



# 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.



### 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

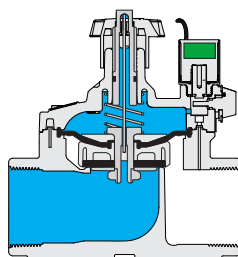
### Typical Applications

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

### Operation:

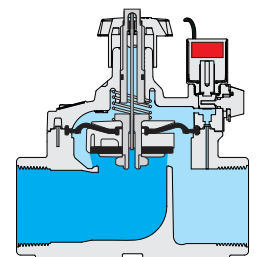
#### Closed Position

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.





**IR-21T**

**Technical Data**

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

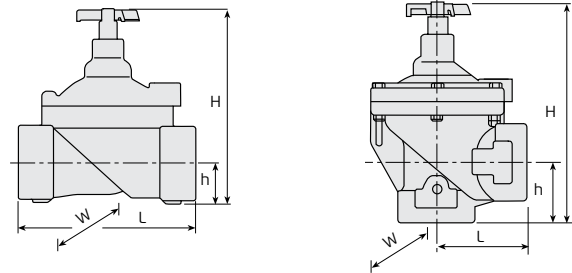
**Materials:**  
**Body, Cover and Plug:**  
Polyamid 6 & 30% GF  
**Diaphragm:** NBR  
**Seals:** NBR  
**Spring:** Stainless Steel  
**Cover Bolts:** Stainless Steel

**Control Accessories:**  
**Tubing and Fittings:**  
Plastic  
**Solenoid Voltage Range:**  
**S-390-T:**  
24 VAC, 24 VDC  
**S-392-T:**  
9-20VDC Latch  
**Other Voltages available**

**Technical Specifications**

**Dimensions & Weights**

For more details of [BERMAD 200 series](#)  
Please see our full engineering page.



| 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  |

**Flow Properties**

| Sizes   | Inch DN | ½" 12 | ¾" 20 | 1" 25 | 1½" 40 | 1½" 40 | 2" 50 | 2" 50 |
|---------|---------|-------|-------|-------|--------|--------|-------|-------|
| Pattern |         | G     | G     | G     | G      | A      | G     | A     |
| KV      |         | 4     | 9     | 9     | 37     | 41     | 47    | 52    |

**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**

