



## Integrated Irrigation Management Solutions



**BERMAD Irrigation**

**Product Guide**

Effective: 2019

Water Control Solutions



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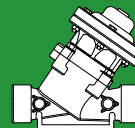
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**NEW**

## IR-100-DC Series



The BERMAD IR-100-DC Series Valves are double chambered hydraulically operated valves which provide: Isolated and protected diaphragm, Stable and accurate regulation performances, 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-100-DC Series are now upgrading the best irrigation valves in the world to also be double chamber, available in the range: Oblique (Y) - 1½", 2", 2"L, 2½", 3"; Angle - 2", 3"; "T" & Double (D) "T" patterns - 3"

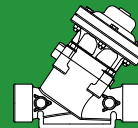
### Features and Benefits

- Line Pressure Driven
- Double Chambered Design
  - Requires low actuation pressure
  - High closing force
  - Protected diaphragm
  - Spring isolated from water
- User-Friendly Design
  - Simple structure and maintenance

### Typical Applications

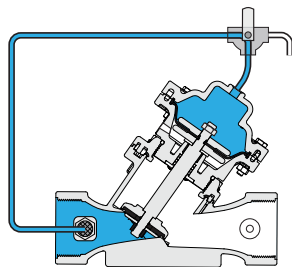
- Drip Systems
- Sprinklers & Micro-Sprinklers
- Greenhouses
- Distribution Line Flush-'n-Stop
- Flooding Tables Drainage (with External Pressure)
- Irrigation Machine Line Flush-'n-Stop





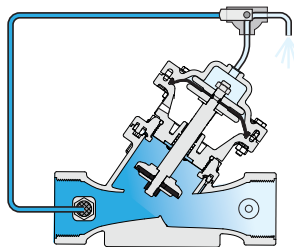
## Principle of Operation (on/off)

### 3-Way Control



**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.

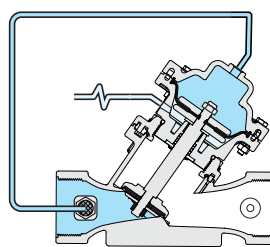


**Open Position**

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.

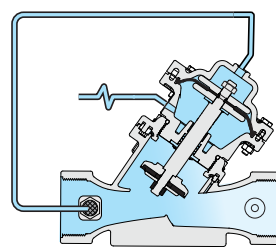
### 3-Way Control

#### Normally Closed Valve with Hydraulic Power Opening



**Closed Position**

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.



**Open Position**

## Technical Specifications

### Available Patterns & Sizes:

Oblique (Y) - 1½"-3"; DN40-DN80

Angle (A) - 2", 3"; DN50, DN80

"T" (T) & Double (D) patterns - 3"; DN80

### Available End Connections:

#### Threaded:

Female BSP-T/NPT (1½"-3"; DN40-DN80)

Male BSP-F (2" & 2½"; DN50 & DN65)

#### Flanged: 3"

Universal Plastic or metal "Corona" ISO, ANSI, AS, JIS

PVC: 75mm, 90mm, 2.5", 3",

PVC "glue-in" adapters for cement welding

### Victaulic: 2", 3", 4"

Plastic grooved adapters

### 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:** NR
- **Seals:** NR
- **Spring:** Stainless Steel
- **Cover bolts:** Stainless Steel

## Flow Properties

Size	mm	40	50	50	50L	65	80	80	80	80	80	80
Pattern	Inch	1½"	2"	2"	2"L	2½"	3"	3"	3"	3"	3"	3"
		Y	Y	A	Y	Y	Y	A	T	TT	D	DD
KV		50	50	52	100	100	100	85	One side	Two sides	One side	Two sides
									95	130	90	200

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

Kv = m³/h @ ΔP of 1 bar

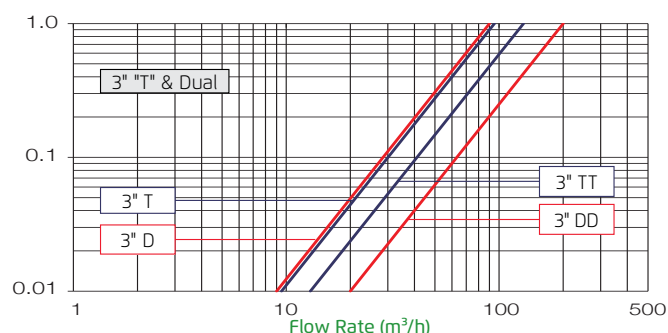
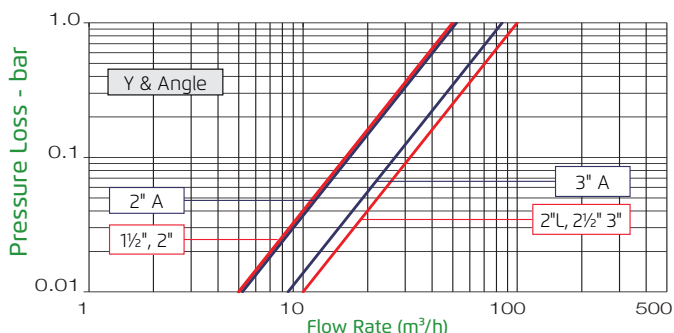
Cv = 1.155 Kv

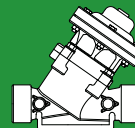
Q = m³/h

ΔP = bar

## Flow Chart

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





## Dimensions & Weights

NEW

Size Inch; DN	1½"; 40	2"; 50	2"; 50	2"L; 50L	2½"; 50L	3"; 80	3"; 80	
Pattern	Y DC	Y DC	Y DC	Y DC	Y DC	Y DC	Y DC	
End Connections	Rc 1½ (BSP.T)	G 2 (BSP.F)	Rc 2 (BSP.T)	Rc 2 (BSP.T)	G 2½ (BSP.F)	Rc 3 (BSP.T)	Universal Flanges	
	1½" NPT	---	2" NPT	2" NPT	---	3" NPT	Metal	Plastic
L (mm)	200	200	230	230	230	298	308	308
H (mm)	194	196	196	220	220	232	277	277
h (mm)	40	40	40	43	43	55	100	100
W (mm)	126	126	126	135	135	135	200	200
CCDV (lit)	0.13	0.13	0.13	0.17	0.17	0.17	0.17	0.17
Weight (Kg)	1.7	1.7	1.7	2.2	2.2	2.3	5.1	3.2

NEW

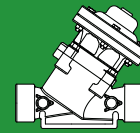
Size Inch; DN	2"; 50	3"; 80	3"; 80		3"; 80	3"; 80
Pattern	A DC	A DC	A DC		Dual DC	T DC
End Connections	Rc 2 (BSP.T)	Rc 3 (BSP.T)	Universal Flanges		Rc 3 (BSP.T)	Rc 3 (BSP.T)
	2" NPT	3" NPT	Metal	Plastic	3" NPT	3" NPT
L (mm)	115	133	138	138	200	133
H (mm)	266	286	291	291	302	287
h (mm)	126	118	123	123	116	119
W (mm)	115	135	200	200	135	135
CCDV (lit)	0.13	0.17	0.17	0.17	2x0.17	0.17
Weight (Kg)	1.7	2.3	5.1	3.2	4.6	2.8

CCDV = Control Chamber Displacement Volume

DC = Double Chamber

Other End Connections adapters are available on request.

For dimensions and weights of adapters or valve with adapters please consult with customer service



IR	3"	120-DC	55	Y
Size		End Connection		
1½"	DN40	Female Threaded	<b>NEW</b>	
2"	DN50	Female Threaded, Male Threaded	<b>NEW</b>	
2"L	DN50L	Female Threaded	<b>NEW</b>	
2½"	DN65	Male Threaded	<b>NEW</b>	
<b>3"</b>	<b>DN80</b>	<b>Female Threaded, Flanged, Grooved, Horn</b>	<b>NEW</b>	

Primary Features	Code
Basic Valve	100-DC
Solenoid Controlled Valve (Only 3 Way Control)	110-DC
<b>Pressure Reducing Valve (Only 3 Way Control)</b>	<b>120-DC</b>
Proportional Pressure Reducing Valve	120-PD
Pressure Reducing & Sustaining Valve (Only 3 Way Control)	123-DC
Pressure Sustaining Valve (Only 3 Way Control)	130-DC
Quick Pressure Relief Valve (Only 3 Way Control)	13Q
Level Control Valve	150
Level Control & Pressure Sustaining Valve (Only 3 Way Control)	153-DC

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Check Feature	20
Solenoid Control & Check Feature	25
N.O. Hydraulic Remote Control	50
N.C. With Adjustable Hydraulic Relay	54X
N.C. with Hydraulic Relay	54
<b>Solenoid Controlled</b>	<b>55</b>
Modulating Horizontal Float	60
Bi-Level Electric Float	65
Normally Closed (Hydraulic)	NC
Proportional Pressure Reducing	PD

Reduction Ratios		
	Valve Size	Reduction Ratio
1½" & 2"	DN40 & DN50	3.3
2"L, 2½" & 3"	DN50L, DN65 & DN80	2.7

Pattern	Available Sizes	Code
<b>Oblique</b>	<b>All Sizes</b>	<b>Y</b>
Angle	2" & 3"	A
Tee	3"	T
Dual Actuated Tee	3"	D

Construction Materials	Code
<b>Nylon Glass Filled (Standard)</b>	<b>P</b>
Polypropylene (Special Applications - 3"L/4" only)	PP

P	BP	4AC	PP	M
End Connections - Valve Body only (w/out adaptors)				Code
Threaded	<b>BSP Female Threaded</b>			<b>BP</b>
	NPT Female Threaded			NP
	BSP-F, Male Threaded (2" & 2½" ONLY)			BS
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")	FF
	Plastic Flanges - NPT Threaded Body (3")	FN
	Metal Flanges - "Corona" (3")	CC
	Metal Flanges - NPT Threaded Body (3")	CN
PVC Cemented (glue-in)	PVC Inner Adaptors 75mmx3" BSP (3")	BJ
	PVC Inner Adaptors 2.5"x3" NPT (3")	NJ
	PVC Adaptors 90-110mm, BSP Threaded Body (3")	T1
	PVC Adaptors 110-125mm, BSP Threaded Body (3")	T2
	PVC Adaptors 3"-4", NPT Threaded Body (3", 3"L)	T3
	PVC Adaptors 4", NPT Threaded Body (3", 3"L)	T4
*Grooved Adaptors	PVC Adaptors 160mm (6"R)	T6
	BSP Threaded Body (2", 2"L & 3")	VB
	NPT Threaded Body (2", 2"L & 3")	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 23

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
<b>24VAC</b>	-	<b>Normally Closed</b>	<b>4AC</b>
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

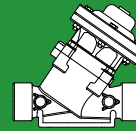
Tubing & Fittings	Code
<b>Plastic Tubing &amp; Fittings</b>	<b>PP</b>

Additional Attributes Unlimited Selection	Code
<b>3-Way Control Loop</b>	<b>X</b>
Auxiliary Closing Spring	K
Differential Pressure Duct (2"L-4")	D
External Control Pressure	e
Lifting Opening Spring	L
<b>Flow Stem</b>	<b>M</b>
Flow Over-the-Seat	O
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5
½" Anti Vacuum at Valve Downstream	7

Other additional attributes are optional.

Please consult Customer Service for further information.





## Hydraulic Control Basic Valve - Double Chamber

IR-100-DC

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

NEW



## Hydraulic Control Basic Valve - Double Chamber

with Manual Selector

IR-100-DC-Z

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

NEW



## Solenoid Controlled Valve - Double Chamber

with 3-Way Control

IR-110-DC-X

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

NEW



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Differential Valve - Double Chamber

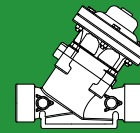
IR-120-DC-PD

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

NEW





### Pressure Reducing Valve - Double Chamber

with 3-Way Control, Manual Selector

IR-120-DC-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

Variable End Connections (adaptors) available - see End Connection table



NEW

### Pressure Reducing Valve - Double Chamber

with Solenoid Control 3-Way, Manual Selector

IR-120-DC-55-XZ

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table



NEW

### Quick Pressure Relief Valve - Double Chamber

IR-13Q-DC

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded

Size	Pattern	Connection
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF

Variable End Connections (adaptors) available - see End Connection table



NEW



## 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:**

Oblique (Y) - 1½", 2", 2"L, 2½", 3", 3"L, 4", 4"L, 6"R & 6" ;

Angle - 2", 3", 3"L, 4"

"T" & Double (D) "T" patterns - 3"

### 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

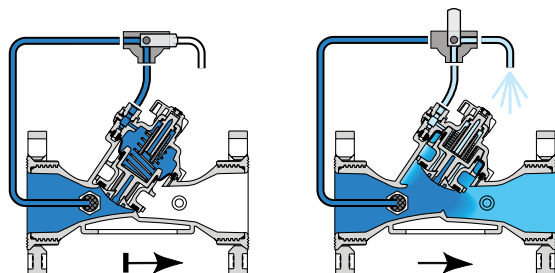
### Typical Applications

- Irrigation Control HeadIn
- In-Field Control Head
- LPS - Low Pressure Systems
- Energy Saving Irrigation Systems
- Computerized Irrigation Systems





## Operation 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.

## Technical Specifications

### Available Patterns & Sizes:

Oblique (Y) - 1½"-6"; DN40-DN150

Angle (A) - 2", 3", 3"L, 4"; DN50, DN80, DN80L, DN100

"T" (T) & Double (D) patterns - 3"; DN80

### Available End Connections:

#### Threaded:

Female BSP-T/NPT (1½"-3"L; DN40-DN80L)

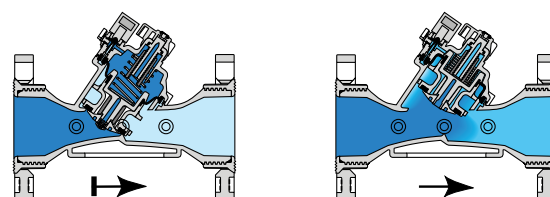
Male BSP-F (2" & 2½"; DN50 & DN65)

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

Universal Plastic or metal "Corona" ISO, ANSI, AS, JIS

**PVC:** 75mm, 90mm, 110mm, 2.5", 3", 4"

PVC "glue-in" adapters for cement welding



### 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.

**Victaulic:** 2", 3", 4"

Plastic grooved adapters

**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:** NR
- **Seals:** NR
- **Spring:** Stainless Steel
- **Cover bolts:** Stainless Steel

## Flow Properties

Size	DN Inch	40 1½	50 2	50 2	50L 2L	65 2½	80 3	80 3	80 3	80 3	80 3	80 3	80L 3L	80L 3L	100 4	100 4	100L 4L	150R 6R	150 6
Pattern		Y	Y	A	Y	Y	Y	A	T	TT	D	DD	Y	A	Y	A	Y	Y	Y
									One side	Two sides	One side	Two sides							
KV		50	50	50	100	100	100	85	95	130	90	200	200	190	200	190	340	340	400

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

Kv = m³/h @ ΔP of 1 bar

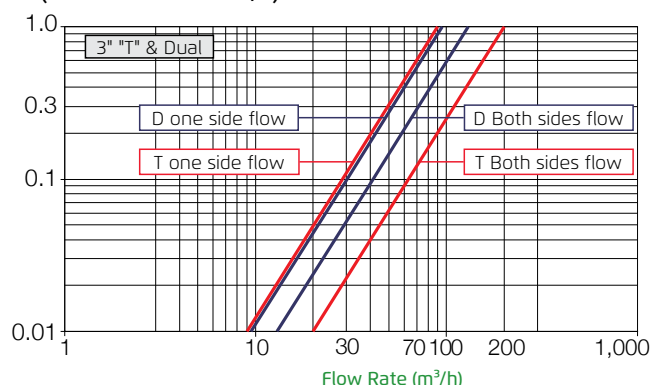
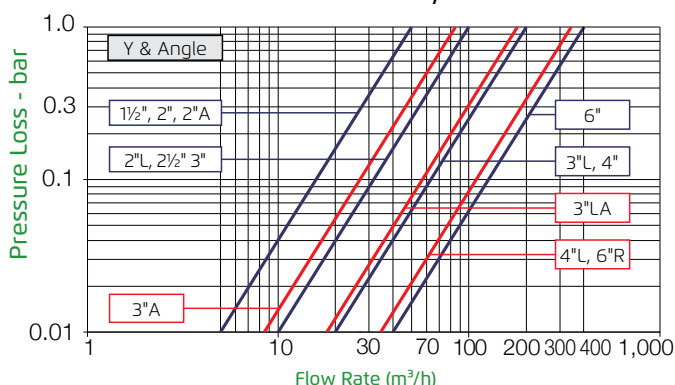
Q = m³/h

ΔP = bar

$$C_v = 1.155 K_v$$

## Flow Chart

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





## Dimensions & Weights

<b>Size Inch; DN</b>	<b>1½"; 40</b>	<b>2"; 50</b>	<b>2"; 50</b>	<b>2"L; 50L</b>	<b>2½"; 50L</b>	<b>3"; 80</b>	<b>3"; 80</b>
<b>Pattern</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>
<b>End Connections</b>	<b>Rc 1½ (BSP.T) 1½" NPT</b>	<b>Rc 2 (BSP.T) 2" NPT</b>	<b>G 2 (BSP.F) ---</b>	<b>Rc 2 (BSP.T) 2" NPT</b>	<b>G 2½ (BSP.F) ---</b>	<b>Rc 3 (BSP.T) 3" NPT</b>	<b>Universal Flanges</b>
L (mm)	200	230	230	230	230	298	308
H (mm)	173	173	173	187	187	199	244
h (mm)	40	40	40	43	43	55	100
W (mm)	97	97	97	135	135	135	200
CCDV (lit)	0.12	0.12	0.12	0.15	0.15	0.15	0.15
Weight (Kg)	1.1	1.2	1.2	1.47	1.47	1.6	4.4

<b>Size Inch; DN</b>	<b>3"L; 80L</b>	<b>3"L; 80L</b>	<b>4"; 100</b>	<b>4"L; 100L</b>	<b>6"; 150</b>
<b>Pattern</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y "Boxer"</b>
<b>End Connections</b>	<b>Rc 3 (BSP.T) 3" NPT</b>	<b>Universal Flanges</b>	<b>Universal Flanges</b>	<b>Universal Flanges</b>	<b>Grooved Ends</b>
		<b>Metal</b>	<b>Plastic</b>	<b>Metal</b>	<b>Plastic</b>
L (mm)	298	308	308	350	350
H (mm)	278	317	317	329	329
h (mm)	60	100	100	112	112
W (mm)	168	200	200	224	224
CCDV (lit)	0.62	0.62	0.62	0.62	0.62
Weight (Kg)	3	4.4	3.5	7.5	4.6

<b>Size Inch; DN</b>	<b>2"; 50</b>	<b>3"; 80</b>	<b>3"L; 80L</b>	<b>4"; 100</b>	<b>3"; 80</b>	<b>3"; 80</b>
<b>Pattern</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>Dual</b>	<b>T</b>
<b>End Connections</b>	<b>Rc 2 (BSP.T) 2" NPT</b>	<b>Rc 3 (BSP.T) 3" NPT</b>	<b>Universal Flanges</b>	<b>Universal Flanges</b>	<b>Universal Flanges</b>	<b>Universal Flanges</b>
		<b>Metal</b>	<b>Plastic</b>	<b>Metal</b>	<b>Plastic</b>	<b>Metal</b>
L (mm)	115	133	138	138	150	155
H (mm)	216	246	251	251	343	348
h (mm)	115	118	123	123	140	145
W (mm)	97	135	200	200	170	200
CCDV (lit)	0.12	0.15	0.15	0.15	0.62	0.62
Weight (Kg)	0.8	1.6	4.4	2.5	2.8	5.6

CCDV = Control Chamber Displacement Volume      DC = Double Chamber      Other End Connections adapters are available on request.  
For dimensions and weights of adapters or valve with adapters please consult with customer service



**IR**

**3"**

**120**

**55**

**Y**

**P**

**BP**

**4AC**

**PP**

**XZ**

Size	End Connection
1 1/2"	DN40 Female Threaded
2"	DN50 Female Threaded, Male Threaded
2"L	DN50L Female Threaded
2 1/2"	DN65 Male Threaded
<b>3"</b>	<b>DN80 Female Threaded, Flanged, Grooved, Horn</b>
3"L	DN80L Female Threaded, Flanged, Grooved or Glue in
4"	DN100 Flanged Grooved or Glue in
4"L	DN100 Flanged, Grooved <span style="background-color: red; color: white; padding: 2px;">NEW</span>
6"R	DN150 Flanged or Glue in <span style="background-color: red; color: white; padding: 2px;">NEW</span>
6"	DN150 Flanged or Grooved

Primary Features	Code
Basic Valve	105
Solenoid Controlled Valve	110
<b>Pressure Reducing Valve</b>	<b>120</b>
Pressure Reducing & Sustaining Valve	123
Pressure Sustaining Valve	130
Differential Pressure Sustaining Valve	136
Quick Pressure Relief Valve	13Q
Level Control Valve	150
Level Control & Pressure Sustaining Valve	153
Flow Control Valve	170
Flow Control & Pressure Reducing Valve	172
Strainer (3"L, 4")	<span style="background-color: red; color: white; padding: 2px;">NEW</span> 10F

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Closing and opening speed control	03
Accelerated Closing	04
Electric Valve, without Solenoid	05
Check feature	20
Solenoid Control & Check Feature	25
N.O. Hydraulic Remote Control	50
N.C With Adjustable Hydraulic Relay	54X
N.C. with Hydraulic Relay	54
<b>Solenoid Controlled</b>	<b>55</b>
Modulating Horizontal Float	60
Bi-Level Electric Float	65
Internal Feed & Bleed*	N

\* Internal Feed & Bleed options N1-N7 available according to specific Application Engineering definitions.

Pattern	Available Size	Code
<b>Oblique</b>	<b>(all sizes)</b>	<b>Y</b>
Angle	2", 3" & 3"L/4"	A
Tee	3"	T
Dual Actuated Tee	3"	D

Construction Materials	Code
<b>Nylon Glass Filled (Standard)</b>	<b>P</b>
Polypropylene (Special Applications - 3"L, 4" only)	PP

End Connections - Valve Body only (w/out Adaptors)		Code
Threaded	<b>BSP-T Female Threaded</b>	<b>BP</b>
	NPT Female Threaded	NP
	BSP-F, Male Threaded (2" & 2 1/2" ONLY)	BS
Grooved*	Victaulic (4"L, 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", 4"L, 6")	FF
	Plastic Flanges - NPT Threaded Body (3", 3"L, 4")	FN
	Metal Flanges - "Corona" (3", 3"L, 4", 4"L, 6"R)	CC
	Metal Flanges - NPT Threaded Body (3", 3"L, 4")	CN
PVC Cemented (glue-in)	PVC Inner Adaptors 75mmx3" BSP (3", 3"L)	BJ
	PVC Inner Adaptors 2.5"x3" NPT (3", 3"L)	NJ
	PVC Adaptors 90-110mm, BSP Threaded Body (3", 3"L)	T1
	PVC Adaptors 110-125mm, BSP Threaded Body (3", 3"L)	T2
	PVC Adaptors 3"-4", NPT Threaded Body (3", 3"L)	T3
	PVC Adaptors 4", NPT Threaded Body (3", 3"L)	T4
	PVC Adaptors 160mm (6"R)	T6
	*Grooved Adaptors	BSP Threaded Body (2", 2"L, 3", 3"L, 4")
NPT Threaded Body (2", 2"L, 3", 3"L, 4")		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 23  
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
<b>24VAC - Normally Closed</b>		<b>4AC</b>
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
<b>Plastic Tubing &amp; Fittings (standard)</b>	<b>PP</b>

Additional Attributes Unlimited Selection		Code
Servo (2/3-Way Control Loop)		b
<b>3-Way Control Loop</b>		<b>X</b>
Differential Pressure Duct (2"L-4")		D
External Control Pressure		e
Flow Stem		M
<b>Manual Selector</b>		<b>Z</b>
Low Preset Pressure (below 2 bar)		2
Plastic Pressure Test Point		5
1/2" Anti Vacuum at Valve Downstream		7

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





## Hydraulic Control Basic Valve

IR-105

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
6"	DN150	Y CC
		FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Hydraulic Control Valve

with Manual Selector

IR-105-Z

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
6"	DN150	Y CC
		FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Trio Solenoid Controlled Valve

with 2-Way Internal Control

IR-11T-N-2W

Solenoid S-390-T-2W

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		FF
		T Threaded
		D Threaded

NEW



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table



## Trio Latching Solenoid Controlled Valve

with 2-Way Internal Control

IR-11T-LS-N-2W

Solenoid S-392-T-2W, 6-20V/DC Latch

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		A FF
		T Threaded
4"	DN100	D Threaded
		A FF

Variable End Connections (adaptors) available - see End Connection table



NEW

## GreenApp Controlled Valve , Application Operated

IR-11T-GreenApp

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded

Size	Pattern	Connection
3"	DN80	Y FF
		A Threaded
		A FF
		T Threaded
4"	DN100	D Threaded
		A Threaded

Variable End Connections (adaptors) available - see End Connection table



NEW

## Hydraulic Control Valve, Normally Closed

with 3-Way Hydraulic Relay

IR-105-54-X

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	A Threaded
		Y FF
4"L	DN100L	A FF
		Y FF
6"R	DN150R	FF
		CC
6"	DN150	FF / Grooved
		VI

Variable End Connections (adaptors) available - see End Connection table





## Solenoid Controlled Valve

with 3-Way Control

IR-110-X

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
	A	Threaded
4"	DN100	Y FF
	A	FF
4"L	DN100L	Y FF
		CC
		Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table

## Latching Solenoid Controlled Valve

with 3-Way Control

IR-110-LS-X

Solenoid: S-982-3W / S-985-3W Latching, 12-50V/DC

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
	A	Threaded
4"	DN100	Y FF
	A	FF
4"L	DN100L	Y FF
		CC
		Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Valve

with 2-Way Control

IR-120-2W

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
	A	Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
	A	Threaded
4"	DN100	Y FF
	A	FF
4"L	DN100L	Y FF
		CC
		Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table





## Pressure Reducing Valve

with 3-Way Control, Manual Selector

IR-120-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Valve

with 2/3-Way (Servo) Control, Manual Selector

IR-120-bZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Valve

with 3-Way Control, Hydraulic Control and Manual Selector

IR-120-50-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table



### Pressure Reducing Valve

with 2/3-Way (Servo) Control, Hydraulic Control and Manual Selector

IR-120-50-bZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

### Pressure Reducing Valve

with 3-Way Control, 3-Way Hydraulic Relay, Normally Closed

IR-120-54-X

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

### Pressure Reducing Valve

with 2/3-Way (Servo) Control, 3-Way Hydraulic Relay, Normally Closed

IR-120-54-b

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table



## Pressure Reducing Valve

with 2-Way Solenoid Control

IR-120-55-2W

Solenoid S-390-T-2W

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y Threaded
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	Y FF
2"L	DN50L	Y Threaded			A FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
	A	Threaded			Y FF
		FF	6"R	DN150R	Y CC
	T	Threaded	6"	DN150	Y FF / VI
	D	Threaded			



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Valve

with Solenoid Control 3-Way

IR-120-55-X

Solenoid S-390-3W; S-400

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y Threaded
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	Y FF
2"L	DN50L	Y Threaded			A FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
	A	Threaded			Y FF
		FF	6"R	DN150R	Y CC
	T	Threaded	6"	DN150	Y FF / VI
	D	Threaded			



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing Valve

with 2/3-Way (Servo) Control, 3-Way Solenoid Control

IR-120-55-b

Solenoid S-390-3W; S-400

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y Threaded
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	Y FF
2"L	DN50L	Y Threaded			A FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
	A	Threaded			Y FF
		FF	6"R	DN150R	Y CC
	T	Threaded	6"	DN150	Y FF / VI
	D	Threaded			



Variable End Connections (adaptors) available - see End Connection table



## Pressure Reducing & Sustaining Valve

with 3-Way Control, Manual Selector

IR-123-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Pressure Reducing & Sustaining Valve

with 3-Way Control, Hydraulic Control and Manual Selector

IR-123-50-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI

Variable End Connections (adaptors) available - see End Connection table

## Pressure Sustaining Valve

with 3-Way Control, Manual Selector

IR-130-XZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		A FF
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
		CC
6"	DN150	Y FF / VI



Variable End Connections (adaptors) available - see End Connection table





### Pressure Sustaining Valve

with 3-Way Solenoid Control

IR-130-55-X

Solenoid S-390-3W; S-400

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y Threaded
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	A Threaded
2"L	DN50L	Y Threaded			FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
		A Threaded	6"R	DN150R	Y FF
	A	FF			CC
		T Threaded	6"	DN150	Y FF / VI
		D Threaded			



(\*) Standard 24V AC. For other voltage see Ordering Guide  
Variable End Connections (adaptors) available - see End Connection table

### Quick Pressure Relief Valve

IR-13Q

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y FF
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	Y FF
2"L	DN50L	Y Threaded			A FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
		A Threaded	6"R	DN150R	Y FF
	A	FF			CC
		FF	6"	DN150	Y FF / VI
		Y Threaded			



Variable End Connections (adaptors) available - see End Connection table

### Level Control Valve

with Modulating Horizontal Float

IR-150-N-60

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	Y Threaded	3"L	DN80L	Y FF
2"	DN50	A Threaded		A Threaded	FF
		Y Threaded	4"	DN100	Y FF
2"L	DN50L	Y Threaded			A FF
2½"	DN65	Y Threaded	4"L	DN100L	Y FF
3"	DN80	Y Threaded			CC
		FF			Grooved
		A Threaded	6"R	DN150R	Y FF
	A	FF			CC
		FF	6"	DN150	Y FF / VI
		Y Threaded			



Variable End Connections (adaptors) available - see End Connection table  
(\*) Optional IR-150-6L for low pressure applications, Available on request.



## Flow Control Valve

with Differential Pressure Duct and Manual Selector

IR-170-bDZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
6"	DN150	Y CC
		FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Flow Control Valve & Pressure Reducing Valve

with Differential Pressure Duct and Manual Selector

IR-172-bDZ

Size	Pattern	Connection
1½"	DN40	Y Threaded
2"	DN50	Y Threaded
		A Threaded
2"L	DN50L	Y Threaded
2½"	DN65	Y Threaded
3"	DN80	Y Threaded
		FF
	A	Threaded
		FF
	T	Threaded
	D	Threaded

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
4"	DN100	Y Threaded
		A Threaded
4"L	DN100L	Y FF
		CC Grooved
6"R	DN150R	Y FF
6"	DN150	Y CC
		FF / VI



Variable End Connections (adaptors) available - see End Connection table

## Strainer (Stone & Gravel Trap)

IR-10F

Size	Pattern	Connection
3"L	DN80L	Y Threaded
		FF
		CC

Size	Pattern	Connection
4"	DN100	Y FF
		CC



Variable End Connections (adaptors) available - see End Connection table


















## Additional Features & Options - Suffix Code

Code	Description
50-3W-P	Hydraulic Control (T Selector Shuttle Valve) - Plastic
50-2W-P	Hydraulic Control (2-Way Hydraulic Relay) - Plastic
54-3W-P	3-Way Hydraulic Relay (3W-HRV) ½" - Plastic
55	Solenoid Controlled
Z	Manual Selector
M	Flow Stem (For 1½" - 3")
M	Flow Stem (For 3"L - 4")
M	Flow Stem (For 6")
5*	Plastic Test Point

\* Plastic Test Point is Standard for all regulating valves.



## Add on Price for End Connections Adaptors - Kits / Packs

	Code	Description			
	<b>VB</b>	2" Grooved x BSPT Male Adaptor		<b>T2</b>	3"-3"L, PVC Glue-in Adaptors 110mm ID / 125mm OD
	<b>VN</b>	2" Grooved x NPT Male Adaptor		<b>T6</b>	6" PVC Glue-in Adaptors 160mm ID
	<b>BJ</b>	3"-3"L, PVC Inner 75mm x 3" BSP-T Male		<b>V3</b>	3"-3"L Victaulic Plastic Adaptors 3"
	<b>3"-FF</b>	3"-3"L Plastic Flange Assy		<b>V4</b>	Victaulic Plastic Adaptors, 4"
	<b>4"-FF</b>	4" Plastic Flange Assy			
	<b>4"L-FF</b>	4"L Plastic Flange Assy			
	<b>3"-CC</b>	3"-3"L Ductile Iron, "Corona" Flange Assy. 3"			
	<b>4"-CC</b>	4"-4"R, Ductile Iron, "Corona" Flange Assy. 4"			
	<b>4"L-CC</b>	4"-4"L, Ductile Iron, "Corona" Flange Assy. 4"			
	<b>6"R-CC</b>	6"-6"R, Ductile Iron, "Corona" Flange Assy. 6"			
	<b>T1</b>	3"-3"L, PVC Glue-in Adaptors 90mm ID / 110mm OD			





## End Connections

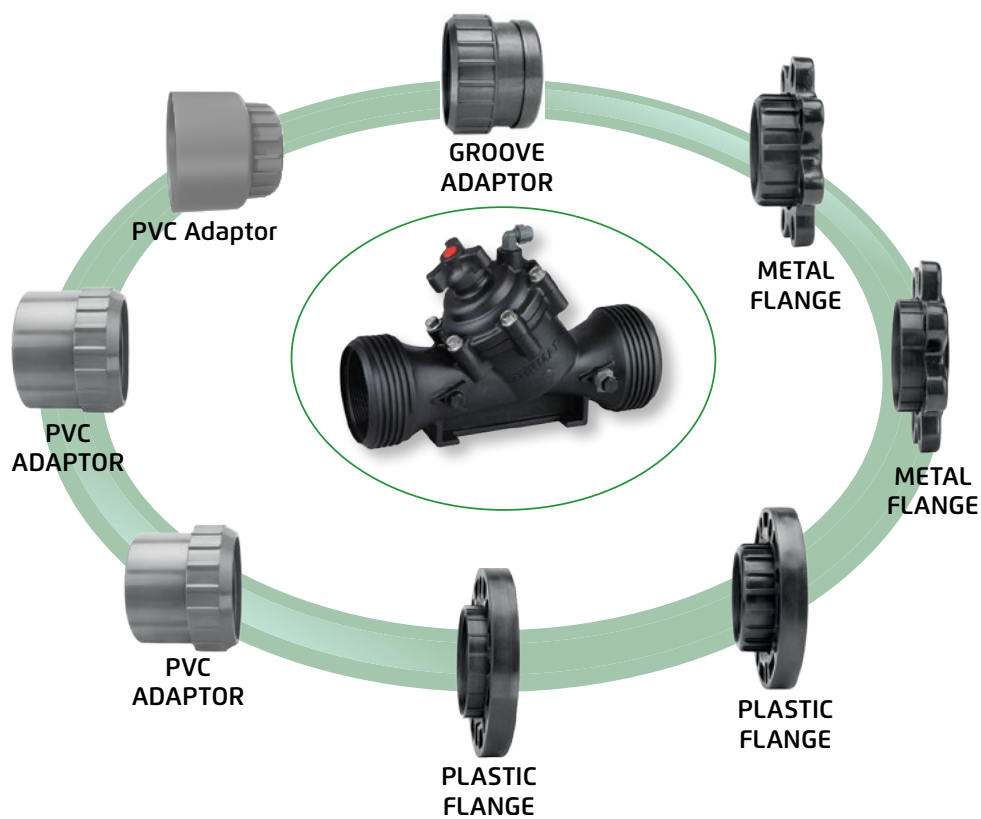
BERMAD develops and supplies a wide range of end connections for the 100 hYflow Series Valves.

