PRESSURE REDUCING HYDROMETER, SOLENOID CONTROLLED

Model IR-920-M0-55-2W-R

The BERMAD Pressure Reducing Hydrometer with solenoid control combines a Woltman-type turbine water meter with a hydraulically operated, diaphragm-actuated control valve. It functions as both a mainline flow meter and a pressure-reducing valve, opening or shutting in response to an electric command and reducing higher upstream pressure to lower constant downstream pressure. It features a vacuum-sealed register for precise measurement of accumulated volume. An optional pulse output is available, further enhancing system capabilities.

[1] BERMAD Model IR-920-M0-55-2W-R opens in response to an electric signal, establishing reduced pressure zones and measuring the flow.

Features & Benefits

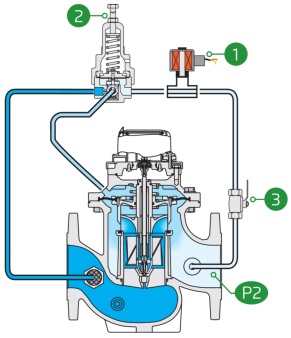
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Electrically Controlled On/Off
  - Protects downstream systems
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train mechanism
  - Reed-switch tension free pulse output
  - 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

Typical Applications

- Automated Irrigation Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Remote and/or Elevated Plots
- Pressure Reducing Systems
- Distribution Centers
- Irrigation Machines

Operation:

When the Solenoid [1] is switched ON, the Hydrometer opens and registers the flow. The Pressure Reducing Pilot (PRP) [2] throttles the Hydrometer closed if Downstream Pressure [P2] rises above the setpoint and modulates it open when pressure drops. Switching the Solenoid OFF closes the Hydrometer. The Solenoid also features a manual override for operation. Closing the Ball Valve [3] shuts the Hydrometer



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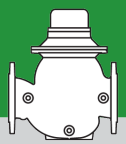


Technical Data

Pressure Rating:
250 psi

Operating Pressure Range:
7-250 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-20-A-MP

Spring	Spring Color	Setting range
N	**Natural**	**12-95 psi**
V	Blue & White	15-150 bar

Standard spring - marked in bold

Tubing and Fittings:
Reinforced Nylon and Brass

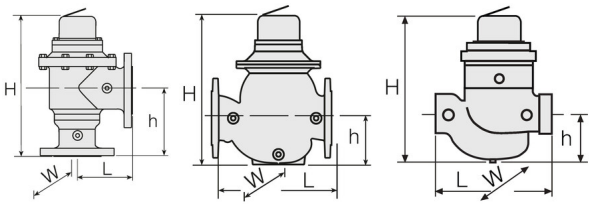
DC solenoid:
S-400-3W

DC latch solenoid:
S-402-3W M.B.
S-982-3W M.B.

**For other solenoids and pilots please consult BERMAD*

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	13⅞	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	7⅛	19	8⅞	9⅞	0.26	208
6" ; DN150	Globe	Flanged	156.5	19¾	23¾	8½	15	1	497
6" ; DN150	Angle 90°	Flanged	169.1	9⅞	23	12	15	1	547
8" ; DN200	Globe	Flanged	205	23⅝	24⅜	9	15	1	636
8" ; DN200	Angle 90°	Flanged	181.8	9⅞	23	11	15	1	699

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"	DN150 6"	DN200 8"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9	17.6	27.7
Q2 Transitional Flow	±2%	5.7	5.7	13.2	13.2	19.8	44	69.6
Q3 Permanent Flow	±2%	110	176	440	440	704	1100	1761
Q4 Maximum Flow (Short Time)	±2%	136	220	550	550	880	1378	2201

**ISO 4604*

Pulse Option

Register Type	Electronic			
Size	One pulse per			
	1 Gal	10 Gal	100 Gal	1000 Gal
1½"-4" ; DN40-100	✓	✓	✓	
6"-10" ; DN150-250		✓	✓	✓

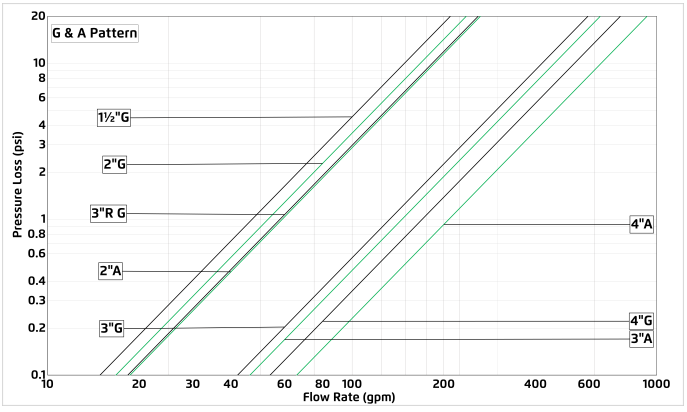
- *1 Gallon pulse (only available with electronic register) suitable for flows up to 790 gpm.*
- *Two parllel pulses are transmitted. other pulse rates are avaiable on request.*

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 6.5 f/s): 4.5 psi



Differential Pressure & Flow Calculation

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

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