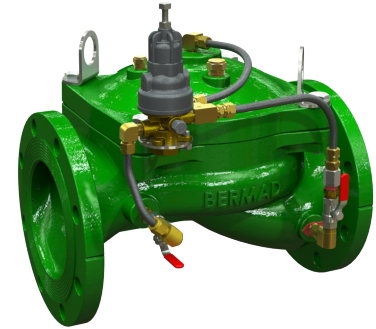




PRESSURE REDUCING VALVE

Model IR-420-2W-R

The BERMAD Model 420-2W-R Pressure Reducing Valve 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.



- [1] BERMAD Model IR-420-2W-R establishes reduced pressure zone, protecting laterals and distribution line.
- [2] Combination Air Valve Model C30
- [3] Pressure Relief Valve Model IR-43Q
- [4] Filter Backwash Hydraulic Valve Model IR-350
- [5] Flow Control Hydrometer Model IR-970-M0-R Magnetic Drive

Features & Benefits

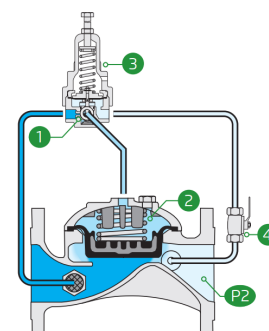
- Line Pressure Driven Pressure Reducing Valve
 - Protects downstream systems
- Advanced Hydro-Efficient Globe Design
 - Unobstructed flow path
 - Single moving part
 - High flow capacity
- Fully Supported & Balanced Diaphragm
 - Requires low actuation pressure
 - Excellent low flow regulation performances
 - Progressively restrains valve closing
 - Prevents diaphragm distortion
- User-Friendly Design
 - Easy pressure setting
 - Easy addition of control features
 - Simple in-line inspection and service

Typical Applications

- Pressure Reducing Systems
- Flow and Leakage Reduction
- Cavitation Damage Protection
- Pressure Zoning
- Downhill Supply Lines
- System Maintenance Savings

Operation:

The upstream Restriction [1] continuously connects command pressure with valve's Control Chamber [2] and loop's drainage. The Pressure Reducing Pilot [3] senses and reacts to Downstream Pressure [P2]. When it rises above setting, the pilot restrains drainage forcing pressure buildup in the Control Chamber causing the valve to throttle closed, decreasing Downstream Pressure to pilot setting. The pilot releases accumulated pressure from the Control Chamber when Downstream Pressure drops below setting, thereby causing the valve to modulate open. The Restriction [1] controls the closing speed. The Downstream Cock Valve [4] enables manual closing.





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-20-A-MP

Pilot Spring Range:

Spring	Spring Color	Setting range
N	Natural	12-95 psi
V	Blue & White	15-150 psi

Standard spring - marked in bold

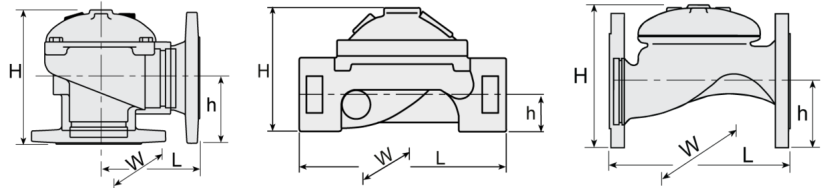
Tubing and Fittings:

Reinforced Nylon and Brass

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

Technical Specifications

For other end connection types,
Please refer to [BERMAD](#) full engineering page.