These end connections provide full flexibility when designing and installing the valves.

Select your desired end connection option from the table on page 23:

- Plastic Flanges
- Metal Flanges
- Glue-In PVC Adaptors
- Grooved Adaptors

Adaptors can be ordered per valve (2 Kits) or in Packs of 6 - 12 kits.

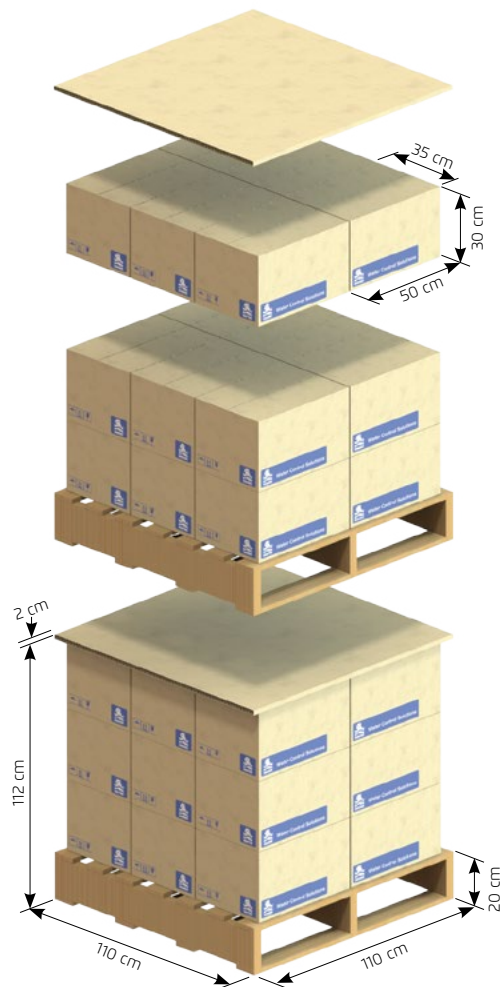
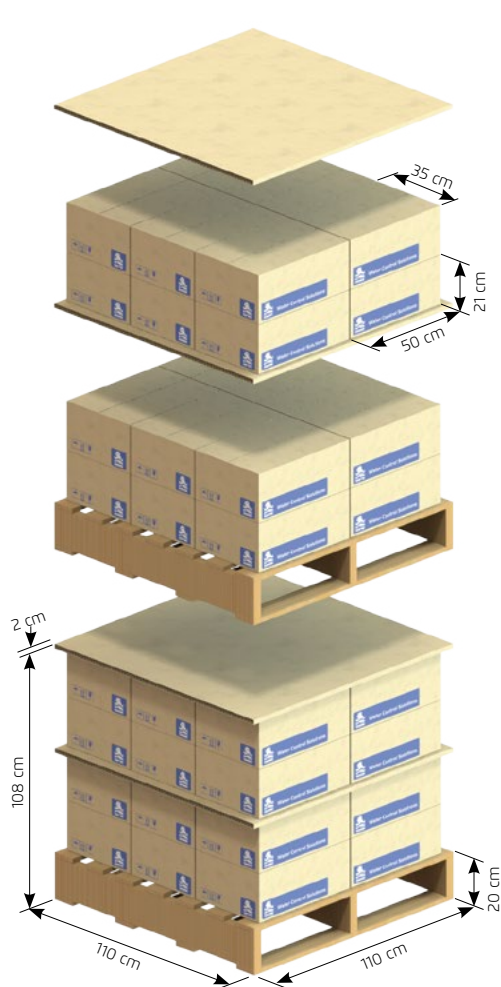




### Packing Specifications

1½", 2", 2½", 2"L

3", 3"L



### Per Box

Valve Size Single Chamber	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
1½", 2", 2½"	10	50	35	21	13	0.04
2"L	6	50	35	21	10	0.04
3"	6	50	35	30	10	0.06
3"L	4	50	35	30	13	0.06
4"	1	35	35	25	6	0.04
4"L	4	50	35	30	41	0.06
6"R	2	54	54	48	35	0.14
6"	2	54	54	48	27	0.14

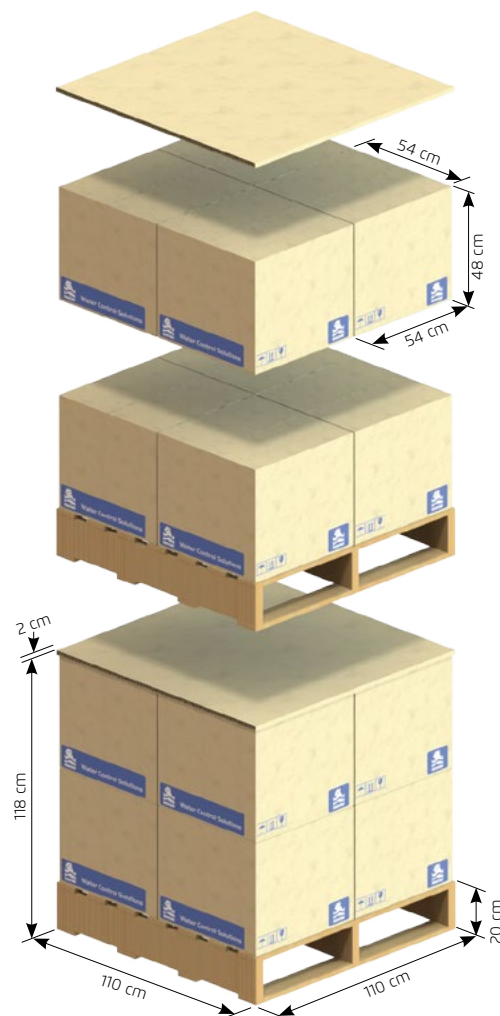
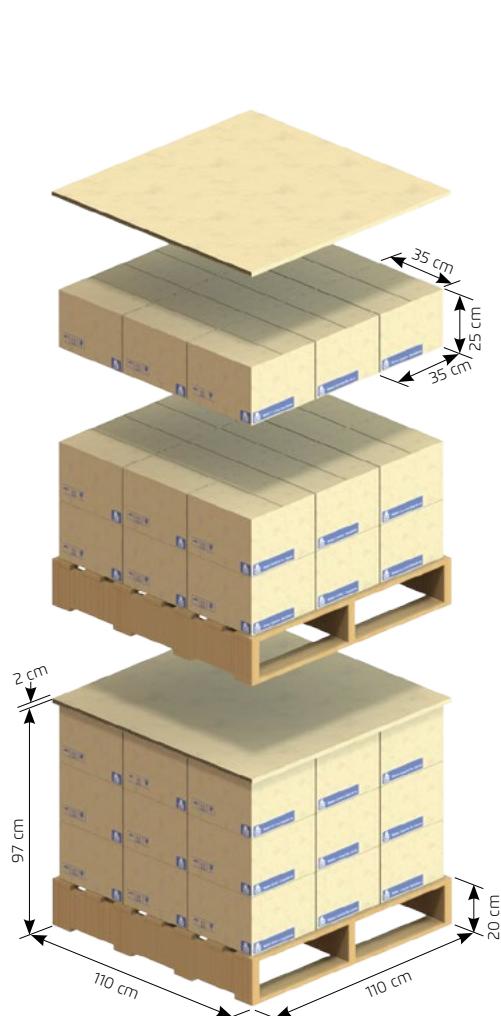
Valve Size Double Chamber	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
1½"-DC, 2"-DC	10	50	35	21	24	0.04
2"L-DC	6	50	35	21	14	0.04
3"-DC	4	50	35	30	21	0.06



## Packing Specifications

4"

6"



## Per Pallet

Valve Size Single Chamber	Pallet						Gross Weight [kg]	Volume [m³]
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]		
1½", 2"	24	4	240	110	110	110	335	1.3
2"L	24	4	144	110	110	110	263	1.3
3"	18	3	108	110	110	113	202	1.4
3"L	18	3	72	110	110	113	256	1.4
4"	27	3	27	110	110	98	184	1.2
4"L	18	3	72	110	110	113	760	1.4
6"R	8	2	16	110	110	119	302	1.4
6"	8	2	16	110	110	119	238	1.4

Valve Size Double Chamber	Pallet						Gross Weight [kg]	Volume [m³]
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]		
1½"-DC, 2"-DC	24	4	240	110	110	108	598	1.3
2"L-DC	18	3	108	110	110	112	277	1.4
3"-DC	18	3	72	110	110	112	397	1.4



## IR-200 Series

**The BERMAD IR-200 Series Valves are Plastic Hydro-Efficient Control Valve, Hydraulic/Electric operated with Flexible Balanced Diaphragm & Seal for agricultural commercial & residential irrigation systems.**

The 200 Series range from ½" 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
- 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

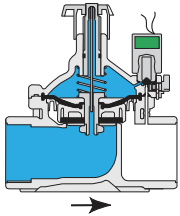
### Typical Applications

- Drip-Tape Systems
- LPS - Low Pressure Systems
- Remote and/or Elevated Plots
- Head Control or Main Control head
- Main & secondary Control Head
- Energy Saving Irrigation Systems
- Computerized Irrigation Systems



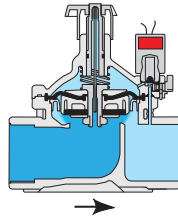
## On/Off Control

### 2-Way Internal Electric control



**Closed Position**

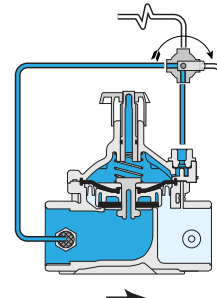
The internal restriction continuously allows line pressure into the control chamber. The solenoid controls outflow from the control chamber. When the solenoid is closed it causes pressure to accumulate in the control chamber, therefore forcing the valve to close.



**Open Position**

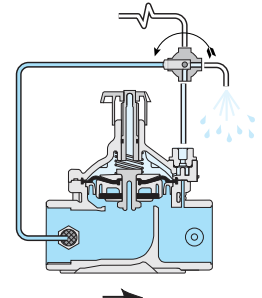
Opening the Solenoid releases more flow from the control chamber than the restriction can allow in. This causes the accumulated pressure in the control chamber to drop, enabling the line pressure acting on the plug to the valve.

### 3-Way Hydraulic Control



**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.



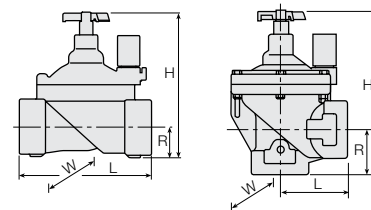
**Open Position**

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

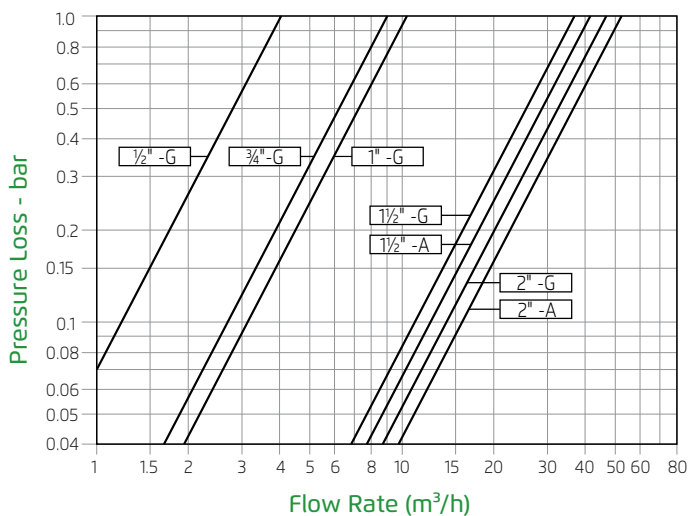
Pattern		Globe					Angle	
Size	DN inch	12 1/2	20 3/4	25 1	40 1 1/2	50 2	40 1 1/2	50 2
L (mm)		67	110	110	160	170	80	85
H (mm)		58	115	115	180	190	190	210
R (mm)		16	22	22	35	38	40	60
W (mm)		42.5	78	78	125	125	125	125
Weight* (Kg)		0.06	0.35	0.33	1.0	1.1	0.95	0.91
CCDV** (liter)			0.015	0.015	0.072	0.072	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



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

$K_v = \text{m}^3/\text{h} @ \Delta P \text{ of } 1 \text{ bar}$      $C_v = 1.155 K_v$   
 $Q = \text{m}^3/\text{h}$   
 $\Delta P = \text{bar}$

## Technical Specifications

### Available Patterns and Sizes:

**Globe:** 1/2"-2"; DN40-DN50

**Angle:** 1 1/2" & 2"; DN40 & DN50

**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	DN Inch	12 1/2	20 3/4	25 1	40 1 1/2	40 1 1/2	50 2	50 2
Pattern		G	G	G	G	A	G	A
KV		4	9	9	37	41	47	52





**IR**

**1½"**

**220**

**55**

**A**

**P**

**BP**

**4AC**

**M**

Size		
½"	DN12	On/Off
¾"	DN20	
1"	DN25	
<b>1½"</b>	<b>DN40</b>	
2"	DN50	

Primary Features	Code
Basic Valve	205
Solenoid Controlled Valve (¾"-2")	210
Trio Solenoid Controlled Valve (½"-2")	21T
<b>Pressure Reducing Valve</b>	<b>220</b>
Pressure Reducing & Sustaining Valve	223
Pressure Sustaining Valve	230
Differential Pressure Sustaining Valve	236
Quick Pressure Relief Valve	23Q
Level Control Valve	250
Level Control & Pressure Sustaining Valve	253

Other primary features available on request.

Additional Features	Code
No Additional Features	00
Opening & Closing Speed Control	03
Accelerated Closing	04
Electric Valve, without Solenoid	05
Check feature	20
Solenoid Control & Check Feature	25
N.O. Hydraulic Remote Control	50
N.C. With Adjustable Hydraulic Relay	54X
N.C. with Hydraulic Relay	54
<b>Solenoid Controlled</b>	<b>55</b>
Modulating Horizontal Float	60
Internal Feed & Bleed*	N

\* Internal Feed & Bleed options N1-N7 available according to specific Application Engineering definitions.

Pattern	Code
Globe	G
<b>Angle (1½"-2")</b>	<b>A</b>

Construction Materials	Code
<b>Nylon Glass Filled (Standard)</b>	<b>P</b>

End Connections	Code
<b>BSP Female Threaded</b>	<b>BP</b>
NPT Female Threaded	NP
Victaulic Adaptors x BSP (2" only)	VB
Victaulic Adaptors x NPT (2" only)	VN

Voltage-Main Valve Position (When Solenoid De-Energized)	Code
<b>24VAC - Normally Closed</b>	<b>4AC</b>
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
<b>Flow Stem</b>	<b>M</b>
Manual Selector	Z
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5
½" Anti Vacuum at Valve Downstream	7

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



## Hydraulic Control Basic Valve

IR-205

Size	Pattern	Connection
½"	DN16	G
		Threaded

NEW



## Hydraulic Control Valve

with Flow Stem

IR-205-M

Size	Pattern	Connection
¾"	DN20	G
		Threaded
1"	DN25	G
		Threaded
1½"	DN40	G
		Threaded

Size	Pattern	Connection
1½"	DN40	A
		Threaded
2"	DN50	G
		Threaded
		A
		Threaded



## Hydraulic Control Valve

with Flow Stem & Manual Selector

IR-205-MZ

Size	Pattern	Connection
¾"	DN20	G
		Threaded
1"	DN25	G
		Threaded
1½"	DN40	G
		Threaded

Size	Pattern	Connection
1½"	DN40	A
		Threaded
2"	DN50	G
		Threaded
		A
		Threaded



## Trio Solenoid Controlled Valve

with 2-Way Control

IR-21T-2W

Solenoid S-390-T-2W

Size	Pattern	Connection
½"	DN16	G
		Threaded

NEW



(\*) Standard 24V AC. For other voltage see Ordering Guide



## Trio Latching Solenoid Controlled Valve

with 2-Way Control

IR-21T-LS-2W

S-392-T-2W 6-20V/DC Latch

Size	Pattern	Connection
½"	DN16	G Threaded

**NEW**



## Trio Solenoid Controlled Valve

with 2-Way Internal Control, Flow Stem

IR-21T-M-2W

Solenoid S-390-T-2W

Size	Pattern	Connection
¾"	DN20	G Threaded
1"	DN25	G Threaded
1½"	DN40	G Threaded

Size	Pattern	Connection
1½"	DN40	A Threaded
2"	DN50	G Threaded
	A	Threaded

**NEW**



(\*) Standard 24V AC. For other voltage see Ordering Guide

## Solenoid Controlled Valve

with 3-Way Controls, Flow Stem

IR-210-MX

Solenoid S-390-3W

Size	Pattern	Connection
¾"	DN20	G Threaded
1"	DN25	G Threaded
1½"	DN40	G Threaded

Size	Pattern	Connection
1½"	DN40	A Threaded
2"	DN50	G Threaded
	A	Threaded

(\*) Standard 24V AC. For other voltage see Ordering Guide



## Solenoid Controlled Valve, N.O.

with 3-Way Control, Internal Feed & External Bleed

IR-210-N7-N0-MX

Solenoid S-390-3W

Size	Pattern	Connection
¾"	DN20	G Threaded
1"	DN25	G Threaded
1½"	DN40	G Threaded

Size	Pattern	Connection
1½"	DN40	A Threaded
2"	DN50	G Threaded
	A	Threaded

(\*) Standard 24V AC. For other voltage see Ordering Guide





## Trio Latching Solenoid Controlled Valve

with 2-Way Control

IR-21T-LS-M-2W

Solenoid S-392-T-2W 6-20V/DC Latch

Size	Pattern	Connection
¾"	DN20	G Threaded
1"	DN25	G Threaded
1½"	DN40	G Threaded

Size	Pattern	Connection
1½"	DN40	A Threaded
2"	DN50	G Threaded
	A	Threaded

NEW



## GreenApp Controlled Valve , Application Operated

IR-21T-GreenApp

Size	Pattern	Connection
¾"	DN20	G Threaded
1"	DN25	G Threaded
1½"	DN40	G Threaded

Size	Pattern	Connection
1½"	DN40	A Threaded
2"	DN50	G Threaded
	A	Threaded

NEW



## Latching Solenoid Controlled Valve

with 3-Way Control, Flow Stem

IR-210-LS-MX

Solenoid S-982-3W / S-985-3W 12-50V/DC Latch

Size	Pattern	Connection
1½"	DN40	G Threaded
	A	Threaded

Size	Pattern	Connection
2"	DN50	G Threaded
	A	Threaded



## Pressure Reducing Valve

with 2-Way Control, Flow Stem

IR-220-M-2W

Size	Pattern	Connection
1½"	DN40	G Threaded
	A	Threaded

Size	Pattern	Connection
2"	DN50	G Threaded
	A	Threaded





## Pressure Reducing Valve

with 3-Way Control, Manual Selector and Flow Stem

IR-220-MXZ

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded



## Pressure Reducing Valve

2/3-Way (Servo) Control, Manual Selector

IR-220-MZb

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded



## Pressure Reducing Valve

with 2-Way Solenoid Control

IR-220-55-M

Solenoid S-390-T-2W

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded

(\*) Standard 24V AC. For other voltage see Ordering Guide



## Pressure Reducing Valve

with 3-Way Solenoid Control

IR-220-55-MX

Solenoid S-390-3W

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded





## Pressure Reducing Valve

2/3W (Servo) Control, 3-Way Solenoid Control

IR-220-55-Mb

Solenoid S-390-3W 24V/AC

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded



## Pressure Sustaining Valve, 2-Way

with 2-Way Control

IR-230-M-2W

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded



## Pressure Sustaining Valve, 3-Way

with 3-Way Control, Manual Selector

IR-230-MXZ

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded



## Pressure Sustaining Valve

with 2-Way Solenoid Control

IR-230-55-M-2W

Solenoid S-390-T-2W

Size	Pattern	Connection
1½"	DN40	G
		A
		Threaded

Size	Pattern	Connection
2"	DN50	G
		A
		Threaded







Pressure Sustaining Valve

with 3-Way Solenoid Control

IR-230-55-MX

Solenoid S-390-3W

Size		Pattern	Connection
1½"	DN40	G	Threaded
		A	Threaded

Size		Pattern	Connection
2"	DN50	G	Threaded
		A	Threaded



Additional Features & Options - Suffix Code

Code	Description
50-3W-P	Hydraulic Control (T Selector Shuttle Valve) - Plastic
50-2W-P	Hydraulic Control (2-Way Hydraulic Relay) - Plastic
54-3W-P	3-Way Hydraulic Relay (3W-HRV) 1/4" - Plastic
55	Solenoid Controlled
Z	Manual Selector
5*	Plastic Test Point

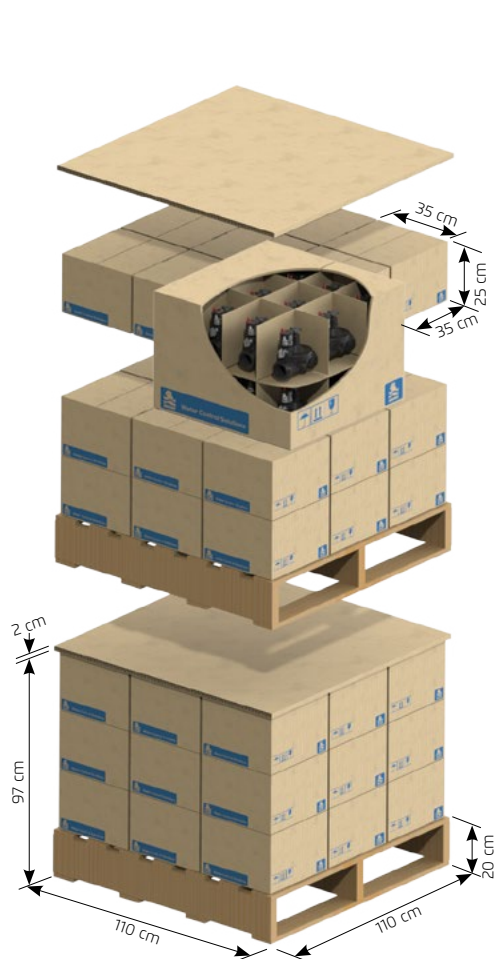
\* Plastic Test Point is Standard for all regulating valves.



### Packing Specifications

3/4", 1"

1 1/2", 2"



### Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m <sup>3</sup> ]
1/2"	24	35	35	25	5.4	0.05
3/4"	24	35	35	25	8.5	0.05
1"	24	35	35	25	8.5	0.03
1 1/2"	12	50	35	30	12.4	0.05
2"	12	50	35	30	13.8	0.05

### Per Pallet

Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross Weight [kg]	Volume [m <sup>3</sup> ]
1/2"	18	3	432	110	110	97	116	1.2
3/4"	27	3	648	110	110	97	251	1.2
1"	27	3	648	110	110	97	251	1.2
1 1/2"	18	3	216	110	110	112	209	1.4
2"	18	3	216	110	110	112	227	1.4



## 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.

Available in sizes of 2"x2", 3"x3/2", 3"x3" 4"x4/3", 4"x4" Plastic.



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

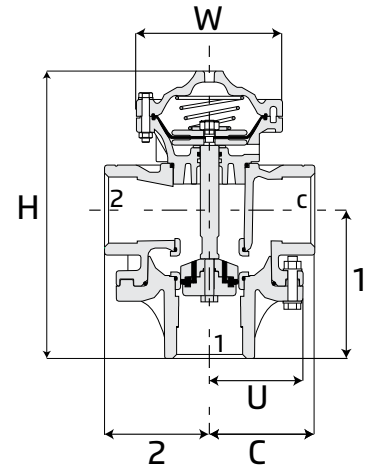
### Typical Applications

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



## Dimensions & Weights

Dimensions	2"x2"-P	2"x2"-P grooved	3"x3"-P	4"x4"-P
H [mm]	274	274	378	464
C [mm]	90	116	143.5	138.5
2 [mm]	90	116	143.5	178.5
W [mm]	126	126	160.5	150
1 [mm]	127	153	189	225
U [mm]	80	80	96	130
weight [kg]	2.7	3.2	5.1	9.9



## Hydraulic Data

			2"x2"-P	3"x3"-P	4"x4"-P
<b>angle flow</b>					
	filtration 1-C	kv	52	110	225
	backwash C-2	kv	48	100	205
<b>straight flow</b>					
	filtration 2-C	kv	46	93	190
	backwash C-1	kv	60	122	250

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

$K_v = m^3/h$  @  $\Delta P$  of 1 bar

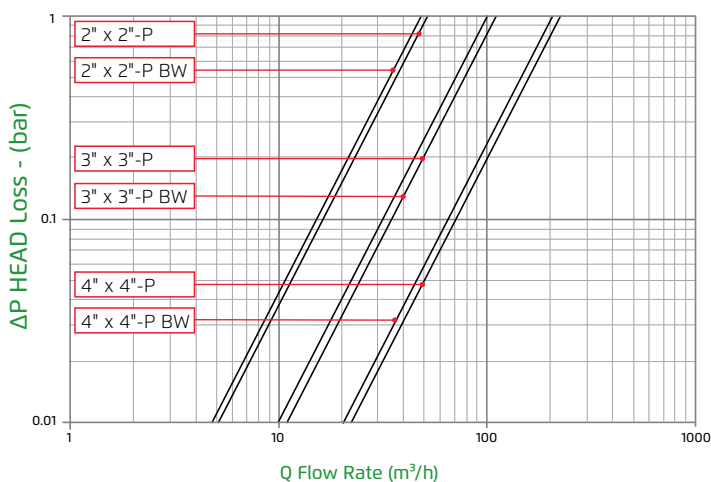
$Q = m^3/h$

$\Delta P = \text{bar}$

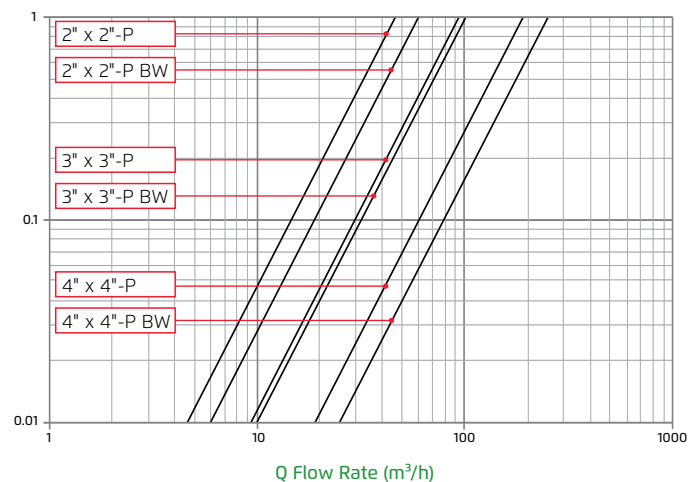
$C_v = 1.155 K_v$

## Flow Chart

### Angle Flow



### Straight Flow





## Technical Data

### Control Chamber Displacement Volume:

**2"x2"**: 0.13 liter; 0.03 gallon; **3"x3"**: 0.34 liter; 0.09 gallon; **4"x4"**: 0.55 liter; 0.15 gallon

**Standard Valve** : 1.5-10 bar ; 22-150 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**: All threads are BSP

Size	Port C	Port 2	Port 1
2"x2"	<ul style="list-style-type: none"> <li>Threaded 2"</li> <li>Grooved 2" (with adaptors)</li> </ul>	<ul style="list-style-type: none"> <li>Threaded 2"</li> <li>Grooved 2" (with adaptors)</li> </ul>	<ul style="list-style-type: none"> <li>Threaded 2"</li> <li>Grooved 2" (with adaptors)</li> </ul>
3"x3" 3"x3"/2"	<ul style="list-style-type: none"> <li>Grooved 3"</li> </ul>	<ul style="list-style-type: none"> <li>Grooved 3"</li> </ul>	<ul style="list-style-type: none"> <li>Grooved 3"</li> <li>Grooved 3" x Int. Thread 2"</li> </ul>
4"x4" 4"x4"/3"	<ul style="list-style-type: none"> <li>Grooved 4"</li> </ul>	<ul style="list-style-type: none"> <li>Grooved 4"</li> </ul>	<ul style="list-style-type: none"> <li>Grooved 4"</li> <li>Union Connector (Havazelet) 75mm</li> <li>Grooved 4" x Int. Thread 3"</li> </ul>

## Materials

### Valve Body:

**Plastic**: Polyamide 6 – 30GF Black All Sizes

**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**: Stainless Steel 304

**Plugs**: Acetal Copolymer Black (drilled) / Grey (undrilled)

**Seal, O-Rings**: NBR

**Spring**: Stainless Steel AISI 302

**Shaft**: Stainless Steel AISI 303

**External Bolts, Studs, Nuts & Discs**: Stainless Steel



IR

3"x3"

350-55

A

P

P

VI

UC

4AC

PP

Z

Size	
2"x2"	DN50x50
<b>3"x3"</b> 3"x3/2" <sup>(1)</sup>	<b>DN80x80</b> <b>DN80x80/50</b>
4"x4"	DN100x100
4"x4/3" <sup>(2)</sup>	

(1) ■ Straight flow only  
■ Port 1 (drain) is 3" grooved and 2" female threaded

(2) ■ Straight flow only  
■ Port 1 (drain) is 4" grooved and 3" female threaded

Port 1 (Lower Seat) Connection	Code
<b>BSP Threaded Female</b>	<b>P</b>
Grooved	V
"Havazelet" (4"x4" Only)	H

Port 2 / C Connections	Code
<b>Grooved ANSI C 606-81 Steel Pipe</b>	<b>VI</b>
BSP Threaded Female 2"x2" only	BP

Optional 2" Adaptors are available on request:

- BSP Male Threaded x Grooved (when Grooved is required).
- BSP Male Threaded x NPT Female Threaded (when NPT is required).

Coating	Code
<b>Uncoated</b>	<b>UC</b>

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

Other electrical ratings available on request.

Primary Features	Code
Filter Backwash Valve	350
Filter Backwash Valve with Hydraulic Accelerator	350-54
<b>Filter Backwash Valve, Solenoid Controlled</b>	<b>350-55</b>

Other primary features available on request.

Tubing & Fittings	Code
<b>Plastic Tubing &amp; Fittings</b>	<b>PP</b>

Pattern / Flow Options	Code
<b>Angle Flow</b>	<b>A</b>
Straight Flow	S
Angle & Reverse Flow	A-O
Straight & Reverse Flow	S-O

Additional Attributes Unlimited Selection	Code
EPDM Elastomers Seals & Diaphragm	E1
Viton Elastomers Seals & Diaphragm	E2
Metal Control Accessories	R
Stainless Steel 316 Seat & Shaft	T
<b>Manual Selector</b>	<b>Z</b>
Plastic Gauge Test Point	5

Other additional attributes are optional.

Body Material	Code
<b>Nylon - G.F.</b>	<b>P</b>





### Filter Backwash Hydraulic Valve, 2X2 Plastic - Double Chamber

IR-2X2-350-P

Model	Description	Cover
Angle Flow	IR-2"x2"-A-P-P-Threaded-UC	Black
Straight Flow	IR-2"x2"-S-P-P-Threaded-UC	Grey
Angle & Reverse Flow	IR-2"x2"-A-O-P-P-Threaded-UC	Black
Straight & Reverse Flow	IR-2"x2"-S-O-P-P-Threaded-UC	Grey
2" Grooved- Threaded Connectors*	Plastic (Add on)	-

\* Supplied as part of configured valve. Add on prices for 3 kits per valve.



