

Industrial Regulators

Air • Steam • Tank Blanketing • Liquids • Process Gases • Fuel Gas



FISHER-ROSEMOUNT Managing The Process Better.

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ON THE COVER

Fisher Industrial Regulators shown are
Types 627W, 95H (center), 67AFR, 63EG-98HM, 1190 and Y693.

Our pledge to you...

For over a century, Fisher Controls has led the way in regulator product design, engineering applications support, value for the dollar and customer satisfaction. Today, no other regulator manufacturer in the world offers more products and services dedicated to the process control industry than Fisher.

With the most complete line of industrial regulators and a worldwide distribution network, Fisher probably has the very products you need ready for delivery from local stock or ready for shipment directly from a Fisher factory. Our global capabilities include an experienced sales and support team consisting of more than 2,000 technical experts available to serve you from nearly 200 offices throughout the world. Wherever you are, you can count on the Fisher commitment to product integrity, reliability, safety and performance — and a level of support no other supplier can equal.

Even your toughest process control challenges are no match for Fisher equipment, local service and support. Call on us any time, anywhere in the world, to see how Fisher can help you manage your process better.



Regulators



Product schematics and other technical documentation for all the products listed in this brochure are available in electronic form on the Fisher Controls Regulator Division Literature CD-ROM. For your free copy of the CD or printed copies of technical documentation, call 1-800-558-5853. You can also e-mail your request to fisher.regulators@frco.com.

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In's and out's of pressure regulators

A pressure regulator maintains a desired, reduced outlet pressure while providing the required fluid flow to satisfy a variable downstream demand. The value at which the reduced pressure is maintained is the outlet pressure setting of the regulator. In all pressure reducing regulators, increasing force of downstream pressure closes the regulator main valve.

Pressure regulators are simple control devices in which all of the energy needed for operation is derived from the controlled system. They require no external power sources. Based on the axiom that the simpler a control system is, the better it is (as long as it does the job), the simplicity of regulators makes them a standard of the industry. Pressure regulators typically cost less to buy, install and maintain, and are more compact and lighter than other control systems.

The two main types of regulators

All regulators for pressure control are either direct-operated or pilot-operated.

Direct-operated regulators

can handle applications in which an outlet pressure change of 10 percent to 20 percent of setpoint is acceptable (Fig. 1). Typical applications include industrial, commercial, and gas service; instrument air or gas supply; fuel gas to burners; water pressure control; steam service; and tank blanketing.

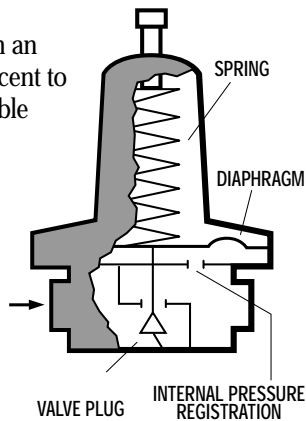


Fig. 1. Direct-operated regulator.

The biggest advantages of direct-operated regulators include simplicity of design, construction, and operation.

But their output is non-linear because their spring loading system causes much of the droop found in regulator operation. (Droop is defined as the decrease in controlled pressure that occurs when moving from a low load to full load flow condition. It is normally expressed as a percent and is often referred to as proportional band.) Therefore, to attain high flow rates without excessive droop, another form of loading must be used.

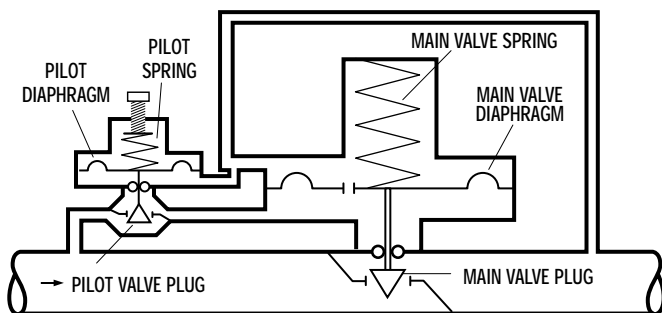


Fig. 2. Pilot-operated regulator.

Pilot-operated regulators (Fig. 2) are a better choice when the allowable change in outlet pressure must be less than 10 percent of the outlet pressure setpoint. Applications are similar for those with direct operated regulators, but where greater accuracy and/or higher flow is required.

This type of regulator does the same job as one that is direct-operated. But instead of relying upon spring force to open the main valve, an auxiliary device called the pilot supplies loading pressure against the regulator diaphragm to open the valve. The pilot (also called a relay, amplifier, or multiplier) multiplies a small change in downstream pressure into a large change in the loading pressure applied to the regulator. It is this multiplying

effect that enables pilot-operated regulators to control pressure with greater accuracy.

Almost all pilot-operated regulators have downstream control lines. These provide versatility in controlling pressure at a given location in the downstream system.

Comparison of regulator types

TYPE	ACCURACY	CAPACITY	SPEED OF RESPONSE	COST
Direct Operated			■	■
Pilot Operated	■	■		

■ = Better

Regulator factors to consider.

Regulator capacity information is based on very specific flow conditions, which means a flow rate typically is given for a specific setpoint, inlet pressure, and droop. The flow rate will vary depending on regulator body size, orifice size, and spring selection. To correctly size a regulator, you need to consider:

- MAXIMUM AND MINIMUM INLET PRESSURE
- MAXIMUM EXPECTED FLOW RATE
- FLOWING MEDIUM
- TEMPERATURE
- ACCEPTABLE ACCURACY OR DROOP

The minimum inlet pressure and maximum flow are very critical in regulator sizing. The regulator has to be large enough to pass the maximum flow required even with a low inlet pressure or a starved condition at the inlet.

In general, if more than one orifice can handle the flow, choose the smallest diameter orifice. This improves performance and minimizes shut-off problems.

If two or more springs have published pressure ranges that cover the desired pressure setting, use the spring with the lower range to gain better accuracy.

The regulator body size will not necessarily be the same size as the pipeline and should never be larger. Often, the regulator body is one size smaller than the pipe size. Best performance is obtained with the smallest body and orifice selection that will handle the flow.

Most soft seated regulators maintain the pressure within reasonable limits down to zero flow.

Every regulator represents a blend of such factors as price, capacity, accuracy, stability, simplicity, and speed of response.

Pressure relief, back pressure & vapor recovery

Your front line of defense.

The pressure relief valve is intended to keep system pressure from reaching hazardous levels should a malfunction occur and result in overpressure in the downstream system. Similarly, a back pressure regulator is used to maintain upstream pressure at a level determined by the regulator set point. Back pressure regulators and relief valves produced by Fisher are throttling devices which minimize system pressure upsets (as opposed to pop valves or safety relief valves).

Types of relief valves.

Back pressure and relief valves used in piping systems are divided into two types: direct-operated and pilot-operated.

In a **direct-operated** relief valve, the valve plug responds directly to the system pressure, which is usually exerted on a diaphragm or piston and opposed by an adjustable spring. A typical direct-operated unit is shown in Figure 3.

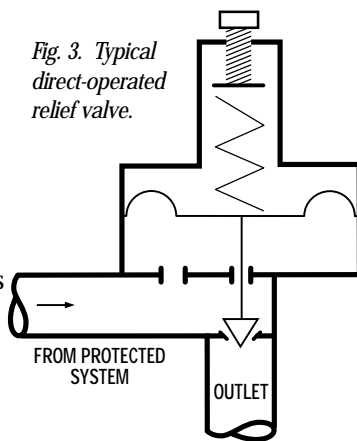


Fig. 3. Typical direct-operated relief valve.

