aluminum body is rated for 2150 psig / 148 bar and the stainless steel body for 2750 psig / 190 bar. Both are available in standard or extended length with a pipe plug or a drain valve. When the upstream system is free of debris, the EZR Series may be installed without a filter.

Specifications

This section lists the specifications for the EZR Series pressure reducing regulator. The set pressure range for a pilot as it comes from the factory appears on the spring case. Other information for an individual main valve appears on the nameplate.

Available Configurations

Type EZR: Pilot-operated pressure reducing regulator for low to high outlet pressure

Type EZROSX: Type EZR with a Type OS2 slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection

Main Valve Body Sizes, End Connection Styles and Structural Design Ratings⁽¹⁾⁽²⁾

See Table 1

Maximum Inlet Pressures and Pressure Drops⁽¹⁾

Main Valve: See Table 7

Pilots: See Table 3

Restrictor: 1500 psig / 103 bar

Outlet (Control) Pressure Ranges

See Table 2

Main Valve Plug Travel

NPS 1, 1-1/4 x 1, 2 x 1 / DN 25, 32 x 25, 50 x 25:
0.37 in. / 9.4 mm

NPS 2 / DN 50: 0.68 in. / 17 mm

NPS 3 / DN 80: 0.98 in. / 25 mm

NPS 4 / DN 100: 1.19 in. / 30 mm

NPS 6 / DN 150: 1.5 in. / 38 mm

NPS 8 / DN 200: 1.75 in. / 44 mm

Minimum and Maximum Differential Pressures⁽¹⁾

See Tables 4 and 8

Main Valve Flow Direction

Up through the center of the cage and down through the cage slots

Proportional Bands

See Table 2

Regulating Capacities

See Tables 13, 14 and 15

Flow Coefficients

Main Valve: See Tables 9 and 10

Pilots: See Table 11

Restrictor: See Table 12

IEC Sizing Coefficient

See Table 8

Pressure Registration

External

Temperature Capabilities⁽¹⁾

See Table 6

Approximate Weights

See Table 18

Options

- Pre-piped Pilot Supply and Pilot Bleed
- Travel Indicator
- Inlet Strainer
- Type 252 Pilot Supply Filter
- Trim Package
- Restricted Capacity Trim
- Pilot Diaphragm for Pressure Loading

Construction Materials

EZR Series Main Valve

Body: Cast iron, WCC steel or LCC steel

Bonnet: Steel

Bonnet Bushing: Stainless steel

Cage: Stainless steel

Spring: Zinc-plated steel or Stainless steel

Top Plug: Stainless steel

Bottom Plug: Stainless steel

Inlet Strainer: Stainless steel

Strainer Replacement Shim: Stainless steel

Diaphragm: Nitrile (NBR) or Fluorocarbon (FKM)

O-rings: Nitrile (NBR) or Fluorocarbon (FKM)

Flanged Locknut: Zinc-plated steel

Backup Rings: Polytetrafluoroethylene (PTFE)

Upper Spring Seat: Stainless steel

Indicator Protector and Cover: Plastic

Indicator Stem: Stainless steel

Indicator Fitting: Stainless steel

Travel Indicator Plug: Stainless steel

Restricted Trim

E-Ring: Carbon steel

Restrictor Plate: Stainless steel

161EB Series Pilots

Body: Stainless steel

Spring Case: Stainless steel

Body Plug: Stainless steel

Control Spring: Zinc-plated steel

Valve Plug: Nitrile (NBR) or Fluorocarbon (FKM)

Adjusting Screw: Zinc-plated steel

Diaphragm: Nitrile (NBR) or Fluorocarbon (FKM)

Diaphragm Limiter: Stainless steel

O-rings: Nitrile (NBR)

161AY Series Pilots

Body: Cast iron

Spring Case and Lower Casing: Ductile iron

Stem Guide: Stainless steel

Control Spring: Zinc-plated steel

Lever Assembly: Stainless steel

Pusher Post: Stainless steel

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

2. Ratings and end connections other than ASME standards can usually be provided; contact your local Sales Office.

EZR Series

Specifications (continued)

161AY Series Pilots (continued)

Diaphragm: Nitrile (NBR) or Fluorocarbon (FKM)

O-rings: Nitrile (NBR) or Fluorocarbon (FKM)

Orifice: Stainless steel

Disk Assembly: Nitrile (NBR) or Fluorocarbon (FKM)

PRX Series Pilots

Body: Steel

Trim: Stainless steel

Elastomers: Nitrile (NBR) or Fluorocarbon (FKM)

Disk Material: Polyurethane (PU) or Fluorocarbon (FKM)

Mounting Parts

Pilot Mounting Pipe Nipple: Plated steel

Tubing and Fittings: Stainless steel

Type 112 Restrictor

Body: Stainless steel

Groove Valve: Stainless steel

Retainer: Stainless steel

Pipe Plug: Stainless steel

O-rings: Fluorocarbon (FKM)

Type 252 Pilot Supply Filter

Body: Aluminum or Stainless steel

Filter Cartridge: Polyethylene

O-rings: Nitrile (NBR)

Drain Valve or Pipe Plug: Stainless steel

Slam-Shut Device

Mechanism Box: Aluminum alloy

First and Second Stage Mechanism: Steel

Diaphragm: Nitrile (NBR)

Bellows: Stainless steel

Table 1. Main Valve Body Sizes, End Connection Styles and Body Ratings

| TYPE | MAIN VALVE BODY SIZE | | MAIN VALVE BODY MATERIAL | END CONNECTION STYLE ⁽¹⁾ | STRUCTURAL DESIGN RATING ⁽²⁾ | |
|----------|---|---|--------------------------|---|---|------|
| | NPS | DN | | | psig | bar |
| EZR | 2 x 1, 2, 3, 4 and 6 | 50 x 25, 50, 80, 100 and 150 | Cast iron | NPT 2 x 1 and 2 only | 400 | 28.0 |
| | | | | CL125 FF | 200 | 14.0 |
| | | | | CL250 RF | 500 | 34.0 |
| | 1, 1-1/4 x 1 ⁽³⁾ , 2 x 1, 2, 3, 4, 6 x 4 ⁽⁴⁾ , 8 x 4 ⁽⁴⁾ , 6, 8 x 6 ⁽⁴⁾ and 12 x 6 ⁽⁴⁾ | 25, 32 x 25 ⁽³⁾ , 50 x 25, 50, 80, 100, 150 x 100 ⁽⁴⁾ , 200 x 100 ⁽⁴⁾ , 150, 200 x 150 ⁽⁴⁾ and 300 x 150 ⁽⁴⁾ | WCC Steel | NPT or SWE NPS 1, 2 x 1 and 2 only / DN 25, 50 x 25 and 50 only | 1500 | 103 |
| | | | | CL150 RF | 290 | 20.0 |
| | | | | CL300 RF | 750 | 52.0 |
| | | | | CL600 RF or BWE | 1500 | 103 |
| | 8 | 200 | LCC Steel | CL150 RF | 290 | 20.0 |
| | | | | CL300 RF | 750 | 52.0 |
| CL600 RF | | | | 1500 | 103 | |
| EZROX | 1, 2 x 1, 2, 3, 4 and 6 | 25, 50 x 25, 50, 80, 100 and 150 | WCC Steel | CL150 RF | 290 | 20.0 |
| | | | | CL300 RF | 750 | 52.0 |
| | | | | CL600 RF | 1500 | 103 |

1. Ratings and end connections for other than ASME standard can usually be provided. Contact your local Sales Office for assistance.

2. See Tables 3, 6, 7 and 8 for diaphragm materials and additional pressure ratings.

3. Available in steel NPT only.

4. NPS 6 x 4, 8 x 4, 8 x 6, 12 x 6 / DN 150 x 100, 200 x 100, 200 x 150, 300 x 150 Types EZR and 399 bodies are not the same as the EW valve bodies and are not interchangeable.

Table 2. Outlet (Control) Pressure Ranges and Typical Proportional Bands

| TYPE | OUTLET (CONTROL) PRESSURE RANGE | | PROPORTIONAL BAND ⁽¹⁾⁽³⁾ | | PILOT CONTROL SPRING INFORMATION | | | | | |
|--------------------------|---------------------------------|---------------|-------------------------------------|-----------------------|----------------------------------|-------------|---------------|------|-------------|-------|
| | psig | bar | psig | bar | Part Number | Color Code | Wire Diameter | | Free Length | |
| | | | | | | | In. | cm | In. | cm |
| 161AY or 161AYM | 6 to 15 in. w.c. | 15 to 37 mbar | 1 in. w.c. | 3 mbar ⁽²⁾ | 1B653927022 | Olive drab | 0.105 | 0.27 | 3.75 | 9.53 |
| | 0.5 to 1.2 | 0.03 to 0.08 | 1 in. w.c. | 3 mbar ⁽²⁾ | 1B537027052 | Yellow | 0.114 | 0.29 | 4.31 | 10.95 |
| | 1.2 to 2.5 | 0.08 to 0.17 | 0.5 | 0.03 ⁽²⁾ | 1B537127022 | Light green | 0.156 | 0.40 | 4.13 | 10.49 |
| | 2.5 to 4.5 | 0.17 to 0.31 | 0.5 | 0.03 ⁽²⁾ | 1B537227022 | Light blue | 0.187 | 0.48 | 3.94 | 10.0 |
| | 4.5 to 7 | 0.31 to 0.48 | 0.5 | 0.03 ⁽²⁾ | 1B537327052 | Black | 0.218 | 0.55 | 4.13 | 10.49 |
| 161EB or 161EBM | 5 to 15 | 0.35 to 1.0 | 0.5 | 0.03 ⁽²⁾ | 17B1260X012 | White | 0.120 | 0.31 | 3.75 | 9.53 |
| | 10 to 40 | 0.69 to 2.8 | 0.5 | 0.03 ⁽²⁾ | 17B1262X012 | Yellow | 0.148 | 0.38 | 3.75 | 9.53 |
| | 30 to 75 | 2.1 to 5.2 | 0.6 | 0.04 ⁽²⁾ | 17B1259X012 | Black | 0.187 | 0.48 | 4.00 | 10.16 |
| | 70 to 140 | 4.8 to 10 | 1.3 | 0.09 ⁽²⁾ | 17B1261X012 | Green | 0.225 | 0.57 | 3.70 | 9.40 |
| | 130 to 200 | 9 to 14 | 1.5 | 0.10 ⁽²⁾ | 17B1263X012 | Blue | 0.262 | 0.67 | 3.85 | 9.78 |
| | 200 to 350 | 14 to 24 | 3 | 0.21 ⁽²⁾ | 17B1264X012 | Red | 0.294 | 0.75 | 4.22 | 10.72 |
| 161EB ⁽⁴⁾ | 30 to 300 | 2.1 to 20.7 | 6 | 0.41 | 15A9258X012 | Green | 0.243 | 0.62 | 1.88 | 4.78 |
| TYPE | OUTLET (CONTROL) PRESSURE RANGE | | ACCURACY CLASS (AC) ⁽¹⁾ | | PILOT CONTROL SPRING INFORMATION | | | | | |
| | psig | bar | | | Part Number | Color Code | Wire Diameter | | Free Length | |
| PRX/120 PRX/125 | 14.5 to 26 | 1 to 1.8 | | 2.5% | M0255240X12 | Yellow | 0.110 | 0.28 | 2.16 | 5.49 |
| | 23 to 44 | 1.6 to 3.0 | | 2.5% | M0255230X12 | Green | 0.126 | 0.32 | | |
| | 41 to 80 | 2.8 to 5.5 | | 2.5% | M0255180X12 | Blue | 0.138 | 0.35 | | |
| | 73 to 123 | 5.0 to 8.5 | | 2.5% | M0255220X12 | Black | 0.157 | 0.40 | | |
| | 116 to 210 | 8 to 15 | | 1% | M0255210X12 | Silver | 0.177 | 0.45 | | |
| | 203 to 334 | 14 to 23 | | 1% | M0255200X12 | Gold | 0.197 | 0.50 | 2.00 | 5.10 |
| PRX/120-AP PRX/125-AP | 319 to 435 | 22 to 30 | | 1% | M0255860X12 | Aluminum | 0.236 | 0.60 | 2.00 | 5.10 |
| | 435 to 1000 | 30 to 69 | | 1% | M0273790X12 | Clear | 0.335 | 0.85 | 3.93 | 10.0 |

1. Proportional band and Accuracy Class include outlet pressure drop plus hysteresis (friction), but do not include lockup.

2. Proportional band was determined with a pressure drop ranging from 50 to 150 psig / 3.5 to 10 bar. Approximately double the proportional band if the pressure drop is less than 50 psig / 3.5 bar.

3. With Type 112 restrictor set on 2. With Type PRX restrictor turn the restrictor screw one turn counterclockwise from fully seated.

4. Should only be used as the intermediate reduction pilot on the Type EZR worker/monitor systems.

Table 3. Pilot Pressure Ratings

| TYPE | MAXIMUM INLET PRESSURE | | MAXIMUM EMERGENCY OUTLET PRESSURE OR MAXIMUM EMERGENCY SENSE PRESSURE ⁽¹⁾ | | MAXIMUM BLEED (EXHAUST) PRESSURE FOR MONITOR PILOT | |
|------------|------------------------|-----|--|-----|--|-----|
| | psig | bar | psig | bar | psig | bar |
| 161AY | 150 | 10 | 150 | 10 | ---- | |
| 161EB | 1500 | 103 | 1200 | 83 | ---- | |
| 161AYM | 150 | 10 | 150 | 10 | 150 | 10 |
| 161EBM | 1500 | 103 | 1200 | 83 | 1500 | 103 |
| PRX Series | 1480 | 102 | 1480 | 102 | 1480 | 102 |

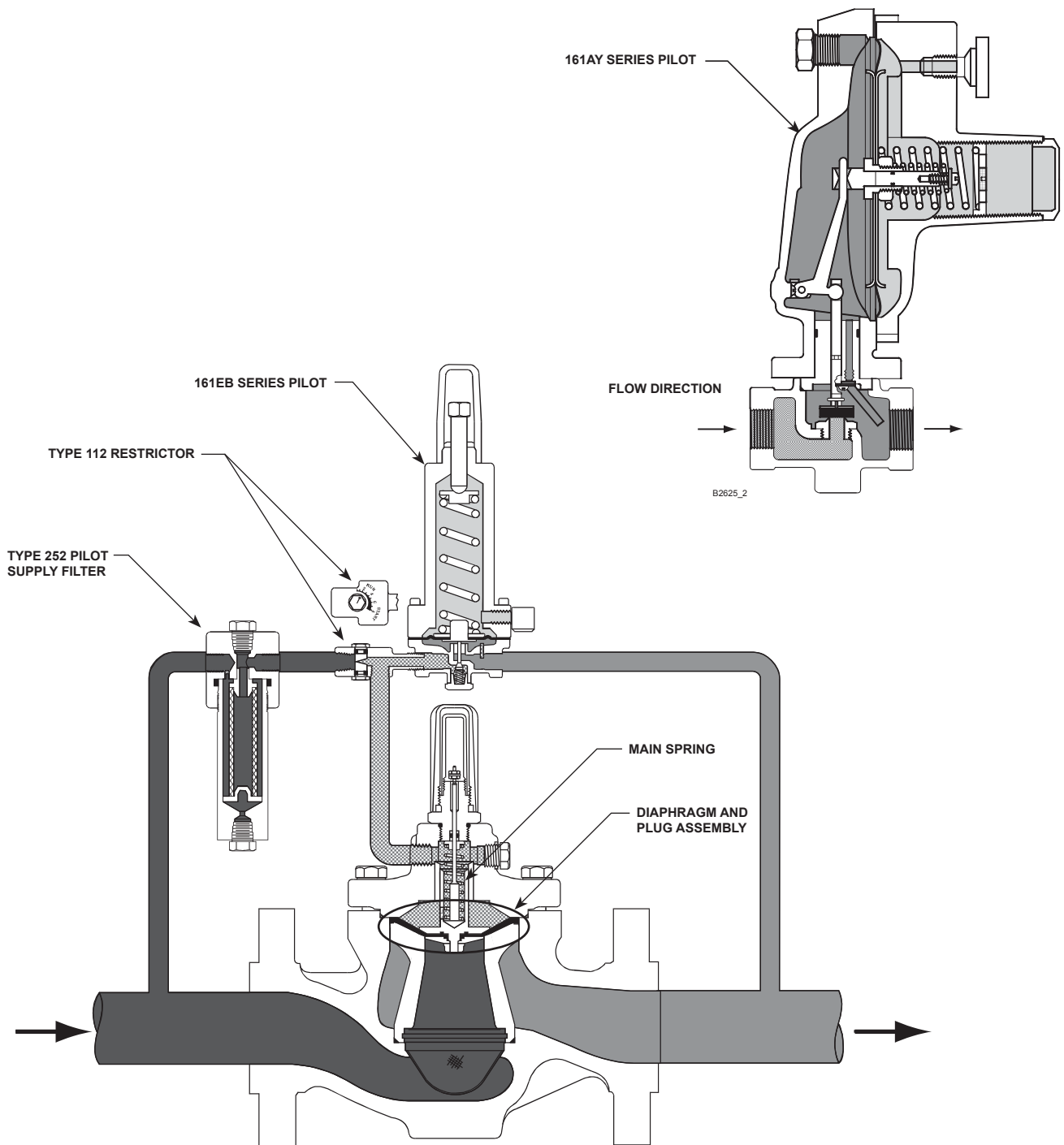
1. Maximum pressure to prevent the casings from bursting during abnormal operation (leaking to atmosphere and internal parts damage might occur).

Table 4. Main Valve Minimum Differential Pressures⁽¹⁾

| MAIN VALVE BODY SIZE | | MAIN SPRING PART NUMBER AND COLOR | DIAPHRAGM MATERIAL | MINIMUM DIFFERENTIAL, PERCENT OF CAGE CAPACITY | | | | | | | | | | | |
|----------------------|------------------------------|---|--------------------|--|-------|----------|-------|----------|-------|-------------------|-------|----------|-------|----------|-------|
| NPS | DN | | | For 90% Capacity | | | | | | For 100% Capacity | | | | | |
| | | | | 100% Trim | | 60% Trim | | 30% Trim | | 100% Trim | | 60% Trim | | 30% Trim | |
| | | | | psid | bar d | psid | bar d | psid | bar d | psid | bar d | psid | bar d | psid | bar d |
| 1, 1-1/4 x 1 | 25, 32 x 25 | 19B2400X012, Light Blue | 17E68 and 17E88 | 24 | 1.7 | 29 | 2.0 | 31 | 2.2 | 24 | 1.7 | 31 | 2.2 | 40 | 2.8 |
| | | GE12727X012, Black | 17E97 | 35 | 2.5 | 38 | 2.7 | 42 | 2.9 | 35 | 2.5 | 39 | 2.7 | 52 | 3.6 |
| | | 17E68 and 17E88 | 30 | 2.1 | 35 | 2.4 | 39 | 2.7 | 30 | 2.1 | 36 | 2.5 | 52 | 3.6 | |
| 2 x 1 | 50 x 25 | 19B2400X012, Light Blue | 17E68 and 17E88 | 24 | 1.7 | 29 | 2.0 | 31 | 2.2 | 24 | 1.7 | 31 | 2.2 | 40 | 2.8 |
| | | 19B2401X012, Black with White Stripe | 17E97 | 43 | 3.0 | 50 | 3.4 | 56 | 3.9 | 43 | 3.0 | 53 | 3.7 | 68 | 4.7 |
| | | 17E68 and 17E88 | 43 | 3.0 | 50 | 3.4 | 56 | 3.9 | 43 | 3.0 | 53 | 3.7 | 68 | 4.7 | |
| 2 | 50 | GE12501X012, Red Stripe ⁽³⁾ | 17E97 | 68 | 4.7 | 73 | 5.0 | 88 | 6.1 | 72 | 5.0 | 81 | 5.6 | 102 | 7.0 |
| | | 19B0951X012, Yellow ⁽²⁾ | 17E68 and 17E88 | 12 | 0.8 | 15 | 1.0 | 15 | 1.0 | 12 | 0.8 | 25 | 1.7 | 20 | 1.4 |
| | | 18B2126X012, Green | 17E97 | 24 | 1.7 | 25 | 1.7 | 26 | 1.8 | 24 | 1.7 | 30 | 2.1 | 37 | 2.6 |
| 3 | 80 | 17E68 and 17E88 | 18 | 1.2 | 20 | 1.4 | 22 | 1.5 | 19 | 1.3 | 26 | 1.8 | 28 | 1.9 | |
| | | 18B5955X012, Red ⁽³⁾ GE05504X012, Purple ⁽³⁾ | 17E88 and 17E97 | 29 | 2.0 | 29 | 2.0 | 31 | 2.1 | 31 | 2.1 | 35 | 2.4 | 43 | 3.03 |
| | | T14184T0012, Yellow ⁽²⁾ | 17E68 and 17E88 | 16 | 1.1 | 19 | 1.3 | 24 | 1.7 | 23 | 1.6 | 23 | 1.6 | 29 | 2.0 |
| 4, 6 x 4 and 8 x 4 | 100, 150 x 100 and 200 x 100 | 19B0781X012, Light Blue | 17E97 | 23 | 1.6 | 23 | 1.6 | 23 | 1.6 | 23 | 1.6 | 23 | 1.6 | 25 | 1.7 |
| | | 17E68 and 17E88 | 21 | 1.5 | 22 | 1.5 | 28 | 1.9 | 28 | 1.9 | 28 | 1.9 | 33 | 2.3 | |
| | | 19B0782X012, Black ⁽³⁾ | 17E88 and 17E97 | 32 | 2.2 | 33 | 2.3 | 43 | 3.0 | 38 | 2.6 | 38 | 2.6 | 50 | 3.4 |
| 6, 8 x 6 and 12 x 6 | 150, 200 x 150 and 300 x 150 | T14184T0012, Yellow ⁽²⁾ | 17E68 and 17E88 | 10 | 0.7 | 12 | 0.8 | 14 | 1.0 | 25 | 1.7 | 25 | 1.7 | 25 | 1.7 |
| | | 18B8501X012, Green | 17E97 | 16 | 1.1 | 17 | 1.2 | 21 | 1.5 | 34 | 2.3 | 34 | 2.3 | 34 | 2.3 |
| | | 17E68 and 17E88 | 16 | 1.1 | 17 | 1.2 | 20 | 1.4 | 30 | 2.1 | 30 | 2.1 | 30 | 2.1 | |
| 8 | 200 | 18B8502X012, Red ⁽³⁾ | 17E88 and 17E97 | 21 | 1.5 | 24 | 1.7 | 26 | 1.8 | 40 | 2.8 | 40 | 2.8 | 40 | 2.8 |
| | | 19B0364X012, Yellow ⁽²⁾ | 17E97 | 10 | 0.7 | 11 | 0.8 | 14 | 1.0 | 12 | 0.8 | 16 | 1.1 | 16 | 1.1 |
| | | 17E88 | 10 | 0.7 | 13 | 0.9 | 13 | 0.9 | 12 | 0.8 | 21 | 1.5 | 21 | 1.5 | |
| 8 | 200 | 19B0366X012, Green | 17E97 | 14 | 1.0 | 22 | 1.5 | 22 | 1.5 | 19 | 1.3 | 29 | 2.0 | 29 | 2.0 |
| | | 17E88 | 17 | 1.2 | 21 | 1.5 | 21 | 1.5 | 20 | 1.4 | 36 | 2.5 | 36 | 2.5 | |
| | | 19B0365X012, Red ⁽³⁾ | 17E88 and 17E97 | 23 | 1.6 | 29 | 2.0 | 29 | 2.0 | 30 | 2.1 | 41 | 2.8 | 41 | 2.8 |
| 8 | 200 | GE09393X012, Yellow ⁽²⁾ | 17E97 | 16 | 1.1 | ---- | ---- | ---- | ---- | 19 | 1.3 | ---- | ---- | ---- | ---- |
| | | GE09396X012, Green | | 20 | 1.4 | | | | | 23 | 1.6 | | | | |
| | | GE09397X012, Red ⁽³⁾ | | 26 | 1.8 | | | | | 30 | 2.1 | | | | |

