

Flow meter installation precautions

1. Pipeline installation design requirements for electromagnetic flow meter and cold & heat meters

Measurement conditions

1. The measured medium needs to be conductive with conductivity $> 20\mu\text{s}$. Pure water and distilled water cannot be measured.
2. During measuring, the measured pipeline needs to be filled up with medium without air bubbles.
3. If the installation conditions do not meet the requirements, and at the sites where pipes are easy to be half-empty or easy to accumulate air, vertical installation is recommended with the medium flowing from bottom to top. At the same time, ensure to leave a proper length of the straight pipe at the inlet end of the flow meter.

Basic installation requirements:

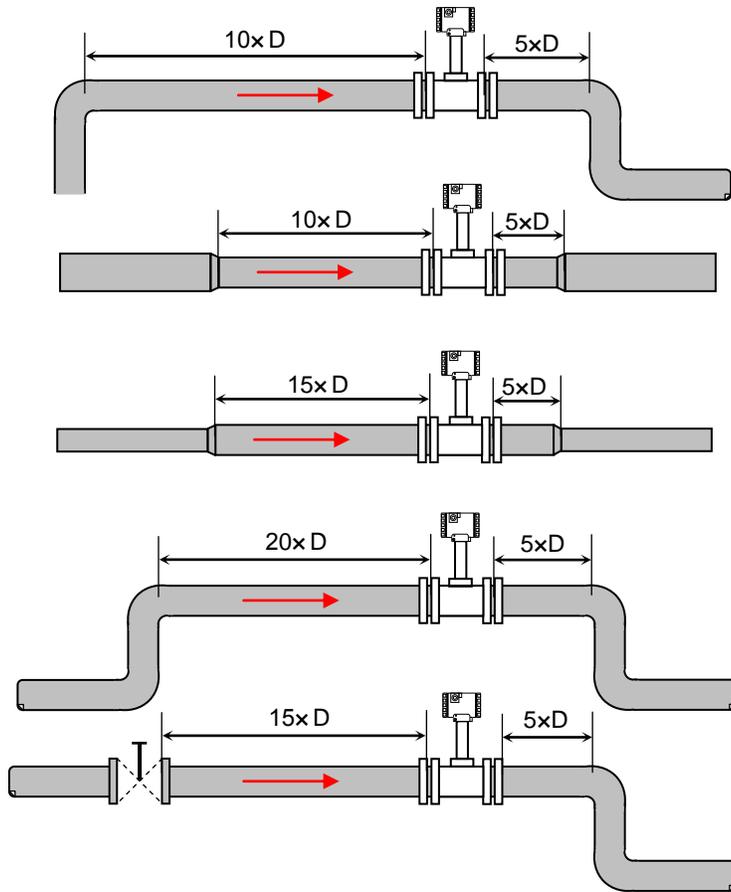
1) The flow meter can be installed either indoors or outdoors. A submersible flow meter should be selected when there is need to be installed in a well with a possibility of flooding.

2) The flow meter can be installed horizontally, vertically or obliquely on the pipeline. When measuring liquid, the pipe must be filled up with liquid. When a vortex flow meter is installed on a vertical or inclined pipe, the liquid should flow from bottom to top.

3) There should be a proper length of straight pipe at both upstream side and downstream side of the flow meter, and the length of required upstream and downstream straight pipes vary with the pipeline conditions. Instead of being installed at the upstream side of the flow meter, the regulating valve or half-open valve should be installed at the downstream of the flow meter with a distance of 5-time pipe diameter from the flow meter. In different pipeline conditions, the installation requirements of the straight pipe section are shown in the figure below.

4) The inner diameter of the pipeline where the vortex flow meter is installed must be consistent with the inner diameter of the flow meter; otherwise a reducer pipe should be added. The straight pipe section is required as shown in the figure below.

5) When designing pipeline installation, please ensure to leave a 500mm space above the upper end of the signal processing converter to facilitate debugging and maintenance. There should be no strong vibration or signal interference sources at the installation position.



Schematic diagram of the straight pipe section

Note: When the flow meter requires temperature and pressure compensation, the pressure transmitter should be installed at the upstream of the flow meter with a distance of 1-time pipe diameter from the meter. The temperature-measuring element (usually with platinum resistance) should be installed at the downstream of the flow meter with a distance of 3 to 5-times diameter from the flow meter.

D= Meter installation caliber