In a **pilot-operated** relief valve, a small pilot regulator amplifies the change in differential pressure across the diaphragm or piston of the main valve as illustrated in Figure 4. The purpose of the pilot is to narrow the range of pressure over which the main valve reaches its maximum rated stroke.

Pressure relief considerations.

A relief valve of either type has some pressure at which it begins to come open and a higher pressure at which it is wide open. With a direct-operated valve, this pressure buildup to achieve full flow may be as high as 40 percent above setpoint, compared to perhaps only 10 percent or even less for a typical pilot-operated unit.

The narrower buildup of a pilot-operated unit can make a great deal of difference in the design and operation of a relief system. It allows the system to operate at higher pressures, closer to the maximum safe level, without risking discharge due to slight pressure excursions. And it allows the system to continue operating at a more nearly constant pressure while the valve is relieving.

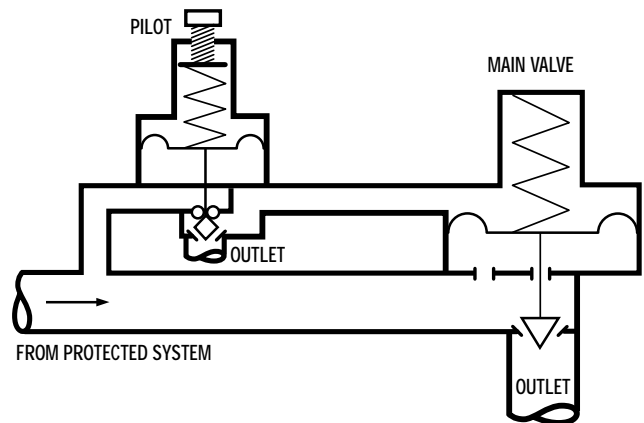


Fig. 4. Typical pilot-operated relief valve. Pilot normally maintains full system pressure as loading above the main diaphragm. When pressure approaches the pilot set-point, it begins to switch the loading pressure to atmospheric. This allows the main valve to open in a narrower range of pressure.

Another factor bearing on pressure buildup is the choice between relief valve springs with overlapping ranges. The system will usually experience a narrower buildup with the lighter, lower-range spring while the heavier spring gives more assurance of tight, chatter-free shut-off when the valve re-seats. When the decision is not clear-cut, it is usually better to pick the lighter spring for good performance.

Vapor recovery.

When pressure inside a vessel rises due to thermal heating or “pump-in” of product, Fisher Accu-Pressure™ Vapor Recovery Regulator Systems sense an increase in tank pressure and vent excessive internal tank pressure to an appropriate vapor recovery disposal or reclamation system. Vessels not adequately protected from over-pressurization can cause serious problems. The unwanted escape of tank vapors to the atmosphere can also lead to environmental problems.



Air

Instrument Supply Regulators

Switching / Lock-up / Trip

Pneumatic Panel Loader

Volume Boosters

Valves

Filters

Reliefs

- Durable / Simple Design
- Low Maintenance
- Stocked Locally

The use of air, natural or inert gas to power pneumatic instruments is common in today's chemical manufacturing, hydrocarbon and process industries. The extraordinary engineering and manufacturing know-how designed in all Fisher regulator products helps to provide top performance from process control instruments and systems, demonstrating a lifetime cost advantage. Rugged and dependable, Fisher systems provide years of cost-effective service in the harshest environments.

Switching



TYPE NUMBER	167A
End Connection Size . . . . .	.1/4-inch
Reduced Pressure Ranges (3)	5 - 100 psig (0,3 - 6,9 bar)
Maximum Inlet Pressure	250 psig (17,2 bar)
Operation	Direct
Body Material	Aluminum
Fisher Bulletin Number	71.7:167A

This three-way switching valve is usually installed to provide switching or lock-up action in the event that system operation deviates from normal. Its compact size makes it suitable for field or panel mounting.

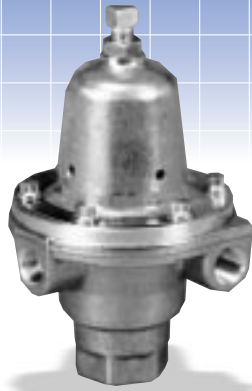
Pressure Reducing



TYPE NUMBER	67AFR
End Connection Size . . . . .	.1/4-inch
Reduced Pressure Ranges (6)	3 - 100 psig (0,2 - 6,9 bar)
Maximum Inlet Pressure	250 psig (17,2 bar)
Operation	Direct
Body Material	Aluminum or Stainless Steel
Fisher Bulletin Number	71.1:67

This self-operated, small-volume regulator provides reduced pressure to spray guns, air chucks, pneumatic and electropneumatic controllers and other instruments. Its small size makes it ideal for small installations and is even suitable for liquid applications where compatibility exists.

Pressure Reducing



TYPE NUMBER **1301F/1301G**
 End Connection Size 1/4-inch
 Reduced Pressure Ranges (4) 10 - 500 psig (0,69 - 34,0 bar)
 Maximum Inlet Pressure 6000 psig (414 bar)
 Operation Direct
 Body Material Brass or Stainless Steel
 Fisher Bulletin Number 71.1:1301

These direct operated, high-pressure regulators are designed for inlet pressures up to 6000 psig (414 bar) and can be used a pilot supply or for pressure loading.

Pressure Reducing



TYPE NUMBER **.64 SERIES**
 End Connection Size 1/2-inch
 Reduced Pressure Ranges (7) 3 - 150 psig (0,2 - 10,3 bar)
 Maximum Inlet Pressure 250 psig (17,2 bar)
 Operation Direct
 Body Material Aluminum
 Fisher Bulletin Number 71.1:64

For delivery of reduced supply pressure to instruments, this spring-loaded, self-operated regulator controls a variety of gases including anhydrous ammonia and has construction for sour gas services.

Pressure Reducing DIN Flanged



TYPE NUMBER **.1098-EGR**
 End Connection Size 1, 2, 3, 4, 6, 8 x 6, 12 x 6-inch
 Reduced Pressure Ranges (10) 2-inches wc - 300 psig (5 mbar - 20,7 bar)
 Maximum Inlet Pressure 400 psig (28 bar)
 Operation Pilot
 Body Material Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.2:1098-EGR

Accurate and economic pressure control, in-line maintenance and noise reduction capability are a few features of this pilot operated regulator which can be used for large capacity burner systems and furnaces as well as other high flow general service applications.

Relief/Back Pressure



TYPE NUMBER **.289 SERIES**
 End Connection Size 3/4, 1, 2-inch
 Reduced Pressure Ranges (13) 3-inch wc - 75 psig (7 mbar - 5,2 bar)
 Maximum Inlet Pressure 100 psig (6,9 bar)
 Operation Direct
 Body Material Aluminum or Cast Iron
 Fisher Bulletin Number 71.4:289

The 289 Series relief valve is a spring-loaded throttling relief valve, ideal for low pressure settings, used downstream of pressure regulators to protect the downstream system from overpressure.