1. See Table 1 for structural design ratings, Table 3 for pilot ratings and Table 7 for maximum pressure ratings.
 2. The white and yellow springs are only recommended for inlet pressures under 100 psig / 6.9 bar.
 3. The red, black, purple, red stripe and black with white stripe springs are only recommended for applications where the maximum inlet pressure can exceed 500 psig / 35 bar.

EZR Series

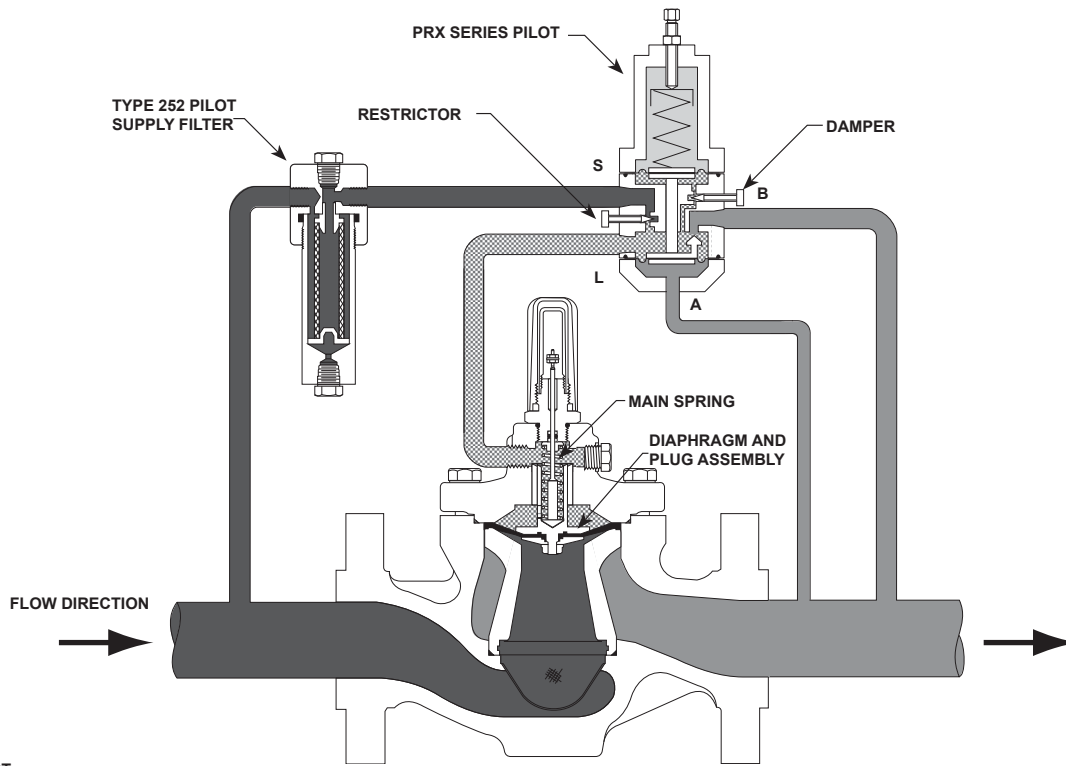


3A—TYPE EZR WITH TYPES 161EB PILOT, 112 RESTRICTOR AND 252 FILTER

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- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE
- LOADING PRESSURE

Figure 3. Type EZR Operational Schematic



3B—TYPE EZR WITH PRX SERIES PILOT AND TYPE 252 FILTER SCHEMATIC

E0790_09/2006

- S - SUPPLY PORT
- B - BLEED PORT
- L - LOADING PORT
- A - SENSING PORT

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE
- LOADING PRESSURE

Figure 3. Type EZR Operational Schematic (continued)

Principle of Operation

As long as the outlet (control) pressure is above the outlet pressure setting, the pilot valve plug or disk remains closed (Figure 3). Force from the main spring, in addition to inlet pressure bleeding through the restrictor (integral in the PRX Series pilots), provide downward loading pressure to keep the main valve diaphragm and plug assembly tightly shutoff.

When the outlet pressure decreases below the pilot outlet pressure setting, the pilot plug or disk assembly opens. Loading pressure bleeds downstream through the pilot faster than it can be replaced through the supply line. This reduces loading pressure on top of the main valve diaphragm and plug assembly and lets the unbalanced force between inlet and loading pressure overcome the main spring force to open the Type EZR diaphragm and plug assembly.

As the outlet pressure rises toward the outlet pressure setting, it compresses the pilot diaphragm against the pilot control spring and lets the pilot valve plug or

disk close. Loading pressure begins building on the Type EZR diaphragm and plug assembly. The loading pressure, along with force from the main spring, pushes the diaphragm and plug assembly onto the tapered-edge seat, producing tight shutoff.

Installation (Figure 8)

The robust design of the Type EZR regulator allows it to be installed indoors or outdoors. When installed outdoors, the Type EZR does not require a protective housing. It is designed to withstand the elements and the powder paint coating protects it against impacts, abrasions and corrosion.

When installed indoors, no remote venting is required except on the pilot spring case. This regulator can also be installed in a pit that is subject to flooding by venting the pilot spring case above the maximum possible flood level so the pilot setting can be referenced at atmospheric pressure.

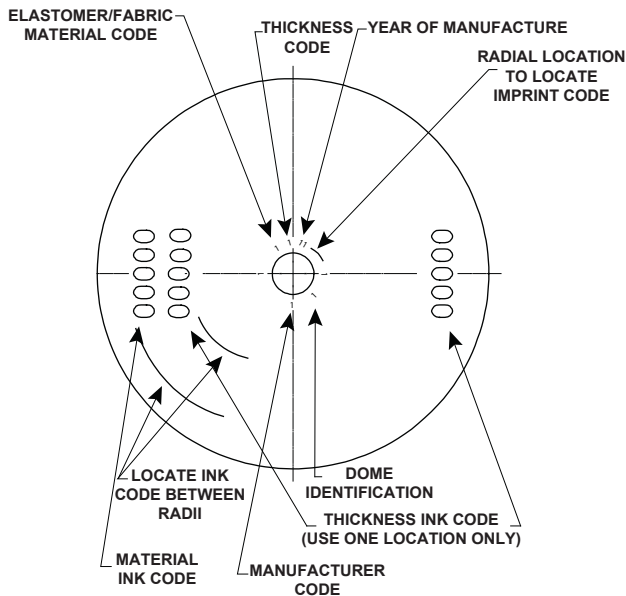


Figure 4. Diaphragm Markings

Monitoring Systems

Monitoring regulation is overpressure protection by containment, therefore, there is no relief valve to vent to the atmosphere. When the working regulator fails to control the pressure, a monitor regulator installed in series, which has been sensing the downstream and control pressure, goes into operation to maintain the downstream pressure at a slightly higher than normal pressure. During an overpressure situation, monitoring keeps the customer on line. Also, testing is relatively easy and safe. To perform a periodic test on a monitoring regulator, increase the outlet set pressure of the working regulator and watch the outlet pressure to determine if the monitoring regulator takes over at the appropriate outlet pressure.

Wide-Open Monitoring Systems (Figure 5)

There are two types of wide-open monitoring systems: upstream and downstream. The difference between upstream and downstream monitoring is that the functions of the regulators are reversed. Systems can be changed from upstream to downstream monitoring and vice-versa, by simply reversing the setpoints of the two regulators. The decision to use either an upstream or downstream monitoring system is largely a matter of personal preference or company policy.

Table 5. Diaphragm Imprint Codes

| THICKNESS | | MATERIAL | | DIAPHRAGM MATERIAL |
|-----------|----------|----------|----------|---|
| Imprint | Ink Code | Imprint | Ink Code | |
| 2 | 130 | 2 | 17E68 | 17E68 - Nitrile (NBR) (low temperature) |
| | | 4 | 17E88 | 17E88 - Fluorocarbon (FKM) (high aromatic hydrocarbon content resistance) |
| | | 5 | 17E97 | 17E97 - Nitrile (NBR) (high-pressure and/or erosion resistance) |

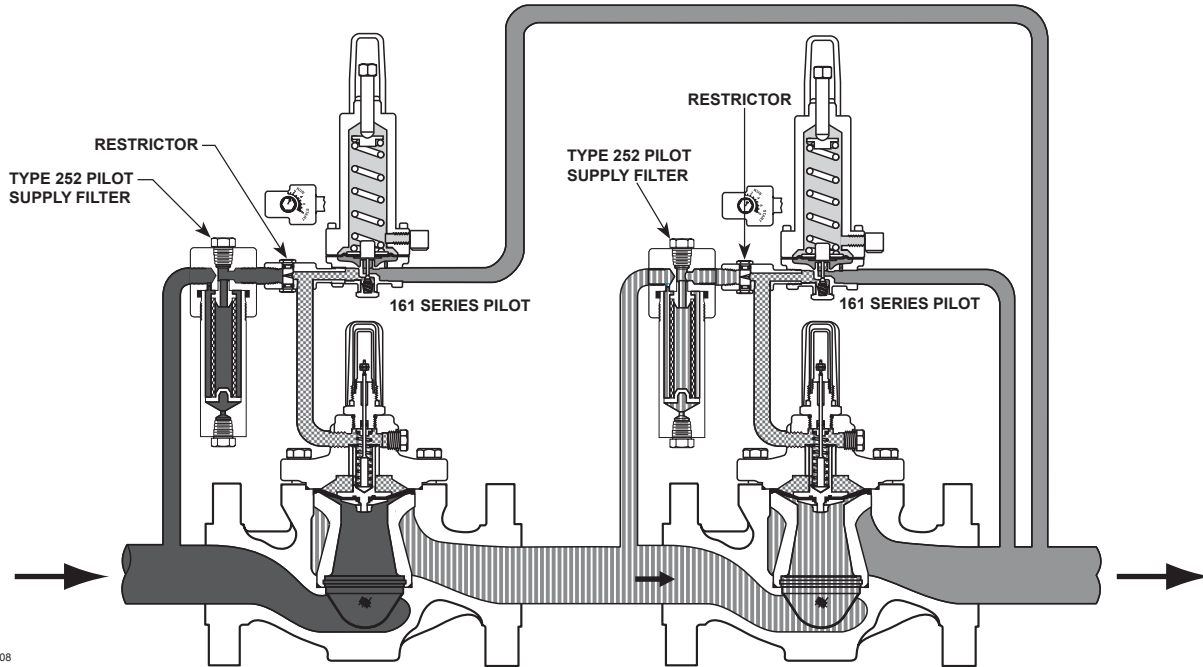
In normal operation of a wide-open configuration, the working regulator controls the system's outlet pressure. With a higher outlet pressure setting, the monitor regulator senses a pressure lower than its setpoint and tries to increase outlet pressure by going wide-open. If the working regulator fails, the monitoring regulator assumes control and holds the outlet pressure at its outlet pressure setting.

In a wide-open Type EZR monitoring system, system lockup will equal the lockup of the worker regulator on both an upstream monitor when the upstream pilot exhaust is piped to the intermediate pressure and a downstream monitor with upstream pilot exhaust piped to either intermediate pressure or outlet pressure. With these configurations, the diaphragm of the monitor regulator will change position with every load change. On an upstream monitor with the upstream pilot exhaust piped to downstream, lockup will occur at the monitor's setpoint and the diaphragm of the monitor regulator will be fully open.

Working Monitoring Regulators (Figure 6)

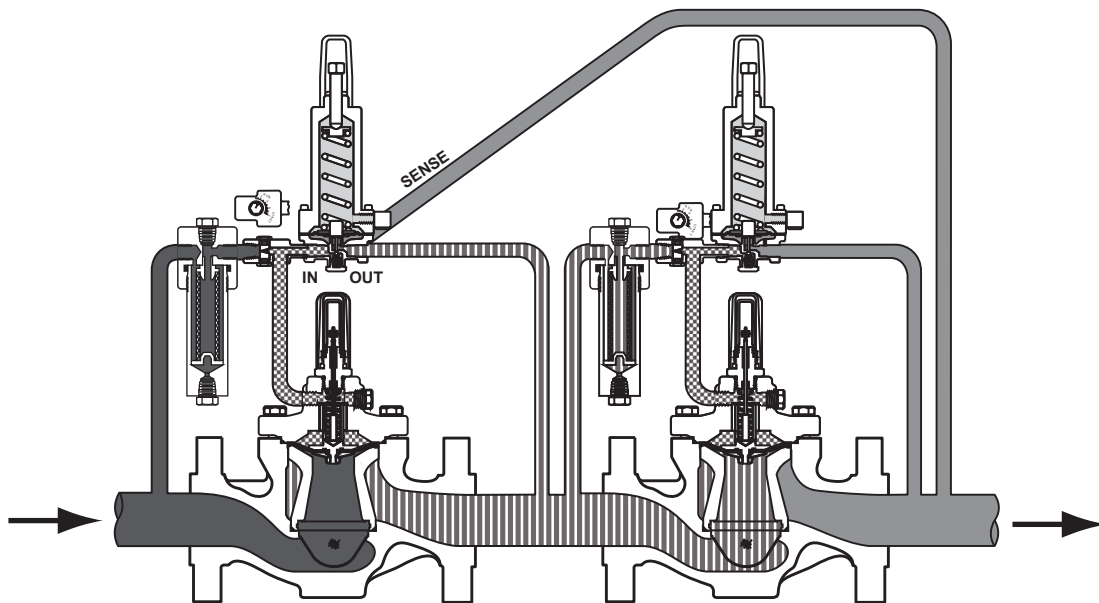
In a working monitoring system, the upstream regulator requires two pilots and it is always the monitoring regulator. The additional pilot permits the monitoring regulator to act as a series regulator to control an intermediate pressure during normal operation. In this way, both units are always operating and can be easily checked for proper operation. In a working monitor system, system lockup will equal the lockup of the downstream regulator.

In normal operation, the working regulator controls the outlet pressure of the system. The monitoring regulator's working pilot controls the intermediate pressure and the monitoring pilot senses the system's outlet pressure. If the working regulator fails, the monitoring pilot will sense the increase in outlet pressure and take control.



E0757_07/2008

TYPE EZR-161 WIDE-OPEN MONITOR



M1128_07/2017

TYPE EZR-161 WIDE-OPEN MONITOR WITH PILOT EXHAUST TO INTERMEDIATE PRESSURE






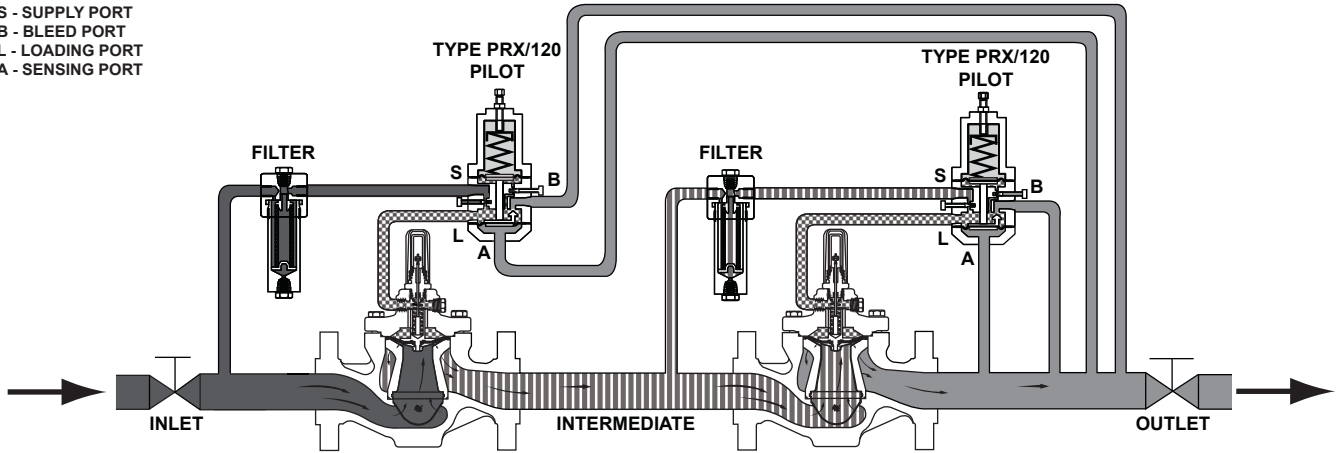
-  INLET PRESSURE
-  OUTLET PRESSURE
-  ATMOSPHERIC PRESSURE
-  LOADING PRESSURE
-  INTERMEDIATE PRESSURE

