

## 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.

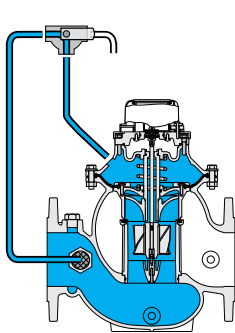
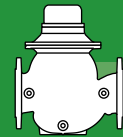
IR-900 Series range in diameter sizes of 1½"-10".

### Features and Benefits

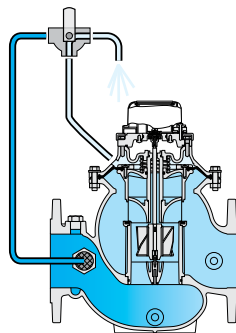
- Integrated "All-in-One" Control Valve
  - Saves space, cost and maintenance
- Hydraulically Controlled Hydrometer
  - Line pressure driven
- Magnetic Drive Register:
  - Analog rotating hands display
    - Water-free gear train mechanism
    - Various pulse combinations
- Internal Inlet & Outlet Flow 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

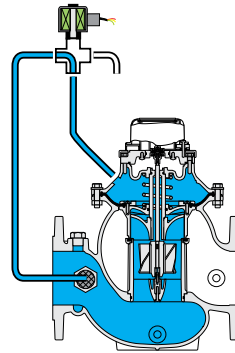
- Computerized Irrigation Systems
  - Irrigation Control Head
  - In-Field Control Head
- Remote Flow Data Read-Out
  - Flow Monitoring & Leakage Control
  - Water Treatment Systems
  - Volumetric Irrigation Systems



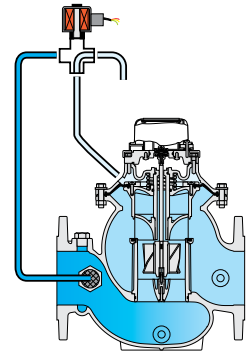
Hydrometer Closed



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.

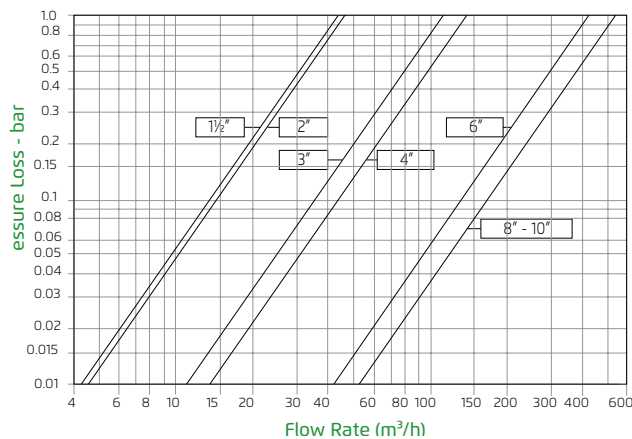
## On/Off Modes, Solenoid Controlled

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.

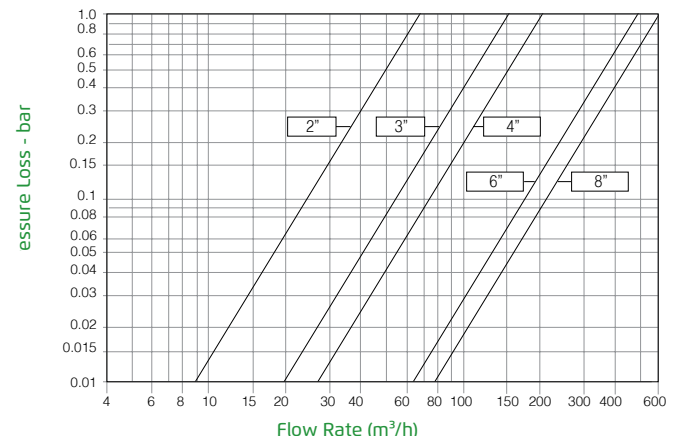
This in turn causes the line pressure under the plug to open the hydrometer, measuring the flow.

## Flow Chart

### Globe Pattern



### 90° Angle Pattern

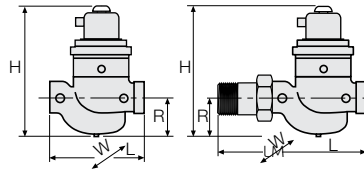


**Standards:** 900-E - Electronic; 900-M Series Approved to MID 2004/22/EC



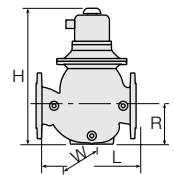
## Globe Pattern

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



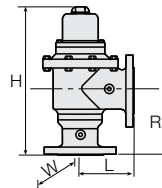
## Globe Pattern

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



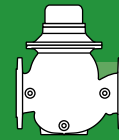
### 900-M

IR	4"	920	M0	55	G	C	I6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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3")</td><td>14</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 rowspan="3">Grooved</td><td>ABNT-16</td><td>B6</td></tr><tr><td>AST-D</td><td>SD</td></tr><tr><td>AST-E</td><td>SE</td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td 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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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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\* Globe only

Other primary features available on request.