Steam

Pressure Step Down / PRV

Steam Tracing

Special Applications

Remote Setpoint Control
with Air Set

Deaerator Supply

Feedwater Heater Supply & Vent

Condensate Flash Tanks

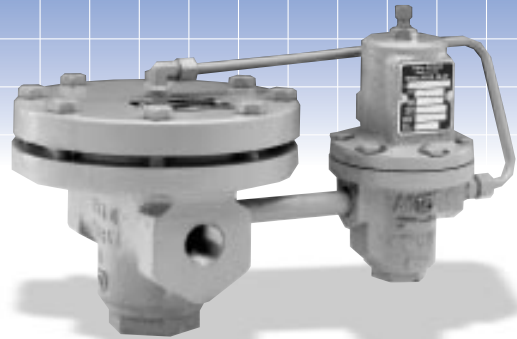
Designed per ANSI

- Meets ASME Boiler & Pressure Vessel Codes
- Low Maintenance / Stocked Locally

The process industries — including petrochemical refineries, pulp and paper mills, and chemical production plants rely on steam for heat and power requirements. Their products span a wide range: from ammonia to ethylene, food and grain to textiles and plastics. Typically, steam is generated and distributed at higher pressures and temperatures than required by the process load. Fisher regulators are utilized where accurate pressure reduction and control are required.

* Maximum temperature capabilities can vary depending on body material and construction. Refer to the regulator's product bulletin or ask your Fisher Representative for more information.

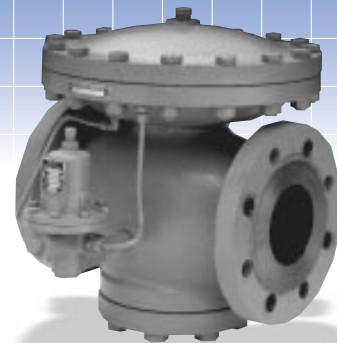
Pressure Reducing DIN Flanged



TYPE NUMBER .....	.92C
End Connection Sizes .....	.1/2, 3/4, 1-inch
Reduced Pressure Ranges (2)	5 - 250 psig (0,34 - 17,2 bar)
Maximum Inlet Pressure	300 psig (20,7 bar)
Operation	Pilot
Body Material	Cast Iron, Steel or Stainless Steel
Maximum Temperature Capabilities	500°F* (260°C)
Fisher Bulletin Number	71.2:92C

For ease of installation and maintenance, this economic regulator is ideal for all steam or hot air service needs. The Type 92C body and diaphragm flange are available in steel or cast iron.

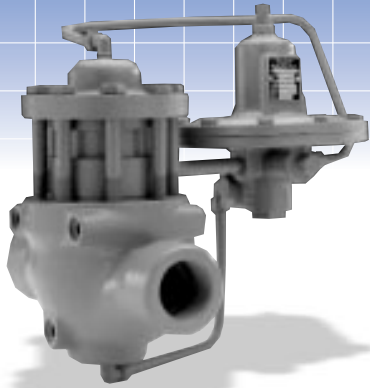
Pressure Reducing



TYPE NUMBER .....	.92B
End Connection Sizes .....	.1, 1-1/2, 2, 3, 4-inch
Reduced Pressure Ranges (6)	2 - 150 psig (0,14 - 10,3 bar)
Maximum Inlet Pressure	250 psig (17,2 bar)
Operation	Pilot
Body Material	Cast Iron
Maximum Temperature Capabilities	406°F* (208°C)
Fisher Bulletin Number	71.2:92

This self-contained pressure regulator controls steam or hot air at inlet pressures to 250 (17.2 bar) psig at 406°F(208°C). The controlled steam or hot air operates the pilot, thus providing simple and accurate regulation that requires no separate air or gas supply.

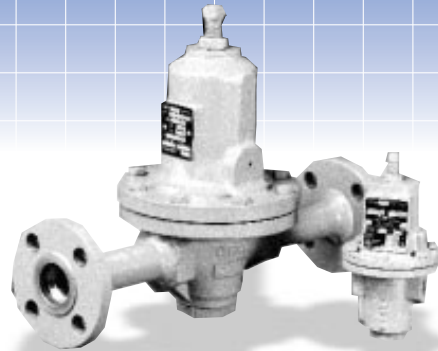
Pressure Reducing DIN Flanged



TYPE NUMBER **92S**
 End Connection Sizes 1, 1-1/2, 2, 2-1/2, 3, 4, 6 x 4-inch
 Reduced Pressure Ranges (6) 2 - 250 psig (0,14 - 17,2 bar)
 Maximum Inlet Pressure 300 psig (21 bar)
 Operation Pilot
 Body Material Cast Iron, Steel or Stainless Steel
 Maximum Temperature Capabilities 650°F* (343°C)
 Fisher Bulletin Number 71.2:92S

The 92S steam for service and 92W for water applications are both piston-actuated. They provide high flows and excellent accuracy to minimize piping stress associated with these applications.

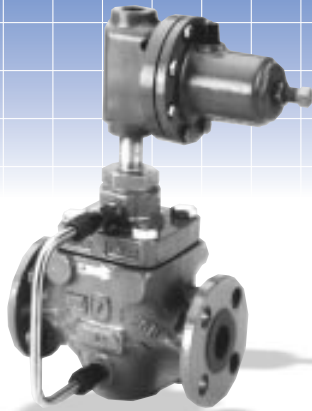
Pressure Reducing DIN Flanged



TYPE NUMBER **95HT**
 End Connection Sizes 1/4, 1/2, 3/4, 1, 1-1/2, 2-inch
 Reduced Pressure Range 5 - 300 psig (0,34 - 21 bar)
 Maximum Inlet Pressure 600 psig (41,4 bar)
 Operation Direct
 Body Material Steel or Stainless Steel
 Maximum Temperature Capabilities 650°F* (343°C)
 Fisher Bulletin Number 71.1:95

The 95HT is a rugged, large-capacity pressure reducing regulator available in several end connection sizes. It is designed to handle both high pressure and high temperature situations.

Relief/Back Pressure DIN Flanged



TYPE NUMBER **63EG-98HM**
 End Connection Sizes 1, 2, 3, 4, 6, 8 x 6-inch
 Reduced Pressure Ranges (5) 15 - 375 psig (1,03 - 25,9 bar)
 Maximum Inlet Pressure 450 psig (30 bar)
 Operation Pilot
 Body Material Steel, Stainless Steel or Hastelloy C
 Maximum Temperature Capabilities 550°F* (288°C)
 Fisher Bulletin Number 71.4:63EG

This highly versatile back pressure/relief valve has differential/bias control capabilities and high temperature elastomers to provide class VI shutoff for steam applications.

Pressure Reducing



TYPE NUMBER **92P**
 End Connection Sizes 1, 1-1/2, 2, 3, 4-inch
 Reduced Pressure Ranges (6) 2 - 150 psig (0,14 - 10,3 bar)
 Maximum Inlet Pressure 250 psig (17,2 bar)
 Operation Air Loaded
 Body Material Cast Iron
 Maximum Temperature Capabilities 406°F* (208°C)
 Fisher Bulletin Number 71.2:92

The Type 92P is an air loaded steam pressure reducing valve which is pressure balanced. It can be used on any steam application within its pressure range and capacity.