Figure 5. Type EZR Wide-Open Monitor Schematic

EZR Series

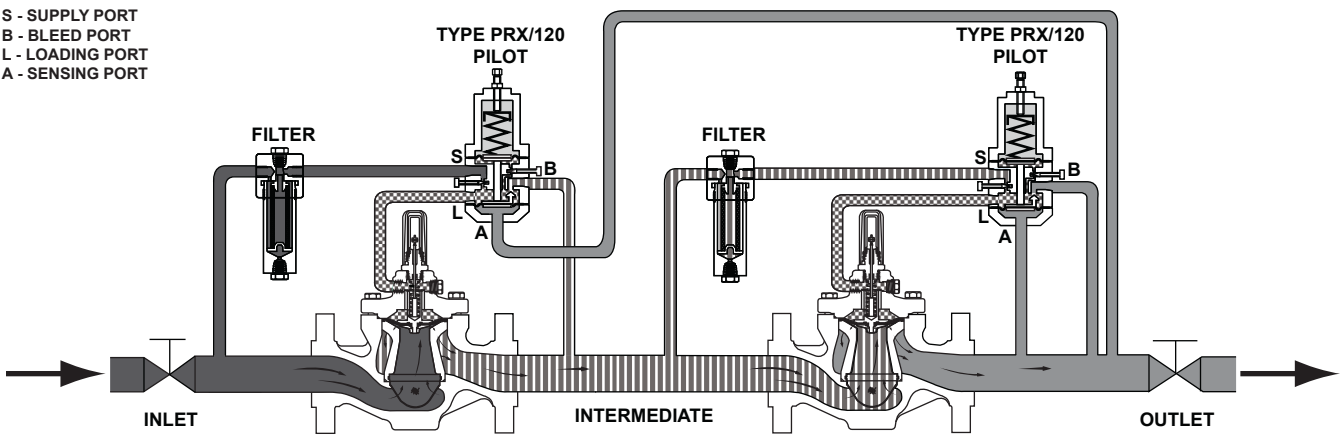
S - SUPPLY PORT
 B - BLEED PORT
 L - LOADING PORT
 A - SENSING PORT



M1252_05/2016

TYPE EZR-PRX WIDE-OPEN MONITOR

S - SUPPLY PORT
 B - BLEED PORT
 L - LOADING PORT
 A - SENSING PORT

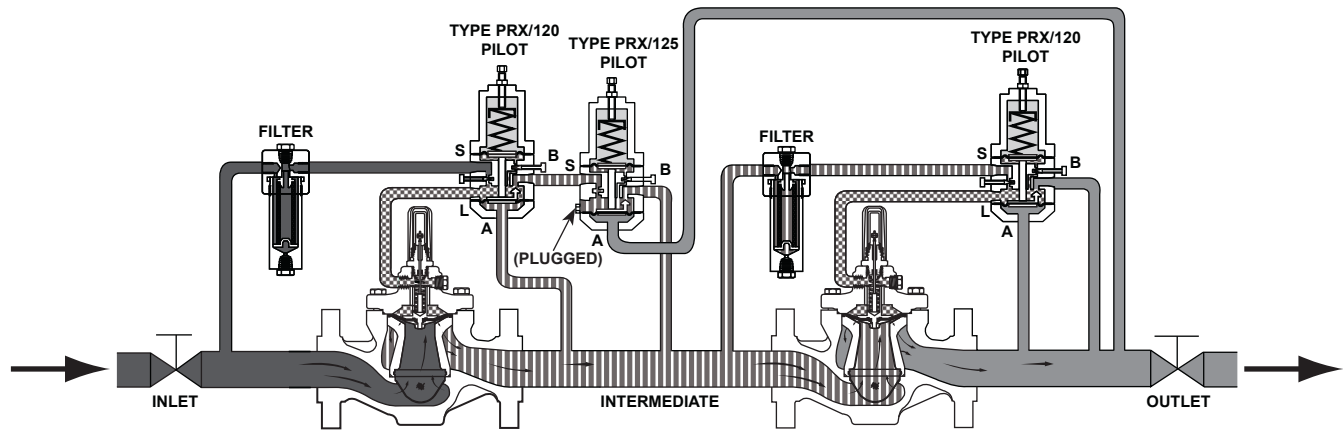


M1000_05/2016

TYPE EZR-PRX WIDE-OPEN MONITOR WITH PILOT EXHAUST TO INTERMEDIATE PRESSURE
 WITH PILOT EXHAUST TO INTERMEDIATE PRESSURE

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE
- LOADING PRESSURE
- INTERMEDIATE PRESSURE

Figure 5. Type EZR Wide-Open Monitor Schematic (continued)



M1001_05/2017






- | | |
|---|------------------|
|  INLET PRESSURE | S - SUPPLY PORT |
|  OUTLET PRESSURE | B - BLEED PORT |
|  ATMOSPHERIC PRESSURE | L - LOADING PORT |
|  LOADING PRESSURE | A - SENSING PORT |
|  INTERMEDIATE PRESSURE | |

Figure 6. Type EZR-PRX-PRX Working Monitor Schematic

For PRX Series pilots (Figure 6), the working pilot is Type PRX-120 or PRX-120AP; the monitor pilot is Type PRX-125 or PRX-125AP.

Note

The downstream regulator must be rated for the maximum allowable operating pressure of the system because this will be its inlet pressure if the monitoring regulator fails. Also, the outlet pressure rating of the monitoring pilot and any other components that are exposed to the intermediate pressure must be rated for full inlet pressure.

Working monitor installations require a Type EZR main valve with a 161AY Series, 161EB Series, Type PRX/120 or PRX/120-AP working pilot and a Type 161AYM, 161EBM, PRX/125 or PRX/125-AP monitoring pilot for the upstream regulator and a Type EZR with the appropriate 161AY Series, 161EB Series, Type PRX/120 or PRX/120-AP pilot for the downstream regulator.

Overpressure Protection

Overpressuring any portion of a regulator or associated equipment may cause personal injury, leakage or property damage due to bursting of pressure-containing parts or explosion of accumulated gas. Provide appropriate pressure relieving or pressure limiting devices to ensure that the limits in the Specifications section are not exceeded. Regulator operation within ratings does not prevent the possibility of damage from external sources or from debris in the pipeline. Common methods of external overpressure protection include relief valves, monitoring regulators and shutoff devices.

Type EZROX regulator relies on the integrated slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPS0) protection. In the event that outlet pressure rises above or falls below the pressure setting, slam shut will completely shutoff the flow of gas to the downstream system.

EZR Series

Table 6. Diaphragm Temperature Capabilities, Erosion Resistance and Chemical Compatibility

| | 17E68 NITRILE (NBR) | 17E97 ⁽¹⁾ NITRILE (NBR) | 17E88 FLUOROCARBON (FKM) |
|---|-----------------------------|---|---|
| Gas Temperature (for lower temperatures contact your local Sales Office) | -20 to 150°F / -29 to 66°C | 0 to 150°F / -18 to 66°C | 0 to 260°F / -18 to 127°C ⁽²⁾ |
| General Applications | Best for cold temperatures. | Best for high pressure conditions, i.e. transmission service or high pressure industrial service. It is also the best for abrasive or erosive service applications. | Best for natural gas having aromatic hydrocarbons. It is also the best for high temperature applications. |
| Heavy Particle Erosion | Fair | Excellent | Good |
| Natural Gas With: | | | |
| Up to 3% aromatic hydrocarbon content ⁽³⁾ | Good | Excellent | Excellent |
| 3 to 15% aromatic hydrocarbon content ⁽³⁾ | Poor | Good | Excellent |
| 15 to 50% aromatic hydrocarbon content ⁽³⁾ | Not recommended | Poor | Excellent |
| Up to 3% H ₂ S (hydrogen sulfide or sour gas) | Good | Good | Good |
| Up to 3% ketone | Fair | Fair | Fair |
| Up to 10% alcohol | Good | Good | Fair |
| Up to 3% synthetic lube | Fair | Fair | Good |
| <small>1. The NPS 6 / DN 150, 17E97 diaphragm will perform in gas temperatures as low as -20°F / -29°C. 2. For differential pressures above 400 psig / 28 bar diaphragm temperature is limited to 150°F / 66°C. 3. The aromatic hydrocarbon content is based on percent volume.</small> | | | |

Capacity Information

Note

Flow capacities are laboratory verified; therefore, regulators may be sized for 100% flow published capacities. It is not necessary to reduce published capacities.

Tables 13, 14 and 15 show the natural gas regulating capacities of the EZR Series regulator at selected inlet pressures and outlet pressure settings. Flows are in thousands of SCFH at 60°F and 14.7 psia (and in thousands of Nm³/h at 0°C and 1.01325 bar) of 0.6 specific gravity natural gas.

To determine equivalent capacities for air, propane, butane or nitrogen, multiply the capacity by the following appropriate conversion factor: 0.775 for air, 0.628 for propane, 0.548 for butane or 0.789 for nitrogen. For gases of other specific gravities, multiply the given capacity by 0.775 and divide by the square root of the appropriate specific gravity.

To find approximate regulating capacities at pressure settings not given in Tables 13, 14 and 15 or to find wide-open flow capacities for relief sizing at any inlet pressure, perform one of the following procedures. Then, if necessary, convert using the factors provided above.

For critical pressure drops (absolute outlet pressure equal to or less than one-half of absolute inlet pressure), use the following formula:

$$Q = (P_1)(C_g)(1.29)$$

For pressure drops lower than critical (absolute outlet pressure greater than one-half of absolute inlet pressure).

$$Q = \sqrt{\frac{520}{GT}} C_g P_1 \text{SIN} \left(\frac{3417}{C_1 \sqrt{\frac{\Delta P}{P_1}}} \right) \text{DEG}$$

where,

- Q = gas flow rate, SCFH
- P₁ = absolute inlet pressure, psia (P₁ gauge + 14.7)
- C_g = regulating or wide-open gas sizing coefficient from Table 9 or 10
- G = gas specific gravity of the gas
- T = absolute temperature of gas at inlet, °Rankine
- C₁ = flow coefficient
- ΔP = pressure drop across the regulator, psi

Then, if capacity is desired in normal cubic meters per hour at 0°C and 1.01325 bar, multiply SCFH by 0.0268.

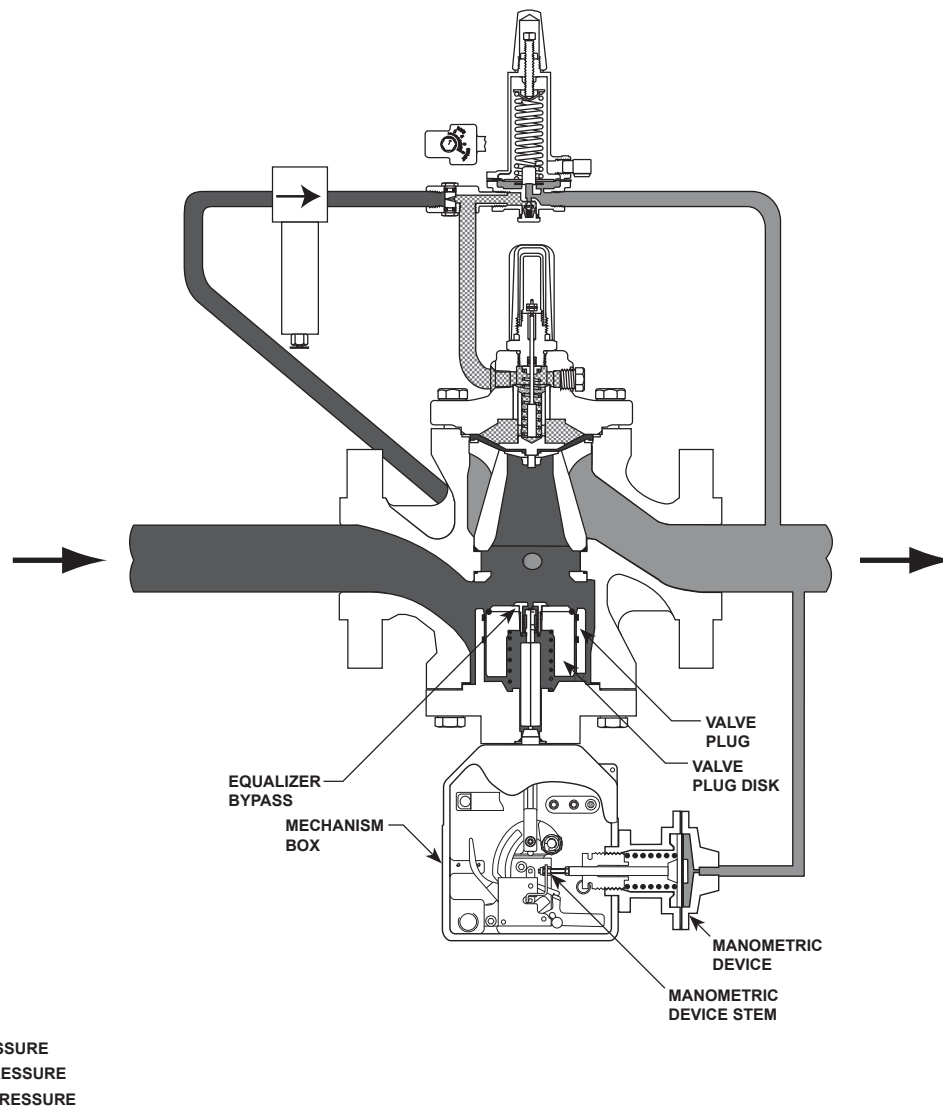


Figure 7. Type EZROX with Slam-shut Device Operational Schematic

Slam-Shut Device Principle of Operation

The Type EZROX with slam-shut device can provide either overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection by completely shutting off the flow of gas to the downstream system. The slam shut has a mechanism box and a manometric device. The manometric device is a spring and diaphragm actuator. Its movement activates the detection stage of the mechanism box. The shutoff is a two stage process, the detection

stage and the power stage. This separation between detection stage and power stage provides maximum precision, alleviating many false trips caused by environmental vibrations. The slam-shut device includes a bypass valve that will allow pressure to be equalized when resetting the device. Once the slam-shut device has been tripped, it must be manually reset. For more information about the Type EZROX, contact your local Sales Office.

EZR Series

Table 7. Main Valve Maximum Pressure Ratings, Diaphragm Selection Information and Main Spring Selection⁽¹⁾

| BODY SIZES | | DIAPHRAGM MATERIAL | MAXIMUM OPERATING INLET PRESSURE ⁽⁴⁾ | | MAXIMUM OPERATING DIFFERENTIAL PRESSURE ⁽⁴⁾ | | MAXIMUM EMERGENCY INLET AND DIFFERENTIAL PRESSURE | | MAIN SPRING COLOR | DIAPHRAGM DESIGNATION |
|---------------------|------------------------------|---|---|-----|--|--|---|-------|--|-----------------------|
| NPS | DN | | psig | bar | psid | bar d | psid | bar d | | |
| 1 and 1-1/4 x 1 | 25 and 32 x 25 | 17E68 Nitrile (NBR) Low temperature | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Light Blue | |
| | | | 460 | 32 | 400 | 28 | 460 | 32 | Black | |
| | | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 500 | 34 | 500 | 34 | 1050 | 72 | Black | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Black with White Stripe ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Light Blue | |
| | | | 500 | 34 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Black | |
| 750 | 52 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Black with White Stripe ⁽²⁾ | | | | |
| 2 x 1 | 50 x 25 | 17E68 Nitrile (NBR) Low temperature | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Light Blue | |
| | | | 360 | 25 | 300 | 21 | 360 | 25 | Black with White Stripe | |
| | | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 500 | 34 | 500 | 34 | 500 | 34 | Black with White Stripe | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Red Stripe ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Light Blue | |
| | | | 750 | 52 | 500 | 34 ⁽³⁾ | 750 | 52 | Black with White Stripe | |
| 2 | 50 | 17E68 Nitrile (NBR) Low temperature | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 460 | 32 | 400 | 28 | 460 | 32 | Green | |
| | | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 500 | 34 | 500 | 34 | 1050 | 72 | Green | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Red or Purple ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Green | |
| 750 | 52 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Red or Purple ⁽²⁾ | | | | |
| 3 | 80 | 17E68 Nitrile (NBR) Low temperature | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 360 | 25 | 300 | 21 | 500 | 34 | Light Blue | |
| | | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 500 | 34 | 500 | 34 | 1050 | 72 | Light Blue | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Black ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Light Blue | |
| 750 | 52 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Black ⁽²⁾ | | | | |
| 4, 6 x 4 and 8 x 4 | 100, 150 x 100 and 200 x 100 | 17E68 Nitrile (NBR) Low temperature | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 360 | 25 | 300 | 21 | 500 | 34 | Green | |
| | | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 500 | 34 | 500 | 34 | 1050 | 72 | Green | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Red ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Green | |
| 750 | 52 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Red ⁽²⁾ | | | | |
| 6, 8 x 6 and 12 x 6 | 150, 200 x 150 and 300 x 150 | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 | 34 | 1050 | 72 | Green | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Red ⁽²⁾ | |
| | | 17E88 Fluorocarbon (FKM) High aromatic hydrocarbon content resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Green | |
| | | | 750 | 52 | 500 ⁽³⁾ | 34 ⁽³⁾ | 750 | 52 | Red ⁽²⁾ | |
| 8 | 200 | 17E97 Nitrile (NBR) High-pressure and/or erosion resistance | 100 | 6.9 | 100 | 6.9 | 100 | 6.9 | Yellow | |
| | | | 500 | 34 | 500 | 34 | 1050 | 72 | Green | |
| | | | 1050 | 72 | 800 | 55 | 1050 | 72 | Red ⁽²⁾ | |

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1. See Table 1 for main valve structural design ratings and Table 3 for pilot ratings.
 2. The red, black, purple, red stripe and black with white stripe springs are only recommended for applications where the maximum inlet pressure can exceed 500 psig / 34.5 bar.
 3. For differential pressures above 400 psid / 27.6 bar d diaphragm temperatures are limited to 150°F / 66°C.
 4. These are recommendations that provide the best regulator performance for a typical application. Please contact your local Sales Office for further information if a deviation from the standard recommendations are required.

Table 8. IEC Sizing Coefficients⁽¹⁾

| MAIN VALVE BODY SIZE, NPS / DN | X _T | F _D | F _L |
|--------------------------------|----------------|----------------|----------------|
| 1 / 25 | 0.71 | 0.06 | 0.94 |
| 2 / 50 | 0.88 | 0.09 | 0.96 |
| 3 / 80 | 0.95 | 0.09 | 0.97 |
| 4 / 100 | 0.95 | 0.09 | 0.92 |
| 6 / 150 | 0.81 | 0.13 | 0.91 |
| 8 / 200 | 0.96 | 0.10 | 0.89 |

1. At 100% capacity.

Table 9. Main Valve Regulating Flow Coefficients⁽¹⁾ for EZR Series, With or Without Slam-Shut Device

| MAIN VALVE BODY SIZE, NPS / DN | CAGE STYLE, PERCENT OF CAPACITY | LINE SIZE EQUALS BODY SIZE PIPING | | | | | | 2:1 LINE SIZE TO BODY SIZE PIPING | | | | | |
|--------------------------------|---------------------------------|-----------------------------------|----------------|----------------|------------------------|----------------|----------------|-----------------------------------|----------------|----------------|------------------------|----------------|----------------|
| | | With Inlet Strainer | | | Without Inlet Strainer | | | With Inlet Strainer | | | Without Inlet Strainer | | |
| | | C _g | C _v | C ₁ | C _g | C _v | C ₁ | C _g | C _v | C ₁ | C _g | C _v | C ₁ |
| 1 / 25 | 100% | 494 | 14.8 | 33.4 | 494 | 15.3 | 32.4 | 481 | 14.4 | 33.4 | 478 | 14.6 | 32.7 |
| | 60% | 290 | 10.1 | 28.7 | 282 | 9.8 | 28.9 | 286 | 9.9 | 29.0 | 275 | 9.5 | 28.9 |
| | 30% | 145 | 5.0 | 28.8 | 141 | 4.9 | 28.7 | 144 | 5.0 | 28.6 | 139 | 4.9 | 28.5 |
| 1-1/4 x 1 / 32 x 25 | 100% | 572 | 17.0 | 33.7 | 573 | 16.5 | 34.6 | 547 | 16.1 | 34.1 | 550 | 15.9 | 34.7 |
| | 60% | 283 | 10.5 | 26.9 | 291 | 10.8 | 26.9 | 293 | 10.9 | 26.7 | 303 | 11.3 | 26.9 |
| | 30% | 145 | 5.5 | 26.3 | 149 | 5.6 | 26.4 | 142 | 5.4 | 26.1 | 147 | 5.6 | 26.3 |
| 2 x 1 / 50 x 25 | 100% | 650 | 18.4 | 35.3 | 650 | 18.4 | 35.3 | 648 | 18.2 | 35.6 | 645 | 18.2 | 35.4 |
| | 60% | 294 | 10.9 | 27.0 | 294 | 10.9 | 27.0 | 294 | 10.9 | 27.0 | 294 | 10.9 | 27.0 |
| | 30% | 145 | 5.1 | 28.3 | 145 | 5.1 | 28.2 | 145 | 5.1 | 28.3 | 145 | 5.1 | 28.4 |
| 2 / 50 | 100% | 1890 | 50.8 | 37.2 | 1970 | 54.6 | 36.1 | 1800 | 50.4 | 35.7 | 1840 | 53.0 | 34.7 |
| | 60% | 1040 | 35.6 | 29.2 | 1050 | 36.3 | 28.9 | 1020 | 35.9 | 28.4 | 1020 | 35.9 | 28.4 |
| | 30% | 570 | 21.4 | 26.6 | 570 | 21.4 | 26.6 | 560 | 21.5 | 26.0 | 560 | 21.5 | 26.0 |
| 3 / 80 | 100% | 3550 | 91.4 | 38.8 | 3720 | 99.9 | 37.2 | 3390 | 90.6 | 37.4 | 3510 | 97.1 | 36.1 |
| | 60% | 2000 | 70.3 | 28.5 | 2000 | 70.3 | 28.5 | 1970 | 67.5 | 29.2 | 1970 | 68.3 | 28.8 |
| | 30% | 980 | 38.0 | 25.8 | 980 | 38.0 | 25.8 | 970 | 36.9 | 26.3 | 970 | 36.9 | 26.3 |
| 4 / 100 | 100% | 5690 | 147 | 38.7 | 5830 | 154 | 37.9 | 5540 | 145 | 38.2 | 5640 | 151 | 37.4 |
| | 60% | 3360 | 124 | 27.1 | 3360 | 124 | 27.1 | 3300 | 122 | 27.0 | 3300 | 121 | 27.3 |
| | 30% | 1710 | 66.5 | 25.7 | 1710 | 66.5 | 25.7 | 1690 | 66.3 | 25.5 | 1690 | 66.8 | 25.3 |
| 6 x 4 / 150 x 100 | 100% | 6150 | 159 | 38.7 | 6290 | 166 | 37.9 | 6142 | 161 | 38.2 | 6242 | 167 | 37.4 |
| | 60% | 3790 | 140 | 27.1 | 3810 | 141 | 27.1 | 3930 | 146 | 27.0 | 3890 | 143 | 27.3 |
| | 30% | 1900 | 74 | 25.7 | 1910 | 74 | 25.7 | 1970 | 77 | 25.5 | 1950 | 77 | 25.3 |
| 8 x 4 / 200 x 100 | 100% | 6030 | 156 | 38.7 | 6170 | 163 | 37.9 | 5934 | 155 | 38.2 | 6034 | 161 | 37.4 |
| | 60% | 3640 | 134 | 27.1 | 3700 | 137 | 27.1 | 3720 | 138 | 27.0 | 3730 | 137 | 27.3 |
| | 30% | 1830 | 71 | 25.8 | 1860 | 72 | 25.8 | 1870 | 73 | 25.6 | 1880 | 74 | 25.3 |
| 6 / 150 | 100% | 11,600 | 325 | 35.7 | 12,000 | 337 | 35.6 | 11,200 | 314 | 35.7 | 11,700 | 329 | 35.6 |
| | 60% | 7120 | 239 | 29.8 | 7200 | 241 | 29.9 | 7150 | 240 | 29.8 | 7230 | 242 | 29.9 |
| | 30% | 3560 | 135 | 26.4 | 3560 | 134 | 26.6 | 3570 | 135 | 26.4 | 3590 | 135 | 26.6 |
| 8 x 6 / 200 x 150 | 100% | 13,400 | 376 | 35.7 | 13,700 | 385 | 35.6 | 12,940 | 363 | 35.7 | 13,360 | 376 | 35.6 |
| | 60% | 8250 | 277 | 29.8 | 8290 | 277 | 29.9 | 8280 | 278 | 29.8 | 8320 | 279 | 29.9 |
| | 30% | 4150 | 157 | 26.4 | 4150 | 156 | 26.6 | 4160 | 157 | 26.4 | 4180 | 157 | 26.6 |
| 12 x 6 / 300 x 150 | 100% | 13,600 | 381 | 35.7 | 13,700 | 385 | 35.6 | 13,130 | 368 | 35.7 | 13,360 | 376 | 35.6 |
| | 60% | 8210 | 276 | 29.8 | 8220 | 275 | 29.9 | 8240 | 277 | 29.8 | 8250 | 276 | 29.9 |
| | 30% | 4110 | 155 | 26.4 | 4110 | 155 | 26.6 | 4120 | 156 | 26.4 | 4140 | 156 | 26.6 |
| 8 / 200 | 100% | 19,700 | 505 | 39 | 20,100 | 517 | 38.9 | 19,500 | 503 | 38.8 | 19,700 | 509 | 38.7 |

