



PRESSURE REDUCING VALVE

Normally Closed With Hydraulic Relay

Model IR-120-54-3W-X

The BERMAD Normally Closed, Pressure Reducing Valve with hydraulic relay 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 is a normally closed valve, which opens in response to a remote pressure command and shuts in the absence of that command.



- [1] BERMAD Model IR-120-54-3W-X opens upon pressuriserise command, and establishes reduced pressure zone protecting laterals and distribution line.
- [2] Kinetic Air Valve Model IR-K10
- [3] Combination Air Valve Model IR-C30

Features & Benefits

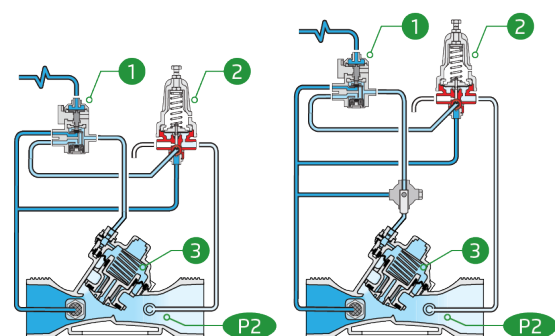
- Line Pressure Driven Hydraulic Control Valve Normally Close
 - Protects downstream systems
 - Opens fully upon line pressure drop
 - Amplifies and relays weak remote commands
 - Closes upon command pressure failure
- Engineered Composite Valve with Industrial Grade Design
 - Adaptable on-site to a wide range of end connection
 - Articulated flange connections that eliminate line bending and hydraulic stresses
 - Highly durable, chemical and cavitation resistant
- hYflow 'Y' Valve Body with "Look Through" Design
 - Ultra-high flow capacity at low pressure loss
- Unitized "Flexible Super Travel" (FST) Diaphragm and Guided Plug
 - Accurate and stable regulation with smooth closing
 - Requires low actuation pressure
 - Prevents diaphragm erosion and distortion
 - Simple in-line inspection and service

Typical Applications

- Automated Irrigation Systems
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Distribution Centers
- Energy Saving Irrigation Systems

Operation:

The 3-Way Hydraulic Relay Valve (3W-HRV) [1] hydraulically connects the Pressure Reducing Pilot (PRP) [2] to the Valve Control Chamber [3]. The PRP commands the valve to throttle closed should Downstream Pressure [P2] rise above pilot setting and to open fully when it drops below pilot setting. The 3W-HRV switches upon pressure drop command, directing line pressure into the control chamber, and thereby causing the main valve to shut. The 3W-HRV also features local manual closing.





Technical Data

Pressure Rating:

150 psi

Operating Pressure Range:

7-150 psi

Materials

Body & Cover:

Polyamide 6 & 30% GF

Diaphragm:

NR, Nylon fabric reinforced

Spring:

Stainless Steel

Control Loop Accessories

PR Pilot: PC-SHARP-X-P

Pilot Spring Range:

Spring	Spring Color	Setting range
J	Green	3-25 psi
K	Gray	7-43 psi
N	Natural	12-95 psi
V	Blue & White	15-150 psi

Standard spring - marked in bold

Tubing and Fittings:

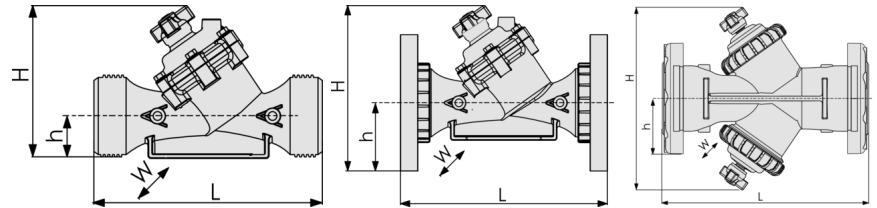
Polyethylene and Polypropylene

*3W-HRV:

- Standard spring - 0-33 ft'
- Optional 33-66 ft'

Technical Specifications

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



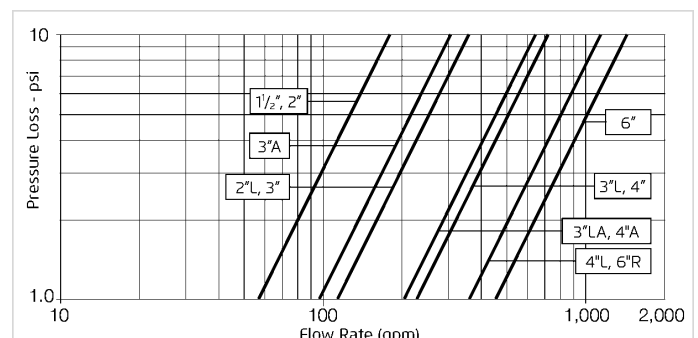
Size	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1½" ; DN40	Oblique	Threaded	2.4	7⅞	6⅞	1⅞	3⅞	0.026	58
2" ; DN50	Oblique	Threaded	2.7	9⅞	6⅞	1⅞	3⅞	0.026	58
2"L ; DN50L	Oblique	Threaded	3	9⅞	7⅞	1⅞	5⅞	0.033	116
2½" ; DN65	Oblique	Threaded	3	9⅞	7⅞	1⅞	5⅞	0.033	116
3" ; DN80	Oblique	Threaded	4	11⅞	7⅞	2⅞	5⅞	0.033	116
3" ; DN80	Oblique	Plastic Flanges	6	12⅞	9⅞	4	7⅞	0.033	116
3" ; DN80	Oblique	Metal Flanges	10	12⅞	9⅞	4	7⅞	0.033	116
3"L ; DN80L	Oblique	Threaded	7	11⅞	9⅞	2⅞	6⅞	0.136	231
3"L ; DN80L	Oblique	Plastic Flanges	8.2	12⅞	12½	4	7⅞	0.136	231
3"L ; DN80L	Oblique	Metal Flanges	10.1	12⅞	12½	4	7⅞	0.136	231
4" ; DN100	Oblique	Plastic Flanges	10	13⅞	13	4½	8⅞	0.136	231
4" ; DN100	Oblique	Metal Flanges	16.3	13⅞	13	4½	8⅞	0.136	231
4"L ; DN100L	Oblique	Plastic Flanges	20.2	17½	13⅞	4½	9	0.253	393
4"L ; DN100L	Oblique	Metal Flanges	24.7	17½	13⅞	4½	9	0.253	393
6"R ; DN150R	Oblique	Metal Flanges	36	18½	14⅞	5⅞	11⅞	0.253	393
6" ; DN150	Boxer	Grooved	26	19	15⅞	4	18⅞	2x0.136	462
6" ; DN150	Boxer	Plastic Flanges	27.6	19⅞	15⅞	5⅞	18⅞	2x0.136	462

CCDV = Control Chamber Displacement Volume • **Threaded** = BSP & NPT are available. External thread is available for 2" and 2½" only. • Other End Connections are available on request. For dimensions and weights of adapters or valves with adapters please consult with customer service.

Additional Features

Code	Description	Size Range
M	Flow Stem (*Exclude sizes 4"L, 6"R)	1½"-6"
S	Plastic Test Point	1½"-4"
Z	Manual Selector	1½"-4"L
V3	Victaulic PVC Adaptors 3"	3"
V4	Victaulic PVC Adaptors 4"	4"

Flow Chart



Differential Pressure & Flow Calculation

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

$Cv = \text{gpm @ } \Delta P \text{ of 1 psi}$
 $Q = \text{gpm}$
 $\Delta P = \text{psi}$