



# SOLENOID CONTROLLED VALVE

WITH 2-WAY INTERNAL CONTROLS AND TRIO INTEGRATED OPEN-AUTO-CLOSE MANUAL SELECTOR

## Model IR-21T

The BERMAD 2-Way Solenoid Controlled Valve with Trio integrated Open-Auto-Close manual selector, is a hydraulically operated, diaphragm actuated control valve with internal hydraulic Feed & Bleed control loop. The Trio Integrated selector allows for open or close, manually overriding the electric signal.

The BERMAD Model IR-21T opens and closes drip-tight in response to an electric signal, which causes the solenoid to open or close the valve's internal hydraulic loop.



All images in this catalog are for illustration only

### Features & Benefits

- Line Pressure Driven, Electrically Controlled On/Off
- Smooth valve opening and closing
  - Accurate and stable regulation
  - Low operating pressure requirements
- Plastic Globe Hydro-Efficient Valve
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
  - Highly durable, chemical and cavitation resistant
- Unitized Flexible Diaphragm and Guided Plug
  - Prevents diaphragm erosion and distortion
- Fully Supported & Balanced Diaphragm
  - Requires low actuation pressure
- User-Friendly Design
  - Simple in-line inspection and service

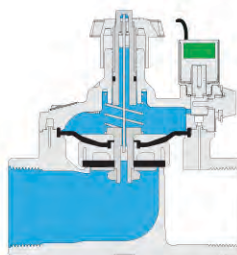
### Typical Applications

- Computerized Irrigation Systems
- Drip Systems
- Greenhouses Irrigation
- Systems Subject to Varying Supply Pressure
- Landscape
- Energy Saving Irrigation Systems

### Operation:

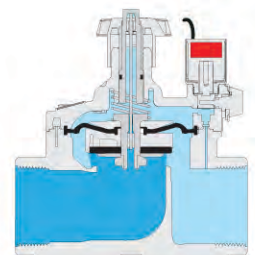
#### Closed Position

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, thereby 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 open the valve.





### Technical Data

**Sizes:** ½-2"; DN12-50  
**Patterns:**  
**Globe:** ½-2"; DN12-50  
**Angle:** 1½ & 2"; DN40 & 50  
**End Connections:**  
 Female Threads BSP; NPT

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

**Standard Materials:**  
**Body & Cover:**  
 Black PA6+33%GF  
**Diaphragm:** NBR  
**Seals:** NBR  
**Spring:** Stainless Steel

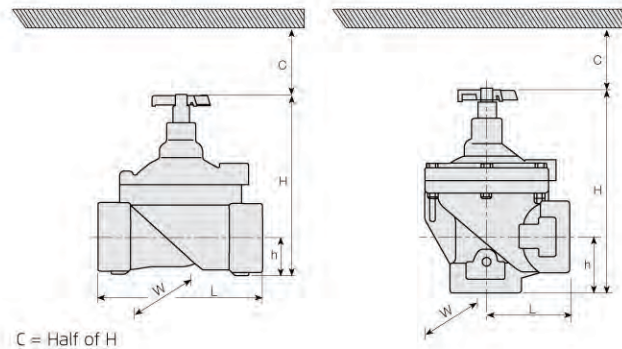
**Cover Bolts:** Stainless Steel  
**Control Accessories:** Plastic  
**Solenoid Voltage Range:**  
 S-390-T ;24 VAC, 24 & VDC  
 S-392-T; 9-20VDC Latch  
 Other Voltages available

### Technical Specifications

#### Dimensions and Weights

Sizes Inch ; DN	½" ; 12	¾" ; 20	1" ; 25	1½" ; 40	2" ; 50		
Pattern	Globe	Globe	Globe	Globe	Angle	Globe	Angle
L (mm)	67	110	110	160	80	170	85
H (mm)	92	115	115	180	190	190	210
W (mm)	42.5	78	78	125	125	125	125
h (mm)	16	22	22	35	40	38	60
Weight (kg)	0.183	0.35	0.33	1	0.95	1.1	0.91

Note: For full technical details, refer to Engineering Section.

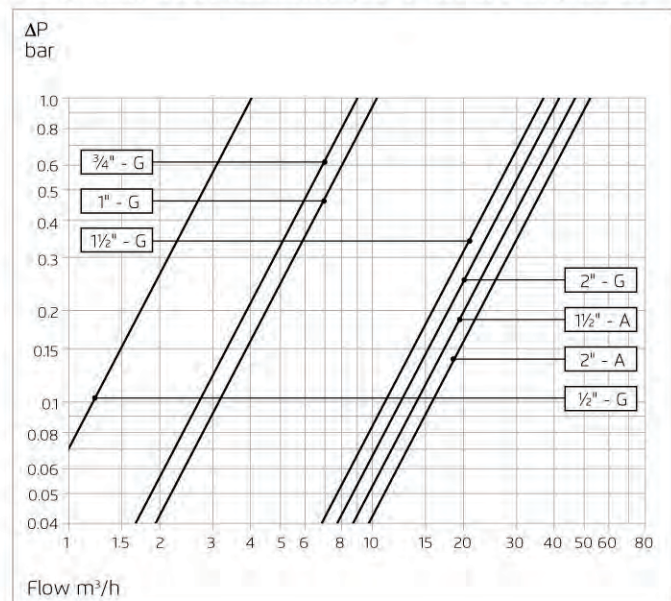


### Flow Properties

Sizes	Inch DN	G	G	G	G	A	G	A
		½"	¾"	1"	1½"	1½"	2"	2"
		12	20	25	40	40	50	50
KV		4	9	10.5	34	47	41	52

### Flow Chart

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



### Valve flow coefficient, Kv or Cv

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

Where:  
 Kv = Valve flow coefficient  
 Cv = Valve flow coefficient (flow in gpm at Diff. Press. 1 psi)  
 Q = Flow rate (m³/h; gpm)  
 P = Differential pressure (bar; psi)  
**Cv = 1.155 Kv**