### Filter Backwash Hydraulic Valve, 3X3 Plastic - Double Chamber

IR-3X3-350-P

Model	Description	Cover
Angle Flow	IR-3"x3"-A-P-V-VI-UC	Black
Straight Flow	IR-3"x3"-S-P-V-VI-UC	Grey
Angle & Reverse Flow	IR-3"x3"-A-O-P-V-VI-UC	Black
Straight & Reverse Flow	IR-3"x3"-S-O-P-V-VI-UC	Grey



### Filter Backwash Hydraulic Valve, 4X4 Plastic - Double Chamber

IR-4X4-350-P

Model	Description	Cover
Angle Flow	IR-4"x4"-A-P-V-VI-UC	Black
Straight Flow	IR-4"x4"-S-P-V-VI-UC	Grey
Angle & Reverse Flow	IR-4"x4"-A-O-P-V-VI-UC	Black
Straight & Reverse Flow	IR-4"x4"-S-O-P-V-VI-UC	Grey



### Filter Backwash Hydraulic Valve, 3X2 Metal Body - Double Chamber

IR-3X2-DC-A-I

Model	Description	Cover
Angle Flow	IR-3"x2"-DC-A-I-P-VI-PG	Black
Angle & Reverse Flow	IR-3"x2"-DC-A-O-I-P-VI-PG	Black

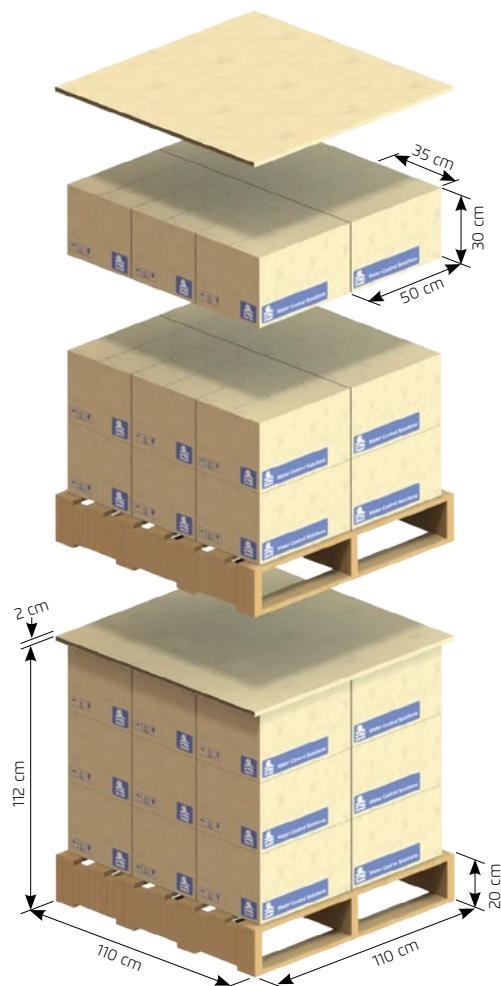
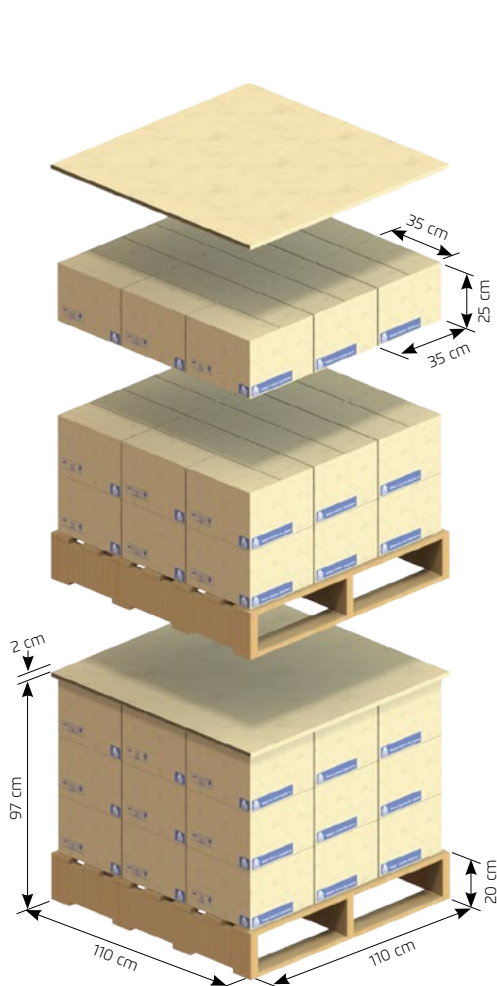




## Packing Specifications

2"x2"x2" Plastic

3"x3"x3" Plastic  
4"x4"x4" Plastic



## Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
2"x2"x2" Plastic	2	35	35	25	6.144	0.03
3"x3"x3" Plastic	2	50	35	30	11.76	0.05
4"x4"x4" Plastic	1	50	35	30	11.02	0.05

## Per Pallet

Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross weight [kg]	Volume [m³]
2"x2"x2" Plastic	27	3	54	110	110	97	186	1.2
3"x3"x3" Plastic	18	3	36	110	110	112	231	1.4
4"x4"x4" Plastic	18	3	18	110	110	112	218	1.4



## 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"-16"; DN25 - DN400.

### 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
- LPS - Low Pressure Systems
- Level Control Valves
- Filter Stations



## Technical Specifications

### Connections Standard:

**Flanged:** ISO 7005-2 (PN10 & 16)

**Threaded:** BSP; 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

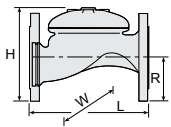
◦ Brass

#### ■ Elastomers: NR to EN 681-1

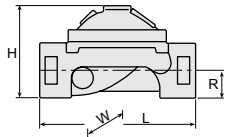
#### ■ Coatings: Electrostatic Powder Coating Polyester

## Dimensions & Weights

### Globe Pattern

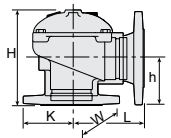


Connection Type		Flange											
Size	DN	50	65	80R	80	100	125	150	200	250	300	350	400
	inch	2	2½	3R	3	4	5	6	8	10	12	14	16
L		205	205	210	250	320	320	415	500	605	725	742	741
H		155	178	200	210	242	254	345	430	460	635	655	694
W		155	178	200	200	223	197	306	365	405	580	587	587
R		78	89	100	100	112	127	140	170	202	242	260	300
Weight (Kg)		9	10.5	12.1	19	28	33	68	125	140	290	358	377



Connection Type		Threaded						Grooved				
Size	DN	25	40	50	65	80R	80	50	80	100	150	
	inch	1	1½	2	2½	3R	3	2	3	4	6	
L		115	153	180	210	210	255	205	250	320	415	
H		68	87	114	132	140	165	108	155	191	302	
W		71	98	119	129	129	170	119	170	204	306	
R		34	29	39	45	53	55	31	46	61	85	
Weight (Kg)		1.1	2	4	5.7	5.8	13	5	10.6	16.2	49	

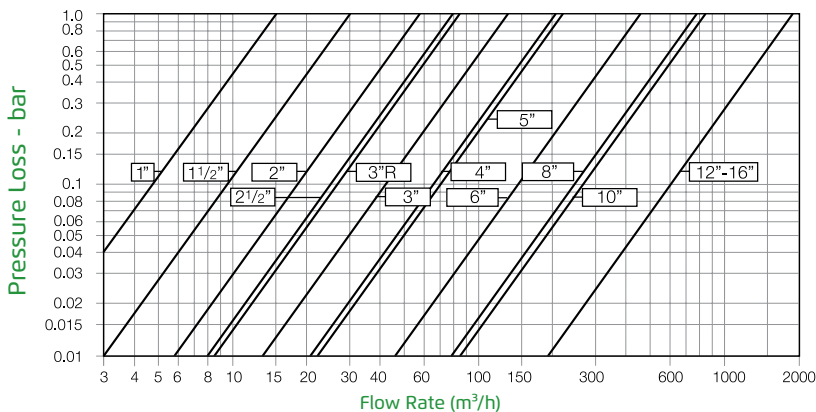
### Angle Pattern



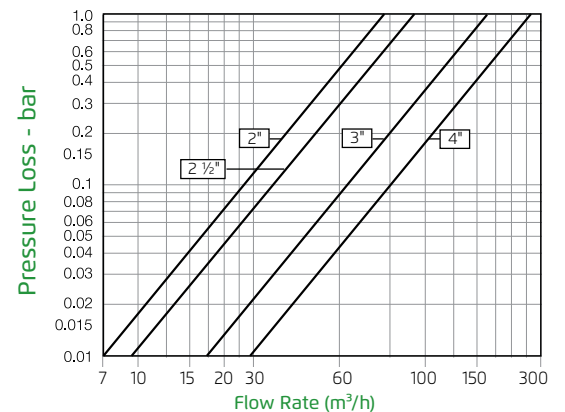
Connection Type		Threaded				Grooved		Flanged		
Size	DN	50	65	80R	80	80	100	50	80	100
	inch	2	2½	3R	3	3	6	2	3	4
L		86	110	110	110	120	160	121	153	160
H		136	180	178	184	194	223	160	205	223
W		119	131	131	170	170	204	155	200	223
h		61	93	91	80	90	112	83	101	112
K		56	66	66	55	45	58	78	100	112
Weight (Kg)		4.4	5.8	7	11	10	16	9	17	26

### Globe Pattern

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



### Angle Pattern



Size	DN	25	40	50	50	65	65	80	80	100	100	150	200	250	300	350	400
	Inch	1	1½	2	2	2½	2½	3	3	4	4	6	8	10	12	14	16
Pattern		G	G	G	A	G	A	G	A	G	A	G	G	G	G	G	G
KV		13	57	57	71	78	88	136	152	204	225	458	781	829	1,932	1,932	1,932



**IR**

**3"**

**420**

**55**

**00**

**G**

**I**

IR	Code
Irrigation	IR

Primary Features	Code
Basic Valve	405
Solenoid Controlled Valve	410
Electronic Control Valve	418
<b>Pressure Reducing Valve</b>	<b>420</b>
Pressure Reducing & Sustaining Valve	423
Pressure Sustaining Valve	430
Surge Anticipating Valve	435
Differential Pressure Sustaining Valve	436
Quick Pressure Relief Valve	43Q
Level Control Valve	450
Level Control & Pressure Sustaining Valve	453
Level & Flow Control Valve	457
Flow Control Valve	470
Flow Control & Pressure Reducing Control Valve	472
Flow Control & Pressure Sustaining Control Valve	473
Flow Control, Pressure Reducing & Sustaining Valve	475

Other primary features available on request.

Additional Features (Multiple Choices Permitted)	Code	
<b>No Additional Feature</b>	<b>00</b>	
Closing and Opening-Speed-Control	03	
Accelerated Closing	04	
Hydraulic Override	09	
Electronic Control	18	
Check Feature	20	
Solenoid Controlled & Check Feature	25	
Relief Override	3Q	
Electrically Selected Multi-Level Setting	45	
Downstream Over Pressure Guard	48	
Closing Surge Prevention	49	
N.O. Hydraulic Remote Control	50	
N.C With Adjustable Hydraulic Relay	54X	
N.C. with Hydraulic Relay	54	
<b>Solenoid Controlled</b>	<b>55</b>	
Electric Override	59	
Modulating Horizontal Float	60	
Bi-Level Electric Float	65	
Bi-Level Vertical Float	66	
Modulating Vertical Float	67	
Altitude Pilot	80*	
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

\* Select Setting Range  
Other additional features available on request.

Pattern	Code
<b>Globe</b>	<b>G</b>
Angle (2"-4")	A

Construction Materials	Code
<b>Cast Iron (up to 8")</b>	<b>I</b>
Ductile Iron (10" and above)	C

Other materials available on request.



16	PG	4AC	PP	XZ5																																																																																																					
<table><tr><th colspan="2">End Connections</th><th>Code</th></tr><tr><td rowspan="2">Threaded</td><td>BSP Female Threaded</td><td rowspan="2">1"-3"</td><td>BP</td></tr><tr><td>NPT Female Threaded</td><td>NP</td></tr><tr><td rowspan="9">Flanged</td><td>ISO-10</td><td rowspan="9">2"-16"</td><td>10</td></tr><tr><td><b>ISO-16</b></td><td><b>16</b></td></tr><tr><td>IS 14 (ISO 10/4 Holes, 3")</td><td>14</td></tr><tr><td>ANSI-125</td><td>A1</td></tr><tr><td>ANSI-150</td><td>A5</td></tr><tr><td>BST-D</td><td>BD</td></tr><tr><td>JIS-10</td><td>J1</td></tr><tr><td>ABNT-10</td><td>B1</td></tr><tr><td>ABNT-16</td><td>B6</td></tr><tr><td>Grooved</td><td colspan="2">ANSI C 606-81, Steel Pipe (Globe - 2", 3", 4", 6" &amp; 8"; Angle - 3" &amp; 4")</td><td>VI</td></tr></table> <p>Other end connections available on request.</p>		End Connections		Code	Threaded	BSP Female Threaded	1"-3"	BP	NPT Female Threaded	NP	Flanged	ISO-10	2"-16"	10	<b>ISO-16</b>	<b>16</b>	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"; Angle - 3" & 4")		VI	<table><tr><th colspan="2">Tubing &amp; Fittings</th><th>Code</th></tr><tr><td colspan="2"><b>Plastic Tubing &amp; Fittings</b></td><td><b>PP</b></td></tr><tr><td colspan="2">Plastic Reinforced Tubing &amp; Brass Fittings</td><td>PB</td></tr><tr><td colspan="2">Copper Tubing &amp; Brass Fittings</td><td>CB</td></tr></table>	Tubing & Fittings		Code	<b>Plastic Tubing &amp; Fittings</b>		<b>PP</b>	Plastic Reinforced Tubing & Brass Fittings		PB	Copper Tubing & Brass Fittings		CB	<table><tr><th colspan="2">Additional Attributes Unlimited Selection</th><th>Code</th></tr><tr><td colspan="2">Servo (2/3-Way Control Loop)</td><td>b</td></tr><tr><td colspan="2"><b>3-Way Control Loop</b></td><td><b>X</b></td></tr><tr><td colspan="2">Plastic Control Accessories</td><td>K</td></tr><tr><td colspan="2">Metal Control Accessories</td><td>R</td></tr><tr><td colspan="2">External Control Pressure</td><td>e</td></tr><tr><td colspan="2">EPDM Elastomers Seals &amp; Diaphragm</td><td>E1</td></tr><tr><td colspan="2">Large Control Filter</td><td>F</td></tr><tr><td colspan="2">Valve Position Indicator *</td><td>I</td></tr><tr><td colspan="2">Flow Stem *</td><td>M</td></tr><tr><td colspan="2">Electric Limit Switch *</td><td>S</td></tr><tr><td colspan="2">Orifice Assembly</td><td>U</td></tr><tr><td colspan="2">Paddle Flow Control Pilot (½" Upstream Port)</td><td>V</td></tr><tr><td colspan="2"><b>Manual Selector</b></td><td><b>Z</b></td></tr><tr><td colspan="2">Low Preset Pressure (below 2 bar)</td><td>2</td></tr><tr><td colspan="2">High Upstream Pressure (above 10 bar)</td><td>3</td></tr><tr><td colspan="2"><b>Plastic Pressure Test Point</b></td><td><b>5</b></td></tr><tr><td colspan="2">Pressure Gauge</td><td>6</td></tr><tr><td colspan="2">½" Anti Vacuum at Valve Downstream</td><td>7</td></tr></table> <p>* Standard Irrigation Cover &amp; Diaphragm are not suitable for Attributes I, M, S. Other additional attributes are optional. Please consult Customer Service for further information.</p>	Additional Attributes Unlimited Selection		Code	Servo (2/3-Way Control Loop)		b	<b>3-Way Control Loop</b>		<b>X</b>	Plastic Control Accessories		K	Metal Control Accessories		R	External Control Pressure		e	EPDM Elastomers Seals & Diaphragm		E1	Large Control Filter		F	Valve Position Indicator *		I	Flow Stem *		M	Electric Limit Switch *		S	Orifice Assembly		U	Paddle Flow Control Pilot (½" Upstream Port)		V	<b>Manual Selector</b>		<b>Z</b>	Low Preset Pressure (below 2 bar)		2	High Upstream Pressure (above 10 bar)		3	<b>Plastic Pressure Test Point</b>		<b>5</b>	Pressure Gauge		6	½" Anti Vacuum at Valve Downstream		7
End Connections		Code																																																																																																							
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## Hydraulic Control Basic Valve

IR-405

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
	A	Threaded
2½"	DN65	A Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged
3"	DN80	A Threaded
		A Flanged

Size	Pattern	Connection
3"	DN80	G Grooved
	A	Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged
		G Grooved
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Hydraulic Control Valve

with Manual Selector, Plastic Fittings (K)

IR-405-KZ

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
	A	Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Flanged
		G Threaded

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
	A	Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged



## Hydraulic Control Valve

with Manual Selector, Metal Fittings ( R )

IR-405-RZ

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Grooved
		G Flanged
	A	Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Flanged
		G Threaded
3"	DN80	G Grooved
		G Flanged

Size	Pattern	Connection
3"	DN80	G Flanged
	A	Threaded
4"	DN100	A Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Grooved
		G Flanged
8"	DN200	G Grooved
		G Flanged
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged





## Hydraulic Control Valve

with 3-Way Hydraulic Relay, Plastic Accessories (K)

IR-405-54-KX

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
		G Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
		G Grooved
		A Flanged
5"	DN125	G Flanged
6"	DN150	G Flanged



## Solenoid Controlled Valve

with 3-Way Control, Plastic Accessories (K)

IR-410-KX

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
		G Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
		G Grooved
		A Flanged
5"	DN125	G Flanged
6"	DN150	G Flanged



## Solenoid Controlled Valve

with 3-Way Control, Metal Accessories ( R )

IR-410-RX

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1"	DN25	G Threaded
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
		G Flanged
		A Threaded
3"R	DN80R	A Threaded
		G Threaded
		G Flanged
		A Threaded
3"	DN80	G Threaded
		G Flanged

Size	Pattern	Connection
3"	DN80	G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
		A Flanged
6"	DN150	G Flanged
		G Grooved
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged





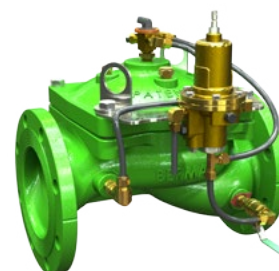
## Pressure Reducing Valve

with 3-Way Control, Manual Selector, Metal Accessories ( R )

IR-420-RXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged
3"	DN80	A Threaded
		G Threaded
		G Flanged

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Pressure Reducing Valve

with 3-Way Control, Manual Selector, Plastic Pilot and Accessories (K)

IR-420-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Flanged
		G Threaded

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	A Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged



## Pressure Reducing Valve

with 2-Way Control, Hydraulic Control, Metal Pilot and Accessories ( R )

IR-420-50-2W-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Flanged
		G Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged





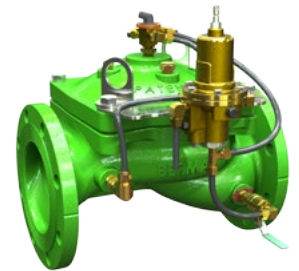
## Pressure Reducing Valve

with 3-Way Control, Hydraulic Control with Manual Selector, Metal Pilot and Accessories ( R )

IR-420-50-RXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged
3"	DN80	G Threaded
		G Flanged
		G Grooved

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Flanged
		G Grooved
8"	DN200	G Flanged
10"	DN250	G Grooved
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Pressure Reducing Valve

with 3-Way Control, Hydraulic Control, Manual Selector, Plastic Pilot and Accessories (K)

IR-420-50-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged



## Pressure Reducing Valve

with 3-Way Control, Hydraulic Relay, Plastic Pilot and Accessories (K)

IR-420-54-KX

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged





## Pressure Reducing Valve

with 2-Way Control, Electric Control, Metal Pilot and Accessories ( R )

IR-420-55-R

Solenoid 2W

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
	A	A Threaded
		A Flanged
2½"	DN65	G Threaded
	A	A Flanged
3"R	DN80R	G Threaded
		A Flanged
3"	DN80	G Threaded
		G Flanged
		G Grooved

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Flanged
		G Grooved
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Pressure Reducing Valve

with 3-Way Control, Electric Control, Plastic Pilot and Accessories ( K )

IR-420-55-KX

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
	A	A Threaded
		A Flanged
2½"	DN65	G Threaded
	A	A Flanged
3"R	DN80R	G Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
	A	A Threaded
		A Flanged
4"	DN100	G Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Flanged





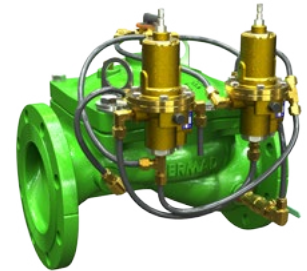
## Pressure Reducing & Sustaining Valve

with 3-Way Control, Manual Selector, Metal Pilot and Accessories ( R )

IR-423-RXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged
3"	DN80	A Threaded
		G Flanged
		G Grooved

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Pressure Reducing & Sustaining Valve

with 3-Way Control, Manual Selector, Plastic Pilot and Accessories ( K )

IR-423-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged



## Pressure Sustaining Valve

with 3-Way Control, Metal Pilot and Accessories ( R )

IR-430-RX

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	A Threaded
		G Flanged
3"	DN80	A Threaded
		G Flanged
		G Grooved

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Flanged
5"	DN125	G Grooved
6"	DN150	G Flanged
8"	DN200	G Flanged
		G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged







## Pressure Sustaining Valve

with 3-Way Control, Manual Selector, Plastic Pilot and Accessories (K)

IR-430-KXZ

Size	Pattern	Connection
1½"	DN40	G
2"	DN50	Threaded
		Threaded
		Flanged
		Grooved
2½"	DN65	Threaded
		Flanged
		Grooved
		Threaded
3"R	DN80R	Threaded
		Threaded
		Flanged
		Grooved

Size	Pattern	Connection
3"R	DN80R	A
3"	DN80	Threaded
		Threaded
		Flanged
		Grooved
4"	DN100	Threaded
		Flanged
		Grooved
		Threaded
5"	DN125	Threaded
		Flanged
		Grooved
		Threaded
6"	DN150	Threaded
		Flanged
		Grooved
		Threaded



## Pressure Sustaining Valve

with Electric Control 3-Way, Metal Pilot and Accessories ( R )

IR-430-55-RX

Solenoid 3W

Size	Pattern	Connection
1½"	DN40	G
2"	DN50	Threaded
		Threaded
		Grooved
		Flanged
2½"	DN65	Threaded
		Flanged
		Grooved
		Threaded
3"R	DN80R	Threaded
		Flanged
		Grooved
		Threaded
3"	DN80	Threaded
		Grooved
		Flanged
		Threaded

Size	Pattern	Connection
3"	DN80	A
4"	DN100	Threaded
		Flanged
		Grooved
		Flanged
5"	DN125	Threaded
		Flanged
		Grooved
		Flanged
6"	DN150	Threaded
		Flanged
		Grooved
		Flanged
8"	DN200	Threaded
		Flanged
		Grooved
		Flanged
10"	DN250	Threaded
		Flanged
		Grooved
		Flanged
12"	DN300	Threaded
		Flanged
		Grooved
		Flanged
14"	DN350	Threaded
		Flanged
		Grooved
		Flanged
16"	DN400	Threaded
		Flanged
		Grooved
		Flanged



## Pressure Sustaining Valve

with Electric Control 3-Way, Plastic Pilot and Accessories (K)

IR-430-55-KX

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	G
2"	DN50	Threaded
		Threaded
		Flanged
		Grooved
2½"	DN65	Threaded
		Flanged
		Grooved
		Threaded
3"R	DN80R	Threaded
		Flanged
		Grooved
		Threaded

Size	Pattern	Connection
3"R	DN80R	A
3"	DN80	Threaded
		Threaded
		Flanged
		Grooved
4"	DN100	Threaded
		Flanged
		Grooved
		Flanged
5"	DN125	Threaded
		Flanged
		Grooved
		Flanged
6"	DN150	Threaded
		Flanged
		Grooved
		Flanged





## Quick Pressure Relief Valve

with Metal Pilot and Accessories ( R )

IR-43Q-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Grooved
		G Flanged
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Flanged
		A Threaded
3"	DN80	G Threaded
		G Grooved
		G Flanged

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Grooved
		G Flanged
8"	DN200	G Grooved
		G Flanged
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Quick Pressure Relief Valve

with Plastic Pilot and Accessories ( K )

IR-43Q-K

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
		A Threaded
4"	DN100	A Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Flanged



## Level Control Valve

with 2-Way Control, Horizontal Float, Metal Pilot and Accessories ( R )

IR-450-60-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Grooved
		G Flanged
		A Threaded
2½"	DN65	A Flanged
		G Threaded
3"R	DN80R	G Threaded
		A Flanged
3"	DN80	G Threaded
		G Grooved
		G Flanged

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	A Flanged
		G Grooved
5"	DN125	G Flanged
6"	DN150	G Grooved
		G Flanged
8"	DN200	G Grooved
		G Flanged
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged





## Level Control Valve

with 2-Way Control, Horizontal Float, Plastic Pilot and Accessories (K)

IR-450-60-K

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
		G Grooved
	A	A Threaded
2½"	DN65	G Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged

Size	Pattern	Connection
3"R	DN80R	A Threaded
3"	DN80	G Threaded
		G Flanged
		G Grooved
	A	A Threaded
4"	DN100	G Flanged
		A Grooved
5"	DN125	G Flanged
6"	DN150	G Flanged



## Level Control Valve, 3-Way with Bi Level Vertical Float,

Manual Selector, Metal Pilot and Accessories ( R )

IR-450-66-RZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Grooved
		G Flanged
	A	A Threaded
2½"	DN65	G Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged
3"	DN80	G Threaded
		G Grooved
		G Flanged

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	G Flanged
		A Grooved
5"	DN125	G Flanged
6"	DN150	G Grooved
		G Flanged
8"	DN200	G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged



## Flow Control Valve

with 2/3-Way Control, Manual Selector, Metal Pilot and Accessories ( R )

IR-470-bRUZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Grooved
		G Flanged
	A	A Threaded
2½"	DN65	G Flanged
		A Threaded
3"R	DN80R	G Threaded
		G Flanged
3"	DN80	G Threaded
		G Grooved
		G Flanged

Size	Pattern	Connection
3"	DN80	A Threaded
4"	DN100	G Grooved
		A Flanged
5"	DN125	G Flanged
6"	DN150	G Grooved
		G Flanged
8"	DN200	G Grooved
10"	DN250	G Flanged
12"	DN300	G Flanged
14"	DN350	G Flanged
16"	DN400	G Flanged





## Flow Control Valve

with 2/3-Way Control, Plastic Pilot and Accessories (K)

IR-470-bKeU

Size	Pattern	Connection	Size	Pattern	Connection
1½"	DN40	G Threaded	3"R	DN80R	A Threaded
2"	DN50	G Threaded	3"	DN80	G Threaded
		G Flanged			G Flanged
		G Grooved			G Grooved
	A	A Threaded			A Threaded
2½"	DN65	G Flanged	4"	DN100	G Flanged
		A Threaded			G Grooved
	A	A Threaded			A Flanged
3"R	DN80R	G Threaded	5"	DN125	G Flanged
		G Flanged	6"	DN150	G Flanged



## Additional Features & Options - Suffix Code-K (Plastic Accessories)

Code	Description
20-3W-P	Check Feature (Shuttle Valve) - Plastic
50-3W-P	Hydraulic Control (Shuttle Valve) - Plastic
50-2W-P	Hydraulic Control (2-Way Hydraulic Relay) - Plastic
54-3W-P	¾" 3-Way Hydraulic Relay (3W-HRV) - Plastic
55	Solenoid Controlled
F	Large Control Filter
I	Position Indicator Assembly
M	Flow Stem
Z	Manual Selector
5	Plastic Test Point

Additional feature prices are available.

## Additional Features & Options - Suffix Code - R (Metal Accessories)

Code	Description
20-2W-M	Check Feature - 1½"-16"
20-3W-M	Check Feature (Shuttle Valve) - 1½"-4"
20-3W-M	Check Feature (Shuttle Valve) - 6"-16"
50-2W-M	¾" 2-Way Hydraulic Relay (2W-HRV) - Brass
50-3W-M	Hydraulic Control (Shuttle Valve) - 1½"-4"
50-3W-M	Hydraulic Control (Shuttle Valve) - 6"-16"
54-3W-M	Hydraulic Accelerator Control - 1½"-10"
54-3W-M	Hydraulic Accelerator Control - 12"-16"
55	Solenoid Controlled - 1½"-4"
55	Solenoid Controlled - 6"-16"
F	Large Control Filter - 1½"-16"
I	Position Indicator Assembly - 1½"-4"
I	Position Indicator Assembly - 6"-8"
I	Position Indicator Assembly - 10"-16"
M	Flow Stem - 1½"-4"
M	Flow Stem - 6"-8"
M	Flow Stem - 10"-16"
Z	Manual Selector - 1½"-4"
Z	Manual Selector - 6"-16"
5	Plastic Test Point

Additional feature prices are available.

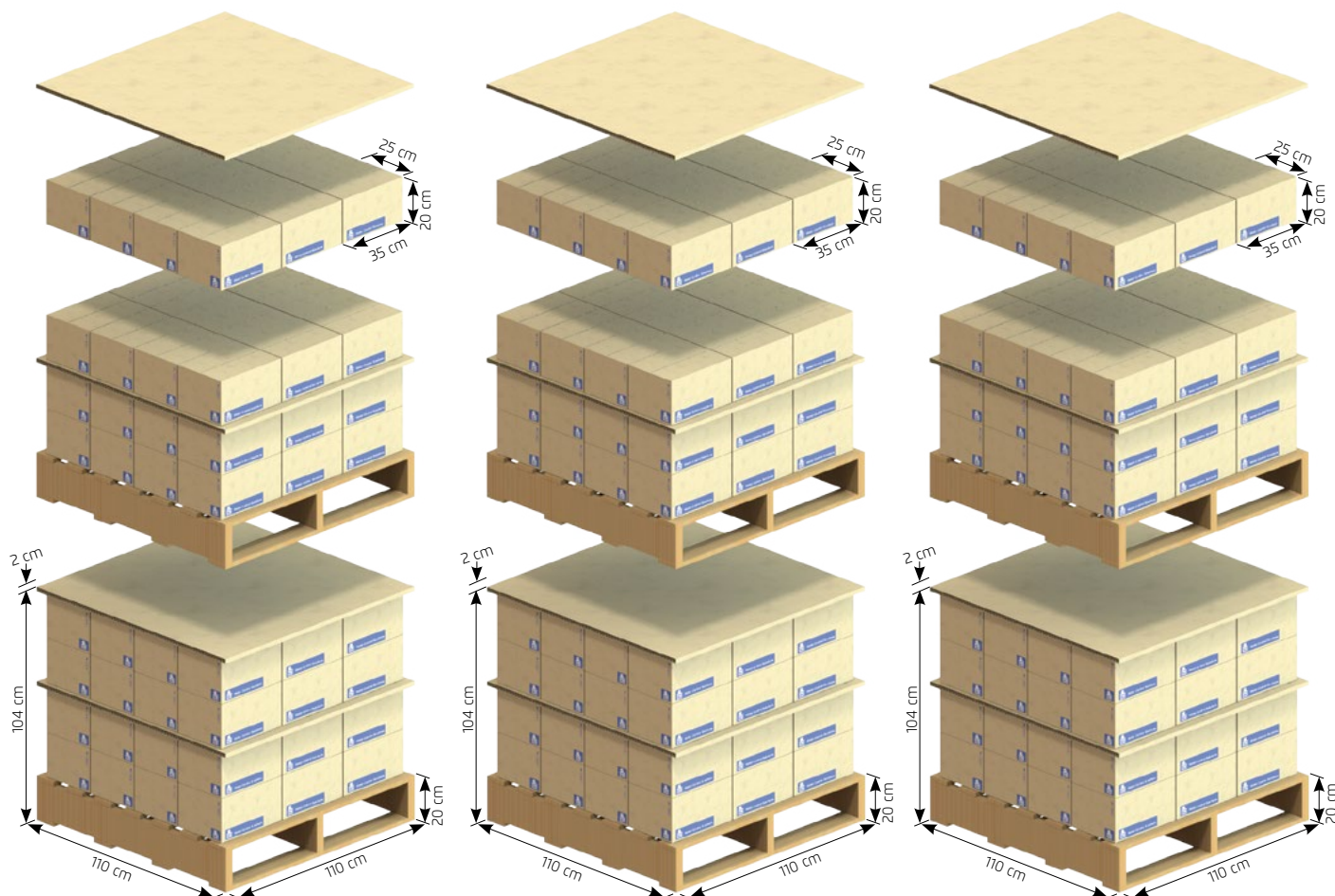


## Packing Specifications

1"

1½", 2"

3"



## Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
1"	6	35	25	20	6.2	0.02
1 ½"	4	35	25	20	8.3	0.02
2"	4	35	25	20	16.3	0.02
3" Threaded	1	35	25	20	13.3	0.02
3" Flange	1	35	25	20	19.3	0.02

## Per Pallet

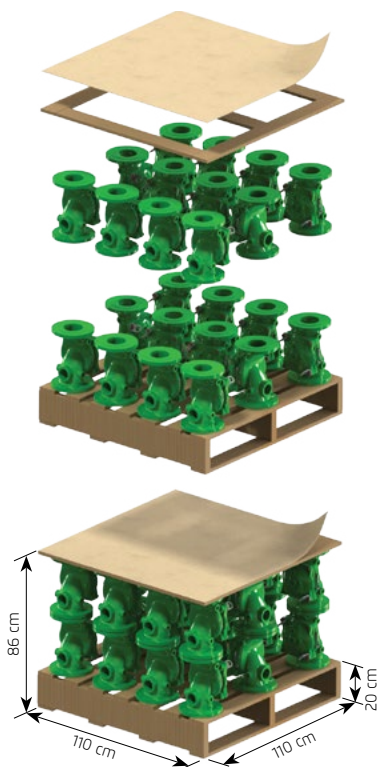
Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross Weight [kg]	Volume [m³]
1"	48	4	288	110	110	104	318	1.3
1 ½"	48	4	192	110	110	104	419	1.3
2"	48	4	192	110	110	104	802	1.3
3" Threaded	48	4	48	110	110	104	658	1.3
3" Flange	48	4	48	110	110	104	946	1.3



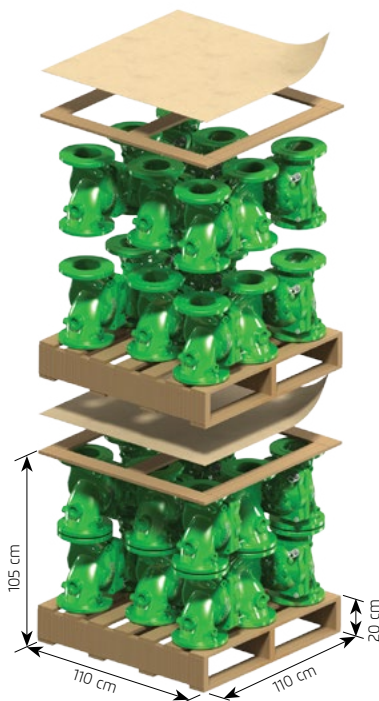


## Packing Specifications

4"



6"



4"

No. of Layers	2
No. of Units	24
Length [cm]	110
Width [cm]	110
Height [cm]	86
Gross Weight	692
Volume [m <sup>3</sup> ]	1.04

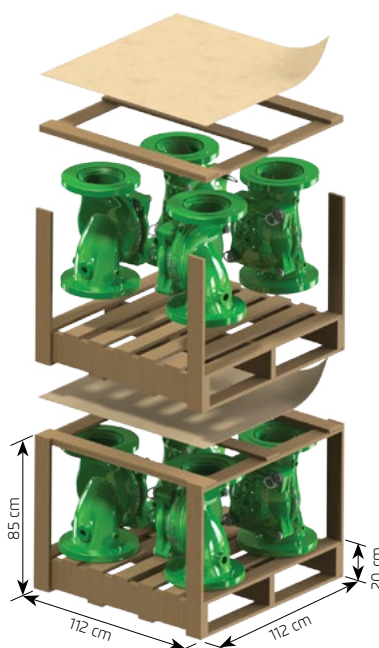
6"

No. of Layers	2
No. of Units	16
Length [cm]	110
Width [cm]	110
Height [cm]	105
Gross Weight	1108
Volume [m <sup>3</sup> ]	1.27

8"



10"



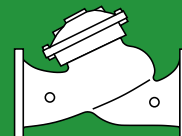
8"

No. of Layers	1
No. of Units	6
Length [cm]	110
Width [cm]	110
Height [cm]	72
Gross Weight	770
Volume [m <sup>3</sup> ]	1.31

10"

No. of Layers	1
No. of Units	4
Length [cm]	112
Width [cm]	112
Height [cm]	85
Gross Weight	580
Volume [m <sup>3</sup> ]	1.07





## IR-700 SIGMA Series

**BERMAD IR-700-SIGMA-ES and IR-700-SIGMA-EN Series Valves are hydraulically operated globe valves in standard oblique "Y" pattern with full bore (IR-700-SIGMA-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-SIGMA-ES and SIGMA-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-SIGMA-ES and SIGMA-EN series valves are meeting the ISO face to face standard requirements.

