

# Natural Gas Technologies

## Solutions for the Natural Gas Industry







**TARTARINI™      FISHER™**

Natural gas pressure regulating and metering stations. Pressure regulators, slam-shut valves, relief valves and accessories. Remote control equipment. Engineering, adaptation of existing installations to meet current standard requirements. Theoretical and practical training.

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### Introduction

The FL Series regulators are accurate pilot-operated, pressure balanced, soft seated regulators designed for high-pressure transmission/city gate, large capacity distribution systems, and power plant feeds.

The FL Series provides smooth and quiet operation, tight shutoff, and long life.

The FL Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

#### Type FL:

High Pressure Regulator or Monitor

#### Type MFL:

High Pressure Regulator + Monitor

#### Type BFL:

High Pressure Regulator + Shutoff

All FL type regulators are available with or without:

**Type SR / SRII:** Silencer

**Type SRS / SRSII:** Silencer with widened outlet flange

A widened outlet version without built-in silencer is also available.

### Body Sizes

#### FL Series:

DN 25, 40, 50, 65, 80, 100, 150\*, 200\*, and 250\*  
(NPS 1, 1-1/2, 2, 2-1/2, 3, 4, 6\*, 8\*, and 10\*)

#### FL Series with Type SRS / SRSII Silencer or Widened Outlet:

DN 25 x 100, 40 x 150, 50 x 150, 65 x 200, 80 x 250, 100 x 250, 150 x 300\*, and 200 x 400\*  
(NPS 1 x 4, 1-1/2 x 6, 2 x 6, 2-1/2 x 8, 3 x 10, 4 x 10, 6 x 12\*, and 8 x 16\*)

\* These sizes are not available in MFL and BFL configurations.

### End Connection Styles

CL300, and CL600

### Inlet Pressure Ranges

Allowable Pressure: Up to 100 bar

Inlet Pressure Range: 1 to 100 bar

### Outlet Pressure Range

0.5 to 80 bar

### Minimum Operating Differential Pressure

0.5 bar

### Accuracy Class

Up to  $\pm 1\%$

### Lock-Up Pressure Class

Up to +5%

### Class of Lock-Up Pressure Zone

Up to 5%

### Built-In Shutoff Valve

Independent Pneumatic Control

Manual Reset

Accuracy Group: Up to  $\pm 1\%$

Response Time:  $\leq 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

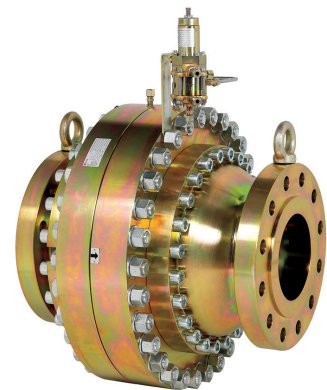
Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

### Approximate Weights (Including Pilot)

31 to 1190 kg

### Features

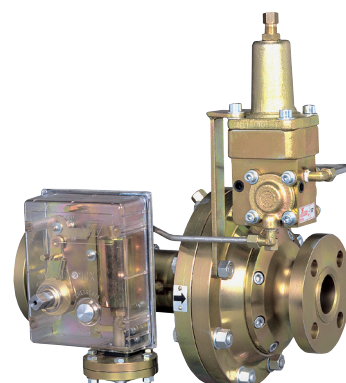
- No Atmospheric Bleed
- Quiet Operation
- Control Accuracy
- Versatility
- Easy In-Line Maintenance
- Tight Shutoff
- High Capacity
- In-Service Travel Indicator



TYPE FL



TYPE MFL



TYPE BFL

### Introduction

The FL-BP Series regulators are accurate pilot-operated, pressure balanced, soft seated regulators designed for low-pressure transmission/city gate, large capacity distribution systems, and power plant feeds.

The FL-BP Series provides smooth and quiet operation, tight shutoff, and long life.

The FL-BP Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

#### Type FL-BP:

Low Pressure Regulator or Monitor

#### Type MFL-BP:

Low Pressure Regulator + Monitor

#### Type BFL-BP:

Low Pressure Regulator + Shutoff

All FL-BP type regulators are available with or without:

**Type SR:** Silencer

**Type SRS:** Silencer with widened outlet flange

A widened outlet version without built-in silencer is also available.

### Body Sizes

#### FL-BP Series:

DN 25, 40, 50, 65, 80, 100, 150\*  
(NPS 1, 1-1/2, 2, 2-1/2, 3, 4, 6\*)

#### FL-BP Series with Type SRS Silencer or Widened Outlet:

DN 25 x 100, 40 x 150, 50 x 150, 65 x 200, 80 x 250, 100 x 250, and 150 x 300\*  
(NPS 1 x 4, 1-1/2 x 6, 2 x 6, 2-1/2 x 8, 3 x 10, 4 x 10, and 6 x 12\*)

\* These sizes are not available in MFL and BFL configurations.

### End Connection Styles

PN 16, 25 / CL150

### Inlet Pressure Ranges

Allowable Pressure: Up to 25 bar

Inlet Pressure Range: 0.2 to 25 bar

### Outlet Pressure Range

0.01 to 8 bar

### Minimum Operating Differential Pressure

0.2 bar

### Accuracy Class

Up to  $\pm 1\%$

### Lock-Up Pressure Class

Up to +5%

### Class of Lock-Up Pressure Zone

Up to 5%

### Built-In Shutoff Valve

Independent Pneumatic Control

Manual Reset

Accuracy Group: Up to  $\pm 1\%$

Response Time:  $\leq 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

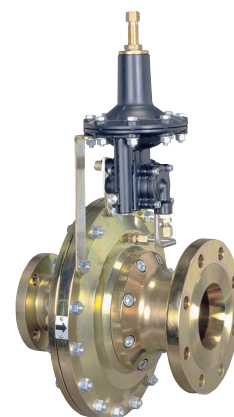
Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

### Approximate Weights (Including Pilot)

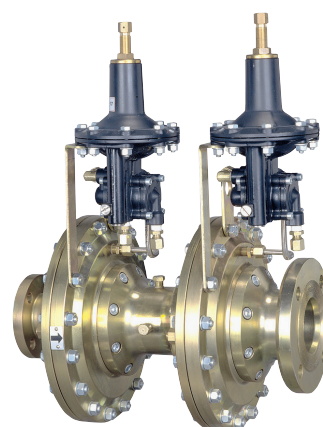
24 to 380 kg

### Features

- No Atmospheric Bleed
- Quiet Operation
- Control Accuracy
- Versatility
- Easy In-Line Maintenance
- Tight Shutoff
- High Capacity
- In-Service Travel Indicator



TYPE FL-BP



TYPE MFL-BP



TYPE BFL-BP

## Introduction

The FL-FR Series regulators are accurate pilot-operated, pressure balanced, soft seated regulators designed for high-pressure transmission/city gate, large capacity distribution systems, and power plant feeds.

The FL-FR Series provides smooth and quiet operation, tight shutoff, and long life.

The FL-FR Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

## Available Configurations

### Type FL-FR-BP:

Low Pressure Regulator or Monitor

### Type FL-FR-HP:

High Pressure Regulator or Monitor

### Type MFL-FR-BP:

Low Pressure Regulator + Monitor

### Type MFL-FR-HP:

High Pressure Regulator + Monitor

All FL-FR type regulators are available with or without:

**Type SR / SRII:** Silencer

**Type SRS / SRSII:** Silencer with widened outlet flange

A widened outlet version without built-in silencer is also available.

## Body Sizes

### FL-FR Series:

DN 25, 50, 80, 100, 150\*, 200\*, and 250\* (NPS 1, 2, 3, 4, 6\*, 8\*, and 10\*)

### FL-FR Series with Type SRS / SRSII Silencer or Widened Outlet:

DN 25 x 100, 50 x 150, 80 x 250, 100 x 250, 150 x 300\*, and 200 x 400\* (NPS 1 x 4, 2 x 6, 3 x 10, 4 x 10, 6 x 12\*, and 8 x 16\*)

\* These sizes are not available in MFL-FR configurations. DN 200 BP and DN 250 BP versions are not available.

## End Connection Styles

**FL-FR-BP:** PN 16, 25 / CL150

**FL-FR-HP:** CL300, and CL600

## Inlet Pressure Ranges

### FL-FR-BP:

Allowable Pressure: Up to 25 bar

Inlet Pressure Range: 0.2 to 25 bar

### FL-FR-HP:

Allowable Pressure: Up to 100 bar

Inlet Pressure Range: 1 to 100 bar

## Outlet Pressure Range

**FL-FR-BP:** 0.01 to 8 bar

**FL-FR-HP:** 0.5 to 80 bar

## Minimum Operating Differential Pressure

**FL-FR-BP:** 0.2 bar

**FL-FR-HP:** 0.5 bar

## Accuracy Class

Up to  $\pm 1\%$

## Lock-Up Pressure Class

Up to +5%

## Class of Lock-Up Pressure Zone

Up to 5%

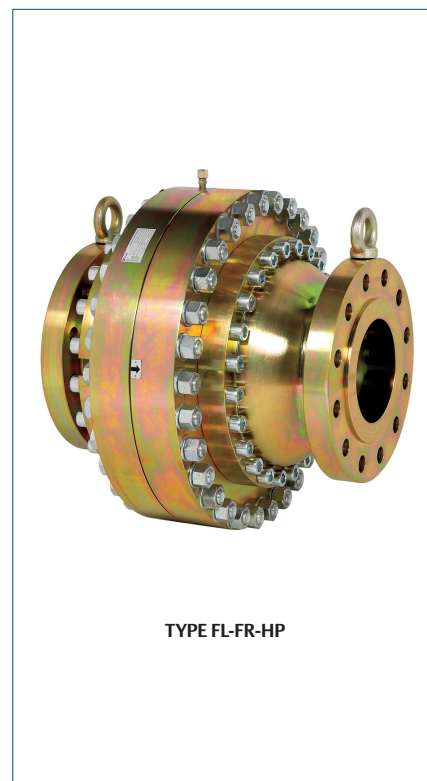
## Temperature Capabilities

Working: -20° to 60°C

## Approximate Weights (Including Pilot)

**FL-FR-BP:** 24 to 380 kg

**FL-FR-HP:** 31 to 1190 kg



TYPE FL-FR-HP

## Features

- No Atmospheric Bleed
- Quiet Operation
- Control Accuracy
- Versatility
- Easy In-Line Maintenance
- Tight Shutoff
- High Capacity

### Introduction

The Cronos Series regulators are accurate pilot-operated, pressure balanced, soft seated regulators designed for high pressure transmission/city gate stations, large capacity distribution systems, and power plant feeds.

They provide smooth and quiet operation, tight shutoff and long life. The regulator utilizes a main valve actuator, a type PRX pressure reducing pilot with a type SA/2 pilot supply regulator or a type PS pressure reducing pilot.

The Cronos Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

- Type C:** Regulator  
**Type CB:** Regulator + Shutoff  
**Type CC:** Regulator + Monitor  
**Type CCB:** Regulator + Monitor + Shutoff  
**Type CBS:** 90° Flow Regulator + Shutoff  
**Type CCS:** 90° Flow Regulator + Monitor  
**Type CCBS:** 90° Flow Regulator + Monitor + Shutoff

All Cronos type regulators are available with or without:

- Type SR:** Silencer  
**Type SRS:** Silencer with widened outlet flange

A widened outlet version without built-in silencer is also available.

### Body Sizes

#### Cronos Series:

DN 25, 50, and 80 (NPS 1, 2, and 3)

#### Cronos Series with Type SRS Silencer or Widened Outlet:

DN 25 x 100, 50 x 150, and 80 x 250 (NPS 1 x 4, 2 x 6, and 3 x 10)

### End Connection Styles

PN 16, 25, 40 / CL150, CL300, and CL600

### Inlet Pressure Ranges

#### Flange Rating PN 16 / CL150:

Allowable Pressure: Up to 20 bar

Inlet Pressure Range: 0.2 to 20 bar

#### Flange Rating PN 25, 40 / CL300, CL600:

Allowable Pressure: Up to 100 bar

Inlet Pressure Range: 1 to 100 bar

### Outlet Pressure Ranges

#### Flange Rating PN 16 / CL150:

0.01 to 16 bar

#### Flange Rating PN 25, 40 / CL300, CL600:

0.5 to 80 bar

### Minimum Operating Differential Pressures

#### Flange Rating PN 16 / CL150:

0.2 bar

#### Flange Rating PN 25, 40 / CL300, CL600:

0.5 bar

### Accuracy Class

Up to  $\pm 1\%$

### Lock-Up Pressure Class

Up to  $+5\%$

### Class of Lock-Up Pressure Zone

Up to 5%

### Built-In Shutoff Valve

Independent Pneumatic Control

Manual Reset

Accuracy Group: Up to  $\pm 1\%$

Response Time:  $\leq 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

### Approximate Weights (Including Pilot)

36 to 427 kg



TYPE CCB-SRS



TYPE CCBS

### Features

- Control Accuracy
- Versatility
- Tight Shutoff
- No Atmospheric Bleed
- High Capacity
- In Service Travel Indicator
- Silencer Options

## Introduction

The Cronos-FR Series regulators are accurate pilot-operated, pressure balanced, soft seated regulators designed for high pressure transmission/city gate stations, large capacity distribution systems and power plant feeds.

They provide smooth and quiet operation, tight shutoff and long life.

The regulator utilizes a main valve actuator, and a Compact Pilot system.

The Cronos-FR Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

## Available Configurations

**Type C-FR:** Regulator

**Type CB-FR:** Regulator + Shutoff

**Type CC-FR:** Regulator + Monitor

All Cronos-FR type regulators are available with or without:

**Type SR:** Silencer

**Type SRS:** Silencer with widened outlet flange

## Body Sizes

**Cronos-FR Series:**

DN 25, 50, and 80  
(NPS 1, 2, and 3)

**Cronos-FR Series with Type SRS Silencer:**

DN 25 x 100, 50 x 150, and 80 x 250  
(NPS 1 x 4, 2 x 6, and 3 x 10)

## End Connection Style

PN 25

## Inlet Pressure

Allowable Pressure: 25 bar

Inlet Pressure Range: 0.8 to 25 bar

## Outlet Pressure Range

0.01 to 16 bar

## Minimum Operating Differential Pressure

1 bar

## Maximum Operating Differential Pressure

24 bar

## Accuracy Class

Up to  $\pm 1\%$

## Lock-Up Pressure Class

Up to  $+5\%$

## Class of Lock-Up Pressure Zone

Up to 5%

## Built-In Shutoff Valve

Independent Pneumatic Control

Manual Reset

Accuracy Group: Up to  $\pm 2,5\%$

Response Time:  $\leq 1$  s

## Temperature Capabilities

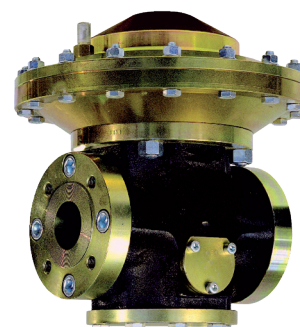
Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

## Approximate Weights (Including Pilot)

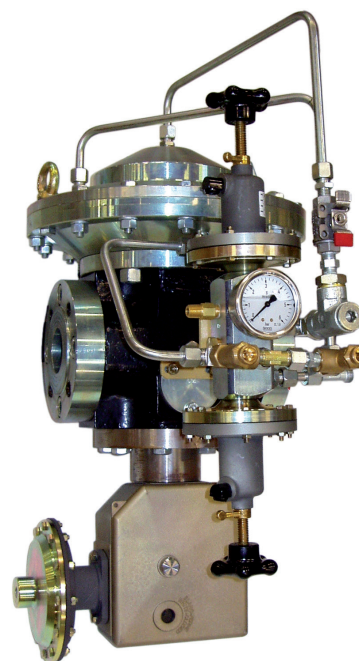
36 to 213 kg

## Features

- Control Accuracy
- Versatility
- Tight Shutoff
- No Atmospheric Bleed
- High Capacity
- In Service Travel Indicator
- Silencer Options



TYPE C-FR



TYPE CB-FR

# EZH and EZHSO Series

## Pilot-Operated Pressure Reducing Regulators

FISHER™

### Introduction

Type EZH and EZHSO series regulators are accurate pilot-operated, pressure balanced, soft-seated regulators.

