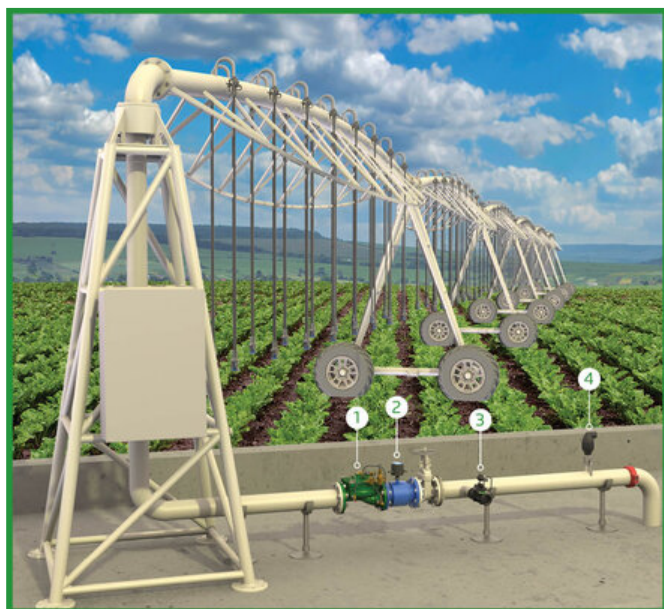
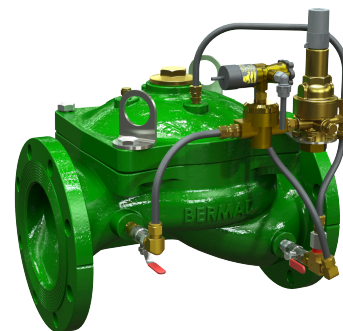




# PRESSURE REDUCING VALVE

## Model IR-420-55-3W-RX

The BERMAD Pressure Reducing Valve with solenoid 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 either opens or shuts in response to an electric signal.



**[1]** BERMAD Model IR-420-55-3W-RX opens in response to electric signal, and establishes reduced pressure zone protecting laterals and distribution line.

**[2]** Water Meter Model MUT2300

**[3]** Pressure Relief Valve Model IR-13Q-HP

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

### Features & Benefits

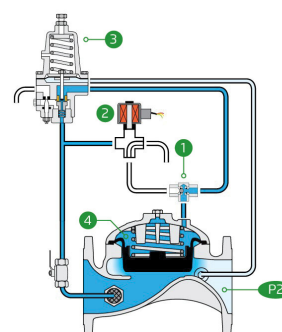
- 3-Way Hydraulically Actuated PRV with electric On/Off control
  - Protects downstream systems
  - Opens fully upon line pressure drop
  - Wide range of pressure settings
  - Wide range of Solenoid operation Voltages
  - Normally Open, Normally Closed or Last Position
- Advanced Hydro-Efficient Globe Design
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
- Fully Supported & Balanced Diaphragm
  - Requires low opening and 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

- Pressure Reducing Systems
- Pressure Zone Isolation
- Flow and Leakage Reduction
- Systems Subject to Varying Supply Pressure
- Energy Saving Irrigation Systems
- Source and "On Duty" Valves Management
- Downhill Supply Lines

### Operation:

The Shuttle Valve **[1]** hydraulically connects the Solenoid **[2]** or the Pressure Reducing Pilot (PRP) **[3]** to the Valve Control Chamber **[4]**. When solenoid is energized, PRP commands the valve to throttle closed should Downstream Pressure **[P2]** rise above setting, and to open when **[P2]** falls below setting. Should line pressure remain below setting - the valve opens fully. In response to an electric signal, the solenoid switches, directing line pressure through the shuttle valve into the control chamber. This causes the valve to shut.





### Technical Data

#### Pressure Rating:

16 bar

#### Operating Pressure Range:

0.5-16 bar

#### Materials

##### Body & Cover:

Cast iron (up to 8") Ductile iron (10" & 12")

##### Diaphragm:

NR, Nylon fabric reinforced

##### Spring:

Stainless Steel

*\*Other materials are available on request*

#### Control Loop Accessories

PR Pilot: PC-SHARP-X-MP

##### Pilot Spring Range:

| Spring | Spring Color | Setting range      |
|--------|--------------|--------------------|
| K      | Gray         | 0.5-3.0 bar        |
| N      | Natural      | <b>0.8-6.5 bar</b> |
| V      | Blue & White | 1.0-10.0 bar       |
| P      | White        | 1.0-16.0 bar       |

*Standard spring - marked in bold*

#### Tubing and Fittings:

Reinforced Nylon and Brass

##### AC solenoid:

S-400-3W

##### DC latch solenoid:

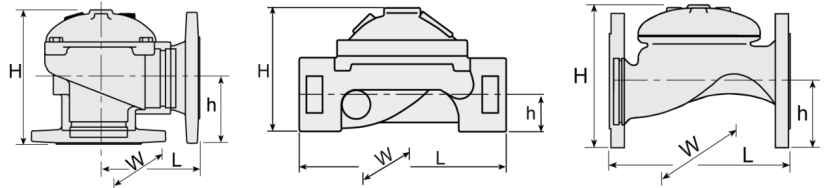
S-982-3W M.B.

*\*For other solenoids and pilots please consult [BERMAD](#)*

### Technical Specifications

For other end connection types,

Please refer to [BERMAD](#) full engineering page.



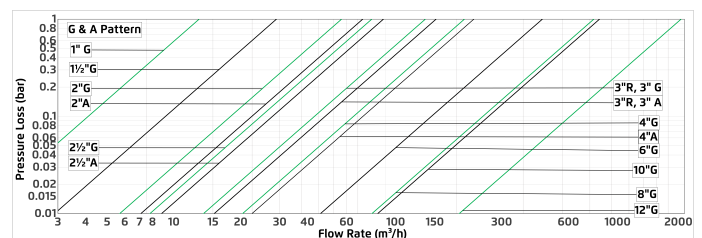
| Size        | Pattern | End Connection | Weight (Kg) | L (mm) | H (mm) | h (mm) | W   | CCDV (Lit) | KV   |
|-------------|---------|----------------|-------------|--------|--------|--------|-----|------------|------|
| 1" ; DN25   | Globe   | Threaded       | 1.1         | 115    | 68     | 34     | 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  |
| 6" ; DN150  | Globe   | Flanged        | 68          | 415    | 345    | 140    | 306 | 1.973      | 458  |
| 6" ; DN150  | Globe   | Grooved        | 49          | 415    | 302    | 85     | 306 | 1.973      | 458  |
| 8" ; DN200  | Globe   | Flanged        | 125         | 500    | 430    | 170    | 365 | 3.858      | 781  |
| 10" ; DN250 | Globe   | Flanged        | 140         | 605    | 460    | 202    | 405 | 3.858      | 829  |
| 12" ; DN300 | Globe   | Flanged        | 290         | 725    | 635    | 242    | 580 | 13.75      | 1932 |

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

#### Additional Features

| Code | Description                 | Size Range         |
|------|-----------------------------|--------------------|
| F    | Large Control Filter        | 1½"-12" / DN40-300 |
| I    | Position Indicator Assembly | 1½"-12" / DN40-300 |
| M    | Flow Stem                   | 1½"-12" / DN40-300 |

#### 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

$Q = m^3/h$

$\Delta P = \text{bar}$