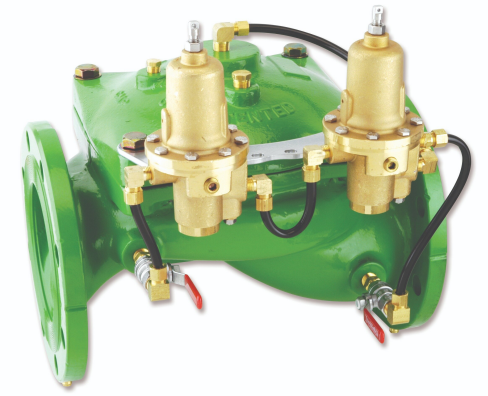
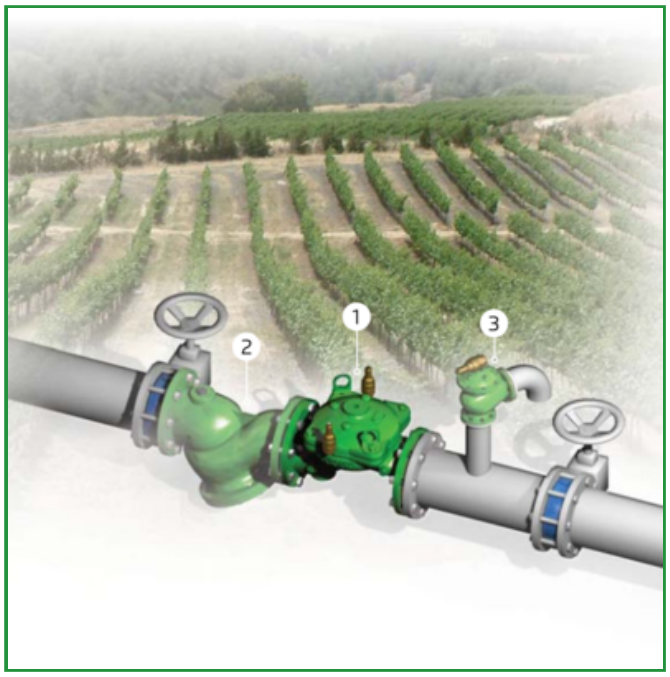
PRESSURE REDUCING & SUSTAINING VALVE

Model IR-423-2W-R

The BERMAD Pressure Reducing and Sustaining Valve is a hydraulically operated, diaphragm actuated control valve with two independent functions. It sustains minimum preset upstream pressure regardless of fluctuating flow or varying downstream pressure, and it prevents downstream pressure from rising above maximum preset regardless of fluctuating flow or excessive upstream pressure.





[1] BERMAD Model IR-423-2W-R prioritizes higher pressure zone, protects lower pressure zone, controls system fill-up, and prevents line emptying.
[2] Strainer Model 70-F
[3] Quick Relief Valve 73Q

Features & Benefits

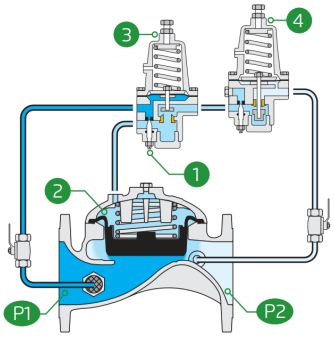
- Line Pressure Driven PRV and PSV
  - Prioritizes pressure zones
  - Protects lower pressure zones
  - Controls system fill-up
  - Prevents pipeline emptying
  - Protects pump from overload and cavitation
  - Compensates during groundwater drawdown
- Advanced Hydro-Efficient Globe Design
  - Unobstructed 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

- Downhill Supply Lines
- Line Emptying Prevention
- Higher Pressure Zone Prioritizing
- Lower Pressure Zone Protection
- Line Fill-Up Control
- Pump Overload and Cavitation Protection
- Deep Well Pump Drawdown Compensation

Operation:

The Pressure Reducing Pilot (PRP) [1] is hydraulically connected to the Valve Control Chamber [2] through the Pressure Sustaining Pilot (PSP) [3] . The PSP commands the valve to throttle closed should Upstream Pressure [P1] drop below setting. When [P1] rises above setting, the PSP switches and allows the PRP to control the valve, commanding it to throttle closed should Downstream Pressure [P2] rise above setting and to modulate open when is drops below setting. The downstream Cock Valve [4] enables manual closing.



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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

PS Pilot: PC-30-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

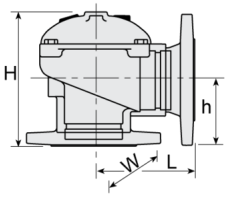
Standard spring - marked in bold

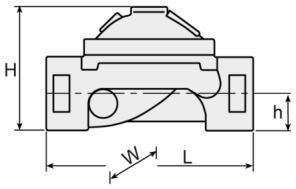
Tubing and Fittings:
Reinforced Nylon and Brass

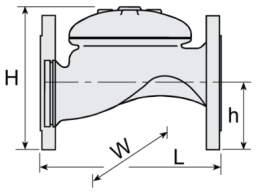
**Pilots PC-20-A-MP ; PC-30-A-MP for sizes up to 4"*
**Pilots 2PBL ; 3PBL for sizes 6"-12"*

Technical Specifications

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



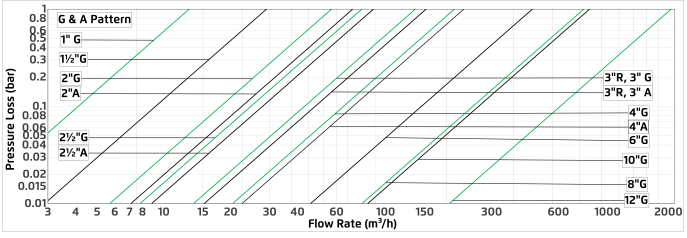




Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1" ; DN25	Globe	Threaded	1.1	115	68	34	71	0.02	13
1½" ; DN40	Globe	Threaded	2	153	87	29	98	0.06	29
2" ; DN50	Globe	Threaded	4	180	114	39	119	0.113	57
2" ; DN50	Globe	Flanged	9	205	155	78	155	0.113	57
2" ; DN50	Globe	Grooved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

Flow Chart



Differential Pressure & Flow Calculation

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

Kv = m³/h @ ΔP of 1 bar
Q = m³/h
ΔP = bar