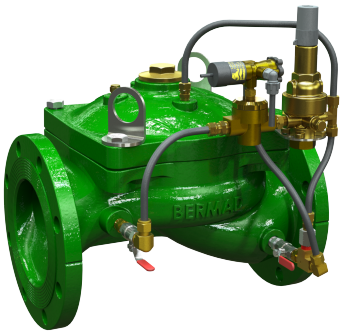
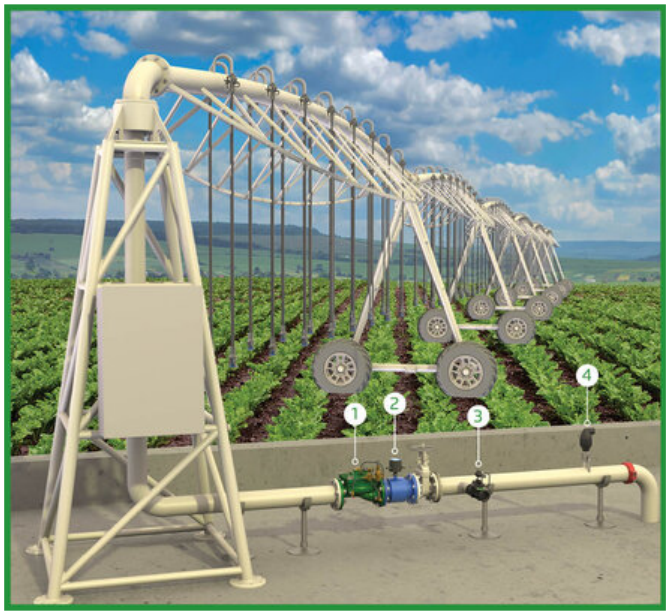
PRESSURE REDUCING VALVE

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

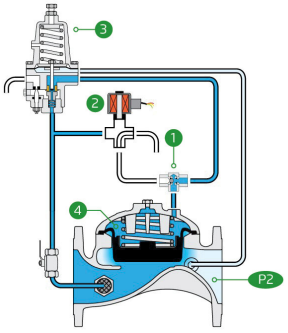
- 3-Way Hydraulically Actuated PRV with electric On/Off control
  - Protects downstream systems
  - Opens fully upon line pressure drop
  - Wide range of pressure settings
  - Wide range of Solenoid operation Voltages
  - Normally Open, Normally Closed or Last Position
- Advanced Hydro-Efficient Globe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



All images in this catalog are for illustration only

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

Technical Data

Pressure Rating:
250 psi

Operating Pressure Range:
7-250 psi

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	7-43 psi
N	**Natural**	**12-95 psi**
V	Blue & White	15-150 psi
P	White	15-230 psi

Standard spring - marked in bold

Tubing and Fittings:
Reinforced Nylon and Brass

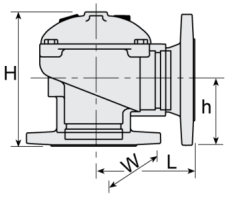
AC solenoid:
S-400-3W-PB

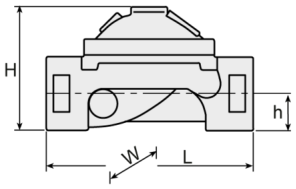
DC latch solenoid:
S-982-3W M.B.

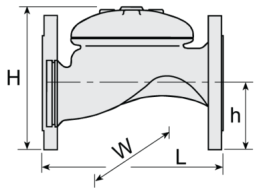
**For other solenoids and pilots please consult BERMAD*

Technical Specifications

For other end connection types,
Please refer to BERMAD full engineering page.







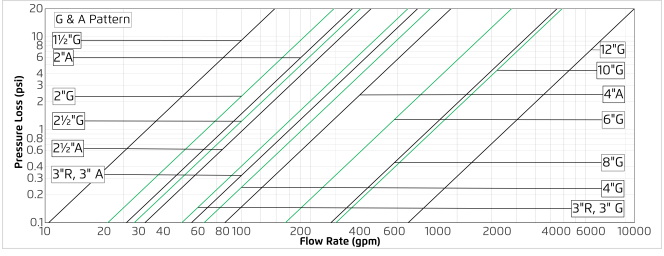
Size	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1" ; DN25	Globe	Threaded	2.4	4⅜	2¾	1⅜	2⅞	0.005	15
1½" ; DN40	Globe	Threaded	4.4	6⅛	3⅜	1¼	3⅞	0.016	33
2" ; DN50	Globe	Threaded	8.8	7⅛	4½	1½	4¾	0.03	66
2" ; DN50	Globe	Flanged	19.8	8⅛	6⅛	3⅛	6⅛	0.03	66
2" ; DN50	Globe	Grooved	11	8⅛	4¼	1¼	4¾	0.03	66
2" ; DN50	Angle	Threaded	9.7	3½	5⅜	2½	4¾	0.03	82
2" ; DN50	Angle	Flanged	19.8	4¾	7⅛	3⅜	6⅛	0.03	82
2½" ; DN65	Globe	Threaded	12.6	8⅜	5¼	1⅞	5⅛	0.05	90
2½" ; DN65	Globe	Flanged	23.1	8⅛	7	3½	7	0.05	90
2½" ; DN65	Angle	Threaded	12.8	4⅜	7⅛	3¾	5¼	0.05	102
3R"- ; DN80R	Globe	Threaded	12.9	8⅜	5½	2⅛	5⅛	0.08	157
3R"- ; DN80R	Globe	Flanged	28	8⅜	7⅛	4	7⅛	0.08	157
3R"- ; DN80R	Angle	Threaded	15.4	4⅜	7	3⅝	5¼	0.08	176
3" ; DN80	Globe	Threaded	28.7	10⅛	6½	2¼	6¾	0.08	157
3" ; DN80	Globe	Flanged	41.9	9⅞	8¼	4	7⅞	0.08	157
3" ; DN80	Globe	Grooved	23.4	9⅞	6⅛	1⅞	6¾	0.08	157
3" ; DN80	Angle	Threaded	24.3	4⅜	7¼	3¼	6¾	0.08	176
3" ; DN80	Angle	Flanged	37.5	6⅛	8⅛	4	7⅞	0.08	176
3" ; DN80	Angle	Grooved	22.1	4¾	11	3⅝	6¾	0.08	176
4" ; DN100	Globe	Flanged	61.7	12⅝	9⅝	4½	8⅞	0.18	236
4" ; DN100	Globe	Grooved	35.7	12⅝	7⅝	2½	8	0.18	236
4" ; DN100	Angle	Flanged	57.3	6⅜	8¾	4½	8⅞	0.18	260
4" ; DN100	Angle	Grooved	35.3	6⅜	8¾	4½	8⅞	0.18	260
6" ; DN150	Globe	Flanged	149.9	16⅜	13⅜	5½	12⅛	0.52	529
6" ; DN150	Globe	Grooved	108	16⅜	11⅞	3⅜	12⅛	0.52	529
8" ; DN200	Globe	Flanged	275.6	19¾	17	6¾	14⅜	1.02	902
10" ; DN250	Globe	Flanged	308.6	23⅞	18⅛	8	16	1.02	957
12" ; DN300	Globe	Flanged	639.3	28⅝	25	9⅝	22⅞	3.63	2231

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

Additional Features

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

Flow Chart



Differential Pressure & Flow Calculation

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

Cv = gpm @ ΔP of 1 psi
Q = gpm
ΔP = psi

www.bermad.com

January 2026