1. K_m for the NPS 1 / DN 25 body size at 100% capacity is 0.88, the NPS 2 / DN 50 is 0.92, the NPS 3 / DN 80 is 0.94, the NPS 4 / DN 100 is 0.84 and the NPS 6 / DN 150 is 0.82.

EZR Series

Table 10. Main Valve Wide-Open Flow Coefficients for EZR Series, With or Without Slam-Shut Device

| MAIN VALVE BODY SIZE, NPS / DN | CAGE STYLE, PERCENT OF CAPACITY | LINE SIZE EQUALS BODY SIZE PIPING | | | | | | 2:1 LINE SIZE TO BODY SIZE PIPING | | | | | |
|--------------------------------|---------------------------------|-----------------------------------|----------------|----------------|------------------------|----------------|----------------|-----------------------------------|----------------|----------------|------------------------|----------------|----------------|
| | | With Inlet Strainer | | | Without Inlet Strainer | | | With Inlet Strainer | | | Without Inlet Strainer | | |
| | | C _g | C _v | C ₁ | C _g | C _v | C ₁ | C _g | C _v | C ₁ | C _g | C _v | C ₁ |
| 1 / 25 | 100% | 509 | 15.2 | 33.5 | 509 | 15.7 | 32.5 | 495 | 14.8 | 33.5 | 493 | 15.0 | 32.9 |
| | 60% | 299 | 10.4 | 28.7 | 291 | 10.1 | 28.8 | 295 | 10.1 | 29.0 | 284 | 9.8 | 28.9 |
| | 30% | 149 | 5.2 | 28.8 | 145 | 5.1 | 28.7 | 148 | 5.2 | 28.6 | 143 | 5.0 | 28.5 |
| 1-1/4 x 1 / 32 x 25 | 100% | 590 | 17.5 | 33.7 | 590 | 17.0 | 34.6 | 564 | 16.5 | 34.1 | 566 | 16.3 | 34.7 |
| | 60% | 291 | 10.8 | 26.9 | 299 | 11.2 | 26.9 | 301 | 11.3 | 26.7 | 312 | 11.6 | 26.9 |
| | 30% | 149 | 5.7 | 26.3 | 154 | 5.8 | 26.4 | 146 | 5.6 | 26.1 | 151 | 5.8 | 26.3 |
| 2 x 1 / 50 x 25 | 100% | 670 | 19.0 | 35.3 | 670 | 19.0 | 35.3 | 667 | 18.7 | 35.6 | 664 | 18.7 | 35.4 |
| | 60% | 303 | 11.2 | 27.0 | 303 | 11.2 | 27.0 | 303 | 11.2 | 27.0 | 303 | 11.2 | 27.0 |
| | 30% | 149 | 5.3 | 28.3 | 149 | 5.3 | 28.2 | 149 | 5.3 | 28.3 | 149 | 5.3 | 28.4 |
| 2 / 50 | 100% | 1950 | 52.4 | 37.2 | 2030 | 56.2 | 36.1 | 1850 | 51.8 | 35.7 | 1900 | 54.6 | 34.7 |
| | 60% | 1070 | 36.6 | 29.2 | 1080 | 37.4 | 28.9 | 1050 | 37.0 | 28.4 | 1050 | 37.0 | 28.4 |
| | 30% | 590 | 22.2 | 26.6 | 590 | 22.2 | 26.6 | 580 | 22.3 | 26.0 | 580 | 22.3 | 26.0 |
| 3 / 80 | 100% | 3660 | 94.1 | 38.8 | 3830 | 102.9 | 37.2 | 3490 | 93.3 | 37.4 | 3620 | 100.2 | 36.1 |
| | 60% | 2060 | 72.4 | 28.5 | 2060 | 72.4 | 28.5 | 2030 | 69.5 | 29.2 | 2030 | 70.0 | 28.8 |
| | 30% | 1010 | 39.1 | 25.8 | 1010 | 39.1 | 25.8 | 1000 | 38.0 | 26.3 | 1000 | 38.0 | 26.3 |
| 4 / 100 | 100% | 5860 | 151 | 38.7 | 6000 | 158 | 37.9 | 5710 | 149 | 38.2 | 5810 | 155 | 37.4 |
| | 60% | 3460 | 128 | 27.1 | 3460 | 128 | 27.1 | 3400 | 125 | 27.3 | 3400 | 125 | 27.3 |
| | 30% | 1760 | 68.5 | 25.7 | 1770 | 68.2 | 26.0 | 1740 | 68.2 | 25.5 | 1740 | 68.8 | 25.3 |
| 6 x 4 / 150 x 100 | 100% | 6250 | 162 | 38.7 | 6390 | 169 | 37.9 | 6131 | 161 | 38.2 | 6231 | 167 | 37.4 |
| | 60% | 3850 | 142 | 27.1 | 3870 | 143 | 27.1 | 3920 | 144 | 27.3 | 3880 | 142 | 27.3 |
| | 30% | 1940 | 75 | 25.7 | 1940 | 75 | 26.0 | 1970 | 77 | 25.5 | 1950 | 77 | 25.3 |
| 8 x 4 / 200 x 100 | 100% | 6100 | 158 | 38.7 | 6240 | 165 | 37.9 | 5930 | 155 | 38.2 | 6030 | 161 | 37.4 |
| | 60% | 3680 | 136 | 27.1 | 3750 | 138 | 27.1 | 3720 | 136 | 27.3 | 3720 | 136 | 27.3 |
| | 30% | 1850 | 72 | 25.8 | 1880 | 72 | 26.1 | 1870 | 73 | 25.6 | 1880 | 74 | 25.3 |
| 6 / 150 | 100% | 11,950 | 335 | 35.7 | 12,360 | 348 | 35.5 | 11,540 | 323 | 35.7 | 12,050 | 339 | 35.5 |
| | 60% | 7330 | 246 | 29.8 | 7420 | 248 | 29.9 | 7360 | 247 | 29.8 | 7450 | 249 | 29.9 |
| | 30% | 3670 | 139 | 26.5 | 3670 | 138 | 26.6 | 3680 | 139 | 26.5 | 3700 | 139 | 26.6 |
| 8 x 6 / 200 x 150 | 100% | 13,800 | 386 | 35.7 | 14,110 | 397 | 35.5 | 13,330 | 373 | 35.7 | 13,760 | 387 | 35.6 |
| | 60% | 8490 | 285 | 29.8 | 8540 | 286 | 29.9 | 8520 | 286 | 29.8 | 8570 | 287 | 29.9 |
| | 30% | 4280 | 162 | 26.5 | 4280 | 161 | 26.6 | 4290 | 162 | 26.5 | 4310 | 162 | 26.6 |
| 12 x 6 / 300 x 150 | 100% | 14,010 | 392 | 35.7 | 14,110 | 397 | 35.5 | 13,530 | 379 | 35.7 | 13,760 | 387 | 35.6 |
| | 60% | 8450 | 284 | 29.8 | 8470 | 283 | 29.9 | 8480 | 285 | 29.8 | 8,500 | 284 | 29.9 |
| | 30% | 4240 | 160 | 26.5 | 4240 | 159 | 26.6 | 4250 | 160 | 26.5 | 4,270 | 160 | 26.6 |
| 8 / 200 | 100% | 20,300 | 520 | 39.0 | 20,700 | 533 | 38.8 | 20,100 | 518 | 38.8 | 20,300 | 524 | 38.7 |

Table 11. Pilot Flow Coefficients

| 161AY SERIES | | | | 161EB SERIES | | | | TYPE PRX | | |
|-------------------|----------------|----------------|----------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Orifice Size | C _g | C _v | C ₁ | Orifice Size | C _g | C _v | C ₁ | C _g | C _v | C ₁ |
| 3/32 in. / 2.4 mm | 6.9 | 0.20 | 35 | 1/8 in. / 3.18 mm | 8.5 | 0.28 | 30.4 | 10.5 | 0.36 | 29 |
| 1/8 in. / 3.2 mm | 12.3 | 0.35 | 35 | | | | | | | |
| 1/4 in. / 6.4 mm | 50 | 1.43 | 35 | | | | | | | |

Table 12. Restrictor Flow Coefficients

| SET ON START | | SET ON RUN | | C ₁ |
|----------------|----------------|----------------|----------------|----------------|
| C _g | C _v | C _g | C _v | |
| 6 | 0.17 | 1 | 0.03 | 35 |

Table 13. Capacities for EZR Series with Type 161AY or 161AYM Pilot

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|---|--------------------|---------------|--------------------|---------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|
| | | | | NPS 1 / DN 25 | | NPS 2 / DN 50 | | NPS 3 / DN 80 | | NPS 4 / DN 100 | | NPS 6 / DN 150 | | NPS 8 / DN 200 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 25 | 1.7 | up to 2.5 | up to 0.17 | ---- | ---- | 101 | 2.7 | 191 | 5.1 | 299 | 8.0 | 586 | 15.7 | 941 | 25.2 |
| | | 3 | 0.21 | | | 95 | 2.5 | 177 | 4.7 | 275 | 7.4 | 583 | 15.6 | 936 | 25.1 |
| | | 5 | 0.35 | | | 93 | 2.5 | 173 | 4.6 | 268 | 7.2 | 571 | 15.3 | 912 | 24.4 |
| | | 7 | 0.48 | | | ---- | ---- | ---- | ---- | 260 | 7.0 | 556 | 14.9 | 884 | 23.7 |
| 30 | 2.1 | up to 4.5 | up to 0.31 | 28.0 | 0.7 | 114 | 3.1 | 215 | 5.8 | 336 | 9.0 | 660 | 17.7 | 1062 | 28.5 |
| | | 7 | 0.48 | ---- | ---- | 105 | 2.8 | 196 | 5.2 | 304 | 8.1 | 646 | 17.3 | 1033 | 27.7 |
| 35 | 2.4 | up to 6 | up to 0.41 | 31.3 | 0.8 | 126 | 3.4 | 239 | 6.4 | 374 | 10.0 | 738 | 19.7 | 1187 | 31.8 |
| | | 7 | 0.48 | 31.1 | 0.8 | 119 | 3.2 | 223 | 6.0 | 346 | 9.3 | 732 | 19.6 | 1177 | 31.5 |
| 40 | 2.8 | up to 7 | up to 0.48 | 34.5 | 0.9 | 139 | 3.7 | 262 | 7.0 | 411 | 11.0 | 817 | 21.9 | 1317 | 35.3 |
| 45 | 3.1 | | | 37.9 | 1.0 | 152 | 4.1 | 286 | 7.7 | 449 | 12.0 | 900 | 24.1 | 1455 | 39.0 |
| 50 | 3.4 | | | 41.2 | 1.1 | 164 | 4.4 | 310 | 8.3 | 487 | 13.1 | 981 | 26.3 | 1592 | 42.7 |
| 55 | 3.8 | | | 44.4 | 1.2 | 177 | 4.7 | 334 | 8.9 | 524 | 14.0 | 1062 | 28.5 | 1727 | 46.3 |
| 60 | 4.1 | up to 7 | up to 0.48 | 47.6 | 1.3 | 190 | 5.1 | 358 | 9.6 | 562 | 15.1 | 1143 | 30.6 | 1862 | 49.9 |
| 65 | 4.5 | | | 50.8 | 1.4 | 203 | 5.4 | 382 | 10.2 | 599 | 16.1 | 1223 | 32.8 | 1996 | 53.5 |
| 70 | 4.8 | | | 54.0 | 1.4 | 215 | 5.8 | 406 | 10.9 | 637 | 17.1 | 1302 | 34.9 | 2129 | 57.1 |
| 75 | 5.2 | | | 57.2 | 1.5 | 228 | 6.1 | 430 | 11.5 | 675 | 18.1 | 1381 | 37.0 | 2261 | 60.6 |
| 80 | 5.5 | up to 7 | up to 0.48 | 60.3 | 1.6 | 241 | 6.5 | 454 | 12.2 | 712 | 19.1 | 1460 | 39.1 | 2394 | 64.2 |
| 90 | 6.2 | | | 66.6 | 1.8 | 253 | 6.8 | 478 | 12.8 | 750 | 20.1 | 1617 | 43.3 | 2658 | 71.2 |
| 100 | 6.9 | | | 72.9 | 1.9 | 266 | 7.1 | 502 | 13.5 | 787 | 21.1 | 1773 | 47.5 | 2920 | 78.3 |
| 125 | 8.6 | | | 88.4 | 2.4 | 355 | 9.5 | 670 | 18.0 | 1051 | 28.2 | 2163 | 58.0 | 3575 | 95.8 |
| 150 | 10.3 | | | 104 | 2.8 | 419 | 11.2 | 790 | 21.2 | 1239 | 33.2 | 2551 | 68.4 | 4227 | 113 |

Note: Blank areas indicate where minimum main valve differential pressure is not met.

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Table 13. Capacities for EZR Series with Type 161AY or 161AYM Pilot (continued)

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|---|--------------------|------------------------|--------------------|--------------------------|--------------------|--------------------------|--------------------|--------------------------|--------------------|---------------------------|--------------------|
| | | | | NPS 1-1/4 x 1 / DN 32 x 25 | | NPS 2 x 1 / DN 50 x 25 | | NPS 6 x 4 / DN 150 x 100 | | NPS 8 x 4 / DN 200 x 100 | | NPS 8 x 6 / DN 200 x 150 | | NPS 12 x 6 / DN 300 x 150 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 25 | 1.7 | up to 2.5 | up to 0.17 | ---- | ---- | ---- | ---- | 299 | 8.0 | 294 | 7.9 | 669 | 17.9 | 669 | 17.9 |
| | | 3 | 0.21 | | | | | 297 | 8.0 | 292 | 7.8 | 666 | 17.8 | 666 | 17.8 |
| | | 5 | 0.35 | | | | | 290 | 7.8 | 285 | 7.6 | 652 | 17.5 | 652 | 17.5 |
| | | 7 | 0.48 | | | | | 281 | 7.5 | 277 | 7.4 | 634 | 17.0 | 634 | 17.0 |
| 30 | 2.1 | up to 4.5 | up to 0.31 | 35.9 | 1.0 | 35.9 | 1.0 | 337 | 9.0 | 331 | 8.9 | 754 | 20.2 | 754 | 20.2 |
| | | 7 | 0.48 | 35.1 | 0.9 | ---- | ---- | 328 | 8.8 | 323 | 8.7 | 737 | 19.8 | 737 | 19.8 |
| 35 | 2.4 | up to 6 | up to 0.41 | 40.1 | 1.1 | 40.1 | 1.1 | 376 | 10.1 | 370 | 9.9 | 842 | 22.6 | 842 | 22.6 |
| | | 7 | 0.48 | 39.8 | 1.1 | 39.8 | 1.1 | 374 | 10.0 | 367 | 9.8 | 836 | 22.4 | 836 | 22.4 |
| 40 | 2.8 | up to 7 | up to 0.48 | 44.4 | 1.2 | 44.4 | 1.2 | 417 | 11.2 | 411 | 11.0 | 933 | 25.0 | 933 | 25.0 |
| 45 | 3.1 | | | 48.9 | 1.3 | 48.9 | 1.3 | 461 | 12.4 | 454 | 12.2 | 1027 | 27.5 | 1027 | 27.5 |
| 50 | 3.4 | | | 53.3 | 1.4 | 53.3 | 1.4 | 504 | 13.5 | 496 | 13.3 | 1120 | 30.0 | 1120 | 30.0 |
| 55 | 3.8 | | | 57.7 | 1.5 | 57.7 | 1.5 | 546 | 14.6 | 537 | 14.4 | 1213 | 32.5 | 1213 | 32.5 |
| 60 | 4.1 | up to 7 | up to 0.48 | 62.0 | 1.7 | 62.0 | 1.7 | 588 | 15.8 | 579 | 15.5 | 1304 | 34.9 | 1304 | 34.9 |
| 65 | 4.5 | | | 66.3 | 1.8 | 66.3 | 1.8 | 630 | 16.9 | 620 | 16.6 | 1396 | 37.4 | 1396 | 37.4 |
| 70 | 4.8 | | | 70.6 | 1.9 | 70.6 | 1.9 | 672 | 18.0 | 661 | 17.7 | 1486 | 39.8 | 1486 | 39.8 |
| 75 | 5.2 | | | 74.9 | 2.0 | 74.9 | 2.0 | 714 | 19.1 | 702 | 18.8 | 1577 | 42.3 | 1577 | 42.3 |
| 80 | 5.5 | up to 7 | up to 0.48 | 79.2 | 2.1 | 79.2 | 2.1 | 755 | 20.2 | 743 | 19.9 | 1667 | 44.7 | 1667 | 44.7 |
| 90 | 6.2 | | | 87.7 | 2.3 | 87.7 | 2.3 | 838 | 22.5 | 825 | 22.1 | 1846 | 49.5 | 1846 | 49.5 |
| 100 | 6.9 | | | 96.1 | 2.6 | 96.1 | 2.6 | 920 | 24.7 | 906 | 24.3 | 2025 | 54.3 | 2025 | 54.3 |
| 125 | 8.6 | | | 117 | 3.1 | 117 | 3.1 | 1126 | 30.2 | 1108 | 29.7 | 2470 | 66.2 | 2470 | 66.2 |
| 150 | 10.3 | | | 138 | 3.7 | 138 | 3.7 | 1330 | 35.7 | 1309 | 35.1 | 2913 | 78.1 | 2913 | 78.1 |

Note: Blank areas indicate where minimum main valve differential pressure is not met.