They are designed for use in high pressure natural gas transmission/city gate stations, large capacity distribution systems, and power plant feeds.

They provide smooth and reliable operation, tight shutoff and long life.

The EZH and EZHSO Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV.

### Available Configurations

#### Type EZH:

Spring-to-Close pilot-operated pressure reducing regulator for low to high outlet pressure

#### Type EZH-OS2:

Type EZH pressure reducing regulator with an OS2 slam-shut device for overpressure or overpressure and underpressure protection

#### Type EZHSO:

Spring-to-Open pilot-operated pressure reducing regulator for low to high outlet pressure

#### Type EZHSO-OS2:

Type EZHSO pressure reducing regulator with an OS2 slam-shut device for overpressure or overpressure and underpressure protection

### Body Sizes

DN 25, 50, 80, and 100 (NPS 1, 2, 3, and 4)

### End Connection Styles

PN 16 B, 25 B, 40 B  
CL150, CL300 and CL600

### Inlet Pressure Ranges

Allowable Pressure: Up to 100 bar  
Inlet Pressure Range: 1 to 100 bar

### Outlet Pressure Range

1 to 80 bar

### Minimum Operating Differential Pressures

Type EZH: 1 bar

Type EZHSO: 3.8 bar

### Maximum Operating Differential Pressures

Type EZH: 99 bar

Type EZHSO: 96.2 bar

### Temperature Capabilities

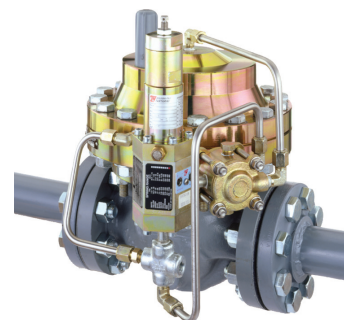
Working: -20° to 60°C

### Approximate Weights (Including Pilot)

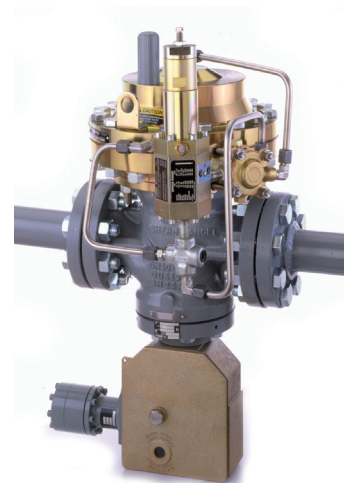
36 to 263 kg

### Features

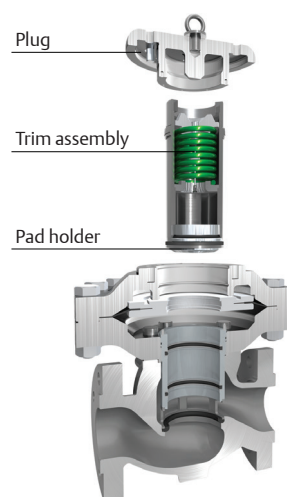
- Long Life in Severe Service Applications
- High Resistance to Aromatics and Particle Erosion
- Noise Attenuation Module (optional)
- High Turn Down Capacity for Systems with Large Variations in Downstream Flow Demand
- Absolutely No Bleed to Atmosphere
- Wide Range of Flow Coefficients for each Body Size
- Bubble Tight Shutoff
- Accurate Pressure Control
- Low Temperature Standard Version
- Integral Strength
- Easy Maintenance System for DN 100 Size
- Spring-to-Close and Spring-to-Open Versions



TYPE EZH



TYPE EZH-OS2



PATENTED FOR DN 100  
EASY MAINTENANCE SYSTEM

## Introduction

The type 971 regulators feature simple seat and counterbalanced valve.

The “top entry” design allows easy maintenance operations without disassembling the regulator from the line.

They assure high accuracy of the regulated pressure even when the inlet pressure is extremely variable.

The 971 type is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category III.

## Available Configurations

**Type 971:** Regulator

**Type 971-E:** Monitor

The type 971 regulator is available with type SR silencer.

## Body Size

DN 250 (NPS 10)

## End Connection Styles

CL300, CL600

## Inlet Pressure Ranges

Allowable Pressure: Up to 100 bar

Inlet Pressure Range: 1 to 100 bar

## Outlet Pressure Range

0.5 to 70 bar

## Minimum Operating Differential Pressure

0.5 bar

## Accuracy Class

Up to  $\pm 1\%$

## Lock-Up Pressure Class

Up to +5%

## Class of Lock-Up Pressure Zone

Up to 5%

## Temperature Capabilities

### Standard Version:

Working: -10° to 60°C

### Low Temperature Version:

Working: -20° to 60°C

### Approximate Weight (Including Pilot)

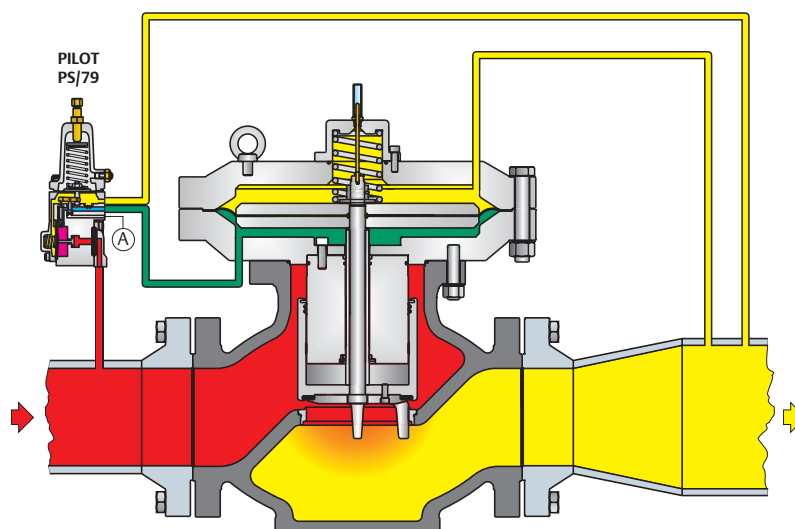
1700 kg



TYPE 971

## Features

- Accuracy Maintained with Variable Inlet Pressure
- Easy Set-point Adjustment
- High Versatility for Different Applications



TYPE 971 OPERATIONAL SCHEMATIC

### LEGEND

■ INLET PRESSURE

■ LOADING PRESSURE

■ OUTLET PRESSURE

Ⓐ DOWNSTREAM OR TO A SAFE AREA

### Introduction

The type EZR pilot-operated, pressure reducing regulator designed to give accurate, smooth, quiet operation, tight shut-off, and long life, even in dirty service.

It is also available with a slam-shut device, the type EZR-OS2, which can provide either overpressure protection or overpressure and underpressure protection by completely shutting off the flow of gas to the downstream system.

The EZR Series can be installed in various natural gas applications such as transmission/distribution systems, industrial and commercial facilities.

The EZR Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

#### Type EZR (Boot Style):

Pilot-operated pressure reducing regulator for low to high outlet pressure

#### Type EZR-OS2:

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

### Temperature Capabilities

-17° to 66°C

### Approximate Weights (Including Pilot)

#### Type EZR:

12 to 161 kg

#### Type EZR-OS2:

20 to 244 kg

### Features

- Tight Shutoff
- Versatility
- Easily Maintained Pilots
- Full Usable Capacity
- Easy Maintenance
- High Accuracy Pressure Control



TYPE EZR-OS2

### Body Sizes

DN 25, 50, 80, 100, and 150  
(NPS 1, 2, 3, 4, and 6)

### End Connection Styles

PN 16 B, 25 B, 40 B  
CL150, CL300, and CL600

### Maximum Operating Inlet Pressure

72.4 bar

### Maximum Operating Differential Pressure

55.2 bar

### Minimum Operating Differential Pressure

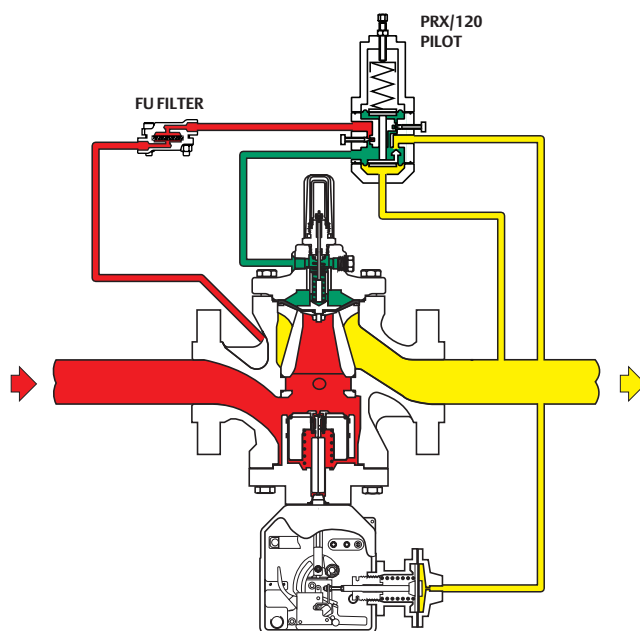
3 bar

### Outlet Pressure Range

10 mbar to 69 bar

### Pressure Registration

External



TYPE EZR-OS2 OPERATIONAL SCHEMATIC

#### LEGEND

■ INLET PRESSURE    ■ LOADING PRESSURE    ■ OUTLET PRESSURE

### Introduction

The PS Series pilots are mainly used in natural gas applications. All PS Series pilots are supplied with a filter (5μ filtering degree) and built-in pressure stabilizer, with the exception of pilots types PSO/79 and PSO/80.

The PS and RE Series pilots can be installed in the following equipment:

- FL Series
- Cronos Series
- Type 971

### Available Configurations

#### High-Pressure Pilot Range

**Type PS/79:** Single diaphragm pilot for pressure regulator (active or wide-open monitor)

**Type PSO/79:** Single diaphragm pilot for setting of first pressure-reducing step (upstream) of pressure regulator (working monitor)

**Type REO/79:** Single diaphragm pilot for setting of second pressure-reducing step (downstream) of pressure regulator (working monitor)

**Type PS/80:** Double diaphragm pilot for pressure regulator (active or wide-open monitor)

**Type PSO/80:** Double diaphragm pilot for setting of first pressure-reducing step (upstream) of pressure regulator (working monitor)

**Type REO/80:** Double diaphragm pilot for setting of second pressure-reducing step (downstream) of pressure regulator (working monitor)

#### Low-Pressure Pilot Range

**Type PS/79-1:** Single diaphragm pilot for pressure regulator (0.01 - 0.5 bar)

**Type PS/79-2:** Single diaphragm pilot for pressure regulator (0.5 - 3 bar)

**Type PSO/79-1:** Single diaphragm pilot for setting of first pressure-reducing step (upstream) of pressure regulator (working monitor) (0.01 - 0.5 bar)

**Type PSO/79-2:** Single diaphragm pilot for setting of first pressure-reducing step (upstream) of pressure regulator (working monitor) (0.5 - 3 bar)

**Type REOPS/79-1:** Single diaphragm pilot for setting of second pressure-reducing step (downstream) of pressure regulator (working monitor) (0.01 - 0.5 bar)

**Type REO/79-2:** Single diaphragm pilot for setting of second pressure-reducing step (downstream) of pressure regulator (working monitor) (0.5 - 3 bar)

### End Connection Styles

1/4" NPT female threaded

### Pressure Ratings

**Type PS/79, PSO/79, REO/79:**

Allowable Pressure: 100 bar  
Set Range: 0.5 to 40.0 bar

**Type PS/80, PSO/80, REO/79:**

Allowable Pressure: 100 bar  
Set Range: 1.5 to 40.0 bar

**PS/79-1 - RE/79-1 - PSO/79-1 - REOPS/79-1:**

Allowable Pressure: 20 bar  
Set Range: 0.01 to 0.5 bar

**Type PS/79-2, PSO/79-2, REO/79-2:**

Allowable Pressure: 20 bar  
Set Range: 0.5 to 3 bar

### Temperature Capabilities

#### Standard Version:

Working: -10° to 60°C

#### Low Temperature Version:

Working: -20° to 60°C

### Weights

**PS/79-1 PS/79-2 Series:** 2.5 kg

**PS/79 Series:** 8 kg

**PS/80 Series:** 9 kg

### Features

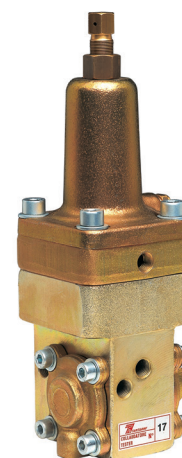
- High Sensitivity
- Improved Performance
- High Accuracy



TYPE PS/79-1 OR PS/79-2



TYPE PS/79



TYPE PS/80

### Introduction

The PRX Series pilots are mainly used in natural gas applications.

They have a double diaphragm which provides increased accuracy and sensitivity, an integral damper adjustment to allow adjustable opening and closing speeds, and a restrictor adjustment to allow adjustments to make for inlet pressure variability and loading pressure oscillations.

The type SA/2 stabilizer filter must be used with PRX/120 series pilots when the PRX/120 are installed in FL, Cronos, 971 and EZH series regulators.

