



PROPORTIONAL PRESSURE REDUCING VALVE

Model IR-120-PD-Z

The BERMAD Model IR-120-PD-Z Proportional Pressure Reducing Valve is a double chambered, hydraulically operated, diaphragm actuated, Pilot-Less control valve that reduces higher upstream pressure to lower downstream pressure, at a fixed ratio. The valve comprises two major components: The body and the actuator assembly. The actuator assembly consists of both an upper and a lower control chamber.

The double chambered valve operation is independent of valve differential pressure. This develops maximum power, ensuring immediate valve response combined with inherent non-slam closing.



Features & Benefits

- Hydraulic Double chamber Control Valve
 - Line pressure driven
 - Full powered opening and closing
 - Protected diaphragm
 - Non-slam closing characteristic
- Elegant simplicity
 - Most cost effective
 - Simple to maintain
 - No Pilot nor control Accessories
- Engineered Plastic Valve with Industrial Grade Design
- hYflow 'Y' Valve Body with "Look Throug" Design
 - Ultra-high flow capacity - Low pressure loss
- User-Friendly Design
 - Simple in-line inspection and service

Typical Applications

- Pressure Reducing Stations
- Long downhill lines
 - Serial pressure reduction
 - Leakage and burst protection
- High differential pressure systems
 - Protection against cavitation damage
 - Throttling noise reduction



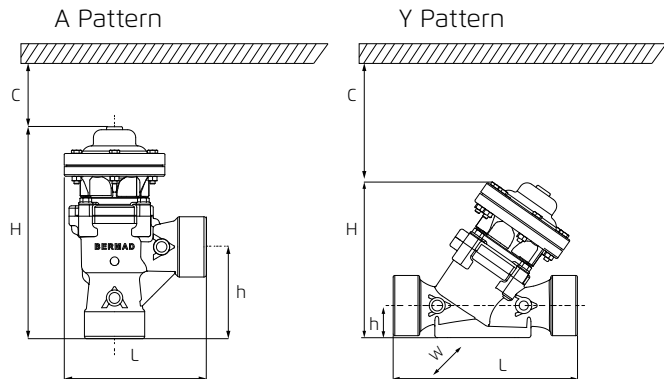
- [1] BERMAD Model IR-120-PD-Z Reduces the supply pressure at a constant ratio, protecting the system
- [2] BERMAD Pressure Sustaining Valve Model IR-130-DC-XZ
- [3] BERMAD Solenoid Control Valves Model IR-210
- [4] BERMAD Combination Air Valve Model IR-C10
- [5] BERMAD Kinetic Air Valve Model IR-K10
- [6] BERMAD RF RTU Battery Operated with Solar Kit



Technical Specifications

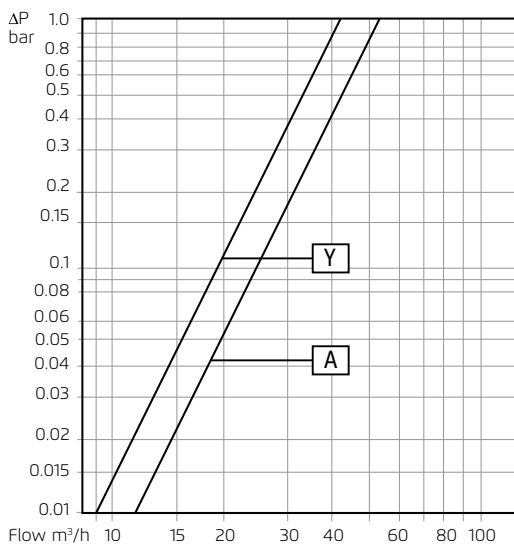
Dimensions and Weights

Size	DN	50-A	40-Y	50-Y
	Inch	2-A	1½-Y	2-Y
L	mm	178	200	200
	inch	7.0	7.9	9.1
H	mm	267	196	196
	inch	10.5	7.7	7.7
W	mm	126	126	126
	inch	5	5	5
h	mm	112	40	40
	inch	4.4	1.6	1.6
Weight	Kg	1.7	1.7	1.7
	lib	3.8	3.8	3.8



Note: C = Half of H

Flow Chart



		A	Y	Y
Size	DN	50	40	50
	Inch	2	1½	2
Flow Coefficient	KV	52	42	42
	CV	60	49	49
CCDV	Liter	0.13	0.13	0.13
	Gallon	0.03	0.03	0.03

CCDV = Control Chamber Displacement Volume

Valve flow coefficient, Kv or Cv $\Delta P = \left(\frac{Q}{Kv}\right)^2$; $\Delta P = \left(\frac{Q}{Cv}\right)^2$

Where:

Kv = Valve flow coefficient (flow in m³/h at Diff. Press. 1 bar)

Cv = Valve flow coefficient (flow in gpm at Diff. Press. 1 psi)

Q = Flow rate (m³/h; gpm)

ΔP = Differential pressure (bar; psi)

$$Cv = 1.155 Kv$$

Technical Data

Available Patterns & Sizes: "Y" DN40; 1½" & DN50; 2" Angle DN50; 2"

End Connections: Threaded BSP or NPT

Pressure Rating: 10 bar; 145 psi

Operating Pressure Range: 0.5-10 bar; 7-145 psi

Reduction Ratio at Flow Velocity of 2-3m/s; 6-10f/s: 3.3

Temperature Range: Water up to 50°C; 82°F

Standard Materials:

Body: Glass-Filled Nylon

Actuator: Plastic & Stainless Steel

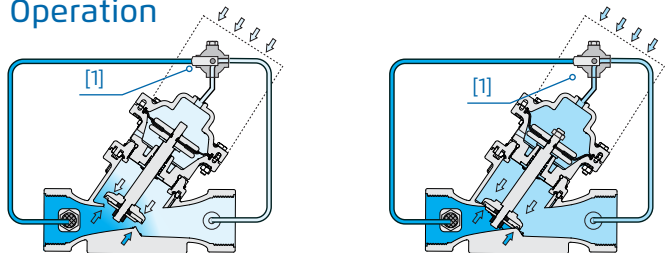
Diaphragm: Nylon Fabric Reinforced Natural Rubber

Seals: NBR

Spring: Stainless Steel

Cover Bolts: Stainless Steel

Operation



The Model IR-120-PD-Z is a pilot-less, double chambered, control valve. The downstream pressure is applied as the closing force on the top side of both the diaphragm and the seal disk areas. The upstream pressure is applied as the opening force on the bottom side of the seal disk area. The net force, resulting from the two opposing dynamic forces acting on the actuator's diaphragm and seal, determines the degree to which the valve is open. The valve seeks the point where these forces are equal. As the ratio of the areas of the seal disk and the diaphragm is constant, the ratio of the upstream and downstream pressures is constant as well. A rise in downstream pressure causes a momentary increase of the closing force. As a result, the valve throttles closed reducing downstream pressure according to the constant ratio. When demand is zero, downstream pressure rises in proportion to the ratio, causing the valve to shut off. The Manual Selector Valve [1] allows manual closing.

