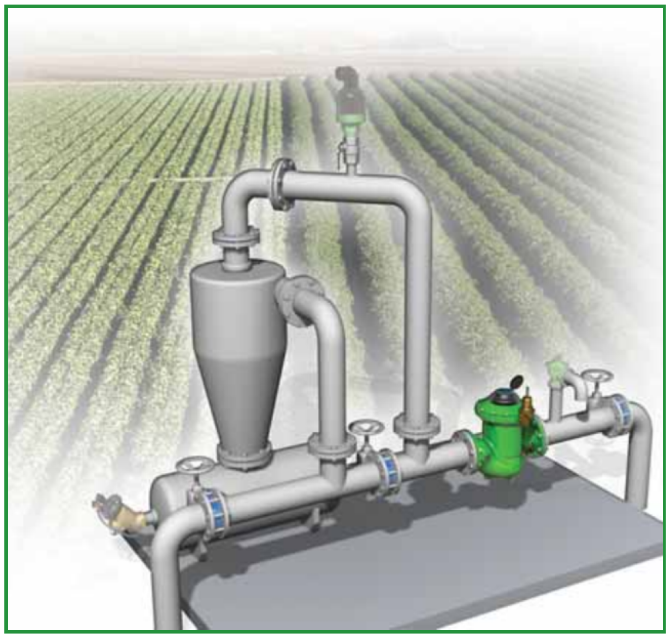
PRESSURE REDUCING HYDROMETER

Model IR-920-M0-2W-R

The BERMAD Pressure Reducing Hydrometer 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 higher upstream pressure to a constant downstream pressure and modulating open 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-M0-2W-R protects the system measures the flow.
[2] BERMAD Relief Valve Model IR-43Q-2W-R

Features & Benefits

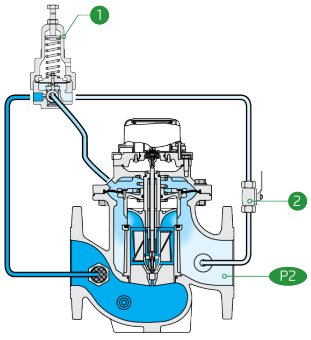
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulic Pressure Control
  - Line pressure driven
  - Protects downstream
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train mechanism
  - Reed-switch tension free pulse output
  - Various 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

- Automated Irrigation Systems
- Pressure Reducing Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Volumetric Irrigation Systems

Operation:

The Pressure Reducing Pilot (PRP) [1] commands the Hydrometer to throttle-closed when Downstream Pressure [P2] rises above pilot setting, and to modulate open when it drops below pilot setting. The downstream Cock Valve [2] enables manual closing.



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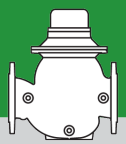


Technical Data

Pressure Rating:
16 bar

Operating Pressure Range:
0.5-16 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-20-A-MP

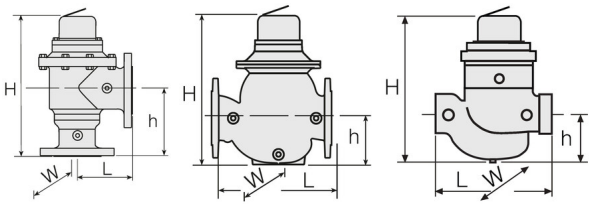
Spring	Spring Color	Setting range
N	**Natural**	**0.8-6.5 bar**
V	Blue & White	1.0-10.0 bar

Standard spring - marked in bold

Tubing and Fittings:
Reinforced Nylon and Brass

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
6" ; DN150	Globe	Flanged	71	500	602	216	380	3.8	430
6" ; DN150	Angle 90°	Flanged	76.7	250	585	306	380	3.8	473
8" ; DN200	Globe	Flanged	93	600	617	228	380	3.8	550
8" ; DN200	Angle 90°	Flanged	82.5	250	585	280	380	3.8	605

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 Q @ (m^3/h)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"	DN150 6"	DN200 8"
Q1 Minimum Flow	±5%	0.8	0.8	1.2	1.2	1.8	4	6.3
Q2 Transitional Flow	±2%	1.3	1.3	3	3	4.5	10	15.8
Q3 Permanent Flow	±2%	25	40	100	100	160	250	400
Q4 Maximum Flow (Short Time)	±2%	31	50	125	125	200	313	500

**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	$1m^3$	$10m^3$	10L+100L	$1m^3$+$10m^3$	10L	100L	$1m^3$	$10m^3$
1½"-4" ; DN40-100		✓	✓		✓		✓	✓	✓	
6"-10" ; DN150-250			✓	✓		✓		✓	✓	✓

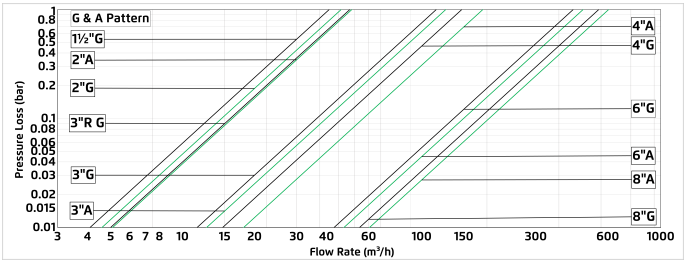
- *10L pulse (only available with electronic register) suitable for flows up to 180 m^3/h.*
- *Two parllel pulses are transmitted. other pulse rates are avaiable on request.*

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 2 m/s): 0.3 bar



Differential Pressure & Flow Calculation

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

Kv = m^3/h @ ΔP of 1 bar
Q = m^3/h
ΔP = bar

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