

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

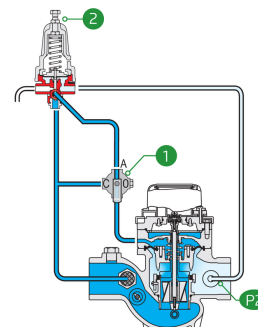
- Integrated "All-in-One" Control Valve & Flow Meter
 - Saves space, cost and maintenance
- Hydraulic Pressure Control
 - Line pressure driven
 - Protects downstream systems
 - Opens fully upon line pressure drop
- Magnetic Drive with Vacuum-Sealed Register
 - Water-free gear train mechanism
 - Reed-switch 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:

10 bar

Operating Pressure Range:

0.5-10 bar

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	0.2-1.7 bar
K	Gray	0.5-3.0 bar
N	Natural	0.8-6.5 bar
V	Blue & White	1.0-10.0 bar

Standard spring - marked in bold

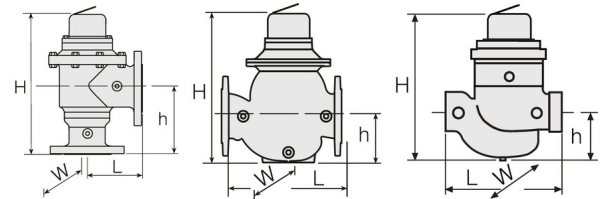
Tubing and Fittings:

Polyethylene and Polypropylene

Technical Specifications

For other patterns and end connection types,

Please refer to [BERMAD](#) full engineering page.



Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1½" ; DN40	Globe	Threaded	7.2	250	270	95	143	0.16	41
2" ; DN50	Globe	Threaded	7.3	250	277	95	143	0.16	46
2" ; DN50	Angle 90°	Threaded	8.1	120	353	155	143	0.16	51
3"R ; DN80R	Globe	Threaded	7.3	250	277	79	143	0.16	50
3"R ; DN80R	Globe	Flanged	16	310	298	100	200	0.16	50
3" ; DN80	Globe	Flanged	23	300	382	123	210	0.49	115
3" ; DN80	Angle 90°	Flanged	25.8	150	402	196	210	0.49	126
4" ; DN100	Globe	Flanged	31	350	447	137	250	1	147
4" ; DN100	Angle 90°	Flanged	36.1	180	481	225	250	1	180

CCDV = Control Chamber Displacement Volume • **Threaded** = BSP & NPT are available.

• Extra length for male Threaded: 1½" Globe= 67(mm) ; 2" Globe & Angle= 77(mm)

Flow Properties

Size	Accuracy	DN40	DN50	DN80R	DN80	DN100
Q @ (m³/h)		1½"	2"	3"R	3"	4"
Q1 Minimum Flow	±5%	0.8	0.8	1.2	1.2	1.8
Q2 Transitional Flow	±2%	1.3	1.3	3	3	4.5
Q3 Permanent Flow	±2%	25	40	100	100	160
Q4 Maximum Flow (Short Time)	±2%	31	50	125	125	200

*ISO 4604

Pulse Option

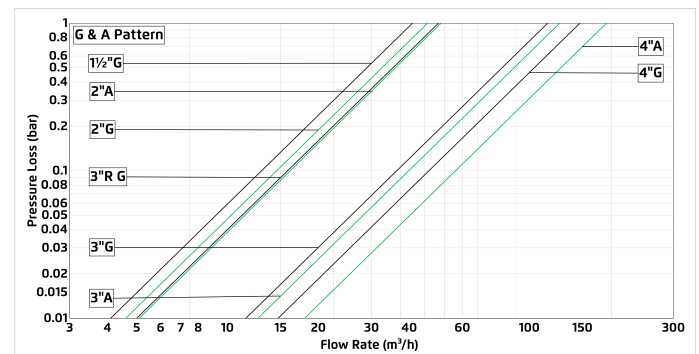
Register Type	Reed Switch - Single				Reed Switch - Combined				Electronic			
Size	One pulse per				One pulse per				One pulse per			
	10L	100L	1m³	10m³	10L+100L	1m³+10m³	10L	100L	1m³	10m³	10L	100L
1½"-4" ; DN40-100	✓	✓			✓		✓	✓	✓		✓	✓

- 10L pulse (only available with electronic register) suitable for flows up to 180 m³/h.
- Two parallel pulses are transmitted. other pulse rates are available on request.

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Flow Chart



Differential Pressure & Flow Calculation

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

$K_v = m^3/h \text{ @ } \Delta P \text{ of } 1 \text{ bar}$

$Q = m^3/h$

$\Delta P = \text{bar}$