IR-350 Series

The BERMAD IR-350 Series Valves are compact 3-port valves, in a "T" configuration. They are double chambered, hydraulically operated, and diaphragm actuated.

Designed for automatic backwashing of filtration systems, valves are available in Angle flow (A) and Straight flow (S) configurations. The IR-350 is a double-chambered valve with long valve travel resulting in: Protected diaphragm, higher flow, quick & smooth mode change, and eliminating mixing of supply & wastewater.

The IR-350 Series ranges in diameter sizes from 2"x2", 3"x2", 3"x3" to 4"x4" Plastic and Metal.

Angle Flow

Straight Flow

Features and Benefits

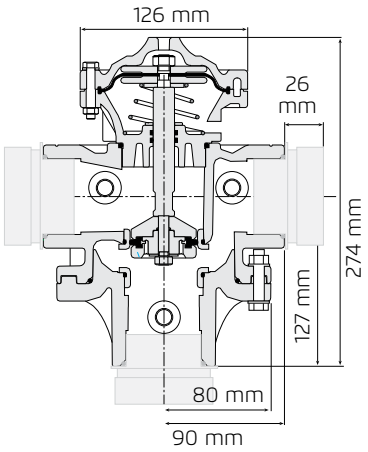
- Line Pressure Driven
- Double Chambered Design
  - Quick and smooth mode change
  - Wide application range
  - Requires low actuation pressure
  - Protected diaphragm
- Dynamic Sealing
  - Seals at very low pressure
  - Prevents seal friction and erosion
- Engineered Plastic Valve Design
  - Highly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

Typical Applications

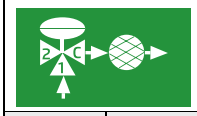
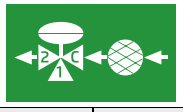
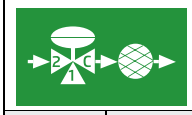
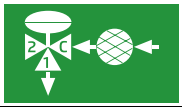
- Automatic Backwash of Filter Batteries
  - Gravel Filters
  - Sand Filters
  - Disc Filters
  - Screen Filters
- Single Filter Autonomic Backwash System
- Angled or Straight Installations (IR-350 Series, Double Chamber Valves)
- Backwash Flow Limit (IR-470-beKU, IR-170-beU)

IR-2"x2"-350-P

Dimensions



Hydraulic Data

Angle Flow	Filtration 1⇨C 		Backwash C⇨2 	
	Kv=52	Cv=60	Kv=48	Cv=55
Straight Flow	Filtration 2⇨C 		Back wash C⇨1 	
	Kv=46	Cv=53	Kv=60	Cv=69

$\Delta P = \left(\frac{Q}{Kv}\right)^2$
Kv = m^3/h @ΔP of 1 bar
Q= m^3/h
ΔP = bar

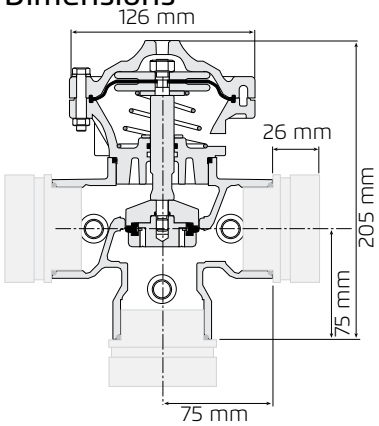
$\Delta P = \left(\frac{Q}{Cv}\right)^2$
Cv = gpm @ΔP of 1 psi
Q= gpm
ΔP = psi

Cv = 1.155 KV

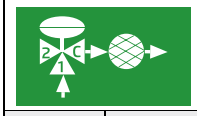
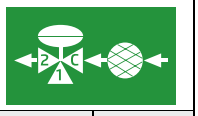
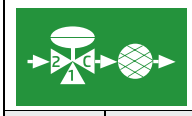
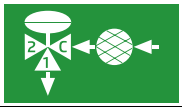
Weight: 2.7 kg; 6.0 lbs.
Note: Grooved adaptors add 0.5 Kg to valve weight.
Control Chamber Displacment Volume: 0.13 liter

IR-2"x2"-350-R

Dimensions



Hydraulic Data

Angle Flow	Filtration 1⇨C 		Backwash C⇨2 	
	Kv=55	Cv=63	Kv=37	Cv=43
Straight Flow	Filtration 2⇨C 		Back wash C⇨1 	
	Kv=36	Cv=42	Kv=58	Cv=67

