



# FILTER BACKWASH HYDRAULIC VALVE

## 3X3 PLASTIC

### Model IR-3x3-350-P

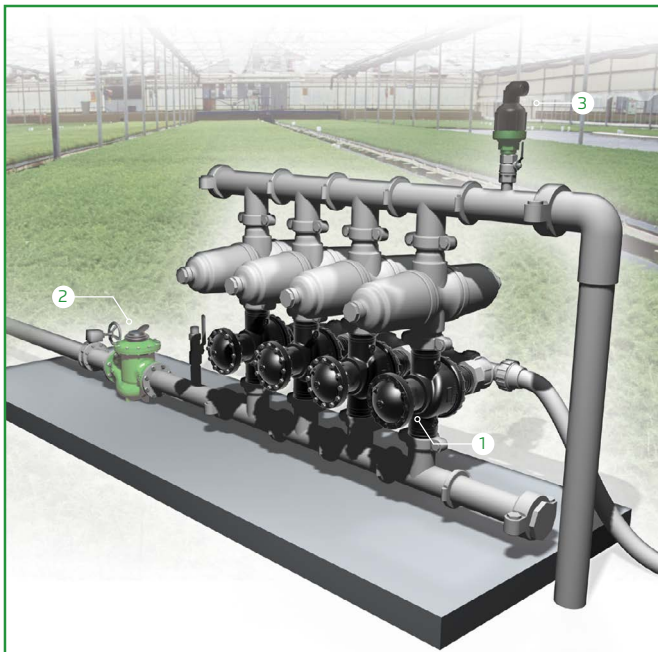
The BERMAD Model IR-3x3-350-P is a compact 3-port valve, in a T configuration. It is double chambered, hydraulically operated, and diaphragm actuated. Designed for automatic backwashing of filtration systems, the BERMAD Model IR-3x3-350-P is available in Angle flow (A) and Straight flow (S) configurations.



Angle Flow



Straight Flow



**[1]** BERMAD Model IR-3x3-350-S-P allows flow into the filter, switches closed upon pressure rise command blocking inlet to filter and enables backwash flow from the filter.

**[2]** BERMAD Hydrompter Model IR-900-MO

**[3]** BERMAD Air Valve Model ARA-A-I-P

## Features and Benefits

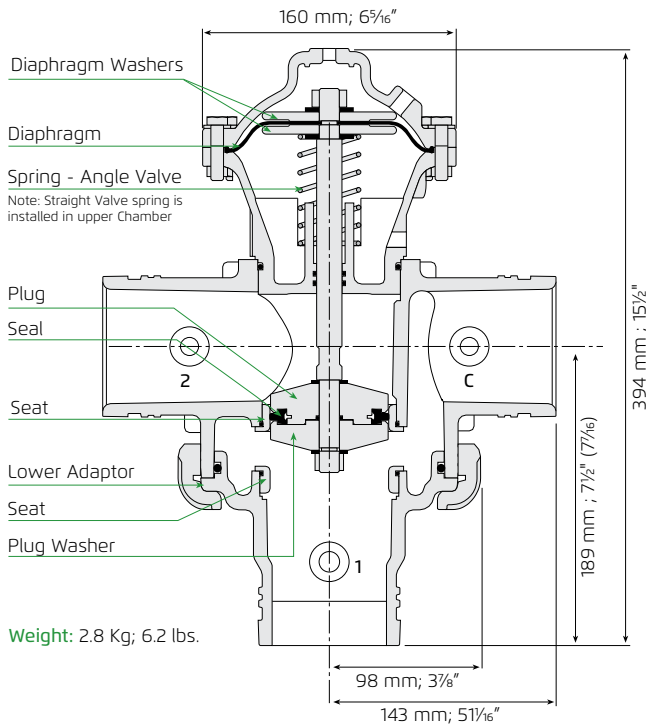
- Line Pressure Driven
- Double Chambered Design
  - Wide application range
  - Requires low actuation pressure
  - Protected diaphragm
- Dynamic Sealing
  - Seals at very low pressure
  - Prevents seal friction and erosion
- Engineered Plastic Valve Design
  - Highly durable, chemical and cavitation 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



For full technical details, refer to Engineering Section.



### 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 Straight & 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

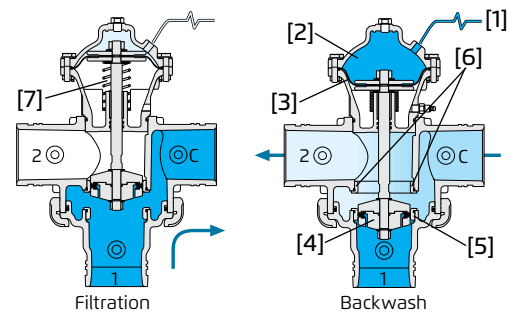
$$\Delta P = \left(\frac{Q}{Kv}\right)^2$$

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

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

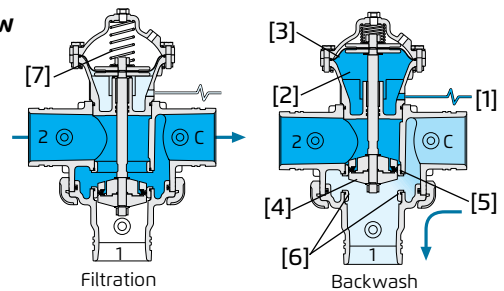
$Cv = \text{gpm} @ \Delta P \text{ of } 1 \text{ psi}$   
 $Q = \text{gpm}$   
 $\Delta P = \text{psi}$   
 $Cv = 1.155 Kv$

### 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.

