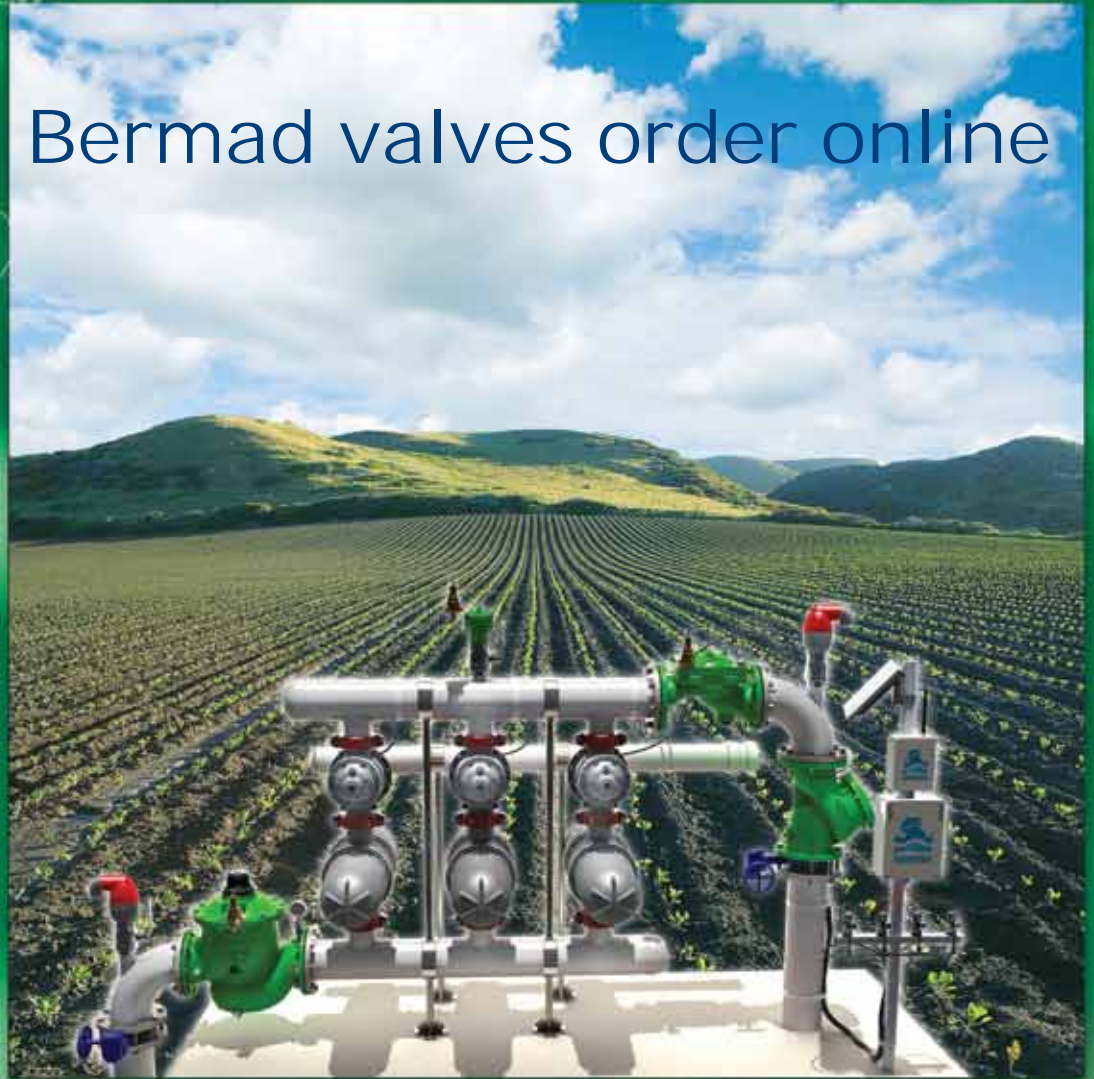




Bermad valves order online



Ordering Guide














February 2014

Water Control Solutions



Bermad valves order online purchase

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Contact us by email for consultation and orders

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General Notes

- As part of our ongoing effort to provide you with the products that you need, if the characteristics or features that you need are not listed in this ordering guide, please contact BERMAD.
- Some valve categories and features can be mixed and matched. When in doubt, contact BERMAD. This edition supersedes previous editions. We recommend that you discard previous editions.



IR-100 Series hYflow

The BERMAD IR-100 hYflow is at the leading edge of control valve design, providing a valve that is free of the typical limitations associated with standard control valves. A unitized flexible super-travel diaphragm & guided plug provide a significantly 'look through' passage resulting in accurate & stable regulation and ultra-high flow capacity.

The hYflow unique body design allows on-site adaption to a wide range of end connection types and sizes. Its articulated flange connections isolate the valve from pipeline bending & pressure stresses. Available in sizes of 1½", 2", 2"L, 2½", 3", 3"L, 4" & 6" and in Oblique, Angel, "T" or Double (D) "T" patterns.



Features and Benefits

- Hydraulic Control Valve
 - Line pressure driven
 - Hydraulically controlled On/Off
- Engineered Plastic Valve with Industrial Grade Design
 - Adaptable on-site to a wide range of end connection sizes and types
 - Articulated flange connections eliminate mechanical and hydraulic stresses
 - Highly durable, chemical and cavitation resistant
- hYflow 'Y' Valve Body with "Look Through" Design
 - Ultra-high flow capacity - Low pressure loss
- Unitized Flexible Super Travel Diaphragm and Guided Plug
 - Smooth closing
 - Requires low actuation pressure
 - Prevents diaphragm erosion and distortion
- User-Friendly Design
 - Simple in-line inspection and service

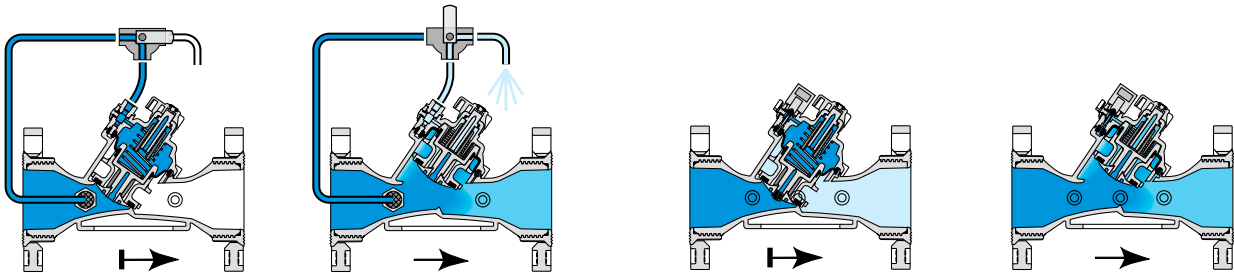
Typical Applications

- Computerized Irrigation Systems
- Distribution Centers
- Low Supplied Pressure Irrigation Systems
- Energy Saving Irrigation Systems





Option Modes (On/Off)



3-Way Control

Line pressure applied to the control chamber of the valve creates a hydraulic force that moves the valve to the closed position and provides drip tight sealing. Discharging pressure from the control chamber to the atmosphere causes the line pressure under the plug to open the valve.

2-Way Internal Control

Line pressure enters the control chamber through the internal restriction. The closed solenoid causes pressure to accumulate in the control chamber, thereby shutting the valve. Opening the Solenoid releases more flow from the control chamber than the restriction can allow in. This causes pressure in the control chamber to drop, allowing the valve to open.

Technical Specifications

Available Patterns & Sizes:

1½", 2", 2"L, 2½", 3", 3"L, 4" & 6"

Available End Connections:

Threaded: Female BSP-T/NPT 1½", 2", 2"L, 3" & 3"L

Male BSP-F 2", 2½"

Flanged: 3", 3"L, 4" & 6"

Plastic or metal "Corona" with elongated slots enable meeting diverse flange standards ISO, ANSI, AS, JIS

Pressure Rating: 10bar; 150psi

Operating Pressure Range: 0.5-10bar; 7-150psi

Temperature Range: Water up to 60°C; 140°F

Standard Materials:

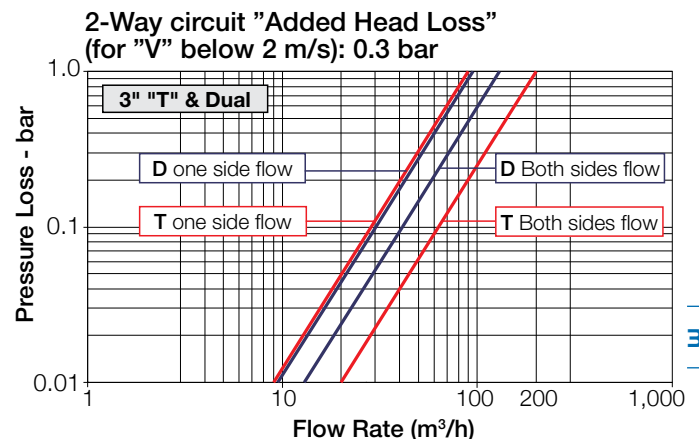
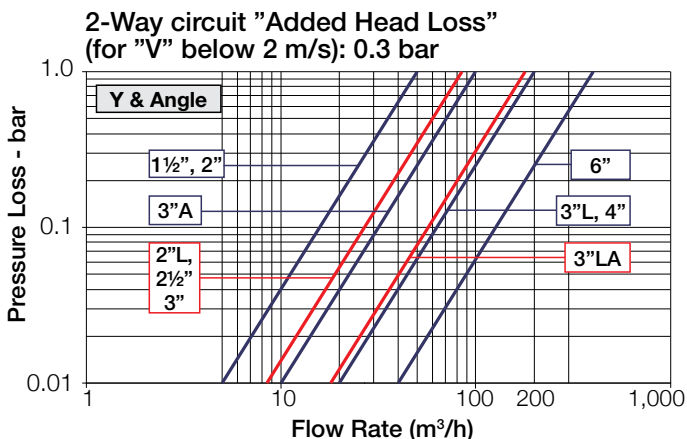
- Body, Cover and Plug: Polyamide (Nylon) 6 – 30GF Black
- Diaphragm: NBR
- Seals: NBR
- Spring: Stainless Steel
- Cover bolts: Stainless Steel

Flow Properties

Sizes DN	40	50	50L	65	80	80	80	80	80	80	80L	80L	100	150
Pattern	Y	Y	Y	Y	Y	A	T	TT	D	DD	Y	A	Y	Y
							One side	Two sides	One side	Two sides				
KV	50	50	100	100	100	85	95	130	90	200	200	190	200	400

$$\text{ØP} = \frac{Q^2}{Kv^2 (Cv^2)}$$

Flow Chart





Dimensions & Weights

Sizes Inch; DN	1 1/2"; 40	2"; 50	2"; 50	2"L; 50	2 1/2"; 65	3"; 80			
Pattern	Y	Y	Y	Y	Y	Y	Y	Y	
End Connections	Rc 1 1/2 (BSP.T)	G 2 (BSP.F)	Rc 2 (BSP.T)	Rc 2 (BSP.T)	G 2 1/2 (BSP.F)	Rc 2 (BSP.T)	Universal	Flanges	
	1 1/2" NPT	Male	2" NPT	2" NPT	Male	3" NPT	Metal	Plastic	
L (mm)	200	200	200	230	230	298	308	308	
H (mm)	156	156	156	170	170	180	240	240	
h (mm)	40	40	40	40	40	50	100	100	
W (mm)	97	97	97	135	135	190	100	100	
CCDV (LIT)	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.2	
Weight (Kg)	0.8	0.8	0.8	1.35	1.4	1.6	4.4	2.5	

CCDV = Control Chamber Displacement Volume

Sizes Inch; DN	3"L; 80L			4"; 100		6"; 150	
Pattern	Y	Y	Y	Y	Y	Y "Boxer"	Y "Boxer"
End Connections	Rc 3 (BSP.T)	Universal Flanges		Universal Flanges		Grooved Ends	Universal Flanges
	3" NPT	Metal	Plastic	Metal	Plastic	150 (Vic)	150 Plastic
L (mm)	298	310	310	350	350	480	480
H (mm)	240	280	280	294	290	195	285
h (mm)	60	100	100	112	112	100	145
W (mm)	190	100	100	115	115	385	385
CCDV (LIT)	0.7	0.7	0.7	0.7	0.7	2x0.7	2x0.7
Weight (Kg)	3	5.9	4	7.6	4.9	8.8	12.8

CCDV = Control Chamber Displacement Volume

Sizes Inch; DN	3"; 80	3"L; 80L	3"; 80	3"; 80
Pattern	Angle	Angle	Dual	T
End Connections	Rc 3 (BSP.T)	Rc 3 (BSP.T)	Rc 3 (BSP.T)	Rc 3 (BSP.T)
	3" NPT	3" NPT	3" NPT	3" NPT
L (mm)	187	235	400	325
H (mm)	246	290	270	235
h (mm)	117	145	115	117
W (mm)	135	170	135	135
CCDV (LIT)	0.2	0.7	2x0.2	0.2
Weight (Kg)	1.6	2.8	3.2	2.1

CCDV = Control Chamber Displacement Volume



IR **3"** **I20** **55** **Y** **P** **BP** **4AC** **PP** **XZ**

Size	End Connection	
1 1/2"	DN40	Female Threaded
2"	DN50	Male or Female Threaded
2"L	DN50L	Female Threaded
2 1/2"	DN65	Male Threaded
3"	DN80	Female Threaded, Flanged, Grooved, Horn or Cemented
3"L	DN80L	Female Threaded, Flanged, Grooved or Cemented
4"	DN100	Flanged, Grooved or Cemented
6"	DN150	Flanged or Grooved

Primary Features	Code
Basic Valve	105
Solenoid Controlled Valve	110
Pressure Reducing Valve	120
Pressure Reducing & Sustaining Valve	123
Pressure Sustaining Valve	130
Quick Pressure Relief Valve	13Q
Level Control Valve	150
Flow Control Valve	170
Flow Control & Pressure Reducing Valve	172
Strainer (3"L - 4" - 6")	NEW 10F

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Accelerated Closing (1 1/2"-3")	04
Electric Valve, without Solenoid	05
Hydraulic Relay	50
Normally Closed with Hydraulic Relay	54
Solenoid Controlled	55
Modulating Horizontal Float	60
Internal Feed & Bleed with Electric Cover	N1
Low Pressure PRV	LP

Pattern (Available Sizes)	Code
Oblique (all sizes)	Y
Angle (3" & 3"L/4")	A
Tee (3")	T
Dual Actuated Tee (3")	D

Construction Materials	Code
Black Nylon Glass Filled (Standard)	P
Polypropylene (Special Applications)	PP

End Connections - Valve Body only (w/out Adaptors)		Code
Threaded	BSP Female Threaded	BP
	NPT Female Threaded	NP
	BSP-F, Male Threaded (2" & 2 1/2")	BS
Grooved*	4" Angle & 6"	VI
Horn	Inlet BSP x Outlet(s) Horn (3" Angle / Tee / Dual)	KB
	Inlet NPT x Outlet(s) Horn (3" Angle / Tee / Dual)	KN

End Connections - Valve Body with Adaptors***		Code
Flanged**	Plastic Flanges (3", 3"L, 4", 6")	FF
	Plastic Flanges - NPT Threaded Body (3", 3"L, 4", 6")	FN
	Metal Flanges - "Corona" (3", 3"L, 4")	CC
	Metal Flanges - NPT Threaded Body (3", 3"L, 4", 6")	CN
PVC Cemented (glue-in)	3"-3"L, PVC Inner Adaptors 75x3"BSP	BJ
	3"-3"L, PVC Inner Adaptors 2.5"X3"Npt	NJ
	3"-3"L, PVC Adaptors 90-110, BSP Threaded Body	T1
	3"-3"L, PVC Adaptors 110-125, BSP Threaded Body	T2
	3"-3"L, PVC Adaptors 3"-4", NPT Threaded Body	T3
Grooved Adaptors	BSP Threaded Body	VB
	NPT Threaded Body	VN

* Complies with: ANSI C 606-81

** Complies with: ISO PN10, BST-D, ANSI 125/150, JIS K-10

*** For ordering the Adaptors separately see page 17

Inlet x Outlet end connection combinations available on request. Please consult Customer Service for further information

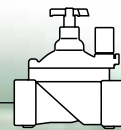
Voltage-Main Valve Position (When Solenoid De-Energized)	Code
24VAC - Normally Closed	4AC
24VAC - Normally Open	4AO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
12VDC - Latch Solenoid S-985 (3 Leads)	1DS
12VDC - Latch Solenoid S-982 (2 Leads)	2DS
9VDC - Latch Solenoid	9DS

Other electrical ratings available on request.

Tubing & Fittings	Code
Plastic Tubing & Fittings (standard)	PP

Additional Attributes Unlimited Selection	Code
Servo (Control)	b
3-Way Control Loop	X
Differential Pressure Duct (2"L-4")	D
External Control Pressure	e
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Flow Stem	M
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5

Other additional attributes are optional. Please consult our customer service for further information.



IR-200 Series

The BERMAD IR-200 Series Valves are Plastic Globe Hydro-Efficient Control Valve, Hydraulic/Electric operated with Flexible Balanced Diaphragm & Seal for agricultural commercial & residential irrigation systems. The 200 Series range from 3/4" to 2" in size, in either Globe or Angle pattern. These control valves provide superior hydraulic performance, demonstrating state-of-the-art hydraulics and plastics technology.



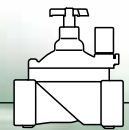
Features and Benefits

- Spring Loaded Elastomeric Valve
 - Self operated
 - Range of closing springs
- Plastic Globe/Angle Hydro-Efficient Valve
 - Unobstructed flow path
 - Single moving part
 - High flow capacity
- Flexible Balanced Diaphragm and Seal
 - Fully opening
 - Secures drip-tight closing
- User-Friendly Design
 - Simple in-line inspection

Typical Applications

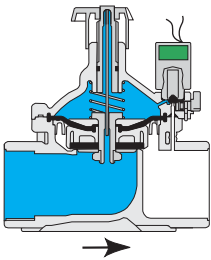
- Computerized Irrigation Systems
- Drip-Tape Systems
- Low Set Pressure Applications
- Remote and/or Elevated Plots
- Distribution Centers
- Energy Saving Irrigation Systems





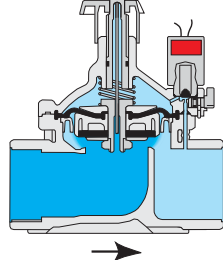
On/Off Control

Electric



Closed Position

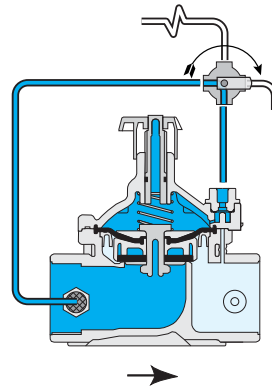
The internal restriction continuously allows line pressure into the control chamber. The solenoid controls outflow from the control chamber. When the solenoid is closed it causes pressure to accumulate in the control chamber, therefore forcing the valve to close.



Open Position

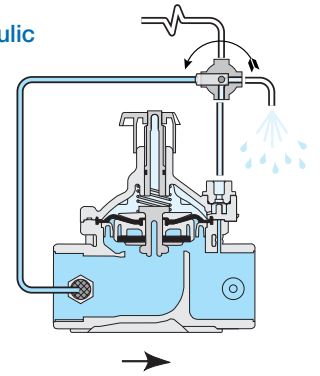
Opening the Solenoid releases more flow from the control chamber than the restriction can allow in. This causes the accumulated pressure in the control chamber to drop, enabling the line pressure acting on the plug to the valve.

Hydraulic



Closed Position

Line pressure applied to the control chamber of the valve creates a superior force that changes the valve position to close, providing drip tight sealing.



Open Position

Discharging the pressure in the control chamber to atmosphere or some other lower pressure zone causes the line pressure acting on the seal disc to change the valve position to open.

Dimensions & Weights

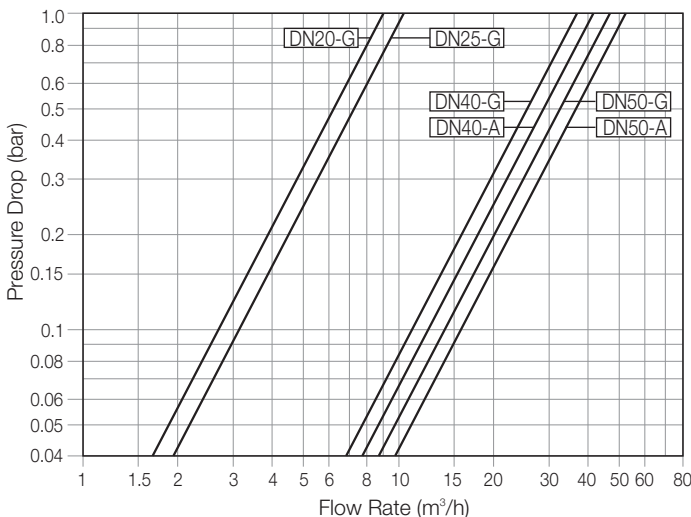
Pattern		Globe				Angle	
Size		DN20	DN25	DN40	DN50	DN40	DN50
L	(mm)	110	110	160	170	80	85
H	(mm)	115	115	180	190	190	210
R	(mm)	22	22	35	38	40	60
W	(mm)	78	78	125	125	125	125
Weight*	(Kg)	0.35	0.33	1.0	1.1	0.95	0.91
CCDV**	(liter)	0.015	0.015	0.072	0.072	0.072	0.072

* Without flow control handle

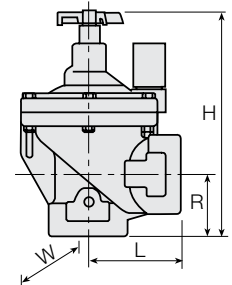
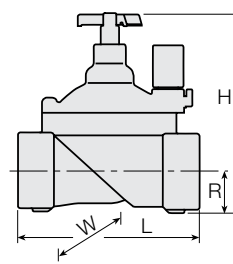
**Control Chamber Displacement Volume (liter)

Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 2 m/s): 0.3 bar



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



Technical Specifications

Available Patterns and Sizes:

Globe: DN: 20, 25, 40 & 50

Angle: DN: 40 & 50

Available End Connections:

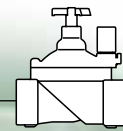
BSP-T; NPT female threads

Pressure Rating: PN10; 150psi

Operating Pressure Range: 0.7-10bar; 10-150psi

Standard Materials:

- Body and Cover: Polyamide (Nylon) 6 – 30GF Black
- Metal Parts: Stainless Steel
- Diaphragm: NBR
- Seals: NBR
- Spring: Stainless Steel
- Cover bolts: Stainless Steel



Size		
3/4"	DN20	On/Off
1"	DN25	
1 1/2"	DN40	
2"	DN50	

Primary Features	Code
Basic Valve	205
Solenoid Controlled Valve	210
Pressure Reducing Valve	220
Pressure Reducing & Sustaining Valve	223
Pressure Sustaining Valve	230
Quick Pressure Relief Valve	23Q
Level Control Valve	250

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Accelerated Closing	04
Electric Valve, without Solenoid	05
Hydraulic Relay	50
Normally Closed with Hydraulic Relay	54
Normally Closed with PC Hydraulic Relay	54X
Solenoid-Controlled	55
Modulating Horizontal Float	60

Pattern	Code
Globe	G
Angle (1 1/2"-2")	A

Construction Materials	Code
Black Nylon - Glass Filled	P

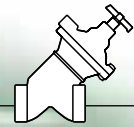
End Connections	Code
BSP Female Threaded	BP
NPT Female Threaded	NP

Voltage-Main Valve Position (When Solenoid De-Energized)	Code
24VAC - Normally Closed	4AC
24VAC - Normally Open	4AO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
12VDC - Normally Closed	1DC
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.