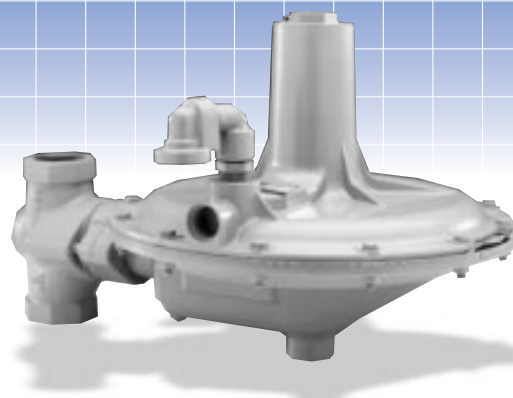
Tank Blanketing / Vapor Recovery

Complete Pad
Depad Systems
Vacuum Capabilities
Special Applications

- Conserves Blanketing Gas
- Handles Corrosives
- Low Maintenance
- Stocked Locally

Tank blanketing of process and storage vessels is used to protect equipment, plant personnel and the product being stored. Nitrogen is typically the gas used to replace the oxygen content in the tank's vapor space and thus minimizing the risk of fire or explosion. The nitrogen "blanket" also helps to prevent air, moisture and other contaminants from entering the tank. Fisher offers solutions for all types of tank blanketing applications to meet virtually any capacity and accuracy requirement.

Tank Blanketing

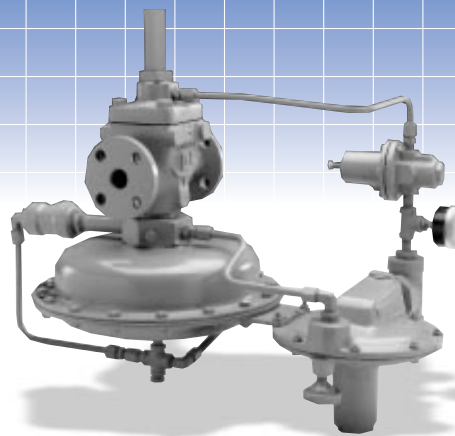


TYPE NUMBER **Y693**
 End Connection Sizes 1-1/2, 2-inch
 Pressure Ranges (3) 1/2-inch wc - 10 psig (1,2 mbar - 0,69 bar)
 Maximum Inlet Pressure 150 psig (10,4 bar)
 Operation Direct
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 74.1:Y693

The Fisher Type Y693 offers the simplicity of a direct-operated regulator whose performance is comparable to many pilot-operated designs. This mid-range capacity regulator can be set to maintain pressures as low as 1/2-inch water column (1,2 mbar).

Tank Blanketing

DIN Flanged



TYPE NUMBER **1190**
 End Connection Sizes 1, 2, 3, 4, 6-inch
 Pressure Ranges (7) 1/4-inch wc - 7 psig (0,6 mbar - 0,48 bar)
 Maximum Inlet Pressure 300 psig (20,6 bar)
 Operation Pilot
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 74.1:1190

This pilot operated system maintains a positive low pressure of blanket gas through a Type Y191 sensing pilot. This high accuracy, high capacity system can control pressures as low as 1-1/4-inch water column (0,6 mbar), with flow to cover any application.

Tank Blanketing DIN Flanged



TYPE NUMBER **Y690**
 End Connection Sizes 3/4, 1-inch
 Reduced Pressure Ranges (7) 1-inch wc - 7 psig (2,5 mbar - 0,5 bar)
 Maximum Inlet Pressure 150 psig (10,3 bar)
 Operation Direct
 Body Material Ductile Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.1:Y690

For smaller tanks and vessels, the Y690 is often the best choice. It is easy to install and maintain. It can control downstream pressures as low as 1-inch water column (2,5 mbar).

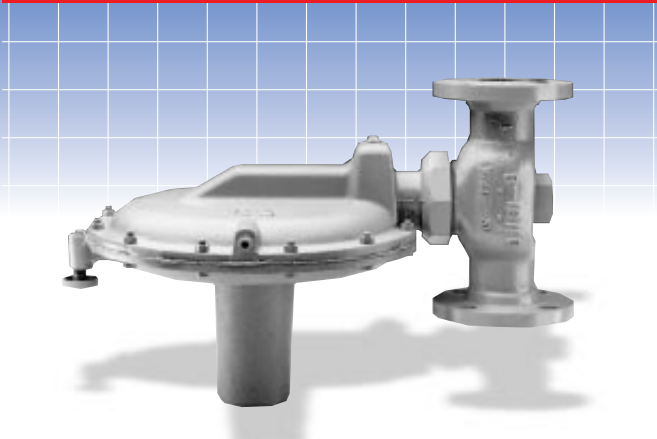
Vapor Recovery DIN Flanged



TYPE NUMBER **Y695**
 End Connection Sizes 3/4, 1-inch
 Reduced Pressure Ranges (6) 2-inches wc - 7psig (5 mbar - 0,48 bar)
 Maximum Inlet Pressure 150 psig (10,3 bar)
 Operation Direct
 Body Material Ductile Iron, Steel, Stainless Steel or Hastelloy C
 Fisher Bulletin Number 74.2:Y695

The Type Y695 is a self-contained, direct-operated vapor recovery regulator used to maintain a constant blanket pressure or vessel pressure with the outlet flowing to atmosphere or to a system where the pressure is lower than the inlet.

Vacuum Regulator DIN Flanged



TYPE NUMBER **Y696VR**
 End Connection Sizes 1-1/2, 2-inch
 Control Ranges (6) 1-inch wc - 3 psig (2,5 mbar - 0,21 bar)
 Maximum Inlet Pressure Full Vacuum
 Operation Direct
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.3:Y696VR

The Type Y696VR is a self-operated vacuum regulator with internal registration requiring no downstream control line. It is used to sense a decrease in vacuum.

Vapor Recovery DIN Flanged



TYPE NUMBER **1290**
 End Connection Size 1, 2, 3, 4, 6-inch
 Reduced Pressure Ranges (8) 1/2-inch wc - 7 psig (1,2 mbar- 0,48 bar)
 Maximum Inlet Pressure 75 psig (5,2 bar)
 Operation Pilot
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 74.2:1290

The Type 1290 vapor recovery regulator responds to any changes of the blanket gas pressure and throttles open or closed to control the flow of the blanket gas out of the vessel.

Liquids

Lube and Fuel Oil

Condensate and Water
(De-ionized, Sea Water)

Back Pressure Control

Differential Control

- Tight Shutoff
- Accurate
- Handles Corrosives
- Stocked Locally

Special consideration must be given to materials specification when selecting a regulator for use in liquid applications. Fisher offers a wide range of compatible construction materials designed to minimize adverse chemical reaction including corrosion or acid formation. Designed with large turndown ratios, Fisher regulators are stable at low flow settings providing superior control over a wide range of flow demand.

Relief/Back Pressure DIN Flanged



TYPE NUMBER .....	.98 SERIES
End Connection Sizes	1/4, 1/2, 3/4, 1, 1-1/2, 2-inch
Reduced Pressure Ranges (7)	2 - 375 psig (0,14 - 25,9 bar)
Maximum Inlet Pressure	400 psig (27,6 bar)
Operation	Direct
Body Material	Cast Iron, Steel, Stainless Steel or Hastelloy C
Fisher Bulletin Number .....	.71.4:98

The Type 98 Series regulators are used for a variety of backpressure or relief applications. This highly versatile series offers compact design and differential pressure capabilities.