The PRX Series pilots can be installed in the following equipment:

- FL Series
- Cronos Series
- EZH Series
- EZR Series
- Type 971
- VS-FL Series
- BM5 Series
- BM6X Series

### Available Configurations

#### Types PRX/120 and PRX-AP/120:

Pilots for Regulator or Monitor Control

#### Types PRX/125 and PRX-AP/125:

Pilots for Working Monitor Control

#### Types PRX/181-PN, PRX-AP/181-PN, PRX/182-PN and PRX-AP/182-PN:

Pilots for OS/80X-PN Slam-Shut Device

#### Types PRX/131 and PRX-AP/131:

Pilots for Booster Valve

#### Type PRX/182 and PRX-AP/182:

Pilots for Relief Valve

### End Connection Styles

1/4" NPT female threaded

### Pressure Ratings

#### Types PRX/120 and PRX/125:

Allowable Pressure: 100 bar

Set Range: 1 to 40 bar

#### Types PRX-AP/120 and PRX-AP/125:

Allowable Pressure: 100 bar

Set Range: 30 to 80 bar

#### Types PRX/131, PRX/182, PRX/181-PN, and PRX/182-PN:

Allowable Pressure: 100 bar

Set Range: 0.5 to 40 bar

#### Types PRX-AP/131, PRX-AP/182, PRX-AP/181-PN, and PRX-AP/182-PN:

Allowable Pressure: 100 bar

Set Range: 30 to 80 bar

### Temperature Capabilities

#### Standard Version:

Working: -10° to 60°C

#### Low Temperature Version:

Working: -20° to 60°C

### Weights

PRX Series: 2.3 kg

PRX-AP Series: 2.5 kg

SA/2: 1.5 kg

### Features

- High Sensitivity
- Improved Performance
- High Accuracy
- Easy Setting



TYPE PRX



TYPE PRX-AP



TYPE SA/2

### Introduction

Two Standard Pilot Systems are available:

**Type BSL85/1** - Distribution applications  
Composed of a manometric pre-expansion box, a manometric pre-expansion pilot box, and a pilot body.

**Type BSL85/2** - Transmission applications  
Composed of a manometric pre-expansion box, a manometric pre-expansion pilot box and two pilot bodies. The BSL85/2 permits all types of failure modes.

- The BMP pilots with standard diaphragm are "FO"
- The BMP pilots with double diaphragm are "FC"
- The bellows are flattened in the case of overpressure but with no leak to the outside

Different connection types permit these pilots to be used on a wide range of Emerson pilot-operated regulators:

Type BSL85/1 - Distribution applications:  
Cronos-FR, FL-FR, EZR

Type BSL85/2 - Transmission applications:  
EZH, EZHSO, EZHFO, FL-FR, EZR

Two functional types of pressure reduction are available, Hard Trim or Boot Trim Pilot System:

- Pressure reduction with actuator and plug: pilot system loaded by modulated pressure
- Pressure reduction with diaphragm-plug: pilot system unloaded by modulated pressure

The setpoint range can be modified by simply changing the BMP manometric box or spring.

### End Connection Style

1/4" NPT female threaded

### Pressure Ratings

Maximum Inlet Pressure: 100 bar

Allowable Inlet Pressure: 85 bar

Outlet Pressure Range: 0.01 to 60 bar

### Temperature Capabilities

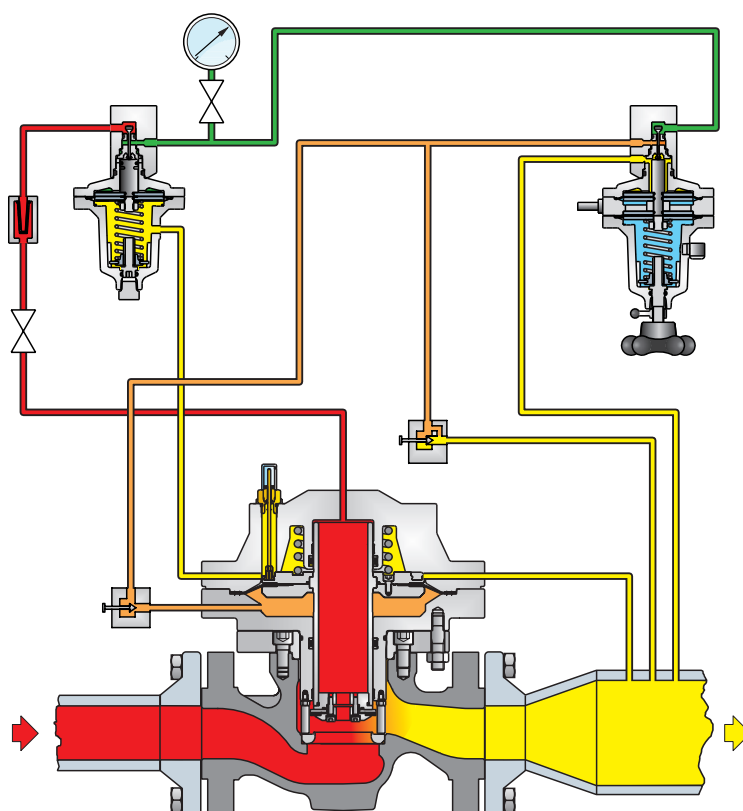
Working: -20° to 60°C

### Features

- Ease of Maintenance
- Very Low Outlet Pressure Capability
- High Accuracy



BSL85/1



TYPE EZH REGULATOR WITH TYPE BSL 85/2 PILOT OPERATIONAL SCHEMATIC

#### LEGEND

- |   |   |   |
|---|---|---|
| <span style="color: red;">■</span> INLET PRESSURE     | <span style="color: orange;">■</span> MODULATED PRESSURE    | <span style="color: lightblue;">■</span> ATMOSPHERIC PRESSURE |
| <span style="color: yellow;">■</span> OUTLET PRESSURE | <span style="color: green;">■</span> PILOT FEEDING PRESSURE |   |

## Introduction

In monitor-regulator systems the booster valve V/31-2 is installed on the loading pressure circuit, in order to obtain a more rapid action in monitor closing.

La V/31-2 can be installed in the following equipment:

- FL Series
- Cronos Series
- EZH Series

## End Connection Styles

1/4" NPT female threaded

## Pressure Ratings

Allowable Pressure: 19 bar

Set Range: 0.015 to 0.55 bar

## Temperature Capabilities

### Standard Version:

Working: -10° to 60°C

### Low Temperature Version:

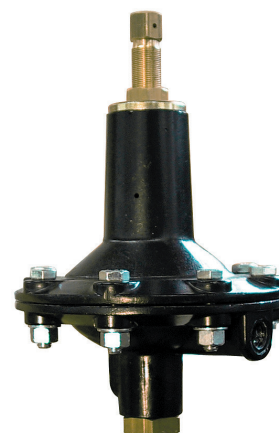
Working: -20° to 60°C

## Weight

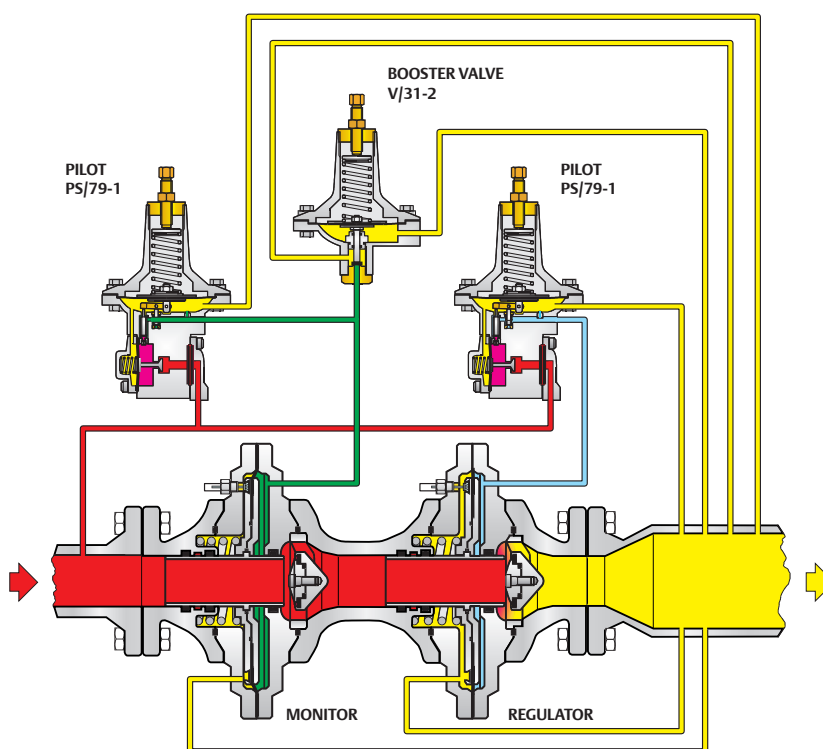
2.5 kg

## Features

- High Sensitivity
- Improved Performance
- High Accuracy



V/31-2



TYPE MFL MONITOR AND REGULATOR OPERATIONAL SCHEMATIC

### LEGEND

- |                   |                              |
|-------------------|------------------------------|
| ■ INLET PRESSURE  | ■ MONITOR LOADING PRESSURE   |
| ■ OUTLET PRESSURE | ■ REGULATOR LOADING PRESSURE |

## Introduction

The type RPE electric pilot heater is used for reheating gas supplying pressure reducing regulator pilots.

The type RPE avoids the inconveniences caused by freezing which occur during large pressure drops.

The RPE is in conformity with the Directive for Equipment or protective system intended for use in potentially explosive atmospheres 2014/34/UE. It is classified under group II, category 2.

Two versions of the type RPE are available:

## Electrical Pilot Heater

The type RPE (with a heating element) is installed in a vertical position and is affixed to the actuator bolts of the regulator.

The type RPE can be installed in a hazardous atmosphere and must be installed between the pilot filter and the pre-expansion relay.

A thermostat and power relay must be installed in a non-explosive risk zone.

## Regulator Bottom Electrical Heater

This version is normally used for relief lines. The Type RPE is assembled with four screws to the bottom of the regulator.

## Electrical Material for Explosive Atmosphere

Protection: Ex db IIC T2 Gb

Classification: CML 18 ATEX 1081

## Maximum Operating Pressure

Thermometer Pocket with Heating Element: 100 bar

## Temperature Measurement

Interchangeable Thermic Probe: 10 kΩ

## Heater

Two Interchangeable Heating Cartridges: 280 W - 230 V

Connected in Series: 140 W

## Temperature Regulation Range

Thermostat: -30 to 90° C

## Power Supply

Power Relay: I max: 2 A ; U: 250 V~

## Protection

Thermostat: 2 A

Power Relay: 2 A

## Pneumatic Connections

Inlet - Outlet: 1/4 NPT - tube 8/10

## Electrical Connections

Electrical Type RPE Box: Packing gland 3/4 NPT for cable snap-on

## Weights

Heater: 1.4 kg

Heater with Heating Element: 4.5 kg



TYPE RPE

## Features

- Robust Design
- Large Range of Utilization

## Introduction

Silencers are noise reduction system devices which are commonly installed in a regulator as a remedy for noise pollution.

## Available Configurations

### Type SR:

This silencer is fitted near the regulator shutter and is highly efficient up to a theoretical speed of 80 m/s calculated at the outlet flange.

Higher than this speed, noise may be generated by the expansion cone, usually installed downstream of the regulator, and may require an additional noise reduction solution.

### Type SRII:

The SRII silencer is the next generation of type SR and is used in case of extreme service conditions (dirty gas, high pressure drops, and high gas velocities).

Noise characteristics are very similar to the standard SR.

### Type SRS and SRSII:

The SRS consists of an SR silencer plus a widened outlet flange in which a second silencer is fitted.

The SRSII consists of an SRII silencer plus a widened outlet flange in which a second silencer is fitted.

In both configurations the second silencer has an initial multi-path section and a second multi-stage section.

These silencers are highly efficient under all operating conditions and are not limited by the theoretical speed on the regulator outlet flange.

### Type STP:

Usually used downstream of SRS or SRSII silencers but can also be combined with a SR silencer.

Overall reduction in noise level is the sum of the reduction produced by SR/SRII or SRS/SRSII plus the STP induced reduction. The type STP silencer consists of one or more porous channels clad with soundproofing material.

Sound penetrates inside the soundproof layer and is transformed into heat by friction of the gas flow.

The silencer is fitted in the pipe and is secured with two flanges.

Two types of silencers are available:

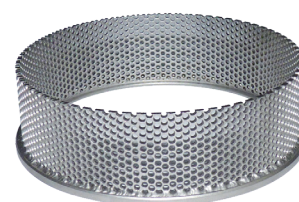
- STP10 10 dB (A) attenuation, approximate length of 1 m
- STP10 20 dB (A) attenuation, approximate length of 2 m

## Features

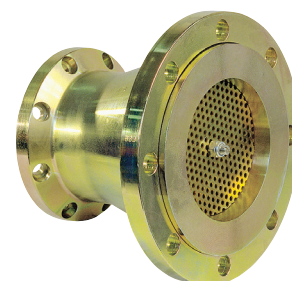
- **Various Noise Reduction Solutions**
- **Excellent Cost / Benefit Ratio**



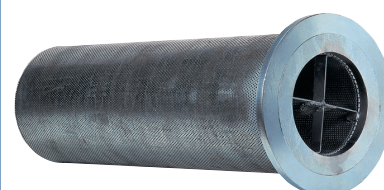
TYPE SR



TYPE SRII



TYPE SRS AND SRSII



TYPE STP

## Introduction

The type RP/10 regulators are normally employed in pressure reducing stations using high pressure gas compressed in cylinders.

They can also be employed with middle pressure gas in ceramic, chemical, and pharmaceutical factories for small furnaces.

Type RP/10 is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category I.

## Body Size and End Connection Style

3/4" x 1" BSP

## Inlet Pressure

Body Allowable Pressure: 220 bar

Maximum Operating Pressure: 30 bar

Inlet Pressure Range: 1 to 220 bar

## Outlet Pressure Range

0.5 to 30 bar

## Accuracy Class

Up to  $\pm 5\%$

## Lock-up Pressure Class

Up to 10%

## Class of Lock-Up Pressure Zone

Up to 10%

## Temperature Capabilities

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

## Orifice Size

1/2"

## Approximate Weight

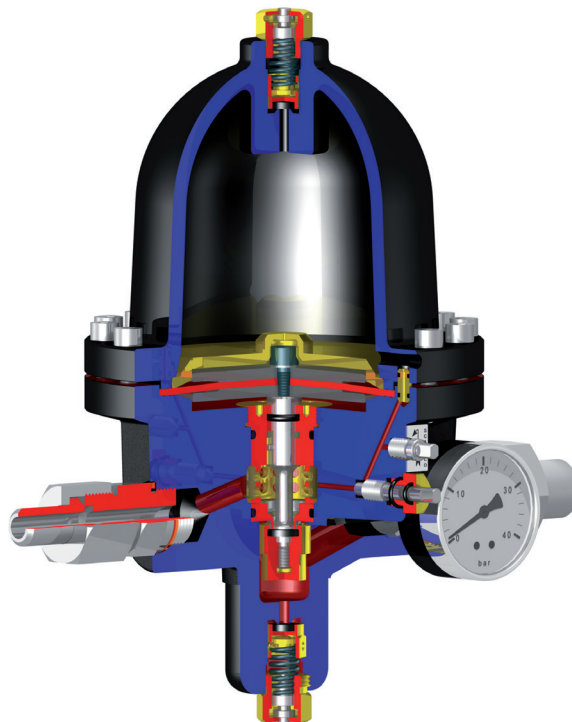
17 kg

## Features

- Counterbalanced Valve Disc
- Tight Shutoff
- Built-in Spring Operated Safety Valves



TYPE RP/10



INTERNAL VIEW OF THE TYPE RP/10

## Introduction

The type RLC/20 regulators are pneumatic-loaded, single seated, with counterbalanced valve disc.

