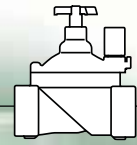


# BERMAD Irrigation

200 Series - Plastic Hydraulic/Electric Control Valves

Water Control Solutions





## 200 Series

Plastic Hydraulic/Electric Control Valves

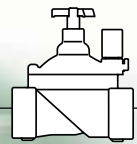
for residential, commercial and agricultural irrigation systems.

The BERMAD 200 Series plastic control valves are globe pattern (¾"-2") or Angle pattern (1½"-2"). These control valves provide superior hydraulic performance, demonstrating state-of-the-art hydraulics and plastics technology.

## Features and Benefits

- Spring Loaded Elastomeric Valve
  - Self operated
  - Range of closing springs
- Plastic Globe/Angle Hydro-Efficient Valve
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
  - Highly durable, chemical and cavitation resistant
- Flexible Balanced Diaphragm and Seal
  - Fully opening
  - Secures drip-tight closing
- User-Friendly Design
  - Simple in-line inspection





### 200 Series Valves

The BERMAD 200 Series is a line of plastic hydraulic/electric control valves for residential, commercial and agricultural irrigation systems.

This diaphragm actuated hydraulically operated plastic control valve combines simple and reliable construction with good hydraulic performance. These automatic water control valves are designed for vertical or horizontal installation and are available in Globe or Angle patterns in diameter sizes of ¾"-2".

The IR-200 valves are divided into two main types – Hydraulic Valve and Electric Valve. The Electric Valve control circuit is internal providing some significant benefits such as:

- No external tubes and accessories
- Compact and protected construction
- Self-cleaning orifice for reliable valve operation, even with brackish water.

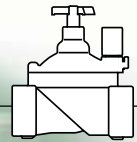
The IR 200 Series Valves are durable plastic valves. The valve body, cover, and seal disk assembly construction material uses Glass-Filled Nylon to meet rough service conditions obtaining high chemical and cavitation resistance.

The valve body design includes a full bore seat with unobstructed flow path, free of any in-line ribs, supporting cage, or shafts. Its seal disk assembly includes a flexible, carefully balanced and peripherally supported diaphragm and a rugged guided plug with elastomeric sealing surface. This internal design enables:

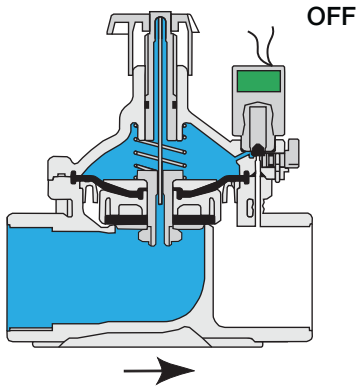
- High flow rate with low head loss
- Smooth valve opening and closing
- Accurate and stable regulation
- Low opening and actuation pressure
- No diaphragm erosion and distortion
- Same diaphragm and spring fully meet the valve's operating pressure range requirements

The IR-200 Series Valves use valve differential pressure to power the diaphragm assembly to open or close. The lower side of the diaphragm, which serves to cushion the closing of the valve, is exposed to downstream pressure through a peripheral passageway. The pressure in the control chamber varies, resulting from the action of a solenoid or a regulating pilot. This varying pressure modulates the valve to open or close.



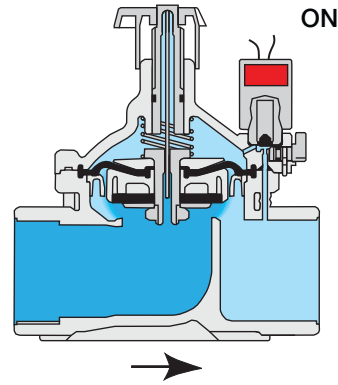


### 2-Way Solenoid Controlled, Normally Closed (N.C.)



#### Closed Position

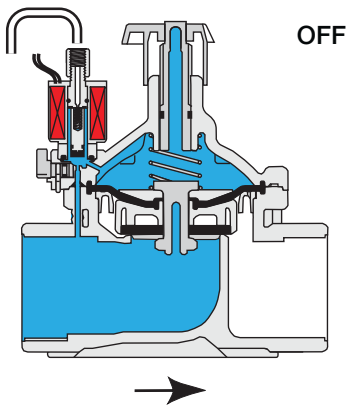
The internal restriction continuously allows line pressure into the control chamber. The solenoid controls outflow from the control chamber. When the solenoid is closed it causes pressure to accumulate in the control chamber, therefore forcing the valve to close.



#### Open Position

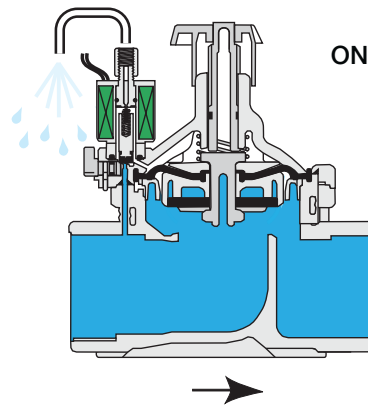
Opening the Solenoid releases more flow from the control chamber than the restriction can allow in. This causes the accumulated pressure in the control chamber to drop, enabling the line pressure acting on the plug to the valve.

