

**Sizes: 2"-20"; DN50-500**

### Description

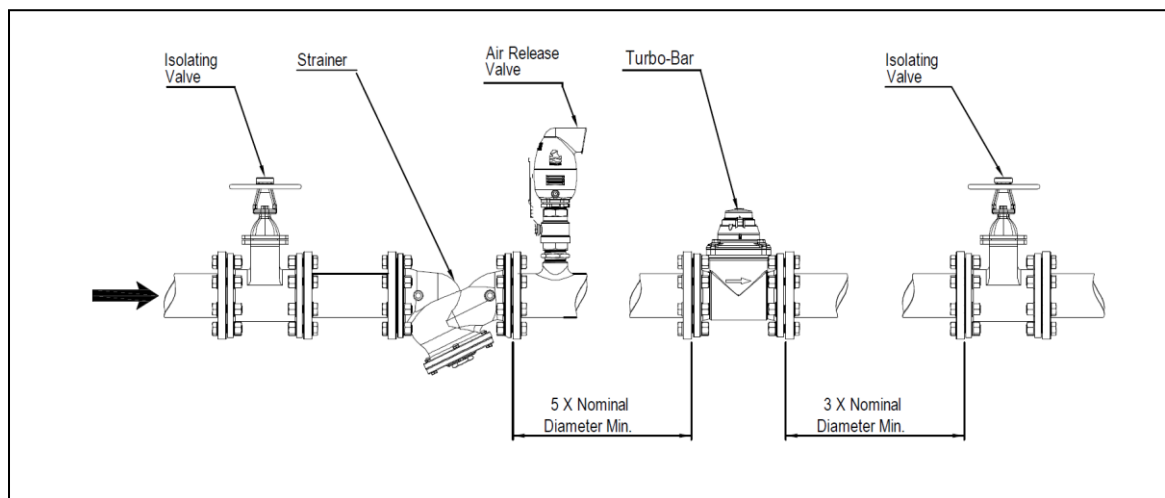
The Turbo-Bar is a Woltman-type water meter designed for measuring bulk flows of cold potable water.

### Features

- Bermad's Turbo-Bar water meter is a heavy-duty meter, suitable for a wide flow range.
- they are used in industrial, waterworks, water distribution, water monitoring and agricultural applications.
- Based on the Woltman principle, the helical blades of the turbine rotate about the axis of flow.
- All water meters are factory-calibrated.
- The Turbo-Bar water meter has a long life and is easy to maintain at low cost.
- The Turbo-Bar water meter can be equipped with two different types of registers.
  - Register with mechanical display.
  - Register with digital display.

### Installation

- Confirm that the water meter arrow direction is in the flow direction.
- All water meters must be installed in a straight pipe – having the same diameter as the nominal diameter of the water meter - acting as flow strengtheners, Upstream and downstream from the meter at the following length:
  - Upstream – 5 times line diameter
  - Downstream – 3 times line diameter.
- Prior to installation, the pipe must be flushed to remove any debris or foreign matter.
- The water meter must be completely filled with water during use.
- If the water contains dirt or other foreign matter (harmful to the water meter), install a Strainer before the water meter.
- Water back-flow will result in invalid metering. If there is any risk of water back-flow, Install a quick-acting (mechanical) check valve.
- Read switch wiring :
  - Black wire: common.
  - Red wire: pulse output #1. slow pulse.
  - White wire: pulse output #2. Fast pulse (**electronic register only**).



### Operation

To ensure proper operating conditions, the quantity of water flowing through the water meter should correspond as closely as possible to its nominal capacity. Be aware of the maximum Working pressure and DO NOT exceed it!

DO NOT DISCONNECT OR OPEN THE WATER METER WHILE UNDER PRESSURE!

#### Note:

- Water meters require periodic recalibration according to the regulations of the local water board / water-management authority. Please refer to **Turbo-Bar Accuracy Testing and Calibration Process**.
- We recommend that water meters be reconditioned at least every 5 years or at 300,000 (m<sup>3</sup>), 79,000,000 (gallon) after installation.

### Trouble-Shooting

- **The pointers do not move, with water flowing:** Open the measuring element and check if there is debris, or a foreign object stuck in or around the paddle wheel.
- **There is no pulse output:** Check the wiring and confirm that the reed is correctly inserted.
- **There is leakage from the meter:** Check all screws are properly tightened and detect for cracked seals.

### Maintenance

#### Preventative Maintenance

The purpose of preventive maintenance is to ensure efficient operation and long life by detecting and correcting any condition that may damage the meter or cause it to malfunction. Maintenance intervals are a function of the water quality and operating flows with which the Meter operates. Preventive maintenance includes periodic inspection, cleaning, and accuracy testing.

