



# PRESSURE REDUCING VALVE

## Model IR-420-50-3W-KXZ

The BERMAD Pressure Reducing Valve with hydraulic remote control is 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 either opens or shuts in response to a remote pressure command.



**[1]** BERMAD Model IR-420-50-3W-KXZ opens upon pressure drop command, and establishes pressure zone protecting laterals and distribution line.

**[2]** Hydrometer Model IR-900-M0-Magnetic Drive

**[3]** Combination Air Valve Model IR-C10

**[4]** Combination Air Valve Model IR-C30

**[5]** Smart Irrigation Controller-OMEGA

### Features & Benefits

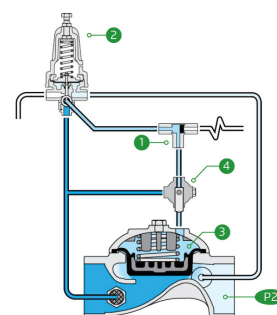
- Hydraulic Pressure Control
  - Line pressure driven
  - Protects downstream systems
  - Opens fully upon line pressure drop
  - Hydraulically controlled On/Off
- Advanced Hydro-Efficient Globe Design
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
- Fully Supported & Balanced Diaphragm
  - Requires low actuation pressure
  - Excellent low flow regulation performances
  - Progressively restrains valve closing
  - Prevents diaphragm distortion
- User-Friendly Design
  - Easy pressure setting
  - Simple in-line inspection and service

### Typical Applications

- Automated Irrigation Systems
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Distribution Centers

### Operation:

The Shuttle Valve **[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. Upon command pressure rise, the shuttle valve automatically switches, allowing pressurization of the control chamber, which causes the main valve to shut. The Manual Selector **[4]** enables local manual closing.





### Technical Data

#### Pressure Rating:

10 bar

#### Operating Pressure Range:

0.5-10 bar

#### Materials

##### Body & Cover:

Cast Iron

##### Diaphragm:

NR, Nylon fabric reinforced

##### Spring:

Stainless Steel

*\*Other materials are available on request*

#### Control Loop Accessories

PR Pilot: PC-SHARP-X-P

##### Pilot Spring Range:

| Spring   | Spring Color   | Setting range      |
|----------|----------------|--------------------|
| J        | Green          | 0.2-1.7 bar        |
| K        | Gray           | 0.5-3.0 bar        |
| <b>N</b> | <b>Natural</b> | <b>0.8-6.5 bar</b> |
| V        | Blue & White   | 1.0-10.0 bar       |

*Standard spring - marked in bold*

#### Tubing and Fittings:

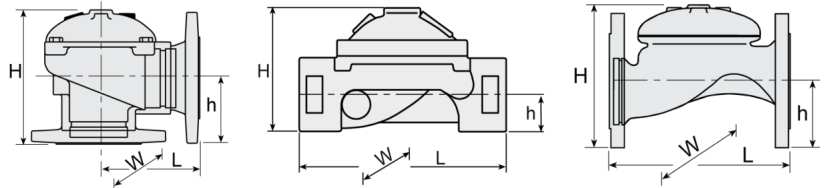
Polyethylene and Polypropylene

*\*For other pilots please consult [BERMAD](http://BERMAD)*

### Technical Specifications

For other end connection types,

Please refer to [BERMAD](http://BERMAD) full engineering page.