EZR Series

Table 14. Capacities for EZR Series with Type 161EB, 161EBM or PRX Pilot

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|---|--------------------|---------------|--------------------|---------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|
| | | | | NPS 1 / DN 25 | | NPS 2 / DN 50 | | NPS 3 / DN 80 | | NPS 4 / DN 100 | | NPS 6 / DN 150 | | NPS 8 / DN 200 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 30 | 2.1 | 5 | 0.35 | 28 | 0.7 | 107 | 2.8 | 200 | 5.4 | 310 | 8.3 | 658 | 17.6 | 1056 | 28.3 |
| | | 10 | 0.69 | ---- | ---- | 101 | 2.7 | 188 | 5.0 | 292 | 7.8 | 623 | 16.7 | 991 | 26.6 |
| 40 | 2.8 | up to 8 | up to 0.55 | 34 | 0.9 | 139 | 3.7 | 262 | 7.0 | 411 | 11.0 | 812 | 21.8 | 1307 | 35.0 |
| | | 15 | 1.0 | 33 | 0.9 | 125 | 3.3 | 232 | 6.2 | 360 | 9.6 | 767 | 20.6 | 1221 | 32.7 |
| | | 20 | 1.38 | ---- | ---- | 117 | 3.1 | 216 | 5.8 | 335 | 9.0 | 719 | 19.3 | 1134 | 30.4 |
| 50 | 3.5 | up to 12 | up to 0.83 | 41 | 1.1 | 164 | 4.4 | 310 | 8.3 | 487 | 13.1 | 961 | 25.8 | 1548 | 41.5 |
| | | 15 | 1.0 | 40 | 1.1 | 154 | 4.1 | 287 | 7.7 | 446 | 12.0 | 945 | 25.3 | 1516 | 40.6 |
| | | 25 | 1.7 | 38 | 1.0 | 141 | 3.8 | 261 | 7.0 | 404 | 10.8 | 865 | 23.2 | 1368 | 36.7 |
| | | 30 | 2.1 | ---- | ---- | 131 | 3.5 | 242 | 6.5 | 373 | 10.0 | 804 | 21.5 | 1263 | 33.8 |
| 60 | 4.1 | up to 16 | up to 1.1 | 47 | 1.3 | 190 | 5.1 | 358 | 9.6 | 562 | 15.1 | 1111 | 29.8 | 1788 | 47.9 |
| | | 25 | 1.7 | 45 | 1.2 | 172 | 4.6 | 319 | 8.5 | 495 | 13.3 | 1055 | 28.3 | 1680 | 45.0 |
| | | 35 | 2.4 | 42 | 1.1 | 155 | 4.1 | 287 | 7.7 | 444 | 11.9 | 954 | 25.6 | 1501 | 40.2 |
| | | 40 | 2.8 | ---- | ---- | 143 | 3.8 | 264 | 7.1 | 409 | 11.0 | 882 | 23.6 | 1380 | 37.0 |
| 75 | 5.2 | up to 22 | up to 1.5 | 57 | 1.5 | 228 | 6.1 | 430 | 11.5 | 675 | 18.1 | 1334 | 35.8 | 2149 | 57.6 |
| | | 35 | 2.4 | 54 | 1.4 | 203 | 5.4 | 378 | 10.1 | 585 | 15.7 | 1250 | 33.5 | 1986 | 53.2 |
| | | 50 | 3.5 | 47 | 1.3 | 175 | 4.7 | 322 | 8.6 | 498 | 13.3 | 1075 | 28.8 | 1684 | 45.1 |
| | | 55 | 3.8 | ---- | ---- | 160 | 4.3 | 296 | 7.9 | 456 | 12.2 | 988 | 26.5 | 1541 | 41.3 |
| 100 | 6.9 | up to 32 | up to 2.2 | 72 | 1.9 | 291 | 7.8 | 550 | 14.7 | 863 | 23.1 | 1707 | 45.7 | 2750 | 73.7 |
| | | 60 | 4.1 | 65 | 1.7 | 241 | 6.5 | 447 | 12.0 | 691 | 18.5 | 1485 | 39.8 | 2340 | 62.7 |
| | | 75 | 5.2 | 55 | 1.5 | 203 | 5.4 | 375 | 10.1 | 578 | 15.5 | 1252 | 33.6 | 1952 | 52.3 |
| | | 80 | 5.5 | ---- | ---- | 186 | 5.0 | 342 | 9.2 | 527 | 14.1 | 1144 | 30.7 | 1777 | 47.6 |
| 125 | 8.6 | up to 43 | up to 3.0 | 88 | 2.4 | 355 | 9.5 | 670 | 18.0 | 1051 | 28.2 | 2076 | 55.6 | 3342 | 89.6 |
| | | 60 | 4.1 | 85 | 2.3 | 321 | 8.6 | 595 | 15.9 | 923 | 24.7 | 1969 | 52.8 | 3134 | 84.0 |
| | | 90 | 6.2 | 71 | 1.9 | 261 | 7.0 | 482 | 12.9 | 745 | 20.0 | 1609 | 43.1 | 2515 | 67.4 |
| | | 105 | 7.2 | ---- | ---- | 208 | 5.6 | 382 | 10.2 | 589 | 15.8 | 1282 | 34.4 | 1985 | 53.2 |
| 150 | 10.3 | up to 52 | up to 3.6 | 104 | 2.8 | 419 | 11.2 | 790 | 21.2 | 1239 | 33.2 | 2453 | 65.7 | 3953 | 106 |
| | | 60 | 4.1 | 103 | 2.8 | 393 | 10.5 | 732 | 19.6 | 1137 | 30.5 | 2412 | 64.6 | 3868 | 104 |
| | | 95 | 6.5 | 92 | 2.5 | 342 | 9.2 | 632 | 16.9 | 977 | 26.2 | 2102 | 56.3 | 3308 | 88.7 |
| | | 130 | 9.0 | ---- | ---- | 228 | 6.1 | 419 | 11.2 | 646 | 17.3 | 1406 | 37.7 | 2175 | 58.3 |
| 200 | 13.8 | up to 73 | up to 5.0 | 135 | 3.6 | 546 | 14.6 | 1030 | 27.6 | 1615 | 43.3 | 3194 | 85.6 | 5145 | 138 |
| | | 110 | 7.6 | 127 | 3.4 | 479 | 12.8 | 887 | 23.8 | 1375 | 36.9 | 2941 | 78.8 | 4662 | 125 |
| | | 150 | 10.3 | 106 | 2.8 | 390 | 10.5 | 720 | 19.3 | 1112 | 29.8 | 2406 | 64.5 | 3753 | 101 |
| | | 180 | 12.4 | ---- | ---- | 264 | 7.1 | 484 | 13.0 | 746 | 20.0 | 1628 | 43.6 | 2511 | 67.3 |
| 300 | 20.7 | up to 115 | up to 7.9 | 198 | 5.3 | 800 | 21.4 | 1510 | 40.5 | 2367 | 63.4 | 4677 | 125 | 7531 | 202 |
| | | 170 | 11.7 | 186 | 5.0 | 698 | 18.7 | 1295 | 34.7 | 2006 | 53.8 | 4292 | 115 | 6801 | 182 |
| | | 225 | 15.5 | 157 | 4.2 | 577 | 15.5 | 1065 | 28.5 | 1645 | 44.1 | 3557 | 95.3 | 5553 | 149 |
| | | 280 | 19.3 | ---- | ---- | 324 | 8.7 | 594 | 15.9 | 914 | 24.5 | 1998 | 53.5 | 3076 | 82.4 |
| 400 | 27.6 | up to 155 | up to 10.7 | 261 | 7.0 | 1054 | 28.2 | 1990 | 53.3 | 3119 | 83.6 | 6169 | 165 | 9936 | 266 |
| | | 200 | 13.8 | 253 | 6.8 | 961 | 25.8 | 1785 | 47.8 | 2769 | 74.2 | 5899 | 158 | 9405 | 252 |
| | | 250 | 17.2 | 237 | 6.3 | 883 | 23.7 | 1635 | 43.8 | 2530 | 67.8 | 5432 | 146 | 8568 | 230 |
| | | 300 | 20.9 | 208 | 5.6 | 764 | 20.5 | 1410 | 37.8 | 2177 | 58.3 | 4709 | 126 | 7352 | 197 |
| 500 | 34.5 | up to 196 | up to 13.5 | 324 | 8.7 | 1308 | 35.1 | 2470 | 66.2 | 3871 | 104 | 7656 | 205 | 12,331 | 330 |
| | | 250 | 17.2 | 315 | 8.4 | 1195 | 32.0 | 2220 | 59.5 | 3444 | 92.3 | 7334 | 197 | 11,697 | 313 |
| | | 300 | 20.7 | 299 | 8.0 | 1121 | 30.0 | 2078 | 55.7 | 3217 | 86.2 | 6894 | 185 | 10,900 | 292 |
| | | 350 | 24.1 | 275 | 7.4 | 1018 | 27.3 | 1881 | 50.4 | 2907 | 77.9 | 6268 | 168 | 9827 | 263 |
| 600 | 41.4 | up to 237 | up to 16.3 | 387 | 10.4 | 1562 | 41.9 | 2950 | 79.1 | 4623 | 124 | 9143 | 245 | 14,726 | 395 |
| | | 250 | 17.2 | 386 | 10.3 | 1481 | 39.7 | 2760 | 74.0 | 4287 | 115 | 9079 | 243 | 14,593 | 391 |
| | | 300 | 20.7 | 376 | 10.1 | 1428 | 38.3 | 2655 | 71.2 | 4119 | 111 | 8770 | 235 | 13,989 | 375 |
| | | 350 | 24.1 | 362 | 9.70 | 1358 | 36.4 | 2517 | 67.5 | 3899 | 104 | 8346 | 224 | 13,217 | 354 |
| 700 | 48.3 | up to 278 | up to 19.2 | 450 | 12.1 | 1816 | 48.7 | 3430 | 91.9 | 5375 | 144 | 10,630 | 285 | 17,121 | 459 |
| | | 300 | 20.7 | 447 | 11.9 | 1715 | 46.0 | 3196 | 85.7 | 4964 | 133 | 10,519 | 282 | 16,892 | 453 |
| | | 350 | 24.1 | 438 | 11.7 | 1662 | 44.5 | 3090 | 82.8 | 4793 | 128 | 10,205 | 273 | 16,282 | 436 |
| 800 | 55.2 | up to 350 | up to 24.1 | 509 | 13.6 | 2070 | 55.5 | 3910 | 105 | 6127 | 164 | 11,958 | 320 | 19,189 | 514 |
| 900 | 62.1 | up to 350 | up to 24.1 | 577 | 15.5 | 2325 | 62.3 | 4389 | 118 | 6879 | 184 | 13,651 | 366 | 22,008 | 590 |
| 1000 | 68.9 | up to 350 | up to 24.1 | 644 | 17.3 | 2579 | 69.1 | 4869 | 130 | 7631 | 205 | 15,306 | 410 | 24,771 | 664 |
| 1050 | 72.4 | up to 350 | up to 24.1 | 677 | 18.1 | 2706 | 72.5 | 5109 | 137 | 8007 | 215 | 16,124 | 432 | 26,138 | 700 |

Note: Blank areas indicate where minimum main valve differential pressure is not met.

- continued -

Table 14. Capacities for EZR Series with Type 161EB, 161EBM or PRX Pilot (continued)

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|--|--------------------|---------------------------|--------------------|-----------------------------|--------------------|-----------------------------|--------------------|-----------------------------|--------------------|------------------------------|--------------------|
| | | | | NPS 1-1/4 x 1 / DN 32 x 25 | | NPS 2 x 1 / DN 50 x 25 | | NPS 6 x 4 / DN 150 x 100 | | NPS 8 x 4 / DN 200 x 100 | | NPS 8 x 6 / DN 200 x 150 | | NPS 12 x 6 / DN 300 x 150 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 30 | 2.1 | 5 | 0.35 | 32 | 0.9 | 36 | 1.0 | 335 | 8.9 | 330 | 8.8 | 751 | 20.1 | 751 | 20.1 |
| | | 10 | 0.69 | ---- | ---- | ---- | ---- | 315 | 8.4 | 310 | 8.3 | 712 | 19.1 | 712 | 19.1 |
| 40 | 2.8 | up to 8 | up to 0.55 | 39 | 1.0 | 44 | 1.2 | 415 | 11.1 | 408 | 10.9 | 927 | 24.8 | 927 | 24.8 |
| | | 15 | 1.0 | 37 | 1.0 | 42 | 1.1 | 388 | 10.4 | 382 | 10.2 | 876 | 23.5 | 876 | 23.5 |
| | | 20 | 1.4 | ---- | ---- | ---- | ---- | 362 | 9.7 | 356 | 9.5 | 821 | 22.0 | 821 | 22.0 |
| 50 | 3.5 | up to 12 | up to 0.8 | 46 | 1.2 | 52 | 1.4 | 491 | 13.2 | 483 | 12.9 | 1098 | 29.4 | 1098 | 29.4 |
| | | 15 | 1.0 | 46 | 1.2 | 51 | 1.4 | 481 | 12.9 | 473 | 12.7 | 1079 | 28.9 | 1079 | 28.9 |
| | | 25 | 1.7 | 42 | 1.1 | 47 | 1.3 | 436 | 11.7 | 429 | 11.5 | 988 | 26.5 | 988 | 26.5 |
| | | 30 | 2.1 | ---- | ---- | ---- | ---- | 403 | 10.8 | 397 | 10.6 | 918 | 24.6 | 918 | 24.6 |
| 60 | 4.1 | up to 16 | up to 1.1 | 54 | 1.4 | 60 | 1.6 | 567 | 15.2 | 558 | 15.0 | 1268 | 34.0 | 1268 | 34.0 |
| | | 25 | 1.7 | 51 | 1.4 | 57 | 1.5 | 534 | 14.3 | 526 | 14.1 | 1204 | 32.3 | 1204 | 32.3 |
| | | 35 | 2.4 | 46 | 1.2 | 52 | 1.4 | 479 | 12.8 | 471 | 12.6 | 1089 | 29.2 | 1089 | 29.2 |
| | | 40 | 2.8 | ---- | ---- | ---- | ---- | 441 | 11.8 | 434 | 11.6 | 1007 | 27.0 | 1007 | 27.0 |
| 75 | 5.2 | up to 22 | up to 1.5 | 64 | 1.7 | 73 | 2.0 | 681 | 18.3 | 671 | 18.0 | 1523 | 40.8 | 1523 | 40.8 |
| | | 35 | 2.4 | 61 | 1.6 | 68 | 1.8 | 632 | 16.9 | 622 | 16.7 | 1427 | 38.2 | 1427 | 38.2 |
| | | 50 | 3.5 | 52 | 1.4 | 59 | 1.6 | 538 | 14.4 | 529 | 14.2 | 1227 | 32.9 | 1227 | 32.9 |
| | | 55 | 3.8 | ---- | ---- | ---- | ---- | 493 | 13.2 | 485 | 13.0 | 1128 | 30.2 | 1128 | 30.2 |
| 100 | 6.9 | up to 32 | up to 2.2 | 82 | 2.2 | 93 | 2.5 | 872 | 23.4 | 858 | 23.0 | 1949 | 52.2 | 1949 | 52.2 |
| | | 60 | 4.1 | 72 | 1.9 | 81 | 2.2 | 746 | 20.0 | 734 | 19.7 | 1695 | 45.4 | 1695 | 45.4 |
| | | 75 | 5.2 | 61 | 1.6 | 68 | 1.8 | 624 | 16.7 | 614 | 16.5 | 1430 | 38.3 | 1430 | 38.3 |
| | | 80 | 5.5 | ---- | ---- | ---- | ---- | 569 | 15.2 | 560 | 15.0 | 1306 | 35.0 | 1306 | 35.0 |
| 125 | 8.6 | up to 43 | up to 3.0 | 100 | 2.7 | 113 | 3.0 | 1060 | 28.4 | 1043 | 28.0 | 2370 | 63.5 | 2370 | 63.5 |
| | | 60 | 4.1 | 95 | 2.5 | 107 | 2.9 | 997 | 26.7 | 981 | 26.3 | 2248 | 60.2 | 2248 | 60.2 |
| | | 90 | 6.2 | 79 | 2.1 | 88 | 2.4 | 804 | 21.5 | 791 | 21.2 | 1837 | 49.2 | 1837 | 49.2 |
| | | 105 | 7.2 | ---- | ---- | ---- | ---- | 636 | 17.0 | 626 | 16.8 | 1463 | 39.2 | 1463 | 39.2 |
| 150 | 10.3 | up to 52 | up to 3.6 | 118 | 3.2 | 133 | 3.6 | 1253 | 33.6 | 1233 | 33.0 | 2801 | 75.1 | 2801 | 75.1 |
| | | 60 | 4.1 | 117 | 3.1 | 131 | 3.5 | 1228 | 32.9 | 1208 | 32.4 | 2754 | 73.8 | 2754 | 73.8 |
| | | 95 | 6.6 | 102 | 2.7 | 114 | 3.1 | 1055 | 28.3 | 1039 | 27.8 | 2400 | 64.3 | 2400 | 64.3 |
| | | 130 | 9.0 | ---- | ---- | ---- | ---- | 697 | 18.7 | 686 | 18.4 | 1606 | 43.0 | 1606 | 43.0 |
| 200 | 13.8 | up to 73 | up to 5.0 | 154 | 4.1 | 174 | 4.7 | 1631 | 43.7 | 1605 | 43.0 | 3647 | 97.7 | 3647 | 97.7 |
| | | 110 | 7.6 | 143 | 3.8 | 160 | 4.3 | 1485 | 39.8 | 1461 | 39.2 | 3357 | 90.0 | 3357 | 90.0 |
| | | 150 | 10.3 | 117 | 3.1 | 131 | 3.5 | 1200 | 32.2 | 1181 | 31.7 | 2746 | 73.6 | 2746 | 73.6 |
| | | 180 | 12.4 | ---- | ---- | ---- | ---- | 806 | 21.6 | 793 | 21.2 | 1858 | 49.8 | 1858 | 49.8 |
| 300 | 20.7 | up to 115 | up to 7.9 | 226 | 6.1 | 254 | 6.8 | 2388 | 64.0 | 2350 | 63.0 | 5339 | 143 | 5339 | 143 |
| | | 170 | 11.7 | 208 | 5.6 | 234 | 6.3 | 2166 | 58.0 | 2132 | 57.1 | 4900 | 131 | 4900 | 131 |
| | | 225 | 15.5 | 174 | 4.7 | 194 | 5.2 | 1776 | 47.6 | 1747 | 46.8 | 4061 | 109 | 4061 | 109 |
| | | 280 | 19.3 | ---- | ---- | ---- | ---- | 987 | 26.5 | 972 | 26.0 | 2281 | 61.1 | 2281 | 61.1 |
| 400 | 27.6 | up to 155 | up to 10.7 | 298 | 8.0 | 335 | 9.0 | 3150 | 84.4 | 3100 | 83.1 | 7043 | 189 | 7043 | 189 |
| | | 200 | 13.8 | 286 | 7.7 | 321 | 8.6 | 2990 | 80.1 | 2943 | 78.9 | 6734 | 180 | 6734 | 180 |
| | | 250 | 17.2 | 264 | 7.1 | 296 | 7.9 | 2732 | 73.2 | 2689 | 72.1 | 6202 | 166 | 6202 | 166 |
| | | 300 | 20.7 | 230 | 6.2 | 257 | 6.9 | 2351 | 63.0 | 2313 | 62.0 | 5376 | 144 | 5376 | 144 |
| | | 350 | 24.1 | 173 | 4.6 | 193 | 5.2 | 1750 | 46.9 | 1722 | 46.2 | 4030 | 108 | 4030 | 108 |
| 500 | 34.5 | up to 196 | up to 13.5 | 369 | 9.9 | 416 | 11.1 | 3910 | 105 | 3847 | 103 | 8740 | 234 | 8740 | 234 |
| | | 250 | 17.2 | 355 | 9.5 | 399 | 10.7 | 3719 | 99.7 | 3659 | 98.1 | 8373 | 224 | 8373 | 224 |
| | | 300 | 20.9 | 335 | 9.0 | 375 | 10.1 | 3473 | 93.1 | 3418 | 91.6 | 7870 | 211 | 7870 | 211 |
| | | 350 | 24.1 | 305 | 8.2 | 342 | 9.2 | 3139 | 84.1 | 3089 | 82.8 | 7156 | 192 | 7156 | 192 |
| 600 | 41.4 | up to 237 | up to 16.3 | 441 | 11.8 | 497 | 13.3 | 4669 | 125 | 4595 | 123 | 10,438 | 280 | 10,438 | 280 |
| | | 250 | 17.2 | 438 | 11.7 | 493 | 13.2 | 4629 | 124 | 4556 | 122 | 10,365 | 278 | 10,365 | 278 |
| | | 300 | 20.9 | 424 | 11.4 | 477 | 12.8 | 4447 | 119 | 4376 | 117 | 10,012 | 268 | 10,012 | 268 |
| | | 350 | 24.1 | 405 | 10.9 | 454 | 12.2 | 4210 | 113 | 4143 | 111 | 9528 | 255 | 9528 | 255 |
| 700 | 48.3 | up to 278 | up to 19.2 | 513 | 13.7 | 578 | 15.5 | 5428 | 145 | 5342 | 143 | 12,136 | 325 | 12,136 | 325 |
| | | 300 | 20.7 | 508 | 13.6 | 572 | 15.3 | 5360 | 144 | 5275 | 141 | 12,009 | 322 | 12,009 | 322 |
| | | 350 | 24.1 | 494 | 13.2 | 555 | 14.9 | 5175 | 139 | 5093 | 136 | 11,650 | 312 | 11,650 | 312 |
| 800 | 55.2 | up to 350 | up to 24.1 | 578 | 15.5 | 650 | 17.4 | 6090 | 163 | 5993 | 161 | 13,652 | 366 | 13,652 | 366 |
| 900 | 62.1 | up to 350 | up to 24.1 | 658 | 17.6 | 742 | 19.9 | 6976 | 187 | 6865 | 184 | 15,584 | 418 | 15,584 | 418 |
| 1000 | 68.9 | up to 350 | up to 24.1 | 737 | 19.8 | 831 | 22.3 | 7844 | 210 | 7719 | 207 | 17,474 | 468 | 17,474 | 468 |
| 1050 | 72.4 | up to 350 | up to 24.1 | 776 | 20.8 | 875 | 23.5 | 8273 | 222 | 8141 | 218 | 18,408 | 493 | 18,408 | 493 |

Note: Blank areas indicate where minimum main valve differential pressure is not met.