They are normally employed in gas distributing stations for automotive use.

They can also be used in industrial installations using high pressure gas compressed in cylinders and cylinder-truck installations normally fed through the pipeline.

## Body Size and End Connection Style

1" NPT Threaded

DN 20 PN 350 Flanged

## Inlet Pressure

Body Allowable Pressure: 320 bar

Maximum Operating Pressure: 250 bar

Inlet Pressure Range: 30 to 320 bar

## Outlet Pressure Range

20 to 250 bar

## Minimum Operating Differential Pressure

10 bar

## Accuracy Class

Up to  $\pm 2.5\%$

## Lock-Up Pressure Class

Up to 5%

## Class of Lock-Up Pressure Zone

Up to 10%

## Built-In Relief Valve

Setting at +5% of the regulator setting value

## Orifice Size

3/4"

## Temperature Capabilities

### Standard Version:

Working: -10° to 60°C

### Low Temperature Version:

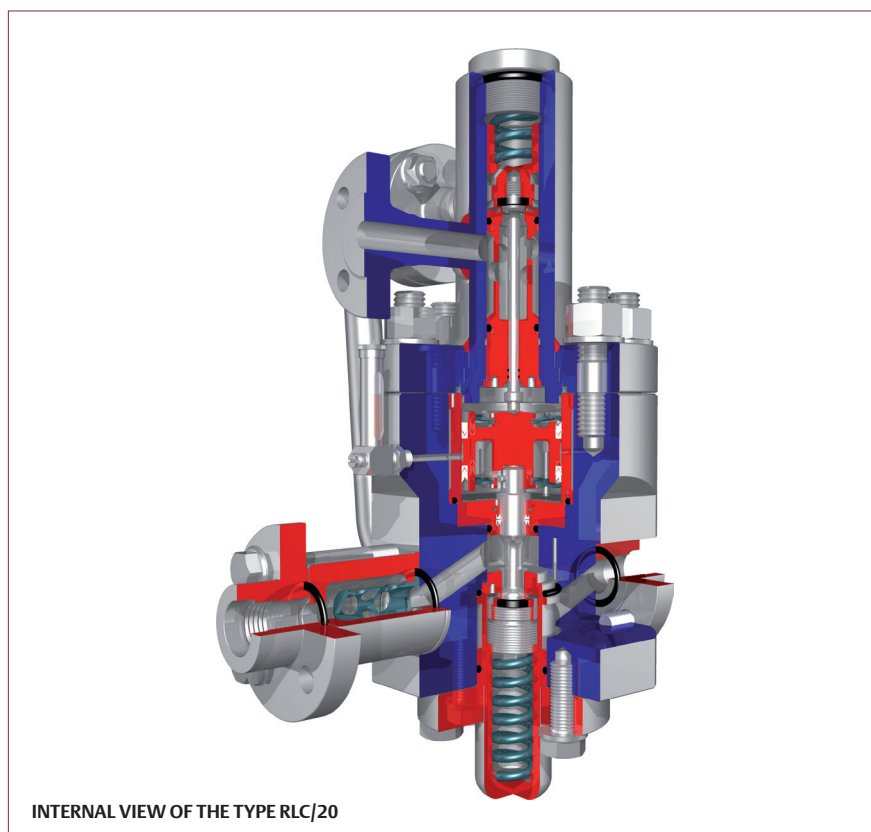
Working: -20° to 60°C

## Approximate Weight

100 kg

## Features

- Counterbalanced Valve Disc
- Welding or Threaded Flange Configurations
- Built-in Relief Valve and Filter



### Introduction

The technical and operational features of the M Series, spring-loaded regulators, make them ideal for applications requiring sudden changes in capacity or where gas shutoff is solenoid-controlled as with domestic or industrial burners.

The MF and MN MR Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV maximum.

### Available Configurations

#### MN Series (Widened Outlet Flanges)

**Types MN, MN-AP, MN-APA, and MN-PST:** Regulator

**Types MBN, MBN-AP, MBN-APA, and MBN-PST:** Regulator + Shutoff

**Types MBN-M, MBN-M-AP, MBN-M-APA, and MBN-M-PST:** Monitor + Shutoff

#### MF Series (Same Inlet/Outlet Flanges)

**Types MF, MF-AP, MF-APA, and MF-PST:** Regulator

**Types MBF, MBF-AP, MBF-APA, and MBF-PST:** Regulator + Shutoff

**Types MBF-M, MBF-M-AP, MBF-M-APA, and MBF-M-PST:** Monitor + Shutoff

All MN and MF type regulators, or regulators + shutoff, are available with or without type SR Silencer.

### Body Sizes

#### MN Series:

DN 25 x 65, 40 x 80, 50 x 100, 65 x 100, 80 x 150, and 100 x 200 (NPS 1 x 2-1/2, 1-1/2 x 3, 2 x 4, 2-1/2 x 4, 3 x 6, and 4 x 8)

#### MF Series:

DN 25, 40, 50, 80, and 100 (NPS 1, 1-1/2, 2, 3, and 4)

### End Connection Style

PN 16 / CL150

### Inlet Pressure

Body Allowable Pressure: Up to 20 bar  
Actuator Allowable Pressure: 4 bar  
Maximum Operating Pressure: 3 bar

### Permissible Inlet Pressure:

Standard Version  
DN 25 to 50 (NPS 1 to 2): 10 bar  
DN 65 to 100 (NPS 2-1/2 to 4): 5 bar  
PST, AP and APA Versions: 19.6 bar

### Outlet Pressure Range

Standard Version: 10 to 500 mbar  
PST Version: 0.2 to 0.5 bar  
AP Version: 0.5 to 1 bar  
APA Version: 1 to 3 bar

### Accuracy Class

Up to ±5%

### Lock-up Pressure Class

Up to 10%

### Class of Lock-up Pressure Zone

Up to 10%

### Built-in Slam-Shut Valve

Independent Pneumatic Control  
Accuracy Group: ±5%  
Response Time: <1 s

### Temperature Capabilities

Working: -10° to 60°C  
Low temperature version available on request.

### Approximate Weights

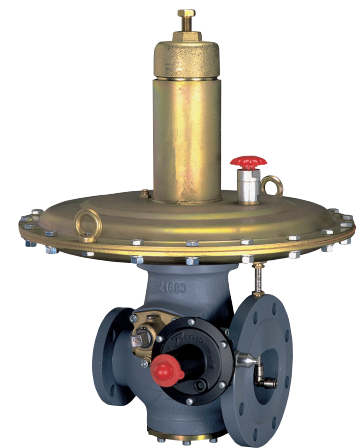
31 to 140 kg

### Features

- Counterbalanced Shutter
- Overpressure and Underpressure Shutoff Valve
- Wide Pressure Regulation Range
- Manual Reset



MF



MBN

### Introduction

The A/100 Series regulators ensure precise stable operation even when the requirements of the plant cause exceptionally unfavorable conditions such as rapid fluctuations in demand.

These regulators are commonly used on industrial burners, with starting controlled by solenoid valves (on-off).

The A/100 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category I.

### Available Configurations

#### Type A/102:

Regulator

#### Type A/102-AP:

High Pressure Regulator

#### Type A/109:

Regulator + Shutoff

#### Type A/109-AP:

High Pressure Regulator + Shutoff

### Body Size and End Connection Style

2" BSP Threaded

### Inlet Pressure

Body Allowable Pressure: Up to 20 bar

Maximum Operating Pressure: 300 mbar

Maximum Inlet Pressure: 8 bar

Inlet Pressure Range: 0.1 to 8 bar

### Outlet Pressure Range

10 to 300 mbar

### Accuracy Class

Up to  $\pm 5\%$

### Lock-Up Pressure Class

Up to 10%

### Orifice Size

1/2", 5/8", 3/4", and 1"

### Built-in Shutoff Valve

Independent Pneumatic Control

Accuracy Group:  $\pm 5\%$

Response Time:  $< 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

### Approximate Weights

Type A/102, A/102-AP: 11 kg

Type A/109, A/109-AP: 12 kg

### Features

- Built-in Relief Valve
- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Inlet and Outlet In-Line



TYPE A/102



TYPE A/109



TYPE A/109-AP

### Introduction

Construction and performance features make the A/140 Series spring-loaded regulators the ideal choice in applications involving sudden changes in capacity, or where the gas shutoff is solenoid-controlled as with domestic or industrial burners.

The A/140 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV maximum.

### Available Configurations

#### Type A/142:

Regulator

#### Type A/142-AP:

High Pressure Regulator

#### Type A/149:

Regulator + Shutoff

#### Type A/149-AP:

High Pressure Regulator + Shutoff

### Body Size and End Style Connection

DN 50 PN 16 (NPS 2)

### Inlet Pressure

Body Allowable Pressure: Up to 20 bar

Maximum Operating Pressure: 300 mbar

Maximum Inlet Pressure: 6 bar

Inlet Pressure Range: 0.1 to 6 bar

### Outlet Pressure Range

10 to 300 mbar

### Accuracy Class

Up to  $\pm 5\%$

### Lock-Up Pressure Class

Up to 10%

### Orifice Size

13/16"

### Built-in Shutoff Valve

Independent Pneumatic Control

Accuracy Group:  $\pm 5\%$

Response Time:  $< 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

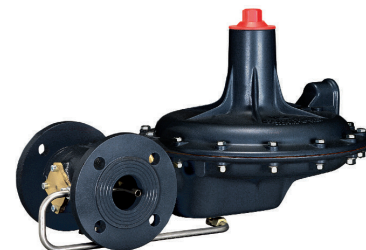
### Approximate Weights

Type A/142, A/142-AP: 19 kg

Type A/149, A/149-AP: 20 kg

### Features

- Counterbalanced Valve
- Built-in Relief Valve
- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Inlet and Outlet In-Line



TYPE A/142



TYPE A/149



TYPE A/149-AP

### Introduction

Construction and performance features make the B/240 Series spring-loaded regulators the ideal choice in applications involving sudden changes in capacity or where the gas shutoff is solenoid-controlled as with domestic or industrial burners.

The B/240 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV maximum.

### Available Configurations

#### Type B/242:

Regulator

#### Type B/242-AP:

High Pressure Regulator

#### Type B/249:

Regulator + Shutoff

#### Type B/249-AP:

High Pressure Regulator + Shutoff

### Body Size and End Connection Style

1 1/2" BSP Threaded

DN 40 PN 16 (NPS 1-1/2) Flanged

### Inlet Pressure

Body Allowable Pressure: Up to 20 bar

Maximum Operating Pressure: 300 mbar

Maximum Inlet Pressure: 6 bar

Inlet Pressure Range: 0.1 to 6 bar

### Outlet Pressure Range

10 to 300 mbar

### Accuracy Class

Up to  $\pm 5\%$

### Lock-Up Pressure Class

Up to 10%

### Orifice Size

13/16"

### Built-in Shutoff Valve

Independent Pneumatic Control

Accuracy Group:  $\pm 5\%$

Response Time:  $< 1$  s

### Temperature Capabilities

#### Standard Version:

Working:  $-10^{\circ}$  to  $60^{\circ}\text{C}$

#### Low Temperature Version:

Working:  $-20^{\circ}$  to  $60^{\circ}\text{C}$

### Approximate Weights

Type B/242, B/242-AP: 3.5 kg

Type B/242-FS, B/242-AP-FS: 7.5 kg

Type B/249, B/249-AP: 4.5 kg

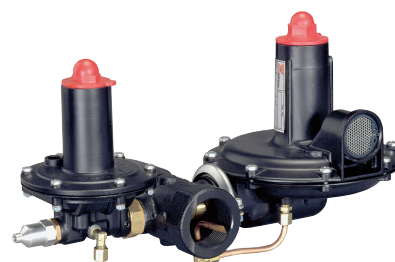
Type B/249-FS, B/249-AP-FS: 8.5 kg

### Features

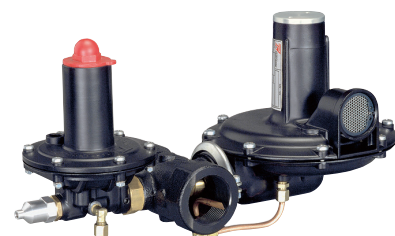
- Counterbalanced Valve
- Built-in Relief Valve
- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Inlet and Outlet In-line



TYPE B/242



TYPE B/249



TYPE B/249-AP

### Introduction

REGAL 3 Series is a direct-operated, spring set-point pressure regulator used for supplying industries and commercial businesses.

As an option, it can be equipped with a slam-shut Type VSX2 or OS2 which permits the gas flow to be cut off rapidly and totally in the case of under or over outlet pressure.

As a standard feature, for outlet pressure settings inferior or equal to 180 mbar, a relief valve is provided.

The REGAL 3 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category I.

### Available Configurations

#### Type Regal 3:

Regulator

#### Type Regal 3-VSX2:

Regulator with Integral Slam-Shut VSX2

#### Type Regal 3-OS2:

Regulator with Integral Slam-Shut OS2

### Body Sizes and End Connection Styles

NPS 2 NPT Threaded

PN 10/16, PN 20 or CL150 Flanged

### Inlet Pressure

Maximum Inlet Pressure: 10 bar

Maximum Operating Pressure: 1.5 bar

### Outlet Pressure Range

0.008 to 1.5 bar

### Accuracy Class

Up to  $\pm 5\%$

### Pressure Registration

External

### Internal Relief Setting

Inlet Pressure +90 mbar

### Temperature Capabilities

Working:  $-30^{\circ}$  to  $71^{\circ}\text{C}$

### Approximate Weights

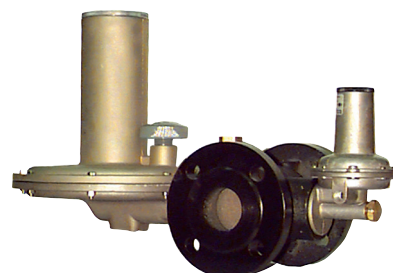
Type Regal 3: 18 kg

Type Regal 3-VSX2: 18.8 kg

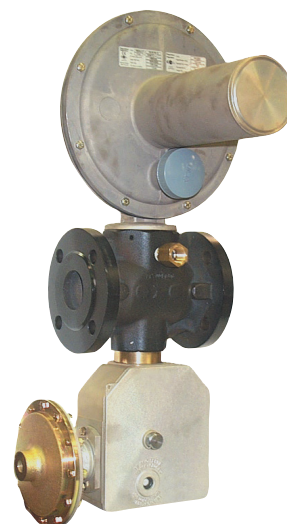
Type Regal 3-OS2: 24 kg

### Features

- Integral Slam-Shut
- Ease of Installation
- Precise Flows
- Internal Relief



TYPE REGAL 3-VSX2



TYPE REGAL 3-OS2

### Introduction

The RP Series regulators are direct-operated with non-balanced trim. Normally they are fitted with a built-in filter.

They are produced in the following version: types RP/011, RP/022, and RP/033. All models can be fitted with a shutoff valve.

The RP Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category I maximum.

