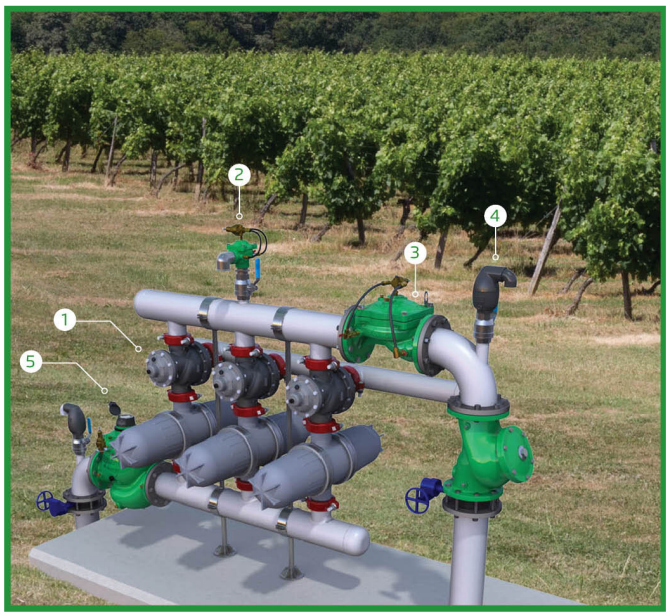
FILTER BACKWASH HYDRAULIC VALVE

Double Chamber

Model 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.



[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] Pressure Relief Valve Model IR-43Q
[3] Pressure Reducing Valve Model IR-420
[4] Combination Air Valve Model C10
[5] Pressure Sustaining Hydrometer Model IR-930-M0-X

Features & Benefits

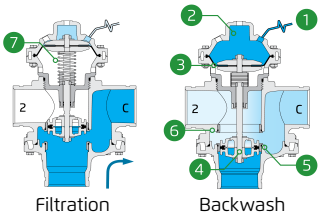
- Line Pressure Driven
- Double Chamber Design
  - Wide application range
  - Requires low actuation pressure
  - Protected diaphragm
- Dynamic Sealing
  - Seals at very low pressure
  - Prevents seal friction and erosion
- Engineered Composite Valve with Industrial Grade Design
  - Highly durable, chemical 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 Design
  - Can be installed in various orientations
  - Simple in-line inspection and service

Typical Applications

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

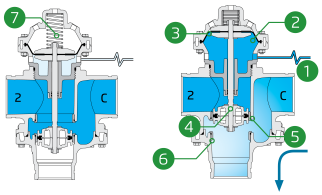
Operation:

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.



Filtration Backwash

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.



Filtration Backwash

All images in this catalog are for illustration only

Technical Data

Pressure Rating:
10 bar

Operating Pressure Range:
0.7-10 bar

External Operating Pressure:
85%-100% of operating pressure

Maximum Temperature:
65°C

Materials

Body & Cover:
Polyamide (Nylon) 6 With 30% Glass Fiber

Angel Flow-Black Cover
Straight Flow-Gray Cover

**Other materials are available on request*

Seats, Diaphragm Washers:
NR, Nylon fabric reinforced & NBR

Plug, Plug Washer:
Acetal Copolymer Black

Stopper Disk:
PVC-U

Spring:
Stainless Steel

Diaphragm:
NR, Nylon fabric reinforced & NBR

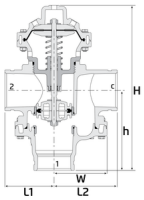
Shaft:
Stainless Steel

External Bolts, Studs, Nuts & Disks:
Stainless Steel

Seal, O-Rings:
NBR

Technical Specifications

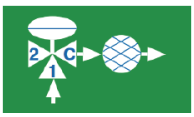
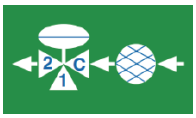
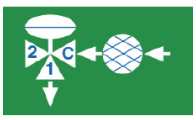
For other end connection types,
Please refer to BERMAD full engineering page.



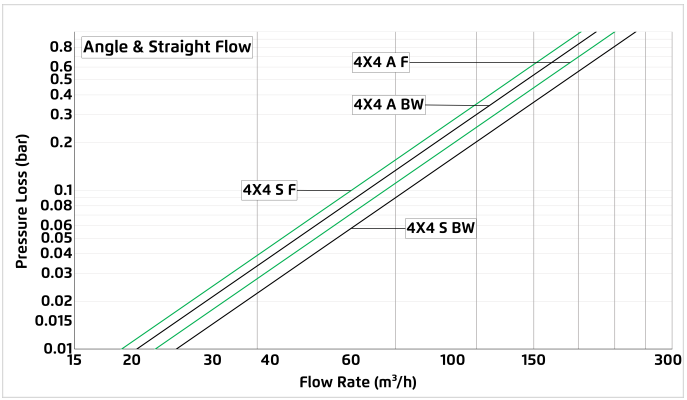
Size (DN)	Pattern	End Connection	Weight (Kg)	L1 (mm)	L2 (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV Filtration	KV BW
4" ; 100	Angle Flow	Grooved	9.9	138.5	178.5	464	225	130	0.55	190	250
4" ; 100	Straight flow	Grooved	9.9	138.5	178.5	464	225	130	0.55	225	205

CCDV = Control Chamber Displacement Volume
BW = Backwash

Flow Scheme

Angle Flow	Filtration 1=>C 	Backwash C=>2 
Straight Flow	Filtration 2=>C 	Backwash C=>1 

Flow Chart



A = Angle flow *BW = Backwash*
S = Straight flow *F = Filtration*

Additional Features

Code	Description	Size Range
350-54	Filter Backwash Valve with Hydraulic Accelerator	2"-4" / DN50-100
350-55	Filter Backwash Valve, Solenoid Controlled	2"-4" / DN50-100

Differential Pressure & Flow Calculation

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

Kv = m³/h @ ΔP of 1 bar
Q = m³/h
ΔP = bar