Additional Attributes Unlimited Selection	Code
Servo (2/3-Way Control Loop)	b
3-Way Control Loop	X
External Control Pressure	e
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Drain & Anti-Freeze Valve	f
Flow Stem	M
Internal Feed	N
Orifice Assembly	U
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5

Other additional attributes are optional. Please consult Customer Service for further information.



IR-300 Series

The BERMAD IR-300 Series Valves are double chambered hydraulically operated valves which provide: Isolated and protected diaphragm, full-powered opening & closing, non-slam closing characteristic & decreased pressure loss (no spring). The actuator assembly is removable from the body as an integral unit. It consists of both upper and lower control chambers. Valves can easily be configured, on-site, either as single or double chamber control valve. The shaft sub assembly is center guided, providing an unobstructed seat area. IR-300 Series are Globe valves in either the standard oblique or angle (2" only) pattern design, and range in diameter from 1½-3".



Features and Benefits

- Line Pressure Driven
- Double Chambered Design
 - Requires low actuation pressure
 - High closing force
 - Protected diaphragm
 - Spring isolated from water
- Metal Body
 - Rigid construction, high stress resistance
- User-Friendly Design
 - Simple structure and maintenance

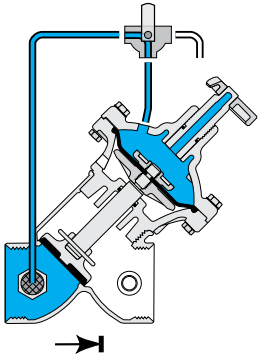
Typical Applications

- Drip Systems
- Sprinklers & Micro-Sprinklers
- Greenhouses
- Distribution Line Flush-'n-Stop
- Flooding Tables Drainage (with External Pressure)
- Irrigation Machine Line Flush-'n-Stop



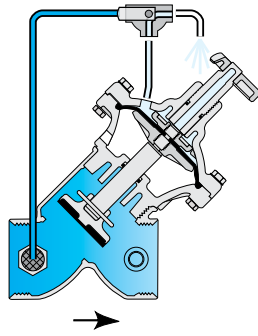


Principle of Operation



Closed Position

Line pressure applied to the control chamber of the valve creates a hydraulic force that moves the valve to the closed position and provides drip tight sealing.



Open Position

Discharging the pressure from the control chamber to atmosphere or some other lower pressure zone, causes the line pressure acting on the seal disc to move the valve to the open position.

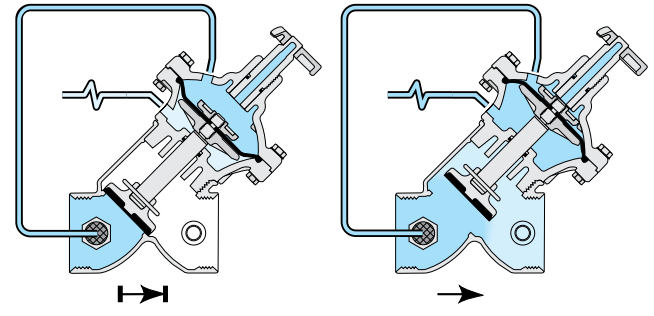
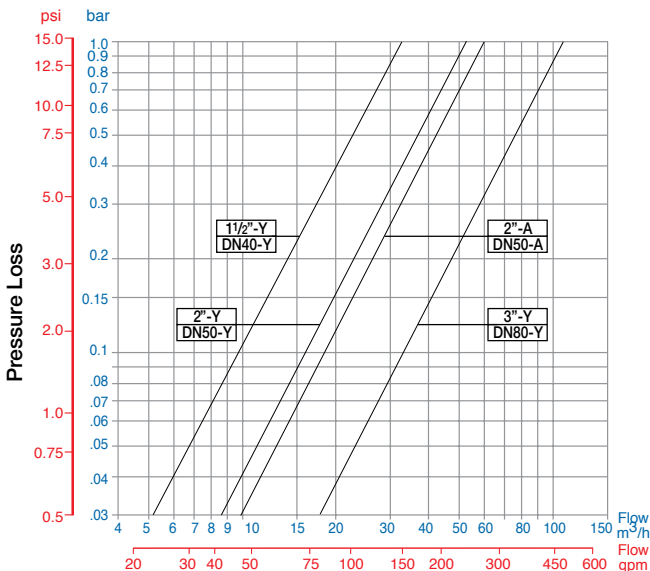
Dimensions & Weights

Dimensions and Weights

Pattern	Size	DN inch	Globe				Angle
			40-T 1½-T	50-T 2-T	80-T 3-T	80-F 3-F	50-T 2-T
L	mm		112	124	210	235	71
	inch		4.4	4.9	8.3	9.3	2.8
H	mm		175	215	275	325	256
	inch		6.9	8.5	10.8	12.8	10.1
h	mm		30	40	58	98	75
	inch		1.2	1.6	2.3	3.9	3
W	mm		105	125	160	200	135
	inch		4.1	4.9	6.3	7.9	5.3
Weight	Kg.		1.3	2	14.7	7.4	2.3
	lb.		2.8	4.4	16.3	32.4	5

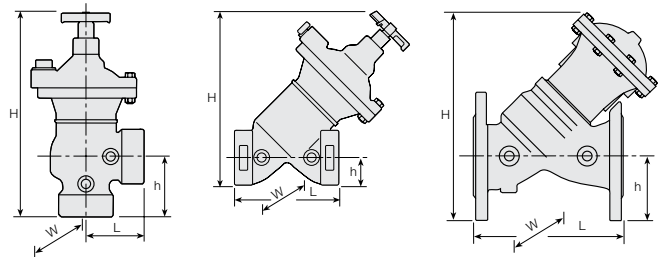
Valve Size	Reduction Ratio
1½"; DN40	3.9
2"; DN50	3.7
3"; DN80	2.6

Flow Chart



Normally Closed Valve with Hydraulic Power Opening

Line pressure is applied constantly to the Upper Control Chamber (UCC). When the Lower Control Chamber (LCC) is vented, it allows the line pressure in the UCC to push the diaphragm assembly, thereby discharging the water from the LCC, closing the valve. Pressurizing the LCC creates, together with the hydraulic force that acts on the plug, a superior force that overcomes the force in the UCC and opens the valve.



Technical Specifications

Valve Available Sizes: 1½", 2" & 3"; DN40, 50 & 80

Valve patterns: Y; Angled (2"; 50 only)

Available End Connections:

Threaded: 1½" & 2" & 3"; DN40 50 & 80

Flanged: 3; DN80

Pressure Rating: 10 bar; 145 psi

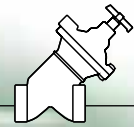
Operating Pressure Range: 0-10 bar; 0-145 psi

Temperature Range: Water up to 60° C

Standard Materials:

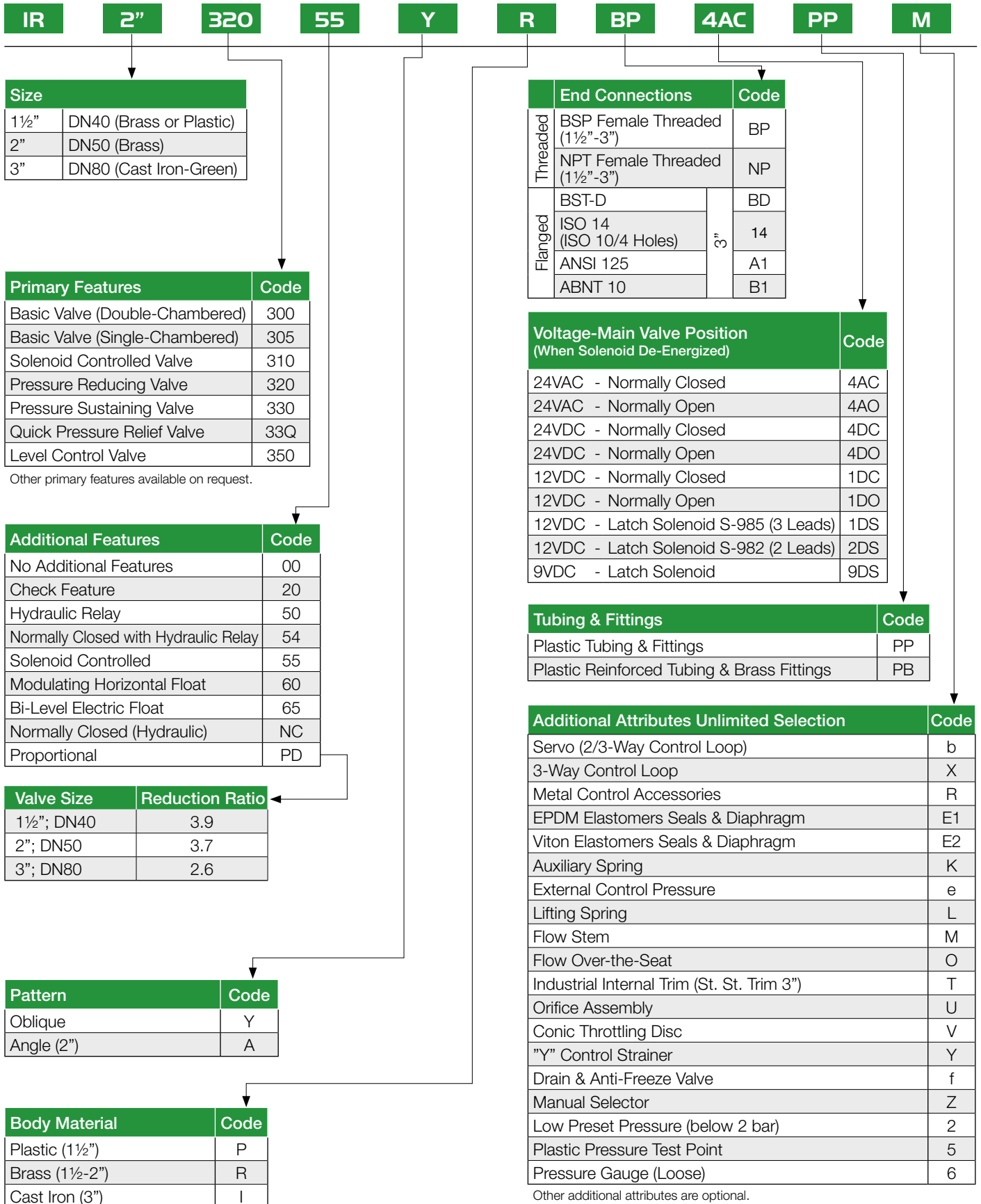
- Valve Body: Cast Iron (3"; DN80 Valve)
Glass-filled Nylon (1½"; DN40 Valve)
Brass (1½"-2"; DN40-DN50 Valve)
- Separating Partition: Polyamide 6 – 30GF
- Cover: Polyamide 6 – 30GF
- Diaphragm: NR
- Seal, O-Rings: NBR
- Spring: Stainless Steel
- Shaft: Stainless Steel
- Seal Disc: Stainless Steel
- Bolts, Studs & Nuts: Stainless Steel
- Seat (3" only): Stainless Steel

BERMAD Irrigation



300 Series - Ordering Guide

300 Series



Size	
1½"	DN40 (Brass or Plastic)
2"	DN50 (Brass)
3"	DN80 (Cast Iron-Green)

Primary Features	Code
Basic Valve (Double-Chambered)	300
Basic Valve (Single-Chambered)	305
Solenoid Controlled Valve	310
Pressure Reducing Valve	320
Pressure Sustaining Valve	330
Quick Pressure Relief Valve	33Q
Level Control Valve	350

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Check Feature	20
Hydraulic Relay	50
Normally Closed with Hydraulic Relay	54
Solenoid Controlled	55
Modulating Horizontal Float	60
Bi-Level Electric Float	65
Normally Closed (Hydraulic)	NC
Proportional	PD

Valve Size	Reduction Ratio
1½"; DN40	3.9
2"; DN50	3.7
3"; DN80	2.6

Pattern	Code
Oblique	Y
Angle (2")	A

Body Material	Code
Plastic (1½")	P
Brass (1½"-2")	R
Cast Iron (3")	I

	End Connections	Code
Threaded	BSP Female Threaded (1½"-3")	BP
	NPT Female Threaded (1½"-3")	NP
Flanged	BST-D	BD
	ISO 14 (ISO 10/4 Holes)	
	ANSI 125	
	ABNT 10	

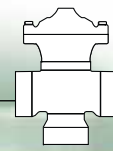
Voltage-Main Valve Position (When Solenoid De-Energized)	Code
24VAC - Normally Closed	4AC
24VAC - Normally Open	4AO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
12VDC - Normally Closed	1DC
12VDC - Normally Open	1DO
12VDC - Latch Solenoid S-985 (3 Leads)	1DS
12VDC - Latch Solenoid S-982 (2 Leads)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

Tubing & Fittings	Code
Plastic Tubing & Fittings	PP
Plastic Reinforced Tubing & Brass Fittings	PB

Additional Attributes Unlimited Selection	Code
Servo (2/3-Way Control Loop)	b
3-Way Control Loop	X
Metal Control Accessories	R
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Auxiliary Spring	K
External Control Pressure	e
Lifting Spring	L
Flow Stem	M
Flow Over-the-Seat	O
Industrial Internal Trim (St. St. Trim 3")	T
Orifice Assembly	U
Conic Throttling Disc	V
"Y" Control Strainer	Y
Drain & Anti-Freeze Valve	f
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5
Pressure Gauge (Loose)	6

Other additional attributes are optional. Please consult Customer Service for further information.





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

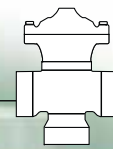
Features and Benefits

- 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

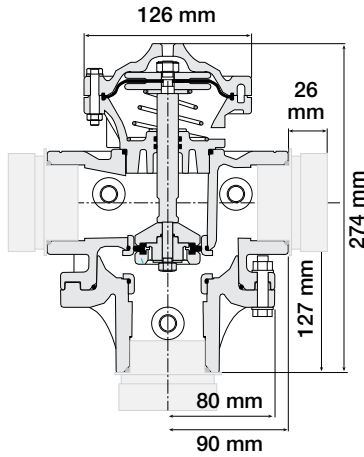
- Automatic Backwash of Filter Batteries
 - Gravel Filters
 - Sand Filters
 - Disc Filters
 - Screen Filters
- Single Filter Autonomic Backwash System
- Angled or Straight Installations (IR-350 Series, Double Chamber Valves)
- Backwash Flow Limit (IR-470-beKU, IR-170-beU)





IR-2"x2"-350-P

Dimensions



Weight: 2.8 Kg

Note: Grooved adaptors add 0.5 Kg to valve weight.

Control Chamber Displacement Volume: 0.13 liter

Hydraulic Data

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

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

Kv = m³/h @ ΔP of 1 bar

Q = m³/h

ΔP = bar

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

Cv = gpm @ ΔP of 1 psi

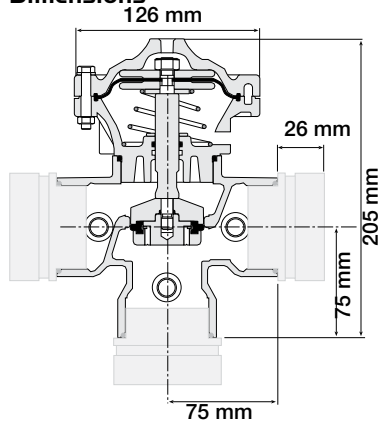
Q = gpm

ΔP = psi

Cv = 1.155 KV

IR-2"x2"-350-R

Dimensions



Weight: 3.7 Kg

Note: Grooved adaptors add 0.5 Kg to valve weight.

Control Chamber Displacement Volume: 0.13 liter

Hydraulic Data

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

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

Kv = m³/h @ ΔP of 1 bar

Q = m³/h

ΔP = bar

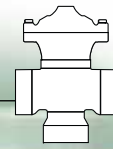
$$\Delta P = \left(\frac{Q}{Cv}\right)^2$$

Cv = gpm @ ΔP of 1 psi

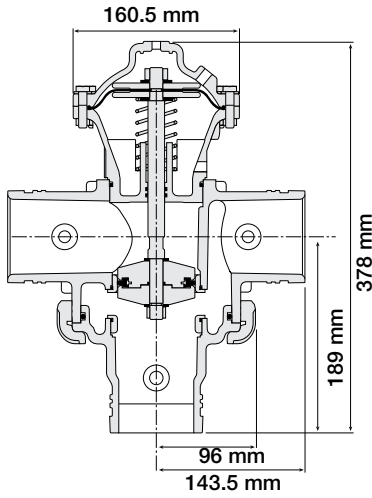
Q = gpm

ΔP = psi

Cv = 1.155 KV



IR-3"x3"-350-P

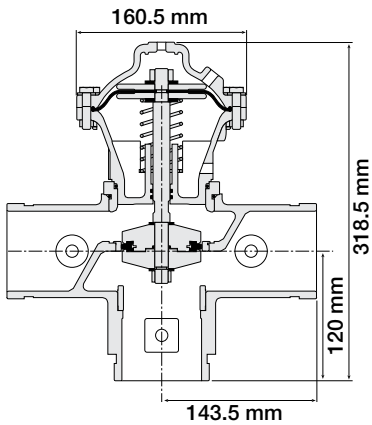


Hydraulic Data

Angle Flow	Filtration 1→C	Backwash C→2	$\Delta P = \left(\frac{Q}{Kv}\right)^2$ Kv = m ³ /h @ ΔP of 1 bar Q = m ³ /h ΔP = bar
	Kv=110 Cv=127	Kv=100 Cv=116	
Straight Flow	Filtration 2→C	Backwash C→1	$\Delta P = \left(\frac{Q}{Cv}\right)^2$ Cv = gpm @ ΔP of 1 psi Q = gpm ΔP = psi Cv = 1.155 KV
	Kv=93 Cv=107	Kv=122 Cv=141	

Weight: 2.8 Kg

IR-3"x3"-350-I

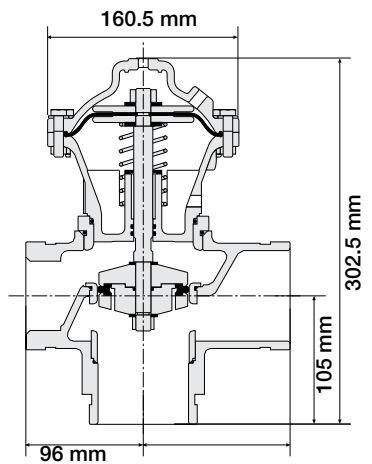


Hydraulic Data

Angle Flow	Filtration 1→C	Backwash C→2	$\Delta P = \left(\frac{Q}{Kv}\right)^2$ Kv = m ³ /h @ ΔP of 1 bar Q = m ³ /h ΔP = bar
	Kv=122 Cv=141	Kv=71 Cv=82	
Straight Flow	Filtration 2→C	Backwash C→1	$\Delta P = \left(\frac{Q}{Cv}\right)^2$ Cv = gpm @ ΔP of 1 psi Q = gpm ΔP = psi Cv = 1.155 KV
	Kv=80 Cv=92	Kv=83 Cv=96	

Weight: 10.5 Kg

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



Hydraulic Data

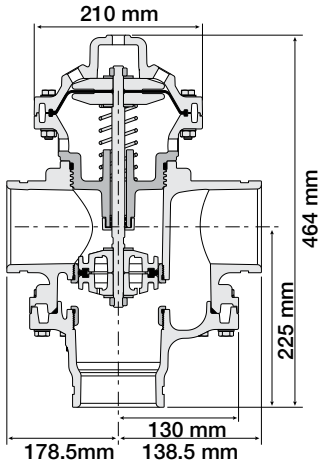
Angle Flow	Filtration 1→C	Backwash C→2	$\Delta P = \left(\frac{Q}{Kv}\right)^2$ Kv = m ³ /h @ ΔP of 1 bar Q = m ³ /h ΔP = bar
	Kv=120 Cv=140	Kv=60 Cv=70	

Weight: 9.0 Kg; 20.0 lbs.