IR-700-SIGMA-EN Series range in diameter sizes from 1½"-16" and IR-700-SIGMA-ES range in diameter sizes from 2½"-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



## [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

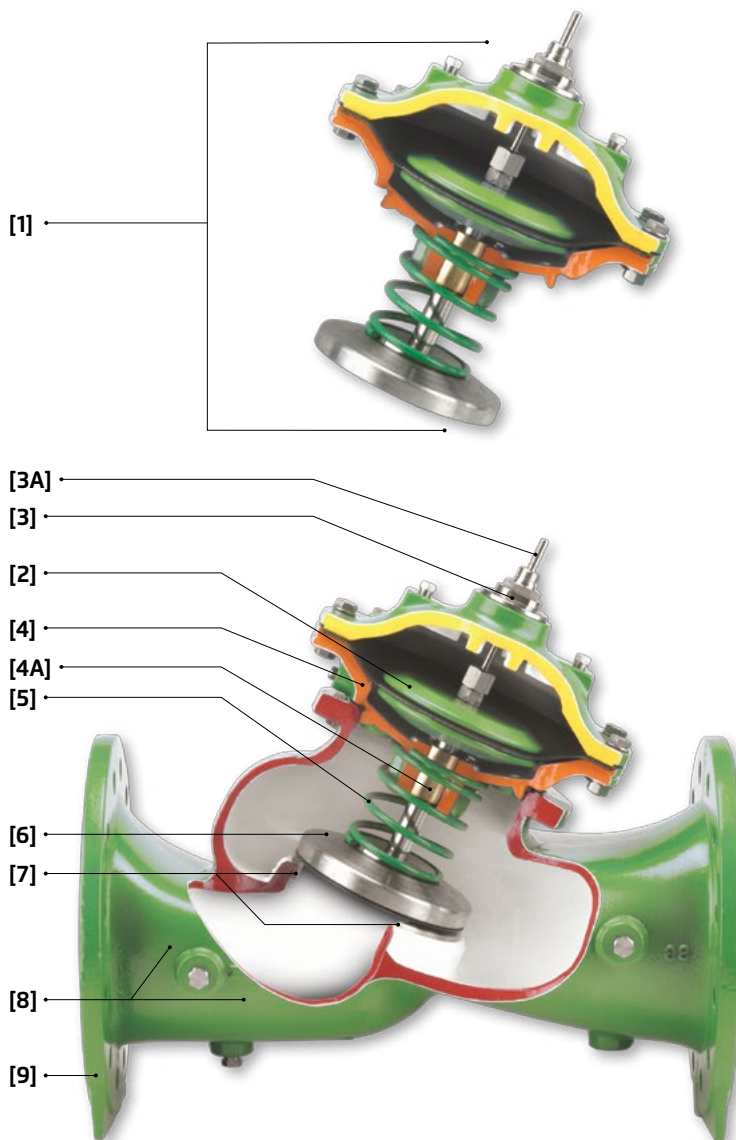
Stainless steel, raised, replaceable in-line and on-site.

## [8] Wide Body ("Y" or Angle Pattern)

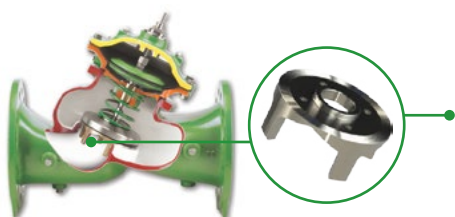
Hydro-dynamically designed for efficient flow with minimal pressure loss and excellent resistance to cavitation. Full bore, valve port area clear of obstructions; no ribs or stem guides. Increases capacity by 25% over standard globe valves.

## [9] End Connections

Conforms to pressure ratings and standards of: ISO, ANSI, AS, JIS, and others.



## Valve Plug Options



### Flat Disc

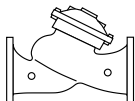
"Quick opening plug": Standard plug provides high flow and quick response.

### 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-SIGMA-ES Series



### Available Sizes & Patterns

- DN65 - DN600; 2½" - 24" - Y Pattern

### Pressure Rating

- PN 10, 16 & 25 (According to Connection Rating)

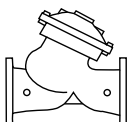
### Connection Standard

- Flanged:
  - ISO 7005-2 (ISO 10, 16 & 25)
  - ASME B165 CLASS 150 & 300
  - JIS B2210 10K, 16K
  - BS10 BSTD & BSTH
  - ABNT NBR 7675 PN10, 16 & 25
  - AS 4087 PN16 & 35

### 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-SIGMA-EN Series



### Available Sizes & Patterns

- DN50 - DN300; 1½"-16" - Y Pattern

### Pressure Rating

- PN 10, 16 & 25 (According to Connection Rating)

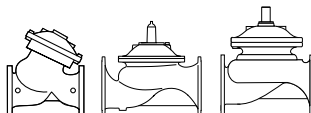
### Connection Standard

- Flanged:
  - ISO 7005-2 (ISO 10, 16 & 25)
  - ASME B165 CLASS 150 & 300
  - JIS B2210 10K, 16K
  - BS10 BSTD & BSTH
  - ABNT NBR 7675 PN10, 16 & 25
  - AS 4087 PN16 & 35

### 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; M5; M6 & M5L Series



### Available Sizes & Patterns

- DN40 - DN500; 1½" - 20" - Y PATTERN
- DN40 - DN450; 1½" - 18" - Angle
- DN600 - DN900; 24" - 48" - Globe

### Pressure Rating

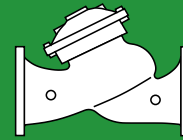
- PN 10, 16 & 25 (According to Connection Rating)

### Connection Standard

- Threaded: BSP (Rp ISO 7/1) or NPT ( DN40 - DN80; 1½" - 3")
- Flanged:
  - ISO 7005-2 (ISO 10, 16 & 25)
  - ASME B165 CLASS 150 & 300
  - JIS B2210 10K, 16K
  - BS10 BSTD & BSTH
  - ABNT NBR 7675 PN10, 16 & 25
  - AS 4087 PN16 & 35

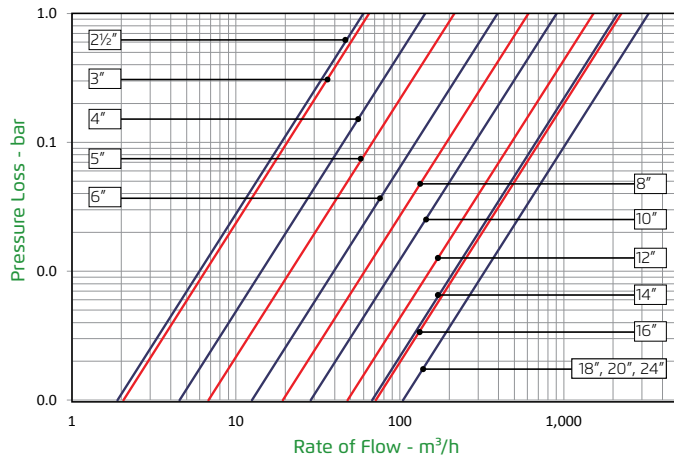
### Standard Materials

- 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

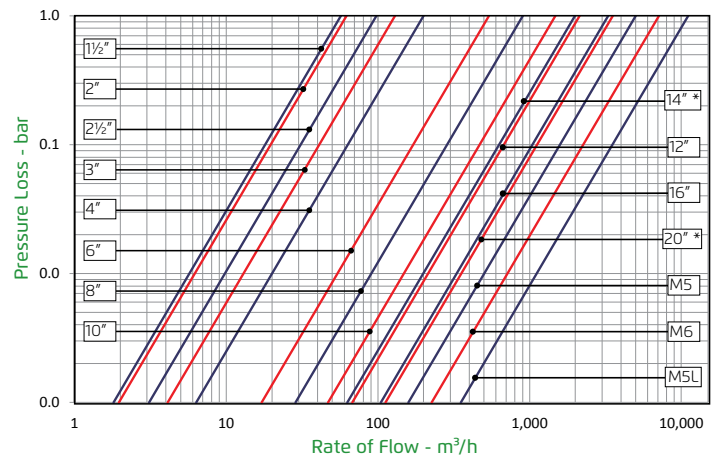


## Flow Charts

### 700-Sigma-ES







### 700-Sigma-EN; 700; -M5; -M6; -M5L







\* 700 Series

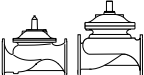
## Flow Properties

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

700-SIGMA-EN		DN	40	50	65	80	100	150	200	250	300	400
		inch	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	16"
Y-Pattern Flat Disc 	Kv		57	62	98	130	200	540	905	1,480	2,140	3,330
	Cv		66	72	113	150	231	624	1,045	1,709	2,472	3,812
Y-Pattern U-Plug 	Kv		46	48	73	102	140	453	767	1,310	1,940	2,970
	Cv		53	55	84	118	162	523	886	1,513	2,241	3,430

700		mm	40	50	65	80	100	150	200	250	300	350	400	450	500
		inch	1 1/2"	2"	2 1/2"	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; 700-M6; 700-M5L

			M5	M6	M5L
G-Pattern Flat Disc 	Kv		5,020	7,150	11,150
	Cv		5,798	8,258	12,878

### Differential Pressure & Flow Calculation

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

Kv = m³/h @ ΔP of 1 bar

Q = m³/h

ΔP = bar

Cv = 1.155 Kv

Where:

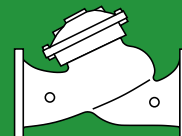
Kv = Valve flow coefficient  
(flow in m³/h at 1bar Diff. Press.)

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

Q = Flow rate (m³/h; gpm)

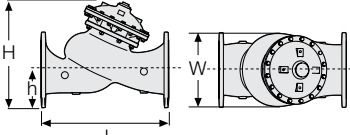
ΔP = Differential pressure (bar; psi)





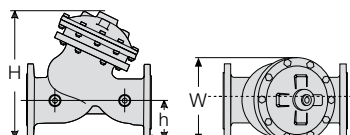
## Flanged

### 700-SIGMA-ES Series

Y Pattern	DN	65	80	100	125	150	200	250	300	400	500	600
	inch	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"	24"
	L* (mm)	290	310	350	400	480	600	730	850	1,100	1,250	1,450
	W (mm)	185	200	235	270	300	360	425	530	626	838	845
	h (mm)	98	108	130	140	163	193	227	265	334	398	490
	H (mm)	242	252	318	375	411	506	600	721	943	1,220	1,240
	Weight (Kg)	18	22	38	62	78	125	198	306	515	1,085	1,290

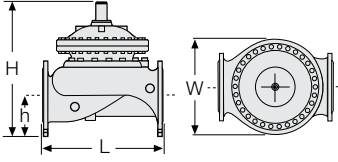
\* Maximum Dimensions (Length according to EN 558-1; ISO 5752)

### 700-SIGMA-EN Series

Y Pattern	DN	40	50	65	80	100	150	200	250	300	400
	inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	16"
	L* (mm)	230	230	290	310	350	480	600	730	850	1,100
	W (mm)	155	165	180	210	255	320	400	480	570	815
	h (mm)	81	86	92	108	130	163	193	227	272	334
	H (mm)	234	246	290	252	318	514	618	725	881	1,171
	Weight (Kg)	12	14	20	28	47	96	158	256	403	974

\* Maximum Dimensions (Length according to EN 558-1; ISO 5752)

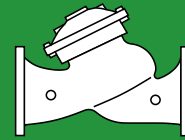
### 700 Series - M5, M6 & M5L

G Pattern	Type	DN		500	600	700	750	800	900	1000	1050	1200
		inch		20"	24"	28"	30"	32"	36"	40"	42"	48"
	M5	PN 16; 25	L (mm)**	1,250	1,450	1,460	1,750	1,850 1,865 <sup>(1)</sup>	-	-	-	-
			W (mm)	965	965	965	1,020	1,026 1,106 <sup>(1)</sup>	-	-	-	-
			h (mm)	385	435	493	530	530	-	-	-	-
			H (mm)	1,235	1,350	1,410	1,380	1,448	-	-	-	-
			Weight (kg)	1,318	1,590	1,745	1,711	1,920	-	-	-	-
	M6	PN 16; 25	L (mm)**	-	1,450 1,500 <sup>(1)</sup>	1,650	1,8750	1,850	1,850	-	-	-
			W (mm)	-	1,250	1,250	1,250	1,250	1,250	-	-	-
			h (mm)	-	470	490	520	552	600	-	-	-
			H (mm)	-	1,965	1,985	2,015	1,760	1,810	-	-	-
			Weight (kg)	-	3,250	3,700	3,900	4,100	4,250	-	-	-
	M5L	PN 16; 25	L (mm)**	-	-	-	1,750	1,850	2,050	2,250	2,251	2,252
			W (mm)	-	-	-	1,425	1,425	1,425	1,425	1,345	1,530
			h (mm)	-	-	-	507	545	600	660	693	785
			H (mm)	-	-	-	1,740	1,780	1,835	1,900	1,913	2,001
			Weight (kg)	-	-	-	3,300	3,200	3,350	3,710	4,216	4,062

\* Maximum Dimensions (Length according to EN 558-1; ISO 5752)

\*\* Length may vary according to flange standard.

<sup>(1)</sup> PN25



## 700 Series

Angle Pattern		DN	40	50	65	80	100	150	200	250	300	350	400	450
		inch	1 ½"	2"	2 ½"	3"	4"	6"	8"	10"	12"	14"	16"	18"
	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
	PN 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	1 ½"	2"	2 ½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
	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
	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

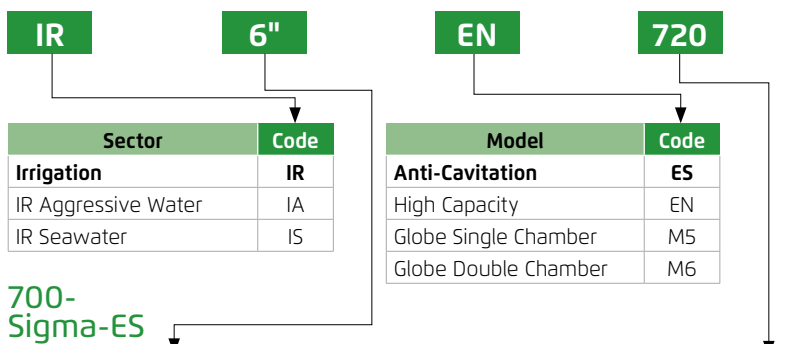
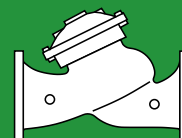
Angle Pattern		DN	50	65	80
		inch	2"	2 ½"	3"
	BSP, NPT	L	121	140	159
		W	122	122	163
		R	40	48	55
		h	83	102	115
		H	225	242	294
		Weight (Kg)	5.5	7	15

Y Pattern		DN	40	50	65	80
		inch	1 ½"	2"	2 ½"	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 - 1200
inch	1 ½"	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	21"- 48"
700-ES Sigma Series	-	-	0.125	0.125	0.3	0.45	0.5	2.15	4.5	8.5	-	12.4	-	29.8	29.8
700-EN Sigma Series	-	0.125	-	0.3	0.45	-	2.15	4.5	8.5	12.4	-	29.8	-	-	-
700 Series	0.125	0.125	0.125	0.3	0.45	-	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	-	1.1	2.3	4.0	8.0	8.0	18.7	18.7	18.7	-
700-M5 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60
700-M6 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98
700-M5L Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	230





Size	
DN65	2½"
DN80	3"
DN100	4"
DN125	5"
<b>DN150</b>	<b>6"</b>
DN200	8"
DN250	10"
DN300	12"
DN350	14"
DN400	16"
DN500	20"
DN600	24"

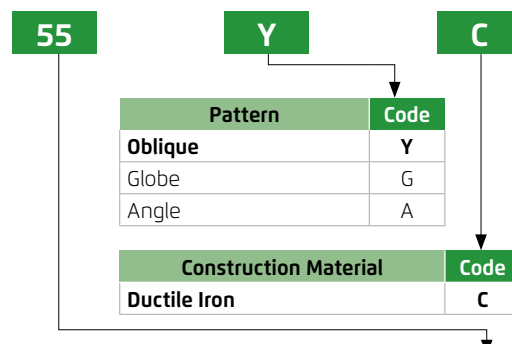
### 700; 700-SIGMA-EN

Size	
DN40	1½"
DN50	2"
DN65	2½"
DN80	3"
DN100	4"
<b>DN150</b>	<b>6"</b>
DN200	8"
DN250	10"
DN300	12"
DN350 *	14" *
DN400	16"
DN450 *	18" *
DN500 *	20" *

\* Only 700 series

Primary Feature	Code
Basic Valve (Double Chambered Actuator)	700
Basic Valve (Single Chambered Actuator)	705
Solenoid Controlled Valve	710
Electronic Control Valve	718
<b>Pressure Reducing Control Valve</b>	<b>720</b>
Pressure Reducing & Sustaining Valve	723
Pressure Sustaining Valve	730
Pressure Relief Valve, Quick Type	73Q
Pressure Sustaining Valve Remote Sensing Type	730R
Surge Anticipating Valve	735
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

Other primary features available on request.



Additional Feature (Multiple Options Permitted)	Code
No Additional Feature	00
Closing and Opening Speed Control	03
Accelerated Closing	04
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
Relief Override	3Q
Electrically Selected Multi-Level Setting	45
Downstream Over Pressure Guard	48
Closing Surge Prevention	49
Electronic Multi-Level Setting - Type 4R	4R
2-Way Hydraulic Relay	50
3-Way Hydraulic Relay	54
<b>Solenoid Controlled</b>	<b>55</b>
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
	2-14 meter; 7-46 feet Setting
	5-22 meter; 17-72 feet Setting
	15-35 meter; 49-115 feet Setting
	25-70 meter; 82-230 feet Setting
Closing at Downstream Pressure Drop	91
Double Cavitation Cage	C2
Independent Lift Check	2S
Proportional (Not available for M5)	PD

Other additional features available on request.

\* Select Setting Range

### 700-M5

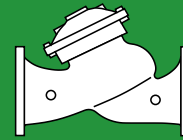
Size	
DN600	24"
DN800	32"

### 700-M6

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

### 700-M5L

Size	
DN750	30"
DN800	32"
DN900	36"
DN1000	40"
DN1050	42"
DN1200	48"



**16**

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

Other end connections available on request.

**PG**

Coating	Code
<b>Polyester Green RAL 6017</b>	<b>PG</b>
Polyester Blue RAL 5010	PB

Other coatings available on request.

**4AC**

Voltage-Main Valve Position (When Solenoid De-Energized)	Code
<b>24VAC, with Diode (D) - Normally Closed</b>	<b>4AC</b>
24VAC, with Diode (D) - Normally Open	4AO
24VAC - Last Position	4AP
24VAC, with Ring (R) - Normally Closed	4RC
24VAC, with Ring (R) - 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.

**PB**

Tubing & Fittings	Code
<b>Reinforced Plastic Tubing &amp; Brass Fittings</b>	<b>PB</b>
Copper Tubing & Brass Fittings	CB
St. St. 316 Tubing & Fittings	NN

**VI**

Additional Attributes (Multiple Options Permitted)	Code
<b>V-Port Throttling Plug</b>	<b>V</b>
Large Control Filter	F
<b>Valve Position Indicator</b>	<b>I</b>
Electric Limit Switch	S
Valve Position Transmitter	Q
Flow Stem	M
Lifting Spring	L
Orifice Assembly	U
Paddle Pilot	t

## Reduction Ratios

## 700-Sigma-ES

Valve Size	Plug Type	
	Flat Disc	V-Port
DN65; 2½"	2.8	3.0
DN80; 3"	2.8	3.0
DN100; 4"	2.6	2.8
DN125; 5"	2.5	2.8
DN150; 6"	2.4	2.7
DN200; 8"	2.4	2.6
DN250; 10"	2.3	2.5
DN300; 12"	2.3	2.5
DN350; 14"	2.3	2.5
DN400; 16"	2.2	2.4
DN450; 18"	2.2	2.3
DN500; 20"	2.2	2.3
DN600; 24"	2.2	2.3

## 700-Sigma-EN

Valve Size	Plug Type	
	Flat Disc	V-Port
DN40; 1½"	2.8	3.0
DN50; 2"	2.8	3.0
DN550; 2½"	2.8	3.2
DN80; 3"	2.7	3.0
DN100; 4"	2.4	2.6
DN150; 6"	2.4	2.6
DN200; 8"	2.3	2.5
DN250; 10"	2.3	2.5
DN300; 12"	2.2	2.4
DN400; 16"	2.2	2.3

700-M6

Valve Size	Plug Type
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.

Additional Attributes (Multiple Options Permitted)	Code
<b>V-Port Throttling Plug</b>	<b>V</b>
Large Control Filter	F
<b>Valve Position Indicator</b>	<b>I</b>
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
Low Preset Pressure (below 2 bar)	2
Plastic Pressure Test Point	5
Pressure Gauge	6
½" Anti Vacuum at Valve Downstream	7

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



## ES - Basic Valve

Double/Single Chambered Actuator

IR-ES-700-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y



## EN - Basic Valve

Double/Single Chambered Actuator

IR-EN-700

Size	Pattern	Connection
2"	DN50	Y
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y

Size	Pattern	Connection
10"	DN250	Y
12"	DN300	Y
16"	DN400	Y
18"	DN450	Y
24"	DN600	Y



## ES - Pressure Reducing Valve

with 2-Way control

IR-ES-720-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y



## ES - Pressure Reducing Valve

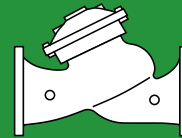
with 2-Way control, Solenoid Control

IR-ES-720-55-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y





## EN - Pressure Reducing Valve, Free-Flow Response

IR-EN-720-X

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## EN - Pressure Reducing Valve, Free-Flow Response

with Solenoid Control

IR-EN-720-55-X

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## ES - Proportional Pressure Reducing Valve

IR-ES-720-PD-V

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## ES - Pressure Reducing & Sustaining Valve

with 2-Way control

IR-ES-723-V

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged





## ES - Pressure Reducing & Sustaining Valve

with 2-Way control, Solenoid Control

IR-ES-723-55-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y



## ES - Pressure Relief / Sustaining Valve

with 2-Way control

IR-ES-730-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y



## ES - Pressure Relief / Sustaining Valve

with 2-Way control, with Solenoid Control

IR-ES-730-55-V

Size	Pattern	Connection
3"	DN80	Y
4"	DN100	Y
6"	DN150	Y
8"	DN200	Y
10"	DN250	Y

Size	Pattern	Connection
12"	DN300	Y
16"	DN400	Y
20"	DN500	Y
24"	DN600	Y



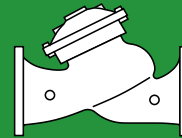
## Quick Pressure Relief Valve

IR-73Q

Size	Pattern	Connection
2"	DN50	Y/A
3"	DN80	Y/A
4"	DN100	Y/A
6"	DN150	Y/A
8"	DN200	Y/A

Size	Pattern	Connection
10"	DN250	Y/A
12"	DN300	Y/A
16"	DN400	Y/A
18"	DN450	Y/A
24"	DN600	Y





## ES - Surge-Anticipating Control Valve

IR-ES-735-M

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## ES - Surge-Anticipating Valve with Solenoid Control

with Solenoid Control

IR-ES-735-55-M

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## EN - Pump Control Valve, with Independent Flow Check

IR-EN-740-2S-03-S

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## EN - Level Control Valve, Modulating Horizontal Float

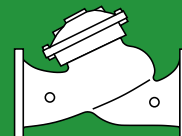
IR-EN-750-60

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged







## EN - Level Control Valve, Bi-level Vertical Float

IR-EN-750-66-B

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## EN - Level Control Valve, Modulating Vertical Float

IR-EN-750-67

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## EN - Level Control & Pressure-Sustaining Valve Bi-Level Electric Float

IR-EN-753-65

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



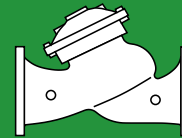
## EN - Level Control & Pressure-Sustaining Valve, Bi-Level Vertical Float

IR-EN-753-66

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged





## EN - Level Control and Flow Control Valve Bi-Level Vertical Float

IR-EN-757-66-U

Size	Pattern	Connection
2"	DN50	Y Flanged
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged

Size	Pattern	Connection
10"	DN250	Y Flanged
12"	DN300	Y Flanged
16"	DN400	Y Flanged
18"	DN450	Y Flanged
24"	DN600	Y Flanged



## ES - Flow Control Valve

with Paddle Type Pilot

IR-ES-770-tV

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## ES - Flow Control Valve

with Paddle Type Pilot, Solenoid Control

IR-ES-770-55-tV

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## ES - Flow Control & Pressure Reducing Valve

with Paddle Type Pilot

IR-ES-772-tV

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged





## ES - Flow Control & Pressure Reducing Valve

with Paddle Type Pilot, Solenoid Control

IR-ES-772-55-tV

Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged



## Flow Control & Pressure Sustaining Valve

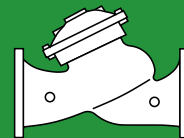
with Paddle Type Pilot

IR-ES-773-tV

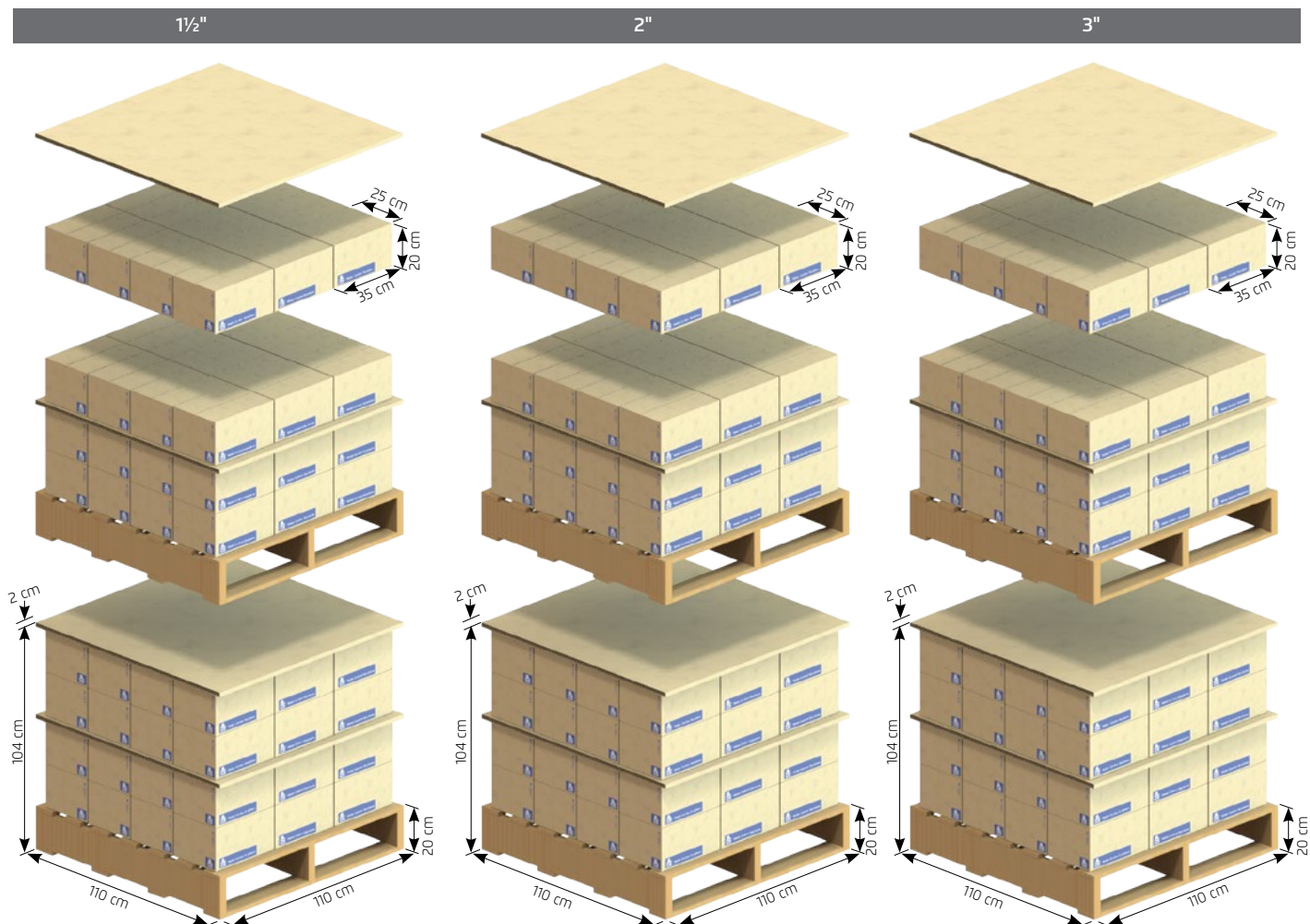
Size	Pattern	Connection
3"	DN80	Y Flanged
4"	DN100	Y Flanged
6"	DN150	Y Flanged
8"	DN200	Y Flanged
10"	DN250	Y Flanged

Size	Pattern	Connection
12"	DN300	Y Flanged
16"	DN400	Y Flanged
20"	DN500	Y Flanged
24"	DN600	Y Flanged





## Packing Specifications



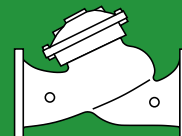
## Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
1½"-SIGMA-EN	2	35	25	20	7	0.02
2"-SIGMA-EN	1	35	25	20	8	0.02
2½"-SIGMA-ES	1	35	25	20	8	0.02
3"-SIGMA-ES	1	35	25	20	17	0.02
3"-SIGMA-EN	1	35	35	25	19	0.03

## Per Pallet

Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross Weight [kg]	Volume [m³]
1½"-SIGMA-EN	48	4	96	110	110	100	692	1.3
2"-SIGMA-EN	48	4	48	110	110	100	404	1.3
2½"-SIGMA-ES	48	4	48	110	110	100	404	1.3
3"-SIGMA-ES	48	4	48	110	110	100	836	1.3
3"-SIGMA-EN	27	3	27	110	110	90	533	1.1

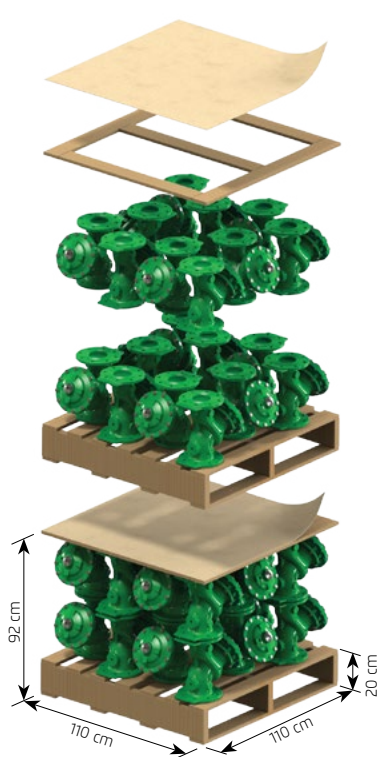




## Packing Specifications 700-Sigma-EN Series

4"

6"



4"

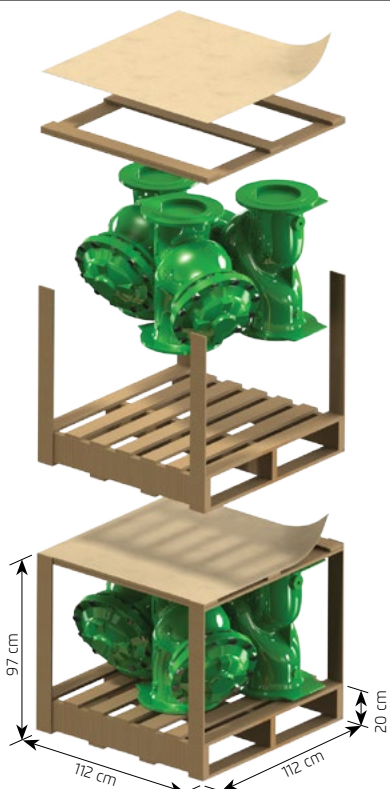
No. of Layers	2
No. of Units	20
Length [cm]	110
Width [cm]	110
Height [cm]	92
Gross Weight	680
Volume [m <sup>3</sup> ]	1.12

6"

No. of Layers	2
No. of Units	12
Length [cm]	110
Width [cm]	110
Height [cm]	115
Gross Weight	860
Volume [m <sup>3</sup> ]	1.4

8"

10"

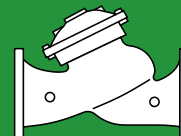


8"

No. of Layers	1
No. of Units	4
Length [cm]	110
Width [cm]	110
Height [cm]	84
Gross Weight	480
Volume [m <sup>3</sup> ]	1.02

10"

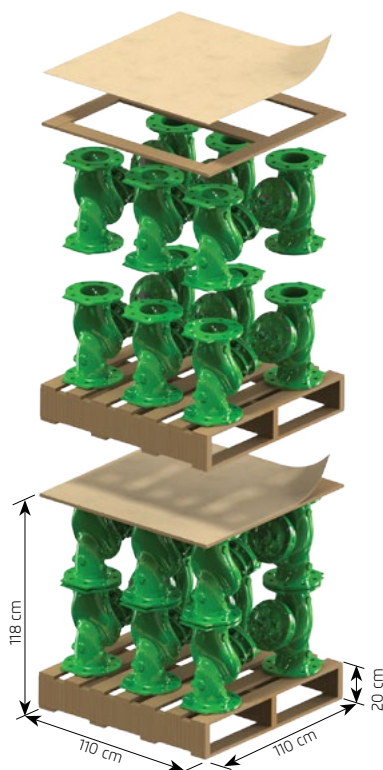
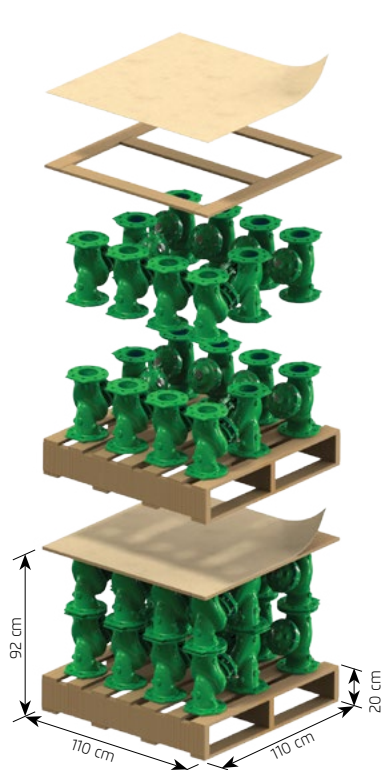
No. of Layers	1
No. of Units	3
Length [cm]	110
Width [cm]	110
Height [cm]	85
Gross Weight	614
Volume [m <sup>3</sup> ]	1.03



## Packing Specifications 700-Sigma-ES Series

4"

6"



4"

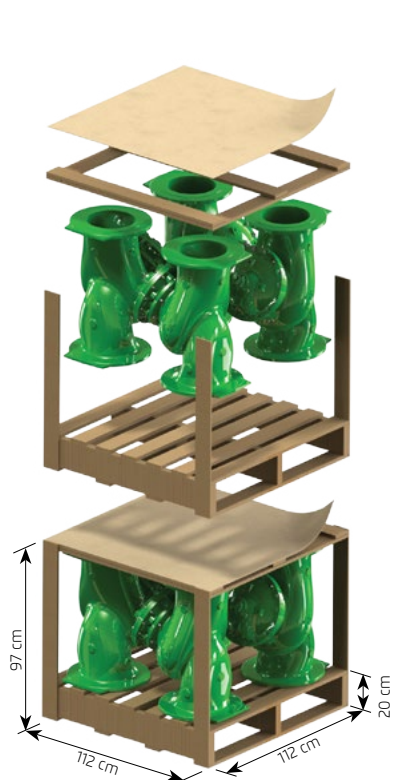
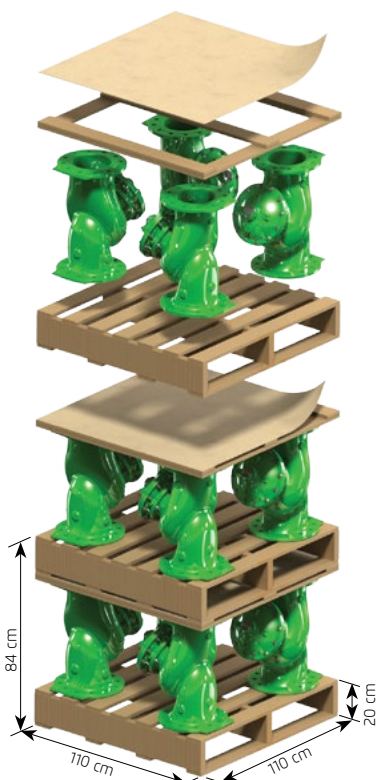
No. of Layers	2
No. of Units	20
Length [cm]	110
Width [cm]	110
Height [cm]	92
Gross Weight	600
Volume [m³]	1.12

6"

No. of Layers	2
No. of Units	12
Length [cm]	110
Width [cm]	110
Height [cm]	115
Gross Weight	680
Volume [m³]	1.4

8"

10"



8"

No. of Layers	1
No. of Units	4
Length [cm]	110
Width [cm]	110
Height [cm]	80
Gross Weight	400
Volume [m³]	1.02

10"

No. of Layers	1
No. of Units	4
Length [cm]	110
Width [cm]	110
Height [cm]	80
Gross Weight	612
Volume [m³]	1.03





## 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, 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
- Two optional Magnetic Drive Register Types:
  - Analog rotating hands display
    - Water-free gear train mechanism
    - Various pulse combinations
  - Electronic digital display based on advanced metering technology
    - Variety of Embedded communication & control options
- Programmable data logging with all measure units Metric & English
- Leakage alert, Battery level indicator, Forward & Reverse Flow Indicator
- Internal Inlet & Outlet Flow Straighteners
  - Saves on straightening distances of pipe
  - Maintains accuracy
- Integrated Flow Metering Calibration Device
  - Precise measurement
- User-Friendly Design
  - Simple in-line inspection and service

### Typical Applications

- Computerized Irrigation Systems
  - Irrigation Control HeadIn
  - In-Field Control Head
- Remote Flow Data Read-Out
  - Flow Monitoring & Leakage Control
  - Water Treatment Systems
  - Volumetric Irrigation Systems

### Standards

- 900-E - Electronic Register
- 900-M - Magnetic Register



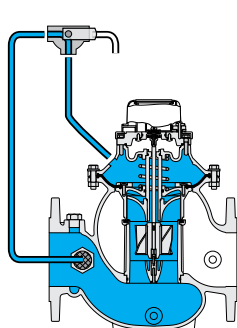
## Electronic Auto Metering Valve Model IR-900-EB

The BERMAD Electronic Metering Valve Model IR-900-EB replaces and upgrades the good-old Bermad unique Mechanical AMV, enabling simple and safe volumetric irrigation. Accurately measuring system flow, the IR-900-EB\* Electronic Register actuates a solenoid to shut after accurately delivered a preset quantity of water. Integrating Blue-Tooth [BLE] technology, the Model IR-900-EB also allow for easily set the AMV opening time using Bermad MeterApp friendly smartphone Application.