### Available Configurations

**Types RP/011, RP/022, and RP/033:**  
Regulator

**Types RP/011/66, RP/022/66, and RP/033/66:**  
Regulator + Shutoff

### Body Sizes and End Connection Styles

**Type RP/011:**  
1 x 1-1/4" BSP Threaded

**Type RP/022:**  
1-1/4 x 2" BSP Threaded

**Type RP/033:**  
2 x 3" BSP Threaded

**Type RP/011-FS:**  
DN 25 x 32 PN 16, 25, 40 / CL150, CL300 Flanged

**Type RP/022-FS:**  
DN 32 x 50 PN 16, 25, 40 / CL150, CL300 Flanged

**Type RP/033-FS:**  
DN 50 x 80 PN 16, 25, 40 / CL150, CL300 Flanged

### Inlet Pressure

Body Allowable Pressure: Up to 20 bar  
Actuator Allowable Pressure: 4 bar  
Maximum Inlet Pressure: 20 bar  
Inlet Pressure Range: 0.2 to 20 bar

### Outlet Pressure Ranges

**Types RP/022 and RP/033:**  
0.1 to 4 bar

**Type RP/011:**  
0.1 to 2 bar

### Accuracy Class

Up to ±5%

### Lock-Up Pressure Class

Up to 10%

### Built-in Shutoff Valve

Independent Pneumatic Control  
Accuracy Group: ±5%  
Response Time: <1 s

### Temperature Capabilities

**Standard Version:**  
Working: -10° to 60°C

**Low Temperature Version:**  
Working: -20° to 60°C

### Approximate Weights

6 to 25 kg

### Features

- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Inlet and Outlet In-line



TYPE RP/022



TYPE RP/033/66-FS

### Introduction

The CSB400 Series direct-operated, spring-loaded regulators have been engineered to fit a multitude of pressure-reducing applications including commercial and industrial installations.

This flexibility is provided by the numerous body sizes and end connections, outlet pressure settings, as well as the option for internal, external, or dual pressure registration.

In addition to application flexibility, the CSB400 Series offers multiple overpressure protection options to meet your demands on application requirements.

The CSB400 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE. The base regulator is classified under Category I, the regulator with slam-shut module is classified under Category IV.

### Body Sizes and End Connection Styles

#### Ductile Cast Iron:

1, 1-1/4, 1-1/2, or 2 NPT, Rp 1, 1 x 1-1/4, 1-1/4, 1-1/2, or 2, Rp 1 x 2-1/4 GAZ, NPS 1-1/2 (DN 40), PN16, NPS 2 (DN 50), CL125 FF, CL150 FF, or PN 10/16

#### Steel:

1, 1-1/4 or 1-1/2 NPT, Rp 1, 1-1/4 or 1-1/2

### Maximum Operating Inlet Pressure Differential Strength

6 bar to 16 bar (depending on type)

### Maximum Emergency Inlet Pressure Differential Strength

10 bar to 20 bar (depending on type)

### Outlet Pressure Range

17 mbar to 3 bar

### Maximum Emergency Outlet Pressure (Casing)

4 bar

### Maximum Outlet Pressure to avoid Internal Parts Damage

0.34 bar over set-point

### Maximum Operating Outlet Pressure

3 bar

### Pressure Registration

Internal, external or dual

### Temperature Capabilities

#### According to PED Standards:

-20° to 60°C

#### Non-PED:

-30° to 66°C

### Approximate Weights

#### Threaded Body:

Type CSB400: 4 kg

Type CSB403: 9 kg

Type CSB404: 5 kg

#### Flanged Body:

Add 4 kg to weights listed above

### Type VSX4 Slam-Shut Module Specifications

#### Standard Overpressure Shutoff (OPSO) Set Value:

43 to 3400 mbar

#### Standard Underpressure Shutoff (UPS0) Set Value:

10 to 1500 mbar

### Connections

Slam-Shut Vent: 1/4 NPT

External Sensing Line: 1/4 NPT

### Casing Material

Aluminum

### Pressure Registration

Internal or external



TYPE CSB400



TYPE CSB404

### Features

- Slam-shut
- Ductile Cast Iron and WCC Steel Bodies Available
- Wide Variety of Body Sizes and End Connections
- No Special Tools for Pressure Adjustment and Orifice Removal

# Type CSB600 / CSB700

## Spring-Loaded Pressure Reducing Regulators

FISHER™

### Introduction

The CSB600 / CSB700 Series direct-operated, spring-loaded regulators have been engineered to fit a multitude of pressure-reducing applications including commercial and industrial installations.

This flexibility is provided by the numerous body sizes and end connections, outlet pressure settings, as well as the option for internal or external pressure registration.

In addition to application flexibility, the CSB600 / CSB700 offer overpressure protection options, which include an integral slam-shut and also token relief to meet your demands on application requirements.

The CSB600 / CSB700 Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE. The base regulator is classified under Category I, the regulator with slam-shut module is classified under Category IV.

### Body Sizes and End Connection Styles

#### Ductile Cast Iron:

1-1/4 (CSB600 only), 1-1/2 or 2 NPT  
1-1/4 (CSB600 only), 1-1/2 or 2 Rp  
NPS 2 (DN 50) CL125FF, CL150FF  
NPS 2 (DN 50) PN 10/16  
NPS 1-1/4 (DN 32) (CSB600 only)  
NPS 1-1/2 (DN 40) PN 16 Slip-on

#### Steel:

1-1/4 (CSB600 only), 1-1/2 or 2 NPT  
1-1/4 (CSB600 only), 1-1/2 or 2 Rp  
NPS 2 (DN 50) CL150RF  
NPS 2 (DN 50) PN 10/16

### Maximum Operating Inlet Pressure Differential Strength

6 to 16 bar (depending on type)

### Maximum Emergency Inlet Pressure Differential Strength

12 to 20 bar (depending on type)

### Outlet Pressure Range

9 mbar to 4 bar

### Maximum Emergency Outlet Pressure (Casing)

5 bar

### Maximum Outlet Pressure to avoid Internal Parts Damage

0.34 bar over set-point

### Maximum Operating Outlet Pressure

3 bar

### Pressure Registration

External

### Temperature Capabilities

#### According to PED Standards:

-20° to 60°C

#### Non-PED:

-30° to 66°C

### Approximate Weights

#### Threaded Body:

Type CSB600/620/700/720: 13 kg

Type CSB604/624/704/724: 14 kg

Type CSB654/754: 15 kg

#### Flanged Body:

Add 5.2 kg to weights listed above

### Type VSX8 Slam-Shut Module Specifications

#### Standard Overpressure Shutoff (OPSO) Set Value:

40 to 4400 mbar

#### Standard Underpressure Shutoff (UPS0) Set Value:

8 to 2000 mbar

### Connections

Slam-Shut Vent: 1/4 NPT

External Sensing Line: 1/4 NPT

### Casing Material

Aluminum

### Pressure Registration

Internal or external

**AVAILABLE SOON**



TYPE CSB604



TYPE CSB704

### Features

- Slam-shut
- Ductile Cast Iron and WCC Steel Bodies Available
- Wide Variety of Body Sizes and End Connections
- No Special Tools for Pressure Adjustment and Orifice Removal

### Introduction

The CS800 Series direct-operated, spring-loaded regulators have been engineered to fit a multitude of pressure-reducing applications including commercial and light industrial installations.

This flexibility is provided by the numerous body sizes and end connections, outlet pressure settings, orifice sizes and the option for internal or external pressure registration.

In addition to application flexibility, the CS800 Series offers numerous overpressure protection options which include an Internal Relief, High Capacity Relief and Secondary Seat™ Protection.

The CS800 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE. The base regulator is classified under Category I, the regulator with slam-shut module is classified under Category IV.

### Body Sizes and End Connection Styles

#### Ductile Cast Iron and Steel:

1-1/4, 1-1/2 or 2 NPT  
 1-1/4, 1-1/2 or 2 Rp  
 NPS 2 (DN 50) CL150FF  
 (ductile cast iron only)  
 NPS 2 (DN 50) PN 10/16  
 NPS 2 (DN 50) CL150RF (steel only)

#### Maximum Operating Inlet Pressure Differential Strength

8.6 bar

#### Maximum Emergency Inlet Pressure Differential Strength

12.1 bar

#### Outlet Pressure Range

9 to 690 mbar

#### Maximum Emergency Outlet Pressure (Casing)

1 bar

#### Maximum Outlet Pressure to avoid Internal Parts Damage

0.21 bar over set-point

#### Maximum Operating Outlet Pressure

690 mbar

#### Pressure Registration

Internal or external

#### Temperature Capabilities

##### According to PED Standards:

-20° to 60°C

##### Non-PED:

-30° to 66°C

#### Approximate Weights

##### Threaded Body:

Type CS800/820: 11 kg

Type CS803/823: 16 kg

Type CS805/825: 12 kg

Type CS806/826: 12 kg

##### High Pressure Types:

For CS85x add 1 kg to types listed above

##### Flanged Body:

Add 5 kg to weights listed

#### Type VSX8 Slam-Shut Module Specifications

##### Standard Overpressure Shutoff (OPSO)

###### Set Value:

45 to 700 mbar

##### Standard Underpressure Shutoff (UPS0)

###### Set Value:

11 to 250 mbar

#### Connections

Slam-Shut Vent: 1/4 NPT

External Sensing Line: 1/4 NPT

#### Casing Material

Aluminum

#### Pressure Registration

Internal or external

**AVAILABLE SOON**



TYPE CS800



TYPE CS804

### Features

- Slam-shut
- Ductile Cast Iron and WCC Steel Bodies Available
- Wide Variety of Body Sizes and End Connections
- No Special Tools for Pressure Adjustment and Orifice Removal

### Introduction

The R Series spring-loaded regulators provide pressure reducing control for domestic and industrial use, such as burners, furnaces, boilers and other installations requiring proper regulation and quick response time.

The R Series regulators achieve high accuracy and flow rates even with low inlet pressure and inlet pressure variations.

### Available Configurations

**Types R/70, R/71, R/72, R/72-FS, R/73, R/74, and R/75:** Regulator

**Types R/70-AP, R/71-AP, R/72-AP, R/72-FS-AP, R/73-AP, R/74-AP, and R/75-AP:** High Pressure Regulator

### Body Sizes and End Connection Styles

#### R/70, R/70-AP:

G 3/4" x G 1 1/4" UNI ISO 228/1 right angle (3/4" soft seal x 1 1/4" GAS)

#### R/71, R/71-AP:

G 3/4" x G 1 1/4" UNI ISO 228/1 right angle (3/4" metallic seal x 1 1/4" GAS)

#### R/72, R/72-AP:

G 1" UNI ISO 228/1 axial flow (1" GAS)

#### R/72-FS, R/72-FS-AP:

DN 25 PN 16 - axial flow

#### R/73, R/73-AP:

G 1 1/4" UNI ISO 228/1 axial flow (1 1/4" GAS)

#### R/74, R/74-AP:

G 3/4" x G 1 1/4" UNI ISO 228/1 axial flow (3/4" soft seal x 1 1/4" GAS)

#### R/75, R/75-AP:

G 3/4" x G 1" UNI ISO 228/1 axial flow (3/4" soft seal x 1" GAS)

### Temperature Capabilities

Working: -20° to 60°C

### Inlet Pressures

**Types R/70, R/71, R/72, R/72-FS, R/73, R/74, and R/75:**

Maximum Inlet Pressure: 6 bar

Inlet Pressure Range: 0.1 to 6 bar

**Types R/70-AP, R/71-AP, R/72-AP, R/72-FS-AP, R/73-AP, R/74-AP, and R/75-AP:**

Maximum Inlet Pressure: 10 bar

Inlet Pressure Range: 0.1 to 10 bar

### Outlet Pressure Ranges

**Types R/70, R/71, R/72, R/72-FS, R/73, R/74, and R/75:** 15 to 70 mbar

**Types R/70-AP, R/71-AP, R/72-AP, R/72-FS-AP, R/73-AP, R/74-AP, and R/75-AP:** 70 to 300 mbar

### Accuracy Class

Up to ±5%

### Lock-Up Pressure Class

Up to 10%

### Built-In Shutoff Valve

Accuracy Group: ±5%

Response Time: <1 s

### Approximate Weights

2 to 4.5 kg

### Features

- Two-Stage Regulation
- Built-In Relief Valve (Optional)
- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Built-in Filter with 0.5 mm Filtering Capacity



TYPE R/70



TYPE R/72



TYPE R/72-FS

### Introduction

The type R/25 two-stage pressure regulator is designed for use in a wide range of both domestic and industrial applications and can also be mounted in individual domestic gas systems and meters.

Their main features include compact size for space saving, high-quality materials, high regulation accuracy, easy setting and maximum reliability of safety devices.

Their trouble-free operation is ensured in all mounting positions.

The type R/25 regulator is suitable for both outdoor and indoor installations as a highly sensitive safety device ensures the release of gas to the atmosphere in case of overpressure.

### Body Sizes and End Connection Style

G 3/4" x G 1 1/4" UNI ISO 228/1 right angle (3/4" soft seal x 1 1/4" GAS)

### Maximum Inlet Pressure

6 bar

### Inlet Pressure Range

0.1 to 6 bar

### Outlet Pressure Range

15 to 50 mbar

### Accuracy Class

Up to ±5%

### Lock-Up Pressure Class

Up to 10%

### Built-in Shutoff Valve

Accuracy Group: ±5%

Response Time: ≤1 s

### Orifice Size

7/16"

### Temperature Capabilities

Working: -20° to 60°C

### Approximate Weight

1.4 kg

### Features

- Two-Stage Regulation
- Built-In Relief Valve (Optional)
- Overpressure and Underpressure Shutoff Valve
- Manual Reset
- Built-in Filter with 0.5 mm Filtering Capacity



TYPE R/25

# Type B NG

## Spring-Loaded Pressure Reducing Regulators

FISHER™

### Introduction

The type B NG residential regulator is a direct-action, spring-loaded regulator, with high performance and reinforced safety features.

It provides pressure reducing control in residential, commercial and industrial applications.

A shutoff valve cuts off the gas flow in the case of excessive flow, or when the outlet pressure drops below the set-point (high gas demand or broken line) or in the case of inlet pressure dropping below the set-point (network pressure drop or pipe damage).

The regulator can be manually reset after the safety function trips.

The regulator is factory preset.

Type B6 NG is interchangeable with the current angle-shaped Type B6 N (same key dimensions).