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

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

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

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

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

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

Operating Pressure: 0.7-10 bar; 10-145 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"	<ul style="list-style-type: none"> Threaded 2" Grooved 2" (with adaptors) 	<ul style="list-style-type: none"> Threaded 2" Grooved 2" (with adaptors) 	<ul style="list-style-type: none"> 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"	<ul style="list-style-type: none"> 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)

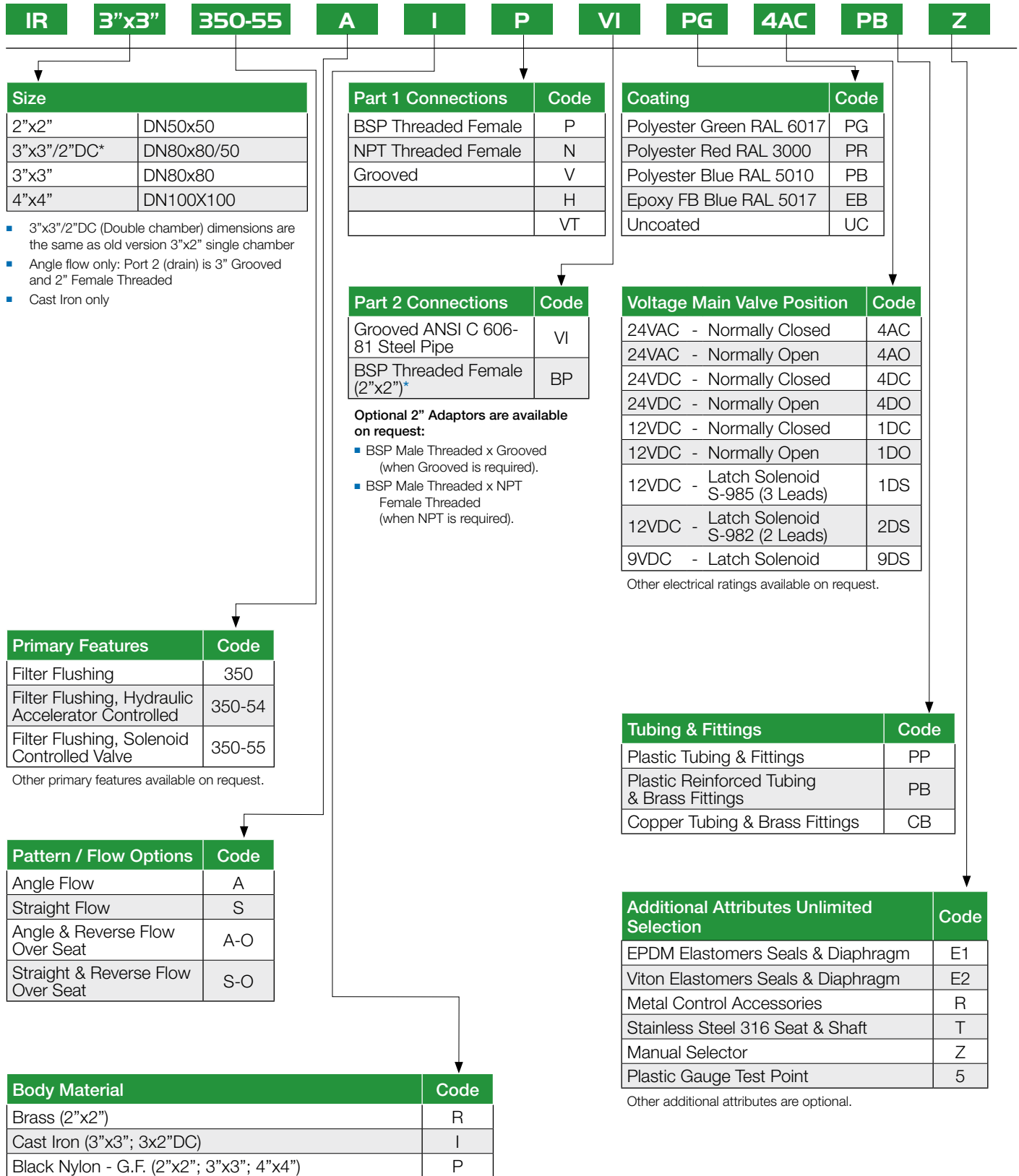
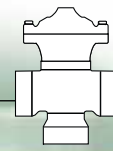
Seal, O-Rings: NBR

Spring: Stainless Steel AISI 302

Shaft: Stainless Steel AISI 303

External Bolts, Studs, Nuts & Discs: Stainless Steel







IR-400 Series

The IR-400 Series Valves are virtually free of the typical limitations associated with other diaphragm single chambered valves. The body design includes a full bore seat with unobstructed flow path. The internal design is using advanced rubber-based materials to achieve a solid, one piece elastomeric assembly including a flexible diaphragm, vulcanized with a rugged radial seal Disc. The diaphragm is carefully balanced and peripherally supported to avoid distortion and to protect the elastomer, resulting in long-life and controlled actuation even under harsh conditions. One diaphragm and spring fully meet the valve's operating pressure range requirements. The IR-400 Series Valves are available in diameter sizes from 1"-14"; DN25- DN350.



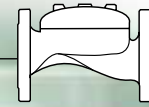
Features and Benefits

- Hydraulic Control Valve
 - Line pressure driven
 - Hydraulically controlled On/Off
- Advanced Globe Hydro-Efficient Design
 - Unobstructed flow path
 - Single moving part
 - High flow capacity
- Fully Supported & Balanced Diaphragm
 - Requires low opening and actuation pressure
 - Progressively restrains valve closing
 - Prevents diaphragm distortion
- User-Friendly Design
 - Simple in-line inspection
 - Easy addition of control features

Typical Applications

- Computerized Irrigation Systems
- Distribution Centers
- Low Supplied Pressure Irrigation Systems





Technical Specifications

Connections Standard:

Flanged: ISO 7005-2 (PN10 & 16)

Threaded: Rp ISO 7/1 (BSP.P) or NPT

Grooved: ANSI C606

Operating Pressure Ranges:

IR-400: 0.5-16 bar

For lower pressure requirements, consult factory

GR-400: 0.5-10 bar

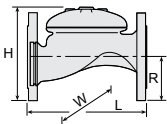
Temperature: Water up to 60°C

Standard Materials:

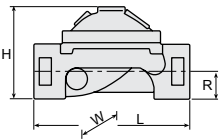
- Castings & Forgings:
 - Cast Iron to EN 1561
 - Ductile Iron to EN 1563
 - Brass
 - Plasti: Polyamid 6+30% GF
- Elastomers: NR to EN 681-1
- Coatings: Electrostatic Powder Coating Polyester

Dimensions & Weights

Globe Pattern

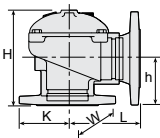


Connection Type		Flanged										
Size		DN50	DN65	DN80R	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350
L	(mm)	205	205	210	250	320	320	415	500	605	725	742
H	(mm)	155	178	200	210	242	254	345	430	460	635	655
W	(mm)	155	178	200	200	223	197	306	365	405	580	587
R	(mm)	78	89	100	100	112	127	140	170	202	242	260
Weight	(kg)	9	10.5	12.1	19	28	33	68	125	140	290	358



Connection Type		Threaded					Grooved			
Size		DN40	DN50	DN65	DN80R	DN80	DN50	DN80	DN100	DN150
L	(mm)	153	180	210	210	255	205	250	320	415
H	(mm)	87	114	132	140	165	108	155	191	302
W	(mm)	98	119	129	129	170	119	170	204	306
R	(mm)	29	39	45	53	55	31	46	61	85
Weight	(kg)	2	4	5.7	5.8	13	5	10.6	16.2	49

Angle Pattern

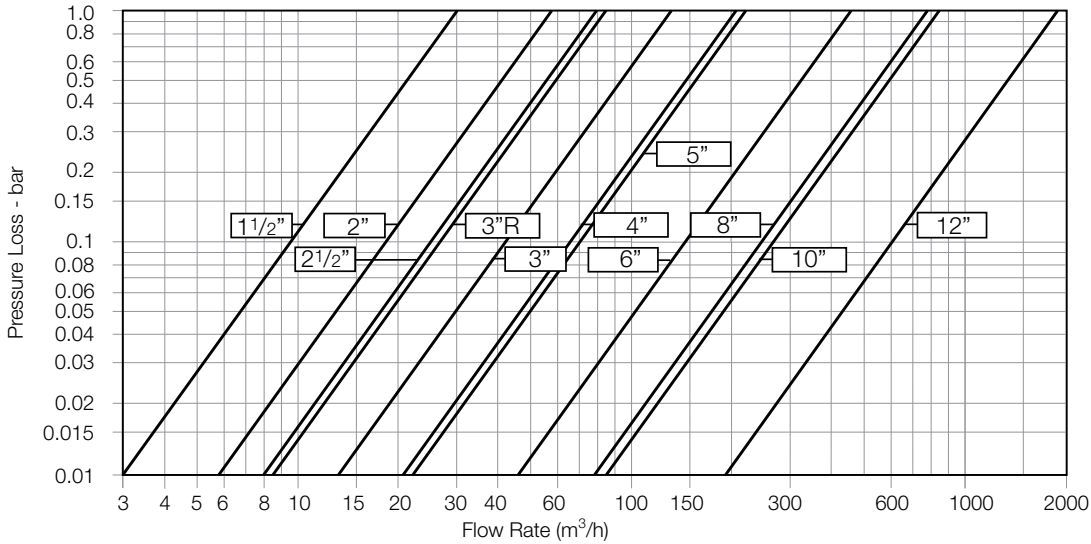


Connection Type		Threaded				Grooved		Flanged		
Size		DN50	DN65	DN80R	DN80	DN80	DN100	DN50	DN80	D100
L	(mm)	86	110	110	110	120	160	121	153	160
H	(mm)	136	180	178	184	194	223	160	205	223
W	(mm)	119	131	131	170	170	204	155	200	223
h	(mm)	61	93	91	80	90	112	83	101	112
K	(mm)	56	66	66	55	45	58	78	100	112
Weight	(kg)	4.4	5.8	7	11	10	16	9	17	26

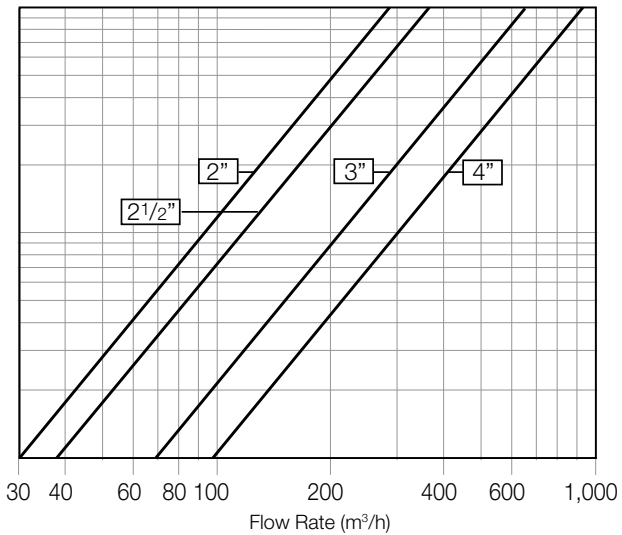


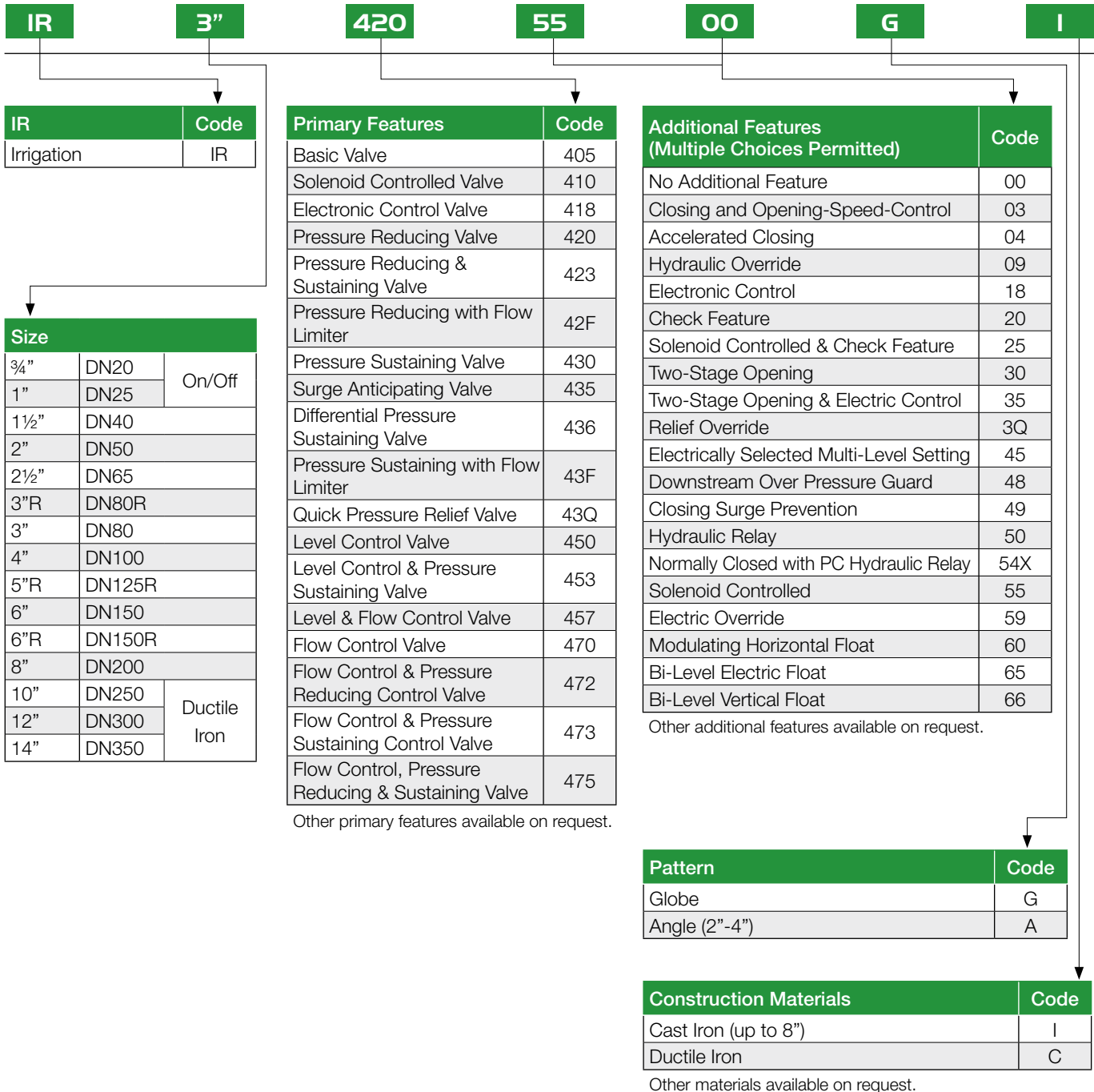
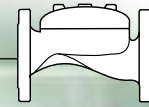
Globe Pattern

2-Way circuit "Added Head Loss" (for "V" below 6.5 f/s): 4.5 psi



Angle Pattern







I6

PG

4AC

PP

XZ5

End Connections			Code
Threaded	BSP Female Threaded	3/4"-3"	BP
	NPT Female Threaded		NP
Flanged	ISO-10		10
	ISO-16		16
	IS 14 (ISO 10/4 Holes, 3")		14
	ANSI-125		A1
	ANSI-150		A5
	BST-D		BD
	JIS-10		J1
	ABNT-10		B1
	ABNT-16		B6
Grooved	ANSI C 606-81, Steel Pipe (Globe - 2", 3", 4", 6" & 8")		VI

Other end connections available on request.

Coating	Code
Polyester Green RAL 6017	PG

Voltage-Main Valve Position (When Solenoid De-Energized)	Code
24VAC, with Diode - Normally Closed	4AC
24VAC, with Diode - Normally Open	4AO
24VAC - Last Position	4AP
24VAC - Normally Closed	4RC
24VAC - Normally Open	4RO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
24VDC - Last Position	4DP
12VDC - Normally Closed	1DC
12VDC - Normally Open	1DO
12VDC - Last Position	1DP
12VDC - Latch Solenoid S-985 (3 Leads)	1DS
12VDC - Latch Solenoid S-982 (2 Leads)	2DS
9VDC - Latch Solenoid	9DS

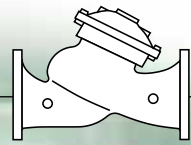
Other electrical ratings available on request.

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

Additional Attributes Unlimited Selection	Code
Servo (2/3-Way Control Loop)	b
3-Way Control Loop	X
Plastic Control Accessories	K
Metal Control Accessories	R
External Control Pressure	e
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Large Control Filter	F
Drain & Anti-Freeze Valve	f
Valve Position Indicator *	I
Flow Stem *	M
Electric Limit Switch *	S
Orifice Assembly	U
Paddle Flow Control Pilot	V
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
High Upstream Pressure (above 10 bar)	3
Plastic Pressure Test Point	5
Pressure Gauge	6

* Standard Irrigation Cover & Diaphragm are not suitable for Attributes I, M, S.

Other additional attributes are optional. Please consult Customer Service for further information.



IR-700 Series

BERMAD IR-700-ES and IR-700-EN Series Valves are hydraulically operated globe valves in standard oblique "Y" pattern with full bore (IR-700-EN only) hydrodynamic body providing an unobstructed flow path, with raised seat assembly and double chamber unitized actuator that can be disassembled from the body as a separate integral unit. The IR-700-ES and EN valves have an excellent and highly effective modulation capacity for high differential pressure applications, and are designed to operate with minimal cavitation and noise under difficult operation conditions. Both IR-700-ES and EN series valves are meeting the ISO face to face standard requirements. IR-700-EN Series range in diameter sizes from 2"-12" and IR-700-ES range in diameter sizes from 1½"-24".



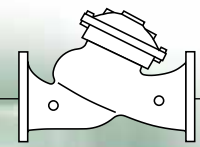
Features and Benefits

- Line pressure driven – Independent operation
- In-line serviceable – Easy maintenance
- Double chamber design
 - Moderated valve reaction
 - Protected diaphragm
- Flexible design – Easy addition of features
- Variety of accessories – Perfect mission matching
- "Y" or angle, wide body – Minimized pressure loss
- Semi-straight flow – Non-turbulent flow
- Stainless Steel raised seat – Cavitation damage resistant
- Obstacle free, full bore – Uncompromising reliability
- V-Port Throttling Plug – Low flow stability

Typical Applications

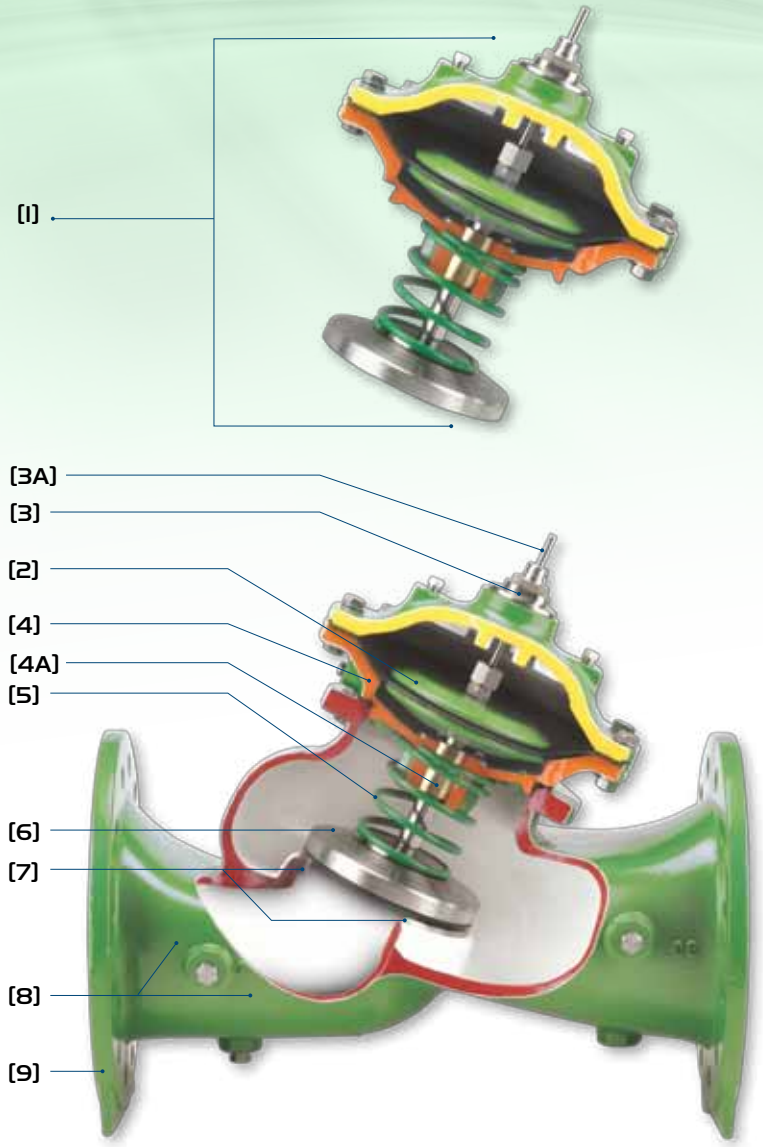
- Extreme high or low pressure, flow, water quality and pressure differential conditions.
- Where required pressure rating exceeds PN16
- When required diameters are above 16" and up to 48"
- Application require double chamber actuator:
 - Pump control active check valve
 - Proportional "Pilotless" pressure reducing valves
 - Power opening and closing level control valves
 - Safe "close and lock" burst control valves





Main Components

- [1] **Double-Chambered Actuator**
 - Actuator assembly can be removed as one integral unit
 - Simple on-site conversion to single-chambered
- [2] **Diaphragm Assembly**
The flexible, unshaped, nylon-reinforced diaphragm is supported over the majority of its surface.
- [3] **Cover Plug**
Enables on-site retrofit of: Indicator [3A]; Limit Switch; Position Transmitter.
- [4] **Inherent Separation Partition**
The inherent separation includes the bearing [5A], which provides complete central guiding for the valve moving assembly. The separation partition separates the lower control chamber from the flow in both the single-chambered, and the double-chambered configurations.
- [5] **Spring**
Required for single-chambered configurations.
- [6] **Seal Disc Assembly**
Self-aligning, seal disc assembly provides balanced, free movement and a resilient seal for perfect, drip-tight sealing. It enables using several variations of seals and plugs.
- [7] **Seat**
Stainless steel, raised, replaceable in-line and on-site.
- [8] **Wide Body ("Y" or Angle Pattern)**
Hydro-dynamically designed for efficient flow with minimal pressure loss and excellent resistance to cavitation.
Full bore, valve port area clear of obstructions; no ribs or stem guides. Increases capacity by 25% over standard globe valves.
- [9] **End Connections**
Conforms to pressure ratings and standards of: ISO, ANSI, AS, JIS, and others.



Valve Plug Options

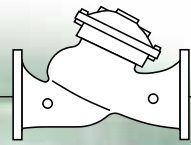


Flat Disc

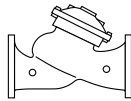
"Quick opening plug": Standard plug provides high flow and quick response.

Throttling Plug

A throttling plug is used in order to provide more accurate, stable and smooth response for pressure and flow regulation while reducing noise and vibration.