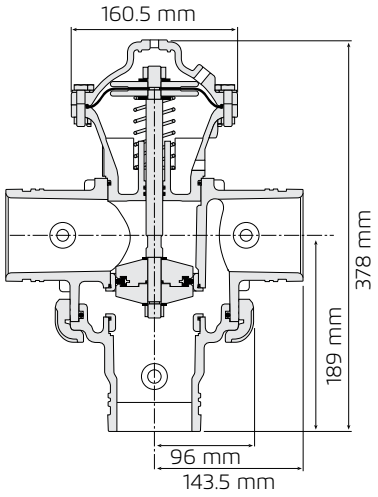
$\Delta P = \left(\frac{Q}{Kv}\right)^2$
Kv = m^3/h @ΔP of 1 bar
Q= m^3/h
ΔP = bar

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

Cv = 1.155 KV

Weight: 3.7 Kg; 8.2 lbs.
Note: Grooved adaptors add 0.5 Kg to valve weight.
Control Chamber Displacment Volume: 0.13 liter

IR-3"x3"-350-P



Hydraulic Data

	Filtration 1 ⇨ C		Backwash C ⇨ 2	
Angle Flow	Kv=110	Cv=127	Kv=100	Cv=116
	Filtration 2 ⇨ C		Backwash C ⇨ 1	
Straight Flow	Kv=93	Cv=107	Kv=122	Cv=141

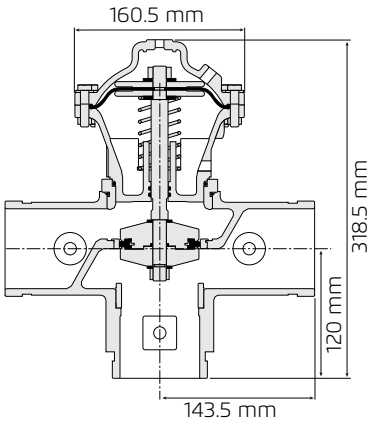
Weight: 5.1 kg ; 11.3 lbs.

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

IR-3"x3"-350-I



Hydraulic Data

	Filtration 1 ⇨ C		Backwash C ⇨ 2	
Angle Flow	Kv=122	Cv=141	Kv=71	Cv=82
	Filtration 2 ⇨ C		Backwash C ⇨ 1	
Straight Flow	Kv=80	Cv=92	Kv=83	Cv=96

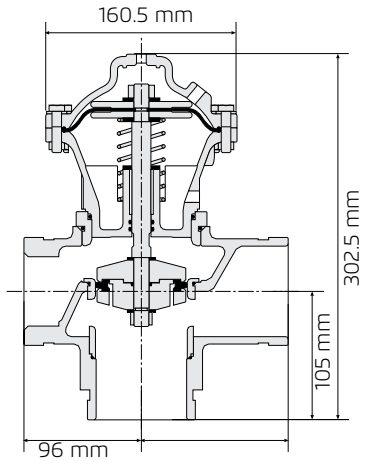
Weight: 10.5 Kg; 23.3 lbs.

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

IR-3"x2"-DC-350-I



Hydraulic Data

	Filtration 1 ⇨ C		Backwash C ⇨ 2	
Angle Flow	Kv=120	Cv=140	Kv=60	Cv=70

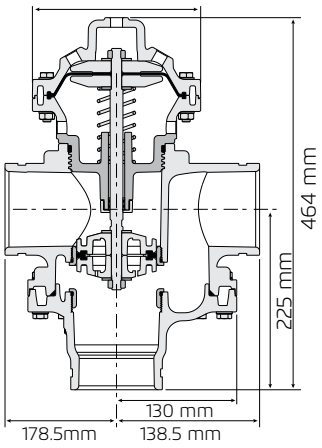
Weight: 9.0 Kg; 20.0 lbs.

$\Delta P = \left(\frac{Q}{Kv}\right)^2$
Kv = m^3/h @ΔP of 1 bar
Q= m^3/h
ΔP = bar

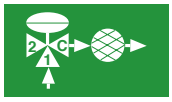
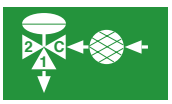
$\Delta P = \left(\frac{Q}{Cv}\right)^2$
Cv = gpm @ΔP of 1 psi
Q= gpm
ΔP = psi

Cv = 1.155 KV

IR-4"x4"-350-P



Hydraulic Data

Angle Flow	Filtration 1 ⇨ C 		Backwash C ⇨ 2 	
	Kv=225	Cv=260	Kv=205	Cv=237
Straight Flow	Filtration 2 ⇨ C 		Backwash C ⇨ 1 	
	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
Weight: 9.9Kg; 22 lbs.

