

# Filter Backwash Hydraulic Valve

3x3 Plastic

**IR-3x3-350-P**

The BERMAD Model IR-3x3-350-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-3x3-350-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
  - 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
- Short Valve Travel
  - 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-3x3-350-S-P allows flow into the filter, switches closed upon pressure rise blocking inlet to filter and enables backwash flow from the filter.

[2] BERMAD Hydrompooter Model IR-900-M0

[3] BERMAD Air Valve Model ARA-A-1-P

# BERMAD Irrigation



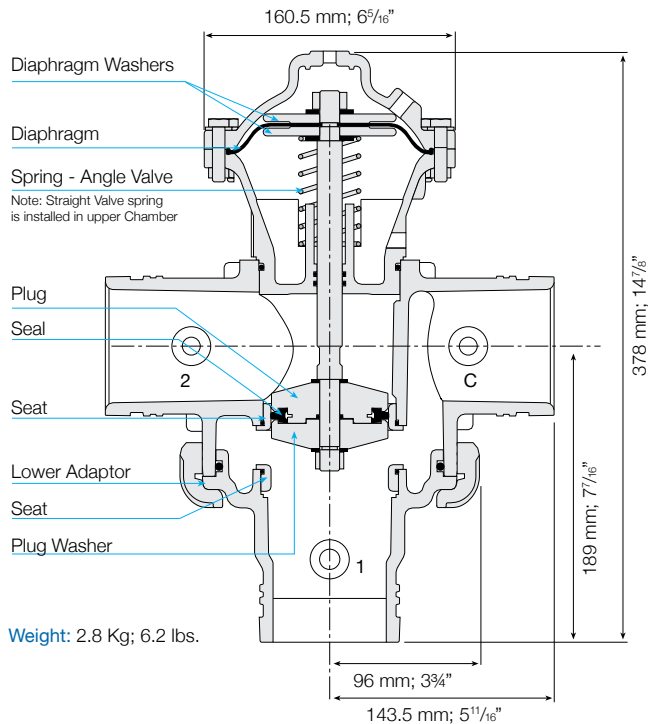
## IR-3x3-350-P

For full technical details, refer to Engineering Section.

## 350 Series

### Filter Stations

### Technical Specifications



### Technical Data

- Control Chamber Displacement Volume:** 0.34 liter; 0.09 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:** Grooved
- 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 – Gray
- Diaphragm:** NR-AL52 Nylon Fabric Reinforced
- Seats, Diaphragm Washers:** Brass
- Plug, Plug Washer:** Acetal Copolymer Black
- Stopper Disk:** PVC-U
- 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	Drain Connections	End Connections	Additional Attributes	Coating	Voltage & Position	Tubing & Fittings
IR	3X3	350	00	S	P	V	VI	-	UC	00	PP
		Angle Flow Straight Flow Straigh & Reverse Flow Angle & Reverse Flow	Grooved	V	Grooved ANCI C606-81	V1	Uncoated	UC	Plastic Tubing & Fillings	PP	

### Hydraulic Data

Angle Flow	Filtration 1⇒C	Backwash C⇒2
	Kv=110 Cv=127	Kv=100 Cv=115
Straight Flow	Filtration 2⇒C	Backwash C⇒1
	Kv=93 Cv=107	Kv=122 Cv=141

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

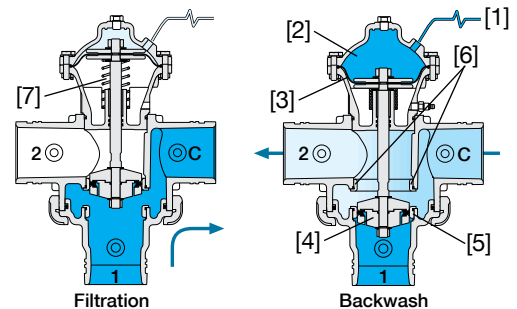
$Kv = m^3/h @ \Delta P \text{ of } 1 \text{ bar}$   
 $Q = m^3/h$   
 $\Delta P = \text{bar}$

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

$Cv = gpm @ \Delta P \text{ of } 1 \text{ psi}$   
 $Q = gpm$   
 $\Delta P = \text{psi}$   
 $Cv = 1.155 Kv$

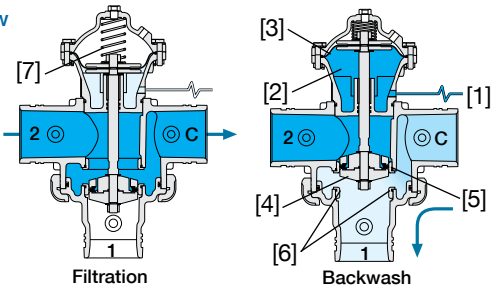
### Operation

#### 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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