PRESSURE REDUCING & SUSTAINING HYDROMETER

Model IR-923-ME-3W-KXZ

The BERMAD pressure reducing and sustaining Hydrometer with manual selector 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 & sustaining valve, it sustains a preset minimum upstream pressure, reduces downstream pressure to a constant maximum, or opens fully when hydraulic conditions allow. It features an electronic register for precise volume and flow measurement and a pulse output for enhanced monitoring and control.

[1] BERMAD Model IR-923-ME-3W-KXZ sustains supply system pressure, prevents system emptying, reduces downstream pressure, protecting lines and laterals, and measures flow.

Features & Benefits

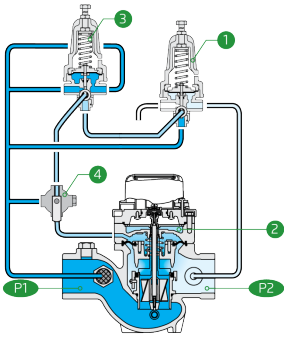
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Hydraulically Controlled
  - Protects downstream systems
  - Prioritizes pressure zones
  - Controls system fill-up
- Magnetic Drive with BERMAD Universal E-Register
  - Support metric & 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

- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Line Fill-Up Control Solutions
- Line Emptying Prevention
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure

Operation:

The Pressure Reducing Pilot (PRP) [1] hydraulically connects to the Control Chamber [2] through the Pressure Sustaining Pilot (PSP) [3] and the Manual Selector [4]. In AUTO mode, the PSP throttles the Hydrometer closed if upstream pressure [P1] drops below its setpoint. When P1 rises above PSP setpoint, the PRP takes control, closing the Hydrometer if downstream pressure [P2] exceeds its setpoint. The Hydrometer fully opens when P2 drops below PRP setpoint, while P1 remains above PSP setpoint. Setting the Manual Selector to CLOSE shuts the Hydrometer.



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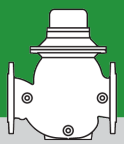


Technical Data

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
PS Pilot: PC-SHARP-X-P

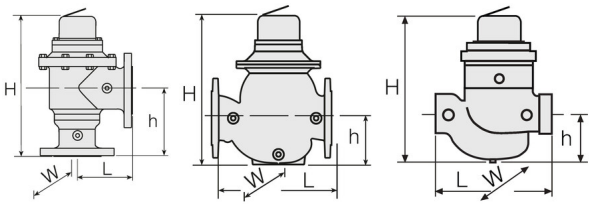
Spring	Spring Color	Setting range
J	Green	3-25 bar
K	Gray	7-43 bar
N	**Natural**	**12-95 psi**
V	Blue & White	15-150 bar

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	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

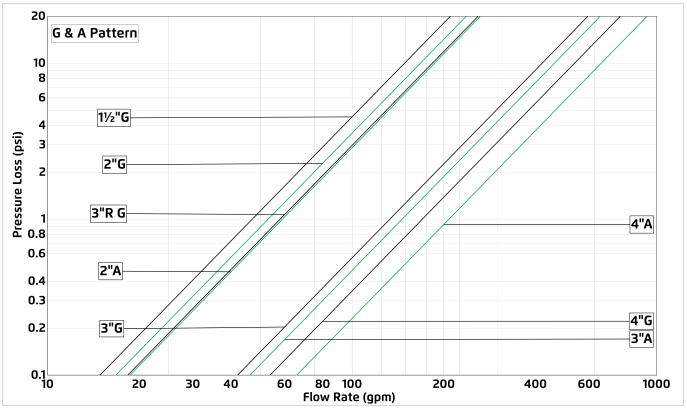
**ISO 4604*

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