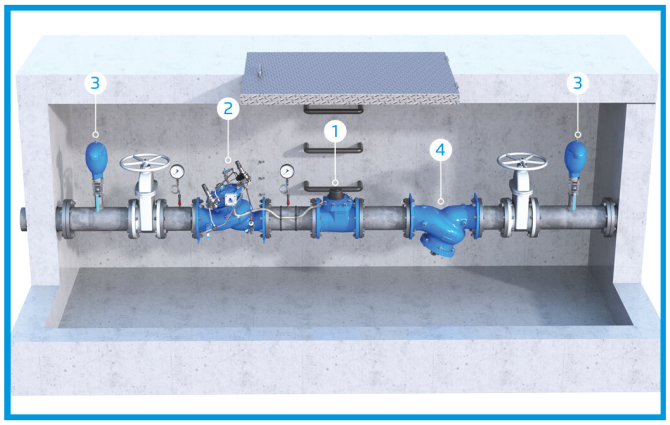
WOLTMAN WATER METER

Model Turbo-Bar-E

Heavy duty and designed to handle high flow rates, the Turbo-Bar-ME Magnetic Drive Water Meter with Magnetic Register covers a very wide flow range, and is particularly suited to industrial, waterworks, water distribution, water monitoring, and Irrigation applications. Based on the Woltman principle, the helical blades of the turbine rotate around the axis of flow, the Turbo-Bar-ME is a long-life product, easy to maintain at low cost.



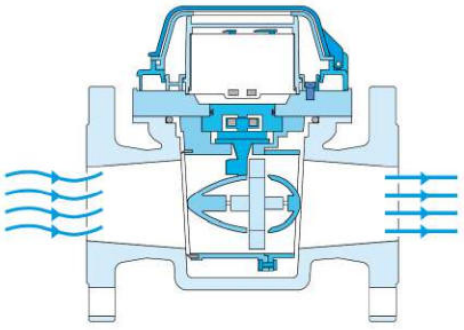
[1] BERMAD Water Meter Model Turbo-Bar-E
[2] Pressure Reducing Valve Model 720-45
[3] Combination Air Valve Model C70
[4] Strainer Model 70-F

Features & Benefits

- Universal E-Register - suits all water meters types and sizes made by BERMAD
- Instant flow rate
- Forward and reverse flow indication
- 12 digits LCD display
- Data logging capabilities
- Fast pulse output rate
- Dry, IP68; NEMA 6P Sealed Register
- Battery lifetime - 8 years

Operation:

BERMAD TURBO-BAR with magnetically driven register with high reliability hermetically sealed, the register is separated from the measuring element. Velocity type water meter counting the flow velocity, assuming a line profile full with water at known section.



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Technical Data

Pressure Rating: 16 bar

Operating Temperature: Water up to 50°C

End Connections - Flanged: ISO PN16

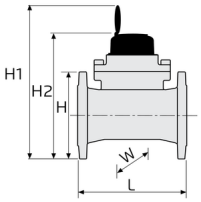
Materials

Body & Cover: Ductile Iron

Coating: Polyester Blue

Technical Specifications

For other end connection types,
Please refer to BERMAD full engineering page.



Size (DN)	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	H1 (mm)	H2 (mm)	W	KV
1½" ; DN40	Straight flow	Flanged	13	260	170.5	408	336	160	95
2" ; DN50	Straight flow	Flanged	12	200	180.5	347.3	275.3	170	125
2½" ; DN65	Straight flow	Flanged	14	200	190.5	357.3	285.3	190	170
3" ; DN80	Straight flow	Flanged	16	225	200.5	367.3	295.3	200	190
4" ; DN100	Straight flow	Flanged	19	250	215	377.3	305.3	230	280
5" ; DN125	Straight flow	Flanged	20	250	245	392.3	320.3	250	380
6" ; DN150	Straight flow	Flanged	39	300	277.5	436.6	364.6	285	950
8" ; DN200	Straight flow	Flanged	52	350	335	466.6	394.6	340	1580
10" ; DN250	Straight flow	Flanged	105	450	398	584.5	512.5	395	2688
12" ; DN300	Straight flow	Flanged	120	500	452	611.5	539.5	445	4700
14" ; DN350	Straight flow	Flanged	120	500	452	611.5	539.5	445	4700
16" ; DN400	Straight flow	Flanged	187	500	647	731.5	659.5	600	9500
20" ; DN500	Straight flow	Flanged	256	500	784.5	846.5	774.5	700	15000

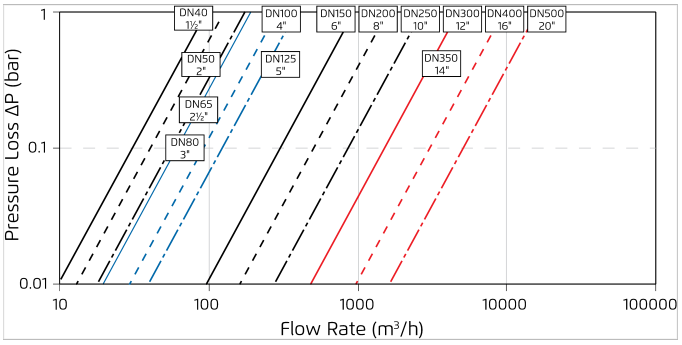
Flow Properties

Size (DN) Q @ (m^3/h)	Accuracy	DN40 1½"	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"	DN500 20"
Q1 Minimum Flow	±5%	0.5	0.5	0.8	1.3	1.3	2	3.1	5	8	12.5	12.5	32	50
Q2 Transitional Flow	±2%	0.8	0.8	1.3	2	2	3.2	5	8	12.6	20	20	51	80
Q3 Permanent Flow	±2%	25	40	63	63	100	160	250	400	630	1000	1000	1600	2500
Q4 Maximum Flow (Short Time)	±2%	31	50	79	79	125	200	313	500	788	1250	1250	2000	3125
Q2/Q1		1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Q3/Q1		50	80	80	50	50	80	80	80	80	80	80	50	50
Max. reading, m^3		999,999						9,999,999		99,999,999				
Min. reading, liter		1						10		100				

