

## shaping water



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## Installation guidelines

for Dhaara Smart

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### Dhaara Smart

Dhaara Smart is a new-age water flow meter that combines the power of IoT with the latest sensor technologies. The integrated telemetry and battery powered capabilities make it easy to manage your water consumption from anywhere and anytime. The meter is ISO 4064 certified and complies with the guidelines of the Central Ground Water Authority (CGWA).

All pictures shown are for illustration purposes only. Actual product may vary due to product enhancements.\*

## General installation guidelines

**Please make sure you follow all the general guidelines for better accuracy of flow measurements using Dhaara Smart flow meter (as per ISO 4064).**

1. Dhaara Smart meter shall be installed only for measuring potable water.
2. For correct operation, a water meter shall always be full of water. So, placing it in a U-shaped pipe network as per the recommended upstream and downstream lengths (Page 3) will ensure the full flow of water in the meter. It ensures optimum performance, better accuracy, easy maintenance, and on-field calibration of the Dhaara Smart meter.
3. The following points should be taken into account before installation:
  - a) The need for adequate illumination of the installation site.
  - b) The need for the floor to be even, rigid, non-slip, and clear of obstacles.
4. Check if sufficient space is available at the site for easy installation of the deployment setup.
5. The diameter of the existing pipe network should be same as the nominal diameter of the Dhaara Smart meter to be installed.
6. Before installation, the water mains shall be flushed, and care shall be taken to prevent the ingress of debris into the water meter or supply lines.
7. No machinery should be present in the vicinity; to ensure accurate transmission of signals in the flow meter.
8. The meter should be placed at a minimum distance of twenty-five times the pipe diameter after the pump outlet or from any hydraulic disturbances like valves, strainer, etc.
9. To ensure the meter and pipe network are free from vibrations, place the meter at least 1 foot above the ground with a support structure, and adequately clamp the U-shaped pipe network to the support structure.

**Note: For the waterlogging-prone areas, place the meter more than 1 foot above the ground level.**

10. While installing the Dhaara Smart, the flow direction in the pipe should align with the direction indicated on the Dhaara Smart meter.
11. After installation, water shall be let into the mains slowly, and with trapped air bled so that the trapped air does not cause the water meter to over speed, causing damage.
12. A water meter might not show proper readings with large quantities of air bubbles or a two-phase flow. If there is a risk of air entering the meter, an upstream air release valve shall be installed at the specified location. Based on the maximum allowable working pressure of the site, a suitable air release valve with a low sealing pressure can be installed.

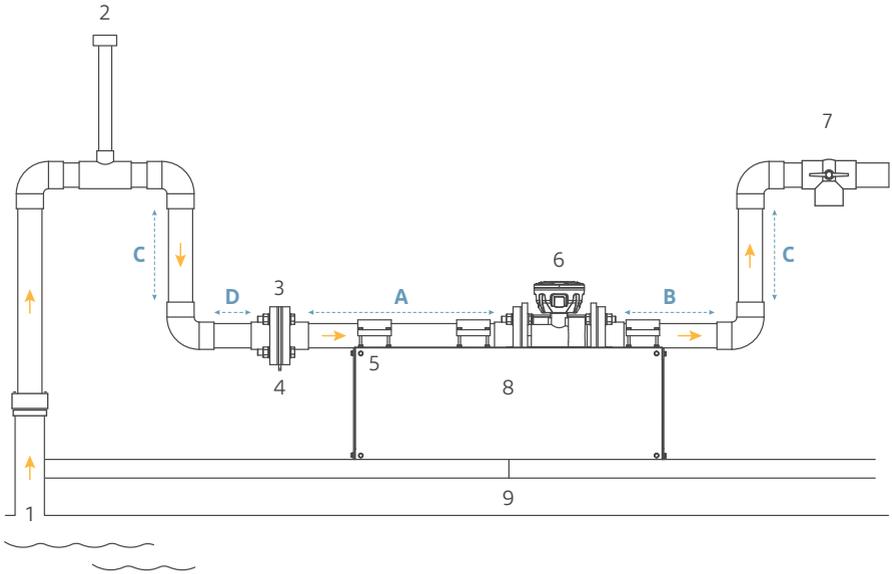
13. If, for any specific installation conditions, the accuracy of measurement of volume flow by the water meter is likely to be affected by the presence of suspended particles in the water, then it may be installed with a strainer or filter. Place the strainer or filter near the pump or upstream pipe network before the U-bend.

14. For pressure monitoring, sterilization, or water sampling, it is recommended to have portable openings on the downstream side of the U-shaped pipe network, like the three-way valve (Page 3).

15. The meter shall be protected from the risk of damage from extremes of the temperature of the water or ambient air. Where possible, the meter pit shall be protected from flooding and rainwater.

