

PRESSURE REDUCING VALVE (INBAL)



Description

The Inbal Pressure Reducing Valve is specifically designed for pressure regulating applications in fire protection systems. The valve automatically reduces a higher inlet pressure to a preset delivery pressure, which remains steady and unaffected by the variations or fluctuations in the inlet line pressure. This valve is a pressure operated, sleeve actuated, axial valve and a pressure reducing pilot control.

The valve maintains the downstream pressure within a narrow pressure range. If the downstream pressure changes slightly the pilot control responds immediately to modulate the pressure reducing valve to the preset pressure. The use of this valve balances the distribution of the water capacity available throughout the system and prevents a higher demand from the areas which are of lower altitude or are located closer to the pressure source. Thus, the total system demand is balanced and the excess flow through the system with high pressure water supplies is reduced to the desired level.

Specifications

FIKE Part Number	02-15222-1
Size	2" (DN50) Flanged Ends – Inlet & Outlet
End Standard	ANSI B16.5 Class 150
Pressure Rating	300 psi (21 bar) Working Pressure (Maximum)
Flow Rate	Maximum 350 gpm (80 m ³ /h), intermittent
Adjustment Range	30 to 300 psi (2 to 21 bar)
Friction Loss	0.91 @175 gpm (6.3 @ 40 m ³ /h)
Installation Position	Vertical or Horizontal
Water Temp Range	Maximum 150°F (65°C)
Operating Voltage	24 VDC / 120 VAC
Termination	Provided with 2 sets of leads for in/out wiring
Service Use	Fire Alarm & General Signaling
Listing & Approvals	FM Approved

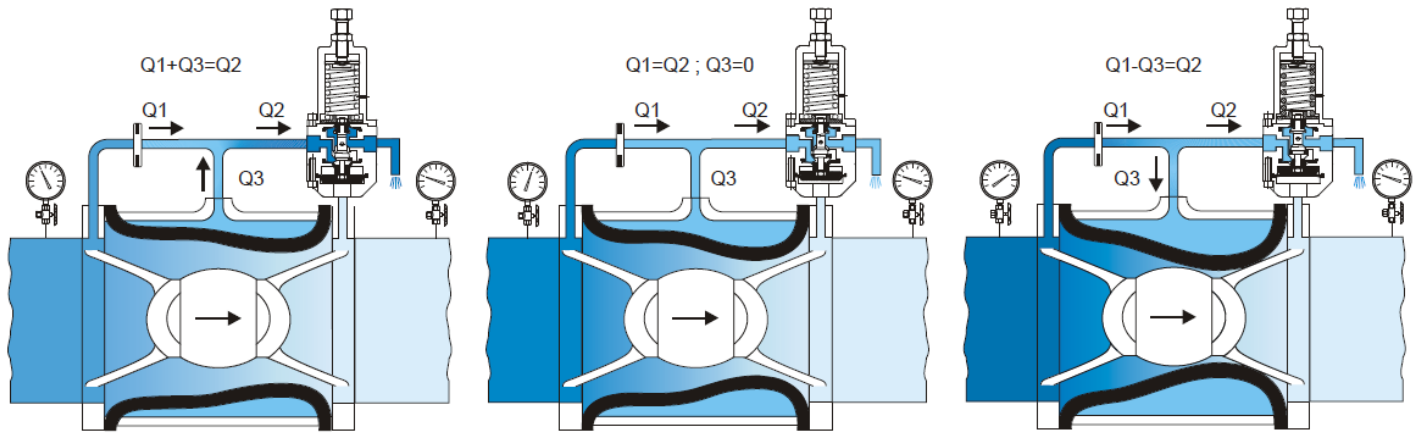
Materials

Valve Housing	Carbon Steel SAE 1021
Valve Ends	Ductile Iron ASTM A536-65 45 12
Sleeve	SMR 5 Elastomer Reinforced w/ Polyester & Kevlar
Control/Trim	Brass Nickel Chrome Plated, Stainless Steel

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Operation

The Inbal Pressure Reducing Valve is a pilot operated hydraulic valve. The pilot system controls the Inbal Valve Control Chamber which is the annular space between the valve Housing and the Sleeve. The Pilot Valve controls the pressure in the Inbal Valve Control Chamber in response to changes in the downstream pressure. When the delivery pressure decreases, the Pilot Valve and the Inbal Valve open wider to increase the pressure [See Figure (1)]. When the delivery pressure increases, the Pilot Valve and the Inbal Valve close to throttle further the flow and consequently the delivery pressure is decreased [See Figure (3)]. Thus, the outlet pressure is maintained within a close limit. If the inlet pressure drops to the preset outlet pressure level, the pilot control allows the Inbal Valve to open wide for a minimal pressure drop across the valve. The adjustment of the delivery pressure is made by the adjustment screw on the Pilot Valve.



"Under Satisfied" Position

The system pressure drops below the setting. The Pilot Valve opens wider to decrease the Control Chamber pressure. The Inbal Valve opens wider to increase the delivery pressure.

Figure (1)

"Satisfied" Position

The system pressure is precisely as preset. The Pilot Valve releases the exact same flow rate which is introduced through the orifice. The Inbal Valve stays in a stable throttling position.

Figure (2)

"Over Satisfied" Position

The system pressure exceeds the setting. The Pilot Valve is closing to increase the Control Chamber pressure. The Inbal Valve is closing to reduce the delivery pressure.

Figure (3)

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