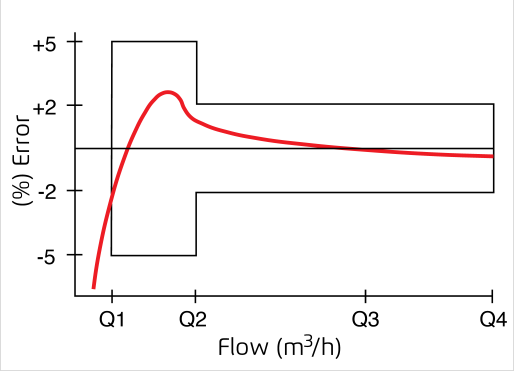
Pulse Option

Register Type	Electronic				
Size (DN)	One pulse per				
	10L	100L	1m^3	10m^3	100m^3
½"-2½" ; DN12-65	✓	✓	✓		
3"-10" ; DN80-250		✓	✓	✓	
12"-20" ; DN300-500			✓	✓	✓

Flow Chart



Accuracy Curve



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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Electronic register

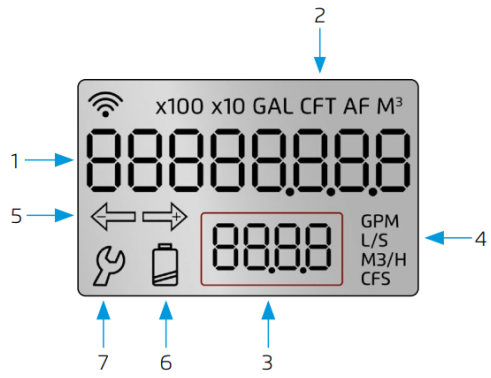
Turbo-Bar-E Register

Output Type
Programmable open collector pulse output Data

Output Cable Characteristic	
Wire	Function
Red	Pulse Out
Black	GND/COMMON

Output Characteristic	
Cable Length - supplied	1.5 meter
Maximum Cable Length	50 meter
Maximum Applied Voltage	35 Vdc

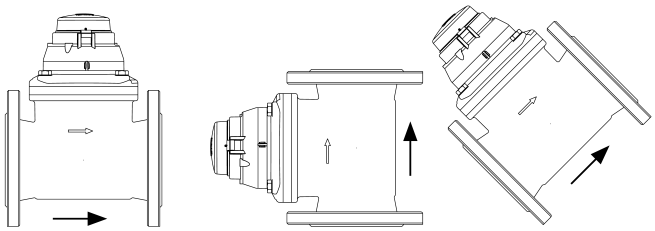
Display

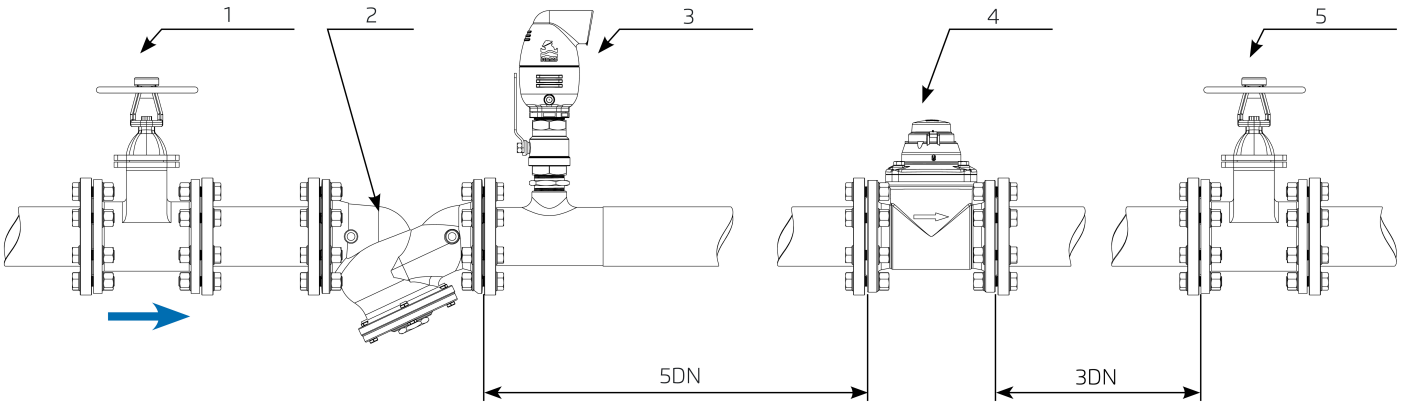


Num	Description
1	Volume
2	Volume units
3	Flow rate
4	Flow rate units
5	Volume direction
6	Battery level indication
7	General warning

Installation Recommendations

- The water meter can be installed in any orientation without interfering with metrological performance.
- The arrow on water meter body must be in the same direction with the flow.
- To avoid turbulence that may interfere with accurate measurement, it is recommended to have a length of straight pipe equal to 5 diameters upstream from the water meter.
- Prior to installation, flush the line to remove debris.
- The Turbo-Bar must be filled with water to operate.





[1] Isolation Valve
[2] Strainer
[3] Air Valve
[5DN] Unrestricted pipe, minimum 5XDN
[3DN] Unrestricted pipe, minimum 3XDN
[4] Turbo-Bar
[5] Isolation Valve