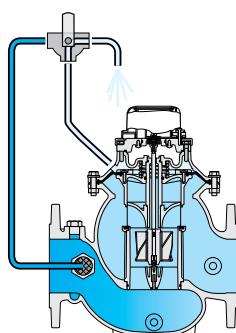
\* 900 Series Hydrometer integrates a vertical turbine Woltman-type water meter with a diaphragm actuated hydraulic control valve. As the system's Flow Meter and Main Valve, it controls system irrigation independently or together with the irrigation controller.



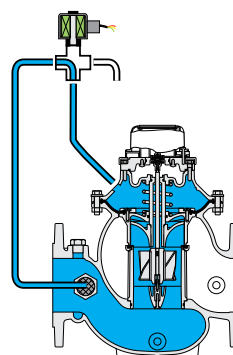
NEW



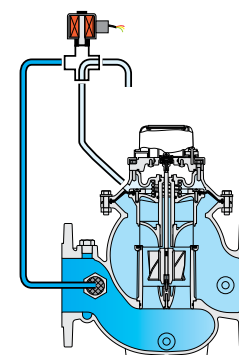
Hydrometer Closed



Hydrometer Open



Solenoid Open  
Hydrometer Closed



Solenoid 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.

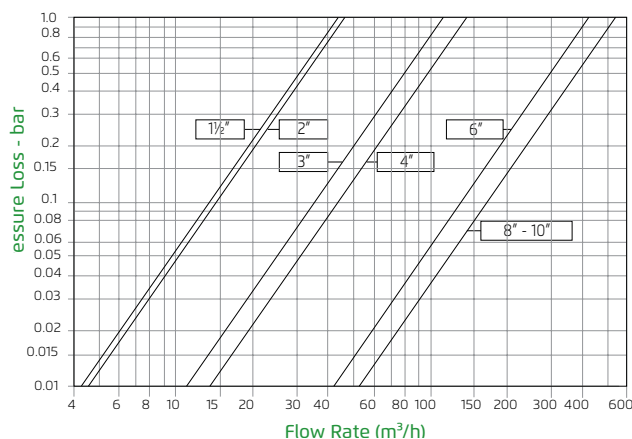
### On/Off Modes, Solenoid Controlled

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.

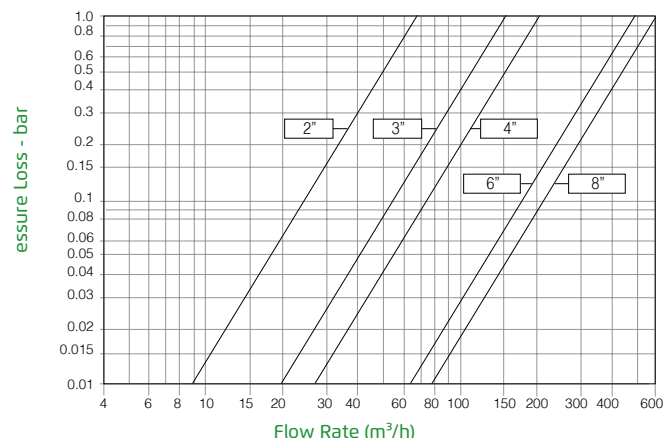
This in turn causes the line pressure under the plug to open the hydrometer, measuring the flow.

### Flow Chart

#### Globe Pattern

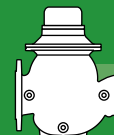


#### 90° Angle Pattern



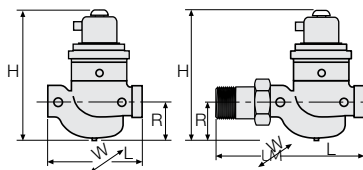
Standards: 900-E - Electronic; 900-M Series Approved to MID 2004/22/EC





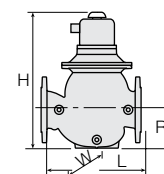
## Globe Pattern

Connection Type		Threaded		
Size	DN	40	50	80R
	inch	1½	2	3R
LM		320	330	250
L		250	250	250
W		137	137	137
H		300	300	300
R		95	95	79
Weight (Kg)		7.2	7.3	7.3



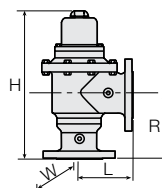
## Globe Pattern

Connection Type		Threaded						Grooved			
Size	DN	40	50	80R	80	100	150	200	250	100	150
	inch	1½	2	3R	3	4	6	8	10	4	6
L		250	250	310	300	350	500	600	600	600	600
W		150	165	200	210	250	380	380	405	380	405
H		300	300	321	405	460	623	633	633	633	633
R		95	95	100	123	137	216	228	228	228	228
Weight (Kg)		10.6	12.7	18.8	23	30	70	92	140	92	140



## 90° Angle Pattern

Connection Type		Flanged				
Size	DN	50	80	100	150	200
	inch	2	3	4	6	8
L		120	150	180	250	250
W		137	210	250	380	380
H		322	425	480	610	610
R		125	196	225	306	280
Weight (Kg)		7.9	25.5	35.8	76.4	82.2



## Available Patterns, Size & End Connections

Connection Type		Flanged								
Size	DN	40	50	65	80R	80	100	150	200	250
	inch	1½	2	2½	3R	3	4	6	8	10
Threaded		G	G & A		G					
Threaded (Male)		G	G							
Flanged		G	G	G	G	G & A	G & A	G & A	G & A	G
Flange Inlet \ Thread Outlet			A		G					

G = Globe, A = Angle 90°

## Technical Data

### Connections Standard:

**Flanged:** ISO 7005-2 (PN10 & 16)

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

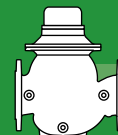
### Operating Pressure Ranges:

**PN16:** 0.7-16 bar

For lower pressure requirements, consult factory

**Temperature:** Water up to 50°C









### 900-E

**IR**

Sector	Code
Irrigation	IR

**4"**

Size	
1½"	DN40*
2"	DN50
2½"	DN65
3"R*	DN80R*
3"	DN80
<b>4"</b>	<b>DN100</b>
6"	DN150
8"	DN200
10"	DN250*

\* Globe only

**920**

Primary Features	Code
Basic	900
Basic Low Pressure	90L
Water Meter	901
Solenoid Controlled Valve	910
Electronic Control Valve	918
<b>Pressure Reducing Valve</b>	<b>920</b>
Pressure Reducing & Sustaining Valve	923
Flow Control Valve, Constant Downstream Pressure	927
Pressure Sustaining Valve	930
Level Control Valve	950
Level Control - Low Pressure	95L
Level Control & Pressure Sustaining Valve	953
Level & Flow Control	957
Flow Control Valve	970
Flow Control & Pressure Reducing Control Valve	972
Flow Control & Pressure Sustaining Control Valve	973
Flow Control, Pressure Reducing & Sustaining Valve	975

Other primary features available on request.

**E0**

Control Categories	Code
<b>Hydrometer with Magnetic Drive &amp; Electronic Register</b>	<b>E0</b>
Hydrometer with Magnetic Drive & Electronic Register with Bluetooth	EB
Hydrometer with Magnetic Drive & Electronic Register with Bluetooth & GPRS	EG

**55**

Additional Features	Code
No Additional Feature	00
Closing and Opening Speed-Control	03
Hydraulic Override	09
Electronic Control	18
Check Feature	20
Solenoid Controlled & Check Feature	25
Electrically Selected Multi-Level Setting	45
Downstream Over Pressure Guard	48
Closing Surge Prevention	49
Hydraulic Relay	50
Normally Closed with Hydraulic Relay	54
Normally Closed with PC Hydraulic Relay	54X
<b>Solenoid Controlled</b>	<b>55</b>
Electric Override	59
Modulating Horizontal Float	60
St. St. 304 V-Port	VN

Other additional features available on request.

**G**

Pattern	Code
<b>Globe</b>	<b>G</b>
Angle (2", 3", 4", 6" & 8")	A

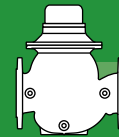
**C**

Construction Materials	Code
Ductile Iron	C

**16**

End Connections	Code	
Threaded	BSP Female Threaded (1½"-3"R Globe & 2" Angle)	BP
	NPT Female Threaded (1½"-3"R Globe & 2" Angle)	NP
	BSP-U Male Threaded (1½" & 2" )	BS
Flanged (2"-10")	ISO-10	10
	Flange (JIS-10) inlet x BSP outlet (2" Angle only)	JB
	<b>ISO-16</b>	<b>16</b>
	ISO-14 (ISO 10/4 Holes, 3")	14
	ANSI-150	A5
	BST-D	BD
	JIS-10	J1
	ABNT-10	B1
Grooved	ABNT-16	B6
	AST-D	SD
	AST-E	SE
	ANSI C 606-81, Steel Pipe (3", 4" & 6")	VI

Other end connections available on request.



## 900-E

PG	4AC	PP	M32	KX																																																																																							
<table><tr><th>Coating</th><th>Code</th></tr><tr><td>Polyester Green RAL 6017</td><td>PG</td></tr></table> <p>Other coatings available on request.</p>		Coating	Code	Polyester Green RAL 6017	PG																																																																																						
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Estimate life span for standard pulse = 10 years; Pulse Width 200ms

\* Estimate life span = 5 years; Pulse Width 200ms

\*\* Estimate life span = 5 years; Pulse Width 50ms





### 900-M

**IR**

**4"**

**920**

**M0**

**55**

**G**

**C**

**I6**

Sector	Code
Irrigation	IR

Size	
1½"	DN40*
2"	DN50
2½"	DN65
3"R*	DN80R*
3"	DN80
<b>4"</b>	<b>DN100</b>
6"	DN150
8"	DN200
10"	DN250*

\* Globe only

Control Categories	Code
Hydrometer with Magnetic Drive & Magnetic Register Command	M0

Additional Features	Code
No Additional Feature	00
Closing and Opening Speed-Control	03
Hydraulic Override	09
Electronic Control	18
Check Feature	20
Solenoid Controlled & Check Feature	25
Electrically Selected Multi-Level Setting	45
Downstream Over Pressure Guard	48
Closing Surge Prevention	49
Hydraulic Relay	50
Normally Closed with Hydraulic Relay	54
Normally Closed with PC Hydraulic Relay	54X
<b>Solenoid Controlled</b>	<b>55</b>
Electric Override	59
Modulating Horizontal Float	60
Bi-Level Electric Float	65
Bi-Level Vertical Float	66
Modulating Vertical Float	67
St. St. 304 V-Port	VN

Other additional features available on request.

End Connections	Code	
Threaded	BSP Female Threaded (1½"-3"R Globe & 2" Angle)	BP
	NPT Female Threaded (1½"-3"R Globe & 2" Angle)	NP
	BSP-U Male Threaded (1½" & 2" )	BS
Flanged (2"-10")	ISO-10	10
	Flange (JIS-10) inlet x BSP outlet (2" Angle only)	JB
	<b>ISO-16</b>	<b>16</b>
	ISO-14 (ISO 10/4 Holes, 3")	14
	ANSI-150	A5
	BST-D	BD
	JIS-10	J1
	ABNT-10	B1
	ABNT-16	B6
Grooved	AST-D	SD
	AST-E	SE
	ANSI C 606-81, Steel Pipe (3", 4" & 6")	VI

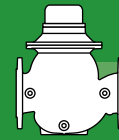
Other end connections available on request.

Primary Features	Code
Basic	900
Basic Low Pressure	90L
Water Meter	901
Solenoid Controlled Valve	910
Electronic Control Valve	918
<b>Pressure Reducing Valve</b>	<b>920</b>
Pressure Reducing & Sustaining Valve	923
Flow Control Valve, Constant Downstream Pressure	927
Pressure Sustaining Valve	930
Level Control Valve	950
Level Control - Low Pressure	95L
Level Control & Pressure Sustaining Valve	953
Level & Flow Control	957
Flow Control Valve	970
Flow Control & Pressure Reducing Control Valve	972
Flow Control & Pressure Sustaining Control Valve	973
Flow Control, Pressure Reducing & Sustaining Valve	975

Other primary features available on request.

Pattern	Code
<b>Globe</b>	<b>G</b>
Angle (2", 3", 4", 6" & 8")	A

Construction Materials	Code
Ductile Iron	C



### 900-M

PG	4AC	PP	R03	KX																																																																																																				
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<table><tr><th>Tubing &amp; Fittings</th><th>Code</th></tr><tr><td>Plastic Tubing &amp; Fittings</td><td>PP</td></tr><tr><td>Plastic Reinforced Tubing &amp; Brass Fittings</td><td>PB</td></tr><tr><td>Copper Tubing &amp; Brass Fittings</td><td>CB</td></tr></table>	Tubing & Fittings	Code	Plastic Tubing & Fittings	PP	Plastic Reinforced Tubing & Brass Fittings	PB	Copper Tubing & Brass Fittings	CB	<table><tr><th colspan="5">Hydrometer Magnetic Register Pulses &amp; size Availability</th></tr><tr><th>Size</th><th>Pulse per</th><th>100 Liter</th><th>1m³</th><th>10m³</th></tr><tr><td>1½"-4"; DN40-DN100</td><td></td><td>Y</td><td>Y</td><td>N</td></tr><tr><td>6"-10"; DN150-DN250</td><td></td><td>N</td><td>Y</td><td>Y</td></tr></table>				Hydrometer Magnetic Register Pulses & size Availability					Size	Pulse per	100 Liter	1m³	10m³	1½"-4"; DN40-DN100		Y	Y	N	6"-10"; DN150-DN250		N	Y	Y																																																																								
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6"-10"; DN150-DN250		N	Y	Y																																																																																																				

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



## Hydrometer

Magnetic (M0) Drive

IR-900-M0

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Threaded
3"	DN80R	G Flanged
3"	DN80	G Threaded
		G Flanged/Grooved

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
	A	Flanged
6"	DN150	G Flanged/Grooved
	A	Flanged
8"	DN200	G Flanged/Grooved
	A	Flanged
10"	DN250	G Flanged/Grooved



## Hydrometer

Magnetic (M0) Drive

with Manual Selector, Plastic Fittings

IR-900-M0-KZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Threaded
3"	DN80R	G Flanged

Size	Pattern	Connection
3"	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



## Hydrometer

Magnetic (M0) Drive

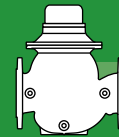
with Manual Selector, Metal Fittings

IR-900-M0-RZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Threaded
3"	DN80R	G Flanged
3"	DN80	G Threaded
		G Flanged/Grooved

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
	A	Flanged
6"	DN150	G Flanged/Grooved
	A	Flanged
8"	DN200	G Flanged/Grooved
	A	Flanged
10"	DN250	G Flanged/Grooved





## Hydrometer, Solenoid Controlled

Magnetic (MO) Drive  
with Plastic Accessories (K)

IR-910-MO-KX

Solenoid S-390-3W; S-400

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/ Grooved
		A Flanged
4"	DN100	G Flanged/ Grooved
		A Flanged



## Hydrometer, Solenoid Controlled

Magnetic (MO) Drive  
with Metal Accessories ( R )

IR-910-MO-RX

Solenoid 3W

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/ Grooved
3"	DN80	G Flanged/ Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/ Grooved
		A Flanged
6"	DN150	G Flanged/ Grooved
		A Flanged
8"	DN200	G Flanged/ Grooved
		A Flanged
10"	DN250	G Flanged/ Grooved



## Pressure Reducing Hydrometer, 2-Way

Magnetic (MO) Drive  
with Metal Pilot and Accessories ( R )

IR-920-MO-2W-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/ Grooved
3"	DN80	G Flanged/ Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/ Grooved
		A Flanged
6"	DN150	G Flanged/ Grooved
		A Flanged
8"	DN200	G Flanged/ Grooved
		A Flanged
10"	DN250	G Flanged/ Grooved





## Pressure Reducing Hydrometer, 3-Way

Magnetic (M0) Drive

with Manual Selector, Plastic Pilot and Accessories (K)

IR-920-M0-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



## Pressure Reducing Hydrometer, with Hydraulic Control, 2-Way

Magnetic (M0) Drive

Metal Pilot and Accessories ( R )

IR-920-M0-50-2W-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/Grooved
3"	DN80	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved



## Pressure Reducing Hydrometer, with Hydraulic Control, 3-Way

Magnetic (M0) Drive

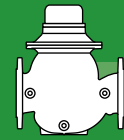
with Manual Selector, Plastic Pilot and Accessories (K)

IR-920-M0-50-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged





## Pressure Reducing Hydrometer, Solenoid Controlled, 2-Way

Magnetic (MO) Drive

with Metal Pilot and Accessories ( R )

IR-920-M0-55-2W-R

solenoid 2W

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		A Flanged
2½"	DN65	A Threaded
		G Flanged
3"	DN80	G Threaded
		A Flanged/Grooved
3"	DN80R	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved
		A Flanged



## Pressure Reducing Hydrometer, Solenoid Controlled, 3-Way

Magnetic (MO) Drive

with Plastic Pilot and Accessories (K)

IR-920-M0-55-KX

Solenoid S-390 / S-400

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		A Flanged
2½"	DN65	A Threaded
		G Flanged
3"	DN80R	G Threaded

Size	Pattern	Connection
3"	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



## Pressure Reducing & Sustaining Hydrometer, 2-Way

Magnetic (MO) Drive

with Metal Pilot and Accessories ( R )

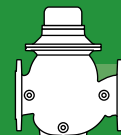
IR-923-M0-2W-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		A Flanged
2½"	DN65	A Threaded
		G Flanged
3"	DN80	G Threaded
		A Flanged/Grooved
3"	DN80R	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved
		A Flanged







## Pressure Reducing & Sustaining Hydrometer, 3-Way

Magnetic (M0) Drive

with Manual Selector, Plastic Pilot and Accessories (K)

IR-923-M0-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



## Pressure Sustaining Hydrometer, 2-Way

Magnetic (M0) Drive

with Metal Pilot and Accessories ( R )

IR-930-M0-2W-R

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/Grooved
3"	DN80	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved



## Pressure Sustaining Hydrometer, 3-Way

Magnetic (M0) Drive,

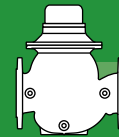
with Manual Selector, Plastic Pilot and Accessories (K)

IR-930-M0-KXZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged





## Flow Control Hydrometer, Servo

Magnetic (M0) Drive,  
with Manual Selector, Plastic Pilot and Accessories (K)

IR-970-M0-KVZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



## Flow Control Hydrometer with Hydraulic Control, Servo

Magnetic (M0) Drive,  
with Manual Selector, Metal Pilot and Accessories ( R )

IR-970-M0-50-RVZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/Grooved
3"	DN80	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved



## Flow Control & Pressure Reducing Hydrometer, 2-Way

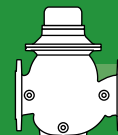
Magnetic (M0) Drive  
with Manual Selector, Metal Pilot and Accessories ( R )

IR-972-M0-RVZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
	A	Threaded
2½"	DN65	G Flanged
3"R	DN80R	G Threaded
		G Flanged/Grooved
3"	DN80	G Flanged/Grooved
		A Flanged

Size	Pattern	Connection
4"	DN100	G Flanged/Grooved
		A Flanged
6"	DN150	G Flanged/Grooved
		A Flanged
8"	DN200	G Flanged/Grooved
		A Flanged
10"	DN250	G Flanged/Grooved





## Flow Control & Pressure Reducing Hydrometer, 2-Way

Magnetic (M0) Drive

with Manual Selector, Plastic Pilot and Accessories (K)

IR-972-M0-KVZ

Size	Pattern	Connection
1½"	DN40	G Threaded
2"	DN50	G Threaded
		G Flanged
2½"	DN65	G Flanged
3"R	DN80R	G Threaded

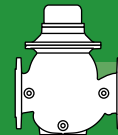
Size	Pattern	Connection
3"R	DN80R	G Flanged
3"	DN80	G Flanged/Grooved
		A Flanged
4"	DN100	G Flanged/Grooved
		A Flanged



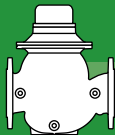
## Additional Features & Options - Suffix Code-K (Plastic) & R (Metal) Accessories

Code	Description
20-3W-P	3W Check Feature (Shuttle Valve) - Plastic
20-2W-M	2W Check Feature - Metal
20-3W-M	3W Check Feature (Shuttle Valve) - 1½"-4" Metal
20-3W-M	3W Check Feature (Shuttle Valve) - 6"-10" Metal
50-3W-P	3W Hydraulic Control (Shuttle Valve) - Plastic
50-2W-P	2W Hydraulic Control (2-Way Hydraulic Relay) - Plastic
50-3W-M	3W Hydraulic Control (Shuttle Valve) - Metal
50-2W-M	¾" 2-Way Hydraulic Relay (2W-HRV) - Brass
54-3W-P	1½" 3-Way Hydraulic Relay (3W-HRV) - Plastic
55-P	Solenoid Controlled - Plastic
55-M	Solenoid Controlled - 1½"-4" - Metal
55-M	Solenoid Controlled - 6"-10" - Metal
Z	Manual Selector - 1½"-4"
Z	Manual Selector - 6"-10"
HP	Metal Primary Gear Cover
ER	Upgrade from Magnetic Register to Electronic Register
ER-BLE	Upgrade to electronic register with BLE communication
BLE-SOL	BLE Solenoid Valve Control
Sx	Pulses Divider to adjust pulse rate for controllers having a slow scanning rate
RP	Reed-switch Electric Pulse Transmitter (for Magnetic Register)
R	Metal Tubing & Fittings (add to plastic standard) -1½"-3"R
R	Metal Tubing & Fittings (add to plastic standard) -3"-4"
S	Pump Shut-off Switch Assembly (for AMV only)

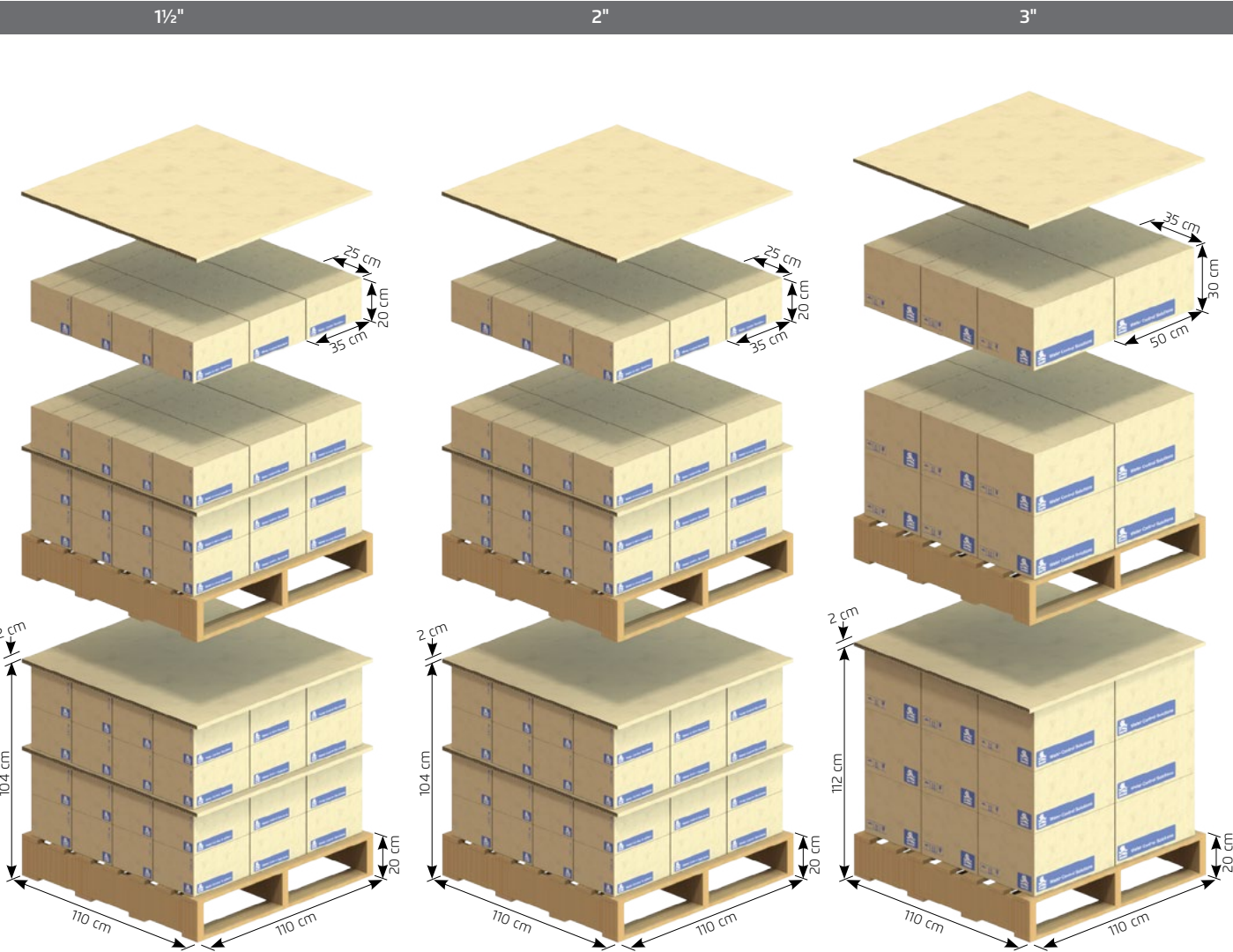








Packing Specifications



Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m³]
1½"	1	35	25	20	7.4	0.02
2"	1	35	25	20	7.6	0.02
3" Flanged	1	50	35	30	23.72	0.05

Per Pallet

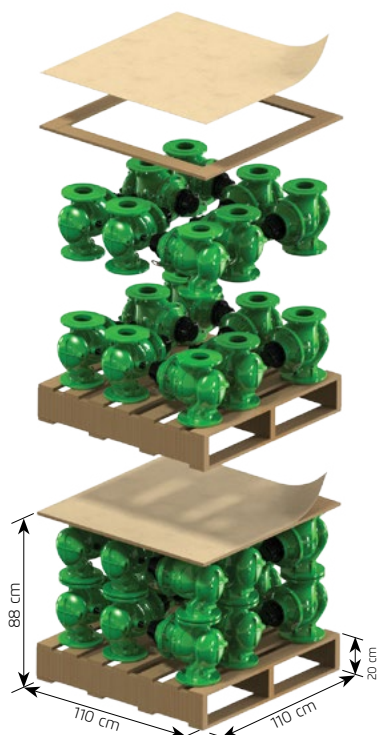
Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross Weight [kg]	Volume [m³]
1½"	48	4	48	110	110	104	376	1.3
2"	48	4	48	110	110	104	385	1.3
3" Flanged	18	3	18	110	110	112	447	1.3



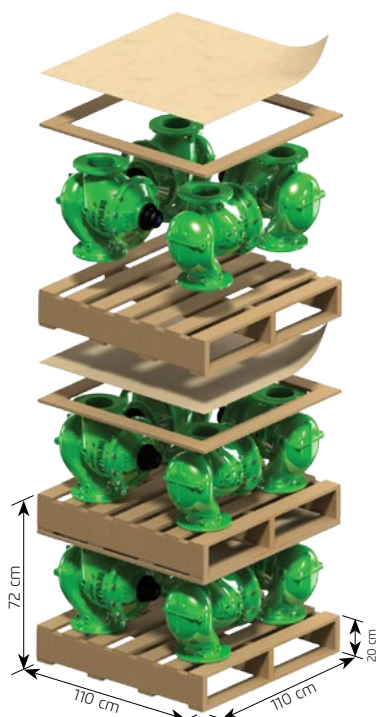


## Packing Specifications

4"



6"



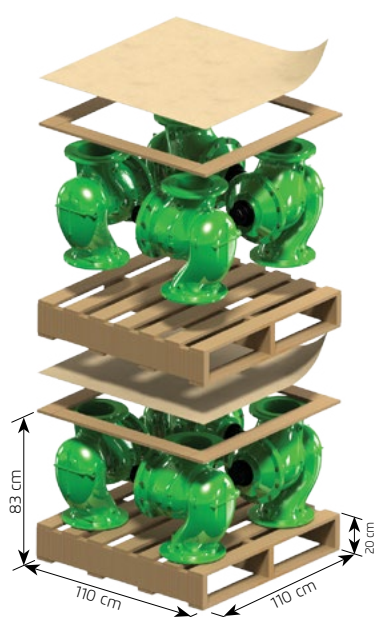
4"

No. of Layers	2
No. of Units	16
Length [cm]	110
Width [cm]	110
Height [cm]	88
Gross Weight	500
Volume [m <sup>3</sup> ]	1.06

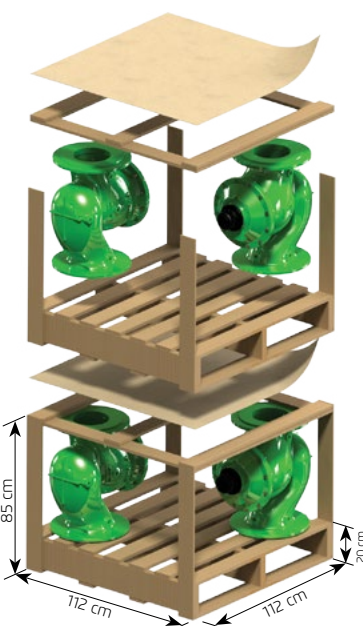
6"

No. of Layers	1
No. of Units	4
Length [cm]	110
Width [cm]	110
Height [cm]	72
Gross Weight	300
Volume [m <sup>3</sup> ]	0.87

8"



10"



8"

No. of Layers	1
No. of Units	4
Length [cm]	110
Width [cm]	110
Height [cm]	83
Gross Weight	388
Volume [m <sup>3</sup> ]	1.00

10"

No. of Layers	1
No. of Units	2
Length [cm]	112
Width [cm]	112
Height [cm]	85
Gross Weight	300
Volume [m <sup>3</sup> ]	1.07





## TURBO-IR-M

### Water Meter with Magnetic Register

#### Features and Benefits

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

## TURBO-IR-E

### Water Meter with Electronic Register

The TURBO-IR-E 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.

