

PRESSURE REDUCING HYDROMETER, HYDRAULIC CONTROLLED

Model IR-920-ME-50-3W-KXZ

The BERMAD pressure reducing Hydrometer with manual selector and hydraulic remote control combines a Woltman-type turbine water meter with a hydraulically operated, diaphragm-actuated control valve. Functioning as both a mainline flow meter and a pressure reducing valve, it reduces higher upstream pressure to a lower constant downstream pressure or opens fully when line pressure drops below settings. The Hydrometer 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-50-3W-KXZ opens upon pressure drop command, establishes reduced pressure zone, and measures flow.
- [2] Combination Air Valve Model IR-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 IR-K10
- [6] Smart Irrigation Controller-OMEGA

Features & Benefits

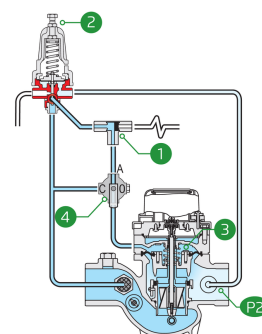
- Integrated "All-in-One" Control Valve & Flow Meter
 - Saves space, cost and maintenance
- Line Pressure Driven, Hydraulically Controlled On/Off
 - Protects downstream systems
 - Opens fully upon line pressure drop
- Magnetic Drive with BERMAD Universal E-Register
 - Support metric & imperial units 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
- Volumetric Irrigation Systems

Operation:

The Shuttle Valve [1] hydraulically connects the Pressure Reducing Pilot (PRP) [2] to the Control Chamber [3] of the Hydrometer through the Manual Selector [4]. The PRP commands the Hydrometer to throttle closed when Downstream Pressure [P2] rises above setting and to open fully when it drops. Upon pressure rise command, the Shuttle Valve switches automatically, pressurizing the control chamber and closing the Hydrometer. The Manual Selector [4] enables local closing.





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

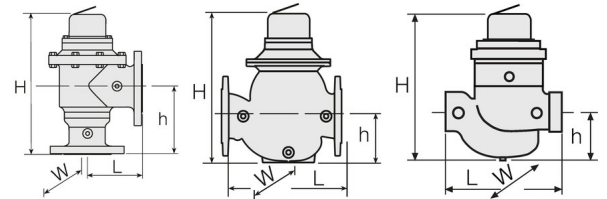
Tubing and Fittings:

Polyethylene and Polypropylene

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	9¾	10¾	3¾	5¾	0.04	47
2" ; DN50	Globe	Threaded	16.1	9¾	10¾	3¾	5¾	0.04	53
2" ; DN50	Angle 90°	Threaded	17.8	4¾	13¾	6¾	5¾	0.04	59
3"R ; DN80R	Globe	Threaded	16.1	9¾	10¾	3¾	5¾	0.04	58
3"R ; DN80R	Globe	Flanged	35.3	12¾	11¾	4	7¾	0.04	58
3" ; DN80	Globe	Flanged	50.7	11¾	15	4¾	8¾	0.13	133
3" ; DN80	Angle 90°	Flanged	56.9	6	15¾	7¾	8¾	0.13	146
4" ; DN100	Globe	Flanged	68.3	13¾	17¾	5¾	9¾	0.26	170
4" ; DN100	Angle 90°	Flanged	79.6	7¾	19	8¾	9¾	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	Accuracy	DN40	DN50	DN80R	DN80	DN100
Q @ (gpm)		1½"	2"	3"R	3"	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

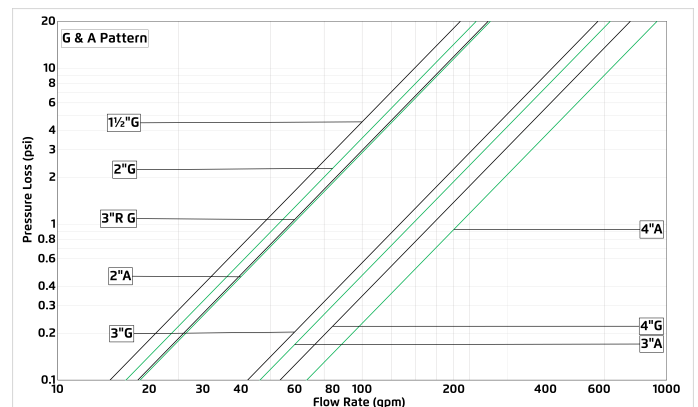
*ISO 4604

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