700 ES Series



Available Sizes & Patterns

- DN 40 - DN 600 (1½" - 24") - Y Pattern

Pressure Rating

- PN 25 (according to connection rating)

Connection Standard

- Flanged: ISO 7005-2 (ISO 10, 16 & 25)

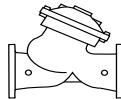
Water Temperature

- Up to 80°C

Standard Materials

- **Main valve body& cover:** Ductile Iron to EN 1563 or ASTM A-536
- **Main valve internals:** Steel, Bronze & Epoxy coated Steel
- **Control trim:**
 - Brass, Bronze accessories
 - Brass fittings & Reinforced Plastic tubing
- **Elastomers:** Synthetic Rubber
- **Coating:** Green fusion bonded Polyester

700 EN Series



Available Sizes & Patterns

- DN 50 - DN 300 (2" - 12") - Y Pattern

Pressure Rating

- PN 25 (according to connection rating)

Connection Standard

- Flanged: ISO 7005-2 (ISO 10, 16 & 25)

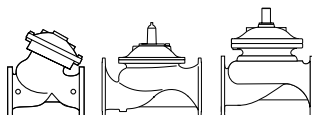
Water Temperature

- Up to 80°C

Standard Materials

- **Main valve body& cover:** Ductile Iron to EN 1563 or ASTM A-536
- **Main valve internals:** Steel, Bronze & Epoxy coated Steel
- **Control trim:**
 - Brass, Bronze accessories
 - Brass fittings & Reinforced Plastic tubing
- **Elastomers:** Synthetic Rubber
- **Coating:** Green fusion bonded Polyester

700 Series



Available Sizes & Patterns

- DN 40 - DN 500 (1½" - 20") - Y Pattern
- DN 40 - DN 450 (1½" - 18") - Angle
- DN 600 - DN 900 (24" - 48") - Globe

Connection Standard

- Flanged: ISO 7005-2 (ISO 10, 16 & 25)
- Threaded: BSP (Rp ISO 7/1) or NPT (DN 40-DN 80)

Water Temperature

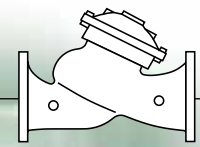
- Up to 80°C

Working pressure

- ISO PN 16: 16 bar
- ISO PN 25: 25 bar

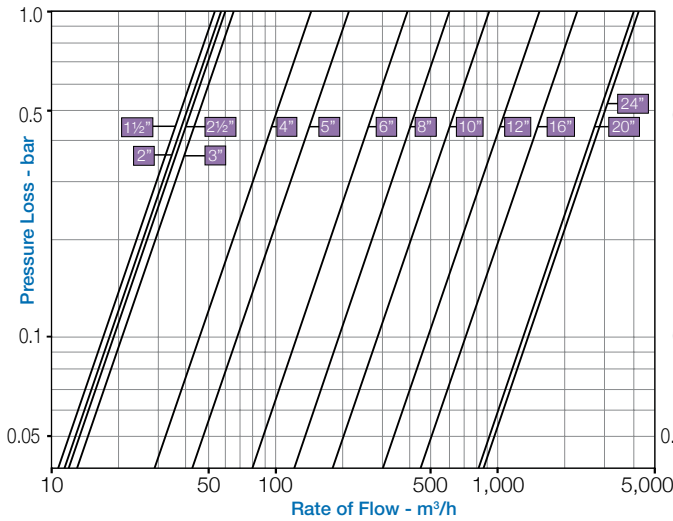
Standard Materials

- **Main valve body& cover:** Ductile Iron to EN 1563 or ASTM A-536
- **Main valve internals:** Steel, Bronze & Epoxy coated Steel
- **Control trim:**
 - Brass, Bronze accessories
 - Brass fittings & Reinforced Plastic tubing
- **Elastomers:** Synthetic Rubber
- **Coating:** Green fusion bonded Polyester

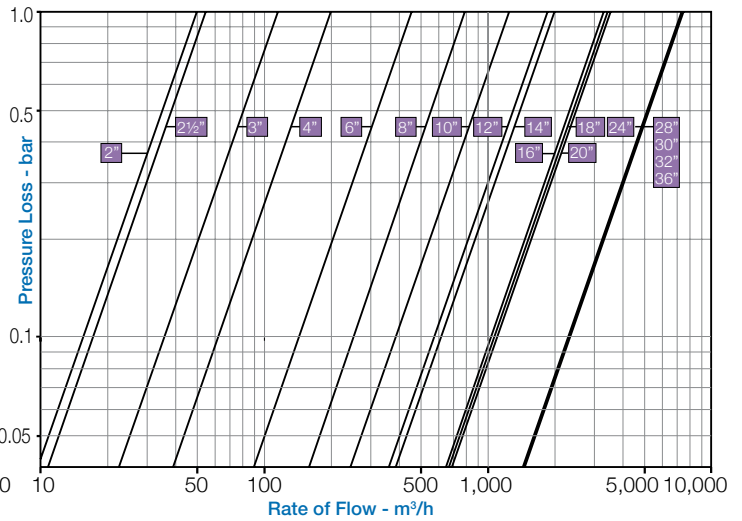


Flow Charts

700-ES



700-EN, 700, 700-M6



Flow Properties

700-ES		mm	40	50	65	80	100	125	150	200	250	300	400	500	600
		inch	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"	24"
Y-Pattern Flat Disc	Kv		54	57	60	65	145	215	395	610	905	1,520	2,250	4,070	4,275
	Cv		62	66	69	75	168	248	456	705	1,046	1,756	2,600	4,703	4,938
Y-Pattern U-Plug	Kv		46	48	51	55	123	183	336	519	769	1,292	2,027	3,460	3,634
	Cv		53	55	59	64	142	211	388	599	888	1,492	2,341	3,996	4,197

700-EN / 700 / 800		mm	40	50	65	80	100	150	200	250	300	350	400	450	500
		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
Y-Pattern Flat Disc	Kv		42	50	55	115	200	460	815	1,250	1,850	1,990	3,310	3,430	3,550
	Cv		49	58	64	133	230	530	940	1,440	2,140	2,300	3,820	3,960	4,100
Y-Pattern V-Port	Kv		36	43	47	98	170	391	693	1,063	1,573	1,692	2,814	2,916	3,018
	Cv		41	49	54	113	200	450	800	1,230	1,820	1,950	3,250	3,370	3,490
Angle Flat Disc	Kv		46	55	61	127	220	506	897	1,375	2,035	2,189	3,641	3,773	NA
	Cv		53	64	70	146	250	580	1,040	1,590	2,350	2,530	4,210	4,360	NA
Angle V-Port	Kv		39	47	51	108	187	430	762	1,169	1,730	1,861	3,095	3,207	NA
	Cv		45	54	59	124	220	500	880	1,350	2,000	2,150	3,580	3,710	NA

700 M5		mm	600	700	800
		inch	24"	28"	32"
G-Pattern Flat Disc	Kv		6,000	6,000	6,000
	Cv		6,930	6,930	6,930

700 M6		mm	600	700	750	800	900
		inch	24"	28"	30"	32"	36"
G-Pattern Flat Disc	Kv		7,350	7,500	7,500	7,500	7,500
	Cv		8,490	8,670	8,670	8,670	8,670

Valve flow coefficient, Kv or Cv $Cv = 1.155 Kv$

Where:

Kv = Valve flow coefficient (flow in m³/h at 1bar Diff. Press.)

Cv = Valve flow coefficient (flow in gpm at Diff. Press. 1psi)

Q = Flow rate (m³/h ; gpm)

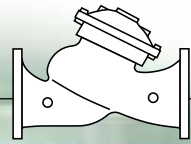
$$Kv(Cv) = Q \sqrt{\frac{Gf}{\Delta P}}$$

$$\Delta P = \frac{Q^2 \cdot Gf}{Kv(Cv)^2}$$

ΔP = Differential pressure (bar ; psi)

Gf = Liquid specific gravity (Water = 1.0)

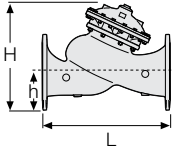




Flanged

700-ES Series

Y Pattern

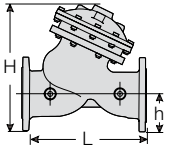


	DN	40	50	65	80	100	125	150	200	250	300	400	500	600
	inch	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"	24"
ISO PN 10; 16; 25	L*	230	230	290	310	350	400	480	600	730	850	1,100	1,250	1,450
	W	150	165	185	200	235	270	300	360	425	530	626	838	845
	h	80	90	100	105	125	142	155	190	220	250	320	385	435
	H	240	250	250	260	320	375	420	510	605	725	895	1,185	1,235
	Weight (Kg)	10	10.8	13.2	15	26	40	55	95	148	255	436	1,061	1,173

* Length according to EN 558-1

700-EN Series

Y Pattern

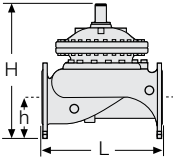


	DN	50	80	100	150	200	250	300
	inch	2"	3"	4"	6"	8"	10"	12"
ISO PN 10; 16; 25	L*	230	310	350	480	600	730	850
	W	165	200	235	320	390	480	550
	h	82.5	100	118	150	180	213	243
	H	244	305	369	500	592	733	841
	Weight (Kg)	9.7	21	31	70	115	198	337

* Length according to EN 558-1

700 Series - M6

G Pattern

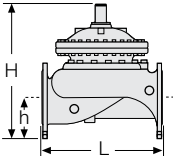


	DN	600	700	750	800	900		DN	600	700	750	800	900
	inch	24"	28"	30"	32"	36"		inch	24"	28"	30"	32"	36"
ISO PN 10; 16	L*	1,450	1,650	1,750	1,850	1,850	ISO PN 20; 25	L*	1,500	1,650	1,750	1,850	1,850
	W	1,250	1,250	1,250	1,250	1,250		W	1,250	1,250	1,250	1,250	1,250
	h	470	490	520	553	600		h	470	490	520	553	600
	H	1,965	1,985	2,015	2,048	2,095		H	1,965	1,985	2,015	2,048	2,095
	Weight (Kg)	3,250	3,700	3,900	4,100	4,250		Weight (Kg)	3,500	3,700	3,900	4,100	4,250

* Length according to EN 558-1

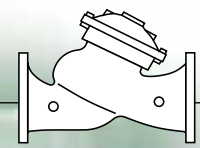
700 Series - M5

G Pattern



	DN	600	700	800
	inch	24"	28"	32"
ISO PN 10; 16	L*	1,450	1,460	1,865
	W	965	965	965
	h	435	493	530
	H	1,350	1,410	1,448
	Weight (Kg)	1,580	1,745	1,920

* Length according to EN 558-1



700 Series

Angle Pattern

		DN	40	50	65	80	100	150	200	250	300	350	400	450
		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"
	ISO PN 10; 16	L	124	124	149	152	190	225	265	320	396	400	450	450
		W	155	155	178	200	222	320	390	480	550	550	740	740
		R	78	83	95	100	115	143	172	204	248	264	299	320
		h	85	85	109	102	127	152	203	219	273	279	369	370
		H	227	227	251	281	342	441	545	633	777	781	1,082	1,082
		Weight (Kg)	9.5	10	12	21.5	35	71	118	205	350	370	800	820
	ISO PN 20; 25	L	124	124	149	159	200	234	277	336	415	419	467	467
		W	165	165	185	207	250	320	390	480	550	550	740	740
		R	78	85	95	105	127	159	191	223	261	293	325	358
		h	85	85	109	109	135	165	216	236	294	299	386	386
		H	227	227	251	287	350	454	558	649	796	801	1,099	1,099
		Weight (Kg)	11	11.5	13.5	23	41	81	138	233	390	425	855	870

Y Pattern

		DN	40	50	65	80	100	150	200	250	300	350	400	450	500
		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
	ISO PN 10; 16	L*	205	210	222	250	320	415	500	605	725	733	990	1,000	1,100
		W	155	165	178	200	223	320	390	480	550	550	740	740	740
		h	78	83	95	100	115	143	172	204	242	268	300	319	358
		H	239	244	257	305	366	492	584	724	840	866	1,108	1,127	1,167
		Weight (Kg)	9.1	10.6	13	22	37	75	125	217	370	381	846	945	962
	ISO PN 25	L	205	210	222	264	335	433	524	637	762	767	1,024	1,030	1,136
		W	155	165	185	207	250	320	390	480	550	570	740	740	750
		h	78	83	95	105	127	159	191	223	261	295	325	357	389
		H	239	244	257	314	378	508	602	742	859	893	1,133	1,165	1,197
		Weight (Kg)	10	12.2	15	25	43	85	146	245	410	434	900	967	986

Threaded

Angle Pattern

		DN	50	65	80
		inch	2"	2½"	3"
	BSP; NPT	L	121	140	159
		W	122	122	163
		R	40	48	55
		h	83	102	115
		H	225	242	294
		Weight (Kg)	5.5	7	15

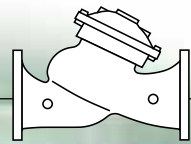
Y Pattern

		DN	40	50	65	80
		inch	1½"	2"	2½"	3"
	BSP; NPT	L	155	155	212	250
		W	122	122	122	163
		h	40	40	48	56
		H	201	202	209	264
		Weight (Kg)	5.5	5.5	8	17

Control Chamber Displacement Volume (liter)

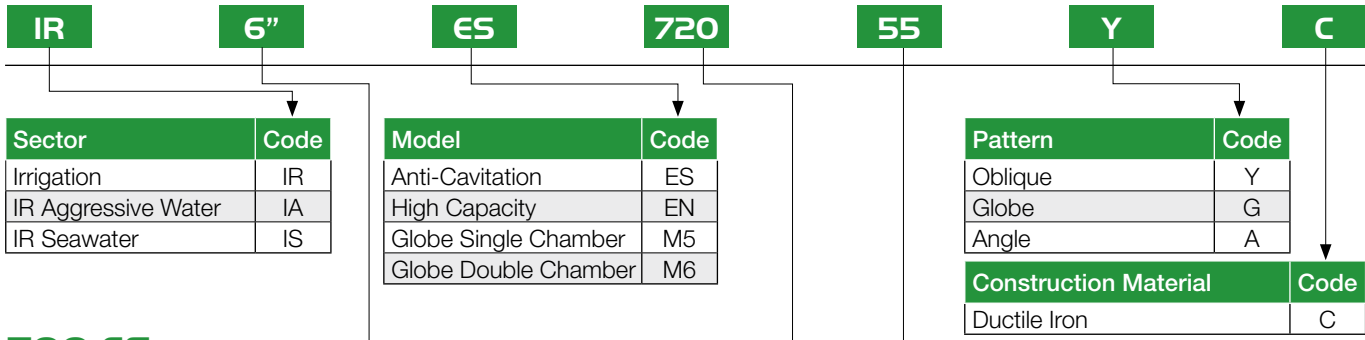
DN	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600-900
inch	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"-36"
700-ES Series	0.125	0.125	0.125	0.125	0.3	0.45	0.5	2.15	4.5	8.5	N/A	12.4	N/A	29.8	29.8
700-EN Series	N/A	0.125	N/A	0.3	0.45	N/A	2.15	4.5	8.5	12.4	N/A	N/A	N/A	N/A	N/A
700 Series	0.125	0.125	0.125	0.3	0.45	N/A	2.15	4.5	8.5	12.4	12.4	29.8	29.8	29.8	98
800 Series	0.04	0.04	0.04	0.12	0.3	N/A	1.1	2.3	4.0	8.0	8.0	18.7	18.7	18.7	N/A

BERMAD Irrigation



700 Series - Ordering Guide

700 Series



700-ES

Size	Primary Feature	Code	
DN40	1½"	Basic Valve (Double Chambered Actuator)	700
DN50	2"	Basic Valve (Single Chambered Actuator)	705
DN65	2½"	Solenoid Controlled Valve	710
DN80	3"	Electronic Control Valve	718
DN100	4"	Pressure Management Valve, Flow Compensated PRV	7PM
DN125	5"	Pressure Reducing Control Valve	720
DN150	6"	Pressure Reducing & Sustaining Valve	723
DN200	8"	Differential Pressure Reducing Valve	726
DN250	10"	Pressure Sustaining Valve	730
DN300	12"	Pressure Relief Valve, Quick Type	73Q
DN400	16"	Pressure Sustaining Valve Remote Sensing Type	730R
DN500	20"	Surge Anticipating Valve	735
DN600	24"	Differential Pressure Sustaining Valve	736
		Booster Pump Control Valve	740
		Booster Pump Control & Pressure Reducing Valve	742
		Booster Pump Control & Pressure Sustaining Valve	743
		Deep Well Pump Electric Control Valve	745
		Booster Pump & Flow Control Valve	747
		Level Control Valve	750
		Level Control & Pressure Sustaining Valve	753
		Level & Flow Control Valve	757
		Level Sustaining Valve (Reservoir Outlet)	75A
		Hydraulic Check Valve	760
		Flow Control Valve	770
		Flow Control & Pressure Reducing Valve	772
		Flow Control & Pressure Sustaining Valve	773
		Flow Control, Pressure Reducing & Sustaining Valve	775
		Burst Control Valve (Excessive Flow)	790
		Burst Control & Pressure Reducing Valve	792
		Check Valve (Lift Type)	70N
		Strainer (Stone and Gravel Trap)	70F

700-EN

Size	Primary Feature	Code	
DN50	2"	Booster Pump Control & Pressure Reducing Valve	742
DN80	3"	Booster Pump Control & Pressure Sustaining Valve	743
DN100	4"	Deep Well Pump Electric Control Valve	745
DN150	6"	Booster Pump & Flow Control Valve	747
DN200	8"	Level Control Valve	750
DN250	10"	Level Control & Pressure Sustaining Valve	753
DN300	12"	Level & Flow Control Valve	757
		Level Sustaining Valve (Reservoir Outlet)	75A
		Hydraulic Check Valve	760
		Flow Control Valve	770
		Flow Control & Pressure Reducing Valve	772
		Flow Control & Pressure Sustaining Valve	773
		Flow Control, Pressure Reducing & Sustaining Valve	775
		Burst Control Valve (Excessive Flow)	790
		Burst Control & Pressure Reducing Valve	792
		Check Valve (Lift Type)	70N
		Strainer (Stone and Gravel Trap)	70F

700-M5

Size	Primary Feature	Code	
DN600	24"	Flow Control, Pressure Reducing & Sustaining Valve	775
DN800	32"	Burst Control Valve (Excessive Flow)	790
		Burst Control & Pressure Reducing Valve	792
		Check Valve (Lift Type)	70N
		Strainer (Stone and Gravel Trap)	70F

700-M6

Size	Primary Feature	Code	
DN600	24"	Flow Control, Pressure Reducing & Sustaining Valve	775
DN700	28"	Burst Control Valve (Excessive Flow)	790
DN750	30"	Burst Control & Pressure Reducing Valve	792
DN800	32"	Check Valve (Lift Type)	70N
DN900	36"	Strainer (Stone and Gravel Trap)	70F

Other primary features available on request.

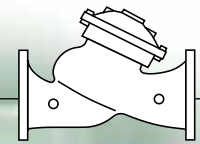
Additional Feature (Multiple Options Permitted)

Additional Feature (Multiple Options Permitted)	Code
No Additional Feature	00
Closing and Opening Speed Control	03
Hydraulic Override	09
Check-Lock	11
High Sensitivity Pilot	12*
Electronic Control	18
Check Feature	20
Solenoid Controlled & Check Feature	25
Pressure Reducing Feature	2Q
Two-Stage Opening	30
Solenoid Controlled & Two-Stage Opening	35
Relief Override	3Q
Electrically Selected Multi-Level Setting	45
Downstream Over Pressure Guard	48
Closing Surge Prevention	49
Motorized Pilot	4S
Electronic Multi-Level Setting - Type 4R	4R
2-Way Hydraulic Relay	50
3-Way Hydraulic Relay	54
Solenoid Controlled	55
Electric Override	59
Modulating Horizontal Float	60
Bi-Level Electric Float	65
Bi-Level Vertical Float	66
Modulating Vertical Float	67
Bi-Directional Flow	70
Altitude Pilot	80*
Modulating Altitude Control	82*
Sustaining Altitude Pilot	83*
Hydraulic Positioning	85*
Bi-Level Altitude Control	86*
Altitude Control with Bi-Directional Flow	87*
Setting Range	
2-6 meter; 7-20 feet Setting	M1
2-14 meter; 7-46 feet Setting	M6
5-22 meter; 17-72 feet Setting	M5
15-35 meter; 49-115 feet Setting	M4
25-70 meter; 82-230 feet Setting	M8
Closing at Downstream Pressure Drop	91
Double Cavitation Cage	C2
Panel Mounted Control	L1
Independent Lift Check	2S
Proportional (Not available for M5)	PD

Other additional features available on request.

* Select Setting Range





I6

PG

4AC

PB

VI

End Connection		Code
Flanged	ISO-PN10	10
	ISO-PN16	16
	ISO-PN25	25
	ANSI-#150	A5
	ANSI-#300	A3
	BST-D	BD
	JIS-16	J6
	JIS-20	J2
Threaded	BSP	BP
	BSP-25 bar	PH
	NPT	NP
	NPT-25 bar	NH

Other end connections available on request.

Coating	Code
Polyester Green RAL 6017	PG
Polyester Blue RAL 5010	PB
Uncoated	UC

Other coatings available on request.

Voltage-Main Valve Position (When Solenoid De-energized)		Code		
24V	AC	24VAC/50Hz - Normally Closed	4AC	
		24VAC/50Hz - Normally Open	4AO	
		24VAC/50Hz - Last Position	4AP	
		24VAC/60Hz - Normally Closed	46C	
	DC	24VDC - Normally Closed	4DC	
		24VDC - Normally Open	4DO	
		24VDC - Last Position	4DP	
		24VDC - Latch Solenoid	4DS	
12V	DC	12VDC - Normally Closed	1DC	
		12VDC - Normally Open	1DO	
			12VDC - Last Position	1DP
			12VDC - Latch Solenoid	1DS

Tubing & Fittings	Code
Reinforced Plastic Tubing & Brass Fittings	PB
Copper Tubing & Brass Fittings	CB
St. St. 316 Tubing & Fittings	NN

Additional Attributes (Multiple Options Permitted)	Code
V-Port Throttling Plug	V
Large Control Filter	F
Valve Position Indicator	I
Electric Limit Switch	S
Valve Position Transmitter	Q
Flow Stem	M
Lifting Spring	L
Orifice Assembly	U
Paddle Pilot	t
Pressure Separator	d
Double Chambered (Active)	B
3-Way Control	X
Manual Selector	Z
Flow Over the Seat	O
St. St. 316 Control Accessories	N
Delrin Bearing	R
PVDF Bearing	r
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Pressure Gauge	6

Other additional attributes are available. Please consult our sales department for further information.

Reduction Ratios

700-ES

Valve Size	Plug Type	
	Flat Disc	V-Port
DN40; 1½"	2.8	3.2
DN50; 2"	2.8	3.2
DN65; 2½"	2.8	3.2
DN80; 3"	2.8	3.2
DN100; 4"	2.6	2.9
DN125; 5"	2.5	2.8
DN150; 6"	2.5	2.8
DN200; 8"	2.5	2.7
DN250; 10"	2.4	2.6
DN300; 12"	2.3	2.5
DN400; 16"	2.2	2.4
DN500; 20"	2.2	2.3
DN600; 24"	2.2	2.3

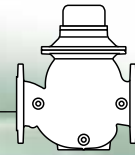
700-EN

Valve Size	Plug Type	
	Flat Disc	V-Port
DN50; 2"	3.7	4.0
DN80; 3"	2.6	2.9
DN100; 4"	2.5	2.8
DN150; 6"	2.5	2.7
DN200; 8"	2.4	2.6
DN250; 10"	2.3	2.5
DN300; 12"	2.2	2.4

700-M6

Valve Size	
DN600; 24"	2.0
DN700; 28"	
DN750; 30"	
DN800; 32"	
DN900; 36"	

- The reduction ratios are based on flow velocity of 2.0-3.0 m/sec.
- Reduction ratio may vary at extreme flow velocity & upstream pressure.