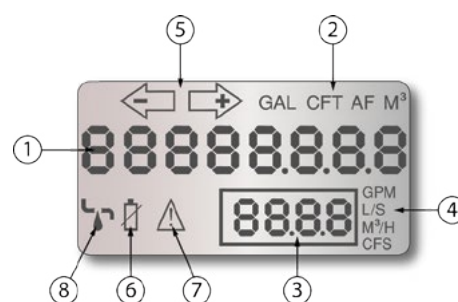
#### Features and Benefits

- Digital display
- Constant flow rate display, in different units
- Improved sensitivity of magnetic meters
- Forward and reverse accumulators
- Programmable volume display
- Battery lifetime – more than 10 years
- Standard two pulse outputs option
- Can be easily upgraded with any mechanical IR meter

Optional: E. Register with Blue Tooth Communication

#### Applicable Icons

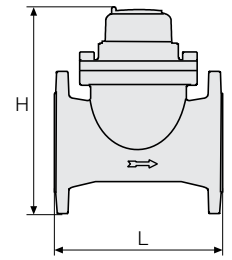
1. Volume
2. Volume units
3. Flow Rate
4. Flow Rate units
5. Volume direction
6. Battery level indication
7. General warning
8. Leakage alert





## Dimensions and Weights

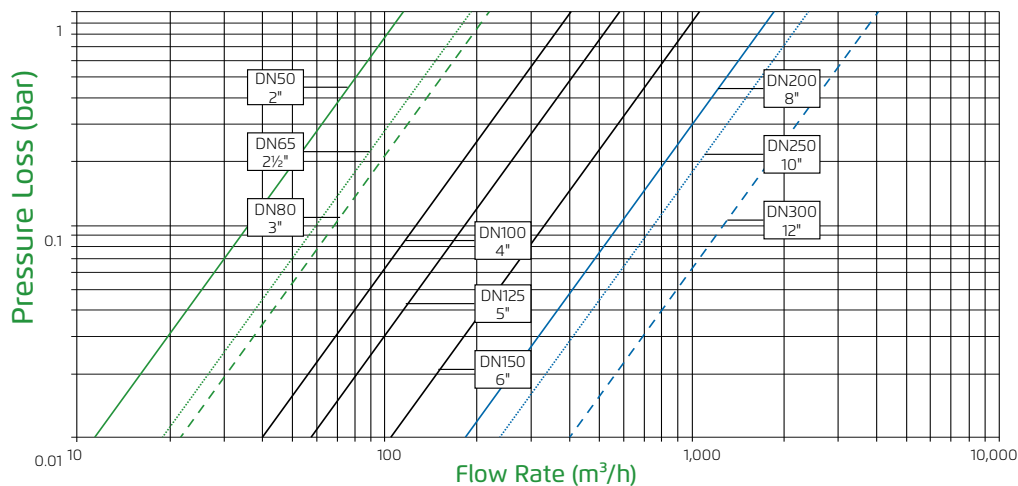
Nominal Size	mm	50	65	80	100	125	150	200	250	300
	Inch	2"	2½"	3"	4"	5"	6"	8"	10"	12"
L, Length (mm)		200	200	225	250	250	300	350	450	500
H, Height (mm)		252	262	280	290	303	333	386	442	494
Weight (kg)		10.5	11.8	15.5	17.5	19.5	30.5	42.5	60	82.5



## Metrological Data

	Accuracy	mm	40	50	65	80	100	125	150	200	250	300	400	500
		Inch	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"
Qmin (Minimum flow), m³/h	±5%		0.5	0.5	0.8	1.3	1.3	2	3.1	5	8	12.5	32	50
Qt (Transitional flow), m³/h	±2%		0.8	0.8	1.3	2	2	3.2	5.0	8.0	12.6	20	51	80
Qn (Permanent flow), m³/h	±2%		25	40	63	63	100	160	250	400	630	1000	1600	2500
Qmax (Peak flow,short time), m³/h	±2%		31	50	79	79	79	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	50	50	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											

## Turbo-IR-A Flow Chart



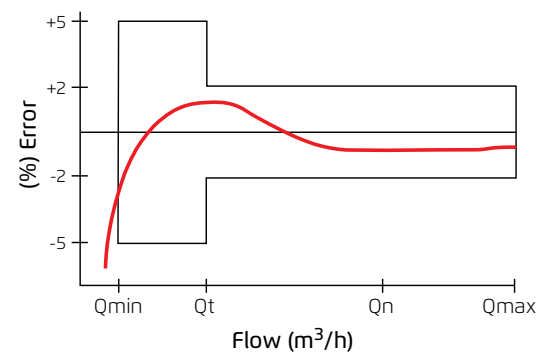
## Reed Switch Assembly

- 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.

## Accuracy Curve







## TURBO-BAR-M

### Woltman Water Meter with Magnetic Register

#### Features and Benefits

- Removable and interchangeable measuring element
- Dry type register, Hermetically sealed
- Magnetic drive, keeps the register completely separate from water.
- Option for "reed switch" sensor
- Easy maintenance
- Low head loss
- MID 2004/22/EEC Approved, according to OIML R49, EN14154.

## TURBO-BAR-E

### Woltman Water Meter with Electronic Register

The BERMAD Electronic Water Meter Register has a digital odometer based on advanced metering technology. The encapsulated electronic odometer is waterproof with built in Bluetooth & GPRS Pulse output transmitting capabilities, suited for Irrigation, Waterworks & Residential applications.

The electronic odometer provides meter reading, flow indication, alerts and AMR capabilities. The BERMAD Electronic Register technology uses a unique innovative solution with no moving parts, improving accuracy and sensitivity, while increasing metering reliability.

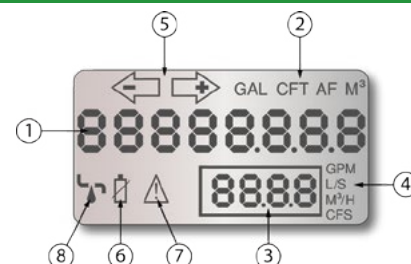
#### Features and Benefits

- Digital display
- Constant flow rate display, in different units.
- Improved sensitivity of magnetic meters
- Forward and reverse accumulators
- Programmable volume display
- Battery lifetime – more than 10 years
- Standard two pulse outputs option

Optional: E. Register with Blue Tooth Communication

#### Applicable Icons

1. Volume
2. Volume units
3. Flow Rate
4. Flow Rate units
5. Volume direction
6. Battery level indication
7. General warning
8. Leakage alert

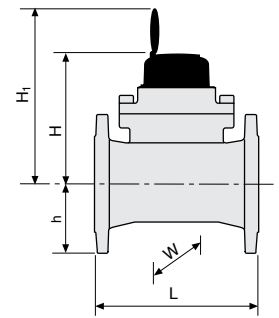




## Technical Specifications

### Turbo Bar Dimensions and Weight Data, mm-kg

Nominal Size	mm	40	50		65	80	100	125	150	200	250	300	400	500
	Inch	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	500
H, height (mm)		268	275	270	285	295	304	318	366	393	512	534	669	765
H1, height (mm)		338	345	340	355	365	374	388	436	463	582	604	739	835
h, flange type (mm)		68	75	70	85	95	104	118	135	162	194	216	304	355
h, grooved type (mm)		-	-	-	-	56	60	71	95	-	-	-	-	-
W, flange type (mm)		160	170	160	190	200	230	250	285	340	395	445	600	700
W, grooved type (mm)		-	-	-	-	156	156	156	250	-	-	-	-	-
Weight (kg)		13	12	15	14	16	19	20	39	52	105	120	187	256

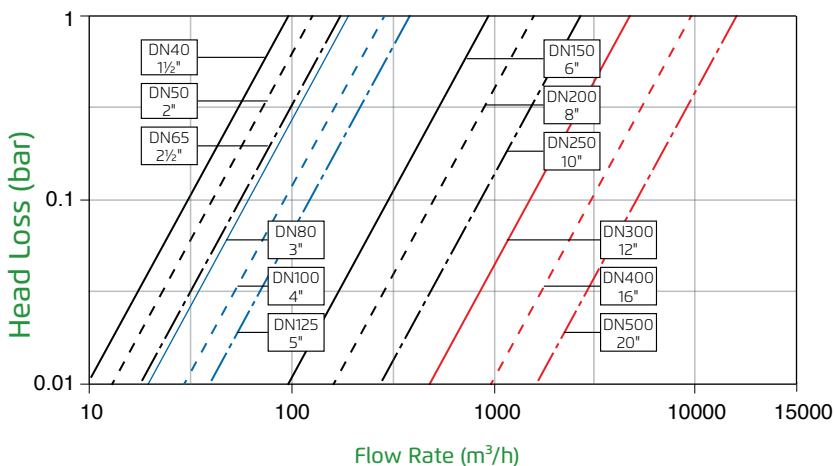


\* images are for illustration purpose only

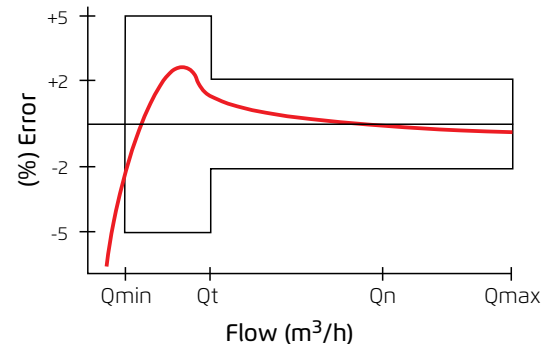
### Accuracy Curve

	Accuracy	mm	40	50	65	80	100	125	150	200	250	300	400	500
		Inch	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	16"	20"
Qmin (Minimum flow), m³/h	±5%		0.5	0.5	0.8	1.3	1.3	2	3.1	5	8	12.5	32	50
Qt (Transitional flow), m³/h	±2%		0.8	0.8	1.3	2	2	3.2	5.0	8.0	12.6	20	51	80
Qn (Permanent flow), m³/h	±2%		25	40	63	63	100	160	250	400	630	1000	1600	2500
Qmax (Peak flow,short time), m³/h	±2%		31	50	79	79	79	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	50	50	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



4"		I		E		16		PB		M		S3		
Size		Series Code		Coating Code		Register Display Units Code		Pulse Rate						
1½"	DN40	Turbo-IR	I	Polyester Blue	PB	Q	Volume	Pulse Rate m³						
2"	DN50	Turbo-BAR WPH	B	Polyester Green	PG	M³/h	M³	No Pulse						
2½"	DN65	Register Type Code	E0	Magnetic Drive & Electronic Register with Bluetooth	EB	GPM	GAL	M	M-Register			00Y		
3"	DN80								E Register only	E-Register			0S4	
4"	DN100									M&E-Register			0S3	
5"	DN125									M&E-Register			0S2	
6"	DN150									M&E-Register			0S1	
8"	DN200	Magnetic Drive & Electronic Register with Bluetooth & GPRS	EG	GPM	M³	L	M&E-Register			0S8				
10"	DN250	Magnetic Register	M				E-Register			S34				
12"	DN300						M&E-Register			S23				
14"	DN350	End Connections Code	16	ISO-16	16	CFS	AF	S	M&E-Register			S12		
16"	DN400								M&E-Register			S81		
20"	DN500								Pulse Rate Gal					
Turbo-Bar only									ISO-10	10	No Pulse	M-Register	00Y	
									ISO 14	14	1 Gal	E-Register	0S4	
									ANSI-125	A1	10 Gal	M&E-Register	0S3	
									BST-D	BD	100 Gal	M&E-Register	0S2	
									AST-D	SD	1,000 Gal	M&E-Register	0S1	
			AST-E	SE	10,000 Gal	M&E-Register	0S8							
			ABNT-10	B1	10 + 1 Gal	E-Register	S34							
			ABNT-16	B6	100 + 10 Gal	M&E-Register	S23							
			JIS-10	J1	1,000 + 100 Gal	M&E-Register	S12							
			JIS-16	J6	10,000 + 1,000 Gal	M&E-Register	S81							

Turbo-IR Electronic Register / Metric Pulses & size Availability				
Size	Pulse per	10 Liter	100 Liter	1m <sup>3</sup>
2"-2½"; DN50-DN60		*Y	Y	Y
3"-5"; DN80-DN125		**Y	Y	Y
6"; DN150		N	*Y	Y
8"-12"; DN200-DN300		N	**Y	Y

Estimate life span for standard pulse = 10 years; Pulse Width 200ms  
 \* Estimate life span = 5 years; Pulse Width 200ms  
 \*\* Estimate life span = 5 years; Pulse Width 50ms

Turbo-Bar Electronic Register / Metric Pulses & size Availability					
Size	Pulse per	10 Liter	100 Liter	1m <sup>3</sup>	10m <sup>3</sup>
1½"-2½"; DN40-DN60		*Y	Y	Y	N
3"-4"		**Y	Y	Y	N
6"; DN150		N	*Y	Y	Y
8"-12"; DN200-DN300		N	**Y	Y	Y
14"-20"; DN350-DN500		N	N	**Y	Y

Estimate life span for standard pulse = 10 years; Pulse Width 200ms  
 \* Estimate life span = 5 years; Pulse Width 200ms  
 \*\* Estimate life span = 5 years; Pulse Width 50ms







## Turbo-IR-E Paddle Wheel Water Meter

with Magnetic Drive & Electronic register For Irrigation and Wastewater

Turbo-IR-E

Size	Connection
2"	DN50
2½"	DN65
3"	DN80
4"	DN100
5"	DN125

Size	Connection
6"	DN150
8"	DN200
10"	DN250
12"	DN300



## Turbo-IR-M Paddle Wheel Water Meter

with Magnetic Drive & Magnetic register For Irrigation and Wastewater

Turbo-IR-M

Size	Connection
2"	DN50
2½"	DN65
3"	DN80
4"	DN100

Size	Connection
5"	DN125
6"	DN150
8"	DN200
10"	DN250
12"	DN300



## Additional Features & Options

Code	Description
RP	Reed-switch Electric Pulse Transmitter For Turbo-BAR (for Magnetic Register)
ER	Upgrade from Magnetic Register to Electronic Register
ER-BLE	Upgrade to electronic register with BLE communication
BLE-SOL	BLE Solenoid Valve Control
Sx	Pulses Divider to adjust pulse rate for controllers having a slow scanning rate

Standard Configuration:

All Water Meters are pre-tested and ready for installation and start-up

Main Body & Cover: Ductile iron body, available to meet international flange standards

Standard Rating: max inlet 16 bar / #150





## Turbo-BAR-E Woltman Water Meter

with Magnetic Drive & Electronic Register

Turbo-Bar-E

Size	Connection
1½"	DN40
2"	DN50
2½"	DN65
3"	DN80
4"	DN100
5"	DN125

Size	Connection
6"	DN150
8"	DN200
10"	DN250
12"	DN300
14"	DN350
16"	DN400
20"	DN500



## Turbo-BAR-M Woltman Water Meter

with Magnetic Drive & Magnetic Register

Turbo-Bar-M

Size	Connection
1½"	DN40
2"	DN50
2½"	DN65
3"	DN80
4"	DN100
5"	DN125

Size	Connection
6"	DN150
8"	DN200
10"	DN250
12"	DN300
14"	DN350
16"	DN400
20"	DN500



## Additional Features & Options

Code	Description
RP	Reed-switch Electric Pulse Transmitter For Turbo-BAR (for Magnetic Register)
ER	Upgrade from Magnetic Register to Electronic Register
ER-BLE	Upgrade to electronic register with BLE communication
BLE-SOL	BLE Solenoid Valve Control
Sx	Pulses Divider to adjust pulse rate for controllers having a slow scanning rate
EB	Epoxy Coating

Standard Configuration:

All Water Meters are pre-tested and ready for installation and start-up

Main Body & Cover: Ductile iron body, available to meet international flange standards

Standard Rating: max inlet 16 bar / #150



## Electromagnetic Water Meter by Euromag

Models: MUT2200EL, MUT2300, MUT1100J

The BERMAD Euromag MagMeter is a robust state of the art meter for the Ag applications industry. This meter technology can detect flows as low as 0,13 m<sup>3</sup>/h with 0.2% accuracy. Providing unparalleled accuracy and reliability at all flow ranges.

BERMAD Euromag meters are the industry leader for water measurement and accumulation reporting.

BERMAD Euromag MagMeters available in diameter range of 1½" - 80" (MUT2200EL).

### Features and Benefits

- **High Accuracy at wide flow range –**  
Each sensor is calibrated on a hydraulic bench equipped with a reference weighting system
- **Open flow path –**  
Allows for use upstream of filtration, in canals and effluent Water
- **DC compact electronics –**  
Low power consumption ideal for use in locations without power supply
- **Rugged and Efficient Construction –**  
Accurate measurement of corrosive fluids, manure and wastewater
- **Combined Sensors –**  
Flow and pressure transducer Combined in one unit for optimizing monitoring capabilities

### Typical Applications

- Compliant with water usage reporting regulation
- Remote or local monitoring of flows and water usage
- Leak and plugging detection in irrigation systems
- Accumulations of filtration flush water



## Technical Specifications

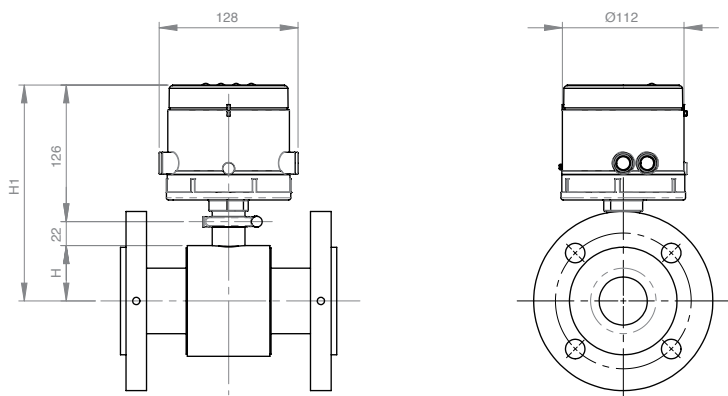
- **Flow tube material:** **AISI 304**, AISI 316
- **Flange material:** **Coated Carbon steel**, AISI 304, AISI 316
- **Electrodes material:** **Hastelloy C**, Hastelloy B
- **Internal lining and liquid temperature:**
  - PTFE Standard -40 /+130°C (up to +180° on request)
  - Ebonite -40°C / +80°C
- **Available Sizes:**
  - **MUT2200:** 11/2" -80"
  - **MUT2300:** 2"-12"
  - **MUT1100J:** 11/2" -6"
- **Flange Standard:** EN1092-1, ANSI 150, ANSI 300, ANSI 600, DIN 2501, BS 4504, AS 2129 (TABLE D - E - F), AS 4087, ISO 7005-1, KS 10K
- **Isolation Rating:**
  - **MUT2200:** IP68 1,5 m continuous immersion (EN 60529)
  - **MUT2300:** IP68 1,5 m continuous immersion (EN 60529)
  - **MUT1100J:** IP67 (IP68 on request)
- **Compatible Converters:** MC406, MC608 A/B/R/P/I
- **Electrical Connections:** Cable glands M20 x 1.5, terminal blocks and sealing resin
- **Calibration:** ISO 11631 Group B1
  - Measurement error 0.2% +/- 2 mm/s When installed as described below.
  - Repeatability 0.1%





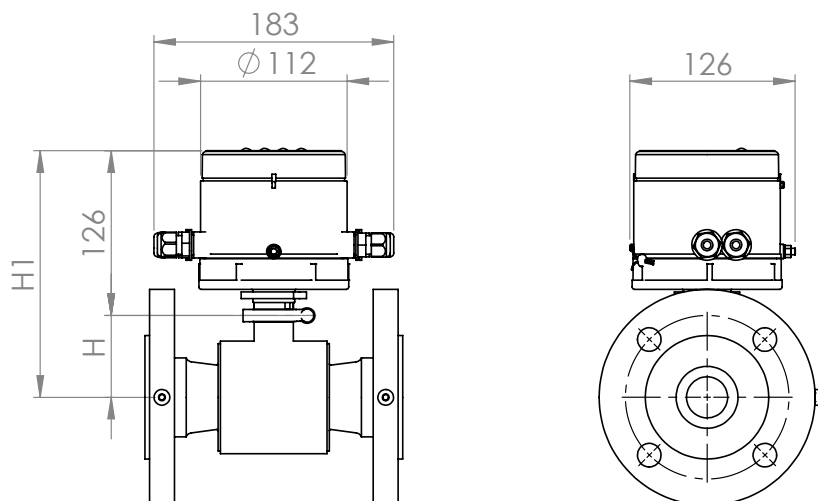
## Sensor Dimensions

### MUT2200EL - MC406 VERTICAL



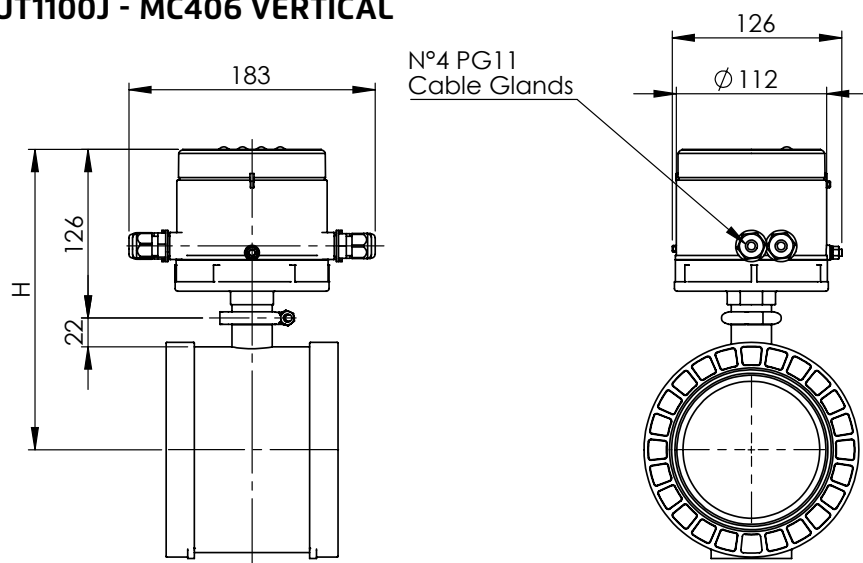
Size	H (mm)	H1 (mm)
1½"; DN40	44	192
2"; DN50	51	199
3"; DN80	64	212
4"; DN100	81	229
6"; DN150	105	253
8"; DN200	131	279
10"; DN250	160	308
12"; DN300	186	334
14"; DN350	202	350
16"; DN400	228	376
18"; DN450	260	408
20"; DN500	285	433
24"; DN600	342	490

### MUT2300 - MC406 VERTICAL



Size	H (mm)	H1 (mm)
2"; DN50	62	188
3"; DN80	71	197
4"; DN100	79	205
6"; DN150	101	227
8"; DN200	147	273
10"; DN250	176	302
12"; DN300	207	333

### MUT1100J - MC406 VERTICAL



Size	H (mm)
1½"; DN40	187
2"; DN50	196
2½"; DN65	205
3"; DN80	211
4"; DN100	224
6"; DN150	254



## Electromagnetic Flow Meter - MUT2200EL

with MC406 converter

MUT2200EL

Size		Installation
2"	DN50	Compact
3"	DN80	Compact
4"	DN100	Compact
5"	DN125	Compact
6"	DN150	Compact

Size		Installation
8"	DN200	Compact
10"	DN250	Compact
12"	DN300	Compact
14"	DN350	Compact
16"	DN400	Compact



## Electromagnetic Flow Meter - MUT2300

with MC406 converter

MUT2300

Size		Installation
2"	DN50	Compact
3"	DN80	Compact
4"	DN100	Compact
5"	DN125	Compact

Size		Installation
6"	DN150	Compact
8"	DN200	Compact
10"	DN250	Compact
12"	DN300	Compact



## Electromagnetic Flow Meter - MUT1100J

with MC406 converter

MUT1100J

Size		Installation
1½"	DN40	Compact
2"	DN50	Compact

Size		Installation
3"	DN80	Compact
4"	DN100	Compact
6"	DN150	Compact



## Grounding Rings

wms28

Size	
1½"	DN40
2"	DN50
3"	DN80
4"	DN100

Size	
5"	DN125
6"	DN150
8"	DN200
10"	DN250
12"	DN300

## Accessories

Code	Description
	Cable for separate installation /m

Standard Configuration:

MUT2200/2300 do not include grounding rings

MC406 is battery powered converter

Additional sizes are available, please contact Bermad for additional information and pricing



**NEW**



C15

## Air Valve Series

BERMAD's new advanced line of Air Valves 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 and Metal Air Valves 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

Air Release, Protection Against Air Accumulation & Vacuum Formation In:

- Main Irrigation Networks
- Maximizing Pumping Efficiency & Priming Capabilities
- Reducing Pressure Surges
- Along Supply & Elevating Lines.
- Irrigation Control Heads
- Downstream from Main Control Valves
- At Filtration & Fertilization Stations
- Infield Systems
- Upstream from Water Meters & Regulating Valves
- Downstream from Plot Valves
- Landscape Irrigation Systems



## Automatic Air Valves – A10, A30

- Body material – Glass-reinforced Polyamide
- Inlet sizes – DN20 – DN25; ¾" – 1"
- Connections – Threaded Male BSPT / NPT
- Outlet – Sideways
- Pressure rating – ISO PN10/16, ANSI 150/230
- Operating pressure range: 0.1 – 10/16 bar, 1.5 – 150/230 psi (A10/A30)
- 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 – DN50; ¾" – 2"
- Connections – Threaded Male ¾", 1" BSPT / NPT  
Threaded 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, C30

- Body material – Glass-reinforced Polyamide
- Inlet sizes – DN20-DN80; ¾"-3"
- Connections – Threaded Male BSPT / NPT, Flange 2", 3"
- 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 VALVE Model C15, C35

- Body – Glass-reinforced Nylon
- Inlet sizes: DN50; 2"
- Connections: Threaded male
- Outlet – Sideways, DN40; 1½" female threaded
- Pressure rating – ISO PN10/16, ANSI 150/230
- Operating pressure range: 0.1 – 10/16 bar, 1.5 – 150/230 psi
- Operating temperature: Water up to 60°C
- Benefits – Field proven designed for use in irrigation applications with water quality such as river water, channel water, dam water or treated effluent with high reliability



## Metal Combination Air Valves – C70, C75

- Body Material and coating – cast ductile Iron, baked Polyester Green
- Inlet sizes: DN50 - DN300; 2" – 12"
- Connections – Threaded Female (DN50; 2"), Flanged
- 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**

Sector	Code
Irrigation	IR
Sewage & Wastewater	SW

**2"**

Size	
¾"	DN20
1"	DN25
<b>2"</b>	<b>DN50</b>
3"	DN80
4"	DN100
6"	DN150
8"	DN200
10"	DN250
12"	DN300

**C10**

Primary Feature (Model)	Code
Automatic (Air Release) Air Valve (¾" - 1"); PN10	A10
Automatic (Air Release) Air Valve (¾" - 1"); PN16	A30
Kinetic (Air-Vacuum) Air Valve (¾" - 2"); PN10	K10
<b>Combination Air Valve (¾" - 3"); PN10</b>	<b>C10</b>
Combination Air Valve (2"); PN10	C15
Combination Air Valve (¾" - 3"); PN16	C30
Combination Air Valve (2"); PN16	C35
Combination Air Valve for Sewage & Wastewater (2" - 4")	C50
Combination Air Valve - Metal (2" - 8")	C70
Combination Air Valve - Metal (3" - 12")	C75

**SP**

Body Material	Code
Plastic	P
Ductile Iron	C
Stainless Steel	N

**P**

Outlet Types	Code
<b>Side</b>	<b>S</b>
Down (C50, C70)	D
Mushroom (C70)	M

\*Additional Extension and Down Outlet included for C50

**S**

End Connections / Pressure Ratings	Code
Threaded	<b>BSP Male (A10/A30, K10 - ¾"-1", C10/C30, C50)</b>
	NPT Male (A10/A30, K10 - ¾"-1", C10/C30)
Flanged	ISO-PN16
	ANSI-150
	ABNT-10 (C50)
	ABNT-16
	ASTD PN16
Adapter (Inlet Only)	Universal Flanged / BSP Male
	Universal Flanged / NPT Male

**BP**

Coating (For Ductile Iron Only)	Code
<b>Polyester Green</b>	<b>PG</b>
Epoxy UV Protected Blue	EV

**PG**

Additional Attributes	Code
<b>Stainless Steel Pressure Test Point (Schrader Valve)</b>	<b>T</b>
Plastic Pressure Test Point	5
Drilled Service Port	P
Threaded Outlet	t
Insect Screen (For C70 Only)	S
Drainage Valve (C50, C70)	Z

**T**

Additional Features	Code
Without Additional Feature	00
<b>Surge Protection (Anti-slam) (C10/C30 - 2"-3", C50, C70)</b>	<b>SP</b>
Inflow Prevention (C10/C30 - 2"-3", C50, C70)	IP





## Combination Air Valve

PN10 (0.1 - 10 bar)

IR-C10-P

Size	Connection	Additional Features
¾"	DN20 Threaded	---
1"	DN25 Threaded	---
2"	DN50 Threaded	---
	DN50 Flanged	---
3"	DN80 Flanged	---



## Combination Air Valve

PN10 (0.1 - 10 bar)

IR-C15-P

Size	Connection	Additional Features
2"	DN50 Threaded	---

NEW



## Kinetic Air Valve

PN10 (0.1 - 10 bar)

IR-K10-P

Size	Connection	Additional Features
¾"	DN20 Threaded	---
1"	DN25 Threaded	---
2"	DN50 Threaded	---



## Automatic Air Valve

PN10 (0.1 - 10 bar)

IR-A10-P

Size	Connection	Additional Features
¾"	DN20 Threaded	---
1"	DN25 Threaded	---





## Combination Air Valve

PN16 (0.1 - 16 bar)

IR-C30-P

Size		Connection	Additional Features
¾"	DN20	Threaded	---
1"	DN25	Threaded	---
2"	DN50	Threaded	---
		Flanged	---
3"	DN80	Flanged	---



## Combination Air Valve

PN16 (0.1 - 16 bar)

IR-C35-P

Size		Connection	Additional Features
2"	DN50	Threaded	---

NEW



## Combination Air Valve

PN16 (0.1 - 16 bar)

IR-C30-C

Size		Connection	Additional Features
1"	DN25	Threaded	---
2"	DN50	Threaded	---
		Flanged	---



## Automatic Air Valve

PN16 (0.1 - 16 bar)

IR-A30-P

Size		Connection	Additional Features
¾"	DN20	Plastic, Threaded	---
1"	DN25	Plastic, Threaded	---





## Vacuum Breaker, PN10

(0.2 - 10 bar)

IR-ARV-P

Size	Connection	Additional Features
½"	DN12	Threaded
		Vacuum Breaker ½"



## Combination Air Valve

PN16 (0.1 - 16 bar)

IR-C70-C

Size	Connection	Additional Features
2"	DN50	Threaded
		Surge Protection (SP)
3"	DN80	Flanged
		Surge Protection (SP)
4"	DN100	Flanged
		Surge Protection (SP)
6"	DN150	Flanged
		Surge Protection (SP)
8"	DN200	Flanged
		Surge Protection (SP)



## Combination Air Valve

PN16 (0.1 - 16 bar)

IR-C75-C

Size	Connection	Additional Features
3"	DN80	Flanged
		Surge Protection (SP)
4"	DN100	Flanged
		Surge Protection (SP)
6"	DN150	Flanged
		Surge Protection (SP)
8"	DN200	Flanged
		Surge Protection (SP)
10"	DN250	Flanged
		Surge Protection (SP)
12"	DN300	Flanged
		Surge Protection (SP)





## Combination Air Valve for Sewage & Wastewater

PN10 (0.1 - 10 bar)

IR-C50-P

Size		Connection	Additional Features
2"	DN50	Threaded	---
		Flanged	---
3"	DN80	Threaded	---
		Flanged	---
4"	DN100	Flanged	---



## Combination Air Valve for Sewage & Wastewater

Ductile Iron Body and Plastic / Ductile Iron Cover, PN16 (operating pressure 0.1 - 10 bar).

IR-C-50-J/C

Size		Connection	Additional Features
2"	DN50	Threaded	---
		Flanged	---
3"	DN80	Flanged	---

NEW



## Combination Air Valve for Sewage & Wastewater

Stainless Steel Body with Plastic / Stainless Steel Cover; PN16 (operating pressure 0.1 - 10 bar)

IR-C50-G/N

Size		Connection	Additional Features
2"	DN50	Threaded	---
		Flanged	---
3"	DN80	Threaded	---
		Flanged	---





## Additional Features & Add-ons

Code	Description	Compatible with Models
Drainage Valve (Z)	1" Plastic Drainage Valve	C50-P
Drainage Valve (Z)	1" Stainless Steel Drainage Valve	C50-C/J/G/N
Drainage Valve (Z)	¾" Drainage Valve	C70, C75
Flange - Plastic	ISO16 / ANSI150 Plastic Flange, connected to male thread	C10, C30
Flange - Plastic	ISO16 / ANSI150 Plastic Flange, connected to male thread	C50
Flange - Metal	ISO16 / ANSI150 Metal Flange, connected to male thread	C10, C30
Inflow Prevention (IP)	Inflow Prevention device connected to the valve outlet	C10, C30, C50
Insects Screen (S)	Stainless Steel Insect Screen	C70, C75
Service Port (P)	Drilled Service Port, ⅛" for ¾-1" (DN20, DN25) inlet and ¼" for 2-3" (DN50, DN80) inlet with Plastic Plug	A10, A30, C10, C15, C30, C35
Service Port (P)	Drilled Lower Service Port, ¼" NPT with Stainless Steel plug	C70, C75
Service Port (U)	Drilled Upper Service Port, ½" NPT with Stainless Steel plug	C70, C75
Surge Protection (SP)	Surge Protection device connected to the valve outlet	C10, C30, C50
Test Point (T)	Stainless Steel Pressure Test point (Schrader Valve)	A10, A30, C10, C15, C30, C35
Threaded outlet (t)	¾" (DN20) Female threaded outlet	A10, A30, C10, C30





## Packing Specifications

**K10**



¾" - 1"	
No. of Layers	2
No. of Units	24
Length [cm]	31.0
Width [cm]	23.0
Height [cm]	24.5
Gross Weight	4.82
Volume [m³]	0.02

**C10  
C30**



¾" - 1"	
No. of Layers	1
No. of Units	12
Length [cm]	37.0
Width [cm]	27.2
Height [cm]	17.5
Gross Weight	5.84
Volume [m³]	0.03

**A10  
A30**



¾" - 1"	
No. of Layers	1
No. of Units	12
Length [cm]	37.0
Width [cm]	27.2
Height [cm]	17.5
Gross Weight	4.88
Volume [m³]	0.03

**K10**



2"	
No. of Layers	1
No. of Units	12
Length [cm]	37.0
Width [cm]	27.2
Height [cm]	17.5
Gross Weight	3.92
Volume [m³]	0.03

**C15  
C35**



2"	
No. of Layers	1
No. of Units	9
Length [cm]	31.7
Width [cm]	27.5
Height [cm]	19.1
Gross Weight [kg]	0.61
Volume [m³]	0.02

**C30  
C10**



2"	
No. of Layers	1
No. of Units	6
Length [cm]	40.5
Width [cm]	25.5
Height [cm]	28.2
Gross Weight	8.47
Volume [m³]	0.03

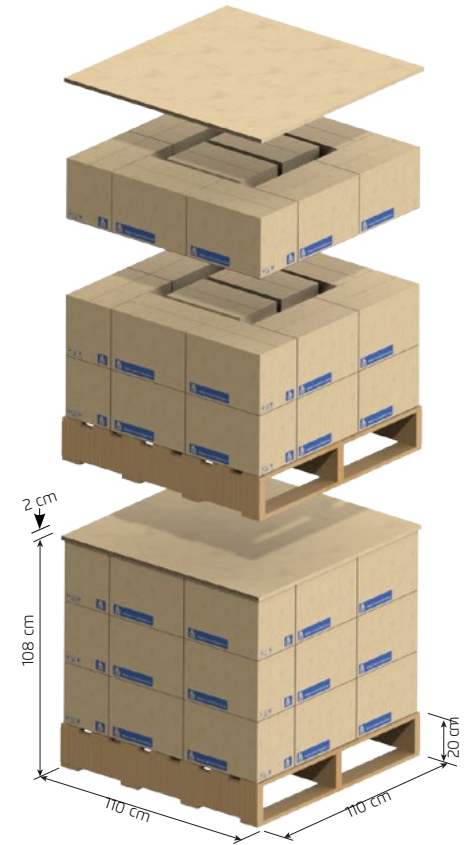
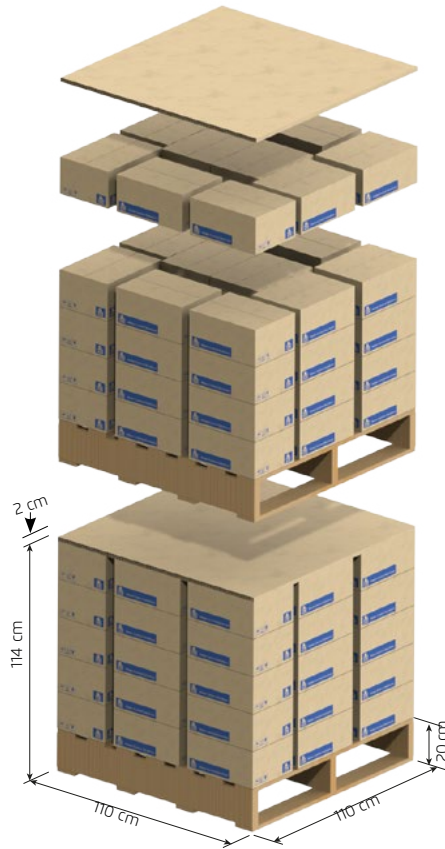
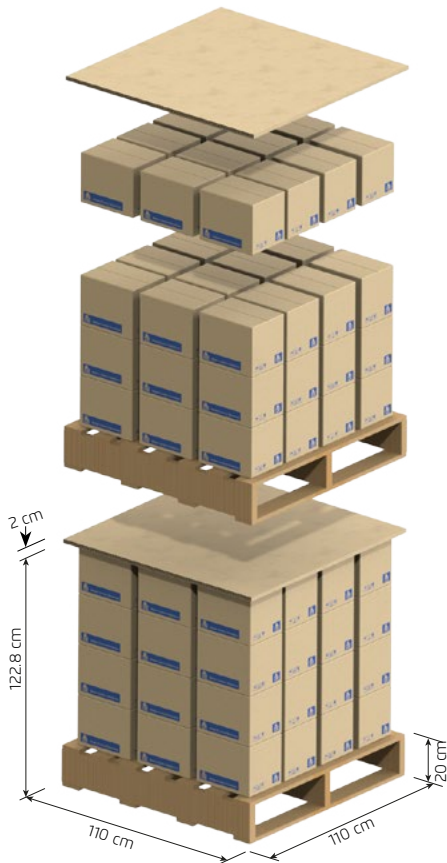


## Packing Specifications

K10 - ¾", 1"

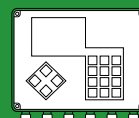
K10 - 2"  
C10, A10, ¾", 1"

C10 - 2"  
C30 - 2"



## Per Pallet

Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross weight [kg]	Volume [m <sup>3</sup> ]
¾", 1" K10	48	4	1,152	110	110	122.8	251	1.49
¾", 1" C10 / C30	50	5	600	110	110	114	312	1.38
¾", 1" A10 / A30	50	5	600	110	110	114	264	1.38
2" K10	50	5	600	110	110	114	216	1.38
2" C10 / C30	30	3	180	110	110	108	274	1.31
2" C15 / C35	40	5	360	110	110	125	250	1.52



## 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.**

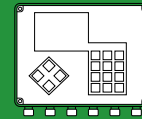
The BERMAD BIC Series allows for healthier plants and better yields, through the use of efficient management tools for applying nutrients and water to where they are needed most.