### 3-Way Solenoid Controlled, Normally Open (N.O.)



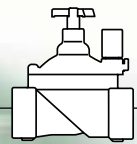
#### Closed Position

Energizing the solenoid opens the internal line pressure inlet and blocks the drain port. This pressurizes the control chamber, closing the valve.



#### Open Position

The de-energized solenoid blocks the valve internal line pressure inlet and opens the drain port, venting the control chamber to the atmosphere, therefore fully opening the valve.



## [1] Fastening Bolts & Nuts

6 Stainless Steel bolts and nuts fasten valve cover to body, ensuring quick in-line inspection and service.

## [2] Valve Cover (Electric Type)

Simple and light construction enables quick in-line inspection and service.

[2.1] 2-Way Solenoid Actuator

[2.2] Manual Override Handle

[2.3] Needle - Restricts inlet flow & eliminates internal restriction clogging.

[2.4] Flow Stem

## [3] Auxiliary Closing Spring

One single spring fully meets valve requirements for operating pressure range, ensuring low opening pressure and secured closing.

## [4] Seal Disk Assembly (Electric Type)

The seal disk assembly includes a flexible, carefully balanced, peripherally supported diaphragm and a rugged guided plug with elastomeric sealing surface. This internal design enables:

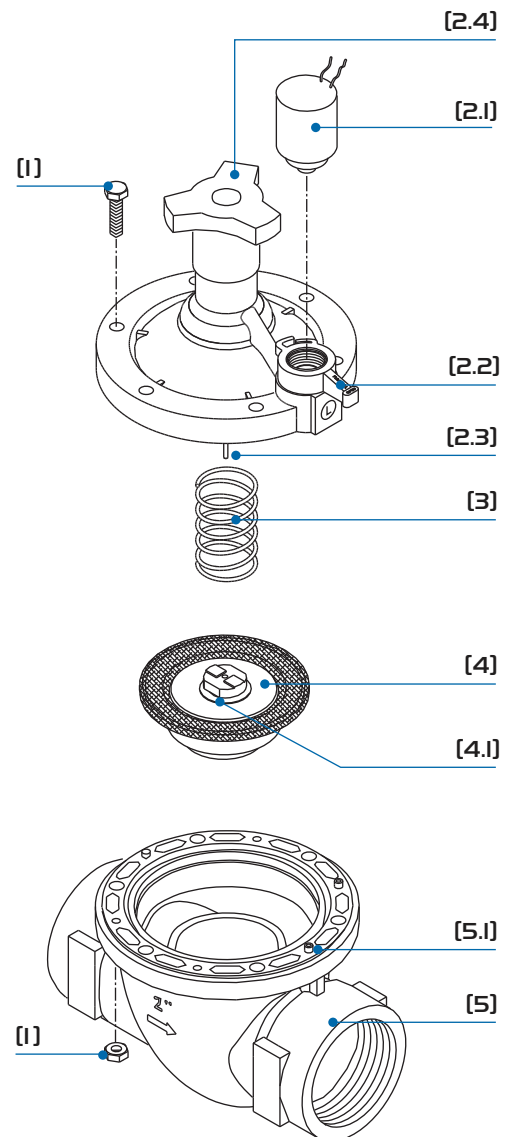
- High flow rate with low head loss
- Smooth valve opening and closing
- Accurate and stable regulation
- Low opening and actuation pressure
- No diaphragm erosion and distortion
- Same diaphragm and spring fully meet the valve's operating pressure range requirements

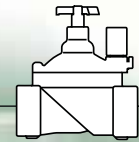
[4.1] Internal Restriction

## [5] Valve Body (Electric Type)

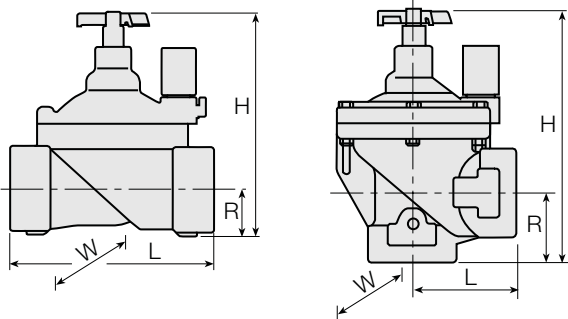
Glass-Filled Nylon to meet rough service conditions obtaining high chemical and cavitation resistance. Full bore seat with unobstructed flow path, free of any in-line ribs, supporting cage, or shafts.