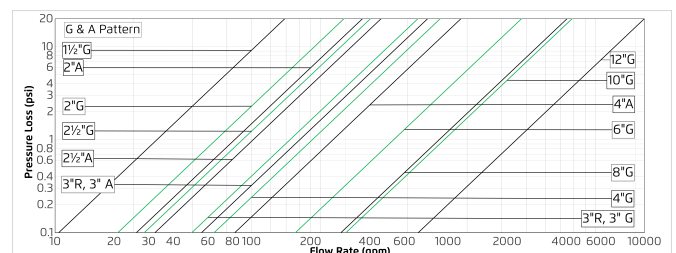
Size	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1" ; DN25	Globe	Threaded	2.4	4%	2 3/4	1 3/8	2 7/8	0.005	15
1 1/2" ; DN40	Globe	Threaded	4.4	6%	3 3/8	1 1/4	3 3/8	0.016	33
2" ; DN50	Globe	Threaded	8.8	7%	4 1/2	1 1/2	4 3/4	0.03	66
2" ; DN50	Globe	Flanged	19.8	8 1/8	6 1/8	3 1/8	6 1/8	0.03	66
2" ; DN50	Globe	Grooved	11	8 1/8	4 1/4	1 1/4	4 3/4	0.03	66
2" ; DN50	Angle	Threaded	9.7	3 1/2	5 3/8	2 1/2	4 3/4	0.03	82
2" ; DN50	Angle	Flanged	19.8	4 3/4	7 7/8	3 3/8	6 1/8	0.03	82
2 1/2" ; DN65	Globe	Threaded	12.6	8 3/8	5 1/4	1 3/8	5 1/8	0.05	90
2 1/2" ; DN65	Globe	Flanged	23.1	8 3/8	7	3 1/2	7	0.05	90
2 1/2" ; DN65	Angle	Threaded	12.8	4 3/8	7 1/8	3 3/4	5 1/4	0.05	102
3R" ; DN80R	Globe	Threaded	12.9	8 3/8	5 1/2	2 1/8	5 1/8	0.08	157
3R" ; DN80R	Globe	Flanged	28	8 3/8	7 7/8	4	7 7/8	0.08	157
3R" ; DN80R	Angle	Threaded	15.4	4 3/8	7	3 3/8	5 1/4	0.08	176
3" ; DN80	Globe	Threaded	28.7	10 1/8	6 1/2	2 1/4	6 3/4	0.08	157
3" ; DN80	Globe	Flanged	41.9	9 7/8	8 1/4	4	7 7/8	0.08	157
3" ; DN80	Globe	Grooved	23.4	9 7/8	6 1/8	1 3/8	6 3/4	0.08	157
3" ; DN80	Angle	Threaded	24.3	4 3/8	7 1/4	3 1/4	6 3/4	0.08	176
3" ; DN80	Angle	Flanged	37.5	6 1/8	8 1/8	4	7 7/8	0.08	176
3" ; DN80	Angle	Grooved	22.1	4 3/8	11	3 3/8	6 3/4	0.08	176
4" ; DN100	Globe	Flanged	61.7	12 3/8	9 3/8	4 1/2	8 3/8	0.18	236
4" ; DN100	Globe	Grooved	35.7	12 3/8	7 3/8	2 1/2	8	0.18	236
4" ; DN100	Angle	Flanged	57.3	6 3/8	8 3/4	4 1/2	8 3/8	0.18	260
4" ; DN100	Angle	Grooved	35.3	6 3/8	8 3/4	4 1/2	8 3/8	0.18	260
6" ; DN150	Globe	Flanged	149.9	16 3/8	13 3/8	5 1/2	12 3/8	0.52	529
6" ; DN150	Globe	Grooved	108	16 3/8	11 3/8	3 3/8	12 3/8	0.52	529
8" ; DN200	Globe	Flanged	275.6	19 3/8	17	6 3/4	14 3/8	1.02	902
10" ; DN250	Globe	Flanged	308.6	23 3/8	18 3/8	8	16	1.02	957
12" ; DN300	Globe	Flanged	639.3	28 3/8	25	9 3/8	22 3/8	3.63	2231

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

Additional Features

Code	Description	Size Range
F	Large Control Filter	1 1/2"-12"
M	Flow Stem	1 1/2"-12"
I	Position Indicator Assembly	1 1/2"-12"
55	Solenoid Controlled	1 1/2"-12"

Flow Chart



2-Way circuit "Added Head Loss" (for "V" below 6.5 f/s): 4.5 psi

Differential Pressure & Flow Calculation

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

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