

# Filter Backwash Hydraulic Valve

4x4 Plastic

## IR-4x4-350-P

The BERMAD Model IR-4x4-350-P is a compact 3-port valve, in a "T" configuration. It is double chambered, hydraulically operated, and diaphragm actuated.

Designed for automatic backwashing of filtration systems, the BERMAD Model IR-4x4-350-P is available in Angle flow (A) and Straight flow (S) configurations.



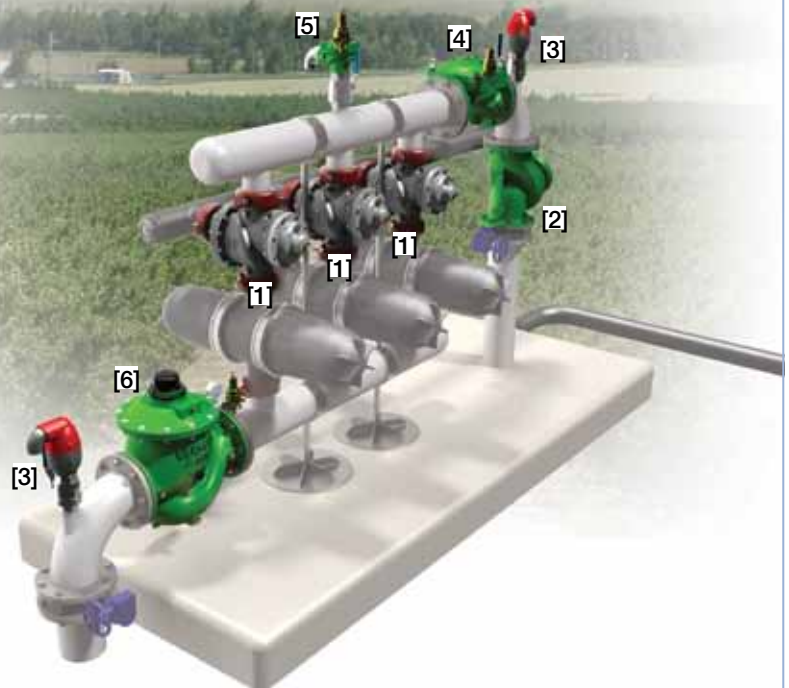
Angle Flow



Straight Flow

## Features and Benefits

- Line Pressure Driven
- Double Chambered Design
  - Quick and smooth mode change
  - Wide application range
  - Requires low actuation pressure
  - Protected diaphragm
- Dynamic Sealing
  - Seals at very low pressure
  - Prevents seal friction and erosion
- Engineered Plastic Valve Design
  - Highly durable, chemical and cavitation resistant
- Long Valve Travel
  - Higher flow and lower head loss
  - Smooth changes of flow direction
  - Eliminates mixing of supply and waste water
- User-Friendly
  - Can be installed in various orientations
  - Simple in-line inspection and service

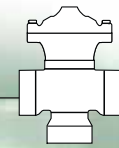


## Typical Applications

- Automatic Backwash of Filter Batteries
  - Gravel Filters
  - Sand Filters
  - Disk Filters
  - Screen Filters
- Single Filter Autonomic Backwash System
- Angled or Straight Installations

- [1] BERMAD Model IR-4x4-350-S-P allows flow into the filter, switches close upon pressure rise command blocking inlet to filter and enables backwash flow from the filter.
- [2] BERMAD Strainer Model IR-70F.
- [3] BERMAD Combination Air Valve Model C10.
- [4] BERMAD Pressure Reducing Valve Model IR-420.
- [5] BERMAD Quick Pressure Relief Valve Model IR-43Q.
- [6] BERMAD Pressure Sustaining Hydrometer Model IR-930-M0-X.

# BERMAD Irrigation



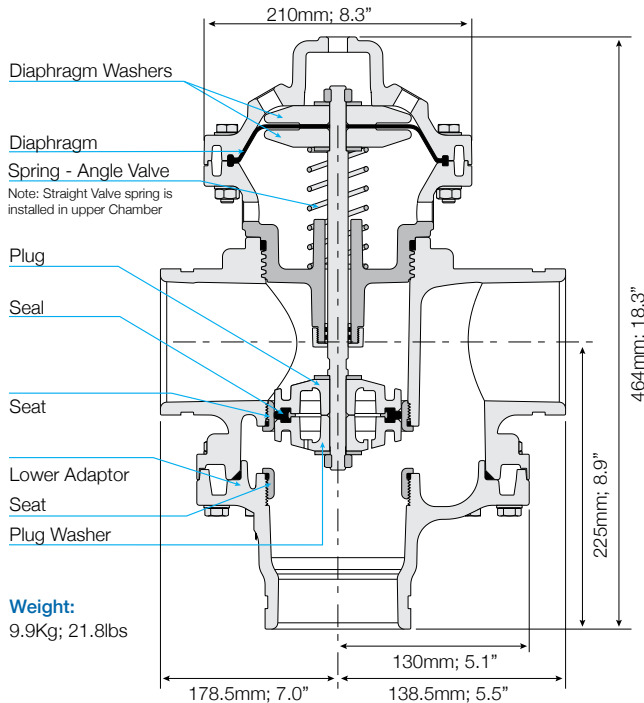
## IR-4x4-350-P

For full technical details, refer to Engineering Section.

