

# PRESSURE REDUCING VALVE

With 3-Way Solenoid Control, Pressure Check Point & Plastic Control Accessories

## Model IR-420-55-3W-KXZ5

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-KX opens in response to electric signals, and establishes reduced 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

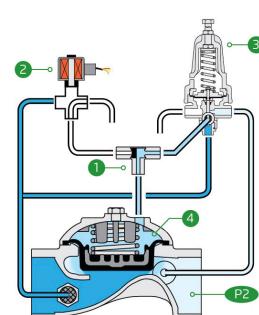
- Hydraulic Pressure Control with Solenoid Control
  - Line pressure driven
  - Protects downstream systems
  - Opens fully upon line pressure drop
  - Electrically controlled On/Off
- Advanced Hydro-Efficient Globe Design
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
- Fully 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

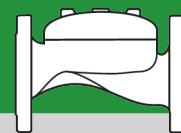
### Typical Applications

- Automated Irrigation Systems
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Remote and/or Elevated Plots
- Distribution Centers

### Operation:

The Shuttle Valve [1] hydraulically connects the Solenoid [2] or the Pressure Reducing Pilot (PRP) [3] to the Valve Control Chamber [4]. When the solenoid is closed, the PRP commands the valve to throttle closed should Downstream Pressure [P2] rise above setting, and to open fully when it drops below setting. 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. The solenoid also features local manual opening/closing override.





## 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

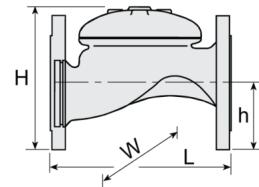
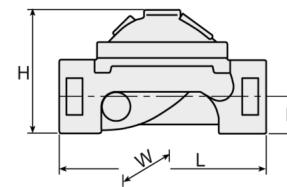
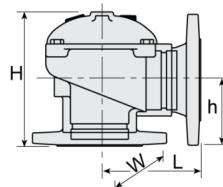
**AC solenoid:**  
 S-390-T-3W

**DC latch solenoid:**  
 S-392-T-3W P.B

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

## Technical Specifications

For other end connection types,

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


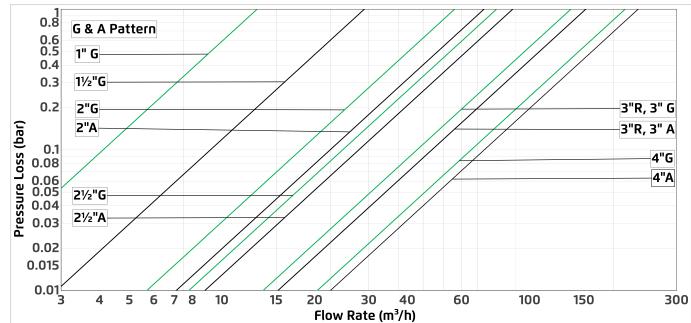
Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1" ; DN25	Globe	Threaded	1.1	115	68	34	71	0.02	13
1½" ; DN40	Globe	Threaded	2	153	87	29	98	0.06	29
2" ; DN50	Globe	Threaded	4	180	114	39	119	0.113	57
2" ; DN50	Globe	Flanged	9	205	155	78	155	0.113	57
2" ; DN50	Globe	Grooved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

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

## Additional Features

Code	Description	Size Range
Z	Manual Selector - SY3	1½"-4" / DN40-100
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

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

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