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 Applications

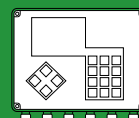
- Reservoir management
- Pump stations control
- Filter stations
- Water and pressure monitoring
- Chemical injection
- Emission devices control
- Environmental monitoring
- Irrigation control





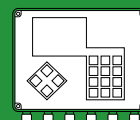
## Features and Benefits

- **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 defined 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 breaks, 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

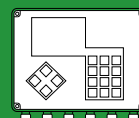


Primary Features	Secondary Features	Accessories	Uniliner		100
			RF	Two-wire	BIC 100
Form of irrigation	Time				✓
	Volume				
	SMART Control	Weather Station			
		Sensor			✓
		Flow/pressure Monitoring			
		ET			
		Volume/Area (In/Sqr Ft)			
Output type (Valves, pumps, etc.)	AC				✓
	DC (Latch)	Radio	✓		
		Two-Wire		✓	
		Controller Direct			✓
	DC (Continuous)				
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	2-10
Number of digital inputs			8-16	8-16	3

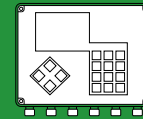




BIC 1000				BIC 1500			BIC 2500		
DC	AC	RF	2W	AC	DC	RF	AC/DC	RF	Two-wire
✓	✓	✓	✓		✓	✓	✓	✓	✓
					✓	✓	✓	✓	✓
					✓	✓	✓	✓	✓
✓	✓	✓	✓		✓	✓	✓	✓	✓
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12-32	12-36	12-32	12-32		4-16	0-32	16-1000	16-1000	16-1000
4	4	4	4		8	0-23	8-1000	8-1000	8-1000



B25	220	32A	016	00	AL	TG																																																																																																																																																																																															
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Per Year</td><td>CUN</td></tr><tr><td>Target Cloud Charge - Per Year</td><td>CTR</td></tr><tr><td>Pressure Differential Sensor</td><td>OPD</td></tr><tr><td>Pressure Transducer</td><td>OPS</td></tr><tr><td>pH Sensor</td><td>OPH</td></tr><tr><td>EC Sensor</td><td>OEC</td></tr><tr><td>Soil Moisture Sensor</td><td>OSM</td></tr><tr><td>Tensiometer</td><td>OTN</td></tr><tr><td>24V-280V AC Solid State Pump Switch Relay for DC Controllers</td><td>DR2</td></tr><tr><td>IO Module</td><td>OIO</td></tr><tr><td>Analog Interface</td><td>ANI</td></tr><tr><td>2WI AC/DC Interface</td><td>OAD</td></tr><tr><td>2W Economical</td><td>2WE</td></tr><tr><td>2W Modular</td><td>2WM</td></tr></table>	Power Supply Description & Sensors	Code	No Power Supply	000	120V AC Power Supply	120	220V AC Power Supply	220	14.3V 1A Charger for BIC-550, BIC-F & BIC-100	014	12V Battery	B12	9V Battery Operated	B09	6V Battery Operated	B06	2.5W Solar Kit	K25	5W Solar Kit	K50	10W Solar Kit	K10	20W Solar Kit	K20	Console PC Software Single User License	CCO	SPOT Mobile Device First Access License	CSP	User Name Cloud Charge - Per Year	CUN	Target Cloud Charge - Per Year	CTR	Pressure Differential Sensor	OPD	Pressure Transducer	OPS	pH Sensor	OPH	EC Sensor	OEC	Soil Moisture Sensor	OSM	Tensiometer	OTN	24V-280V AC Solid State Pump Switch Relay for DC Controllers	DR2	IO Module	OIO	Analog Interface	ANI	2WI AC/DC Interface	OAD	2W Economical	2WE	2W Modular	2WM	<table><tr><th>Number of Digital Inputs</th><th>Code</th></tr><tr><td>0 Digital Inputs</td><td>000</td></tr><tr><td>1 Digital Inputs</td><td>001</td></tr><tr><td>2 Digital Inputs</td><td>002</td></tr><tr><td>3 Digital Inputs</td><td>003</td></tr><tr><td>4 Digital Inputs</td><td>004</td></tr><tr><td>8 Digital Inputs</td><td>008</td></tr><tr><td>16 Digital Inputs</td><td>016</td></tr><tr><td>24 Digital Inputs</td><td>024</td></tr><tr><td>32 Digital Inputs</td><td>032</td></tr></table> <table><tr><th>Number of Analog Inputs</th><th>Code</th></tr><tr><td>0 Analog Inputs</td><td>00</td></tr><tr><td>1 DP Analog Input</td><td>DP</td></tr><tr><td>W/O DP Analog Input</td><td>WO</td></tr><tr><td>Temperature and Humidity</td><td>TH</td></tr><tr><td>2 Analog Inputs</td><td>02</td></tr><tr><td>4 Analog Inputs</td><td>04</td></tr><tr><td>6 Analog Inputs</td><td>06</td></tr><tr><td>8 Analog Inputs</td><td>08</td></tr></table> <table><tr><th>Language</th><th>Code</th></tr><tr><td>No Language</td><td>00</td></tr><tr><td>English</td><td>EN</td></tr><tr><td>Spanish</td><td>SP</td></tr><tr><td>Portuguese</td><td>PU</td></tr><tr><td>English US</td><td>US</td></tr><tr><td>Multi-lingual</td><td>AL</td></tr></table>	Number of Digital Inputs	Code	0 Digital Inputs	000	1 Digital Inputs	001	2 Digital Inputs	002	3 Digital Inputs	003	4 Digital Inputs	004	8 Digital Inputs	008	16 Digital Inputs	016	24 Digital Inputs	024	32 Digital Inputs	032	Number of Analog Inputs	Code	0 Analog Inputs	00	1 DP Analog Input	DP	W/O DP Analog Input	WO	Temperature and Humidity	TH	2 Analog Inputs	02	4 Analog Inputs	04	6 Analog Inputs	06	8 Analog Inputs	08	Language	Code	No Language	00	English	EN	Spanish	SP	Portuguese	PU	English US	US	Multi-lingual	AL	<table><tr><th>Communication</th><th>Code</th></tr><tr><td>No Communication</td><td>00</td></tr><tr><td>GSM Modem (SIM Card)</td><td>TG</td></tr><tr><td>USB Modem</td><td>US</td></tr><tr><td>Ethernet</td><td>ET</td></tr></table> <table><tr><th>Number of Outputs</th><th>Code</th></tr><tr><td>0 Local Outputs</td><td>000</td></tr><tr><td>1 DC Latch Output</td><td>01D</td></tr><tr><td>2 24V AC Outputs</td><td>02A</td></tr><tr><td>2 DC Latch Outputs</td><td>02D</td></tr><tr><td>4 DC Latch Outputs</td><td>04D</td></tr><tr><td>4 24V AC Outputs</td><td>04A</td></tr><tr><td>6 24V AC Outputs</td><td>06A</td></tr><tr><td>6 DC Latch Outputs</td><td>06D</td></tr><tr><td>8 24V AC Outputs</td><td>08A</td></tr><tr><td>8 DC Latch Outputs</td><td>08D</td></tr><tr><td>10 24V AC Outputs</td><td>10A</td></tr><tr><td>10 DC Latch Outputs</td><td>10D</td></tr><tr><td>12 24V AC Outputs</td><td>12A</td></tr><tr><td>16 24V AC Outputs</td><td>16A</td></tr><tr><td>16 DC Latch Outputs</td><td>16D</td></tr><tr><td>18 24V AC Outputs</td><td>18A</td></tr><tr><td>24 24V AC Outputs</td><td>24A</td></tr><tr><td>30 24V AC Outputs</td><td>30A</td></tr><tr><td>32 24V AC Outputs</td><td>32A</td></tr><tr><td>32 DC Latch Outputs</td><td>32D</td></tr><tr><td>36 24V AC Outputs</td><td>36A</td></tr><tr><td>0-5V Output</td><td>1AV</td></tr><tr><td>4-20mA Output</td><td>1AC</td></tr><tr><td>SDI-12 Output</td><td>S12</td></tr><tr><td>RS232 Output</td><td>RS2</td></tr></table>	Communication	Code	No Communication	00	GSM Modem (SIM Card)	TG	USB Modem	US	Ethernet	ET	Number of Outputs	Code	0 Local Outputs	000	1 DC Latch Output	01D	2 24V AC Outputs	02A	2 DC Latch Outputs	02D	4 DC Latch Outputs	04D	4 24V AC Outputs	04A	6 24V AC Outputs	06A	6 DC Latch Outputs	06D	8 24V AC Outputs	08A	8 DC Latch Outputs	08D	10 24V AC Outputs	10A	10 DC Latch Outputs	10D	12 24V AC Outputs	12A	16 24V AC Outputs	16A	16 DC Latch Outputs	16D	18 24V AC Outputs	18A	24 24V AC Outputs	24A	30 24V AC Outputs	30A	32 24V AC Outputs	32A	32 DC Latch Outputs	32D	36 24V AC Outputs	36A	0-5V Output	1AV	4-20mA Output	1AC	SDI-12 Output	S12	RS232 Output	RS2
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W/O DP Analog Input	WO																																																																																																																																																																																																				
Temperature and Humidity	TH																																																																																																																																																																																																				
2 Analog Inputs	02																																																																																																																																																																																																				
4 Analog Inputs	04																																																																																																																																																																																																				
6 Analog Inputs	06																																																																																																																																																																																																				
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USB Modem	US																																																																																																																																																																																																				
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2 24V AC Outputs	02A																																																																																																																																																																																																				
2 DC Latch Outputs	02D																																																																																																																																																																																																				
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6 DC Latch Outputs	06D																																																																																																																																																																																																				
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8 DC Latch Outputs	08D																																																																																																																																																																																																				
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32 DC Latch Outputs	32D																																																																																																																																																																																																				
36 24V AC Outputs	36A																																																																																																																																																																																																				
0-5V Output	1AV																																																																																																																																																																																																				
4-20mA Output	1AC																																																																																																																																																																																																				
SDI-12 Output	S12																																																																																																																																																																																																				
RS232 Output	RS2																																																																																																																																																																																																				



#### R45

#### 2WI

#### WEI

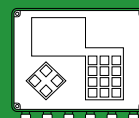
#### 2WA

Additional Feature 1	Code
2-Wire Interface	2WI
RADIO G5	RG5
RADIO G5H	G5H
RADIO G5L	G5L
Radio G 4.5	R45
External Antenna Radio G 4.5	E45
Radio G 4	R40
Radio Analog Interface	RFA
Radio Interface Without Master	RFI
Ec/Ph Interface	EPI
Smart Pump	FSP
Platform	FPL
Weather Station	WEI
2-Wire Analog Interface	2WA
Local Temperature And Humidity	LTH
Radio Temperature And Humidity	RTH
Radio Analog Interface	RFA
2-Wire Analog Interface	2WA
2-Wire Parts	2WP

Additional Feature 3	Code
2-Wire Interface	2WI
RADIO G5	RG5
RADIO G5H	G5H
RADIO G5L	G5L
Radio G 4.5	R45
External Antenna Radio G 4.5	E45
Radio G 4	R40
Radio Analog Interface	RFA
Radio Interface w/out Master	RFI
EC/Ph Interface	EPI
Smart Pump	FSP
Platform	FPL
Weather Station	WEI
2-Wire Analog Interface	2WA
Local Temperature & Humidity	LTH
Radio Temperature & Humidity	RTH
Radio Analog Interface	RFA
2-Wire Analog Interface	2WA
2-Wire Parts	2WP

Additional Feature 2	Code
2-Wire Interface	2WI
RADIO G5	RG5
RADIO G5H	G5H
RADIO G5L	G5L
Radio G 4.5	R45
External Antenna Radio G 4.5	E45
Radio G 4	R40
Radio Analog Interface	RFA
Radio Interface w/out Master	RFI
EC/Ph Interface	EPI
Smart Pump	FSP
Platform	FPL
Weather Station	WEI
2-Wire Analog Interface	2WA
Local Temperature & Humidity	LTH
Radio Temperature & Humidity	RTH
Radio Analog Interface	RFA
2-Wire Analog Interface	2WA
2-Wire Parts	2WP

Additional Feature 4	Code
2-Wire Interface	2WI
RADIO G5	RG5
RADIO G5H	G5H
RADIO G5L	G5L
Radio G 4.5	R45
External Antenna Radio G 4.5	E45
Radio G 4	R40
Radio Analog Interface	RFA
Radio Interface w/out Master	RFI
EC/Ph Interface	EPI
Smart Pump	FSP
Platform	FPL
Weather Station	WEI
2-Wire Analog Interface	2WA
Local Temperature & Humidity	LTH
Radio Temperature & Humidity	RTH
Radio Analog Interface	RFA
2-Wire Analog Interface	2WA
2-Wire Parts	2WP



## GreenApp 3-Way Controller, Application Operated

GreenApp 3-Way

Description	Catalog Number
GreenApp 3-Way Controller, Application Operated	BGSB0301D0000BAP-KIT



## BIC 1 - One Station Irrigation Controller

BIC 1

Description	Catalog Number
BIC1 Controller KIT with 3/4" valve	B01007GPBPN121UC9DS*00IR-M1
BIC1 Controller KIT with 1" valve	B01010GPBPN121UC9DS*00IR-M1

\* = Options for languages (English / Spanish)



## BIC 2 / 4 / 6 - Two, Four or Six Stations Irrigation Controller

BIC 2 / 4 / 6

Description	Catalog Number
BIC2 Controller KIT (Box Controller and IOM)	B02B0302D00100*00000
BIC2 Controller KIT with 2x3/4" Valves and PRV	B02007GPBPN121UC9DS*00IR-M2
BIC2 Controller KIT with 2x1" Valves and PRV	B02010GPBPN121UC9DS*00IR-M2
BIC4 Controller KIT (Box Controller and IOM)	B04B0304D00100*00000
BIC4 Controller KIT with 3x3/4" Valves and PRV	B04007GPBPN121UC9DS*00IR-M3
BIC4 Controller KIT with 3x1" Valves and PRV	B04010GPBPN121UC9DS*00IR-M3
BIC6 Controller KIT (Box Controller and IOM)	B06B0306D00100*00000
BIC6 Controller KIT with 3x3/4" Valves and PRV	B06007GPBPN121UC9DS*00IR-M3
BIC6 Controller KIT with 3x1" Valves and PRV	B06010GPBPN121UC9DS*00IR-M3

\* = Options for languages (English / Spanish)



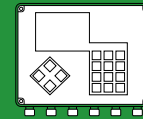
## BIC F Filter Flush Controllers

with Analog DP

BIC F

Description	Out/In	Power Supply / Output	Catalog Number
BIC F DC	2 / PD	6VDC / DC Latch	BFIB0602D002DPEN00
	4 / PD		BFIB0604D002DPEN00
	6 / PD		BFIB0606D002DPEN00
	8 / PD		BFIB0608D002DPEN00
	10 / PD		BFIB0610D002DPEN00
BIC F AC	2 / PD	220VAC / AC	BFI22002A002DPEN00
	4 / PD		BFI22004A002DPEN00
	6 / PD		BFI22006A002DPEN00
	8 / PD		BFI22008A002DPEN00
	10 / PD		BFI22010A002DPEN00
	2 / PD	110VAC / AC	BF112002A002DPEN00
	4 / PD		BF112004A002DPEN00
	6 / PD		BF112006A002DPEN00
	8 / PD		BF112008A002DPEN00
	10 / PD		BF112010A002DPEN00





## BEC PM1 DC Volumetric Single Station Controller

BEC PM1

Description	Catalog Number
BEC PM1 Time/Flow/Volume Controller	9,923,000,146



## BIC 100 Agriculture Economical Irrigation Controller

BIC 100

Description	Out/In	Power Supply / Output	Catalog Number
BIC 100 DC	2 / 3	6VDC / DC Latch	B11B0602D00300EN00
	4 / 3		B11B0604D00300EN00
	6 / 3		B11B0606D00300EN00
	8 / 3		B11B0608D00300EN00
	10 / 3		B11B0610D00300EN00
	2 / 3	12VDC / DC Latch	B11B1202D00300EN00
	4 / 3		B11B1204D00300EN00
	6 / 3		B11B1206D00300EN00
	8 / 3		B11B1208D00300EN00
	10 / 3		B11B1210D00300EN00
BIC 100 AC	2 / 3	220VAC / AC	B1122002A00300EN00
	4 / 3		B1122004A00300EN00
	6 / 3		B1122006A00300EN00
	8 / 3		B1122008A00300EN00
	10 / 3		B1122010A00300EN00
	2 / 3	110VAC / AC	B1112002A00300EN00
	4 / 3		B1112004A00300EN00
	6 / 3		B1112006A00300EN00
	8 / 3		B1112008A00300EN00
	10 / 3		B1112010A00300EN00



## BIC 1000 Time Based Professional Control- NO Communication

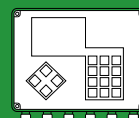
BIC 1000

Description	Out/In	Power Supply / Output	Catalog Number
BIC 1000 AC	12/4	220VAC / AC	B1022012A00400**00
	18/4		B1022018A00400**00
	24/4		B1022024A00400**00
	30/4		B1022030A00400**00
	36/4		B1022036A00400**00
	12/4	110VAC / AC	B1012012A00400**00
	18/4		B1012018A00400**00
	24/4		B1012024A00400**00
	30/4		B1012030A00400**00
	36/4		B1012036A00400**00
BIC 1000 DC Local outputs	16/4	DC / DC Latch	B10B1216D00400**00
	32/4		B10B1232D00400**00
BIC 1000 DC Local outputs and radio	16/4 + RF	DC / DC Latch local and radio	B10B1216D00400**00R45
	32/4 + RF		B10B1232D00400**00R45



\*\*= Options for languages (EN=English / SP=Spanish / US=English US / PT=Portuguese)





## BIC 1000 Time Based Professional Control With Communication

BIC 1000

Description	Out/In	Power Supply / Output	Catalog Number
BIC 1000 AC	12/4/2	220VAC / AC	B1022012A00402**TG000
	18/4/2		B1022018A00402**TG000
	24/4/2		B1022024A00402**TG000
	30/4/2		B1022030A00402**TG000
	36/4/2		B1022036A00402**TG000
	12/4/2	110VAC / AC	B1012012A00402**TG000
	18/4/2		B1012018A00402**TG000
	24/4/2		B1012024A00402**TG000
	30/4/2		B1012030A00402**TG000
	36/4/2		B1012036A00402**TG000



\*\*= Options for languages (EN=English / SP=Spanish / US=English US / PT=Portuguese)

## Communication for BIC 1000

Description	Catalog Number
BIC 1000 Spot Mobile Device Cloud Access Initial License	B10SPTINT00000AL00
BIC 1000 User Name Cloud Use Additional License	B10UNMADD00000AL00
BIC 1000 Target Cloud Use Additional License	B10TRCADD00000AL00
BIC 1000 Target Cloud Use Annual Charge	B10TRCANN00000AL00
BIC 1000 User Name Cloud Use Annual Charge	B10UNMANN00000AL00

## BIC1500 DC

BIC 1500

Description	Out/Dig-In/Ana-In	Power Supply / Output	Catalog Number
BIC1500 DC + WiFi + Modem 3G	4/8/4	DC/DC Latch	B15B1204D00804ALTG
	8/8/4		B15B1208D00804ALTG
	12/8/4		B15B1212D00804ALTG
	16/8/4		B15B1216D00804ALTG
BIC1500 DC + WiFi + Modem 3G + RF G5	4/8/4	DC/DC Latch	B15B1204D00804ALTGRG5
	8/8/4		B15B1208D00804ALTGRG5
	12/8/4		B15B1212D00804ALTGRG5
	16/8/4		B15B1216D00804ALTGRG5

\* Battery & Solar Panel are not include

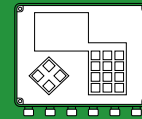
## BIC1500 Communication from PC Software CONSOLE

Description	Catalog Number
BIC1500 CONSOL PC SOFTWARE SINGLE USER LICENSE, Initial License	B15CONINT00000AL00
BIC1500 CONSOL PC SOFTWARE SINGLE USER LICENSE, Additional License	B15CONADD00000AL00
BIC1500 Target Cloud Use ADDITIONAL LICENSE	B15TRCADD00000AL00

## BIC1500 Communication from mobile device SPOT

Description	Catalog Number
BIC1500 SPOT Mobile Device Cloud Access Initial License	B15SPTINT00000AL00
BIC1500 SPOT User Name Cloud Use ADDITIONAL LICENSE	B15SPTADD00000AL00
BIC1500 Target Cloud Use ADDITIONAL LICENSE	B15TRCADD00000AL00

\* The customer will have to purchase a SIM card (standard size) with web browsing package (min – 50MB)



## BIC1500 Cloud Use Annual Charge

Description	Catalog Number
BIC1500 Target Cloud Use Annual Charge	B15TRCANN00000AL00
BIC1500 User Name Cloud Use Annual Charge	B15UNMANN00000AL00

## BIC 2500 Complete Management System

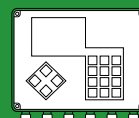
Local and Central Monitoring, Analyzing and Control Systems

With Cellular Communication

BIC 2500

Description	Out/In	Power Supply / Output	Catalog Number
BIC 2500 Local outputs and inputs	16/8	220VAC / AC	B2522016A00800ALTG000
	32/16		B2522032A01600ALTG000
	16/8	110VAC / AC	B2512016A00800ALTG000
	32/16		B2512032A01600ALTG000
	16/8	220VAC / DC	B2522016D00800ALTG000
	32/16		B2522032D01600ALTG000
	16/8	110VAC / DC	B2512016D00800ALTG000
	32/16		B2512032D01600ALTG000
	16/8	DC / DC Latch	B25B1216D00800ALTG000
	32/16		B25B1232D01600ALTG000
BIC 2500 Local and radio outputs and inputs	16/8 + 1000 RF	220VAC / AC Local and DC Latch radio	B2522016A00800ALTGR45
	32/16 + 1000 RF		B2522032A01600ALTGR45
	16/8 + 1000 RF	110VAC / AC Local and DC Latch radio	B2512016A00800ALTGR45
	32/16 + 1000 RF		B2512032A01600ALTGR45
	16/8 + 1000 RF	220VAC / DC Local and DC Latch radio	B2522016D00800ALTGR45
	32/16 + 1000 RF		B2522032D01600ALTGR45
	16/8 + 1000 RF	110VAC / DC Local and DC Latch radio	B2512016D00800ALTGR45
	32/16 + 1000 RF		B2512032D01600ALTGR45
	16/8 + 1000 RF	DC / DC Latch local and radio	B25B1216D01600ALTGR45
	32/16 + 1000 RF		B25B1232D01600ALTGR45
BIC 2500 Radio outputs and inputs	1000 / 1000	220VAC / DC Latch radio	B2522000000000ALTGR45
		110VAC / DC Latch radio	B2511000000000ALTGR45
		DC / DC Latch radio	B25B12000000000ALTGR45
BIC 2500 Local and 2-wire outputs and inputs	16/8 + 1000 2W	220VAC / AC Local and DC Latch 2-Wire	B2522016A00800ALTG2WI
	32/16 + 1000 2W		B2522032A01600ALTG2WI
	16/8 + 1000 2W	110VAC / AC Local and DC Latch 2-Wire	B2512016A00800ALTG2WI
	32/16 + 1000 2W		B2512032A01600ALTG2WI
	16/8 + 1000 2W	220VAC / DC Local and DC Latch 2-Wire	B2522016D00800ALTG2WI
	32/16+ 1000 2W		B2522032D01600ALTG2WI
	16/8 + 1000 2W	110VAC / DC Local and DC Latch 2-Wire	B2512016D00800ALTG2WI
	32/16 + 1000 2W		B2512032D01600ALTG2WI
	16/8 + 1000 2W	DC / DC Latch local and 2-wire	B25B1216D00800ALTG2WI
	32/16 + 1000 2W		B25B1232D01600ALTG2WI
BIC 2500 2-Wire outputs and inputs	1000 / 1000	220VAC / DC Latch 2-wire	B2522000000000ALTG2WI
		110VAC / DC Latch 2-wire	B2511000000000ALTG2WI
		DC / DC Latch 2-wire	B25B12000000000ALTG2WI





## BIC 2500 Complete Management System

Local and Central Monitoring, Analyzing and Control Systems With Cellular Communication with Radio G5

BIC 2500

Description	Out/In	Power Supply / Output	Catalog Number
BIC 2500 Local and G5 radio outputs and inputs	16/8 + 1000 RF	220VAC / AC Local and DC Latch radio	B2522016A00800ALTGRG5
	32/16 + 1000 RF		B2522032A01600ALTGRG5
	16/8 + 1000 RF	110VAC / AC Local and DC Latch radio	B2512016A00800ALTGRG5
	32/16 + 1000 RF		B2512032A01600ALTGRG5
	16/8 + 1000 RF	220VAC / DC Local and DC Latch radio	B2522016D00800ALTGRG5
	32/16 + 1000 RF		B2522032D01600ALTGRG5
	16/8 + 1000 RF	110VAC / DC Local and DC Latch radio	B2512016D00800ALTGRG5
	32/16 + 1000 RF		B2512032D01600ALTGRG5
	16/8 + 1000 RF	DC / DC Latch local and radio	B25B1216D01600ALTGRG5
	32/16 + 1000 RF		B25B1232D01600ALTGRG5
BIC 2500 G5 Radio outputs and inputs	1000/1000	220VAC / DC Latch radio	B2522000000000ALTGRG5
		110VAC / DC Latch radio	B2511000000000ALTGRG5
		DC / DC Latch radio	B25B12000000000ALTGRG5

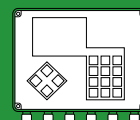


## Communication for BIC 2500

Description	Catalog Number
BIC2500 Consol PC Software Single User License, Initial License	B25CONINT00000AL00
BIC 2500 Target Cloud Use Additional License	B25TRCADD00000AL00
BIC2500 Consol PC Software Single User License, Additional License	B25CONADD00000AL00
BIC 2500 Spot Mobile Device Cloud Access Initial License	B25SPTINT00000AL00
BIC 2500 Spot Mobile Device Cloud Access Additional License	B25SPTADD00000AL00
BIC 2500 Target Cloud Use Annual Charge	B25TRCANN00000AL00
BIC 2500 User Name Cloud Use Annual Charge	B25UNMANN00000AL00

## BIC 2500 Interfaces, Inputs and Sensors Add-on

Description	Inputs	Type	Catalog Number
Interface	2	Temperature & Humidity Sensor	BAXTHI0000000000000000
	11	Weather Station Interface	BAXOWS0000000000000000
	16/8	Remote DC Interface	B2522016D008000000IOE
	32/16		B2522032D008000000IOE
	16/8	Remote AC Interface	B2522016A008000000IOE
	32/16		B2522032A016000000IOE
		External Radio Interface + RF Master G4.5	BTRME0000000000000R45
		Radio Master and Internal Interface, Radio G5L	BAXRMI000000000000G5L
		External 2W Interface	S-TG-0044
	2 In	Analog Interface	S-TG-0016
	4 In		S-TG-0057
Sensors	4-20mA	Leaf Temperature Sensor	S-TG-0136
	0-5V	Pressure Transducer	S-TG-0064
	11	Weather Station 11 Parameters	BAXOWD0000000000WEI



## Solar Power and Batteries

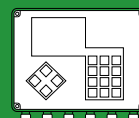
Description	Power	Type	Catalog Number
Solar	RTU Kit	All	BAXK500000000000000000
	BIC 1000 Kit		BAXK200000000000000000
	BIC 2500 Kit		BAXK200000000000000000
	5 Watt		BAXS500000000000000000
	10 Watt		BAXS100000000000000000
	20 Watt		BAXS200000000000000000
	1.3Ah Battery		BAX0B1000000000000000
	9Ah Battery		BAX0B9000000000000000
	2.5 Watt		S-TG-0021

## G4.5 Radio Remote Terminal Units 6V

### RTU G4.5

Description	Out/In	Type	Catalog Number
Radio 6V Battery operated	0/0	Modular	BRTB0600D000000000R45
	2/0		BRTB0602D000000000R45
	4/0		BRTB0604D000000000R45
	6/0		BRTB0606D000000000R45
	8/0		BRTB0608D000000000R45
	0/4		BRTB0600D004000000R45
	2/4		BRTB0602D004000000R45
	4/4		BRTB0604D004000000R45
	6/4		BRTB0606D004000000R45
	8/4		BRTB0608D004000000R45
	1/1	Economical Internal antenna	BRTB0601D000100000R45
	2/2		BRTB0602D000200000R45





## G4.5 Radio Remote Terminal Units 12V

### RTU G4.5

Description	Out/In	Type	Catalog Number
Radio RUT	0/0	* Modular	BRTB12000000000R45WOBAT
	2/0		BRTB1202D000000R45WOBAT
	4/0		BRTB1204D000000R45WOBAT
	6/0		BRTB1206D000000R45WOBAT
	8/0		BRTB1208D000000R45WOBAT
	0/4		BRTB12000004000R45WOBAT
	2/4		BRTB1202D004000R45WOBAT
	4/4		BRTB1204D004000R45WOBAT
	6/4		BRTB1206D004000R45WOBAT
	8/4		BRTB1208D004000R45WOBAT
Radio RUT with 2 Analog inputs	0/0/2	* Modular	BRTB12000000020R45WOBAT
	2/0/2		BRTB1202D000020R45WOBAT
	4/0/2		BRTB1204D000020R45WOBAT
	6/0/2		BRTB1206D000020R45WOBAT
	8/0/2		BRTB1208D000020R45WOBAT
	0/4/2		BRTB12000004020R45WOBAT
	2/4/2		BRTB1202D004020R45WOBAT
	4/4/2		BRTB1204D004020R45WOBAT
	6/4/2		BRTB1206D004020R45WOBAT
	8/4/2		BRTB1208D004020R45WOBAT
Radio RUT with 4 Analog inputs	0/0/4	* Modular	BRTB12000000040R45WOBAT
	2/0/4		BRTB1202D000040R45WOBAT
	4/0/4		BRTB1204D000040R45WOBAT
	6/0/4		BRTB1206D000040R45WOBAT
	8/0/4		BRTB1208D000040R45WOBAT
	0/4/4		BRTB12000004040R45WOBAT
	2/4/4		BRTB1202D004040R45WOBAT
	4/4/4		BRTB1204D004040R45WOBAT
	6/4/4		BRTB1206D004040R45WOBAT
	8/4/4		BRTB1208D004040R45WOBAT
Radio 12V Battery operated with Solar panel	1/1	Economical Internal antenna	BRTB1201D000100000R45
	2/2		BRTB1202D000200000R45

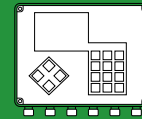


\* RTU RF modular G4.5 powered by 5W Solar Panel (not include), with rechargeable battery 1.3 Ah (not include), with Battery charger limiter (not include)

## Kit for Modular RF RTU G4.5

Description	Catalog Number
Power Kit for Modular RF RTU G4.5 includes 5W Solar Panel & 12V 1.3Ah Rechargeable Battery & Battery charger limite	BAXK50B11BCL000000000





## ECO G5 Radio Remote Terminal Units

RTU G5

Description	Out/Dig-In/Ana-In	Type	Catalog Number
Economical RTU	1/1/2	* 12V Economical	BRTB1201D001020000G5L01M
	2/2/2		BRTB1202D002020000G5L01M
	1/1/2	6V Economical	BRTB0601D001020000G5L01M
	2/2/2		BRTB0602D002020000G5L01M

\* RTU RF ECO G5 powered by Solar - 2.5W with rechargeable battery 1.3 Ah with Antenna 0.65m (Battery & Solar Panel not include)



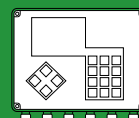
## Modular G5 Radio Remote Terminal Units

