PRESSURE REDUCING HYDROMETER

Model IR-920-M0-3W-KXZ

The BERMAD Pressure Reducing Hydrometer with manual selector combines a Woltman-type turbine water meter and a hydraulically operated, diaphragm-actuated control valve. It functions as both a mainline flow meter and a pressure-reducing valve, reducing a higher upstream pressure to a constant downstream pressure and opening fully if line pressure drops below the setting. The Hydrometer features a magnetically coupled, vacuum-sealed register for precise volume measurement. An optional pulse output enhances system capabilities.

[1] BERMAD Model IR-920-M0-3W-KXZ establishes reduced pressure zone, protecting laterals and distribution line.

Features & Benefits

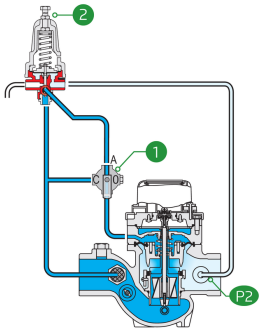
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulic Pressure Control
  - Line pressure driven
  - Protects downstream systems
  - Opens fully upon line pressure drop
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train mechanism
  - Reed-switch tension free pulse output
  - Various pulse combinations
- Internal Inlet & Outlet Flow Straighteners
  - Saves on straightening distances
  - Maintains accuracy
- Integrated Flow Metering Calibration Device
  - Precise measurement
- User-Friendly Design
  - Easy pressure setting
  - Simple in-line inspection and service
  - Easy addition of control features

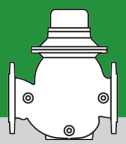
Typical Applications

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

Operation:

When the Manual Selector [1] is set to AUTO, the Hydrometer opens, and the Pressure Reducing Pilot (PRP) [2] regulates flow by commanding the Hydrometer to throttle closed if Downstream Pressure [P2] rise above pilot setting and to open fully when it drops below setting. Switching the selector to CLOSE shuts the Hydrometer completely.





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

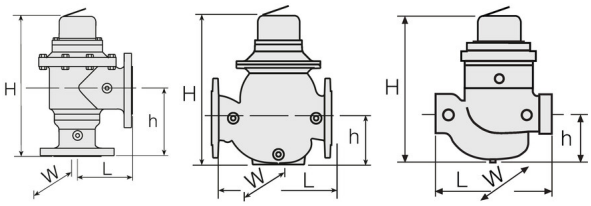
Spring	Spring Color	Setting range
J	Green	3-25 bar
K	Gray	7-43 bar
N	**Natural**	**12-95 psi**
V	Blue & White	15-150 bar

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	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

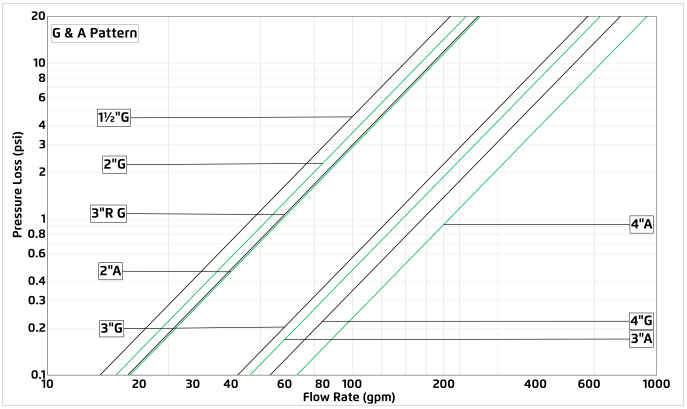
CCDV = Control Chamber Displacement Volume • Threaded = BSP & NPT are available.
• Extra length for male Threaded: 1½" Globe= 2.6 (Inch) ; 2" Globe & Angle= 3 (Inch)

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*

Flow Chart



Pulse Option

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

- *1 Gallon pulse (only available with electronic register) suitable for flows up to 790 gpm.*
- *Two parllel pulses are transmitted. other pulse rates are avaiable on request.*

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Differential Pressure & Flow Calculation

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

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