Technical Data

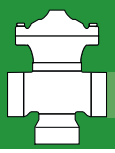
Control Chamber Displacement Volume:
2"x2": 0.13 liter; 0.03 gallon; **3"x2"DC & 3"x3":** 0.34 liter; 0.09 gallon; **4"x4":** 0.55 liter; 0.15 gallon
Standard Valve : 1.5-10 bar ; 22-145 psi
External Operating Pressure: 85%-100% of operating pressure
Maximum Temperature: 65°C;150°F
Flow Patterns: Angled Flow, Reverse Angled Flow, Straight Flow, Reverse Straight Flow

End Connections:

Size	Port C	Port 2	Port 1
2"x2"	• Threaded 2" • Grooved 2" (with adaptors)	• Threaded 2" • Grooved 2" (with adaptors)	• Threaded 2" • Grooved 2" (with adaptors)
3"x3"	Grooved 3"	Grooved 3"	Grooved 3"
3"x2" DC	Grooved 3"	Threaded 2"	Grooved 3"
4"x4"	Grooved 4"	Grooved 4"	• Grooved 4" • Union Connector (Havazelet) 75mm • Grooved 4" x Int.Thread 3"

Materials

Valve Body:
Plastic: Polyamide 6 – 30GF Black
Metal: 2"x2": Brass; **3"x2"DC & 3"x3":** Cast Iron
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 & Discs: Stainless Steel



IR	3"x3"	350-55	A	P	P	VI	PG	4AC	PB	Z

Size	
2"x2"	DN50x50
3"x3"/2"DC (1)	DN80x80/50
3"x3"	**DN80x80**
4"x4"	DN100X100

(1) ▪ 3"x3"/2"DC (Double chamber) dimensions are the same as old version 3"x2" single chamber
▪ Angle flow only: Port 2 (drain) is 3" grooved
▪ Cast Iron only

(2) ▪ Angle flow: Port 2 (drain) is 3" grooved and 2" female threaded (Cast Iron only)
▪ Straight flow: Port 1 (drain) is 3" grooved and 2" female threaded (Cast Iron or Plastic)

(3) ▪ Single chamber valve
▪ Angle flow only: Port 2 (drain) is 4" grooved and 3" female threaded (Cast Iron only)

Port 1 (Lower Seat) Connection	Code
BSP Threaded Female (2"x2" only)	**P**
NPT Threaded Female (2"x2" only)	N
Grooved	V
"Havazelet" (4"x4" Only)	H
Vic/Thread (3"/2", 4"/3")	VT

Coating	Code
Polyester Green RAL 6017	**PG**
Polyester Red RAL 3000	PR
Polyester Blue RAL 5010	PB
Epoxy FB Blue RAL 5017	EB
Uncoated	UC

Port 2 / C Connections	Code
Grooved ANSI C 606-81 Steel Pipe	**VI**
BSP Threaded Female (2"x2")	BP

Optional 2" Adaptors are available on request:
- BSP Male Threaded x Grooved (when Grooved is required).
- BSP Male Threaded x NPT Female Threaded (when NPT is required).

Voltage-Main Valve Position (When Solenoid De-Energized)	Code
24VAC - Normally Open	**4AC**
24VDC - Normally Open	4DO
12VDC - Normally Open	1DO
12VDC - Latch Solenoid S-985 (3 Leads)	1DS
12VDC - Latch Solenoid S-982 (2 Leads)	2DS
9VDC - Latch Solenoid	9DS

Other electrical ratings available on request.

Primary Features	Code
Filter Back Flushing Valve	350
Filter Back Flushing Valve with Hydraulic Accelerator	350-54
Filter Back Flushing Valve, Solenoid Controlled	**350-55**

Other primary features available on request.

Tubing & Fittings	Code
Plastic Tubing & Fittings	PP
Plastic Reinforced Tubing & Brass Fittings	**PB**
Copper Tubing & Brass Fittings	CB

Pattern / Flow Options	Code
Angle Flow	**A**
Straight Flow	S
Angle & Reverse Flow	A-0
Straight & Reverse Flow	S-0

Additional Attributes Unlimited Selection	Code
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Metal Control Accessories	R
Stainless Steel 316 Seat & Shaft	T
Manual Selector	**Z**
Plastic Gauge Test Point	5
½" Anti Vacuum at Valve Downstream	7

Other additional attributes are optional.

Body Material	Code
Brass (2"x2")	R
Cast Iron (3"x3"; 3x2"DC)	I
Nylon - G.F. (2"x2"; 3"x3"; 4"x4")	**P**

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