



PRESSURE REDUCING VALVE

NORMALLY CLOSED WITH HYDRAULIC CONTROL

Model IR-220-54-3W-X

The BERMAD Normally Closed, Pressure Reducing Valve with Hydraulic Control, is a hydraulically operated, diaphragm actuated control valve that reduces higher upstream pressure to lower constant downstream pressure regardless of fluctuating demand, and opens fully upon line pressure drop. It is a Normally Closed valve, which opens in response to a remote pressure command and shuts in the absence of that command.



[1] BERMAD Model IR-220-54-X opens upon pressure rise command, and establishes reduced pressure zone protecting laterals and distribution line.

[2] BERMAD Combination Air Valve Model IR-C10

[3] BERMAD Automatic AIR Valve model IR-A10

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Features & Benefits

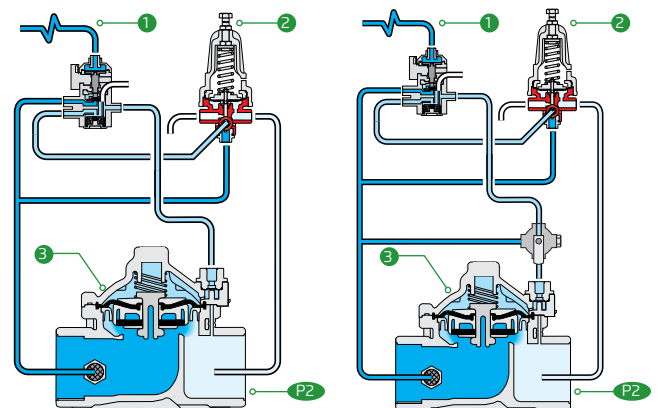
- Line Pressure Driven, Hydraulically Controlled
 - Hydraulic Pressure Control, Normally Closed
 - Closes upon control failure
- Protects downstream systems
 - Amplifies and relays weak remote command
 - Opens fully upon line pressure drop
- Plastic Globe Hydro-Efficient Valve
 - Unobstructed flow path
 - Single moving part
 - High flow capacity
 - Highly durable, chemical and cavitation resistant
- Unitized Flexible Diaphragm and Guided Plug
 - Excellent low flow regulation performance
 - Prevents diaphragm erosion and distortion
- Fully Supported & Balanced Diaphragm
 - Requires low actuation pressure
- User-Friendly Design
 - Simple in-line inspection and service

Typical Applications

- Computerized Irrigation Systems
- Drip Systems
- Pressure Reducing Stations
- Systems Subject to Varying Supply Pressure
- Energy Saving Irrigation Systems

Operation:

The 3-Way Hydraulic Relay Valve (3W-HRV) ① hydraulically connects the Pressure Reducing Pilot (PRP) ② to the Valve Control Chamber ③. The PRP commands the Valve to throttle closed should Downstream Pressure (P2) rise above pilot setting and to open fully when it drops below pilot setting. The 3W-HRV switches upon pressure drop command, directing line pressure into the control chamber, and thereby causing the main Valve to shut. The 3W-HRV also features local manual closing.





Technical Data

Sizes: 1½-2"; DN40-50

Patterns:

Globe: 1½ & 2"; DN40 & 50

Angle: 1½ & 2"; DN40 & 50

End Connections:

Female Threads BSP; NPT

Pressure Rating:

10 bar; 145 psi

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

Setting Range:

1-7 bar; 15-100 psi

Setting ranges vary according to specific pilot spring. Please consult factory

Standard Materials:

Body & Cover:

Black PA6+33%GF

Diaphragm: NBR

Seals: NBR

Spring: Stainless Steel

Cover Bolts: Stainless Steel

Control Accessories:

Tubing and Fittings: Plastic

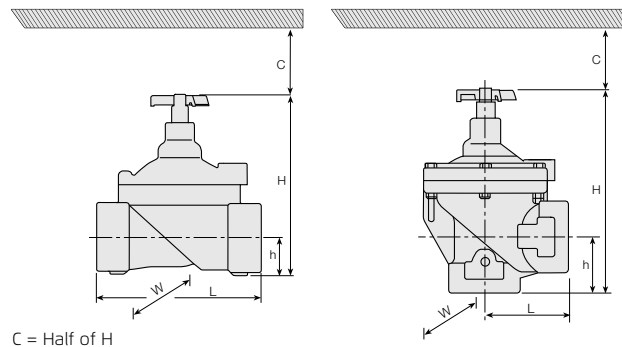
Range of Springs:

| Spring | Spring color | Setting Range |
|--------|--------------|---------------|
| J | Green | 0.2-1.7 bar |
| K | Gray | 0.5-3.0 bar |
| N | Colorless | 0.8-6.5 bar |

Technical Specifications

Dimensions and Weights

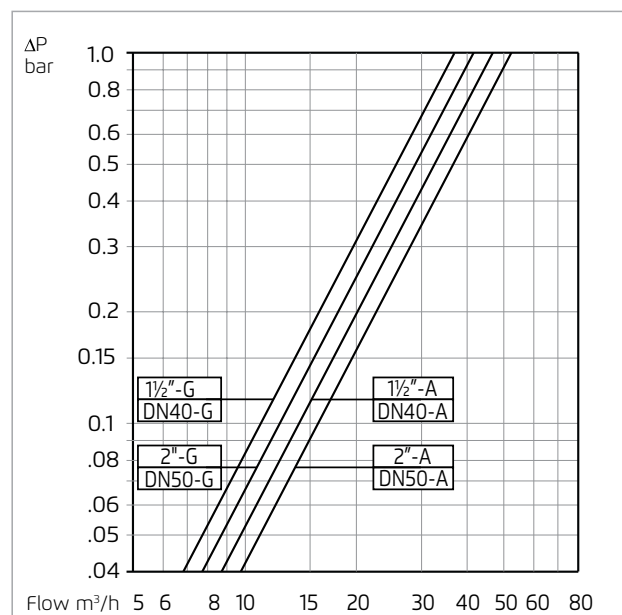
| Sizes Inch ; DN | 1½" ; 40 | | 2" ; 50 | |
|-----------------|----------|-------|---------|-------|
| | Globe | Angle | Globe | Angle |
| L (mm) | 160 | 80 | 170 | 85 |
| H (mm) | 180 | 190 | 190 | 210 |
| W (mm) | 125 | 125 | 125 | 125 |
| h (mm) | 35 | 40 | 38 | 60 |
| Weight (kg) | 1 | 0.95 | 1.1 | 0.91 |



Flow Properties

| Sizes | Inch DN | G | A | G | A |
|-------|------------|-----------|-----------|----------|----------|
| | | 1½" 40 | 1½" 40 | 2" 50 | 2" 50 |
| KV | | 37 | 47 | 41 | 52 |

Flow Chart



Valve flow coefficient, Kv or Cv

$$\Delta P = \left(\frac{Q}{K_v; C_v} \right)^2$$

Where:

Kv = Valve flow coefficient

Cv = Valve flow coefficient

(flow in gpm at Diff. Press. 1 psi)

Q = Flow rate (m³/h; gpm)

P = Differential pressure (bar; psi)

Cv = 1.155 Kv