### Body Size

NPS 3/4 x 1/4

### Inlet Pressure Range

0.5 to 5 bar

0.1 to 6 bar (on request)

### Maximum Inlet Pressure

5 bar

### Outlet Pressure Range

9 to 50 mbar

### Maximum Outlet Pressure

50 mbar

### Pressure Registration

Internal

### Temperature Capabilities

#### Standard Version:

Working: -20° to 60°C

#### Low Temperature Version:

Working: -30° to 60°C (on request)

### Approximate Weight

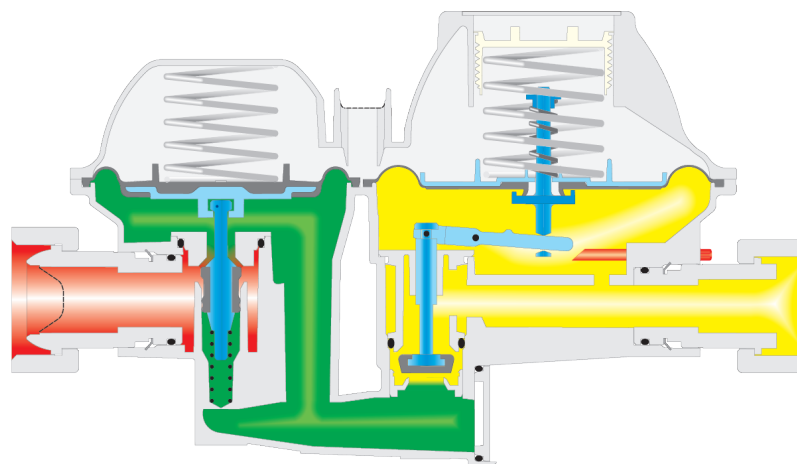
0.9 to 1 kg

### Features

- Reinforced Integration
- Two Stages of Reduction for Constant Outlet Pressures
- Compact Design
- Internal Relief
- Inlet Strainer



TYPE B NG



TYPE B NG OPERATIONAL SCHEMATIC

#### LEGEND

■ INLET PRESSURE

■ LOW INTERMEDIATE PRESSURE

■ OUTLET PRESSURE

### Introduction

The type B NV regulator is a direct-operated, spring-loaded regulator providing economical, pressure reducing control in a variety of residential, commercial, and industrial applications.

This compact regulator can be installed in a pressure reducing cabinet or a pressure reducing and metering cabinet above ground or in underground modules.

### Available Configurations

#### B25 NV:

Minimum Inlet Pressure 500 mbar

#### B40 NV:

Minimum Inlet Pressure 700 mbar

#### Bb40 NV:

Battery consisting of two B25

#### BCH30 NV:

Minimum Inlet Pressure 800 mbar

### Body Sizes

NPS 3/4 x 1-1/4

### End Connection Styles

#### Inlet:

Sphero-conical or flat joint connection

#### Outlet:

Flat meter joint connection

### Inlet Pressure

Maximum Inlet Pressure: 4 bar

Inlet Pressure Range: 0,5 to 4 bar

### Outlet Pressure

Maximum Outlet Pressure: 400 mbar

### Pressure Registration

Internal

### Temperature Capabilities

-30° to 60° C

### Approximate Weight

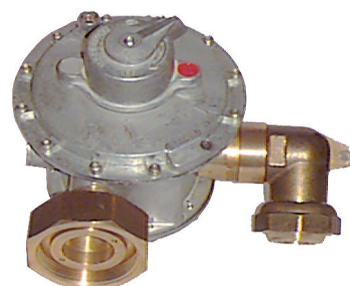
2 kg

### Features

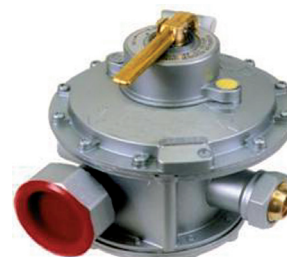
- Integral Slam-Shut Valve
- Compact Design
- Internal Relief
- Two Stages of Reduction for Constant Outlet Pressures
- Inlet Strainer



TYPE B25 NV



TYPE Bb40 NV



TYPE BCH NV

### Introduction

The BM5 Series slam-shut valve is an automatic shutoff appliance suitable for installation as a safety device in regulating stations and gas distribution piping.

The slam-shut valve is designed to shutoff the flow of gas in the event of the pressure rising above or falling below the predefined levels.

The valve is a sleeve-type, therefore, does not require any external by-pass to facilitate the opening of the valve. The valve can only be reset manually.

The BM5 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Body Sizes

DN 25, 40, 50, 65, 80, 100, and 150  
(NPS 1, 1-1/2, 2, 2-1/2, 3, 4, and 6)

### End Connection Styles

PN 16, 25 / CL150, CL300, and CL600

### Allowable Pressure

Up to 100 bar

### Underpressure Set Range

0.01 to 80 bar

### Overpressure Set Range

0.03 to 80 bar

### Accuracy Group

Up to  $\pm 1\%$

### Response Time

< 1 s

### Temperature Capabilities

#### Standard Version:

Working: -10° to 60°C

#### Low Temperature Version:

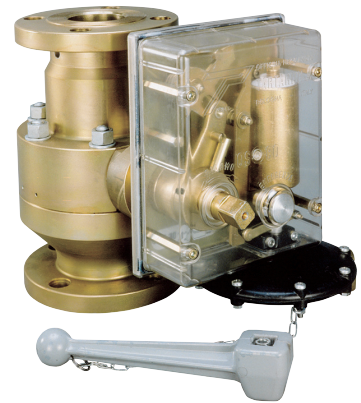
Working: -20° to 60°C

#### Approximate Weights

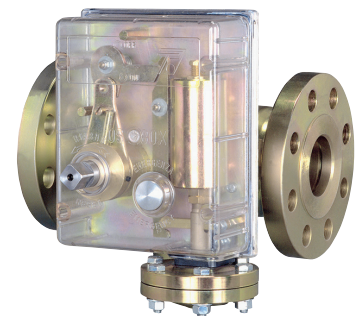
15 to 280 kg

### Features

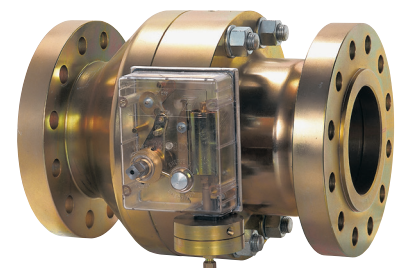
- Axial Flow
- Sleeve Valve
- Protected Seal Pad
- Push-Button Manual Emergency Release
- Manual Reset by Rotating the Reset Shaft
- Low Temperature Construction Available



TYPE BM5 WITH OS/80X



TYPE BM5 WITH OS/80X-APA-D



TYPE BM5 WITH OS/80X-APA

### Introduction

The BM6X Series axial flow slam-shut valve is an automatic shutoff appliance suitable for installation as a safety device in pressure reducing stations and on gas transfer and distribution lines.

BM6X Series slam-shut valves are "wafer" type with an off-center butterfly disk that is mounted eccentrically.

The reduced face-to-face dimension, typical of "wafer" valves, facilitates installation even in existing stations that are not equipped with shutoff devices.

The slam-shut valve is designed to shutoff the flow of gas in the event of the pressure rising above or falling below the predefined levels.

The gas flow causes the slam-shut valve to shutdown and can only be reset manually.

BM6X Series slam-shut valves use gas from the gas line for operation and therefore does not require outside sources to operate.

BM6X Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Body Sizes

DN 80, 100, 150, 200, 250, and 300  
(NPS 3, 4, 6, 8, 10, and 12)

### End Connection Styles

CL150, CL300, and CL600

### Allowable Pressure

Up to 100 bar

### Underpressure Set Range

0.01 to 80 bar

### Overpressure Set Range

0.03 to 80 bar

### Accuracy Group

Up to  $\pm 1\%$

### Response Time

< 1 s

### Temperature Capabilities

#### Standard Version:

Working: -10° to 60°C

#### Low Temperature Version:

Working: -20° to 60°C

### Approximate Weights

10 to 125 kg

### Features

- Axial Flow
- "Wafer" Type Valve
- Off-Center Butterfly Disk
- Pressure Control at One or More Points of the System
- Activation Due to Pressure Increase or Decrease
- Emergency Slam-Shut Push-Button
- Button By-pass with Automatic Return
- Manual Reset by the Sole Rotation of the Reset Shaft
- Easy Maintenance
- Sour Gas Construction Available



TYPE BM6X WITH OS/80X



TYPE BM6X WITH OS/84

### Introduction

The type OSE slam-shut valve is used to totally and rapidly cut the gas flow when the pipeline pressure exceeds the set pressure or when the pipeline pressure drops below the set pressure.

The type OSE consists of a valve, a water-tight mechanism box, and a manometric device.

A double stage mechanism detects any pressure variances.

Detection is the first stage and the mechanism will only trip when the pipeline pressure reaches the set pressure.

The second stage is the power stage; once tripped, the closing spring causes the valve plug to slam shut and remain closed until the valve is manually reset.

The OSE is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

#### Type OSE:

Slam-Shut Valve DN 25 to DN 150 (NPS 1 to 6) with Internal By-pass

#### Type OSE LS:

Slam-Shut Valve DN 200 and DN 250 (NPS 8 and 10) with External By-pass Manually Operated

### Body Sizes

DN 25, 50, 80, 100, 150, 200, and 250 (NPS 1, 2, 3, 4, 6, 8, and 10)

### End Connection Styles

PN 100B2, 50 B1, 20 B  
CL150, CL300, CL600

### Pressure Ratings

Maximum Inlet Pressure: 100 bar  
Maximum Set Pressure or Maximum Body Rating: 100 bar  
Minimum Set Pressure: 10 mbar  
Maximum Shutoff Pressure Differential: 100 bar

### Pressure Registration

External

### Pressure Sensing and Vent Connection

1/4" NPT

### Manometric Sensing Device Specifications

Spring Ranges: 10 mbar to 72.9 bar  
Max Sensing Inlet Pressure: 72.9 bar  
Set-point Tolerance: 0.004 bar to 12 bar  
Maximum Difference between Overpressure and Underpressure: 33 bar

### Temperature Capabilities

-30° to 71°C

### Options

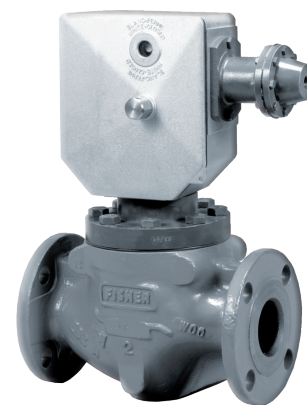
- Explosion-proof switch
- Non-explosion proof limit switch
- Solenoid
- Additional manometric device for extra pressure sensing

### Approximate Weight

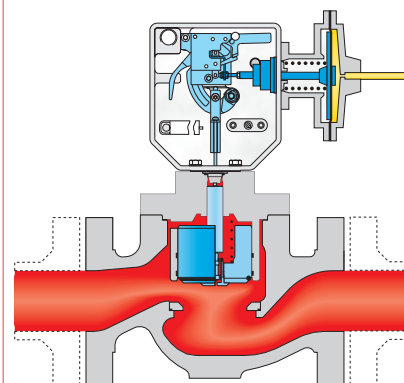
14 to 577 kg

### Features

- Overpressure and Underpressure Protection
- Two-Stage Tripping Mechanism
- High Accuracy
- Easy In-Line Maintenance
- Water-Tight
- Manually Rearmed



TYPE OSE



TYPE OSE OPERATIONAL SCHEMATIC

## Introduction

The BM7 Series slam-shut valves are automatic isolating elements suitable for installation as safety devices in regulating stations.

They assure easy installation and maintenance together with high accuracy.

The BM7 Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

## Body Sizes and End Connection Styles

DN 1 1/2", 2" GAS - Threaded Body

DN 40, 50 PN 16 - Flanged Body

DN 50 ANSI 150 - Flanged Body  
(on request)

## Permissible Inlet Pressure

Up to 14 bar

## Pressure Ranges

### Version with Type OS/66 Shutoff

Minimum Pressure Set Range:  
0.007 to 0.4 bar

Maximum Pressure Set Range:  
0.025 to 0.5 bar

### Version with Type OS/66-AP Shutoff

Minimum Pressure Set Range:  
0.1 to 2.5 bar

Maximum Pressure Set Range:  
0.2 to 5 bar

## Accuracy Class

Up to  $\pm 1\%$

## Response Time

< 1 s

## Temperature Capabilities

### Standard Version:

Working: -10° to 60°C

### Low Temperature Version:

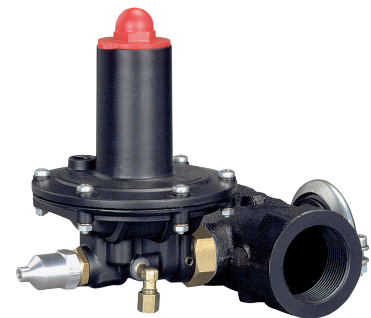
Working: -20° to 60°C

## Approximate Weights

3 to 13 kg

## Features

- Ease of Installation
- Ease of Maintenance
- High Operation Accuracy



TYPE BM7



TYPE BM7-F5

### Introduction

The type VS100 slam-shut is designed to shut off the flow of gas to the downstream system in the event of outlet pressure rising above or falling below the predefined levels.

The type VS100 consists of a body with a removable orifice, enclosed by a bonnet, and a type VSX4 slam-shut device.

The type VS100 is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV.

### Available Configurations

#### Types VS111 and VS112:

19 mm / 0.75" orifice size medium capacity application

### Body Sizes and End Connection Styles

Medium Capacity Body (MC):

Rp 1, 1-1/4, 1-1/2  
1, 1-1/4, 1-1/2 NPT  
Rp 1 x 2-1/4 GAZ  
DN 40 PN 16 slip-on

### Maximum Inlet Pressure

Differential Strength (DS): 16 bar  
Integral Strength (IS): 6 bar

### Maximum Allowable Pressure

20,0 bar

### Temperature Capabilities

#### According to PED Standards:

-20° to 60°C

#### Non-PED:

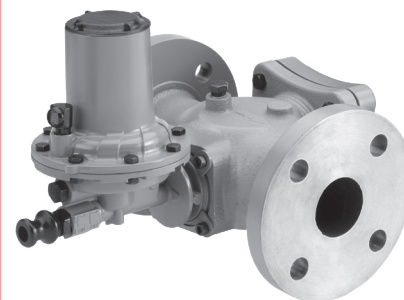
-30° to 66°C

### Approximate Weights

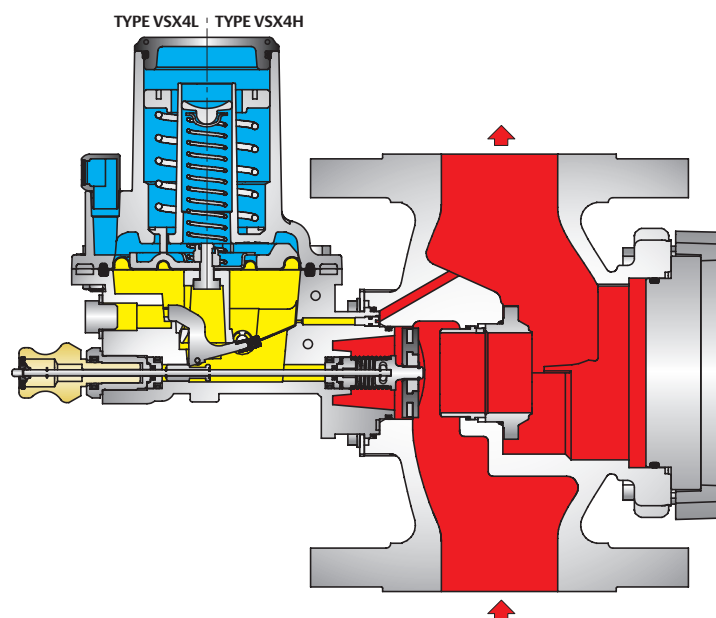
3,5 to 3,7 kg

### Features

- Quick Response Time
- Ductile Iron and Steel Body Construction



TYPE VS100



TYPE VS100 OPERATIONAL SCHEMATIC

#### LEGEND

■ INLET PRESSURE    ■ OUTLET PRESSURE    ■ ATMOSPHERIC PRESSURE

### Introduction

Servo-controlled relief valves are used in natural gas transmission applications.