EZR Series

Table 15. Capacities for EZR Series with PRX Series

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|---|--------------------|---------------|--------------------|---------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|
| | | | | NPS 1 / DN 25 | | NPS 2 / DN 50 | | NPS 3 / DN 80 | | NPS 4 / DN 100 | | NPS 6 / DN 150 | | NPS 8 / DN 200 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 300 | 21.0 | 250 | 17.0 | 134 | 3.6 | 489 | 13.1 | 901 | 24.1 | 1389 | 37.2 | 3019 | 80.9 | 4682 | 125 |
| | | 280 | 19.0 | ---- | ---- | 324 | 8.7 | 594 | 15.9 | 914 | 24.5 | 1998 | 53.5 | 3076 | 82.4 |
| 400 | 28.0 | 250 | 17.0 | 237 | 6.3 | 883 | 23.7 | 1635 | 43.8 | 2530 | 67.8 | 5432 | 146 | 8568 | 230 |
| | | 300 | 21.0 | 208 | 5.6 | 764 | 20.5 | 1410 | 37.8 | 2177 | 58.3 | 4709 | 126 | 7352 | 197 |
| | | 350 | 24.0 | 158 | 4.2 | 572 | 15.3 | 1052 | 28.2 | 1621 | 43.4 | 3530 | 94.6 | 5458 | 146 |
| | | 380 | 26.0 | ---- | ---- | 374 | 10.0 | 686 | 18.4 | 1056 | 28.3 | 2311 | 61.9 | 3552 | 95.2 |
| 500 | 34.0 | 250 | 17.0 | 315 | 8.4 | 1195 | 32.0 | 2220 | 59.5 | 3444 | 92.3 | 7334 | 197 | 11,697 | 313 |
| | | 300 | 21.0 | 299 | 8.0 | 1121 | 30.0 | 2078 | 55.7 | 3217 | 86.2 | 6894 | 185 | 10,900 | 292 |
| | | 350 | 24.0 | 275 | 7.4 | 1018 | 27.3 | 1881 | 50.4 | 2907 | 77.9 | 6268 | 168 | 9827 | 263 |
| | | 400 | 28.0 | 238 | 6.4 | 871 | 23.3 | 1604 | 43.0 | 2475 | 66.3 | 5367 | 144 | 8348 | 224 |
| | | 450 | 31.0 | 178 | 4.8 | 644 | 17.3 | 1183 | 31.7 | 1823 | 48.9 | 3977 | 107 | 6137 | 164 |
| | | 480 | 33.0 | ---- | ---- | 418 | 11.2 | 768 | 20.6 | 1182 | 31.7 | 2586 | 69.3 | 3972 | 106 |
| 600 | 41.0 | 250 | 17.0 | 386 | 10.3 | 1481 | 39.7 | 2760 | 74.0 | 4287 | 115 | 9079 | 243 | 14,593 | 391 |
| | | 300 | 21.0 | 376 | 10.1 | 1428 | 38.3 | 2655 | 71.2 | 4119 | 110 | 8770 | 235 | 13,989 | 375 |
| | | 400 | 28.0 | 340 | 9.1 | 1264 | 33.9 | 2337 | 62.6 | 3614 | 96.9 | 7777 | 208 | 12,229 | 328 |
| | | 500 | 34.0 | 265 | 7.1 | 966 | 25.9 | 1777 | 47.6 | 2741 | 73.5 | 5956 | 160 | 9240 | 248 |
| | | 550 | 38.0 | 196 | 5.2 | 709 | 19.0 | 1302 | 34.9 | 2006 | 53.8 | 4379 | 117 | 6749 | 181 |
| | | 580 | 40.0 | ---- | ---- | 459 | 12.3 | 841 | 22.5 | 1295 | 34.7 | 2834 | 76.0 | 4352 | 117 |
| 700 | 48.0 | 250 | 17.0 | 453 | 12.1 | 1755 | 47.0 | 3278 | 87.9 | 5099 | 134 | 10,751 | 288 | 17,381 | 466 |
| | | 300 | 21.0 | 447 | 11.9 | 1715 | 46.0 | 3196 | 85.7 | 4964 | 133 | 10,519 | 282 | 16,892 | 453 |
| | | 400 | 28.0 | 424 | 11.4 | 1594 | 42.7 | 2956 | 79.2 | 4579 | 123 | 9793 | 262 | 15,526 | 416 |
| | | 500 | 34.0 | 377 | 10.1 | 1393 | 37.3 | 2572 | 68.9 | 3975 | 107 | 8577 | 230 | 13,435 | 360 |
| | | 600 | 41.0 | 290 | 7.8 | 1052 | 28.2 | 1936 | 51.9 | 2984 | 80.0 | 6493 | 174 | 10,055 | 269 |
| 800 | 55.0 | up to 300 | up to 21.0 | 515 | 13.8 | 2070 | 55.5 | 3910 | 105 | 6127 | 164 | 12,202 | 327 | 19,697 | 528 |
| | | 400 | 28.0 | 499 | 13.4 | 1896 | 50.8 | 3525 | 94.5 | 5468 | 147 | 11,640 | 312 | 18,574 | 498 |
| | | 500 | 34.0 | 467 | 12.5 | 1745 | 46.8 | 3231 | 86.6 | 5001 | 134 | 10,732 | 288 | 16,938 | 454 |
| | | 600 | 41.0 | 411 | 11.0 | 1512 | 40.5 | 2789 | 74.7 | 4308 | 115 | 9314 | 250 | 14,547 | 390 |
| | | 700 | 48.0 | 312 | 8.4 | 1133 | 30.4 | 2082 | 55.8 | 3209 | 86.0 | 6990 | 187 | 10,809 | 290 |
| 900 | 62.0 | up to 350 | up to 24.0 | 577 | 15.5 | 2325 | 62.3 | 4389 | 118 | 6879 | 184 | 13,651 | 366 | 22,008 | 590 |
| | | 400 | 28.0 | 571 | 15.3 | 2184 | 58.5 | 4067 | 109 | 6316 | 169 | 13,396 | 359 | 21,486 | 576 |
| | | 500 | 34.0 | 547 | 14.7 | 2064 | 55.3 | 3830 | 103 | 5935 | 159 | 12,679 | 340 | 20,133 | 540 |
| | | 600 | 41.0 | 507 | 13.6 | 1886 | 50.5 | 3487 | 93.5 | 5394 | 145 | 11,604 | 311 | 18,250 | 489 |
| | | 700 | 48.0 | 442 | 11.8 | 1622 | 43.5 | 2991 | 80.2 | 4617 | 124 | 10,000 | 268 | 15,584 | 418 |
| 1000 | 69.0 | up to 400 | up to 28.0 | 639 | 17.1 | 2579 | 69.1 | 4869 | 130 | 7631 | 205 | 15,096 | 405 | 24,316 | 652 |
| | | 500 | 34.0 | 622 | 16.7 | 2364 | 63.4 | 4394 | 118 | 6817 | 183 | 14,510 | 389 | 23,158 | 621 |
| | | 600 | 41.0 | 592 | 15.9 | 2220 | 59.5 | 4115 | 110 | 6372 | 171 | 13,650 | 366 | 21,592 | 579 |
| | | 700 | 48.0 | 545 | 14.6 | 2017 | 54.1 | 3727 | 99.9 | 5762 | 154 | 12,420 | 333 | 19,480 | 522 |
| 1050 | 72.0 | up to 400 | up to 28.0 | 673 | 18.0 | 2706 | 72.5 | 5109 | 137 | 8007 | 215 | 15,932 | 427 | 25,710 | 689 |
| | | 500 | 34.0 | 658 | 17.6 | 2509 | 67.4 | 4668 | 125 | 7245 | 194 | 15,398 | 413 | 24,627 | 660 |
| | | 600 | 41.0 | 632 | 16.9 | 2379 | 63.8 | 4412 | 118 | 6826 | 183 | 14,618 | 392 | 23,181 | 621 |
| | | 700 | 48.0 | 591 | 15.8 | 2196 | 58.9 | 4063 | 109 | 6283 | 168 | 13,517 | 362 | 21,261 | 570 |
| | | 900 | 62.0 | 432 | 11.6 | 1572 | 42.2 | 2892 | 77.6 | 4459 | 120 | 9694 | 260 | 15,024 | 403 |

1. For outlet pressures above 435 psig / 30 bar, use Type PRX-AP pilot rather than Type PRX.
 Note: Blank areas indicate where minimum main valve differential pressure is not met.

- continued -

Table 15. Capacities for EZR Series with PRX Series (continued)

| INLET PRESSURE | | OUTLET PRESSURE | | CAPACITIES IN THOUSANDS OF SCFH / Nm ³ /h OF 0.6 SPECIFIC GRAVITY NATURAL GAS USING 1:1 LINE SIZE TO BODY SIZE PIPING WITHOUT INLET STRAINER | | | | | | | | | | | |
|----------------|------|-----------------|------------|---|--------------------|------------------------|--------------------|--------------------------|--------------------|--------------------------|--------------------|--------------------------|--------------------|---------------------------|--------------------|
| | | | | NPS 1-1/4 x 1 / DN 32 x 25 | | NPS 2 x 1 / DN 50 x 25 | | NPS 6 x 4 / DN 150 x 100 | | NPS 8 x 4 / DN 200 x 100 | | NPS 8 x 6 / DN 200 x 150 | | NPS 12 x 6 / DN 300 x 150 | |
| psig | bar | psig | bar | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h | SCFH | Nm ³ /h |
| 300 | 21.0 | 250 | 17.2 | 148 | 4.0 | 165 | 4.4 | 1500 | 40.2 | 1476 | 39.6 | 3447 | 92.4 | 3447 | 92.4 |
| | | 280 | 19.3 | ---- | ---- | ---- | ---- | 987 | 26.5 | 972 | 26.0 | 2281 | 61.1 | 2281 | 61.1 |
| 400 | 28.0 | 250 | 17.2 | 264 | 7.1 | 296 | 7.9 | 2732 | 73.2 | 2689 | 72.1 | 6202 | 166 | 6202 | 166 |
| | | 300 | 21.0 | 230 | 6.2 | 257 | 6.9 | 2351 | 63.0 | 2313 | 62.0 | 5376 | 144 | 5376 | 144 |
| | | 350 | 24.1 | 173 | 4.6 | 193 | 5.2 | 1750 | 46.9 | 1722 | 46.2 | 4030 | 108 | 4030 | 108 |
| | | 380 | 26.2 | ---- | ---- | ---- | ---- | 1141 | 30.6 | 1123 | 30.1 | 2638 | 70.7 | 2638 | 70.7 |
| 500 | 34.5 | 250 | 17.2 | 355 | 9.5 | 399 | 10.7 | 3719 | 99.7 | 3659 | 98.1 | 8373 | 224 | 8373 | 224 |
| | | 300 | 21.0 | 335 | 9.0 | 375 | 10.1 | 3473 | 93.1 | 3418 | 91.6 | 7870 | 211 | 7870 | 211 |
| | | 350 | 24.1 | 305 | 8.2 | 342 | 9.2 | 3139 | 84.1 | 3089 | 82.8 | 7156 | 192 | 7156 | 192 |
| | | 400 | 28.0 | 262 | 7.0 | 293 | 7.8 | 2672 | 71.6 | 2630 | 70.5 | 6128 | 164 | 6128 | 164 |
| | | 450 | 31.0 | 195 | 5.2 | 217 | 5.8 | 1969 | 52.8 | 1937 | 51.9 | 4540 | 122 | 4540 | 122 |
| 600 | 41.4 | 480 | 33.1 | ---- | ---- | ---- | ---- | 1276 | 34.2 | 1256 | 33.7 | 2952 | 79.1 | 2952 | 79.1 |
| | | 250 | 17.2 | 438 | 11.7 | 493 | 13.2 | 4629 | 124 | 4556 | 122 | 10,365 | 278 | 10,365 | 278 |
| | | 300 | 21.0 | 424 | 11.4 | 477 | 12.8 | 4447 | 119 | 4376 | 117 | 10,012 | 268 | 10,012 | 268 |
| | | 400 | 28.0 | 378 | 10.1 | 424 | 11.4 | 3903 | 105 | 3841 | 103 | 8879 | 238 | 8879 | 238 |
| | | 500 | 34.5 | 291 | 7.8 | 325 | 8.7 | 2960 | 79.3 | 2913 | 78.1 | 6800 | 182 | 6800 | 182 |
| 700 | 48.0 | 550 | 38.0 | 215 | 5.8 | 239 | 6.4 | 2166 | 58.0 | 2131 | 57.1 | 4999 | 134 | 4999 | 134 |
| | | 580 | 40.0 | ---- | ---- | ---- | ---- | 1398 | 37.5 | 1376 | 37.0 | 3236 | 86.7 | 3236 | 86.7 |
| | | 250 | 17.2 | 518 | 13.9 | 584 | 15.6 | 5505 | 148 | 5418 | 145 | 12,274 | 329 | 12,274 | 329 |
| | | 300 | 21.0 | 508 | 13.6 | 572 | 15.3 | 5360 | 144 | 5275 | 141 | 12,009 | 322 | 12,009 | 322 |
| | | 400 | 28.0 | 475 | 12.7 | 533 | 14.3 | 4944 | 132 | 4865 | 130 | 11,180 | 300 | 11,180 | 300 |
| 800 | 55.2 | 500 | 34.5 | 418 | 11.2 | 467 | 12.5 | 4292 | 115 | 4224 | 113 | 9793 | 262 | 9793 | 262 |
| | | 600 | 41.4 | 318 | 8.5 | 354 | 9.5 | 3222 | 86.4 | 3171 | 85.0 | 7413 | 199 | 7413 | 199 |
| | | up to 300 | up to 21.0 | 588 | 15.8 | 663 | 17.8 | 6241 | 167 | 6142 | 165 | 13,931 | 373 | 13,931 | 373 |
| | | 400 | 28.0 | 563 | 15.1 | 633 | 17.0 | 5904 | 158 | 5810 | 156 | 13,289 | 356 | 13,289 | 356 |
| | | 500 | 34.5 | 522 | 14.0 | 584 | 15.7 | 5400 | 145 | 5314 | 142 | 12,253 | 328 | 12,253 | 328 |
| 900 | 62.0 | 600 | 41.4 | 454 | 12.2 | 508 | 13.6 | 4651 | 125 | 4577 | 123 | 10,634 | 285 | 10,634 | 285 |
| | | 700 | 48.0 | 342 | 9.2 | 381 | 10.2 | 3465 | 92.9 | 3410 | 91.4 | 7980 | 214 | 7980 | 214 |
| | | up to 350 | up to 24.1 | 658 | 17.6 | 742 | 19.9 | 6976 | 187 | 6865 | 184 | 15,584 | 418 | 15,584 | 418 |
| | | 400 | 28.0 | 647 | 17.3 | 728 | 19.5 | 6820 | 183 | 6711 | 180 | 15,294 | 410 | 15,294 | 410 |
| | | 500 | 34.5 | 615 | 16.5 | 690 | 18.5 | 6408 | 172 | 6306 | 169 | 14,475 | 388 | 14,475 | 388 |
| 1000 | 69.0 | 600 | 41.4 | 565 | 15.1 | 632 | 16.9 | 5824 | 156 | 5731 | 154 | 13,247 | 355 | 13,247 | 355 |
| | | 700 | 48.0 | 488 | 13.1 | 545 | 14.6 | 4985 | 134 | 4906 | 131 | 11,416 | 306 | 11,416 | 306 |
| | | up to 400 | up to 28.0 | 728 | 19.5 | 820 | 22.0 | 7709 | 207 | 7587 | 203 | 17,235 | 462 | 17,235 | 462 |
| | | 500 | 34.5 | 702 | 18.8 | 789 | 21.1 | 7361 | 197 | 7243 | 194 | 16,566 | 444 | 16,566 | 444 |
| | | 600 | 41.4 | 663 | 17.8 | 743 | 19.9 | 6880 | 184 | 6770 | 181 | 15,584 | 418 | 15,584 | 418 |
| 1050 | 72.4 | 700 | 48.0 | 605 | 16.2 | 677 | 18.1 | 6221 | 167 | 6122 | 164 | 14,179 | 380 | 14,179 | 380 |
| | | up to 400 | up to 28.0 | 768 | 20.6 | 866 | 23.2 | 8147 | 218 | 8018 | 215 | 18,189 | 487 | 18,189 | 487 |
| | | 500 | 34.5 | 745 | 20.0 | 837 | 22.4 | 7823 | 210 | 7699 | 206 | 17,579 | 471 | 17,579 | 471 |
| | | 600 | 41.4 | 709 | 19.0 | 796 | 21.3 | 7381 | 198 | 7263 | 195 | 16,688 | 447 | 16,688 | 447 |
| | | 700 | 48.0 | 658 | 17.6 | 736 | 19.7 | 6784 | 182 | 6677 | 179 | 15,432 | 414 | 15,432 | 414 |
| 900 | 62.0 | 474 | 12.7 | 529 | 14.2 | 4811 | 129 | 4719 | 127 | 11,068 | 297 | 11,068 | 297 | | |

1. For outlet pressures above 435 psig / 30 bar, use Type PRX-AP pilot rather than Type PRX.
 Note: Blank areas indicate where minimum main valve differential pressure is not met.

EZR Series

Table 16. Manometric Device Specifications⁽¹⁾

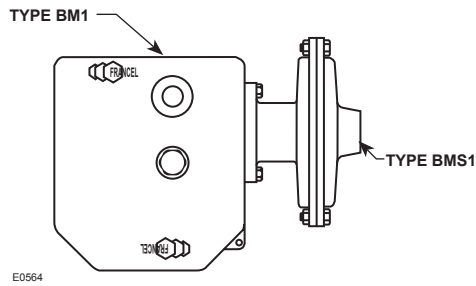
| SPRING RANGE | | SPRING COLOR | SPRING PART NUMBER | MAXIMUM SENSING INLET PRESSURE | | MANOMETRIC SENSING DEVICE TYPE | MANOMETRIC SENSING DEVICE STYLE | SETPOINT TOLERANCE ⁽¹⁾ | | MAXIMUM DIFFERENCE BETWEEN OVERPRESSURE AND UNDERPRESSURE ⁽²⁾ | |
|-------------------------|---------------------|--------------|--------------------|--------------------------------|------|--------------------------------|---------------------------------|-----------------------------------|-------|--|------|
| psig | bar | | | psig | bar | | | psig | bar | psig | bar |
| 4.02 to 14.1 in. w.c. | 10 to 35 mbar | Purple | T14232T0012 | 75 | 5.2 | 162 | Diaphragm | 0.058 | 0.004 | 0.145 | 0.01 |
| 9.97 to 33.2 in. w.c. | 25 to 83 mbar | Orange | T14233T0012 | | | | | 0.073 | 0.005 | 0.363 | 0.03 |
| 18 in. w.c. to 2.0 psig | 45 mbar to 0.14 bar | Red | T14234T0012 | | | | | 0.145 | 0.01 | 0.725 | 0.05 |
| 1.0 to 3.5 | 0.07 to 0.24 | Yellow | T14235T0012 | | | | | 0.203 | 0.01 | 0.870 | 0.06 |
| 1.7 to 5.6 | 0.11 to 0.38 | Green | T14236T0012 | | | | | 0.261 | 0.02 | 2.18 | 0.15 |
| 2 to 11 | 0.14 to 0.75 | Gray | T14238T0012 | | | | | 0.725 | 0.05 | 5.08 | 0.35 |
| 4 to 19 | 0.25 to 1.3 | Brown | T14239T0012 | | | | | 1.16 | 0.08 | 8.70 | 0.60 |
| 7 to 33 | 0.45 to 2.3 | Black | T14240T0012 | | | | | 2.47 | 0.17 | 16.0 | 1.1 |
| 15 to 75 | 1.0 to 5.1 | Blue | T14237T0012 | 235 | 16.2 | 71 | Piston | 5.08 | 0.35 | 36.3 | 2.5 |
| 31 to 161 | 2.1 to 11.0 | Brown | T14239T0012 | | | | | 10.2 | 0.70 | 79.8 | 5.5 |
| 59 to 235 | 4.0 to 16.0 | Black | T14240T0012 | | | | | 23.2 | 1.6 | 145 | 10.0 |
| 235 to 323 | 16.0 to 22.0 | Brown | T14239T0012 | 1470 | 100 | 27 | Piston | 43.5 | 3.0 | Requires use of Types BMS1 and BMS2 | |
| 323 to 588 | 22.0 to 40.0 | Black | T14240T0012 | | | | | 94.3 | 6.5 | | |
| 588 to 808 | 40.0 to 55.0 | Brown | T14239T0012 | 1470 | 100 | 17 | | 102 | 7.0 | | |
| 808 to 1470 | 55.0 to 100 | Black | T14240T0012 | | | | | 174 | 12.0 | | |
| 81 to 323 | 5.5 to 22.0 | Brown | T14239T0012 | 514 | 35.4 | 236 | Bellows | 14.5 | 1.00 | 145 | 10.0 |
| 122 to 514 | 8.3 to 35.0 | Black | T14240T0012 | | | | | 36.3 | 2.5 | 290 | 20.0 |
| 257 to 1058 | 17.5 to 72.0 | Gray | T14238T0012 | | | | | 1058 | 72.9 | 315 | 72.5 |

1. Minimum suggested difference between slam-shut set pressure and normal operating pressure of the system.
 2. Maximum difference between overpressure and underpressure when using one manometric device (Type BMS1) with tripping hook. For underpressure and overpressure points greater than this maximum number, use a second manometric device (Type BMS2) for underpressure protection.

