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

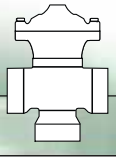
- Line Pressure Driven
- Double Chambered Design
  - Quick and smooth mode change
  - Wide application range
  - Requires low actuation pressure
  - Protected diaphragm
- Dynamic Sealing
  - Seals at very low pressure
  - Prevents seal friction and erosion
- Engineered Plastic Valve Design
  - Highly 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



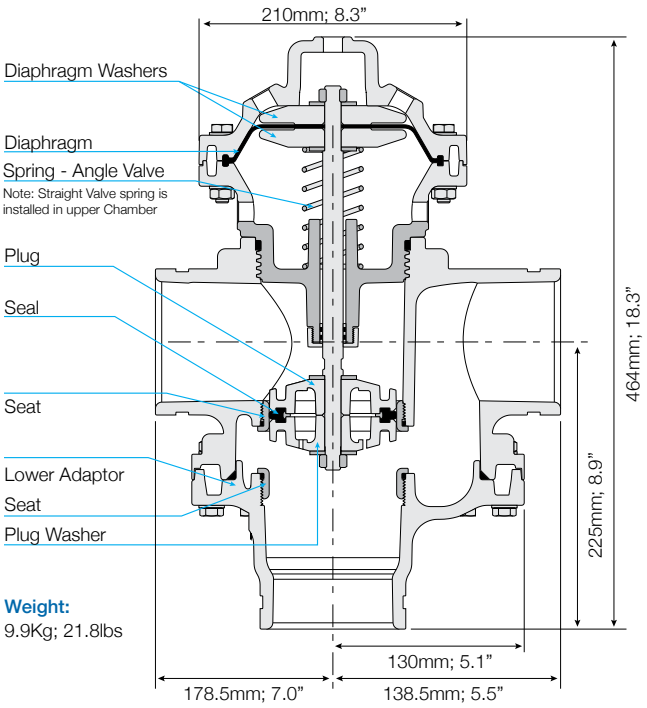
IR-4x4-350-P

350 Series

Filter Stations

For full technical details, refer to Engineering Section.

Technical Specifications



Weight:
9.9Kg; 21.8lbs

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

Hydraulic Data

	Filtration 1⇒C		Backwash C⇒2	
Angle Flow				
	Kv=225	Cv=260	Kv=205	Cv=237
	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 @ ΔP of 1 bar
Q= m^3/h
ΔP = bar

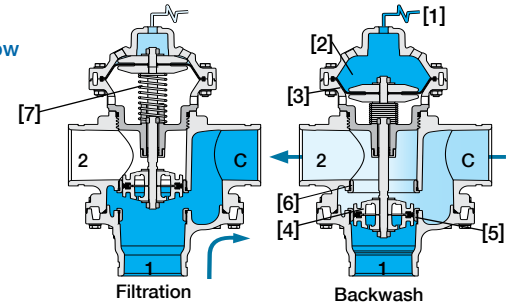
$\Delta P \left(\frac{Q}{Cv}\right)^2$
Cv = gpm @ ΔP of 1 psi
Q= gpm
ΔP = psi

Cv = 1.155 KV

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

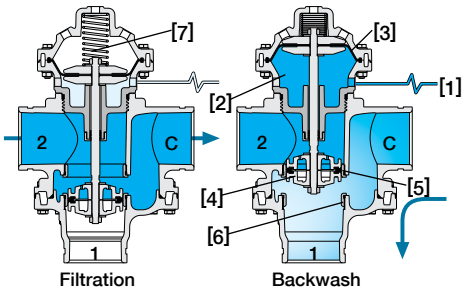
Operation

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.

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	Additonal Attributes
IR	4x4	350	00	S	P	V	VI	UC	00	PP	-

No Additional Feature	00	Straight Flow	S	Grooved 4"	V	Grooved ANSI C606-81	VI	Uncoated	UC	Plastic Tubing & Fittings	PP
N.C. with Hydraulic Relay	54	Angle Flow	A	Union Connector (Havazelet) 75mm	H						
Solenoid-Controlled	55	Straight & Reverse Flow	S-O	Grooved 4" x Int. Thread 3"	VT						
		Angle & Reverse Flow	A-O								

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