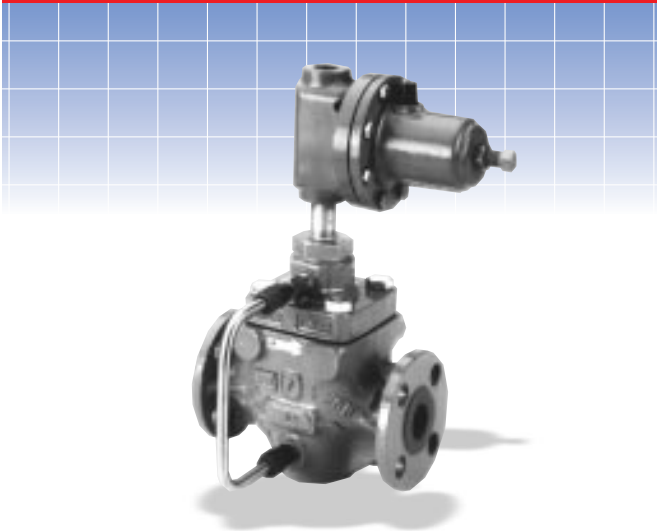
Pressure Reducing DIN Flanged



TYPE NUMBER .....	.95H SERIES
End Connection Sizes	1/4, 1/2, 3/4, 1, 1-1/2, 2-inch
Reduced Pressure Ranges (6)	5 - 400 psig (0,34 - 21 bar)
Maximum Inlet Pressure .....	.600 psig (41,4 bar)
Operation	Direct
Body Material	Iron, Steel, Stainless Steel or Hastelloy C
Fisher Bulletin Number .....	.71.1:95

Compactly designed, this general-purpose regulator may be used on any higher pressure application requiring accurate pressure and/or differential pressure control. Some specific applications include test fixtures, wash tanks, sterilizers and fuel lines.

Relief/Back Pressure DIN Flanged



TYPE NUMBER **.63EG-98HM**
 End Connection Sizes 1, 2, 3, 4, 6, 8 x 6-inch
 Reduced Pressure Ranges (5) 15 - 375 psig (1,03 - 25,9 bar)
 Maximum Inlet Pressure 450 psig (30 bar)
 Operation Pilot
 Body Material Steel, Stainless Steel or Hastelloy C
 Fisher Bulletin Number 71.4:63EG

This highly versatile back pressure/relief valve has differential/bias control capabilities and high temperature elastomers.

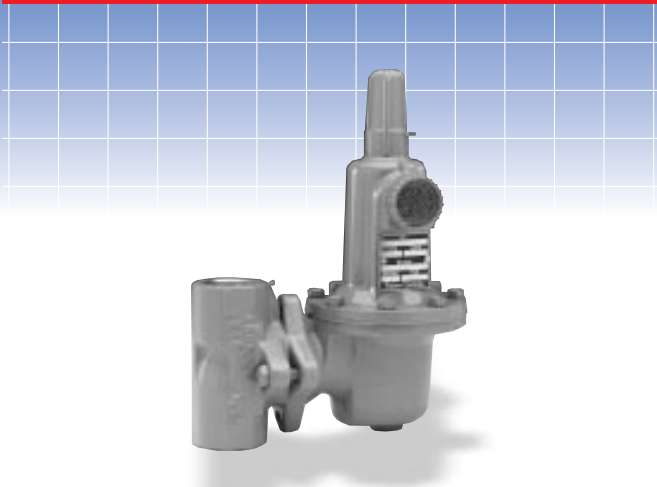
Pressure Reducing



TYPE NUMBER **.1301**
 End Connection Size 1/4-inch
 Reduced Pressure Ranges (4) 10 - 500 psig (0,69 - 34,0 bar)
 Maximum Inlet Pressure 2000 psig (138 bar)
 Operation Direct
 Body Material Brass or Stainless Steel
 Fisher Bulletin Number 71.1:1301

This self-operated, high-pressure regulator series can be used as a pilot-supply or pressure-loading regulator, or as a stand-alone high pressure reducer for liquids and gases.

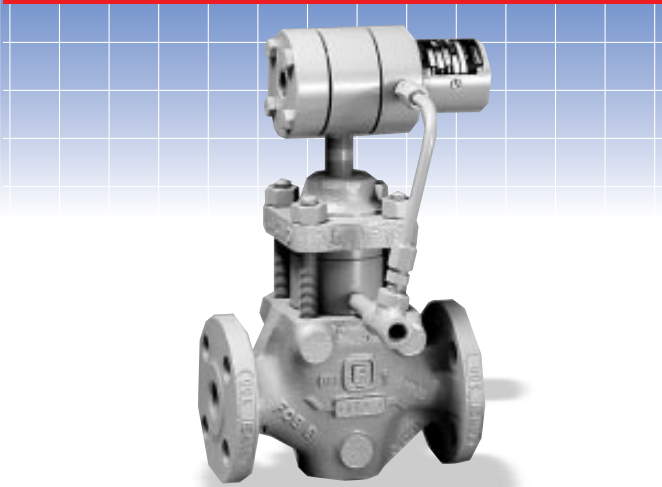
Pressure Reducing DIN Flanged



TYPE NUMBER **.627W SERIES**
 End Connection Size 3/4, 1, 2-inch
 Reduced Pressure Ranges (4) 10 - 500 psig (0,69 - 34 bar)
 Maximum Inlet Pressure 900 psig (62 bar)
 Operation Direct
 Body Material Ductile Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.1:627 W

The Type 627W Series are direct-operated pressure reducing regulators designed for liquid service. Featuring elastomer or nylon disks, the 627W Series is available in body materials to match a variety of liquid applications.

Relief/Back Pressure



TYPE NUMBER **.414**
 End Connection Size 1, 2, 3, 4, 6-inch
 Relief Set Pressure Ranges (3) 100 - 1,200 psig (6,9 - 82,7 bar)
 Maximum Allowable Pressure 1,440 psig (99,3 bar)
 Operation Pilot
 Body Material Steel
 Fisher Bulletin Number 71.4:414-6305

This pilot-operated backpressure regulator or relief valve provides high-pressure capability for both liquids and gases. The construction is suitable where pressures on the valve outlet will be essentially atmospheric.

Process Gases

Cryogenics, Oxygen
 High Pressure and Temperature
 Broad Application Coverage
 Vacuum Applications

- Tight Shutoff
- Accurate
- Handles Corrosives
- Stocked Locally

Chemical and industrial processes use various gases that have special requirements for system compatibility. All the devices in the system must be compatible to prevent corrosion and chemical reactions. Many Fisher regulators are available in materials that are chemically compatible with most process gases. In addition, Fisher regulators are constructed to withstand extremely low and high temperatures allowing dependable operation in the most extreme conditions.

Pressure Reducing DIN Flanged



TYPE NUMBER **.95L SERIES**
 End Connection Sizes 1/4, 1/2, 3/4, 1-inch
 Reduced Pressure Ranges (3) 2 - 30 psig (0,14 - 2,1 bar)
 Maximum Inlet Pressure 300 psig (20,7 bar)
 Operation Direct
 Body Material Cast Iron, Steel, Stainless Steel or Hastelloy C
 Fisher Bulletin Number 71.1:95

This small-size, large capacity regulator is suitable for many lower pressure applications including steam, air, gas, oil and water. Self-operated, its rugged design allows for spring force to actuate the diaphragm and regulate outlet pressure.