RTU G5

Description	Out/Dig-In/Ana-In	Type	Catalog Number
Radio RTU 12V Battery operated with Solar Panel	2/0/0	* 12V Modular	BRTB1202D000000000G5L01M
	4/0/0		BRTB1204D000000000G5L01M
	6/0/0		BRTB1206D004000000G5L01M
	8/0/0		BRTB1208D000000000G5L01M
	2/4/0		BRTB1202D004000000G5L01M
	4/4/0		BRTB1204D004000000G5L01M
	6/4/0		BRTB1206D004000000G5L01M
	8/4/0		BRTB1208D004000000G5L01M
	2/8/0		BRTB1202D008000000G5L01M
	4/8/0		BRTB1204D008000000G5L01M
	6/8/0		BRTB1206D008000000G5L01M
	8/8/0		BRTB1208D008000000G5L01M
Radio RTU powered by 4 batteries Alkaline 1.5V size "D"	2/0/0	6V Modular	BRTB0602D000000000G5L01M
	4/0/0		BRTB0604D000000000G5L01M
	6/0/0		BRTB0606D004000000G5L01M
	8/0/0		BRTB0608D000000000G5L01M
	2/4/0		BRTB0602D004000000G5L01M
	4/4/0		BRTB0604D004000000G5L01M
	6/4/0		BRTB0606D004000000G5L01M
	8/4/0		BRTB0608D004000000G5L01M
	2/8/0		BRTB0602D008000000G5L01M
	4/8/0		BRTB0604D008000000G5L01M
	6/8/0		BRTB0606D008000000G5L01M
	8/8/0		BRTB0608D008000000G5L01M

\* RTU RF ECO G5 powered by Solar - 2.5W with rechargeable battery 3.3 Ah with Antenna 0.65m (Battery & Solar Panel not include)





## 2-Wire Remote Terminal Units

### RTU 2-WIRE

Description	Out/In	Type	Catalog Number
Two-Wire	2/0	Modular	BRT2WM02D0000000002WP
	4/0		BRT2WM04D0000000002WP
	6/0		BRT2WM06D0000000002WP
	8/0		BRT2WM08D0000000002WP
	2/4		BRT2WM02D0040000002WP
	4/4		BRT2WM04D0040000002WP
	6/4		BRT2WM06D0040000002WP
	8/4		BRT2WM08D0040000002WP
	2/8		BRT2WM02D0080000002WP
	4/8		BRT2WM04D0080000002WP
	6/8		BRT2WM06D0080000002WP
	8/8		BRT2WM08D0080000002WP
	1/1	Economical	BRT2WE01D0010000002WP
	2/1		BRT2WE02D0010000002WP
	1/0+TH Sensors		BRT2WE01D000TH00002WP
	2/0+TH Sensors		BRT2WE02D000TH00002WP



## Uniliner BUS System

### Uniliner

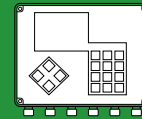
Description	Out/In	Type	Catalog Number
Radio 220V AC Power Supply	8/0	Modular	BUN22008D000000ENR45
	16/0		BUN22016D000000ENR45
	24/0		BUN22024D000000ENR45
	32/0		BUN22032D000000ENR45
	8/8		BUN22008D008000ENR45
	16/8		BUN22016D008000ENR45
	24/8		BUN22024D008000ENR45
	32/8		BUN22032D008000ENR45
Two-Wire 220V AC Power Supply	8/0	Modular	BUN22008D000000EN2WI
	16/0		BUN22016D000000EN2WI
	24/0		BUN22024D000000EN2WI
	32/0		BUN22032D000000EN2WI
	8/8		BUN22008D008000EN2WI
	16/8		BUN22016D008000EN2WI
	24/8		BUN22024D008000EN2WI
	32/8		BUN22032D008000EN2WI



## Fertilizers and Chemical Injection

### Fert

Description	Power	Type	Catalog Number
Single Fert Injector	AC/DC	Smart Pump	S-TG-0227
EC and pH	AC	EC/pH Interface	BAX22000000000000EPI
		pH Sensor	BSN0PH000000000000EPI
		EC Sensor	BSN0EC000000000000EPI
		Calibration Solution for pH-4	S-TG-0187
		Calibration Solution for pH-7	S-TG-0188
		EC-2.63 Milisiemens	S-TG-0189
Auxiliary	AC	1" Fertilizer meter w/Pulse	EXFERTSFNTPUS



## Lightning Protection

Description	Out	Type	Catalog Number
Lightning Protection Units	16	AC	BAXLIG16A0000000000000
	32		BAXLIG32A0000000000000
	16 Card		S-TG-0217
	2		S-TG-0135

## Pump Start and Dry Contact Relays

Description	Power	Type	Catalog Number
Electric Relay	24VAC	Solid State Ac Pump Start	S-TG-0026
			S-TG-0025
	12VDC Latch	Latch relay card	S-TG-0178
		Latch Relay 12V DC in Box	S-TG-0694

## Spare Parts

Description	Card	Type	Catalog Number
BIC 1000	CPU	All	S-TG-0081
	Display		S-TG-0086
	kBD & LED		S-TG-0084
	Keyboard		S-TG-0083
	I/O Board		S-TG-0198
	Transformer		BAXTR10000000000000000
	Anti-Surge		S-TG-0007
	6 Out Card AC		B10E2806A0000000000000
	16 Out Card DC		B100I016D0000000000000
BIC 2500	CPU	All	S-TG-0302
	Display		B25LCD00000000000000000
	Keyboard		B25KYB00000000000000000
	Motherboard		EXSP/DRMB000
	Transformer		S-TG-0283
	Power Supply		S-TG-0268
	16/8 DC I/O		B250I016D0080000000000
	16/8 AC I/O		B250I016A0080000000000
	2 Local Analog		
	4 Local Analog		
	AC/DC Interface		
	RF Interface		
	2W Interface		
Radio	2 Out	All	BRT0I002D0000000000000
	4 Digital In		BRT0I00000040000000000
	Eco RTU Base repair kit		BRTREK00000000000000000
	Modular RTU Base repair kit		BRTRBK00000000000000000
	Slave Card		BRTRSC00000000000000000
	Slave repair kit 4.5G		BRTRSK00000000000000R45
	Antenna extention cable and bracket		S-TG-0261
	Antenna		
	Master Card		BAXRMC00000000000000000
	2 Analog		
	4 Analog		



## 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.**

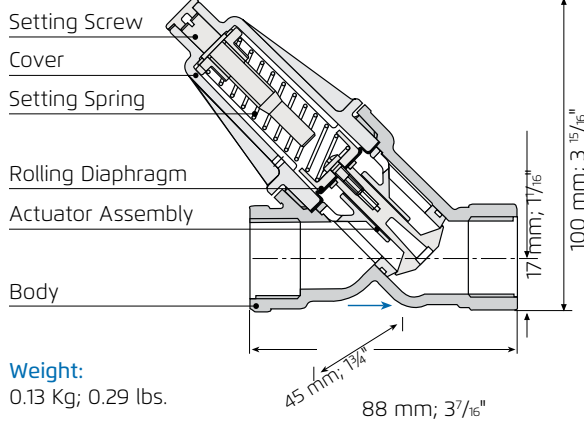
The BERMAD Model PRV is built of reinforced plastic that endows it with excellent hydraulic performance capabilities and high mechanical strength. It reduces higher upstream pressure to lower constant downstream pressure regardless of fluctuating demand or varying upstream pressure.

### 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 reset 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



## 3/4" - PRV



## Technical Data

**Size:** 3/4"; 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 60°C; 140°F

**Materials:**

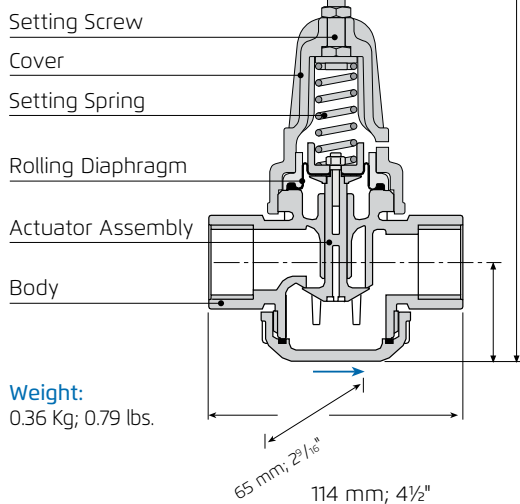
**Body, Cover and Actuator Assembly:**

Glass fiber reinforced polyamide 6

**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 60°C; 140°F

**Materials:**

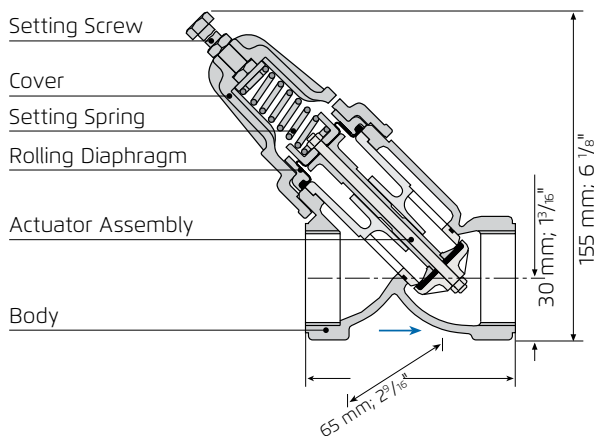
**Body, Cover and Actuator Assembly:**

Glass fiber reinforced polyamide 6

**Diaphragm:** NBR (Buna-N), Reinforced Nylon Fabric

**Spring:** Stainless Steel

## 1 1/2" - PRV



## Technical Data

**Size:** 1 1/2"; 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 60°C; 140°F

**Materials:**

**Body:** Glass fiber reinforced polyamide 6

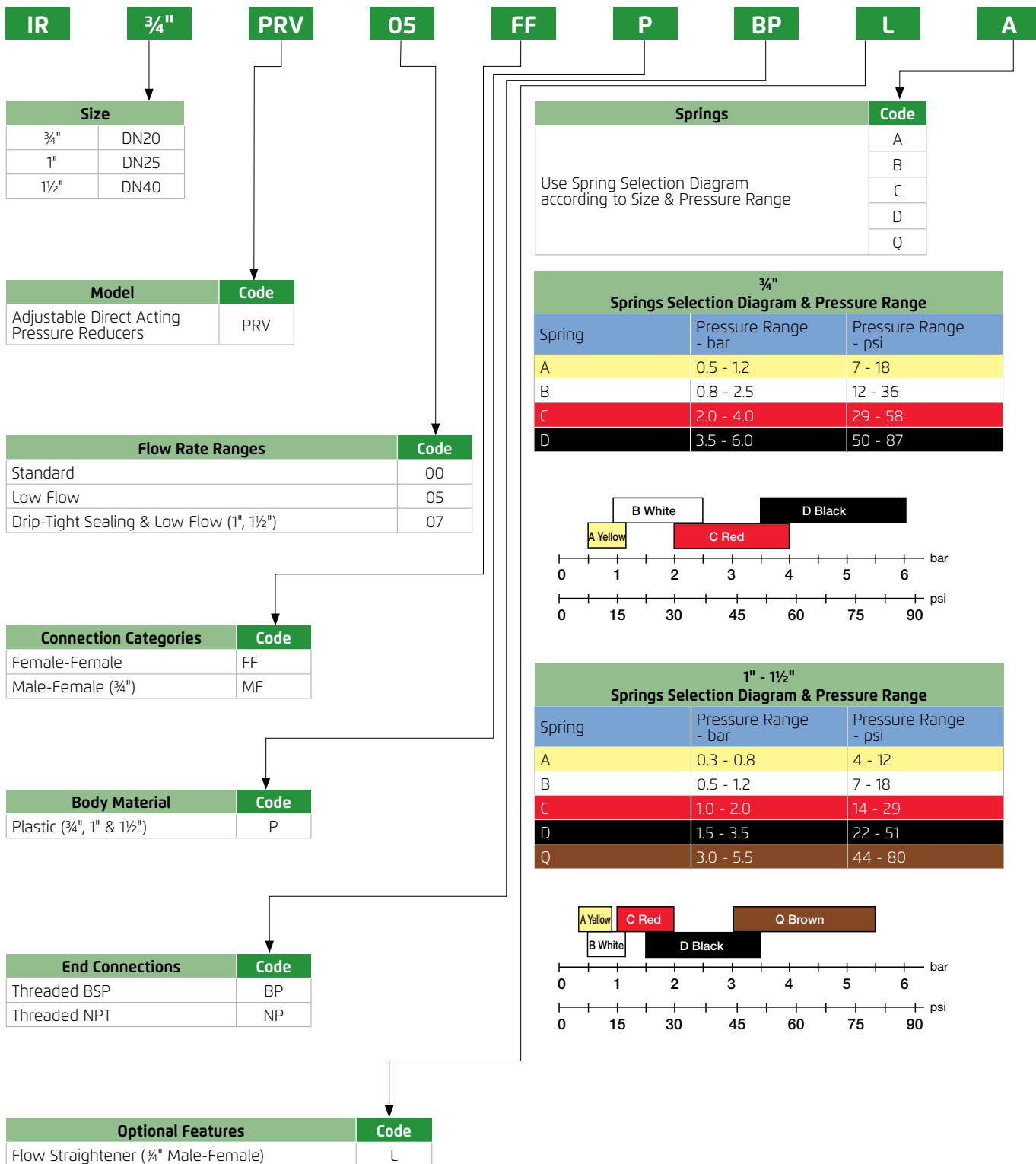
**Cover and Actuator Assembly:**

Glass fiber reinforced polyamide 6

**Diaphragm:** NBR (Buna-N), Reinforced Nylon Fabric

**Spring:** Stainless Steel







## Adjustable Direct-Acting Pressure Reducer

Threaded Male - Female, Female - Female

¾"-PRV

FLOW - 0.2-5.0 M³/h, 0.9-22.0 gpm

Spring	Color	Downstream Pressure Range- bar	Downstream Pressure Range - psi
A	Yellow	0.5 - 1.2	7 - 17
B	White	0.8 - 2.5	12 - 35
C	Red	2.0 - 4.0	30-60
D	Black	3.5 - 6.0	50 - 80



## Adjustable Direct-Acting Low-Flow Pressure

Reducer Threaded Male - Female, Female - Female

¾"-PRV-05

FLOW - 0.01 - 3.0 M³/h, 0.04 - 13.0 gpm

Spring	Color	Downstream Pressure Range- bar	Downstream Pressure Range - psi
A	Yellow	0.5 - 1.2	7 - 17
B	White	0.8 - 2.5	12 - 35
C	Red	2.0 - 4.0	30-60
D	Black	3.5 - 6.0	50 - 80



## Adjustable Direct-Acting Pressure Reducer

Threaded Female - Female

1"-PRV

FLOW - 0.45 - 7.0 M³/h , 2.0 - 31.0 gpm

Spring	Color	Downstream Pressure Range- bar	Downstream Pressure Range - psi
B	White	0.5 - 1.2	7 - 17
C	Red	1.0 - 2.0	14 - 28
D	Black	1.5 - 3.5	22-50
Q	Brown	3.0 - 5.5	45 - 80



## Adjustable Direct-Acting, Low Flow Pressure Reducer

Threaded Female - Female

1"-PRV-05

FLOW - 0.1 - 7.0 M³/h , 0.4 - 31.0 gpm

Spring	Color	Downstream Pressure Range- bar	Downstream Pressure Range - psi
B	White	0.5 - 1.2	7 - 17
C	Red	1.0 - 2.0	14 - 28
D	Black	1.5 - 3.5	22-50
Q	Brown	3.0 - 5.5	45 - 80





## Adjustable Direct-Acting Pressure Reducer - PLASTIC

Plastic Threaded Female - Female

**$1\frac{1}{2}$ "-PRV-P**

FLOW - 0.45 - 18.0 M<sup>3</sup>/h , 2.0 - 80.0 gpm

Spring	Color	Downstream Pressure Range- bar	Downstream Pressure Range - psi
B	White	0.5 - 1.2	7 - 17
C	Red	1.0 - 2.0	14 - 28
D	Black	1.5 - 3.5	22-50
Q	Brown	3.0 - 5.5	45 - 80

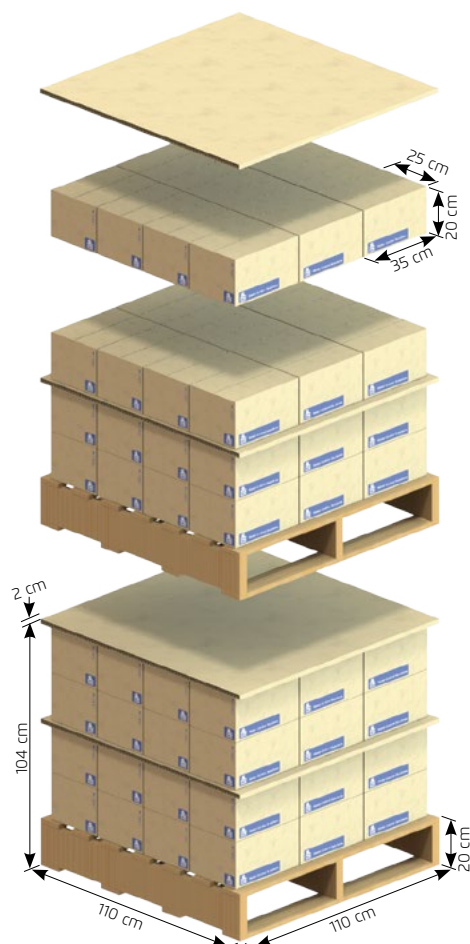
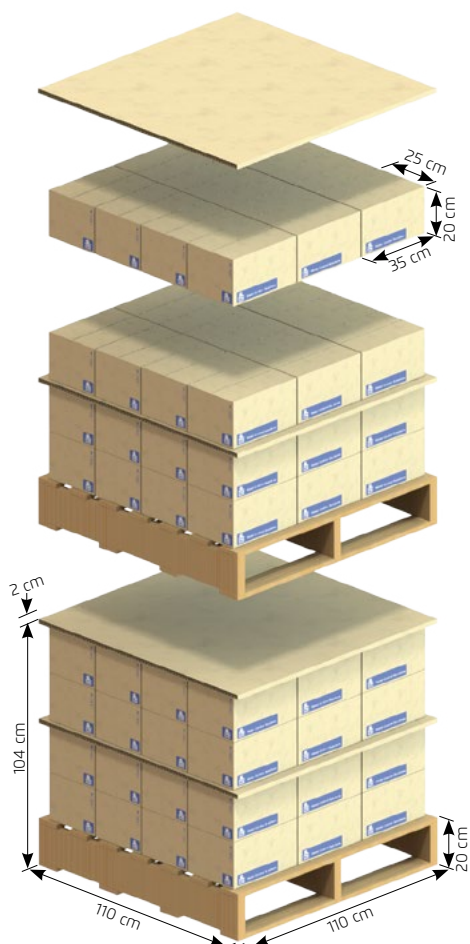




## Packing Specifications

3/4", 1"

1 1/2" Plastic



## Per Box

Valve Size	Box					
	Units	Length [cm]	Width [cm]	Height [cm]	Weight [kg]	Volume [m <sup>3</sup> ]
3/4"	50	35	25	20	6.6	0.02
1"	15	35	25	20	4.9	0.02
1 1/2" Plastic	10	35	25	20	5.1	0.02

## Per Pallet

Valve Size	Pallet							
	Number of Boxes	Number of Levels	Number of Units	Length [cm]	Width [cm]	Height [cm]	Gross Weight [kg]	Volume [m <sup>3</sup> ]
3/4"	48	4	2400	110	110	104	336	1.3
1"	48	4	720	110	110	104	255	1.3
1 1/2" Plastic	48	4	480	110	110	104	265	1.3



## 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-390T-2W / 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	
S390T-2W-24VAC-R	Red/Red	1.7	0.25	0.125	37.5
S390T-2W-24VAC-D	Red/Orange	2.2	0.13	0.13	*
S390T-2W-24VDC	Black/Black	3.6	0.18	0.18	156
S390T-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-B

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-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
S-390-3W-24VAC-R NC	Red/Red	2.9	0.46	0.24	20
S-390-3W-24VAC-D NC	Red/Orange	3.5	0.2	0.2	*

\* Coil resistance in this coil can not be measured

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



## 3-Way Solenoid with Trio Base

### S-390-T-3W

The BERMAD S-390-T-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	
S390T-24VDC-NO	Black/Black	4.2	0.17	0.17	135
S390T-12VDC-NO	Blue/Blue	4.0	0.33	0.33	36

\* Coil resistance in this coil can not be measured

\* Coils available only in type D

#### Connections:

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





## Magnetic Latch Solenoid Actuator, 2-Way, 9-20VDC Latch, 2- Leads

**S-392-T-2W**

The BERMAD Model S-392-2W/S-392-T-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: 9-20 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, 9-20VDC Latch, 2- Leads

**S-392-T-3W-B**

The BERMAD Model S-392T-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: 9-20 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

Top Orifice Diameter: 1.6 mm

Base Flow Factor:

Kv = 0.08 m<sup>3</sup>/h @ 1 bar ΔP; Cv = 0.09 GPM @1 psi ΔP

### Connections:

1:..... Vent [N.O.], Pressure [N.C.]

C:..... Valve control Chamber

Actuator Port:... Pressure [N.O.], Vent [N.C.]



## 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 mm

Base Flow Factor:

Pressure port Kv = 0.12 m<sup>3</sup>/h @ 1 bar ΔP

Cv = 0.14 GPM @1 psi ΔP

Exhaust port Kv = 0.14 m<sup>3</sup>/h @ 1 bar ΔP

Cv = 0.16 GPM @1 psi ΔP



### Connections:

1- Vent 2- Valve Control Chamber 3- Pressure

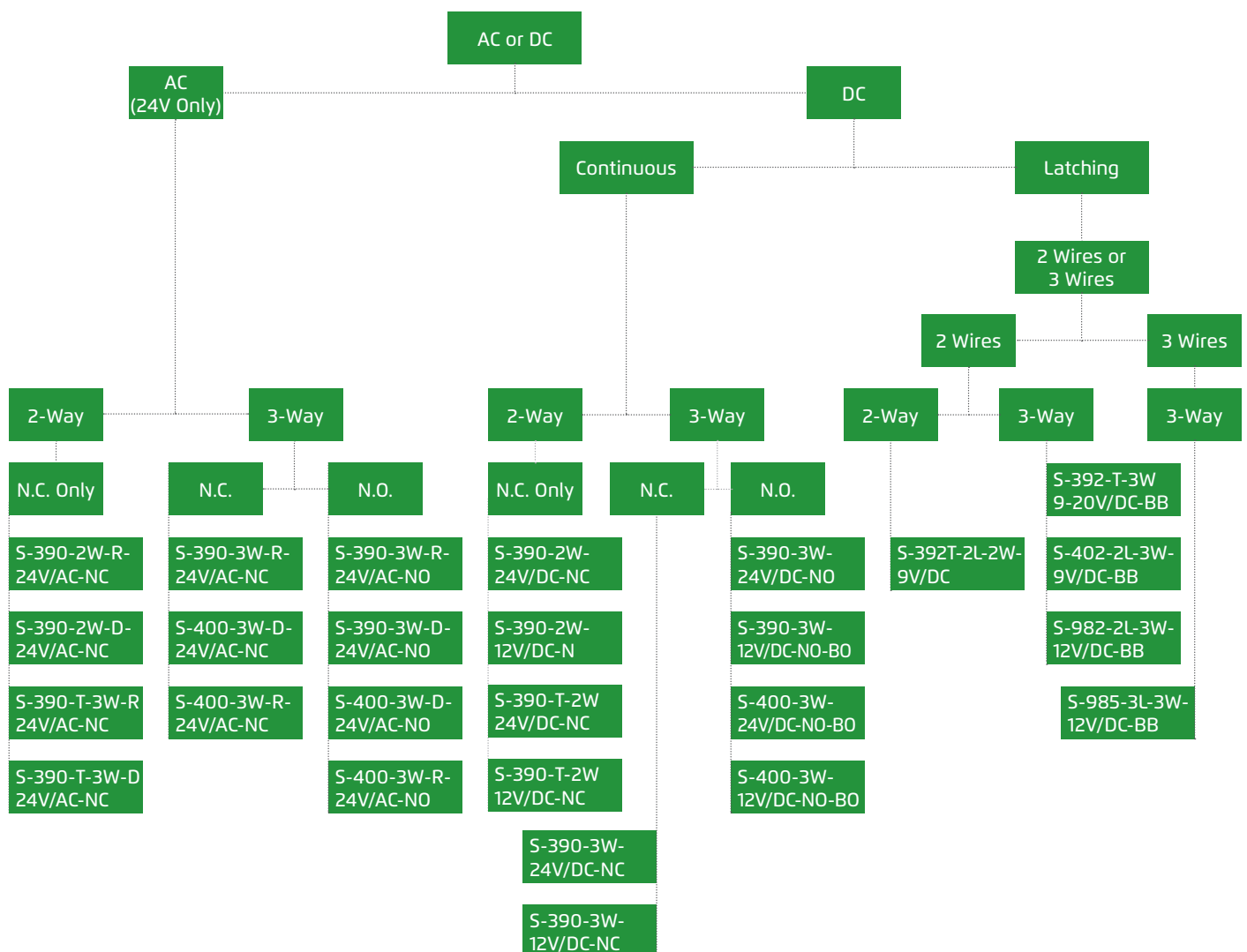


## Solenoid Selection Guide

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



## 2-Way Solenoid Actuator

S-390-2W / S-390-T-2W

Voltage	Normal State	Inrush (Amp)	Holding (Amp)	Power (Watt)
12VDC	N.C	0.33	0.330	4.00
24VDC	N.C	0.18	0.180	3.60
24VAC	N.C	0.25	0.125	1.70

S-390 / S-390-T-2W-R-24V/AC-NC



## 2-Way Solenoid Actuator with Plastic / Metal Base

S-390-T-2W-P / S-390-2W-M

Voltage	Normal State	Inrush (Amp)	Holding (Amp)	Power (Watt)
12VDC	N.C	0.33	0.330	4.00
24VDC	N.C	0.18	0.180	3.60
24VAC	N.C	0.25	0.125	1.70

S-390 / S-390-T-2W-R-24V/AC-NC



## 3-Way Solenoid Actuator

S-390-3W

Voltage	Normal State	Inrush (Amp)	Holding (Amp)	Power (Watt)
12VDC	N.O	0.33	0.330	4.00
24VDC	N.O	0.17	0.170	4.20
24VAC-D	N.O	0.13	0.130	2.20
24VAC-R	N.O	0.46	0.240	2.90
24VAC-D	N.C	0.20	0.200	3.50



## 3-Way Solenoid Actuator with Plastic / Metal Base

S-390-3W-P / S-390-3W-M

Voltage	Normal State	Inrush (Amp)	Holding (Amp)	Power (Watt)
12VDC	N.O	0.33	0.330	4.00
24VDC	N.O	0.17	0.170	4.20
24VAC-D	N.O	0.13	0.130	2.20
	N.C	0.20	0.200	3.50





## Magnetic Latch Solenoid Actuator

S-392-T-2W

2-Way, 9-20V/DC Latch, 2-Leads

Voltage	Normal State	Min Pulse length (mSec)	Resistance (Ohm)
9-20	N.O / N.C	20	6

S-392-T-2L-2W-D-9-20V/DC

NEW



## Magnetic Latch Solenoid

with Hydraulic Base

S-392-T-3W-P

3-Way, 9-20VDC Latch, 2- Leads

Voltage	Normal State	Min Pulse length (mSec)	Resistance (Ohm)
9-20	N.O / N.C	20	6

NEW



## Dry Magnetic Latch Solenoid

with Isolating Membrane & Hydraulic Plastic / Metal Base

S-982/5-3W-P/M

3-Way, 12-50V/DC Latch, 2-Leads

Voltage	Normal State	Min Pulse length (mSec)	Resistance (Ohm)
12-50	N.O / N.C	20	4







## Packing Specifications

### S-390-2W

### S-392-2W

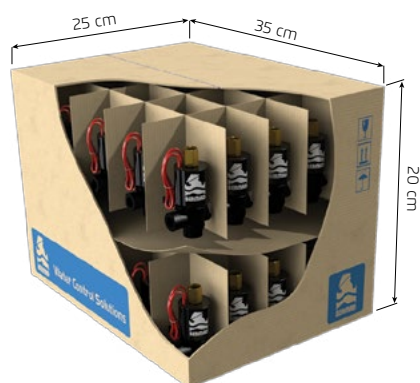


### S-390-3W



	S-390/392-2W	S-390-3W
No. of Layers	2	2
No. of Units	100	100
Length [cm]	35	35
Width [cm]	25	25
Height [cm]	20	20
Gross Weight	12.74	13.74
Volume [m <sup>3</sup> ]	0.02	0.02

### S-390-3W-BB



	S-390-3W-BB	
No. of Layers	2	1
No. of Units	50	25
Length [cm]	35	35
Width [cm]	25	25
Height [cm]	20	11.6
Gross Weight	8	4
Volume [m <sup>3</sup> ]	0.02	0.01

### S-400/402; S-982/985



S-400/402; S-982/985	
No. of Layers	2
No. of Units	50
Length [cm]	31
Width [cm]	23
Height [cm]	24.5
Gross Weight	8.45
Volume [m <sup>3</sup> ]	0.02

S-400/402; S-982/985	
No. of Layers	1
No. of Units	6
Length [cm]	17.5
Width [cm]	10
Height [cm]	12.5
Gross Weight	1.3
Volume [m <sup>3</sup> ]	0.002

S-400/402; S-982/985	
No. of Layers	1
No. of Units	20
Length [cm]	25
Width [cm]	25
Height [cm]	15
Gross Weight	3
Volume [m <sup>3</sup> ]	0.01



## Mini Pilots - Plastic












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

## Mini Pilots - Metal

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

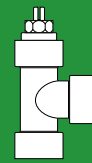


## Pilots & Floats
















	Model Code	Description
	<b>#2PB</b>	2-Way Pressure Reducing Pilot - Bronze 2" - 12"
	<b>#3PB</b>	2-Way Pressure Sustaining Pilot - Bronze 2" - 12"
	<b>#2</b>	2-Way Pressure Reducing Pilot - Brass
	<b>#3</b>	2-Way Pressure Sustaining Pilot - Brass
	<b>#X</b>	3-Way Multi Purpose Pilot - Brass
	<b>#8</b>	Altitude Positioning Pilot Valve
	<b>#66</b>	4-Way Bi-Level Vertical Pilot & Float Assembly
	<b>#67</b>	2-Way Modulating Vertical Float (Closed) Assembly
	<b>#60P</b>	Modulating Horizontal Float Assembly - Plastic
	<b>#60M</b>	Modulating Horizontal Float Assembly - Metal
	<b>#65</b>	Electric Float Switch Bi-Level

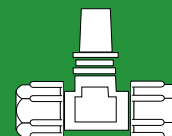
## Relays

	Model Code	Description
	<b>50-M</b>	3/8" 2-Way Hydraulic Relay (2W-HRV) - Brass
	<b>50-P</b>	1/8" 2-Way Hydraulic Relay - Plastic (2W-HRV)
	<b>54-XM</b>	3/8" 3-Way Hydraulic Relay (3W-HRV) - Brass
	<b>54-P</b>	1/8" 3-Way Hydraulic Relay (3W-HRV) - Plastic







## Accessories

	Model Code	Description			
	<b>Z - SY3</b>	1/8" 3-Way Selector		<b>Y</b>	3/8" OR Y-Strainer NPT Brass 500 Micron
	<b>Z - SY6</b>	1/4" 3-Way Selector		<b>F</b>	Large Control Filter
	<b>50-XM</b>	1/8" Metal Pressure Selecting Hydraulic Control (Shuttle Valve)		<b>5</b>	Plastic Gauges-Test Point
	<b>50-XP</b>	8x8x8 Plastic Shuttle Valve Assy -T		<b>6</b>	Pressure Gauge up to 16 bar
	<b>20-P</b>	8x8mm Plastic Check Valve Assy (Blue & Grey)			
	<b>20-M</b>	3/8" Metal Check Valve			
	<b>1</b>	8x8mm Plastic One-Way Flow Restriction Assy (Blue, Grey & Red)			
	<b>2</b>	8 x 1/8" x 8" Plastic Assy with Restriction Orifice (Grey & Red)			
	<b>3</b>	1/4" Brass Angle Needle Valve, Female-Female			
	<b>C</b>	1/4" In Line Filter Plastic Body			
	<b>C1</b>	1/4" In Line Filter, S.S. 316 Body			



### Control Tube Fittings

	Model Code	Description
	<b>FT 88</b>	Tube Straight Connector 8mm - 8mm
	<b>FT 18</b>	Straight Connector 1/8"-8mm
	<b>FT 78</b>	Straight Connector 1/4"-8mm
	<b>FT 28</b>	Elbow Connector 1/8"-8mm
	<b>FT 58</b>	Elbow Connector 1/4"-8mm
	<b>FT 38</b>	1/8" NPT Male Plug
	<b>FT 34</b>	1/4" NPT Male Plug
	<b>FT 32</b>	3/8" NPT Male Plug
	<b>FT 30</b>	1/2" BSPT Male Plug
	<b>FT 11</b>	Bushing Male-Female 1/8" - 1/8"
	<b>FT 48</b>	Bushing Male-Female 1/4" - 1/8"

	<b>FT 98</b>	T-Connector for Tube 8mm-8mm-8mm
	<b>FT 98/1</b>	T-Connector for Tube 8mm-1/8"-8mm
	<b>FT 98/2</b>	T-Connector for Tube 8mm-8mm -1/8"
	<b>FT 08</b>	Coupler for 8mm Tube



### BERMAD Standard International Limited Warranty

BERMAD CS LTD. ("BERMAD") warrants that, for a period of 12 months from the day of delivery of the product by BERMAD to its customer (the "Warranty Period"), each component of the product shall be free from defects in material or workmanship and shall meet, in all material respects, the products technical specifications as defined by BERMAD.

#### General Conditions

This warranty shall be valid only if the product is installed, handled and maintained in accordance with BERMAD's written or verbal instructions and/or recommendations, if such has been provided.

This Warranty does not cover defects or damages resulting from accident, inappropriate physical or operational environment, failure of electrical power, improper installation, maintenance, service, repair, transportation, storage, modification, operation, use, negligence or fault by any party other than BERMAD.

This Warranty shall run solely to and in favor of the customer that purchased the defective product directly from BERMAD, and it does not extend to any other purchaser or user of the product.

#### Claims, Notifications and Compensation

Every warranty claim must be notified in writing to BERMAD as soon as reasonably possible after the discovery of the defective product, enclosing the original sales receipt and this warranty.

The claimant must allow BERMAD to inspect the product involved and the installation site itself, while the product is still in its original position and has not been removed or altered in any way, and/or return the product to BERMAD for testing. BERMAD reserves the right to investigate independently the cause of any failure.

If a claim under this Warranty is properly notified within the Warranty Period and found to be justified by BERMAD, then BERMAD, at its sole option, shall: (i) replace such product; or (ii) repair such product; or (iii) repay to the BERMAD customer any amounts actually paid to BERMAD for such product.

In any way, BERMAD's liability shall not exceed the amounts actually paid by the BERMAD customer to BERMAD for the defective products.

#### Limitations

This Warranty is the sole warranty in respect to the products.

Under no circumstances shall BERMAD be liable for any indirect, special or consequential damages, and including, without limitation, for any loss of profit, loss in connection with business interruption, loss of use, loss of revenues or damage to business or reputation.

This warranty does not cover any costs and expenses of removal and installation of the product or shipping cost or taxes or any other direct or indirect loss(es) which may result from the product failure, and BERMAD shall not be liable for such costs and expenses.

OTHER THAN HAS BEEN SPECIFICALLY STATED IN THIS WARRANTY, ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED SO FAR AS THE LAW PERMITS.



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Irrigation