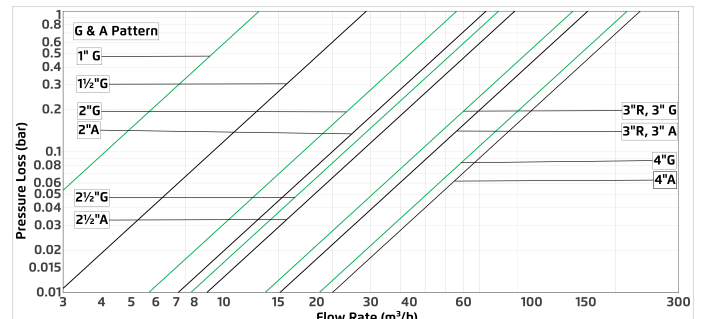
| Size        | Pattern | End Connection | Weight (Kg) | L (mm) | H (mm) | h (mm) | W   | CCDV (Lit) | KV  |
|-------------|---------|----------------|-------------|--------|--------|--------|-----|------------|-----|
| 1" ; DN25   | Globe   | Threaded       | 1.1         | 115    | 68     | 34     | 71  | 0.02       | 13  |
| 1½" ; DN40  | Globe   | Threaded       | 2           | 153    | 87     | 29     | 98  | 0.06       | 29  |
| 2" ; DN50   | Globe   | Threaded       | 4           | 180    | 114    | 39     | 119 | 0.113      | 57  |
| 2" ; DN50   | Globe   | Flanged        | 9           | 205    | 155    | 78     | 155 | 0.113      | 57  |
| 2" ; DN50   | Globe   | Grooved        | 5           | 205    | 108    | 31     | 119 | 0.113      | 57  |
| 2" ; DN50   | Angle   | Threaded       | 4.4         | 86     | 136    | 61     | 119 | 0.113      | 71  |
| 2" ; DN50   | Angle   | Flanged        | 9           | 120    | 160    | 83     | 155 | 0.113      | 71  |
| 2½" ; DN65  | Globe   | Threaded       | 5.7         | 210    | 132    | 45     | 129 | 0.179      | 78  |
| 2½" ; DN65  | Globe   | Flanged        | 10.5        | 205    | 178    | 89     | 178 | 0.179      | 78  |
| 2½" ; DN65  | Angle   | Threaded       | 5.8         | 110    | 180    | 93     | 131 | 0.179      | 88  |
| 3R" ; DN80R | Globe   | Threaded       | 5.8         | 210    | 140    | 53     | 129 | 0.291      | 136 |
| 3R" ; DN80R | Globe   | Flanged        | 12.1        | 210    | 200    | 100    | 200 | 0.291      | 136 |
| 3R" ; DN80R | Angle   | Threaded       | 7           | 110    | 178    | 91     | 131 | 0.291      | 152 |
| 3" ; DN80   | Globe   | Threaded       | 13          | 255    | 165    | 55     | 170 | 0.291      | 136 |
| 3" ; DN80   | Globe   | Flanged        | 19          | 250    | 210    | 100    | 200 | 0.291      | 136 |
| 3" ; DN80   | Globe   | Grooved        | 10.6        | 250    | 155    | 46     | 170 | 0.291      | 136 |
| 3" ; DN80   | Angle   | Threaded       | 11          | 110    | 184    | 80     | 170 | 0.291      | 152 |
| 3" ; DN80   | Angle   | Flanged        | 17          | 153    | 205    | 101    | 200 | 0.291      | 152 |
| 3" ; DN80   | Angle   | Grooved        | 10          | 120    | 194    | 90     | 170 | 0.291      | 152 |
| 4" ; DN100  | Globe   | Flanged        | 28          | 320    | 242    | 112    | 223 | 0.668      | 204 |
| 4" ; DN100  | Globe   | Grooved        | 16.2        | 320    | 191    | 61     | 204 | 0.668      | 204 |
| 4" ; DN100  | Angle   | Flanged        | 26          | 160    | 223    | 112    | 223 | 0.668      | 225 |
| 4" ; DN100  | Angle   | Grooved        | 16          | 160    | 223    | 112    | 204 | 0.668      | 225 |

CCDV = Control Chamber Displacement Volume • **Threaded** = BSP & NPT are available.

#### Additional Features

| Code | Description                 | Size Range        |
|------|-----------------------------|-------------------|
| I    | Position Indicator Assembly | 1½"-4" / DN40-100 |
| M    | Flow Stem                   | 1½"-4" / DN40-100 |
| 5    | Plastic Test Point          | 1½"-4" / DN40-100 |

#### Flow Chart



#### Differential Pressure & Flow Calculation

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

$K_v = m^3/h$  @  $\Delta P$  of 1 bar

$Q = m^3/h$

$\Delta P = \text{bar}$