They assure accurate setting, perfect closing, and high exhaust flow rate.

VS-FL and VS-FL-FR Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV.

### Available Configurations

#### VS-FL Series

##### Type VS-FL-BP:

Low and Medium Pressure Applications with Pilot Type PRX/182

##### Type VS-FL:

Medium and High Pressure Applications with Pilot Types PRX/182 or PRX-AP/182

#### VS-FL-FR Series

##### Type VS-FL-FR-BP:

Low and Medium Pressure Applications with Pilot Types PRX/182

##### Type VS-FL-FR-HP:

Medium and High Pressure Applications with Pilot Types PRX/182, PRX-AP/182

All VS-FL and VS-FL-FR type relief valves are available with or without:

**Type SR:** Silencer

### Body Sizes

#### VS-FL Series:

DN 25, 40, 50, 65, 80, 100, 150, 200\*, and 250\*  
(NPS 1, 1-1/2, 2, 2-1/2, 3, 4, 6, 8\*, and 10\*)

#### VS-FL-FR Series:

DN 25, 50, 80, 100, 150, 200\*, and 250\*  
(NPS 1, 2, 3, 4, 6, 8\*, and 10\*)

\* These sizes are not available in BP version

### End Connection Styles

PN 16 / CL150, CL300, and CL600

### Inlet Pressure Range

#### Flange Rating PN 16 / CL150:

Allowable Pressure: Up to 20 bar

Inlet Pressure Range: 0.2 to 20 bar

#### Flange Rating CL300, CL600:

Allowable Pressure: Up to 100 bar

Inlet Pressure Range: 1 to 100 bar

### Set Range

#### Flange Rating PN 16 / CL150

0.5 to 19.3 bar

#### Flange Rating CL300, CL600

1 to 80 bar

### Temperature Capabilities

#### VS-FL Series

##### Standard Version:

Working: -10° to 60°C

##### Low Temperature Version:

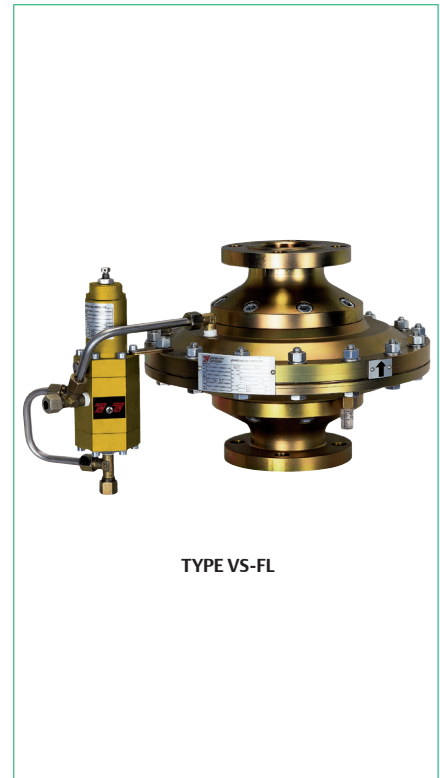
Working: -20° to 60°C

#### VS-FL-FR Series

Working: -20° to 60°C

### Approximate Weights (Including Pilot)

24 to 1190 kg



TYPE VS-FL

### Features

- Ease of Installation
- Ease of Maintenance
- High Operation Accuracy

## Introduction

The V series automatic spring-loaded relief valves are designed to keep line pressure below preset values.

They are mounted downstream of regulators and perform the specific function of releasing small amounts of gas in the event of the regulator not closing properly.

The V Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category I maximum.

## Available Configurations

### Types V/50 and V/60:

Very Low Pressure Applications

### Types V/51 and V/61:

Low Pressure Applications

### Types V/52 and V/62:

Medium Pressure Applications

### Type V/20-2:

High Pressure Applications

## Body Sizes and End Connection Styles

### V/50 Series:

1 x 1-1/2" BSP Threaded

### V/60 Series:

1-1/2 x 2" BSP Threaded

### Type V/20-2:

1" NPT Threaded

## Inlet Pressure

**V/50 Series:** 4 bar

**V/60 Series:** 2.5 bar

**Type V/20-2:** 100 bar

## Set Range

**V/50 and V/60 Series:** 0.025 to 2 bar

**Type V/20-2:** 1.5 to 40 bar

## Orifice Size

**V/50 Series:** 1 1/4"

**V/60 Series:** 1 1/2"

**Type V/20-2:** 1"

## Temperature Capabilities

### Standard Version:

Working: -10° to 60°C

### Low Temperature Version:

Working: -20° to 60°C

## Approximate Weight

**V/50 Series:** 1.3 kg

**V/60 Series:** 1.9 kg

**Type V/20-2:** 1.6 kg

## Features

- Easy Installation and Maintenance
- Release Capacity
- Accuracy



TYPE V/50



TYPE V/60



TYPE V/20-2

### Introduction

Floating and Trunnion type valves are full bore type and designed for use in gas distribution and transport lines.

### Available Configurations

#### Floating Type:

Full bore valve with cast steel body.

Lever or gear operated.

#### Trunnion Type:

"Double Block and Bleed" full bore valve with cast steel or forged body.

Lever or gear operated.

### Body Sizes

#### Floating Type:

DN 25, 50, 80, 100, and 150  
(NPS 1, 2, 3, 4, and 6)

#### Trunnion Type:

DN 80, 100, 150, 200, 250, 300, 350,  
400, 450, 500, and 600  
(NPS 3, 4, 6, 8, 10, 12, 14, 16, 18, 20,  
and 24)

### End Connection Styles

CL 150, CL 300, and CL 600

### Inlet Pressure

Allowable Pressure: Up to 100 bar

### Temperature Capabilities

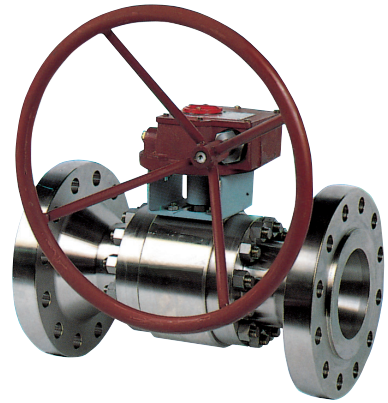
Working: -20° to 60°C

### Approximate Weight

6.5 to 5800 kg

### Features

- Antistatic and Fire-Proof Design
- High Versatility for a Wide Range of Different Applications



FLOATING TYPE



TRUNNION TYPE

## Introduction

The type VFA butterfly valves are "wafer" flangeless type and typically used in gas reducing stations for an on-off service.

The VFA butterfly valves, due to their particular construction features, have very low pressure losses and excellent seal.

This series of butterfly valves is designed basically for natural gas transmission or distribution grids, and for commercial and industrial applications.

Their reduced overall dimensions allow simple installation and easy maintenance.

The VFA Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category III maximum.

## Available Configurations

### VFA:

Lever operated

### VFA-MR:

Gear operated

### VFA-MRO:

Gear operated for use with absorbing odorizing systems

## Body Sizes

DN 50, 65, 80, 100, 125, 150, 200, and 250  
(NPS 2, 2 1/2, 3, 4, 5, 6, 8, and 10)

## End Connection Styles

PN 16, CL150

## Inlet Pressure Range

Allowable Pressure: Up to 19 bar

## Temperature Capabilities

Working: -10° to 60°C

## Approximate Weight

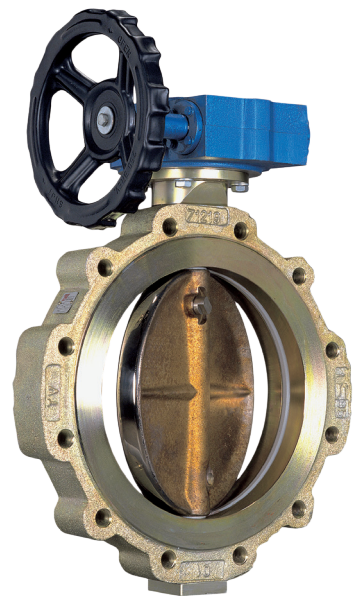
11.5 to 103 kg

## Features

- **Tight Shutoff**
- **Compact Design**
- **Easy Installation in All Positions**
- **Easy Maintenance**
- **Very Low Pressure Loss**



TYPE VFA



TYPE VFA-MR

### Introduction

The type CNF, CN, CF, and SV heat exchangers are sized and designed to meet a large range of system requirements, and include all connections for all accessories required.

In the gas pressure reduction process according to the “Joule-Thomson” effect, temperature drops considerably (approximately 0.5° C per reduction bar).

This fall in gas temperature can damage the equipment due to the formation of dangerous ice crystals produced by water vapor in the gas.

Particularly in first stage stations, high pressure changes are usually involved, therefore, the gas must be heated before pressure is reduced.

It is recommended that, after reduction, gas temperature should not be below 5°C.

One of the best established methods of heating gas in reduction stations is to use heat exchangers employing hot water or steam as their thermal carrier fluid.

CNF, CN, CF, and SV Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV maximum.

### Available Configurations

#### CNF, CN, and CF Series:

Water as Thermal Carrier Fluid

#### SV Series:

Steam as Thermal Carrier Fluid

### End Connection Styles

Gas Side: CL300, CL600

Water or Steam Side: PN 6

### Applications

- Pre-heating of natural gas in first reception and pressure reduction stations, and for all gas heating requirements
- Non-Corrosive Gases

### Maximum Water Temperature

CNF, CN, and CF Series: 90°C

### Maximum Steam Temperature

SV Series: 120°C

### Installation and Assembly

- Heat Exchangers designed for installation with vertical tube bundle
- Different tube bundle configurations available upon request

### Approximate Weights

90 to 1350 kg

### Features

- Tube Bundle Heat Exchangers using U-Tubes (BEU)
- Tube Bundle with Inspection Facility
- Gas in Tubes Section, Thermal Carrier Fluid in Shell Section
- Axial Connections in Gas Section
- Designed for Automatic Air Escape Installation
- Designed for Relief Valve Installation



TYPE CF

### Introduction

Filters are intended to screen out larger pieces of foreign particles, often present in the gases or particularly during the initial stages of operation of newly laid pipes, minimizing damage to valves, pressure regulators, meters and other equipment used in regulating and metering stations.

The FA and FAG Series filters can be used with natural and manufactured gases, air, propane and other gases so long as they do not contain high percentages of benzol.

They have threaded connections for the mounting of the drain cock (supplied on request) and other accessories.

Filters for customers' specific requirements can be made upon request only.

The FA and FAG Series are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV maximum.

### Available Configurations

**FA Series:** High pressure filters

**FAG Series:** Medium and low pressure filters

**Type FG/07:** Medium and low pressure filters with threaded connections

### End Connection Styles

#### FA Series Axial Flow Connections

CL150, CL300, and CL600  
DN 50, 65, 80, 100, 150, 200, 250, 300, 350 and 400  
(NPS 2, 2-1/2, 3, 4, 6, 8, 10, 12, 14, and 16)

#### FAG Series 90° Flow Connections

PN 16 / CL150

#### FAG-A Series Axial Flow Connections

PN 16 / CL150  
DN 50, 65, 80, 100, 125, 150, 200, 250, and 300  
(NPS 2, 2-1/2, 3, 4, 5, 6, 8, 10, and 12)

#### Type FG/07 Axial Flow Connections

1" Gas

### Inlet Pressure

#### FA Series:

Maximum Allowable Pressure: Up to 90 bar

#### FAG and FAG-A Series:

Maximum Allowable Pressure: Up to 19 bar

### FG/07 Type:

Maximum Allowable Pressure: 16 bar

### Filtering Capabilities

#### FA Series:

Filtering Surface: 0.25 to 8.4 m<sup>2</sup>

Filtering Degree: 5 µm

#### FAG and FAG-A Series:

Filtering Surface: 0.06 to 4.2 m<sup>2</sup>

Filtering Degree: 5 µm

#### Type FG/07:

Filtering Surface: 0.09 m<sup>2</sup>

Filtering Degree: 5 µm

### Temperature Capabilities

#### FA Series

##### Standard Version:

Working: -10° to 100° C

##### Low Temperature Version:

Working: -20° to 100° C

#### FAG and FAG-A Series

##### Standard Version:

Working: -10° to 60° C

##### Low Temperature Version:

Working: -20° to 60° C

#### Type FG/07:

Working: -10° to 60° C

### Approximate Weights

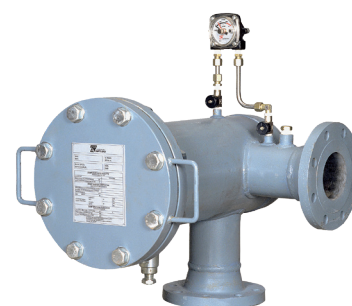
2,1 a 1205 kg

### Features

- Versatility
- Wide Range of Applications
- Easy Maintenance
- Axial and Right-Angle Connections
- Quick Opening Version Available on Request



TYPE FA



TYPE FAG



TYPE FAG-A

### Introduction

The types BLE and BLX throttle valves function as a by-pass on transmission stations reducing pressure.

The type BLX version is equipped with a type OS2 release relay to cut off the gas flow in case of outlet over pressure.

The types BLE and BLX are in conformity with the Pressure Equipment Directive PED 2014/68/UE and are classified under Category IV.

### Available Configurations

#### Type BLE:

Throttle Valve

#### Type BLX:

Throttle Valve with Shutoff Valve

### Body Sizes

DN 25, 50, 80, 100 (NPS 1, 2, 3 and 4)

### End Connection Styles

PN 16 B, PN 25 B, and PN 40 B  
CL 600B, CL 300B, CL 150B

### Maximum Operating Pressure

100 bar

### Temperature Capabilities

Working: -30° to 71°C

### Approximate Weights

#### Type BLE:

DN 25 (NPS 1): 12 to 14 kg  
DN 50 (NPS 2): 22.5 to 26.5 kg  
DN 80 (NPS 3): 43 to 51 kg  
DN 100 (NPS 4): 80 to 96 kg

#### Type BLX:

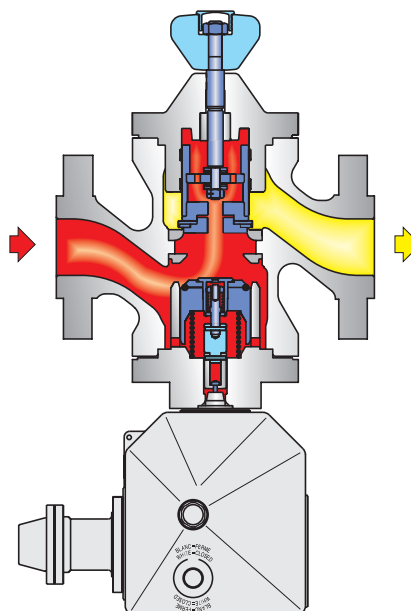
DN 25 (NPS 1): 20 to 22 kg  
DN 50 (NPS 2): 36 to 40 kg  
DN 80 (NPS 3): 57 to 65 kg  
DN 100 (NPS 4): 115 to 131 kg

### Features

- **Robust Design**
- **High Precision**
- **Progressive Opening**



TYPE BLX



TYPE BLX - OPERATIONAL SCHEMATIC

#### LEGEND

INLET PRESSURE

OUTLET PRESSURE

### Introduction

The OL Series is an absorption-type odorizing system employed in small and large-sized stations.