[5.1] Internal Control Circuit Outlet





## Dimensions & Weights



Pattern	Size	Globe				Angle	
		DN20	DN25	DN40	DN50	DN40	DN50
L	(mm)	110	110	160	170	80	85
H	(mm)	115	115	180	190	190	210
R	(mm)	22	22	35	38	40	60
W	(mm)	78	78	125	125	125	125
Weight*	(Kg)	0.35	0.33	1.0	1.1	0.95	0.91
CCDV**	(lit)	0.015	0.015	0.072	0.072	0.072	0.072

\* Without flow control handle

\*\*Control Chamber Displacement Volume (liter)

## Technical Specifications

### Available Patterns and Sizes:

Globe: DN: 20, 25, 40 & 50

Angle: DN: 40 & 50

### Available End Connections:

BSP-T; NPT female threads

**Pressure Rating:** 10 bar

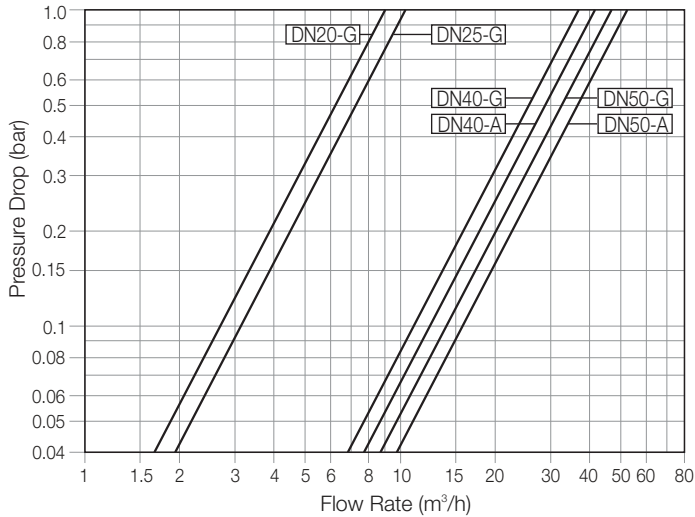
**Operating Pressure Range:** 0.7-10 bar

### Standard Materials:

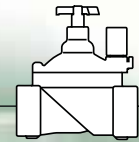
- Body and Cover: Nylon Reinforced
- Metal Parts: Stainless Steel
- Diaphragm: NBR [Buna-N]
- Seals: NBR [Buna-N]
- Spring: Stainless Steel
- Cover bolts: Stainless Steel

## Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 2 m/s): 0.3 bar



Pattern	Globe				Angle	
Sizes DN	20	25	40	50	40	50
KV (m³/h)	9	10.5	37	47	41	52



### S-390-2W

#### 2-Way Solenoid Actuator

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S390-2W-24VAC-R	Red/Red	1.7	0.25	0.125	37.5
S390-2W-24VAC-D	Red/Orange	2.2	0.13	0.13	*
S390-2W-24VDC	Black/Black	3.6	0.18	0.18	156
S390-2W-12VDC	Blue/Blue	4.0	0.33	0.33	36



### S-390-3W

#### 3-Way Solenoid

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S-390-3W-24VAC-D NO	Red/Orange	2.2	0.13	0.13	37.5
S-390-3W-24VAC-D NC	Orange/Blue	3.5	0.20	0.20	*
S-390-3W-24VAC-R NO	Red/Red	2.9	0.46	0.24	21
S-390-3W-24VDC NO & NC	Black/Black	4.2	0.17	0.17	135
S-390-3W-12VDC NO & NC	Blue/Blue	4.0	0.33	0.33	36



### S-400-3W

#### 3-Way Solenoid with Hydraulic Plastic Base

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Coil Resistance ohm@20°C; 68°F
			Inrush	Hold	
S-400-24VAC-D-NO	Red/Blue	3.5	0.20	0.20	*
S-400-24VAC-D-NC	Red/Blue	3.5	0.20	0.20	*
S-400-24VAC-R-NO	Red/Red	3.5	0.60	0.30	14
S-400-24VAC-R-NC	Red/Red	3.5	0.60	0.30	14
S-400-24VDC-NO	Black/Black	4.2	0.17	0.17	135
S-400-12VDC-NO	Blue/Blue	4.0	0.33	0.33	36



\* Coil resistance in these coils cannot be measured

Europe • Asia • Australia • Africa • America

## BERMAD Worldwide

With representation on every continent and across some 86 countries, BERMAD is an undisputed world leader in control valves, maintaining broad training and parts distribution networks all over the globe.

Wherever your location, BERMAD is there.

### BERMAD International Head Offices:

- BERMAD Australia
- BERMAD Brazil
- BERMAD Chile
- BERMAD China
- BERMAD Colombia
- BERMAD Italy
- BERMAD Mexico
- BERMAD Peru
- BERMAD UK
- BERMAD USA



Irrigation  
Hydraulic  
Control Valves

[info@bermad.com](mailto:info@bermad.com) • [www.bermad.com](http://www.bermad.com)

## BERMAD Water Control Solutions

**BERMAD**  
Waterworks

**BERMAD**  
Fire Protection

**BERMAD**  
Petroleum

**BERMAD**  
Irrigation

**BERMAD**  
Landscape



[info.cn@bermad.com](mailto:info.cn@bermad.com) • [www.bermad.com](http://www.bermad.com)

The information herein is subject to change without notice. BERMAD shall not be held liable for any errors. All rights reserved.  
© Copyright by BERMAD