IR-900 Series Hydrometer

The BERMAD IR-900 Series Hydrometer is a unique product integrating both a vertical turbine Woltman-type water meter and a diaphragm actuated control valve. The flow metering unit is vertical to the pipeline and includes an impeller with integrated inlet and outlet flow straighteners, eliminating the need for straightening distances, enabling vertical installation, and ensuring accuracy during control tasks. The raised seal seat results in remarkable cavitation resistance due to the valve body's distance from the flow. IR-900 provides the full spectrum of metering functions – from simple visual readout, through non-computerized dose control (IR-900-D), to pulse output for computerized data capture and control - while simultaneously allowing for numerous control valve features such as pressure, level and flow control. IR-900 Series range in diameter sizes of 1½”-10”.



Features and Benefits

- Integrated "All-in-One" Control Valve
 - Saves space, cost and maintenance
- Hydraulically Controlled Hydrometer
 - Line pressure driven
- Magnetic Drive with Vacuum-Sealed Register
 - Water-free gear train mechanism
 - Reed-switch and Opto pulse-generating modes
 - Various pulse combinations
- Internal Inlet & Outlet Flow Straighteners
 - Saves on straightening distances
 - Maintains accuracy
- Integrated Flow Metering Calibration Device
 - Precise measurement
- User-Friendly Design
 - Simple in-line inspection and service

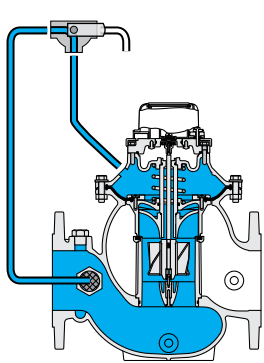
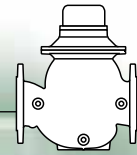
Typical Applications

- Computerized Irrigation Systems
 - Distribution Centers
- Remote Flow Data Read-Out
 - Flow Monitoring & Leakage Control
 - Water Treatment Systems
 - Volumetric Irrigation Systems

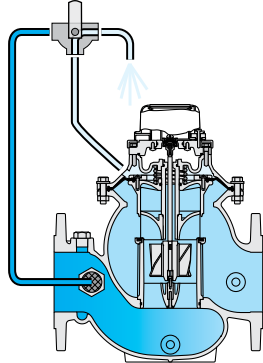
Standards

- 900-D Series certified to ISO 7714
- 900-m Series approved by MID





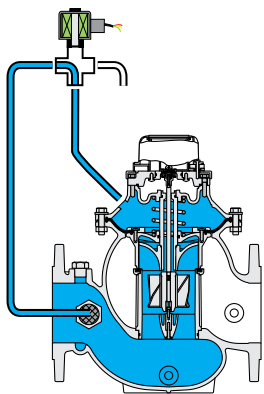
Hydrometer Closed



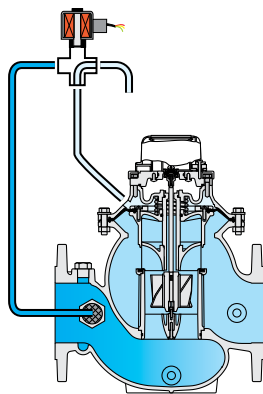
Hydrometer Open

On/Off Modes, Local Manual Control

Line pressure is applied to the control chamber of the hydrometer, through the override Cock-Valve. This creates a hydraulic force that moves the valve to the closed position and provides drip tight sealing. Discharging pressure from the control chamber to the atmosphere causes the line pressure under the plug to open the hydrometer, measuring the flow rate.



Solenoid Open
Hydrometer Closed

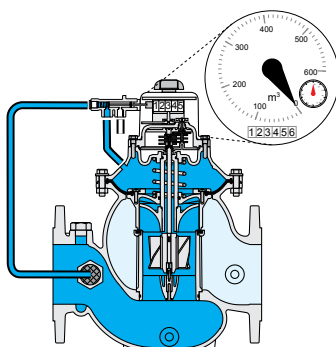


Solenoid Closed
Hydrometer Open

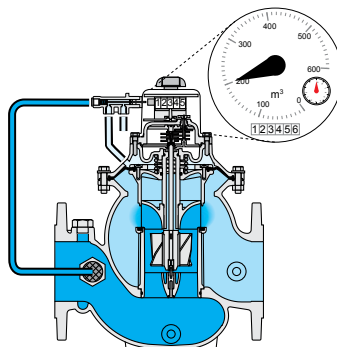
On/Off Modes, Solenoid Controlled

Line pressure is applied to the control chamber of the hydrometer, through the opened 3-way solenoid. This creates a hydraulic force that moves the valve to the closed position and provides drip tight sealing. Closing the Solenoid causes it to switch, discharging pressure from the control chamber.

This in turn causes the line pressure under the plug to open the hydrometer, measuring the flow.



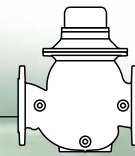
AMV Closed



AMV Open

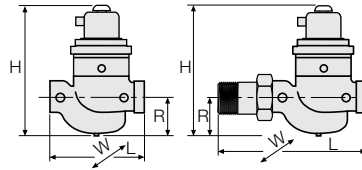
On/Off Modes, Automatic Metering Valves

The shut-off pilot hydraulically connects the AMV inlet pressure to the control chamber. Setting the AMV closes the shut-off pilot, thereby discharging pressure from the control chamber and opening the AMV. Upon delivering the preset water quantity, the shut-off pilot switches open to divert line pressure into the AMV control chamber. This causes the AMV to shut, stopping the flow of water.



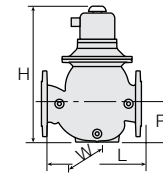
Globe Pattern

Connection Type		Threaded		
Size		1½"	2"	3"R
L	(mm)	67	77	250
LM	(mm)	250	250	-
W	(mm)	137	137	137
H	(mm)	293	300	300
R	(mm)	95	95	79
Weight	(Kg)	7.2	7.3	7.3



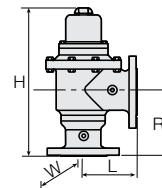
Globe Pattern

Connection Type		Flanged							
Size		1½"	2"	3"R	3"	4"	6"	8"	10"
L	(mm)			310	300	350	500	600	600
W	(mm)			200	210	250	380	380	405
H	(mm)			321	210	250	380	380	405
R	(mm)			100	123	137	216	228	228
Weight	(mm)			15.8	23	30	70	92	140



90° Angle Pattern

Connection Type		Threaded	Flanged			
Size		2"	3"	4"	6"	8"
L	(mm)	120	150	180	250	250
W	(mm)	137	210	250	380	380
H	(mm)	322	425	500	610	610
R	(mm)	125	196	225	306	280
Weight	(mm)	7.9	25.5	35.8	76.4	82.2



Available Patterns, Size & End Connections

Connection		1½"	2"	2½"	3"R	3"	4"	6"	8"	10"
Threaded	(mm)	G	G & A		G					
Threaded (Male)	(mm)	G	G							
Flanged	(mm)			H*	G	G & A	G, A & H	G & A	G & A	G
Flange Inlet \ Thread Outlet	(mm)		A	H*	G		H			

G = Globe, A = Angle 90°, H = Hydrant (Angle 120°)

* Triangle Flange Inlet (for H configuration 2½" only)

Technical Data

Connections Standard:

Flanged: ISO 7005-2 (PN10 & 16)

Triangle Flange (DN65 inlet only)

Threaded: Rp ISO 7/1 (PSP.P) or NPT

Pressure Ratings:

PN10 (Plastic Primary Gear Cover)

PN16 (Metal Primary Gear Cover)

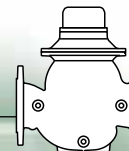
Operating Pressure Ranges:

PN10: 0.5-10 bar

PN16: 0.5-16 bar

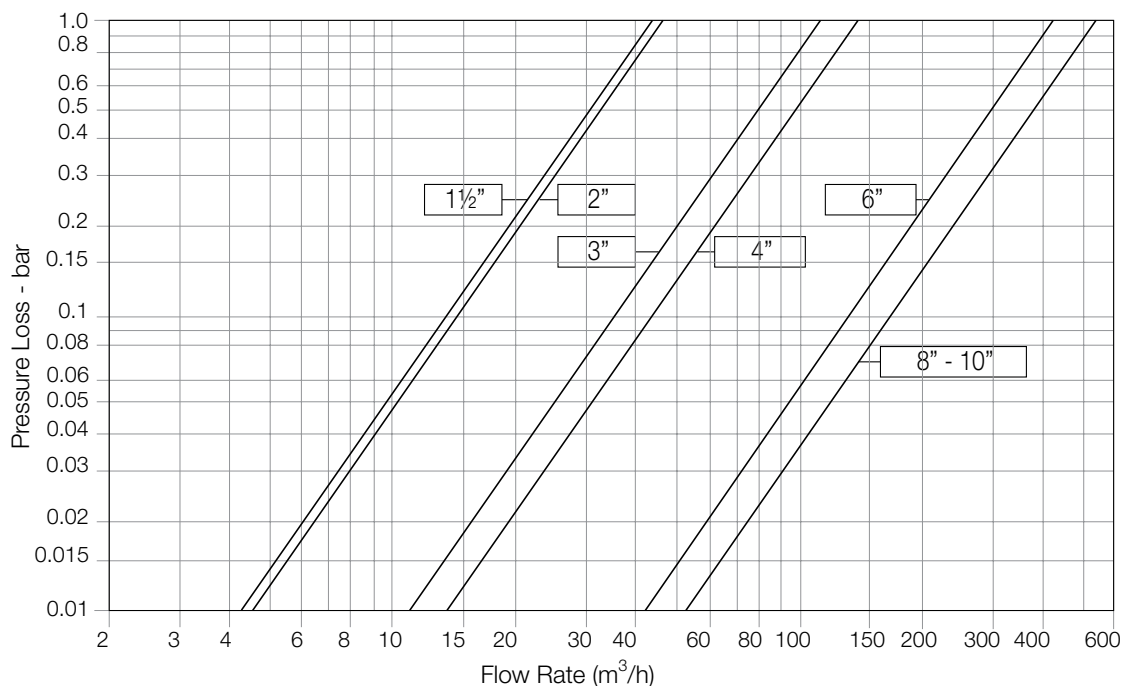
For lower pressure requirements, consult factory

Temperature: Water up to 50°C

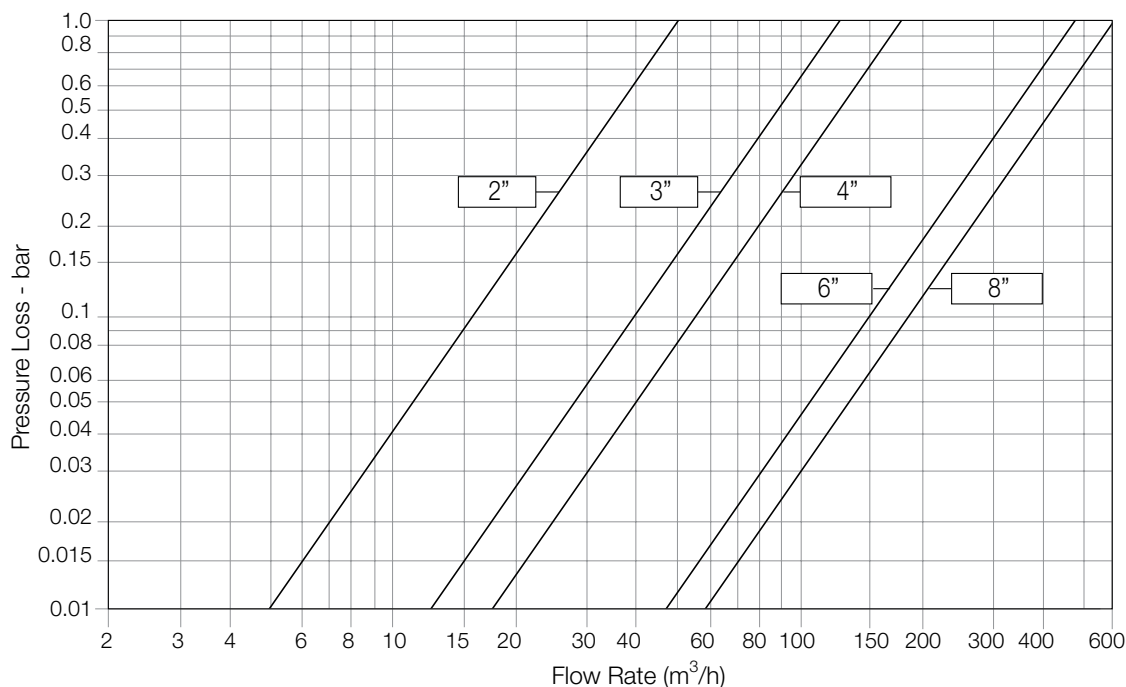


Flow Chart

Globe Pattern



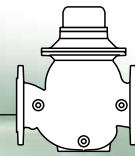
90° Angle Pattern



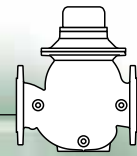
Standards

900-D Series Approved to ISO 7714

900-M Series Approved to MID 2004/22/EC



IR	4"	920	M0	55	G	C	I6																																																																																																										
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PG

Coating	Code
Polyester Green RAL 6017	PG

Other coatings available on request.

Voltage Main Valve Position	Code
24VAC, with Diode - Normally Closed	4AC
24VAC, with Diode - Normally Open	4AO
24VAC - Last Position	4AP
24VAC - Normally Closed	4RC
24VAC - Normally Open	4RO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
24VDC - Last Position	4DP
12VDC - Normally Closed	1DC
12VDC - Normally Open	1DO
12VDC - Last Position	1DP
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.

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

4AC

PP

RO3

KX

Pulse Type	Pulse Rate m ³	Code
No Pulse	No Pulse m ³	RNP
Reed Switch 1 Pulse	Reed 0.01 m ³	R01
	Reed 0.1 m ³	R02
	Reed 1 m ³	R03
	Reed 10 m ³	R04
Opto Sensor	Opto 0.001 m ³	P01
	Opto 0.01 m ³	P10
Opto + Reed	0.001 m ³ Opto + 0.1 m ³ Reed	PQ1
	0.001 m ³ Opto + 1 m ³ Reed	P03
	0.01 m ³ Opto + 1 m ³ Reed	P13
	0.01 m ³ Opto + 10 m ³ Reed	P14

Pulse Type	Pulse Rate U.S. Gallon	Code
No Pulse	No Pulse Gal	RNG
Reed Switch 1 Pulse	Reed 1 Gal	RG3
	Reed 10 Gal	RG4
	Reed 100 Gal	RG5
	Reed 1,000 Gal	RG6
Opto Sensor	Opto 0.1 Gal	PG2
	Opto 1 Gal	PG3
Opto + Reed	0.1 Gal Opto + 10 Gal Reed	P4G
	0.1 Gal Opto + 100 Gal Reed	P6G
	1 Gal Opto + 100 Gal Reed	P5G
	1 Gal Opto + 1,000 Gal Reed	P7G

Additional Attributes Unlimited Selection	Code
3-Way Control Loop	X
Plastic Control Accessories	K
Metal Control Accessories	R
PVDF Guide	r
Homologation Approved	L
BSP-U Union Records Assembly	M
Calibration	N
Orifice Assembly	U
Paddle Flow Control Pilot	V
Drain & Anti-Freeze Valve	f
Large Control Filter	F
Y Control Strainer	Y
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
High Upstream Pressure (above 10 bar)	3
Plastic Pressure Test Point	5
Pressure Gauge	6

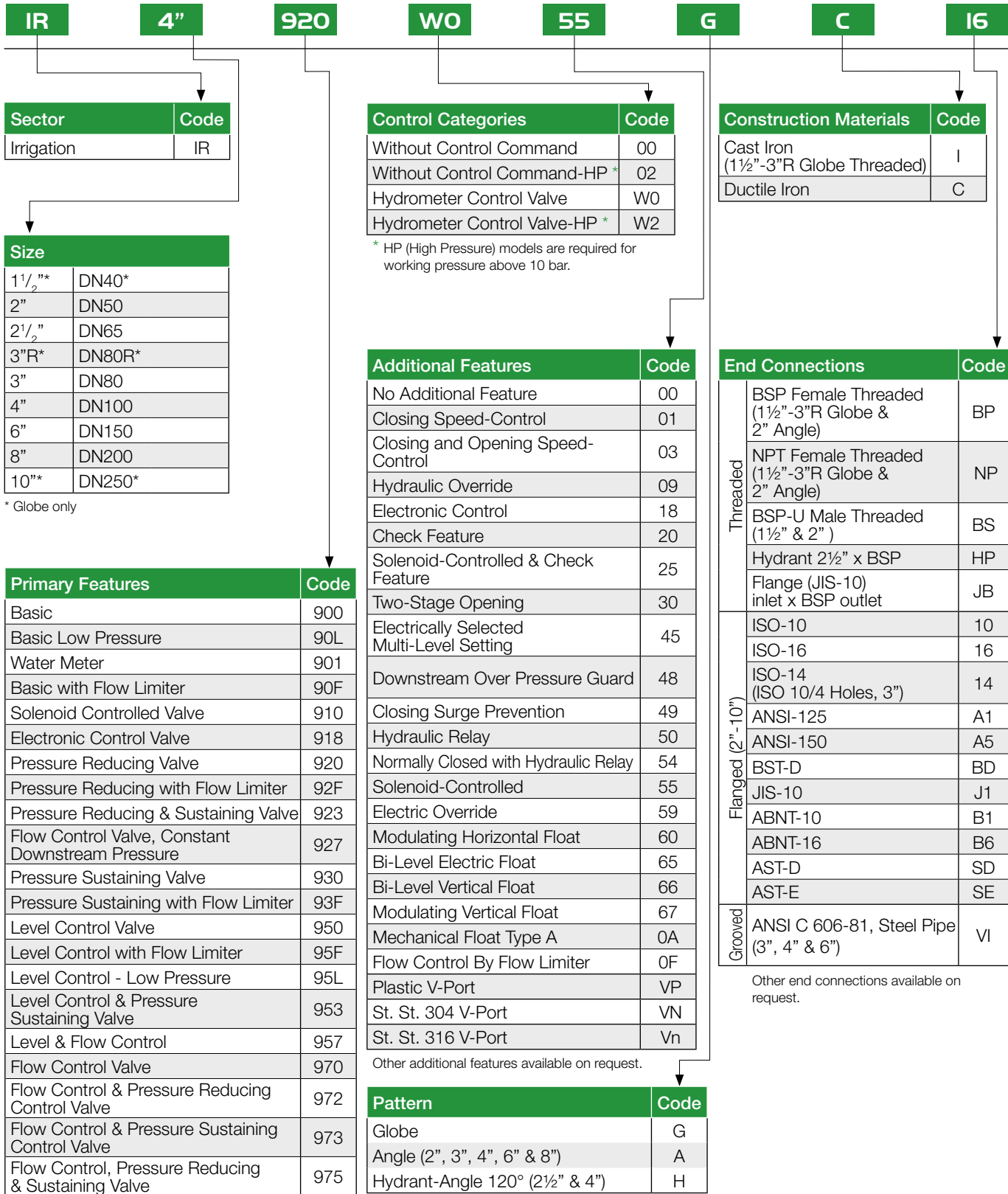
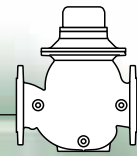
Other additional attributes are available. Please consult Customer Service for further information.

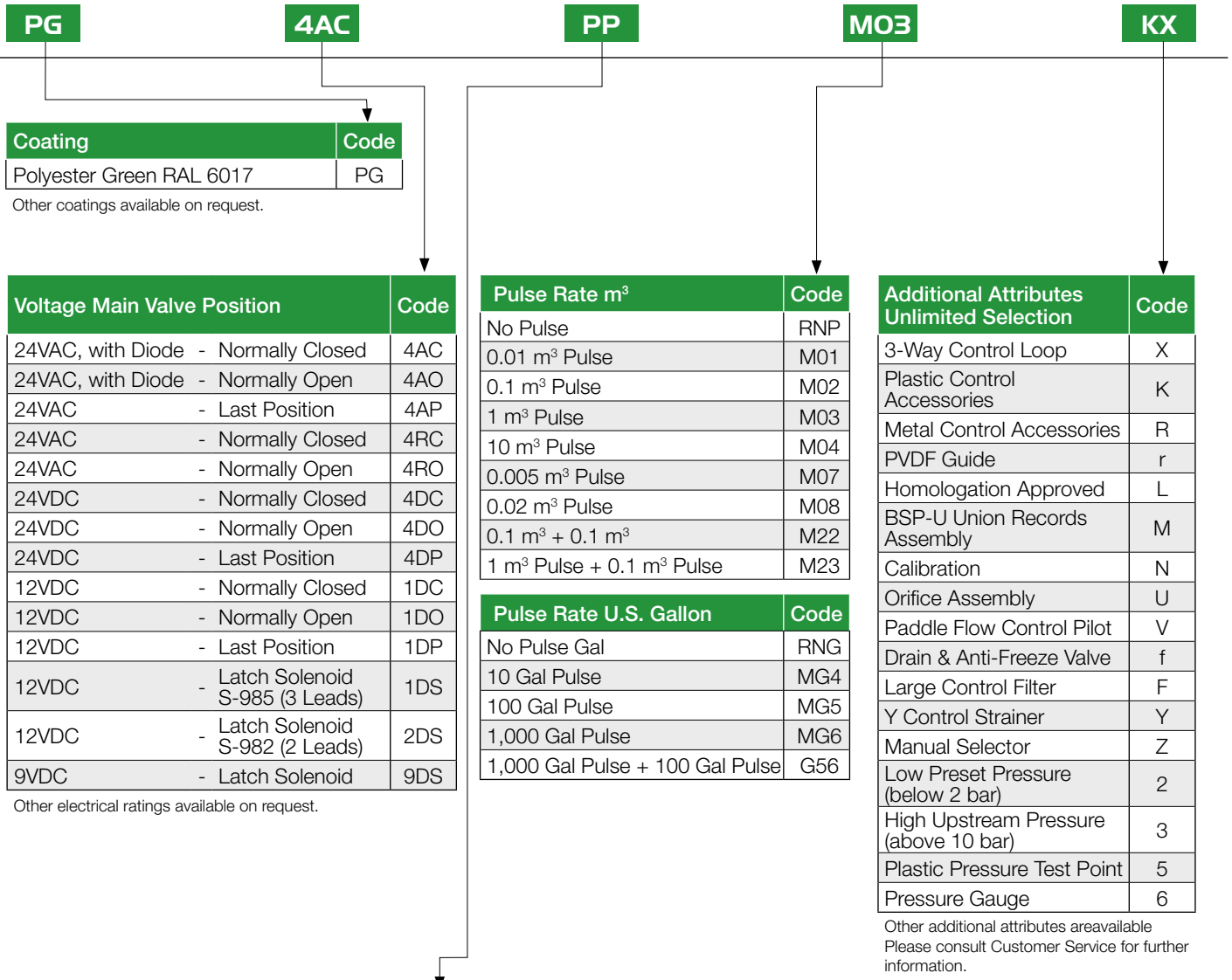
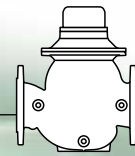
Hydrometer Pulse & Size Availability						
Size	Pulse per	0.001 m ³	0.01 m ³	0.1 m ³	1 m ³	10 m ³
		0.1 Gal	1 Gal	10 Gal	100 Gal	1,000 Gal
1½", 2", 2½", 3", 3"R, 3" & 4"		■	▲	▲	▲	
6", 8" & 10"			■	▲	▲	▲

- ▲ Reed-switch
- Opto-Electric

Gal = U.S. Gallon

Note: Pulse combinations are available according to "Pulse Rate Table".





