



PRESSURE REDUCING VALVE

Model IR-220-54-3W-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.

*This valve is designated for irrigation use only and not for other uses! Manufacturer warranty is limited to the permitted use only.



- [1] BERMAD Model IR-220-54-3W-X opens upon pressure rise command, and establishes reduced pressure zone protecting laterals and distribution line.
- [2] Combination Air Valve Model IR-C10
- [3] Kinetic Air Valve Model IR-K10

Features & Benefits

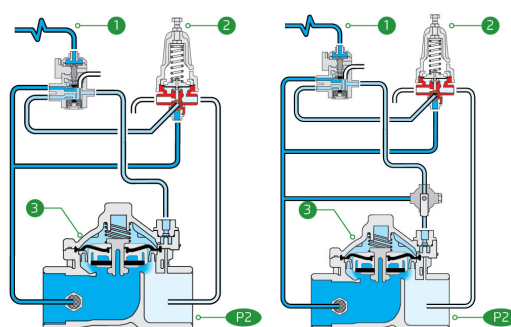
- Line Pressure Drive, Hydraulically Controlled
 - Hydraulic pressure control, Normally Closed
 - Closes upon command pressure failure
- Protects Downstream Systems
 - Amplifies and relays weak remote commands
 - Opens fully upon line pressure drop
- Composite Hydro-Efficient Globe Valve
 - Unobstructed flow path
 - Single moving part
 - High flow capacity
 - Highly durable, chemical and cavitation resistant
- Unitized Flexible Diaphragm and Guided Plug
 - Excellent low flow regulation performances
 - Prevents diaphragm erosion and distortion
- Fully Supported & Balanced Diaphragm
 - Requires low actuation pressure
- User-Friendly Design
 - Simple in-line inspection and service

Typical Applications

- Automated Irrigation Systems
- Drip Systems
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- 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:

10 bar

Operating Pressure Range:

0.7-10 bar

Materials

Body & Cover:

Polyamide 6 & 30% GF

Diaphragm:

NBR

Spring:

Stainless Steel

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
N	Natural	0.8-6.5 bar
V	Blue & White	1.0-10.0 bar

Standard spring - marked in bold

Tubing and Fittings:

Polyethylene and Polypropylene

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

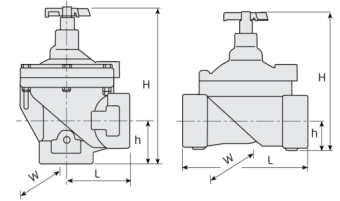
*3W-HRV:

- Standard spring - 0-10 m'
- Optional 10-20 m'

Technical Specifications

For other end connection types,

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



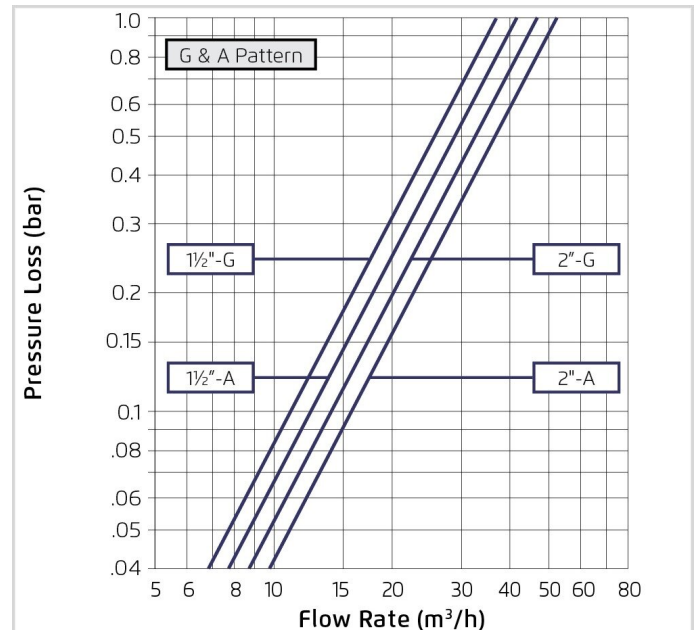
Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1½" ; DN40	Globe	Threaded	1	160	180	35	125	0.072	37
1½" ; DN40	Angle	Threaded	0.95	80	190	40	125	0.072	41
2" ; DN50	Globe	Threaded	1.1	170	190	38	125	0.072	47
2" ; DN50	Angle	Threaded	0.91	85	210	60	125	0.072	52

CCDV = Control Chamber Displacement Volume

Additional Features

Code	Description	Size Range
M	Flow Stem	1½"-2" / DN40-50
5	Plastic Test Point	1½"-2" / DN40-50
Z	Manual Selector	1½"-2" / DN40-50

Flow Chart



Differential Pressure & Flow Calculation

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

$K_v = m^3/h$ @ ΔP of 1 bar

$Q = m^3/h$

$\Delta P = \text{bar}$