**Note: These guidelines are adopted from ISO 4064, tamper-proof flow meter guidelines by Central Ground Water Authority (CGWA), internal research, and other best industrial practices.**

## Ideal installation setup



(Fig 1)

1. Ground water
2. Provision for Air Release Valve Installation
3. Flanges
4. Dhaara Flow Stabilizer pasted with gaskets.
5. Clamps
6. Dhaara Smart
7. 3-way ball valve
8. Support structure
9. Ground level

→ Flow direction

## Installation setup dimensions

Flow Meter	All dimensions in mm					All dimensions in inches				
	Size	A	B	C	D	Size	A	B	C	D
DN25	25	250	125	125	75	1	10	5	5	3
DN40	40	400	200	200	120	1.5	16	8	8	5
DN50	50	500	250	250	150	2	20	10	10	6
DN65	65	650	325	325	195	2.5	26	13	13	8
DN80	80	800	400	400	240	3	31	16	16	9
DN100	100	1000	500	500	300	4	39	20	20	12
DN150	150	1500	750	750	450	6	59	30	30	18
DN200	200	2000	1000	1000	600	8	79	39	39	34

## Premissible Flow Rate Ranges

Nominal Diameter		All flowrates in m <sup>3</sup> /hr				All flow rates in l/s			
mm	inch	Q <sub>1</sub>	Q <sub>2</sub>	Q <sub>3</sub>	Q <sub>4</sub>	Q <sub>1</sub>	Q <sub>2</sub>	Q <sub>3</sub>	Q <sub>4</sub>
25	1	0.1575	0.252	6.3	7.875	0.04	0.07	1.75	2.19
40	1.5	0.4	0.64	16	20	0.11	0.18	4.44	5.56
50	2	0.625	1	25	31.25	0.17	0.28	6.94	8.68
65	2.5	1	1.6	40	50	0.28	0.44	11.11	13.89
80	3	1.575	2.52	63	78.75	0.44	0.70	17.50	21.88
100	4	2.5	4	100	125	0.69	1.11	27.78	34.72
150	6	6.25	10	250	312.5	1.74	2.78	69.44	86.81
200	8	10	16	400	500	2.78	4.44	111.11	138.89

Q<sub>1</sub>: The lowest flow rate at which the meter is to operate within the maximum permissible errors.

Q<sub>2</sub>: The transitional flow rate between Q<sub>1</sub> & Q<sub>3</sub>.

Q<sub>3</sub>: The highest flow rate at which the meter is to operate within the maximum permissible errors.

Q<sub>4</sub>: The overload flow rate.

**Note:** Dhaara Smart performs better within the flow range of Q<sub>2</sub> & Q<sub>3</sub>.

## Display Information



(Fig 2)

### 1.Dhaara Smart Indicator:

The indicator blinks frequently if the flows are consistently less than  $Q_1$  or greater than  $Q_3$ . If the Dhaara Smart indicator blinks frequently for an extended period of time due to high flow conditions. It is recommended that the existing flowmeter be replaced with a larger size.

### 2.Flow direction:

The arrow indicates the direction of fluid flow in the pipe.

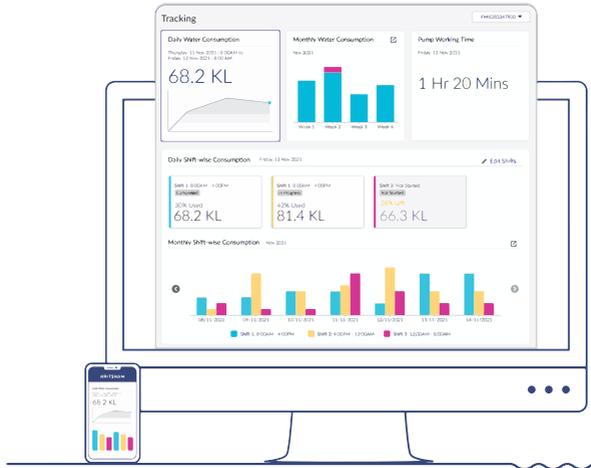
### 3.Instantaneous flow rate ( $m^3/hr$ ):

Refers to the amount of water flowing at a given instant. As an example, an instantaneous flow rate of  $10m^3/hr$  means the flow would fill a  $10m^3$  tank in one hour at that rate.

### 4.Cumulative flow ( $m^3$ ):

The total volume of water that have flown through the instrument from the installation date to the date of observation. The cumulative flow value of  $12m^3$  (or 12 kilo liters) indicates that  $12m^3$  (or 12 kilo liters) of water has passed through the flowmeter since it was installed.

# Dhaara Live



Our dashboard is an online application that allows you to view, track & analyze your water usage. Business users can visualise data and make informed operational decisions that contribute to the enterprise's water goals.

- Scan the QR code
- Fill the form
- Get access to the dashboard



Scan QR Code