Coating	Code
Polyester Green RAL 6017	PG

Other coatings available on request.

Voltage Main Valve Position	Code
24VAC, with Diode - Normally Closed	4AC
24VAC, with Diode - Normally Open	4AO
24VAC - Last Position	4AP
24VAC - Normally Closed	4RC
24VAC - Normally Open	4RO
24VDC - Normally Closed	4DC
24VDC - Normally Open	4DO
24VDC - Last Position	4DP
12VDC - Normally Closed	1DC
12VDC - Normally Open	1DO
12VDC - Last Position	1DP
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.

Pulse Rate m³	Code
No Pulse	RNP
0.01 m³ Pulse	M01
0.1 m³ Pulse	M02
1 m³ Pulse	M03
10 m³ Pulse	M04
0.005 m³ Pulse	M07
0.02 m³ Pulse	M08
0.1 m³ + 0.1 m³	M22
1 m³ Pulse + 0.1 m³ Pulse	M23

Pulse Rate U.S. Gallon	Code
No Pulse Gal	RNG
10 Gal Pulse	MG4
100 Gal Pulse	MG5
1,000 Gal Pulse	MG6
1,000 Gal Pulse + 100 Gal Pulse	G56

Additional Attributes Unlimited Selection	Code
3-Way Control Loop	X
Plastic Control Accessories	K
Metal Control Accessories	R
PVDF Guide	r
Homologation Approved	L
BSP-U Union Records Assembly	M
Calibration	N
Orifice Assembly	U
Paddle Flow Control Pilot	V
Drain & Anti-Freeze Valve	f
Large Control Filter	F
Y Control Strainer	Y
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
High Upstream Pressure (above 10 bar)	3
Plastic Pressure Test Point	5
Pressure Gauge	6

Other additional attributes are available. Please consult Customer Service for further information.

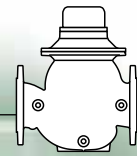
Tubing & Fittings	Code
Plastic Tubing & Fittings	PP
Plastic Reinforced Tubing & Brass Fittings	PB
Copper Tubing & Brass Fittings	CB

Hydrometer Pulse & Size Availability - Metric				
Size \ Pulse per	Pulse per			
	0.01 m³	0.1 m³	1 m³	10 m³
1½", 2", 2½", 3"R & 3"	●	●	●	
4"	●	●	●	●
6", 8" & 10"		●	●	●

Hydrometer Pulse & Size Availability - US Gallon			
Size \ Pulse per	Pulse per		
	10 Gal	100 Gal	1,000 Gal
1½", 2", 2½" & 3"R	●	●	
3" & 4"	●	●	●
6", 8" & 10"		●	●

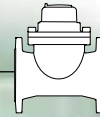
Note: Pulse combinations are available according to "Pulse Rate Table".





	16	PG	4AC	PP	800	AMV	KX						
Threaded	End Connections		Tubing & Fittings		Additional Attributes Unlimited Selection		Code						
	Code		Code				Code						
Flanged (2"-10")	BSP Female Threaded (1½"-3"R Globe & 2" Angle)		Plastic Tubing & Fittings		3-Way Control Loop		X						
	NP		PP		Plastic Control Accessories		K						
	NPT Female Threaded (1½"-3"R Globe & 2" Angle)		Plastic Reinforced Tubing & Brass Fittings		Metal Control Accessories		R						
	BS		PB		PVDF Guide		r						
	BSP-U Male Threaded (1½" & 2")		Copper Tubing & Brass Fittings		Homologation Approved		L						
	HP		CB		BSP-U Union Records Assembly		M						
	Hydrant 2½" x BSP				Calibration		N						
	JB				Pump Shut off Assembly (for AMV only)		S						
	16				Orifice Assembly		U						
	10				Paddle Flow Control Pilot		V						
Grooved	14				Drain & Anti-Freeze Valve		f						
	A1				Large Control Filter		F						
	A5				Y Control Strainer		Y						
	BD				Manual Selector		Z						
	J7				Low Preset Pressure (below 2 bar)		2						
	J1				High Upstream Pressure (above 10 bar)		3						
	J6				Plastic Pressure Test Point		5						
	B1				Pressure Gauge		6						
	B6												
	SD												
SE													
VI													
Other end connections available on request.													
Coating		Code											
Polyester Green RAL 6017		PG											
Other coatings available on request.													
Voltage Main Valve Position			Code										
24VAC, with Diode - Normally Closed			4AC										
24VAC, with Diode - Normally Open			4AO										
24VAC - Last Position			4AP										
24VAC - Normally Closed			4RC										
24VAC - Normally Open			4RO										
24VDC - Normally Closed			4DC										
24VDC - Normally Open			4DO										
24VDC - Last Position			4DP										
12VDC - Normally Closed			1DC										
12VDC - Normally Open			1DO										
12VDC - Last Position			1DP										
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.													
				Dial Capacity		Code							
				AMV m3									
1½"-2" 3" 4" 6" 8"-10"				6"-10"		40 m³	40						
						80 m³	80						
						120 m³	120						
						150 m³	150						
						350 m³	350						
						600 m³	600						
						800 m³	800						
						1,200 m³	1K0						
						2,100 m³	2K0						
						3,500 m³	3K0						
6,000 m³	6K0												
8,000 m³	8K0												
				AMV U.S. Gallon									
1½"-2" 3" 4" 6" 8"-10"				8"-10"		13,000 Gal	1G0						
						50,000 Gal	5G0						
						130,000 Gal	1KG						
						210,000 Gal	2KG						
						500,000 Gal	5KG						
						875,000 Gal	8KG						
						1,300,000 Gal	1MG						
						2,100,000 Gal	2MG						
						<p>For AMV with Pulse, choose:</p> <ul style="list-style-type: none"> ■ DAT from "Pulse Rate" table ■ The desired Dial Capacity <p>The pulse rate is factory set according to selected dial:</p> <p>Metric:</p> <ul style="list-style-type: none"> □ 1 Pulse per 1 m³ for dials 3.8-2,100 □ 1 Pulse per 10 m³ for dials 3,500-21,000 <p>U.S. Gallon:</p> <ul style="list-style-type: none"> □ 1 Pulse per 100 gallons for dials 13,000-210,000 □ 1 Pulse per 1,000 gallons for dials 500,000-2,100,000 							
						Pulse Rate							
Automatic Metering Valve		AMV											
AMV + Pulse		DAT											





TURBO-IR-A

Water Meter

for Irrigation and Wastewater

DN50-300; 2"-12"

Features and Benefits

- Magnetic drive
- Dry, vacuum sealed register
- Option for "reed switch" sensor
- Register can rotate 360°
- Paddle wheel design prevents jamming and damage due to solid debris
- Easy maintenance
- Low head loss

Operating Conditions

- Water temperature: up to 40°C
- Pressure rating: PN16

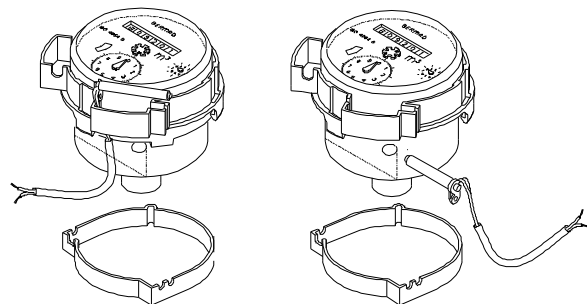
The TURBO-IR-A uses a multi-blade plastic paddle mounted at the top of the water passage, where disturbance from solids suspended in the water is minimal, permitting accuracy of metering in water containing up to 30% solid debris. Ideal for irrigation and wastewater applications.



Data Output Options

Reed Switch

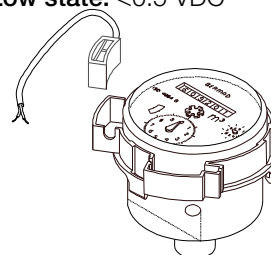
- Switching voltage: 48 VAC/DC max
- Switching current: 0.2 A max
- Switching power: 4 W max



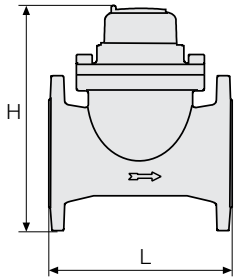
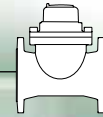
Register with Reed Switch

Opto-Electronic Sensor

- Supply voltage: 5-10 VDC
- Output type: PNP
- Output signal
 - High state: supply voltage
 - Low state: <0.5 VDC



Register with Opto-Electronic Sensor



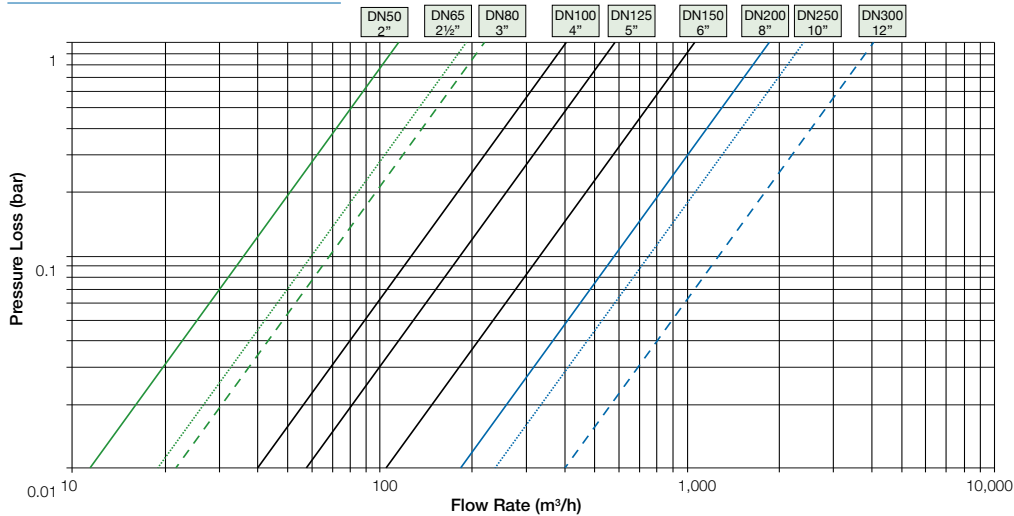
Dimensions and Weights

Nominal Size	mm	50	65	80	100	125	150	200	250	300
	Inch	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L, Length (mm)		200	200	225	250	250	300	350	450	500
H, Height (mm)		252	262	280	290	303	333	386	442	494
Weight (kg)		10.5	11.8	15.5	17.5	19.5	30.5	42.5	60	82.5

Metrological Data

	Accuracy	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"
Qmin (Minimum flow), m³/h	%±5	2.8	4	6	10	14	20	36	48	64
Qt (Transitional flow), m³/h	%±2	10.5	15	22.5	37.5	52.5	75	135	180	240
Qn (Permanent flow), m³/h	%±2	35	50	75	125	175	250	450	600	800
Qmax (Peak flow, short time), m³/h	%±2	70	100	150	250	350	500	900	1200	1600
(Min reading unit (m3		0.01	0.01	0.01	0.01	0.01	0.01	0.1	1	1
(Max register capacity (m3		999999	999999	999999	999999	999999	999999	9999999	9999999	9999999
$Kv=Q/\sqrt{\Delta p}$		115	192	219	402	584	1059	1826	2373	4017

Turbo-IR-A Flow Chart



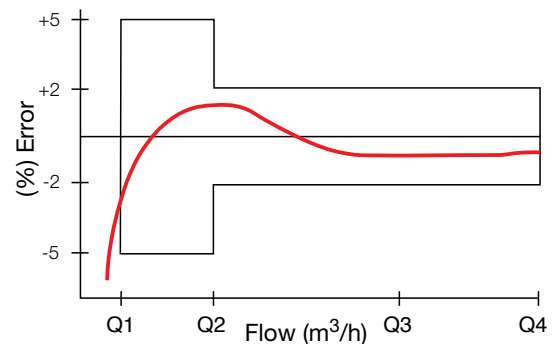
Reed Switch Assembly

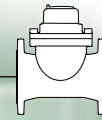
- The Reed Switch pulser consists of plastic housing with a Reed Switch
- Cable: 2 core, 1½m length
- Reed Switch: single
- Electrical Data:
 - Switching Voltage:** 24 AV/DC max.
 - Switching Current:** 0.01A max.

TURBO-IR-A Size	Reed Switch Pulse Pulse for Each 1		
	Liter 100	1m³	10m³
2"-5"; DN50-150	X	X	
6"-12"; DN200-300		X	X
Order Code	S3	S2	S1

* Pulse combinations are available according to "pulse rate table"

Accuracy Curve





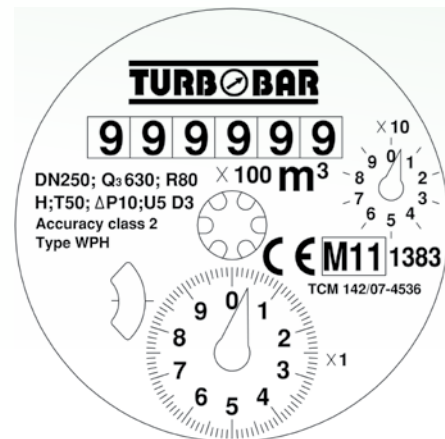
Woltman Water Meter Magnetic Drive Dry Type

Heavy duty and designed to handle high flow rates, the TURBOBAR WPH-Magnetic Drive water meter covers a very wide flow range, and is particularly suited to industrial, waterworks, water distribution, water monitoring, and agricultural applications. Based on the Woltmann principle, the helical blades of the turbine rotate around the axis of flow. TURBOBAR products are long-life, and easy to maintain at low cost.

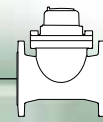


Features and Benefits

- Removable and interchangeable measuring element
- Dry type register
 - Hermetically sealed
- Includes output option by Dry Contact (Reed Switch) and Opto-Electronic sensor, as standard
 - Digital flow converter device and a digital counter are available on request
- Magnetic transmission keeps the register completely separate from water; only the impeller and transmission shaft contact water
- Meets or exceeds ISO 4064 class B-H
- US gallons registration available on request
- EEC Approval (50-300 mm)



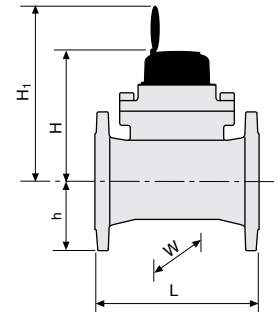
* Image for illustration purpose only.



Technical Specifications

Turbo Bar WPH Dimensios and Weight Data, mm-kg

DN mm	40	50	65	80	100	125	150	200	250	300	400	500
Size	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"
Flange		ISO ABNT	ANSI, BSTD, ASTD, JIS									
L, length, mm	260	200	310	200	225	250	250	300	350	450	500	500
H, height, mm	268	275	270	285	295	304	318	366	393	512	534	669
H1, height, mm	338	345	340	355	365	374	388	436	463	582	604	739
h, flange type, mm	68	75	70	85	95	104	118	135	162	194	216	304
h, grooved type, mm	-	-	-	-	56	60	71	95	-	-	-	-
W, flange type, mm	160	170	160	190	200	230	250	285	340	395	445	600
W, grooved type, mm	-	-	-	-	156	156	156	250	-	-	-	-
Weight, kg	13	12	15	14	16	19	20	39	52	105	120	187

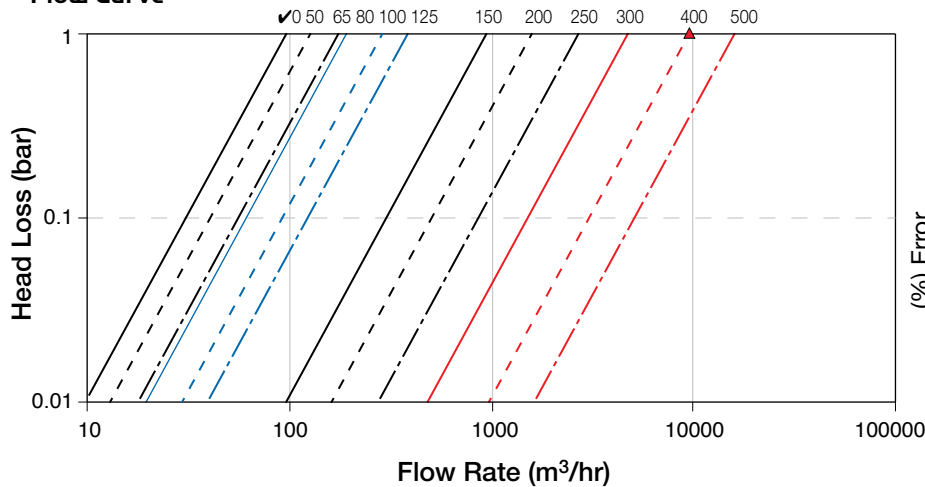


* images are for illustration purpose only

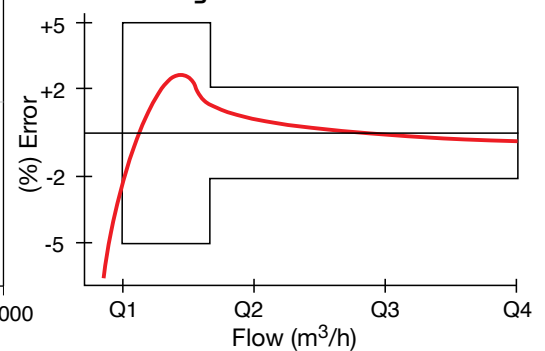
Accuracy Curve

	Accuracy	mm Inch	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	400 16"	500 20"
Q1 (Minimum flow), m³/h	±5%		0.5	0.5	0.8	0.8	1.3	2	3.1	5	8	12.5	32	50
Q2 (Transitional flow), m³/h	±2%		0.8	0.8	1.3	1.3	2	3.2	5.0	8.0	12.6	20	51	80
Q3 (Permanent flow), m³/h	±2%		25	40	63	63	100	160	250	400	630	1000	1600	2500
Q4 (Peak flow, short time), m³/h	±2%		31	50	79	125	200	200	313	500	788	1250	2000	3125
Q2/Q1			1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Q3/Q1			50	80	80	80	80	80	80	80	80	80	50	50
Kv=Q/√Δp			95	125	170	190	280	380	950	1580	2688	4700	9500	15000
Max. reading, m³			999,999						9,999,999			99,999,999		
Min. reading, liter			1						10			100		
Pressure loss Δp, bar			according to chart											

Flow Curve

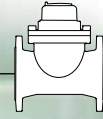


Accuracy Curve



Main Operating Characteristics

- Pressure Rating: PN 16
- Temperature: 50°C



Water Meter Series - Ordering Guide

Water Meter Series

Water Meter Turbo-IR-A

3"

16

PG

M3

S3

Type
Turbo-IR-A

End Connections	Code
ISO-10	10
ISO-16	16
ISO-14 (ISO 10/4 Holes, 3")	14
ANSI-125	A1
BST-D	BD
AST-D	SD
AST-E	SE
ABNT-10	B1
ABNT-16	B6
JIS-10	J1
JIS-16	J6

Other end connections available on request.

Size	
2"	DN50
2½"	DN65
3"	DN80
4"	DN100
5"	DN125
6"	DN150
8"	DN200
10"	DN250
12"	DN300

Measure Units	Code
Polyester Green	PG

Measure Units	Code
Cubic Meter	M3

Pulse Type	Pulse Rate	Code
No Pulse*	Pulse Preparation	Y
Reed Switch - 1 Pulse	Reed 0.1 m ³	S3
	Reed 1 m ³	S2
	Reed 10 m ³	S1
Reed Switch - 2 Pulses	Reed 1 m ³ + 0.1 m ³	S23
	Reed 10 m ³ + 1 m ³	S12

* When ordering "No Pulse" (Pulse Preparation) write "Y"
& the possible future Pulse Rate
Example: Turbo-IR-A-3"-16-PG-M3-Y/S3

Turbo-IR Pulse Rate				
Size	One pulse per	0.1 m ³	1 m ³	10 m ³
2", 2½", 3", 4", 5"		▲	▲	
6", 8", 10", 12"			▲	▲

▲ Reed-switch

Note: Pulse combinations are available according to "Pulse Rate Table".

Water Meter Turbo-BAR WPH

50

16

M3

PB

S4

Type
WPH

End Connections	Type	Code
ISO-10		10
ISO-16		16
ISO-14 (ISO 10/4 Holes, 3")		14
ANSI-125		A1
BST-D		BD
AST-D		SD
AST-E		SE
ABNT-10		B1
ABNT-16		B6
JIS-10		J1
JIS-16		J6

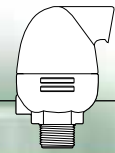
Other end connections available on request.

Size	
2"	DN50
2½"	DN65
3"	DN80
4"	DN100
5"	DN125
6"	DN150
8"	DN200
10"	DN250
12"	DN300

Measure Units	Code
Cubic Meter	M3
Gallon	GAL

Measure Units	Code
Polyester Green	PG
Polyester Blue	PB
Epoxy Blue	EB

Coating	Code
Polyester Green	PG
Polyester Blue	PB
Epoxy Blue	EB



Air Valve Series

BERMAD's new advanced line of Air Valves now joins its extensive line of hydraulic control valves to create comprehensive control solutions for pressurized pipelines and networks. System engineers and end-users can now design and install far more optimized solutions for their system requirements.



