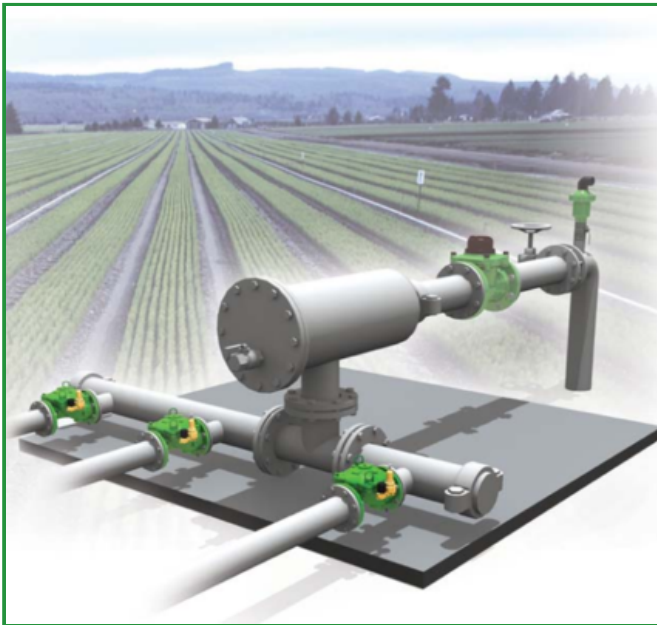
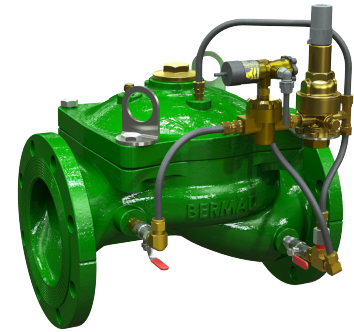




# PRESSURE REDUCING VALVE

## Model IR-420-55-2W-R

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 or varying upstream pressure. It opens and shuts in response to an electric signal.



**[1]** BERMAD Model IR-420-55-2W-R opens in response to an electric signal establishing reduces pressure zone.

### Features & Benefits

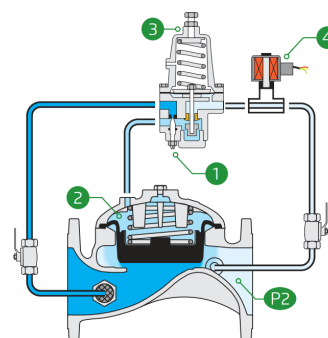
- Line Pressure Driven PRV, Electrically Controlled On/Off
  - Protects downstream systems
  - Wide range of pressures and voltages
  - Normally Open, Normally Closed or Last Position
- Advanced Hydro-Efficient Globe Design
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
- Fully 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
- Flow and Leakage Reduction
- Cavitation Damage Protection
- Source and "On Duty" Valves Management
- Pressure Zone Isolation
- Downhill Supply Lines
- System Maintenance Savings

### Operation:

When electric signal switches the solenoid **[1]** ON, the Pressure Reducing Pilot **[2]** commands the Valve to throttle closed should Downstream Pressure **[P2]** rise above setting and modulate open when it drops below setting. When the solenoid is switched OFF the Valve shuts. The downstream Cock Valve **[3]** enables manual closing of the valve.





### 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-20-A-MP

##### Pilot Spring Range:

| Spring | Spring Color | Setting range |
|--------|--------------|---------------|
| N      | Natural      | 0.8-6.5 bar   |
| V      | Blue & White | 1.0-10.0 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 please consult [BERMAD](#)*

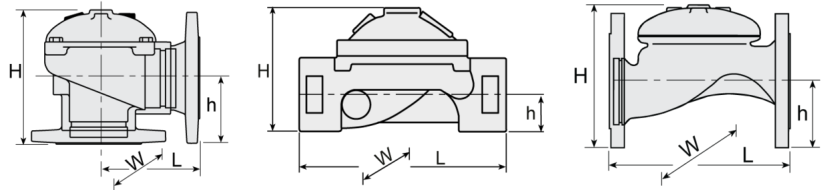
*\*Pilots PC-20-A-MP for sizes up to 4"*

*\*Pilots 2PBL for sizes 6"-12"*

### Technical Specifications

For other end connection types,

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



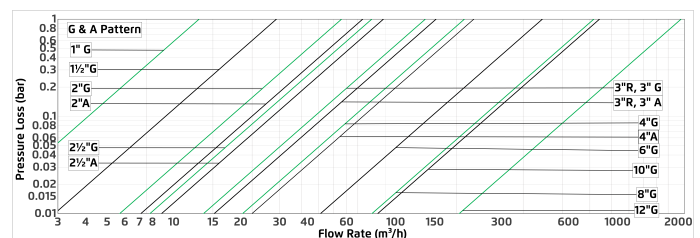
| Size        | Pattern | End Connection | Weight (Kg) | L (mm) | H (mm) | h (mm) | W   | CCDV (Lit) | KV   |
|-------------|---------|----------------|-------------|--------|--------|--------|-----|------------|------|
| 1" ; DN25   | Globe   | Threaded       | 1.1         | 115    | 68     | 34     | 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



2-Way circuit "Added Head Loss" (for "V" below 2 m/s): 0.3 bar

#### Differential Pressure & Flow Calculation

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

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

$Q = m^3/h$

$\Delta P = \text{bar}$