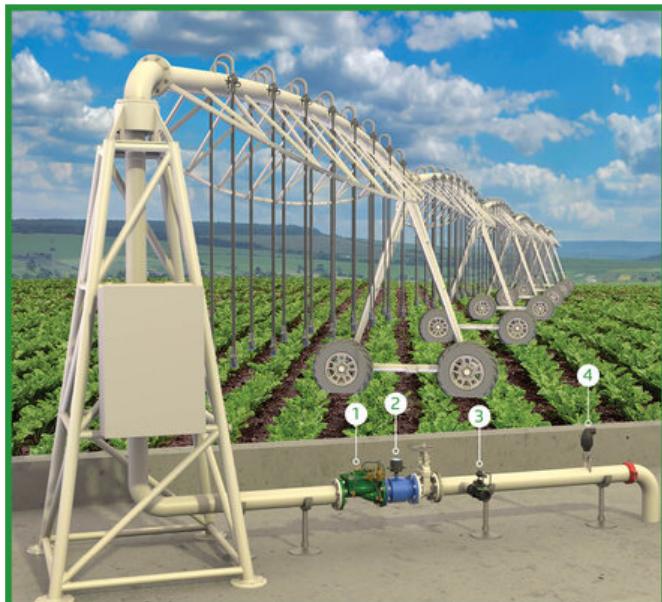


# PRESSURE REDUCING VALVE

With 3-Way Solenoid Control, Metal Control Accessories & GEMsol

## Model IR-420-55-3W-RXYZ-GEM

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

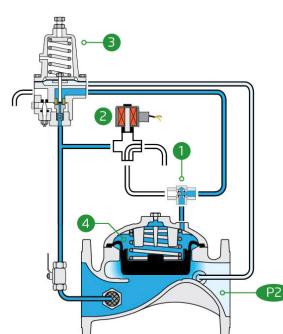
- 3-Way Hydraulically Actuated PRV with electric On/Off control
  - Protects downstream systems
  - Opens fully upon line pressure drop
  - Wide range of pressure settings
  - Wide range of Solenoid operation Voltages
  - Normally Open, Normally Closed or Last Position
- Advanced Hydro-Efficient Globe 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

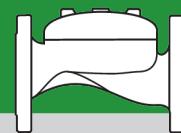
### Typical Applications

- 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.





IR-420-55-3W-RXYZ-GEM

## Technical Data

**Pressure Rating:**

16 bar

**Operating Pressure Range:**

0.5-16 bar

### Materials

**Body & Cover:**

Cast iron (up to 8") Ductile iron (10" &amp; 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
<b>N</b>	<b>Natural</b>	<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-PB

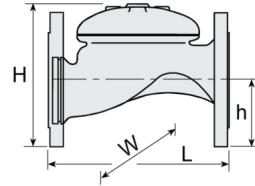
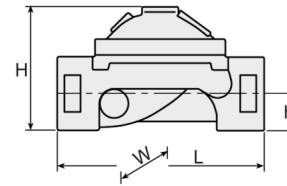
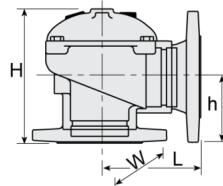
**DC latch solenoid:**

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.


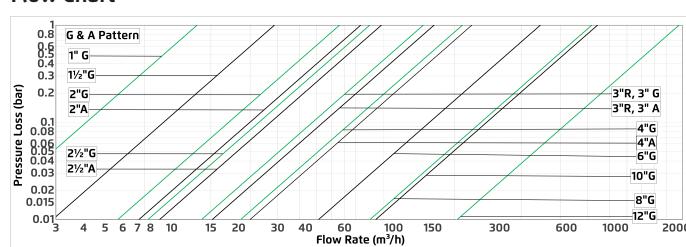
Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1" ; DN25	Globe	Threaded	1.1	115	68	34	71	0.02	13
1½" ; DN40	Globe	Threaded	2	153	87	29	98	0.06	29
2" ; DN50	Globe	Threaded	4	180	114	39	119	0.113	57
2" ; DN50	Globe	Flanged	9	205	155	78	155	0.113	57
2" ; DN50	Globe	Grooved	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 &amp; 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

$$\Delta P = \left( \frac{Q}{Kv} \right)^2 \quad Kv = m^3/h @ \Delta P \text{ of 1 bar}$$

$$Q = m^3/h \quad \Delta P = \text{bar}$$