Features and Benefits

The new line of BERMAD Air Valves includes Plastic Air Valves ranging from 3/4" to 2" and Metal Air Valves from 2" to 8" for a variety of water pipelines and networks offering:

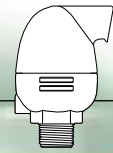
- Higher flow rates
- Low pressure sealing
- Minimal spray effect
- Built-in surge protection (anti-slam feature)
- Versatile design for easy installation
- Reliable structure

Typical Applications

Protection against air accumulation and vacuum formation at:

- Main Irrigation Networks - along supply lines and at elevations in main irrigation networks.
- Irrigation Control Head - at filtration and fertilization stations and downstream of main control valves.
- Infield Systems – in proximity to water meters and automatic regulators.





Automatic Air Valves - A10, A11, A30, A31

- Body material – Glass-reinforced Polyamide
- Inlet sizes - DN20, DN25 (¾", 1")
- Connections - Threaded Male BSPT / NPT
- Outlet – Sideways
- Pressure rating - ISO PN10/16, ANSI 150
- Operating pressure range: 0.1 – 10/16 bar, 1.5 – 150/230 psi (A10/A30), 0.02 – 10/16 bar, 0.3 – 150/230 psi (A11, A31)
- Operating temperature: Water up to 60°C
- Benefits – effective automatic air release, low pressure sealing



Kinetic (Air / Vacuum) Air Valves - K10

- Body material – Glass-reinforced Polyamide
- Inlet sizes - DN20, DN25, DN50 (¾", 1", 2")
- Connections - Threaded Male and Female (2") BSPT / NPT
- Outlet – Sideways
- Pressure rating - ISO PN10, ANSI 150
- Operating pressure range: 0.1 – 10bar, 1.5 – 150psi
- Operating temperature: Water up to 60°C
- Benefits – effective air relief and intake, low pressure sealing



Combination Air Valves - C10, C11, C30, C31

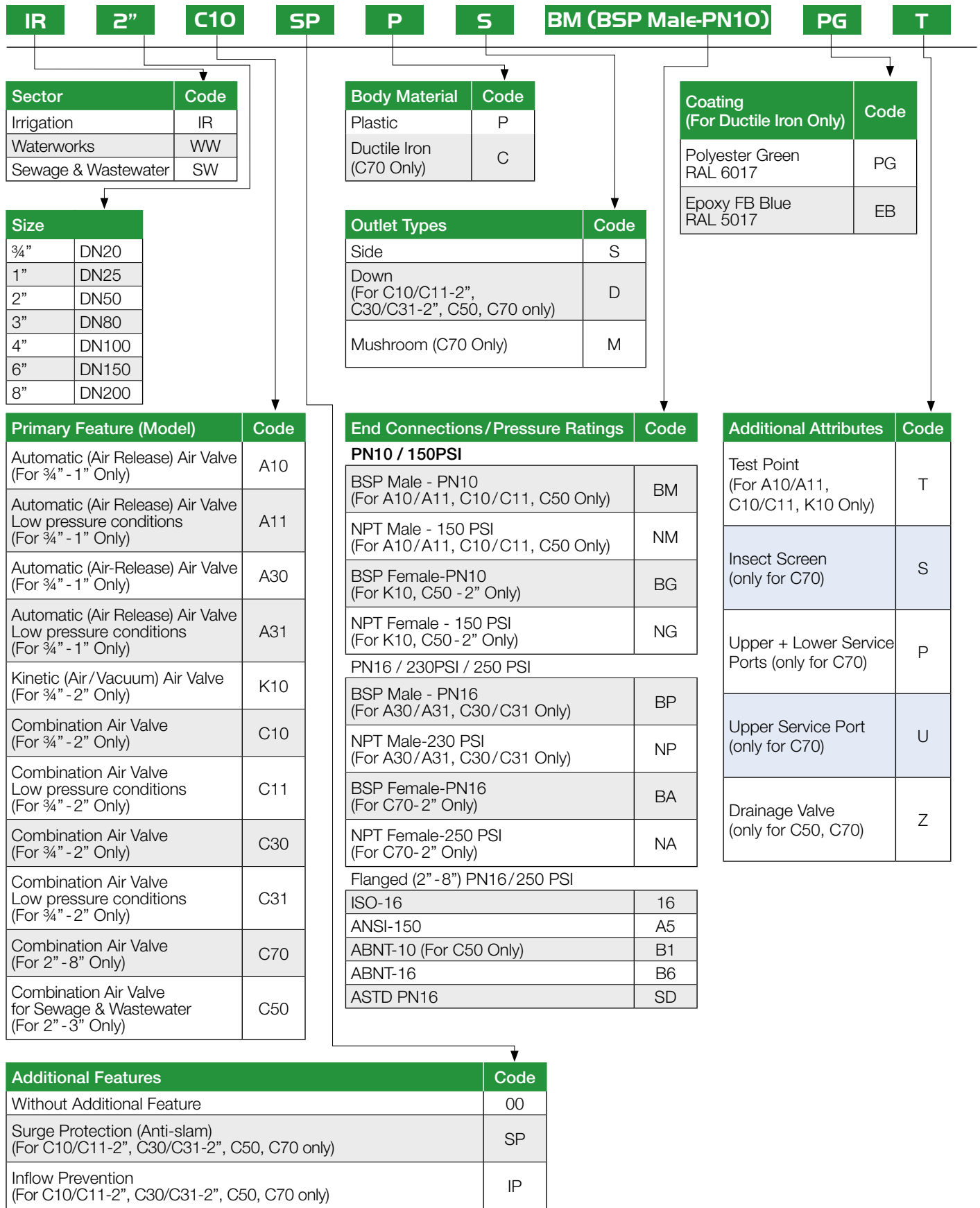
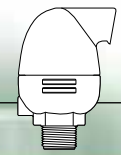
- Body material – Glass-reinforced Polyamide
- Inlet sizes - DN20, DN25, DN50 (¾", 1", 2")
- Connections - Threaded Male BSPT / NPT
- Outlet – Downwards
- Pressure rating - ISO PN10/16, ANSI 150
- Operating pressure range: 0.1 – 10/16 bar, 1.5 – 150/230 psi
- Operating temperature: Water up to 60°C
- Benefits – higher air flow during air relief and intake, effective automatic air release, low pressure sealing

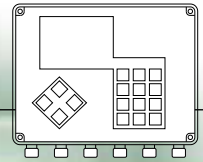


Combination Air Valves - C70, C70-SP

- Body Material and coating - cast ductile Iron, baked Polyester Green
- Inlet sizes :DN50, DN80, DN100, DN150 (2", 3", 4", 6")
- Connections - Threaded Female (2") BSPT / NPT, Flanged ISO PN16 / ASME ANSI 150
- Outlets – Sideways, downwards, mushroom configuration
- Benefits – Higher air flow during air relief and intake, effective automatic air release, low pressure sealing, minimal spray effect during air release, built-in surge protection (anti-slam feature), easy installation.







IR-BIC Series

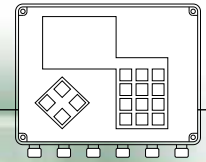
BERMAD's line of irrigation controllers provides a wide range of monitoring, control and analysis solutions for a wide range of irrigation applications. The BERMAD BIC Series allows for healthier plants and better yields, through the use of efficient management tools for applying nutrients and water to where they are needed most.

The BIC Series gives the user the management tools for efficient use of resources such as water, energy, chemicals, and manpower and is cost effective.

Typical Application

- Reservoir management
- Pump stations control
- Filter stations
- Water and pressure monitoring
- Chemical injection
- Emission devices control
- Environmental monitoring
- Irrigation control





■ Modular Hardware:

- Local DC or AC outputs and digital inputs
- Single Cable, Two-Wire
- Radio
- Weather monitoring and evapotranspiration control
- pH/EC monitoring and control
- Analog inputs

■ Irrigation:

- Multiple irrigation programs and fields including pumps, filters, chemical injectors, and valves can be define in a single controller
- Water dosage by time, volume, volume per area, and evapotranspiration
- Irrigation by days of the week or cycle of days
- Single cycle or pulse irrigation
- Start by time, manually, and/or physical or environmental conditions
- Each program allows the control of single valve, sequence of valves and/or groups of valves
- Hydraulic considerations for system protection
- Managing multiple water sources including pump stations with multiple pumps in each location, storage tanks and reservoirs

■ Chemical injection:

- Local and multiline (central) injection sites.
- Chemical dosage modes:
 - Continuous
 - Concentration
 - Proportional
- Three stage injection: Pre-water, injection, post water

■ Filtration management:

- Local and multiline filter stations sites
- Flush by time, pressure differential (PD), or both time and PD
- Adjustable parameters
- "Endless looping" detection and prevention
- Accumulation of flush cycles by time, PD, and manual

■ Alarms:

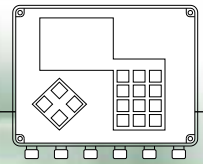
- High flow, low flow, leaks, pipe brakes, low pressure
- Chemical leakage, injector malfunction
- PD sensor failure
- Low battery, no AC power (For AC controllers)

■ Internet Communication Channels:

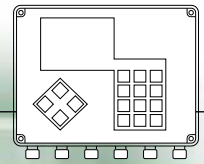
- USB or GSM modem operating on most common cellular networks
- Ethernet cable
- E-mail notifications sent directly from local controller to assigned subscriber

■ General:

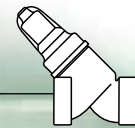
- Multi language controller
- Large graphic LCD and full numeric keyboard
- Multi-level programming to fit User Interface (UI) to specific application and user
- Conditions system allows start, stop, enable or disable programs
- Detailed event log for all system events



Primary Features	Secondary Features	Accessories	Uniliner		550	
			Uniliner RF	Uniliner 2W	BIC 550	
Form of irrigation	Time				✓	
	Volume				✓	
	SMART Control	Weather Station				
		Sensor				✓
		Flow/pressure Monitoring				
		ET				
	Volume/Area (In/Sqr Ft)				✓	
Output type (Valves, pumps, etc.)	AC					
	DC (Latch)	Radio	✓		✓	
		Two-Wire		✓		
		Controller Direct			✓	
	DC (Continues)					
Input type (Sensors, water meter, etc.)	Local	Dry Contact			✓	
		Analog				
	Remote	Dry Contact	✓	✓		
		Analog				
Power source	110VAC / 220VAC		✓	✓		
	Solar + battery		✓	✓	✓	
	Batteries (D Size)					
Central Control			✓	✓	✓	
Communication	Cellular				✓	
	Radio					
Number of outputs			8-32	8-32	2-16	
Number of digital inputs			8-16	8-16	4	



BIC 1000				BIC 2000			BIC 2500		
DC	AC	RF	2W	AC/DC	RF	2W	AC/DC	RF	2W
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
				✓	✓	✓	✓	✓	✓
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				✓	✓	✓	✓	✓	✓
12-32	12-36	12-32	12-32	16-250	16-250	16-250	16-1000	16-1000	16-1000
4	4	4	4	8-64	8-64	8-64	8-1000	8-1000	8-1000



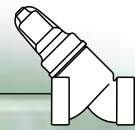
PRV Series

The BERMAD Adjustable Direct Acting Pressure Reducer is actuated by a pressure responsive diaphragm, which seeks to reach equilibrium between hydraulic and set spring force. The BERMAD Model PRV is built of reinforced plastic that endows it with excellent hydraulic performance capabilities and high mechanical strength. It reduces higher upstream pressure to lower constant downstream pressure regardless of fluctuating demand or varying upstream pressure.

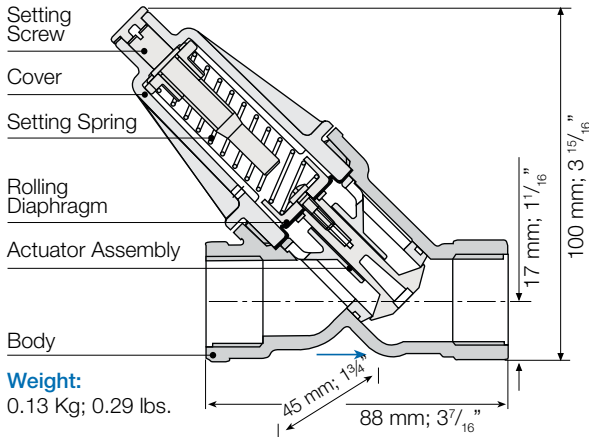


Features and Benefits

- Advanced Construction Materials
 - High mechanical strength
 - Proven pressure, flow and weather resistance
- Adjustable Direct Acting Pressure Reducer
 - Constant downstream pressure
 - Immediate response
 - Can be set per season and stage
- Plastic Body and Trim
 - Highly durable, chemical and cavitation resistant
 - Minimizes friction
- Unitized Rolling Diaphragm and Guided Plug
 - Accurate and stable regulation
 - Prevents diaphragm distortion
- User-Friendly Design
 - Can be installed at any orientation
 - Simple in-line inspection and service



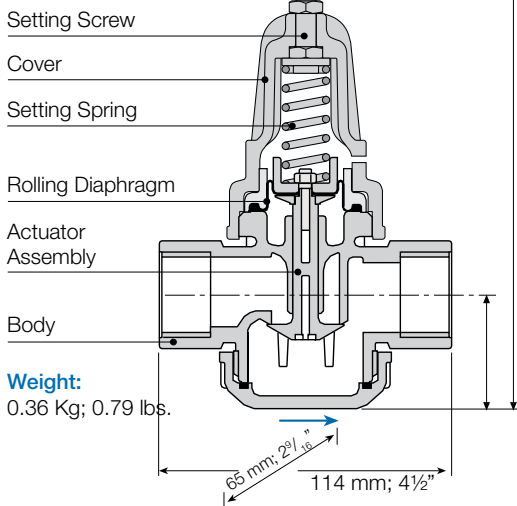
¾"- PRV



Technical Data

Size: ¾"; DN20
End Connections: Threaded
 Inlet: Female BSP; NPT
 Outlet: Female BSP; NPT or Male BSPT; NPT
Flow Range: 0.2-5 m³/h; 0.9-22 gpm
Pressure Ratings: 10 bar; 150 psi
Operating Pressure Range: 0.7-9 bar; 10-130 psi
Temperature: Water up to 50°C; 122°F
Materials:
Body, Cover and Actuator Assembly: Glass-Filled Nylon
Diaphragm: NBR (Buna-N), Reinforced Nylon Fabric
Spring: Stainless Steel

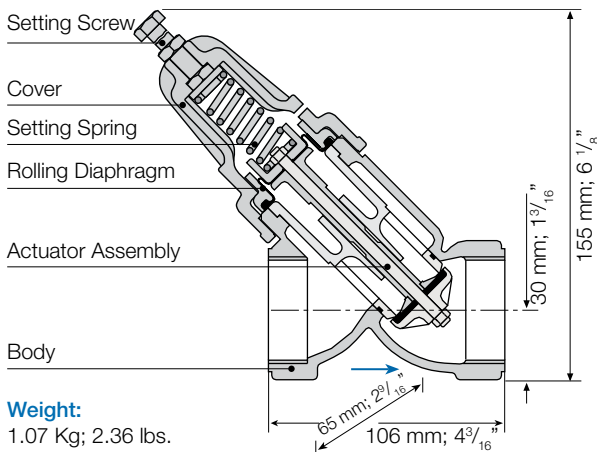
1"- PRV



Technical Data

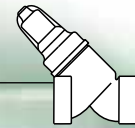
Size: 1"; DN25
End Connections: Female Threads BSP; NPT
Flow Range: 0.1-7 m³/h; 0.4-31 gpm
Pressure Ratings: 10 bar; 150 psi
Operating Pressure Range: 0.7-9 bar; 10-130 psi
Temperature: Water up to 50°C; 122°F
Materials:
Body, Cover and Actuator Assembly: Glass-Filled Nylon
Diaphragm: NBR (Buna-N), Reinforced Nylon Fabric
Spring: Stainless Steel

1½"- PRV



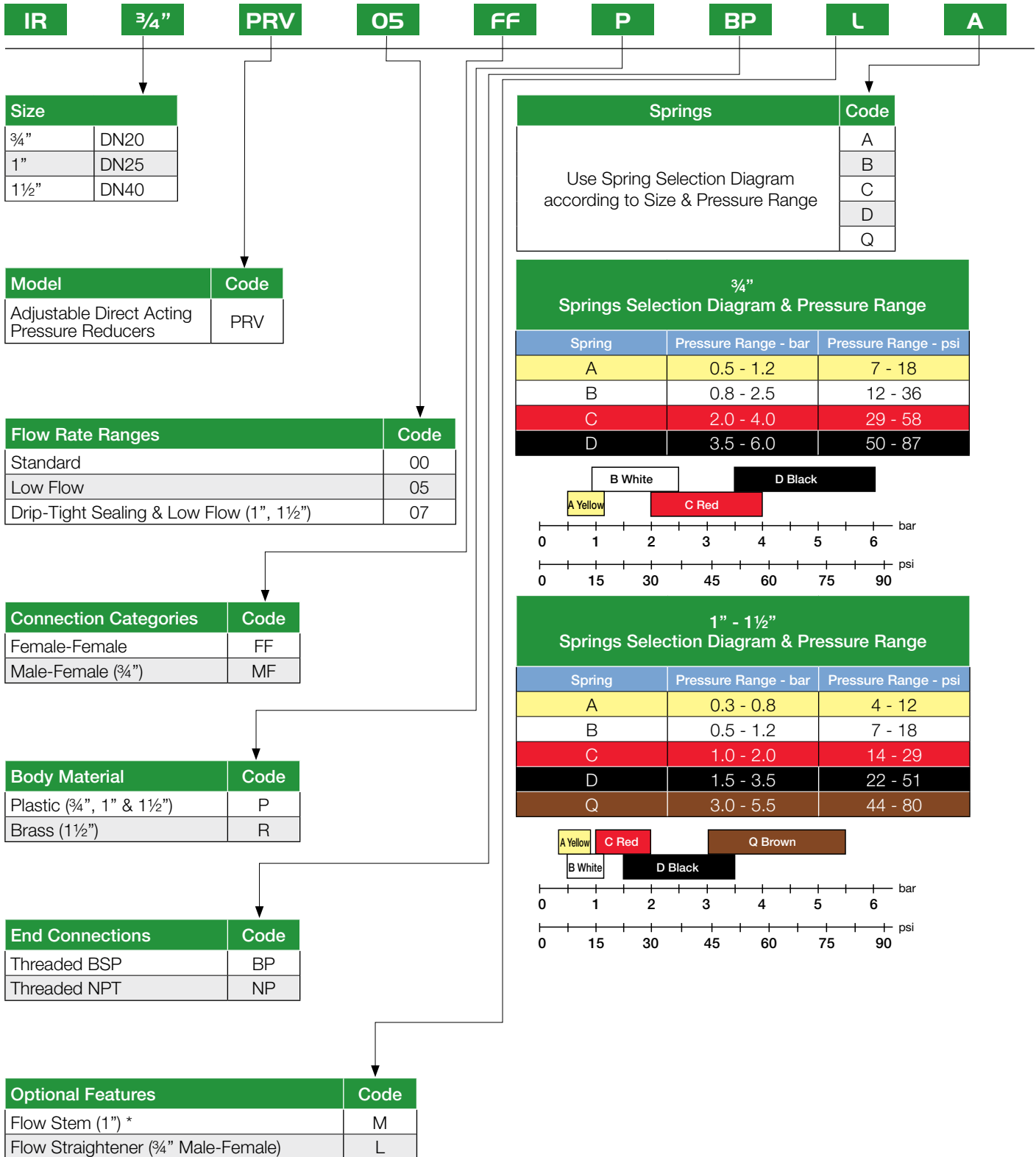
Technical Data

Size: 1½"; DN40
End Connections: Female Threads BSP; NPT
Flow Range: 0.45-18 m³/h; 2-80 gpm
Pressure Ratings: 10 bar; 150 psi
Operating Pressure Range: 0.7-9 bar; 10-130 psi
Temperature: Water up to 50°C; 122°F
Materials:
Body: Brass
Cover and Actuator Assembly: Glass-Filled Nylon
Diaphragm: NBR (Buna-N), Reinforced Nylon Fabric
Spring: Stainless Steel

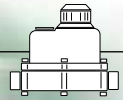


PRV Series - Ordering Guide

PRV Series



* 1" PRV 07 with Flow Stem is **Standard Flow** & Drip Tight Sealing



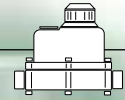
IR-MT Series

BERMADON - Automatic Shut-Off Water Metering Valves, for use in small-scale automatic irrigation and refilling of small tanks.
The BERMADon automatically delivers a preset quantity of water, after which it shuts itself off.
This original design saves water by actually metering flow rather than timing it.

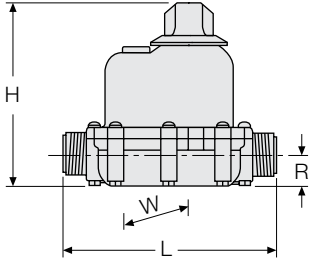
Features and Benefits

- No electricity required
- Simple design and high quality materials
- Maximum maintenance
- Extreme accuracy and dependability
- Easy installation and operation
- Metered water delivery during irrigation cycle unaffected by pressure fluctuations
- Can be installed in any position





Dimensions & Weights

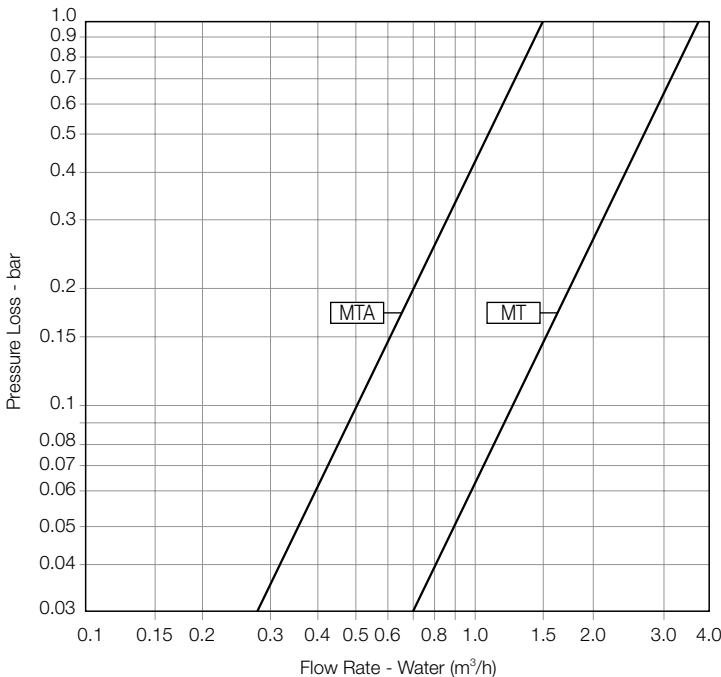


Size	Inch	¾"	1"
L	mm	166	166
H	mm	145	145
W	mm	100	100
R	mm	25	25
Weight	Kg	0.60	0.65

Flow Rate & Dial Capacity

Valve Category	Size		Nominal Flow Rate (m³/h)	Flow Rate (m³/h)		Dial Capacity	Graduation (liters)
	¾"	1"		Min	Max		
MT	•	•	3.0	0.5	5.0	100 Liter	2.5
						1000 Liter	25
						2000 Liter	50
						4-m³	100
						10-m³	250
						20-m³	500
MTA	•	•	1.5	0.1	2.0	50 Liter	1
						500 Liter	10
						2000 Liter	50
						4-m³	100
						8-m³	200

Flow Chart



Technical Data

Sizes: ¾" & 1"

End Connections: Male Threads BSP or NPT

Pressure Rating: ISO: PN6 ANSI: Class 90

Operating Pressure Range: 0.7-6 bar (10-90 psi)

Valve Category: MT - Normal flow

MTA - Low flow

Temperature Range: Water up to 80°C (180°F)

Accuracy of dosing: 2% of the max scale valve plus 4% of the set volume.