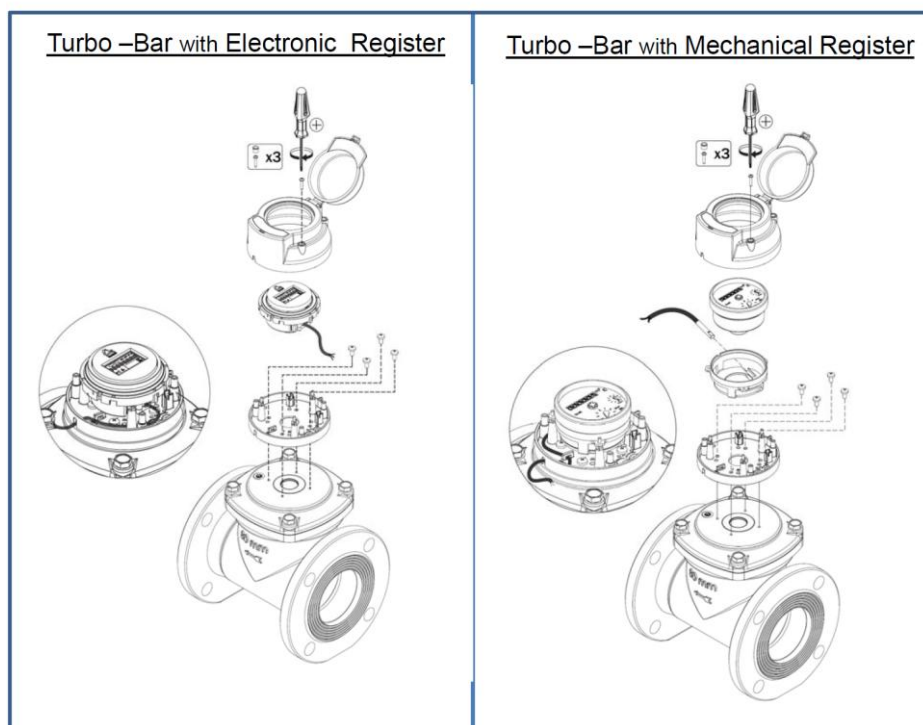
#### Periodic inspection

- Visually inspect the meter for missing hardware, loose bolts, broken or scratched register lens, or any other signs of wear or deterioration. Replace worn parts as required.
- Verify that the meter is operating at the proper flow rate and pressure. A loss in pressure coupled with a decrease in flow rate may indicate that the Upstream strainer's screen or the meter itself is clogged and needs cleaning.

#### Cleaning

- Clean all dirt, grease, moisture or other foreign matter from the meter's exterior. Use a cleaning solvent or volatile mineral spirits to remove grease or oil.
- To clean the measuring element, soak it for 12 hours in a mild soap-based cleaner or detergent, and then use a stiff bristle brush to remove any deposits. After cleaning, rinse thoroughly with water and dry.

### Exploded View of Assembly



### Pulse Options

Mechanical Pulse Options						
Models	Size		Single Pulse, Metric Display			
	Inch	mm	100 liter	1m <sup>3</sup>	10m <sup>3</sup>	100m <sup>3</sup>
Turbo-IR-M , Turbo-Bar-M	1½-5	40-125	V	V	N/A	N/A
	6-8	150-200	N/A	V	V	N/A
	10-12	250-300	N/A	N/A	V	V
Turbo-Bar-M	14-20	350-500	N/A	N/A	V	V
Electronic Pulse Options						
Models	Size		Single Pulse, Galon Display			
	Inch	mm	10 GAL	100GAL	1000 GAL	10000 GAL
Turbo-IR-M , Turbo-Bar-M	1½-5	40-125	V	V	N/A	N/A
	6-8	150-200	N/A	V	V	N/A
	10-12	250-300	N/A	N/A	V	V
Turbo-Bar-M	14-20	350-500	N/A	N/A	V	V
<b>Note: Dual Pulses Available According to Sign V</b>						
Electronic Pulse Options						
Models	Size		Single Pulse, Metric Display			
	Inch	mm	10 liter	100 liter	1m <sup>3</sup>	10m <sup>3</sup>
Turbo-IR-E , Turbo-Bar-E	1½-5	40-125	V	V	V	N/A
	6-8	150-200	V	V	V	V
	10-12	250-300	V	V	V	V
Turbo-Bar-E	14-20	350-500	V	V	V	V
Models	Size		Single Pulse, Galon Display			
	Inch	mm	1 GAL	10 GAL	100 GAL	1000 GAL
Turbo-IR-E , Turbo-Bar-E	1½-5	40-125	V	V	V	N/A
	6-8	150-200	V	V	V	V
	10-12	250-300	N/A	V	V	V
Turbo-Bar-E	14-20	350-500	N/A	V	V	V
<b>Note: All Electronic Register Supplied with Dual Pulses According to Bermad Standard.</b>						

### Pulses Technical Data.

	Electronic Register	Mechanical Register
Switching voltage	35 (Vdc) max.	24 AC/DC max.
Switching current		0.01 max.