They are used as stand-by and emergency systems in all injection-type odorizing installations.

Differential pressure is necessary to achieve proper operation.

The OL Series is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category IV maximum.

### Features

- Direct Reading Level Gauge
- Regulating, Shutoff and Filling Valves



### Available Configurations

#### Tank and Valves:

- Carbon Steel
- Stainless Steel

#### Level Indicator:

- Vertical
- Diagonal
- Magnetic for Remote Control

**OL-25:** Volume 25 l

**OL-50:** Volume 50 l

**OL-100:** Volume 100 l

**OL-150:** Volume 150 l

**OL-200:** Volume 200 l

**OL-250:** Volume 250 l

**OL-300:** Volume 300 l

**OL-1000:** Volume 1000 l

### End Connection Styles

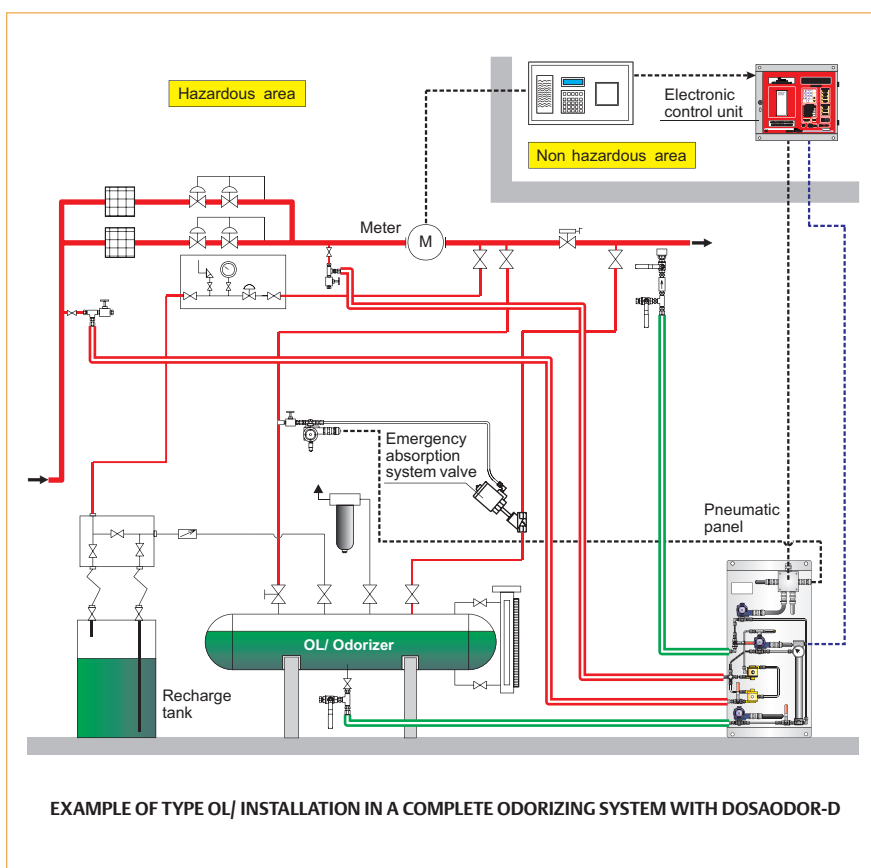
PN 6, PN 16 / CL150, CL600

### Maximum Allowable Pressure

Up to 90 bar

### Temperature Capabilities

Working: -10° to 60°C



### Introduction

The type Dosaodor-D is a computerized odorant injection system for natural gas that uses patented solenoid injector technology eliminating the need for plunger pumps.

The solenoid injectors permit odorant injection accuracy to be maintained over the entire range of the system, approaching infinite turn down.

Dosaodor-D is in conformity with the Pressure Equipment Directive PED 2014/68/UE and is classified under Category II.

### Available Configurations

#### Pneumatic Panel

##### Type B1:

Single injector version with one solenoid valve for injection management

##### Type B2:

Dual injector version with two solenoid valves for injection management

#### Remote Control Software

DOSALINK

### Pneumatic Panel Specifications

#### Material:

20/10 mm stainless steel plate

#### Installation:

Wall mounted

#### Weight:

25 - 45 kg (based on configuration type)

#### Overpressure Stainless Steel Relief Valve with the Following Rating Options:

14 bar - 38 bar - 60 bar

#### Electrical Protection:

Explosion proof and intrinsically safe

#### Material Electrical Protection:

Available for European and North American standards

#### Mechanical Connections

##### Odorant Inlet and Discharge:

DN 1/4" double ferrule fitting for DN 6x1 pipe

##### Gas Inlet and Discharge:

DN 1/4" single ferrule fitting for DN 8x1 pipe

##### Maximum Working Pressure:

**Supply:** 100 bar

**Injection:** 14, 38, 60 bar

##### Odorant Flow Rate:

0.5 – 14 l/h

##### Temperature Capabilities:

Working: -10° to 60°C

### Electronic Control Unit Specifications

#### Construction Material:

10/10 mm steel plate

#### Finish:

RAL 7032 grey epoxy powder coat

#### Door:

Lockable with window

#### Installation:

Wall mounted

#### Weight:

22 kg (medium complexity configuration)

#### Power Supply Options:

12Vdc+/-15%

115 Vac 60Hz

230 Vac 50Hz

#### Electromagnetic Interference:

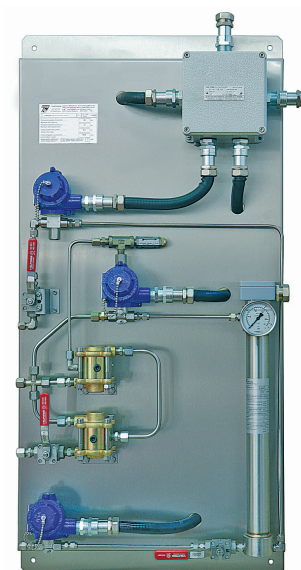
Consistent with 89/336/CE standard

#### Humidity:

10% – 90% non-condensing

#### Electrical Protection:

Explosion proof/Intrinsically safe



PNEUMATIC PANEL



ELECTRONIC CONTROL UNIT

### Features

- Consistent Odorization Proportional to Entire Range of Gas Flow Rate
- Significantly Reduced Maintenance
- Variety of Redundancy Options for Odorization
- User-Friendly Configuration Software
- Automatic Calibration During Operation
- Standard and Scalable Hardware Platform

### Introduction

Managing entire Natural Gas grids includes diversifying gas sources and expanding the customer base while balancing both ends to ensure reliable, safe and efficient operations. To satisfy this, transmission and distribution companies design redundant safety layers and oversized grids while operating them at the highest pressure levels which increases gas leaks.

Frequent on-site interventions are necessary to perform regular checks and set up pressure reducing equipment to accommodate seasonal service condition changes which is a challenge as valuable field engineering resources are scarce. This impacts gas utilities' financial bottom line while exposing them to environmental fines.

Remotely and automatically controlling entire operations, from pressure reducing equipment up to a gas transmission and distribution network, permits safer and more productive management of operations while reducing costs.

### The RAF System

The Remote Automated Flow (RAF) allows such smart management.

Incorporating a control unit, customizable touch screen interface and smart software, it is highly scalable with the ability to automatically manage individual equipment, a complete pressure reducing and metering station and an entire grid.

The Remote Automated Flow (RAF) system is mainly composed of:

- pressure transmitters to measure the station outlet pressure and regulators loading pressure
- solenoid valves for set point adjustment
- electronic control unit built in a control panel, installed in safe area
- built-in web server, Ethernet connection, modem GSM/GPRS

The operating logic of the system resides in the electronic control unit that receives input signals of the regulator loading and outlet pressures, then acts on regulating solenoid valves to adjust the set point to

the optimal value for the station operation according to the user's requirements. In case of anomalous setting variations or fail detection, the software installed in the control unit leaves the system operate in "mechanical mode", disabling all electronic controls and assuring the safety of the whole system, together with the continuity of operation.

The RAF system can be locally or remotely operated. It registers all controlled variables including water and odorizer levels, clogging filters, access control, pump and burner functionalities, etc. It permits alarm messages through sms or e-mail, thereby eliminating the need for frequent site inspections.

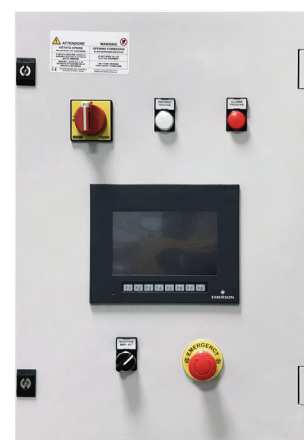
The RAF can be used with all "loading type" pilot operated pressure regulators.

It is also optimized to retrofit existing "traditional" stations, having a limited impact on existing skids as it is only required to adapt the sensing lines tubing of active regulators.

As in many industries, our innovation is focused on smart management of Natural Gas production, transmission and distribution.



SOLENOID VALVES



ELECTRONIC CONTROL UNIT



TYPICAL EXAMPLE OF A SMART SKID

## Introduction

Skids are prefabricated pressure reducing stations designed to the customer's specifications, then built to order including a range of products from our brands, Tartarini™ and Fisher™, such as regulators, manual isolation valves, and piping.

Skids reduce overall costs and include components such as filters, slam-shuts, heaters, and meters.

Emerson has many years of experience designing and assembling regulating and metering stations. We have skid manufacturing sites in China, India, Dubai, France and Italy to respond to local customer specifications in each World area.

Our array of standard and customized installations incorporate the latest in engineering technology for transmission, distribution, and utilization applications.

Emerson pressure-reducing stations can be developed for open air, underground or cabinet/building-protected applications.

Our experience and professionalism acquired over the years enables us to offer our customers a complete product and service offering including:

- Quotations
- Feasibility Studies
- Site Surveying
- Project Management
- Construction
- Revamping
- Commissioning/Start-up
- TurnKey Projects
- Training (field/site)
- Lifecycle Services

## City Gate / Transmission / Distribution Stations

High-pressure transmission pipelines move the gas from the production company's cleaning plants to gas distribution companies.

## Power Plant / Fuel Gas Stations

From the biggest electricity generation sites to the most recent cogeneration technologies, Emerson provides unrivaled solutions for all your energy needs.

## Odorization Solutions

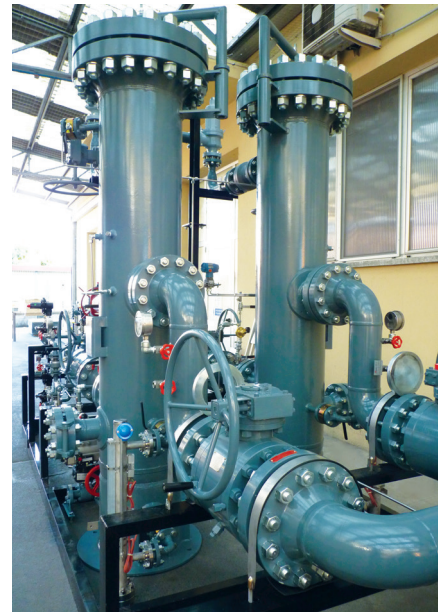
The best odorant injection technology that brings the highest safety level in the natural gas distribution grid, Emerson odorization solutions can be engineered to meet customer needs.

## Commercial / Industrial Service

Worldwide, natural gas is used for commercial and industrial applications. Commercial applications, such as grocery stores and office buildings, use natural gas for heating.

## Customized Stations

Emerson brings together technology and engineering providing a wide range of manufacturing and processing solutions for all natural gas applications.





## Emerson After-Sales Services

Emerson provides a complete After-Sales Service for all their products including:

- Installation, start-up and commissioning operations
- Scheduled technical and on-call assistance
- Emergency call-out service equipped with back-up regulating units to guarantee the continuity of operation
- Upgrade and revamp of existing equipment
- Under warranty claims
- Certification for all service interventions according to national and international standards, guaranteeing the quality of operations carried out by the Emerson After-Sales Technicians
- A complete range of spare parts and kits stored in our fully automated warehouse to guarantee fast deliveries
- An educational service offering a complete range of training programs for customers of all levels developed and taught by experienced engineers

## Emerson Educational Services

With nearly 30 years of training experience, the Emerson Educational Service is committed to providing quality training to over 4,800 individuals, when and where you need it.

### Factory Training:

We host factory training courses in our fully equipped training room equipped with regulation stations, compressed air and multimedia tools.

### On-Site, Local Training:

We develop on-site local training courses providing tailor training to meet your specific needs.

Here are two examples of the type of training courses we offer our customers:

### Natural Gas Products Service and Maintenance Training Course - Level I

This 3-day course is designed primarily for technicians, engineers and other persons involved in the maintenance,

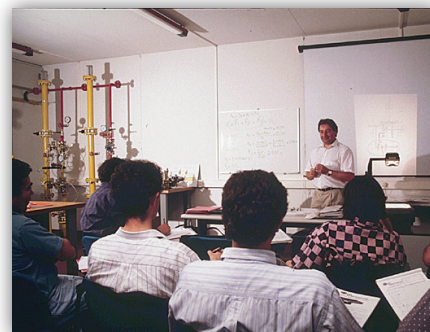
installation and operation of pressure reduction products and applications.

This course provides a basic understanding of the theories of operation, installation, maintenance and troubleshooting.

### Natural Gas Products Service and Maintenance Training Course - Level II

This 3-day course is designed primarily for technicians, administration personnel and other persons with solid knowledge and experience of pressure reduction products and applications.

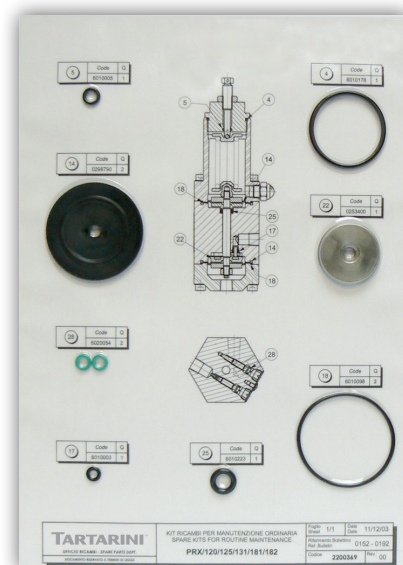
This course focuses on theoretical knowledge and advanced operational procedures for commissioning, calibration and maintenance.



### Emerson Spare Parts Services

Spare parts, packaged in blisters for fast delivery, offering the same characteristics as the original parts, guarantee the same performances of the new equipment.

In order to satisfy customer requirements, our spare parts warehouse is fully automated optimizing all deliveries.








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