Meets ISO 7714 Class 3 requirements

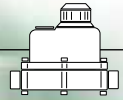
Materials:

Base, Housing and Gear: Plastic

Shafts and Springs: Stainless Steel

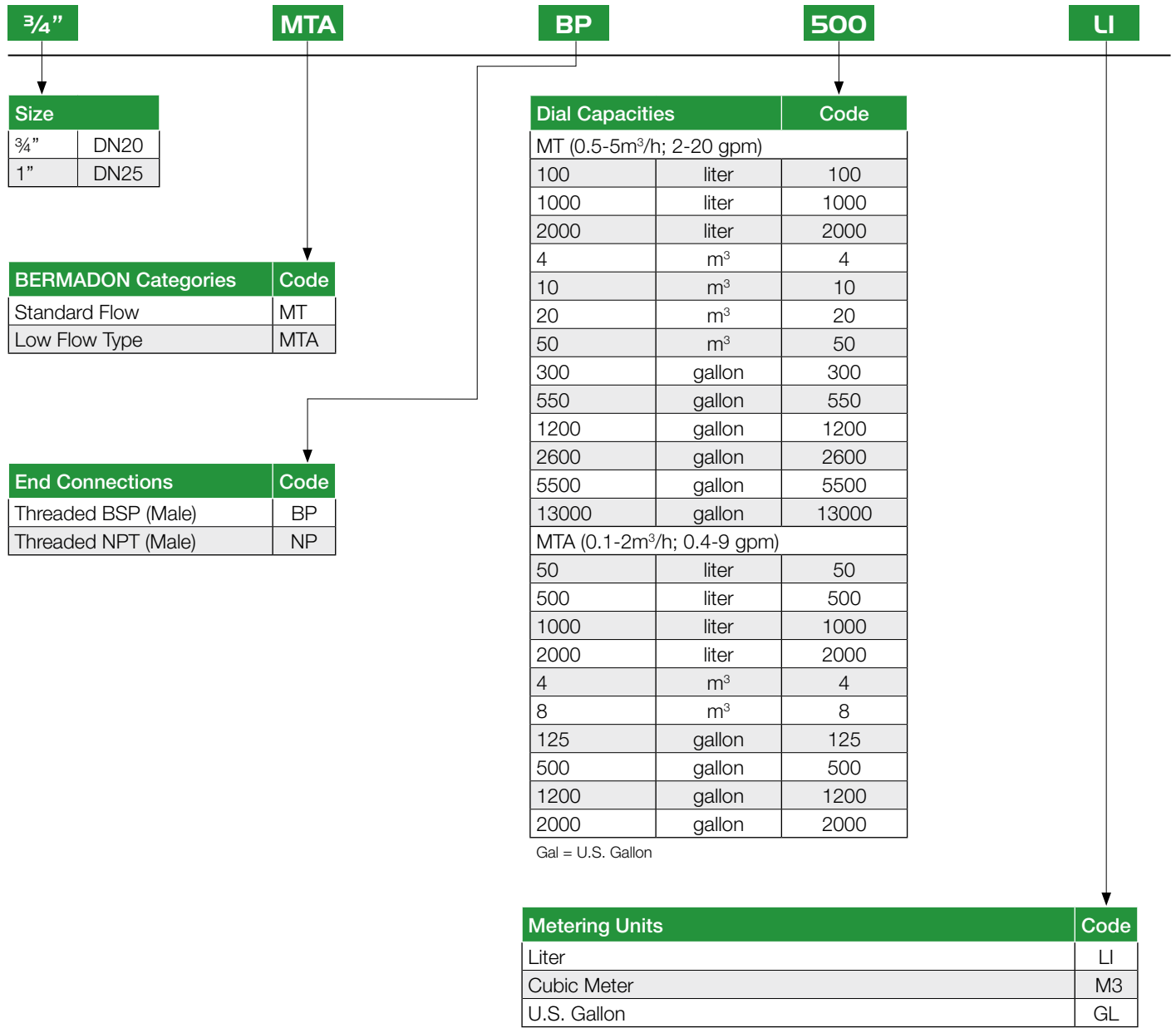
Seals: EPDM and NBR

BERMAD Irrigation



MT Series - Ordering Guide

MT Series





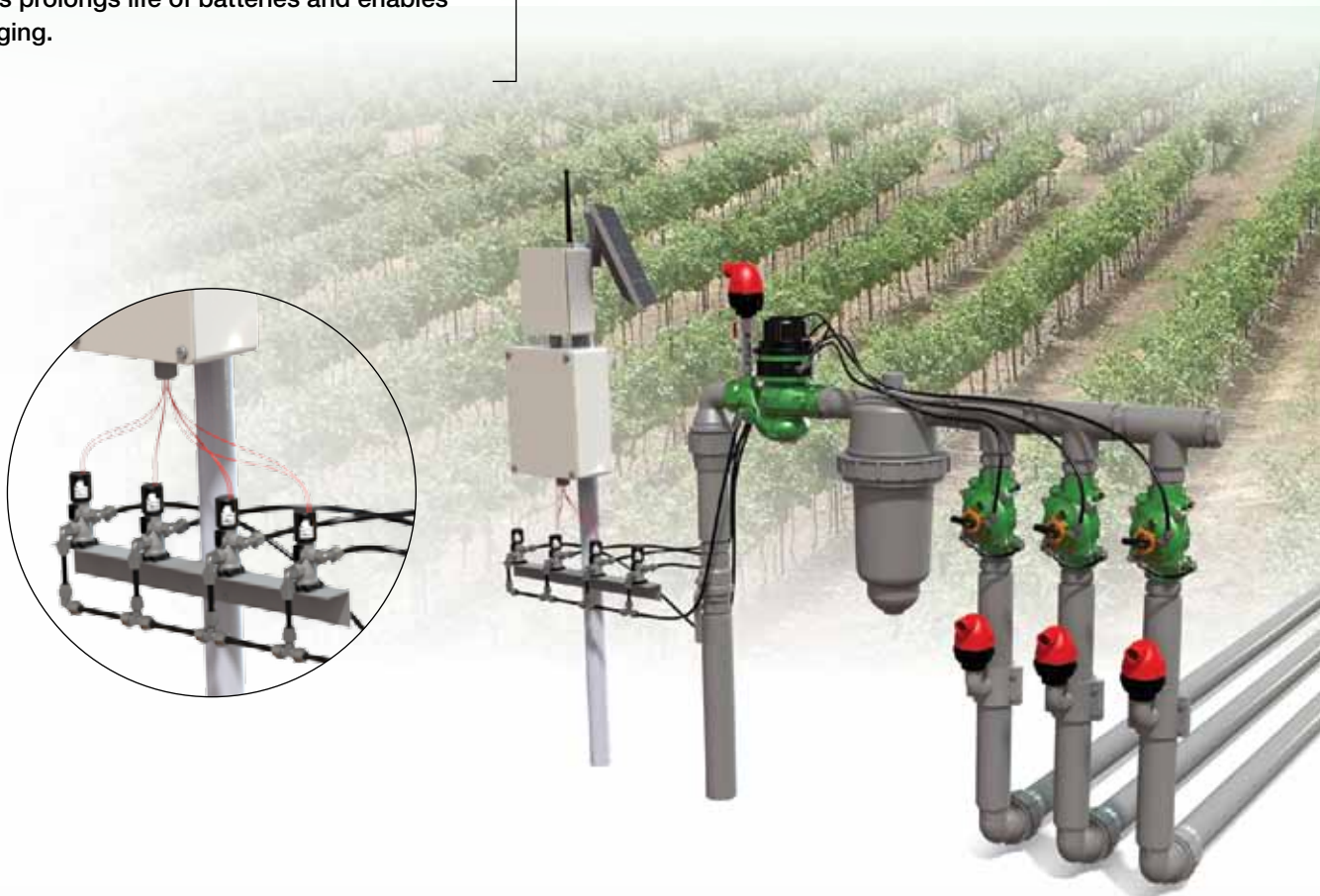
S-Series Continuous Current Solenoids

BERMAD Continuous Current Solenoids are specially designed for reliable long life service in irrigation systems. They excel in their low power consumption and low sensitivity to dirt and voltage variations and are compliant with all Continuous Current Controllers on the market.



Latching Solenoids Series

BERMAD Latching Solenoids are specially designed for reliable long life service in irrigation systems controlled by Battery Operated Controllers. The Latching Solenoids consume power only when switching positions, using a very short electric impulse. This prolongs life of batteries and enables solar recharging.





2-Way Solenoid Actuator

S-390-2W

The BERMAD S-390-2W is a compact 2-Way, Normally Closed, Solenoid Actuator. It is applicable directly to the valve cover or with a 2-Way base that enables combining the S-390-2W in a variety of 2-Way control circuits.

Electrical Data

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Resistance ohm@20°C; 68°F
			Inrush	Hold	
S390-2W-24VAC-R	Red/Red	1.7	0.25	0.125	37.5
S390-2W-24VAC-D	Red/Orange	2.2	0.13	0.13	*
S390-2W-24VDC	Black/Black	3.6	0.18	0.18	156
S390-2W-12VDC	Blue/Blue	4.0	0.33	0.33	36

* Coil resistance in this coil can not be measured



3-Way Solenoid

S-390-3W

The BERMAD S-390-3W is a compact 3-Way Solenoid. It can control valves independently or in combination with other control circuit accessories. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.

Electrical Data

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Resistance ohm@20°C; 68°F
			Inrush	Hold	
S-390-3W-24VAC-D NO	Red/Orange	2.2	0.13	0.13	37.5
S-390-3W-24VAC-D NC	Orange/Blue	3.5	0.20	0.20	*
S-390-3W-24VAC-R NO	Red/Red	2.9	0.46	0.24	21
S-390-3W-24VDC NO & NC	Black/Black	4.2	0.17	0.17	135
S-390-3W-12VDC NO & NC	Blue/Blue	4.0	0.33	0.33	36

* Coil resistance in this coil can not be measured

Connections:

N.O.:

- Actuator Port - Pressure
- 1- Vent

N.C.:

- Actuator Port - Vent
- 1- Pressure
- 2- Valve Control Chamber



3-Way Solenoid with Hydraulic Base

S-400-3W

The BERMAD S-400-D-3W-BB is a compact 3-Way Solenoid Pilot Valve that can control valves independently or in combination with other control circuit accessories. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.

Electrical Data

Actuator Type	Cable Color	Power (Watt)	Current (Amp)		Resistance ohm@20°C; 68°F
			Inrush	Hold	
S400-24VAC-D-NO	Red/Blue	3.5	0.20	0.20	*
S400-24VAC-D-NC	Red/Blue	3.5	0.20	0.20	*
S400-24VDC-NO	Black/Black	4.2	0.17	0.17	135
S400-12VDC-NO	Blue/Blue	4.0	0.33	0.33	36

* Coil resistance in this coil can not be measured

Connections:

N.O.:

- 1- Vent
- 2- Valve Control Chamber
- 3- Pressure

N.C.:

- 1- Pressure
- 2- Valve Control Chamber
- 3-Vent





Magnetic Latch Solenoid Actuator, 2-Way, 6-20VDC Latch, 2- Leads

S-392-2W

The BERMAD Model S-392-2W is a compact 2-Way Latching Solenoid Actuator. It is applicable directly to the valve cover or with a 2-way base that enables combining it in variety of 2-way control circuits.

Electrical Data:

Voltage Range: 6-20 VDC
Coil Resistance: 6
Coil Inductance: 90 mH
Pulse Width: 20-100 mSec.
Required Capacitor: 4700µF

Operation Modes (electrical connections):

+Red & -Black: Latch Position
 +Black & -Red: Released Position



Magnetic Latch Solenoid with Hydraulic Base

3-Way, 9-40VDC Latch, 2- Leads

S-402-3W

The BERMAD Model S-402-3W can control valves independently or in combination with other control circuit accessories. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.

Electrical Data:

Voltage Range: 9-40 VDC
Coil Resistance: 6
Coil Inductance: 90 mH
Pulse Width: 20-100 mSec
Required Capacitor: 4700µF

Operation Modes (electrical connections):

+Red & -Black: Solenoid vents
 +Black & -Red: Solenoid pressurizes

Pressure & Flow Data:

Operating Pressure Range: 0-10 bar
Base Orifice Diameter: 2.2 mm
Base Flow Factor:
 Kv = 0.12 m³/h @ 1 bar ΔP; Cv = 0.14 GPM @1 psi ΔP

Connections:

1- Vent 2- Valve Control Chamber 3- Pressure



Dry Magnetic Latch Solenoid with Isolating Membrane & Hydraulic Base

3-Way, 12VDC Latch, 2/3- Leads

S-982/5-3W

The BERMAD Model S-982/5-3W actuator is neutralized from water damage by a membrane, which hermetically isolates it from the water. It can control valves independently or in combination with other control circuit accessories. The hydraulic base features a manual override and consists of a bracket for attaching to the valve or to a solenoid manifold.

Electrical Data:

Voltage Range: 12-50 VDC
Coil Resistance: 4.2
Pulse Width: 20-100 mSec.
Required Capacitor: 4700µF

Operation Modes (electrical connections):

+ Red & - Black: Solenoid vents
 + Black & - Red: Solenoid pressurizes

Pressure & Flow Data:

Operating Pressure Range: 0-10 bar
Base Orifice Diameter: 2.2 mm
Base Flow Factor:
 Pressure port Kv = 0.12 m³/h @ 1 bar ΔP
 Cv = 0.14 GPM @1 psi ΔP
 Exhaust port Kv = 0.14 m³/h @ 1 bar ΔP
 Cv = 0.16 GPM @1 psi ΔP

Connections:

1- Vent 2- Valve Control Chamber 3- Pressure



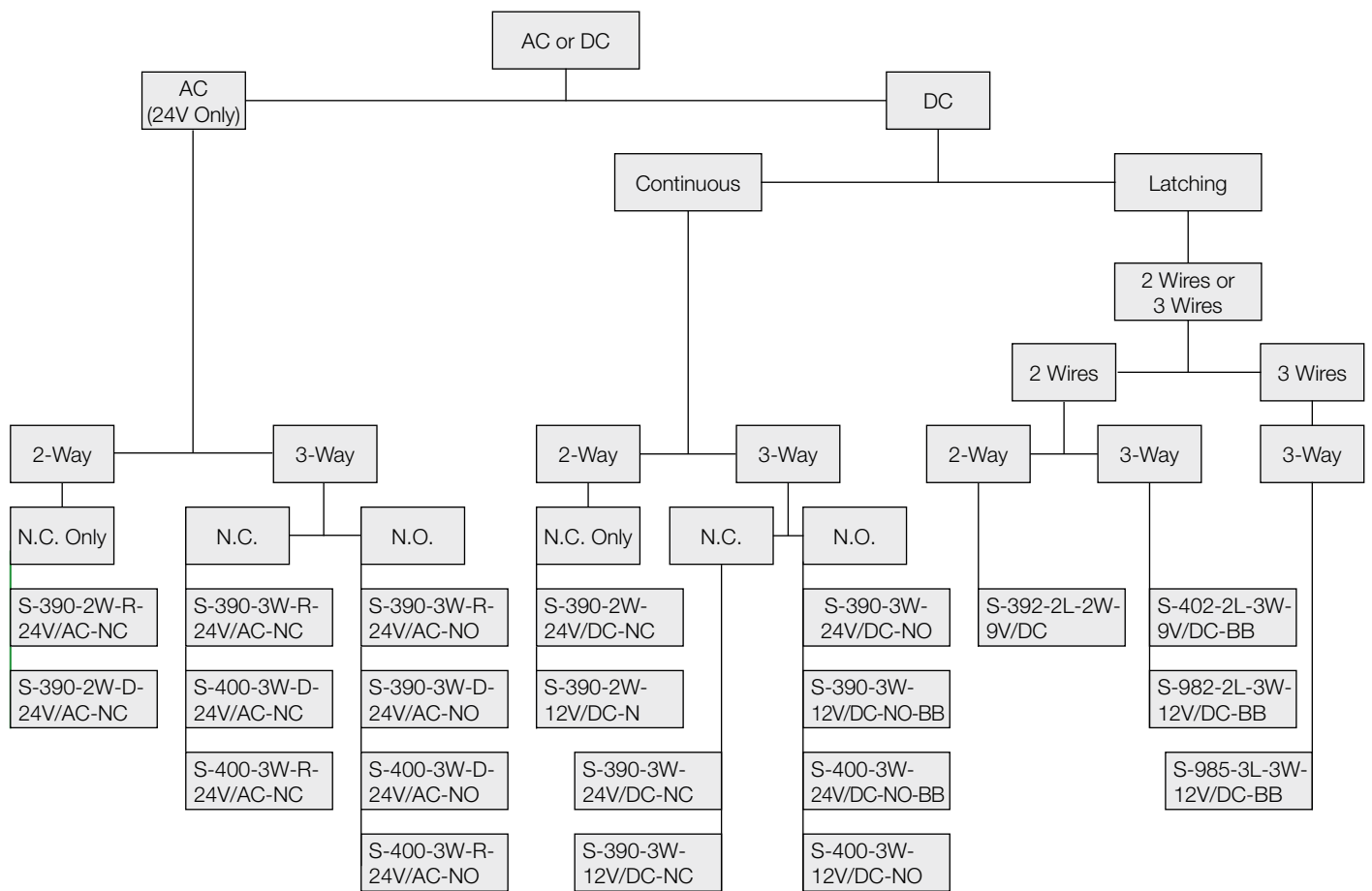


Solenoid Selection Guide

The automation design is an integral part of the irrigation project design file. In order to help in the selection process of the most suitable solenoids for a given project, several questions need to be answered. Following the chart below, will guide you to the desired solenoid model. Please check selected solenoid specifications in the following pages, to confirm its suitability to the project conditions.

Please refer to the following questions for best navigation:

- **Operating Current:** Alternating Current (AC) or Direct Current (DC)
- **Solenoid Logic:** 2-Way or 3-Way
- **Actuator Type:** Continuous Current or Latching
- **Solenoid Normal Position:** Normally Open or Normally Closed
- **Controller Requirements:** Two Wires or Three Wires



Notes:

- To get a 3-Way controlled N.C. main valve, use a N.O. 3-Way solenoid and vice versa.
- S-400 models include bigger orifice diameter than S-390, which means quicker action.
- The S-982 and S-985 actuators are isolated from the water.
- Actuators with the suffix 'R' are suitable to areas with high lightning's probability
- Calculate wires cross section in accordance to:
 - System pressure conditions
 - Solenoids consumption, quantity & distance



BERMAD Mini Pilots - Plastic

	Model Code	Description
	PC-Sharp-X-P	3-Way Sharp Multi-Propose Mini Pilot - Plastic
	PC-Sharp-XD-P	3-Way Differential Mini Pilot Valve - Plastic
	PC-20-A-P	2-Way Pressure Reducing Mini Pilot Valve - Plastic
	PC-2D-A-P	2-Way Differential Pressure Reducing Mini Pilot Valve - Plastic
	PC-S-A-P	2/3-Way Mini Pilot Valve "Servo" - Plastic
	PC-SD-A-P	2/3-Way Differential Pressure Sensing/Flow Pilot Valve "Servo" - Plastic
	PC-30-A-P	2-Way Pressure Sustaining Mini Pilot Valve - Plastic
	PC-3Q-A-P	2-Way Pressure Relief Mini (Quick Type) Pilot Valve - Plastic
	PC-70-P	2-Way Flow Pilot Valve (Paddle Type)- Plastic

BERMAD Mini Pilots - Metal

	Model Code	Description
	PC-Sharp-X-MP	3-Way Multi-Propose Mini Pilot Valve
	PC-20-A-MP	2-Way Pressure Reducing Mini Pilot Valve - Metal-Plastic Cover
	PC-2D-A-MP	2-Way Differential Pressure Reducing Mini Pilot Valve - Metal-Plastic Cover
	PC-S-A-MP	2/3-Way Mini Pilot Valve "Servo" Metal-Plastic Cover
	PC-SD-A-MP	2/3-Way Differential Pressure Sensing/Flow Pilot Valve "Servo" Metal-Plastic Cover
	PC-30-A-MP	2-Way Pressure Sustaining Mini Pilot Valve Metal-Plastic Cover
	PC-3D-A-MP	2-Way Differential Sustaining Mini Pilot Valve Metal-Plastic Cover
	PC-3Q-A-MP	2-Way Pressure Relief Mini (Quick Type) Pilot Valve Metal-Plastic Cover
	PC-70-M	2-Way Flow Pilot Valve (Paddle Type) - Metal



BERMAD Control Tube Fittings

	Model Code	Description
	FT 88	TUBE STRAIGHT CONNECTOR 8mm - 8mm
	FT 18	STRAIGHT CONNECTOR 1/8" - 8mm
	FT 78	STRAIGHT CONNECTOR 1/4" - 8mm
	FT 28	ELBOW CONNECTOR 1/8" - 8mm
	FT 58	ELBOW CONNECTOR 1/4" - 8mm
	FT 38	1/8" NPT MALE PLUG
	FT 34	1/4" NPT MALE PLUG
	FT 32	3/8" NPT MALE PLUG
	FT 30	1/2" BSPT MALE PLUG
	FT 11	BUSHING MALE-FEMALE 1/8" - 1/8"
	FT 48	BUSHING MALE-FEMALE 1/4" - 1/8"
	FT 98	T-CONNECTOR FOR TUBE 8mm - 8mm - 8mm
	FT 98/1	T-CONNECTOR FOR TUBE 8mm - 1/8" - 8mm
	FT 98/2	T-CONNECTOR FOR TUBE 8mm - 8mm - 1/8"
	FT 08	COUPLER FOR 8mm TUBE

Bermad valves order online purchase irrigationglobal.com

Contact us by email for consultation and orders