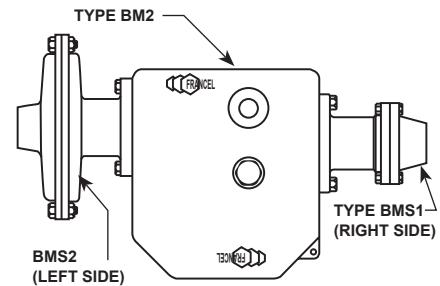
Table 17. Applications and Construction Guide (See Figure 9)

| APPLICATION | MECHANISM BOX REQUIRED | | MANOMETRIC SENSING DEVICE REQUIRED | |
|---|------------------------|----------|------------------------------------|--------------------|
| | Type BM1 | Type BM2 | Type BMS1 | Type BMS2 |
| Overpressure Shutoff (OPSO) | Yes | No | Yes | No |
| Underpressure Shutoff (UPSO) | | | Yes ⁽¹⁾ | |
| Overpressure Shutoff (OPSO) and Underpressure Shutoff (UPSO) | | | Yes ⁽²⁾ | |
| Overpressure Shutoff (OPSO) and Underpressure Shutoff (UPSO) | No | Yes | Yes ⁽²⁾ | Yes |
| Overpressure Shutoff (OPSO), Overpressure Shutoff (OPSO) and Underpressure Shutoff (UPSO) | | | Yes ⁽²⁾ | Yes ⁽¹⁾ |

1. When using one manometric sensing device (Type BMS1 or BMS2) for both overpressure and underpressure shutoff, make sure that the difference between set pressures falls within the maximum range shown in Table 16.
 2. When using two manometric sensing devices (Type BMS1 and a Type BMS2), the Type BMS1 can only be used for high trip.



MECHANISM BOX (TYPE BM1) WITH
1 MANOMETRIC SENSING DEVICE (TYPE BMS1)



MECHANISM BOX (TYPE BM2) WITH
2 MANOMETRIC SENSING DEVICES (TYPES BMS1 AND BMS2)

Figure 8. Types of Installation (Mounting on Horizontal Pipeline Only)

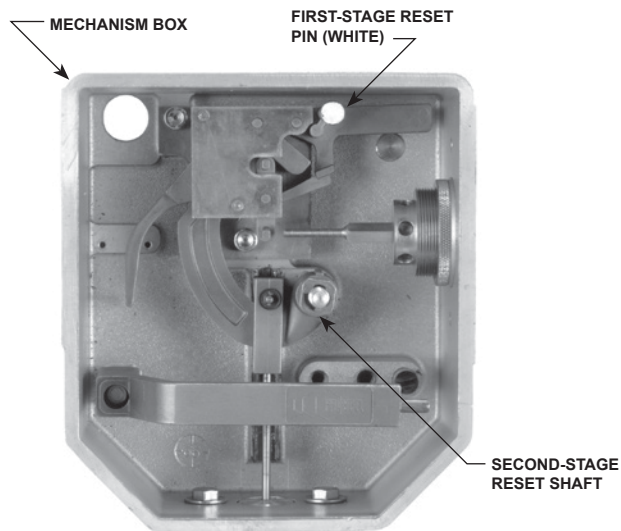


Figure 9. Slam-Shut Device in Open Position

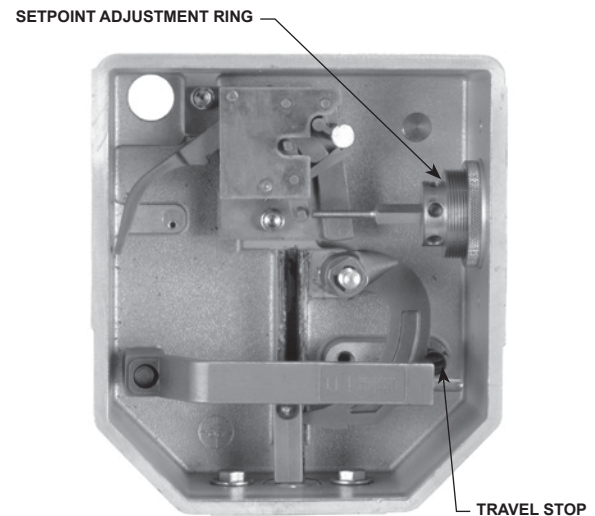
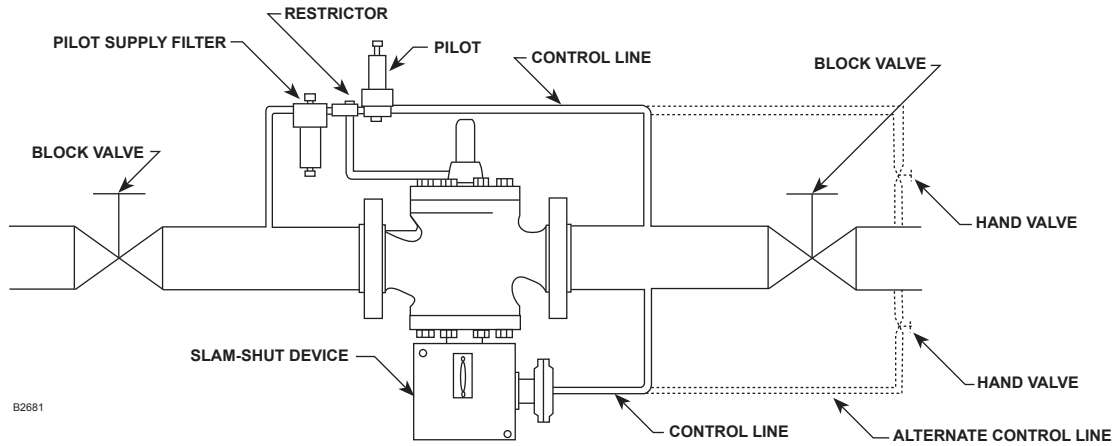


Figure 10. Slam-Shut Device in Closed Position

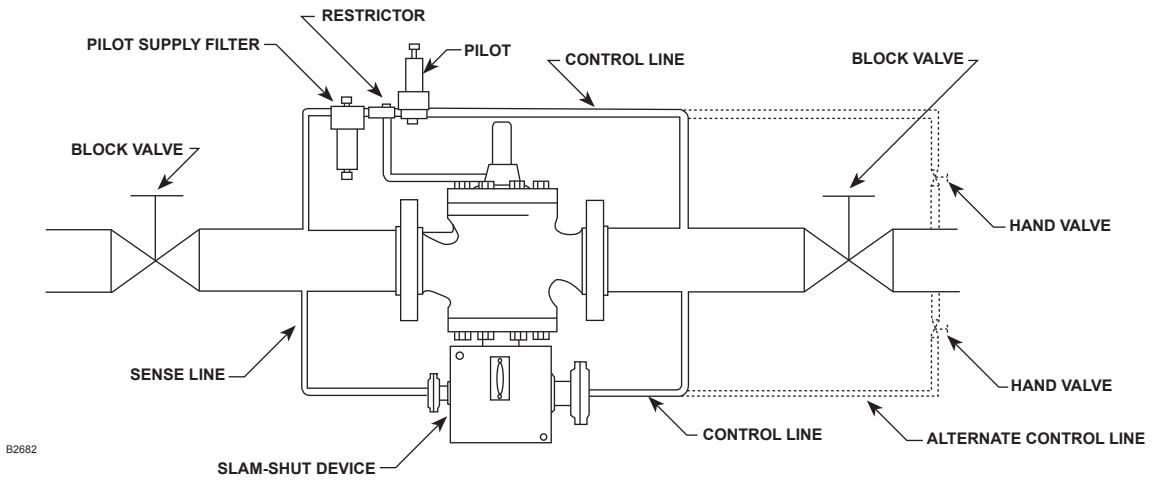
Table 18. Approximate Weights Including 161EB Series, 161AY Series, PRX Series Pilot and Restrictor⁽¹⁾⁽²⁾

| BODY SIZES, NPS / DN | CAST IRON MAIN VALVE BODY, lbs / kg | | | WCC OR LCC STEEL MAIN VALVE BODY, lbs / kg | | | | WITH INTEGRAL SLAM SHUT, lbs / kg | | |
|---------------------------------|--|----------|-----------|---|-----------|------------|------------|--------------------------------------|-----------|-----------|
| | NPT | CL125 FF | CL250 RF | NPT, SWE or BWE | CL150 RF | CL300 RF | CL600 RF | CL150 RF | CL300 RF | CL600 RF |
| 1 and 1-1/4 / 25 and 32 | ---- | ---- | ---- | 22 / 10 | 24 / 11 | 28 / 13 | 32 / 15 | 44 / 20 | 46 / 21 | 49 / 22 |
| 2 and 2 x 1 / 50 and 50 x 25 | 52 / 24 | 50 / 23 | 59 / 27 | 51 / 23 | 54 / 24 | 58 / 26 | 65 / 29 | 86 / 39 | 90 / 41 | 95 / 43 |
| 3 / 80 | ---- | 89 / 40 | 106 / 48 | 103 / 47 | 107 / 49 | 110 / 50 | 123 / 56 | 138 / 63 | 141 / 64 | 154 / 70 |
| 4 / 100 | | 140 / 64 | 155 / 70 | 139 / 63 | 145 / 66 | 159 / 72 | 192 / 87 | 177 / 80 | 191 / 87 | 224 / 102 |
| 6 x 4 / 150 x 100 | | ---- | ---- | 270 / 122 | 280 / 127 | 292 / 132 | 394 / 179 | ---- | ---- | ---- |
| 8 x 4 / 200 x 100 | | | | 390 / 177 | 461 / 209 | 515 / 234 | 600 / 272 | | | |
| 6 / 150 | | 205 / 93 | 225 / 102 | 200 / 91 | 210 / 95 | 235 / 107 | 350 / 159 | 423 / 192 | 465 / 211 | 537 / 244 |
| 8 x 6 / 200 x 150 | | ---- | ---- | 600 / 272 | 571 / 259 | 625 / 284 | 680 / 308 | ---- | ---- | ---- |
| 12 x 6 / 300 x 150 | | | | 1160 / 526 | 994 / 451 | 1102 / 500 | 1590 / 721 | | | |
| 8 / 200 | ---- | | | 635 / 288 | 685 / 310 | 790 / 358 | | | | |

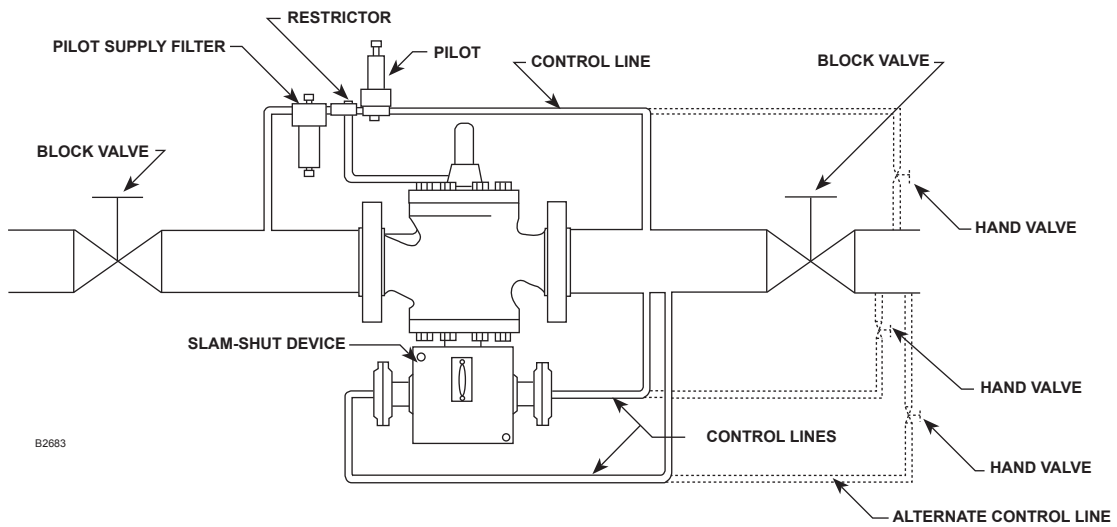
1. Add an additional 15 lbs / 7 kg to get the weight with a 161AY Series pilot.
2. Add an additional 5 lbs / 2 kg to get the weight of PRX Series pilot.



**11A—Overpressure and Underpressure Shutoff Using One Manometric Device
(This Application Might Require Two Manometric Devices As Shown In Figure 11C)**

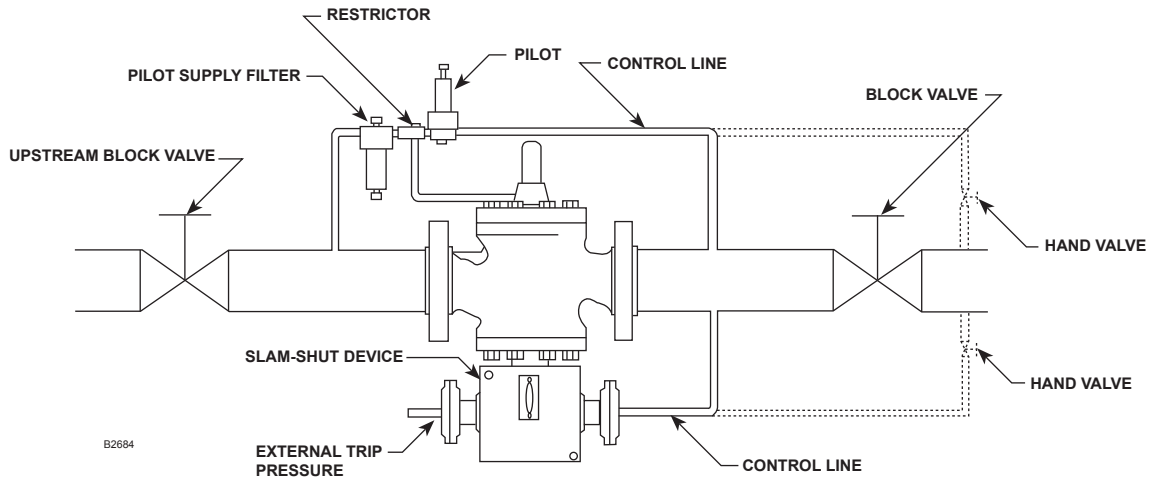


11B—Minimum and Maximum Upstream and Downstream Pressure

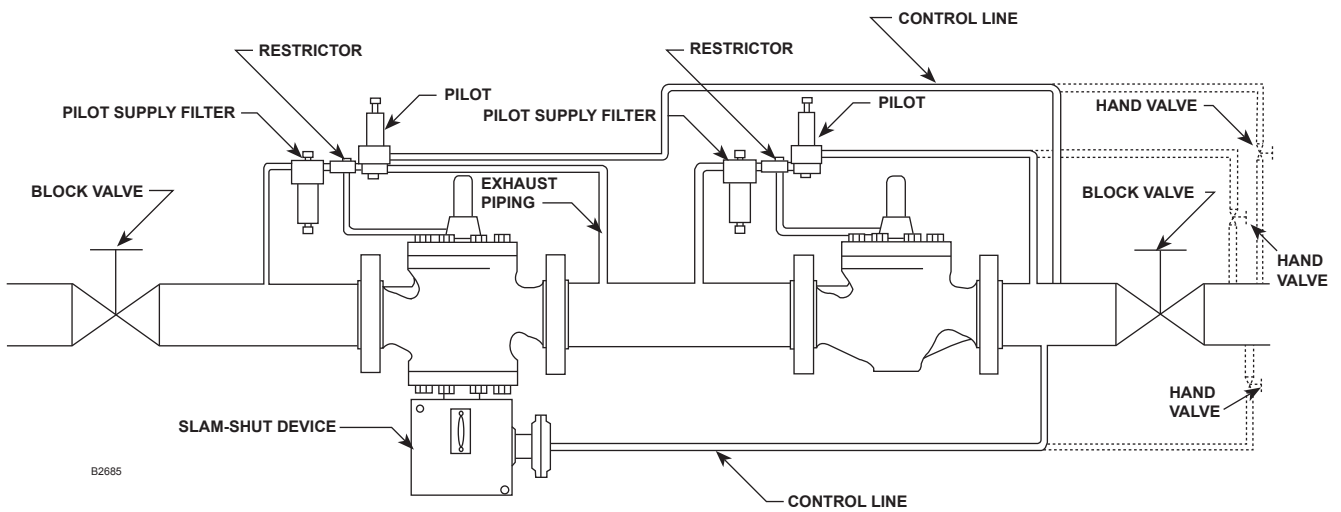


11C—Overpressure and Underpressure Shutoff Using Separate Manometric Devices

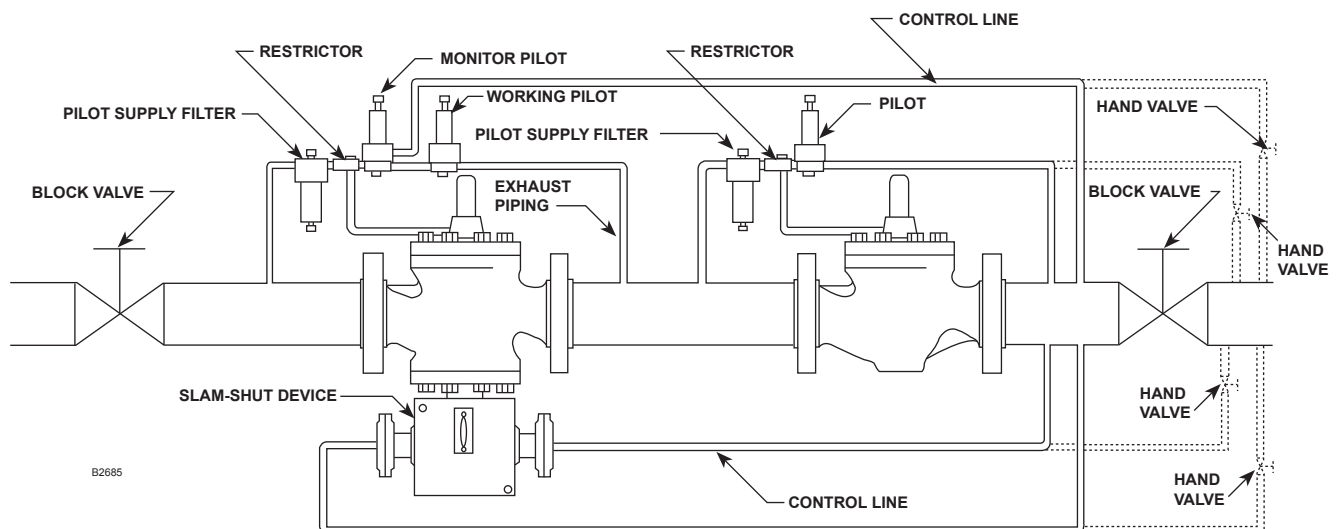
Figure 11. Type EZROSX with Integral Slam-Shut Device Installation Schematics



13D—External Signal



11E—Wide-Open Monitoring System with Slam-Shut Device for Overpressure and Underpressure Shutoff Using One Manometric Device (This Application Might Require Two Manometric Devices As Shown In Figure 11F)



11F—Working Monitoring System with Slam-Shut Device for Overpressure and Underpressure Shutoff Using Two Manometric Devices (This Application Might Only Require One Manometric Device As Shown In Figure 11E)

Figure 11. Type EZROX with Integral Slam-Shut Device Installation Schematics (continued)

