PRESSURE REDUCING HYDROMETER, SOLENOID CONTROLLED

Model IR-920-ME-55-3W-KX

The BERMAD pressure reducing Hydrometer with solenoid control combines a Woltman-type turbine water meter with a hydraulically operated, diaphragm-actuated control valve. It functions as both a mainline flow meter and a pressure-reducing valve, opening or shutting in response to an electric command and reducing higher upstream pressure to lower constant downstream pressure or opening fully when pressure drops below setpoint. It features an electronic register for precise volume and flow measurement and a pulse output for enhanced monitoring and control.

[1] BERMAD Model IR-920-ME-55-3W-KX opens in response to electric signals establishes reduced pressure zone, and controls irrigation shifts.
[2] Combination Air Valve Model C30
[3] Quick Pressure Relief Valve Model IR-13Q-2W
[4] Pressure Reducing Valve (Top Pilot) Model IR-12T-55-3W-X
[5] Kinetic Air Valve Model K10
[6] Smart Irrigation Controller-OMEGA

Features & Benefits

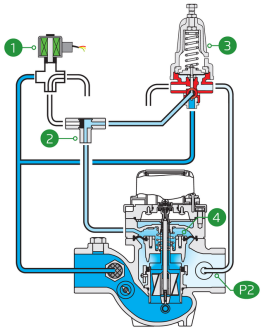
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Electrically Controlled On/Off
  - Protects downstream systems
- Magnetic Drive with BERMAD Universal E-Register
  - Support metric & imperial units of measurement
  - Instant flow rate display
  - Forward and reverse flow indication
  - Data logging capabilities
  - Fast pulse output rate
- Internal Inlet & Outlet Flow Straighteners
  - Saves on straightening distances
  - Maintains accuracy
- User-Friendly Design
  - Easy pressure setting
  - Simple in-line inspection and service

Typical Applications

- Automated Irrigation Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Distribution Centers

Operation:

The Shuttle Valve [1] hydraulically connects the Solenoid [2] or the Pressure Reducing Pilot (PRP) [3] to the Hydrometer Control Chamber [4]. When the solenoid is Activated, the PRP commands the Hydrometer to throttle closed should Downstream Pressure [P2] rise above setting, and to open fully when it drops below setting. In response to an electric signal, the solenoid switches, directing line pressure through the Shuttle Valve into the control chamber. This causes the Hydrometer to shut. The solenoid also features manual override for opening or closing.



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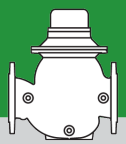


Technical Data

Pressure Rating:
150 psi

Operating Pressure Range:
7-150 psi

Materials

Body & Cover: Ductile Iron
Diaphragm: NR, Nylon fabric reinforced
Seals: NR, Nylon fabric reinforced
Spring: Stainless Steel
Internals: Stainless Steel & Plastic Reinforced Nylon
Impeller: Polypropylene
Pivots and Bearings: Polypropylene
**Other materials are available on request*

Control Loop Accessories

PR Pilot: PC-SHARP-X-P

Spring	Spring Color	Setting range
J	Green	3-25 bar
K	Gray	7-43 bar
N	**Natural**	**12-95 psi**
V	Blue & White	15-150 bar

Standard spring - marked in bold

Tubing and Fittings:
Polyethylene and Polypropylene

AC solenoid:
S-390-T-3W P.B.

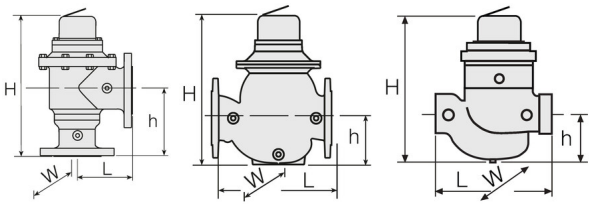
DC solenoid:
S-390-T-3W P.B.

DC latch solenoid:
S-392-T-3W P.B

**For other solenoids and pilots please consult BERMAD*

Technical Specifications

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



Size	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1½" ; DN40	Globe	Threaded	15.9	9⅞	10⅝	3¾	5⅝	0.04	47
2" ; DN50	Globe	Threaded	16.1	9⅞	10⅞	3¾	5⅝	0.04	53
2" ; DN50	Angle 90°	Threaded	17.8	4¾	13⅜	6⅛	5⅝	0.04	59
3"R ; DN80R	Globe	Threaded	16.1	9⅞	10⅞	3⅛	5⅝	0.04	58
3"R ; DN80R	Globe	Flanged	35.3	12¼	11¾	4	7⅞	0.04	58
3" ; DN80	Globe	Flanged	50.7	11⅞	15	4⅞	8¼	0.13	133
3" ; DN80	Angle 90°	Flanged	56.9	6	15⅞	7¾	8¼	0.13	146
4" ; DN100	Globe	Flanged	68.3	13¾	17⅝	5⅜	9⅞	0.26	170
4" ; DN100	Angle 90°	Flanged	79.6	7⅞	19	8⅞	9⅞	0.26	208

CCDV = Control Chamber Displacement Volume • Threaded = BSP & NPT are available.
• Extra length for male Threaded: 1½" Globe= 2.6 (Inch) ; 2" Globe & Angle= 3 (Inch)

Flow Properties

Size Q @ (gpm)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9
Q2 Transitional Flow	±2%	5.7	5.7	13.2	13.2	19.8
Q3 Permanent Flow	±2%	110	176	440	440	704
Q4 Maximum Flow (Short Time)	±2%	136	220	550	550	880

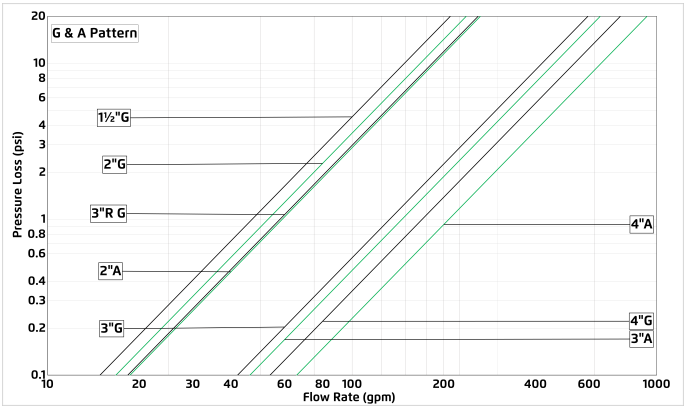
**ISO 4604*

Pulse Option

Register Type	Electronic			
Size	One pulse per			
	1 Gal	10 Gal	100 Gal	1000 Gal
1½"-4" ; DN40-100	✓	✓	✓	

- *1 Gallon pulse suitable for flows up to 790 gpm.*

Flow Chart



Differential Pressure & Flow Calculation

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

Cv = gpm @ ΔP of 1 psi
Q = gpm
ΔP = psi