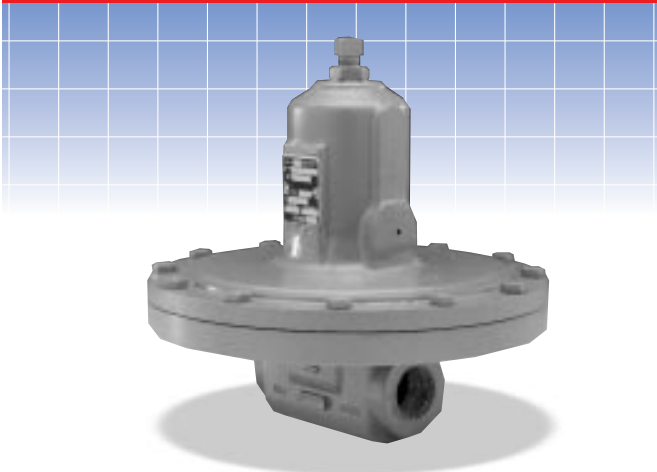
Pressure Reducing DIN Flanged



TYPE NUMBER **.Y690**
 End Connection Sizes 3/4, 1-inch
 Reduced Pressure Ranges (7) 1-inch wc - 7 psig (2,5 mbar - 0,5 bar)
 Maximum Inlet Pressure 150 psig (10,3 bar)
 Operation Direct
 Body Material Ductile Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.1:Y690

For smaller tanks and vessels, the Y690 is often the best choice. It is easy to install and maintain. It can control downstream pressures as low as 1-inch water column (2,5 mbar).

Relief/Back Pressure DIN Flanged



TYPE NUMBER **.98 SERIES**
 End Connection Sizes 1/4, 1/2, 3/4, 1, 1-1/2, 2-inch
 Reduced Pressure Ranges (7) 2 - 375 psig (0,14 - 25,9 bar)
 Maximum Inlet Pressure 400 psig (27,6 bar)
 Operation Direct
 Body Material Cast Iron, Steel, Stainless Steel or Hastelloy C
 Fisher Bulletin Number 71.4:98

The Type 98 Series regulators are used for a variety of backpressure or relief applications. This highly versatile series offers compact design and differential pressure capabilities.

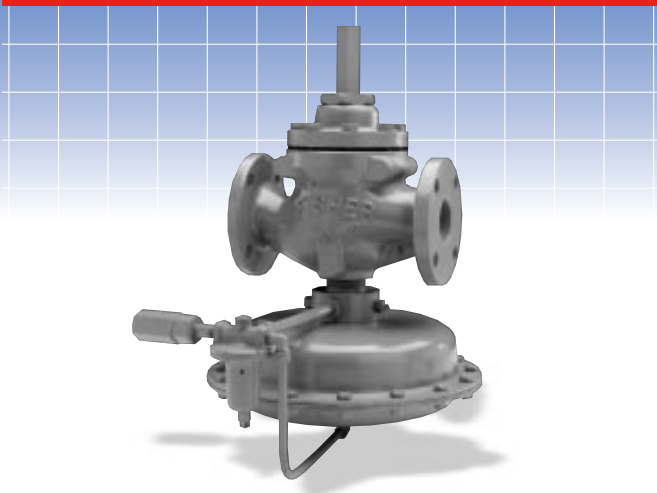
Vacuum Breaker DIN Flanged



TYPE NUMBER **.Y690VB**
 End Connection Size 3/4, 1-inch
 Maximum Allowable Inlet Pressure125 psig (8,6 bar)
 Vacuum Control Range0 - 5 psig (0 - 0,34 bar)
 Operation Direct
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.1:Y690

The Type Y690VB is used as a vacuum breaker in applications where a decrease in absolute pressure, beyond a certain value, registers under the diaphragm and opens the disk creating an upstream vacuum to restore the original pressure setting.

Pressure Reducing DIN Flanged



TYPE NUMBER **.1098-EGR**
 End Connection Size 1, 2, 3, 4, 6, 8 x 6, 12 x 6-inch
 Reduced Pressure Ranges 2-inches wc - 300 psig (5 mbar - 20,7 bar)
 Maximum Inlet Pressure 400 psig (28 bar)
 Operation Pilot
 Body Material Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.2:1098-EGR

Accurate and economic pressure control, in-line maintenance and noise reduction capability are a few features of this pilot operated regulator which can be used for large capacity burner systems and furnaces as well as other high flow general service applications.

Pressure Reducing



TYPE NUMBER **.67 SERIES**
 End Connection Size 1/4-inch
 Reduced Pressure Ranges (4)3 - 100 psig (0,21 - 6,9 bar)
 Maximum Inlet Pressure250 psig (17,2 bar)
 Operation Direct
 Body Material Aluminum or Stainless Steel
 Fisher Bulletin Number 71.1:67

This compact, easy-to-maintain regulator has an optional handwheel for easy adjustment of set point. The 67 offers accurate and reliable regulation with high stability. A token capacity internal relief valve provides overpressure protection.

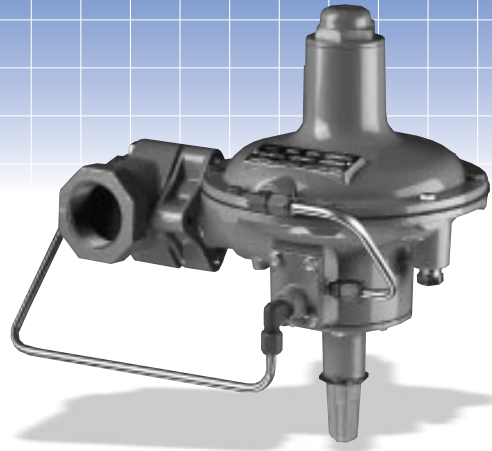
Fuel Gas

Fuel & Sour Gases Burner Trains Furnace Supply Commercial Applications

- Accurate
- Consistent Control
- Fast Response
- Stocked Locally

Regulators used for fuel gases are the largest portion of the entire Fisher regulator product line. Since the birth of the natural gas industry, Fisher has been a leader in regulator product design, development and manufacturing. For almost any commercial or industrial application requiring fuel gas, there is a Fisher regulator well suited for the task of providing a constant flow and years of dependable service.

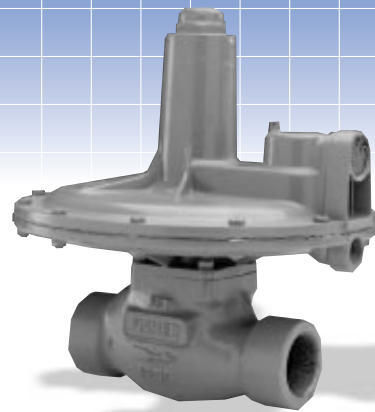
Pressure Reducing DIN Flanged



TYPE NUMBER	299
End Connection Size . . . . .	.1-1/2, 2-inch
Reduced Pressure Ranges (8) . . . . .	.3-1/2-inches wc - 35 psig (9 mbar - 2,4 bar)
Maximum Inlet Pressure . . . . .	.150 psig (10, 3 bar)
Operation . . . . .	.Pilot
Body Material . . . . .	.Cast Iron or Steel
Fisher Bulletin Number . . . . .	.71.2:299

The Type 299 pressure reducing regulator has a wide variety of applications, including natural gas distribution systems, gas supply to industrial boilers, furnaces, ovens, mixers and plant air service. The Type 299 is not an adaptation of existing regulators; instead, it has a new design of integrated cases and internal registration ports.

