



# PRESSURE REDUCING VALVE

with Hydraulic Control

## Model IR-120-50-3W-XZ

The BERMAD Pressure Reducing Valve with Hydraulic Control is a hydraulically operated, diaphragm actuated control valve that reduces higher upstream pressure to lower constant downstream pressure and opens fully upon line pressure drop. It either opens or shuts in response to a remote pressure command.



**[1]** BERMAD Model IR-120-50-XZ opens upon pressure-drop command, and establishes reduced pressure zone protecting laterals and distribution line.

**[2]** BERMAD Hydrometer Model IR-900-M0-Magnetic Drive

**[3]** Kinetic Air Valve

**[4]** Combination Air Valve

**[5]** RTU

*All images in this catalog are for illustration only*

### Features and Benefits

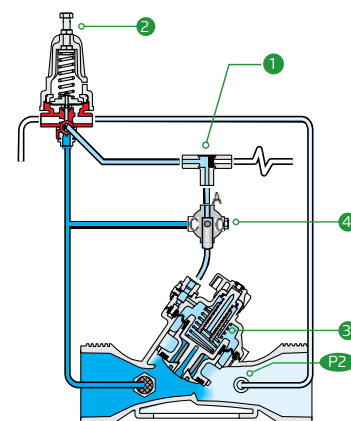
- Line pressure driven Hydraulic Level Control
  - Protects downstream systems
  - Opens fully upon line pressure drop
- Engineered Plastic Valve with Industrial Grade Design
  - Adaptable on-site to a wide range of end connection sizes and types
  - Articulated flange connections isolate valve from line bending and pressure stresses
  - Highly durable, chemical & cavitation resistant
- hYflow 'Y' Valve Body with "Look Through" Design
  - Ultra-high flow capacity at Low pressure loss
- Unitized Flexible Super Travel Diaphragm with a 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

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

### Operation:

The Shuttle Valve **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 setting and to open fully when it drops below setting. Upon pressure rise command, the shuttle valve automatically switches, allowing pressurization of the control chamber, which causes the main Valve to shut. The Manual Selector **4** enables manual closing.





### IR-120-50-3W-XZ

#### Technical Data

**Pressure Rating:**  
10 bar; 145 psi

**Operating Pressure Range:**  
0.5-10 bar; 7-145 psi

**Setting Range:**  
1-7 bar; 15-100 psi

Setting ranges vary according to specific pilot spring. Please consult factory

#### Materials:

**Body, Cover and Plug:**  
Glass-Filled Nylon

**Diaphragm:**  
NR, Nylon fabric reinforced

**Seals:** NR

**Spring:** Stainless Steel

**Cover Bolts:** Stainless Steel

#### Control Accessories:

**Tubing and Fittings:**  
Plastic

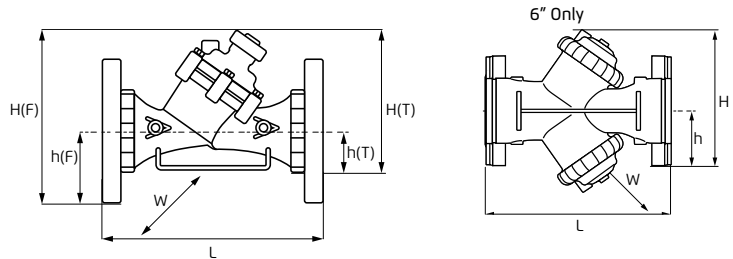
**Pilot Spring Range:**

Spring	Spring color	Setting Range
J	Green	0.2-1.7 bar
K	Gray	0.5-3.0 bar
N	Colorless	0.8-6.5 bar

#### Technical Specifications

##### Y Pattern Valves Dimensions & Weights

For [BERMAD](#) angle, dual & T pattern, Please see our full engineering page.



Sizes Inch ; DN	1½" ; 40	2" ; 50		2"L ; 50	2½" ; 65	Rc (BSP.T), NPT	3" ; 80	
End Connections	Rc (BSP.T), NPT	Rc (BSP.T), NPT	G (BSP.F)	Rc (BSP.T), NPT	G (BSP.F)	Rc (BSP.T), NPT	Universal Flanges	
							Metal	Plastic
L (mm)	200	230	230	230	230	298	308	308
H (F) (mm)	—	—	—	—	—	—	244	244
H (T) (mm)	173	173	173	187	187	199	—	—
h (F) (mm)	—	—	—	—	—	—	100	100
h (T) (mm)	40	40	40	43	43	55	—	—
W (mm)	97	97	97	135	135	135	200	200
CCDV (lit)	0.12	0.12	0.12	0.15	0.15	0.15	0.15	0.15
Weight (kg)	1.1	1.2	1.2	1.47	1.47	1.6	4.4	2.5

Sizes Inch ; DN	3"L ; 80L		4" ; 100		4"L ; 100L		Groove	6"R ; 150R	6" ; 150	6" ; 150
End Connections	Rc (BSP.T), NPT	Universal Flanges		Universal Flanges		Universal Flanges		Universal Flanges	Groove	Universal Flanges
		Metal	Plastic	Metal	Plastic	Metal	Plastic	Metal		Plastic
L (mm)	298	308	308	350	350	442	442	400	470	504
H (F) (mm)	—	317	317	329	329	340	340	286	377	286
H (T) (mm)	278	—	—	—	—	—	—	—	—	—
h (F) (mm)	—	100	100	112	112	112	112	57	149	143
h (T) (mm)	60	—	—	—	—	—	—	—	—	—
W (mm)	168	200	200	224	224	226	226	226	287	475
CCDV (lit)	0.62	0.62	0.62	0.62	0.62	1.15	1.15	1.15	1.15	2 x 0.62
Weight (kg)	3	4.4	3.5	7.5	4.6	13.5	10	8	16.5	12.5

CCDV = Control Chamber Displacement Volume • **BSP.T** = Internal Threaded • **BSP.F** = External Threaded • Other End Connections are available on request. For dimensions and weights of adapters or valve with adapters please consult with customer service

#### Flow Properties

Sizes Inch DN	1½" 40	1½"DC 40DC	2" 50	2"DC 5 DC	2"L 50L	2½" 65
KV	50	50	50	50	100	100

Sizes Inch DN	3" 80	3"L 80L	4" 100	4"L 100L	6" R 150L	6" 150
KV	100	200	200	340	340	400

#### Valve Flow Coefficient

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

$Kv = m^3/h @ \Delta P \text{ of } 1 \text{ bar}$   
 $Q = m^3/h$   
 $\Delta P = \text{bar}$

#### Flow Chart