EZR Series

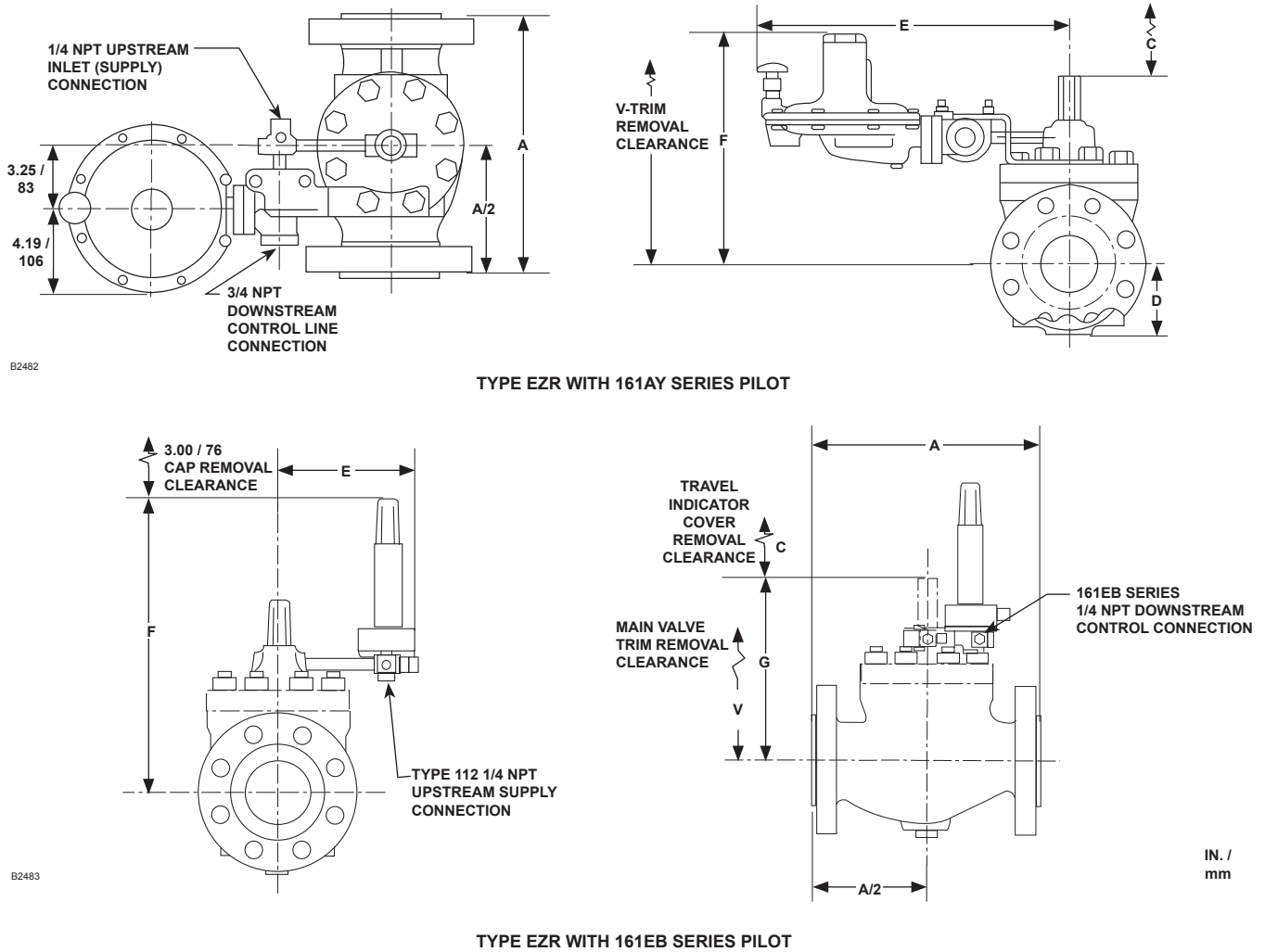
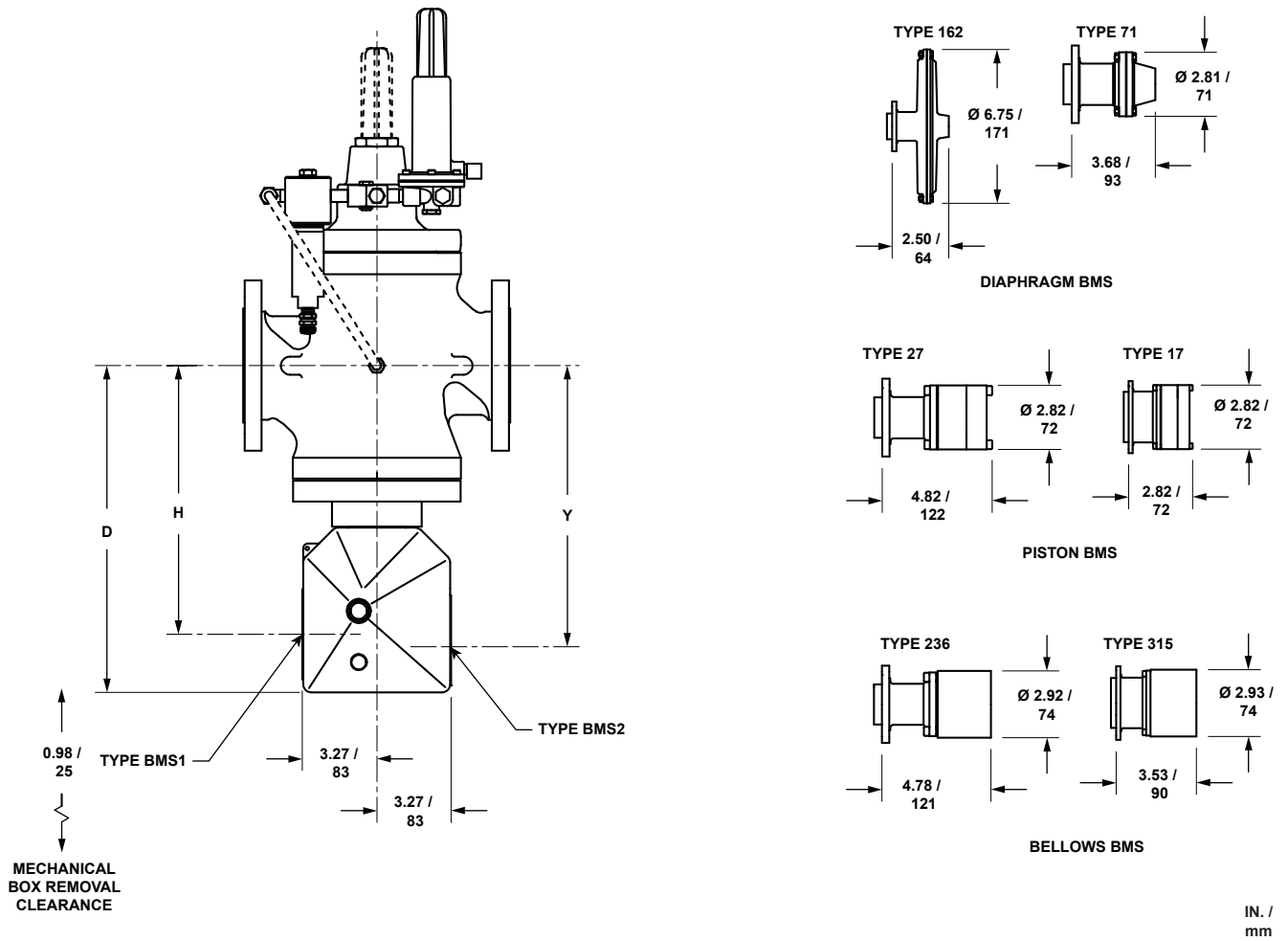


Figure 12. Typical EZR Dimensions

Table 19. Typical EZR Dimensions

| BODY SIZE, In. / DN | DIMENSIONS, In. / mm | | | | | | | | | | | | | |
|------------------------|----------------------|-------------|-------------|-------------|-----------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|------------|
| | A | | | | | E | | | F | | | G | V | |
| | SWE NPT | 125FF 150RF | 250RF 300RF | 600RF BWE | C | D | 161AY | 161EB | PRX | 161AY | 161EB | | | PRX |
| 1, 1-1/4 / 25, 32 | 8.25 / 210 | 7.25 / 184 | 7.75 / 197 | 8.25 / 210 | 2 / 51 | 2.5 / 64 | 15.7 / 399 | 6.23 / 158 | 6.54 / 6.54 | 10.1 / 257 | 12.67 / 322 | 10.89 / 276 | 8.67 / 220 | 8 / 203 |
| 2, 2 X 1 / 50, 50 X 25 | 11.25 / 286 | 10 / 254 | 10.5 / 267 | 11.25 / 286 | 2 / 51 | 3.06 / 78 | 15.8 / 401 | 6.6 / 168 | 7.2 / 183 | 10.17 / 258 | 12.96 / 329 | 11.13 / 283 | 8.9 / 226 | 11 / 279 |
| 3 / 80 | ---- | 11.75 / 298 | 12.5 / 317 | 13.25 / 337 | 3.8 / 96 | 3.81 / 97 | 16.3 / 414 | 7.54 / 191 | 8.21 / 208 | 11.37 / 289 | 14.99 / 381 | 13.6 / 334 | 12.58 / 319 | 19.5 / 495 |
| 4 / 100 | ---- | 13.88 / 353 | 14.5 / 368 | 15.5 / 394 | 3.8 / 96 | 5.06 / 129 | 16.7 / 424 | 7.38 / 187 | 8.68 / 220 | 12.75 / 324 | 16.55 / 420 | 14.53 / 369 | 14.72 / 374 | 20.7 / 526 |
| 6 X 4 / 150 X 100 | ---- | 17.75 / 451 | 18.62 / 473 | 20 / 508 | 3.8 / 96 | 5.31 / 135 | 16.7 / 424 | 8.96 / 228 | 8.68 / 220 | 15.3 / 387 | 17.87 / 454 | 14.53 / 369 | 15.75 / 400 | 21.6 / 549 |
| 8 X 4 / 200 X 100 | ---- | 21.38 / 543 | 22.38 / 568 | 24 / 610 | 3.8 / 96 | 6.94 / 176 | 16.7 / 424 | 8.96 / 228 | 8.68 / 220 | 15.3 / 387 | 17.93 / 455 | 14.53 / 369 | 15.82 / 402 | 21.6 / 549 |
| 6 / 150 | ---- | 17.75 / 451 | 18.62 / 473 | 20 / 508 | 3.8 / 96 | 5.31 / 135 | 19.1 / 485 | 9.86 / 250 | 10.6 / 269 | 15.2 / 386 | 17.78 / 451 | 16.49 / 419 | 16.49 / 419 | 22.8 / 579 |
| 8 X 6 / 200 X 150 | ---- | 21.38 / 543 | 22.38 / 568 | 24 / 610 | 3.8 / 96 | 7.2 / 183 | 19.1 / 485 | 9.86 / 250 | 10.6 / 269 | 16.6 / 422 | 18.6 / 471 | 16.49 / 419 | 16.6 / 422 | 25.9 / 658 |
| 12 X 6 / 300 X 150 | ---- | 29 / 737 | 30.5 / 775 | 32.25 / 819 | 3.8 / 96 | 10 / 254 | 19.1 / 485 | 9.86 / 250 | 10.6 / 269 | 19.3 / 490 | 18.6 / 471 | 16.49 / 419 | 19.3 / 490 | 29 / 737 |
| 8 / 200 | ---- | 21.38 / 543 | 22.38 / 568 | 24 / 610 | 4.5 / 114 | 8.25 / 210 | 20.5 / 521 | 14.5 / 368 | 13.79 / 349 | 16.5 / 419 | 23.5 / 597 | 15.44 / 392 | 20.6 / 522 | 27 / 686 |



19B8970

TYPE EZROX WITH 161AY SERIES PILOTS AND TYPE 252 FILTER

Figure 13. Typical EZROX Dimensions

Table 20. Typical EZROX Dimensions

| BODY SIZE, In. / DN | DIMENSION, In. / mm | | |
|------------------------|---------------------|-------------|-------------|
| | H | D | Y |
| 1 / 25 | 9.78 / 248 | 12.34 / 313 | 10.33 / 262 |
| 2, 2 X 1 / 50, 50 X 25 | 10.39 / 264 | 12.95 / 329 | 10.94 / 278 |
| 3 / 80 | 11.78 / 299 | 14.34 / 364 | 12.33 / 313 |
| 4 / 100 | 13.5 / 343 | 16.06 / 408 | 14.05 / 357 |
| 6 / 150 | 12.99 / 330 | 15.55 / 395 | 13.54 / 344 |

EZR Series

Ordering Information

The precision slotted cage of the EZR Series regulator offers superior noise attenuation. For a standard installation, as well as to obtain a noise prediction for your installation and service conditions, please complete the specifications worksheet at the bottom of the ordering guide on page 32.

Carefully review each specification, then complete the Ordering Guide on pages 30 and 31. If a pilot setpoint is not requested, the regulator will be factory set at the approximate midrange.

Type EZR Ordering Guide

Type (Select One)

- EZR
- EZROX (with slam shut)

Body Size (Select)

- NPS 1 / DN 25 (Available in steel only)***
- NPS 1-1/4 x 1 / DN 32 x 25 (Available in NPT steel only)***
- NPS 2 / DN 50***
- NPS 2 x 1 / DN 50 x 25***
- NPS 3 / DN 80***
- NPS 4 / DN 100***
- NPS 6 x 4 / DN 150 x 100***
- NPS 8 x 4 / DN 200 x 100***
- NPS 6 / DN 150***
- NPS 8 x 6 / DN 200 x 150***
- NPS 12 x 6 / DN 300 x 150***
- NPS 8 / DN 200***

Body Material and End Connection Style (Select One)

(NPS 8 / DN 200 size available only in LCC steel CL150, CL300 or CL600 RF)

Cast Iron Body

- NPT (Available in NPS 2 or 2 x 1 / DN 50 or 50 x 25 only)***
- CL125 FF***
- CL250 RF***

WCC or LCC Steel Body

- NPT (Available in NPS 1, 1-1/4 x 1, 2 x 1 or 2 / DN 25, 32 x 25, 50 x 25 or 50 only)***
- CL150 RF***
- CL300 RF***
- CL600 RF***
- SWE (Available in NPS 1, 2 x 1 or 2 / DN 25, 50 x 25 or 50 only)*
- BWE 40**
- BWE 80*
- PN 16/25/40* _____ specify

Main Valve Diaphragm Material (Select One)

- 17E68 Nitrile (NBR) (low temperature) (Not available on NPS 6 or 8 / DN 150 or 200 size)***
- 17E97 Nitrile (NBR) (high-pressure/erosion resistance)***
- 17E88 Fluorocarbon (FKM) (high aromatic hydrocarbons) (Not available on NPS 8 / DN 200 size)**

Cage, Percent of Full Capacity (Select One)

- 100 percent (standard)***
- 60 percent (Not available on 8 / DN 200 size)***
- 30 percent (Not available on 8 / DN 200 size)***

Main Valve O-ring Material (Select One)

- Nitrile (NBR) (standard)***
- Fluorocarbon (FKM)**

Main Valve Main Spring (See Table 7 for Maximum Inlet Rating) (Select One)

NPS 1, 1-1/4 or 2 x 1 / DN 25 or 50 x 25 Main Valve

- Light Blue***
- Black***
- Black with white stripe***
- Red Stripe***

NPS 2 / DN 50 Main Valve

- Yellow***
- Green***
- Red***
- Purple

NPS 3 / DN 80 Main Valve

- Yellow***
- Light Blue***
- Black***

NPS 4, 6 x 4 or 8 x 4 / DN 100, 200 x 150 or 300 x 150 Main Valve

- Yellow***
- Green***
- Red***

NPS 6, 8 x 6 or 12 x 6 / DN 150, 200 x 150 or 300 x 150 Main Valve

- Yellow***
- Green***
- Red***

NPS 8 / DN 200 Main Valve

- Yellow***
- Green***
- Red***

Travel Indicator (Select One)

- No (standard)***
- Yes***

Type EZR Ordering Guide (continued)

Inlet Strainer (Select One)

- No (**standard**)***
- Yes***

Inlet Body Tap (Select One)

- Inlet body tap only (**standard**)***
- Inlet body tap with pre-piped pilot supply***
- Inlet/outlet body taps only***
- Inlet/outlet body taps with pre-piped pilot supply and pilot bleed***

Pilot Diaphragm Material (Select One)

- Nitrile (NBR) (**standard**)***
- Fluorocarbon (FKM)**

Pilot O-ring Material (Select One)

- Nitrile (NBR) (**standard**)***
- Fluorocarbon (FKM)***

Pilot Valve Plug Material (Select One)

- Nitrile (NBR) (**standard**)***
- Fluorocarbon (FKM)***

Pilot Type and Outlet Pressure Range (Select One)

Type 161AY

- 6 to 15 in. w.c. / 15 to 37 mbar, Olive Drab***
- 0.5 to 1.2 psig / 0.03 to 0.08 bar, Yellow***
- 1.2 to 2.5 psig / 0.08 to 0.17 bar, Light Green***
- 2.5 to 4.5 psig / 0.17 to 0.31 bar, Light Blue***
- 4.5 to 7 psig / 0.31 to 0.48 bar, Black***

Type 161AYM

- 6 to 15 in. w.c. / 15 to 37 mbar, Olive Drab***
- 0.5 to 1.2 psig / 0.03 to 0.08 bar, Yellow***
- 1.2 to 2.5 psig / 0.08 to 0.17 bar, Light Green***
- 2.5 to 4.5 psig / 0.17 to 0.31 bar, Light Blue***
- 4.5 to 7 psig / 0.31 to 0.48 bar, Black***

Type 161EB

- 5 to 15 psig / 0.34 to 1.0 bar, White***
- 10 to 40 psig / 0.69 to 2.8 bar, Yellow***
- 30 to 75 psig / 2.1 to 5.2 bar, Black***
- 70 to 140 psig / 4.8 to 9.7 bar, Green***
- 130 to 200 psig / 9.0 to 13.8 bar, Blue***
- 30 to 300 psig / 2.1 to 20.7 bar, Green***
(intermediate reduction pilot on the Type EZR worker/monitor systems)
- 200 to 350 psig / 13.8 to 24.1 bar, Red***

Type 161EBM

- 5 to 15 psig / 0.34 to 1.0 bar, White***
- 10 to 40 psig / 0.69 to 2.8 bar, Yellow***
- 30 to 75 psig / 2.1 to 5.2 bar, Black***
- 70 to 140 psig / 4.8 to 9.7 bar, Green***
- 130 to 200 psig / 9.0 to 13.8 bar, Blue***
- 200 to 350 psig / 13.8 to 24.1 bar, Red***

Type PRX120/125

- 14.5 to 26 psig / 1.00 to 1.8 bar, Yellow***
- 23 to 44 psig / 1.6 to 3.0 bar, Green***
- 41 to 80 psig / 2.8 to 5.5 bar, Blue***
- 73 to 123 psig / 5.0 to 8 bar, Black***
- 116 to 210 psig / 8 to 14 bar, Silver***
- 203 to 334 psig / 14 to 23 bar, Gold***
- 319 to 435 psig / 22 to 30 bar, Aluminum***

Type PRX120/125-AP

- 435 to 1000 psig / 30 to 69 bar, Clear***

Type 252 Pilot Supply Filter (Optional)

Material

- Stainless steel***
- Aluminum**

Length

- Standard***
- Extended**

Drain Valve

- Yes***
- No**

Conversion Trim Package (Optional, Not available for NPS 8 / DN 200 size)

- Yes, send one conversion trim package. (If ordering replacement trim package for change-out of existing E-body to a Type EZR, be sure to mark selection of the following items on this page: body size, diaphragm material, inlet strainer option and travel indicator option desired.)

Main Valve Replacement Parts Kit (Optional)

- Yes, send one diaphragm cartridge and O-rings kit to match this order.
- Yes, send one diaphragm and O-rings kit to match this order.

Pilot Replacement Parts Kit (Optional)

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

Wireless Position Monitor Mounting Kit (Optional)

- Yes, send one mounting kit for mounting the Topworx 4310 or the Fisher™ 4320 wireless position monitor (requires Travel Indicator option)

EZR Series

Type EZR 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

Application (Please designate units):
 Specific Use _____
 Line Size _____
 Gas Type and Specific Gravity _____
 Gas Temperature _____
 Does the Application Require Overpressure Protection?
 Yes No If yes, which is preferred:
 Relief Valve Monitor Regulator Shutoff Device
 Is overpressure protection equipment selection assistance desired? _____

Pressure:
 Maximum Inlet Pressure (P_{1max}) _____
 Minimum Inlet Pressure (P_{1min}) _____
 Downstream Pressure Setting(s) (P_2) _____
 Maximum Flow (Q_{max}) _____

Performance Required:
 Accuracy Requirements? _____
 Need for Extremely Fast Response? _____

Other Requirements: _____

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