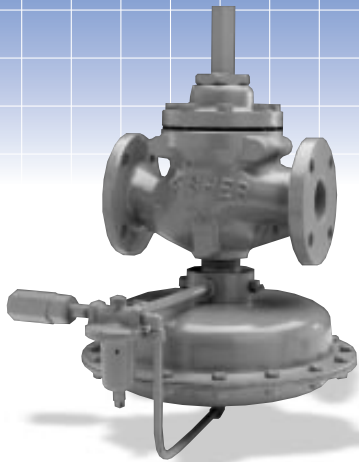
Pressure Reducing



TYPE NUMBER	133 SERIES
End Connection Size . . . . .	.2-inch
Reduced Pressure Ranges . . . . .	.2-inches wc - 10 psig (5 mbar- 0,69 bar)
Maximum Inlet Pressure . . . . .	.60 psig (4,1 bar)
Operation . . . . .	.Direct
Body Material . . . . .	.Cast Iron or Steel
Fisher Bulletin Number . . . . .	.71.1:133

The 133 Series regulators are ideal for many low pressure applications. A balancing system provides greater accuracy than most direct-operated designs. Because of exceptional low pressure performance, Type 133 is often used for gas blanketing.

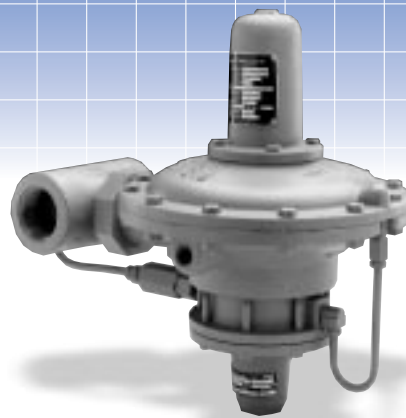
Pressure Reducing DIN Flanged



TYPE NUMBER **1098-EGR**
 End Connection Size 1, 2, 3, 4, 6, 8 x 6, 12 x 6-inch
 Reduced Pressure Ranges 2-inches wc - 300 psig (5 mbar - 20,7 bar)
 Maximum Inlet Pressure 400 psig (28 bar)
 Operation Pilot
 Body Material Cast Iron, Steel or Stainless Steel
 Fisher Bulletin Number 71.2:1098-EGR

Accurate and economic pressure control, in-line maintenance and noise reduction capability are a few features of this pilot operated regulator which can be used for large capacity burner systems and furnaces as well as other high flow general service applications.

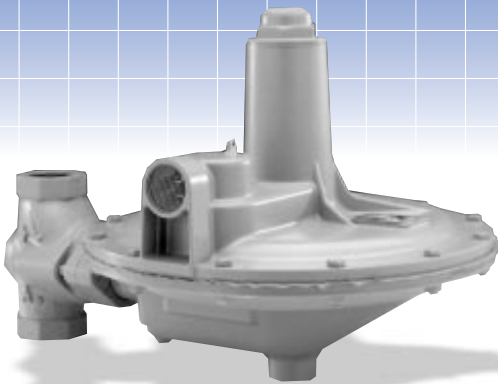
Pressure Reducing



TYPE NUMBER **99 SERIES**
 End Connection Size 2-inch
 Reduced Pressure Ranges (9) 0-inch wc - 100 psig (0 mbar - 6,9 bar)
 Maximum Inlet Pressure 1,000 psig (69 bar)
 Operation Pilot
 Body Material Cast Iron or Steel
 Fisher Bulletin Number 71.2:99

These pilot-operated regulators can be used for different applications, keeping inlet pressures to downstream equipment constant by accurately controlling system pressures at widely varying flow rates.

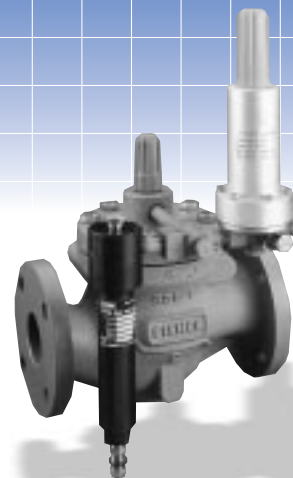
Pressure Reducing



TYPE NUMBER **S201**
 End Connection Sizes 1- 1/2, 2-inch
 Reduced Pressure Ranges (5) 2-inches wc - 10 psig (5 mbar- 0,69 bar)
 Maximum Inlet Pressure 125 psig (8,6 bar)
 Operation Direct
 Body Material Cast Iron or Steel
 Fisher Bulletin Number 71.1:S200

The S201 pressure-reducing service regulator reacts quickly in commercial and industrial installations to minimize the shock effect of sudden downstream load changes.

Pressure Reducing DIN Flanged

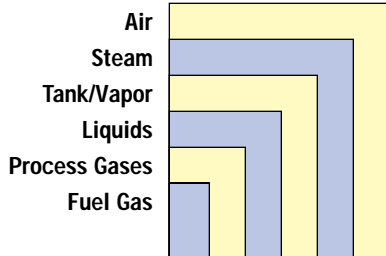


TYPE NUMBER **399A-161EB**
 End Connection Size (16 sizes) from 1-12 x 6-inch
 Reduced Pressure Ranges (8) 5-inches wc - 700 psig (12 mbar - 48,3 bar)
 Maximum Inlet Pressure 1,050 psig (72,4 bar)
 Operation Pilot
 Body Material Cast Iron or Steel
 Fisher Bulletin Number 71.2:399A-161

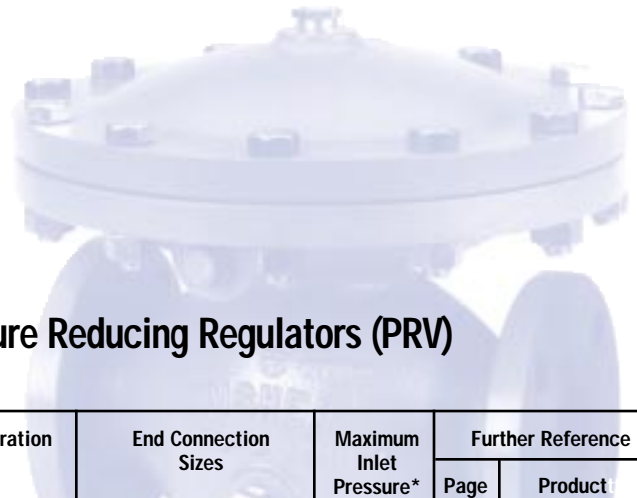
The Type 399A-161EB is a pressure reducing regulator commonly used in city or district gates and low-pressure commercial meters. Top entry design allows for in-line inspection and maintenance. The Type 161EB pilot is similar to the Type 161, but has a taller spring case which provides higher accuracy.