## 350 Series

### Filter Stations

### Technical Specifications



### Technical Data

**Control Chamber Displacement Volume:** 0.55 liter; 0.15 gallon  
**Operating Pressure:** 0.7-10 bar; 10-145 psi  
**External Operating Pressure:** 85%-100% of operating pressure  
**Maximum Temperature:** 65°C; 150°F

#### End Connections:

- Port 1: • Grooved 4"  
 • Union Connector (Havazelet) 75mm  
 • Grooved 4" x Int. Thread 3"

Ports C & 2: Grooved 4"

**Flow Patterns:** Angled Flow, Reverse Angled Flow, Straight Flow, Reverse Straight Flow

#### Materials

- Valve Body, Separating Partition & Lower Adaptor:** Polyamide 6 – 30GF Black  
**Cover:** Polyamide 6 – 30GF (Angle Flow – Black; Straight Flow – Grey)  
**Diaphragm:** NR-AL52 Nylon Fabric Reinforced  
**Seats, Diaphragm Washers:** Stainless Steel 304  
**Plugs:** Acetal Copolymer Black (drilled) / Grey (undrilled)  
**Seal, O-Rings:** NBR  
**Spring:** Stainless Steel AISI 302  
**Shaft:** Stainless Steel AISI 303  
**External Bolts, Studs, Nuts & Disks:** Stainless Steel

### How to Order

Please specify the requested valve in the following sequence: (for more options, refer to Ordering Guide.)

Sector	Size	Primary Feature	Additional Feature	Pattern/ Flow Option	Construction Materials	Port 1 Connections	Ports 2 & C Connections	Coating	Voltage & Position	Tubing & Fittings	Additional Attributes				
IR	4x4	350	00	S	P	V	VI	UC	00	PP	-				
		00	54	55	00	S	A	S-O	A-O	V	H	VT	UC	VI	PP
		No Additional Feature	N.C. with Hydraulic Relay	Solenoid-Controlled	Straight Flow	Angle Flow	Straight & Reverse Flow	Angle & Reverse Flow	Grooved 4"	Union Connector (Havazelet) 75mm	Grooved 4" x Int. Thread 3"	Uncoated UC	Plastic Tubing & Fittings		

### Hydraulic Data

Flow	Filtration 1⇒C	Backwash C⇒2
Angle Flow		
	Kv=225 Cv=260	Kv=205 Cv=237
Flow	Filtration 2⇒C	Backwash C⇒1
Straight Flow		
	Kv=190 Cv=220	Kv=250 Cv=290

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

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

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

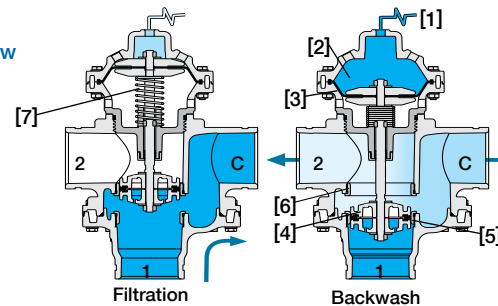
$Cv = \text{gpm} @ \Delta P \text{ of } 1 \text{ psi}$   
 $Q = \text{gpm}$   
 $\Delta P = \text{psi}$

**Cv = 1.155 KV**

Note: Port "1" KV/CV values refer to Grooved 4" option only

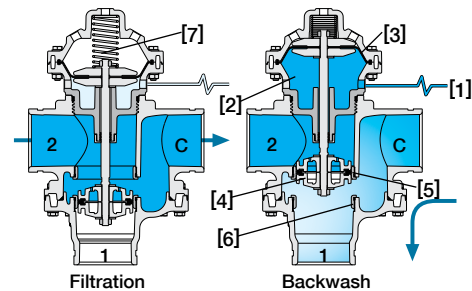
### Operation

#### Angle Flow



A Hydraulic Command [1], which pressurizes the Upper Control Chamber [2], forces the Diaphragm [3] actuated Plug Assembly [4] to move towards the Supply Port Seat [5], eventually sealing it drip tight. This allows flow from the filter through the Drain Port Seat [6]. Venting the upper control chamber causes the line pressure, together with the Spring [7] force, to move the Valve back to filtration mode.

#### Straight Flow



A Hydraulic Command [1], which pressurizes the Lower Control Chamber [2], forces the Diaphragm [3] actuated Plug Assembly [4] to move towards the Supply Port Seat [5], eventually sealing it drip tight. This allows flow from the filter through the Drain Port Seat [6]. Venting the upper control chamber causes the line pressure, together with the Spring [7] force, to move the Valve back to filtration mode.



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