Other end connections available on request.



### 900-M

PG	4AC	PP	R03	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	<table><tr><th>Voltage-Main Valve Position (When Solenoid De-Energized)</th><th>Code</th></tr><tr><td>24VAC, with Diode (D) - Normally Closed</td><td>4AC</td></tr><tr><td>24VAC, with Diode (D) - Normally Open</td><td>4AO</td></tr><tr><td>24VAC - Last Position</td><td>4AP</td></tr><tr><td>24VAC, with Ring (R) - Normally Closed</td><td>4RC</td></tr><tr><td>24VAC, with Ring (R) - Normally Open</td><td>4RO</td></tr><tr><td>24VDC - Normally Closed</td><td>4DC</td></tr><tr><td>24VDC - Normally Open</td><td>4DO</td></tr><tr><td>24VDC - Last Position</td><td>4DP</td></tr><tr><td>12VDC - Normally Closed</td><td>1DC</td></tr><tr><td>12VDC - Normally Open</td><td>1DO</td></tr><tr><td>12VDC - Last Position</td><td>1DP</td></tr><tr><td>12VDC - Latch Solenoid S-985 (3 Leads)</td><td>1DS</td></tr><tr><td>12VDC - Latch Solenoid S-982 (2 Leads)</td><td>2DS</td></tr><tr><td>9VDC - Latch Solenoid</td><td>9DS</td></tr></table> <p>Other electrical ratings available on request.</p>	Voltage-Main Valve Position (When Solenoid De-Energized)	Code	24VAC, with Diode (D) - Normally Closed	4AC	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	<table><tr><th>Pulse Type</th><th>Pulse Rate m³</th><th>Code</th></tr><tr><td>No Pulse</td><td>No Pulse m³</td><td>RNP</td></tr><tr><td rowspan="3">Reed Switch 1 Pulse</td><td>Reed 100 Liter</td><td>R02</td></tr><tr><td>Reed 1 m³</td><td>R03</td></tr><tr><td>Reed 10 m³</td><td>R04</td></tr><tr><td rowspan="2">Reed Switch 2 Pulse</td><td>REED 100L + REED 1 m³</td><td>R23</td></tr><tr><td>REED 1m³ + REED 10 m³</td><td>R34</td></tr></table>	Pulse Type	Pulse Rate m³	Code	No Pulse	No Pulse m³	RNP	Reed Switch 1 Pulse	Reed 100 Liter	R02	Reed 1 m³	R03	Reed 10 m³	R04	Reed Switch 2 Pulse	REED 100L + REED 1 m³	R23	REED 1m³ + REED 10 m³	R34	<table><tr><th>Additional Attributes Un-limited Selection</th><th>Code</th></tr><tr><td>3-Way Control Loop</td><td>X</td></tr><tr><td>Plastic Control Accessories</td><td>K</td></tr><tr><td>Metal Control Accessories</td><td>R</td></tr><tr><td>Homologation Approved</td><td>L</td></tr><tr><td>BSP-U Union Records Assembly (1.5" &amp; 2" only)</td><td>M</td></tr><tr><td>Orifice Assembly</td><td>U</td></tr><tr><td>Paddle Flow Control Pilot</td><td>V</td></tr><tr><td>Large Control Filter</td><td>F</td></tr><tr><td>Manual Selector</td><td>Z</td></tr><tr><td>Low Preset Pressure (below 2 bar)</td><td>2</td></tr><tr><td>Plastic Pressure Test Point</td><td>5</td></tr><tr><td>Pressure Gauge</td><td>6</td></tr><tr><td>½" Anti Vacuum at Valve Downstream</td><td>7</td></tr></table> <p>Other additional attributes are available. Please consult Customer Service for further information.</p>	Additional Attributes Un-limited Selection	Code	3-Way Control Loop	X	Plastic Control Accessories	K	Metal Control Accessories	R	Homologation Approved	L	BSP-U Union Records Assembly (1.5" & 2" only)	M	Orifice Assembly	U	Paddle Flow Control Pilot	V	Large Control Filter	F	Manual Selector	Z	Low Preset Pressure (below 2 bar)	2	Plastic Pressure Test Point	5	Pressure Gauge	6	½" Anti Vacuum at Valve Downstream	7	
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**Note:** Pulse combinations are available according to "Pulse Rate Table".