Industrial Regulator Selection Table

Typical Applications



Pressure Reducing Regulators (PRV)



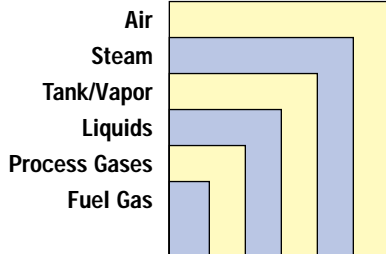
Pressure Ranges*						Fisher Type or Series	Operation	End Connection Sizes	Maximum Inlet Pressure*	Further Reference	
										Page No.	Product Bulletin**
3-150 / 0,2-10,3	■	■			■	64 Series	Direct	1/2"	250 / 17,2	5	71.1:64
3-100 / 0,2-6,9	■	■			■	67AFR	Direct	1/4"	250 / 17,2	4	71.1:67
2-30 / 0,14-2,1	■	■	■		■	95L Series	Direct	1/4", 1/2", 3/4", 1"	300 / 20,7	12	71.1:95
5-400 / 0,34-27,6	■	■	■		■	95H Series	Direct	6 sizes from 1/4" to 2"	600 / 41,4	10	71.1:95
10-500 / 0,69-34	■	■	■		■	1301F/G	Direct	1/4"	6,000 / 414	5	71.1:1301
3-80 / 0,2-5,5	■	■			■	670	Direct	1/4"	250 / 17	***	20:670
2"wc-300 / 5(m)-20,7	■	■	■		■	1098-EGR	Pilot	7 sizes from 1" to 12" x 6"	400 / 28	5	71.4:289
2-150 / 0,14-10,3	■	■			■	92B	Pilot	1", 1-1/2", 2", 3", 4"	250 / 17,2	6	71.2:92
5-250 / 0,34-17,2	■	■	■		■	92C	Pilot	1/2", 3/4", 1"	300 / 20,7	6	71.2:92C
2-150 / 0,14-10,3	■	■			■	92P	Air-Loaded	1", 1-1/2", 2", 3", 4"	250 / 17,2	7	71.2:92
2-250 / 0,14-17,2	■	■			■	92S	Pilot	7 sizes from 1" to 6"x4"	300 / 21	7	71.2:92S
3-100 / 0,21-6,9	■	■			■	67SS	Direct	1/4"	400 / 27,6	***	71.1:67
20-80 / 1,4-5,5	■	■	■			75A	Direct	6 sizes from 1/2" to 2-1/2"	200 / 13,8	***	71.1:75A
2-250 / 0,14-17,2	■	■				92W	Pilot	7 sizes from 1" to 6" x 4"	300 / 20,7	***	71.2:92W
10-500 / 0,69-34	■	■	■			627W Series	Direct	3/4", 1", 2"	900 / 62	11	71.1:627W
4"wc-5 / 10(m)-0,34	■	■	■		■	66	Direct	2", 3", 4"	10 / 0,69	***	71.1:66
3-100 / 0,21-6,9	■	■	■		■	67 Series	Direct	1/4"	250 / 17,2	13	71.1:67
0-100 / 0-6,9	■	■			■	99 Series	Pilot	2"	1,000 / 69	15	71.2:99
1"wc-7 / 5(m)-0,48	■	■	■		■	Y690	Direct	3/4", 1"	150 / 10,3	***	71.1:Y690
1"wc-7 / 2,5(m)-0,5	■	■	■		■	Y692	Direct	1-1/2", 2"	150 / 10,3	***	74.1:Y692
2"wc-10 / 5(m)-0,69	■	■	■		■	133 Series	Direct	2"	60 / 4	14	71.1:133
1/4"wc-7 / 0,6(m)-0,48	■	■	■		■	1190	Pilot	1", 2", 3", 4", 6"	300 / 20,7	8	74.1:1190
1/2"wc-10 / 1,2(m)-0,69	■	■	■		■	Y693	Direct	1-1/2", 2"	150 / 10,3	8	74.1:Y693
5-700 / 0,34-48	■	■			■	399A-161EB	Pilot	16 sizes from 1" to 12" x 6"	1,050 / 72,4	15	71.2:399A-161
3-1/2"wc-35 / 9(m)-2,4	■	■	■		■	299	Pilot	1-1/2", 2"	150 / 10,3	14	71.2:299
5-500 / 0,34-34,5	■	■			■	627 Series	Direct	3/4", 1", 2"	2,000 / 138	***	71.1:627
2"wc-10 / 5(m)-0,69	■	■	■		■	S201	Direct	1-1/2", 2"	125 / 8,6	15	71.1:S200



FISHER® Regulators



Typical Applications



Function

R = Relief/Backpressure S = Switching
 VB = Vacuum Breaker VR= Vacuum Regulator

Pressure Ranges*	Typical Applications						Fisher Type or Series	Operation	End Connection Sizes	Maximum Inlet Pressure*	Further Reference		
	Air	Steam	Tank/Vapor	Liquids	Process Gases	Fuel Gas					Page No.	Product Bulletin**	Function
3-60 / 0,2-4,1	■	■	■			■	119	Direct	3/4", 1", 1-1/4"	150 / 10,3	***	51.1:119	R
3"wc-75 / 7(m)-5,2	■	■	■			■	289 Series	Direct	3/4", 1", 2"	100 / 6,9	5	71.4:289	R
15-375 / 1,03-25,9		■	■		■	■	63EG-98HM	Pilot	1"-6", 8"x6"	450 / 30	7	71.4:63EG	R
5-375 / 0,34-25,9		■	■		■	■	98H Series	Direct	6 sizes from 1/4" to 2"	400 / 27,6	10	71.4:98	R
2-38 / 0,14-2,6		■	■		■	■	98L Series	Direct	1/4", 1/2", 3/4", 1"	125 / 8,6	10	71.4:98	R
100-1,200 / 6,9-82,7			■		■	■	414	Pilot	1", 2", 3", 4", 6"	1,440 / 99,2	11	71.4:414-6305	R
5-125 / 0,34-8,6	■		■			■	1808	Pilot	2"	150 / 10,3	***	71.4:1808	R
10-300 / 0,69-21	■	■				■	63EG Series	Pilot	7 sizes from 1" to 12" x 6"	360 / 25	***	71.4:63EG	R
5"wc-2 / 12(m) -0,14	■	■			■	■	66R	Direct	2", 3", 4"	8 / 0,55	***	71.1:66R	R
2"wc-7 / 5(m)-0,48		■			■	■	Y695	Direct	3/4", 1"	150 / 10,3	9	74.2:Y695	R
2"wc-7 / 5(m)-0,48		■			■	■	Y696	Direct	1-1/2", 2"	15 / 1	***	74.2:Y696	R
1/2"wc-7 / 1,2(m)-0,48		■			■	■	1290	Pilot	1", 2", 3", 4", 6"	75 / 5,2	9	74.2:1290	R
3-150 / 0,2-10,3						■	164	Direct	1/2"	250 / 17,2	***	71.7:164	S
5-100 / 0,3-6,9						■	167A	Direct	1/4"	250 / 17,2	4	71.7:167A	S
2-150 / 0,1-10,3						■	168	Direct	1/4"	65 / 4,5	***	71.7:168	S
0-4.7 / 0-0,32 vac		■			■	■	Y690VB	Direct	3/4", 1"	150 / 10,3	13	71.1:Y690	VB
1"wc-3 / 2,5(m) -0,21 vac		■			■	■	Y692VB	Direct	1-1/2", 2"	150 / 10,3	***	74.1:Y692	VB
0-12 / 0-0,9 vac		■			■	■	Y695VR	Direct	3/4", 1"	Full Vacuum	***	74.2:Y695	VR
1"wc-3 / 2,5(m)-0,21 vac		■			■	■	Y696VR	Direct	1-1/2", 2"	Full Vacuum	9	74.2:Y695	VR

* Pressure Ranges and Maximum Inlet Pressures are expressed in psig/bar or water column (wc) and millibar (m).

** Please request our free literature CD-ROM to view full details of products. See page 1 of this brochure for ordering information.

*** Not all regulators included on this chart are featured in this brochure.

