
INTERNATIONAL STANDARD



4064 / II

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Measurement of water flow in closed conduits — Meters for cold potable water — Part II : Installation requirements

*Mesurage de débit d'eau dans les conduites fermées — Compteurs d'eau potable froide —
Partie II : Conditions d'installation*

First edition — 1978-12-15

ITIH STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/08b6a9d6-a4e0-492c-b78f-3bee7b362140/iso-4064-2-1978>

UDC 532.575 : 681.121.2/.7

Ref. No. ISO 4064/II-1978 (E)

Descriptors : fluid flow, liquid flow, water flow, pipe flow, potable water, flow measurement, water meters, installing.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4064/1 was developed by Technical Committee ISO/TC 30, *Measurements of fluid flow in closed conducts*, and was circulated to the member bodies in October 1977.

ITEH STANDARD PREVIEW
(standards.iteh.ai)

It has been approved by the member bodies of the following countries :

| | | |
|---------------------|-------------|-----------------------|
| Australia | India | South Africa, Rep. of |
| Belgium | Italy | Spain |
| Czechoslovakia | Japan | Turkey |
| Egypt, Arab Rep. of | Mexico | United Kingdom |
| Finland | Netherlands | U.S.A. |
| France | Poland | U.S.S.R. |
| Germany, F.R. | Romania | Yugoslavia |

No member body expressed disapproval of the document.

Measurement of water flow in closed conduits — Meters for cold potable water — Part II : Installation requirements

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies criteria for the selection of water meters, associated fittings, installation, special requirements for some meters and the first operation of new or repaired meters to ensure accurate constant measurement and reliable reading of the meter.

The field of application is as defined in clause 2 of ISO 4064/1. This International Standard deals only with single-meter installations. Particular requirements dealing with installations including several meters will be specified in an additional document.

Where legal requirements exist, they will in all cases take precedence over the specifications in this International Standard.

2 CRITERIA FOR THE SELECTION OF WATER METERS

The type, metrological class and sizes of water meters are determined according to the operating conditions of the installation, taking into account, particularly, the following :

- the available supply pressure;
- physical and chemical characteristics of the water;
- acceptable pressure loss across the meter;
- the expected flow rates : the flow rates q_{min} , q_n , q_{max} of the meter (as defined in clause 3 of ISO 4064/1) must be compatible with the expected flow rate conditions of the installations;
- the suitability of the meter type for the installation conditions outlined below.

3 ASSOCIATED FITTINGS

The water meter installation shall include the following accessories :

3.1 Upstream side

3.1.1 A stopcock or valve, preferably with the direction of operation indicated. For flanged meters, a full-bore valve.

3.1.2 If recommended under clause 5, a flow straightening

device and/or a straight length of pipe fitted between the valve and the meter.

3.1.3 If required, a strainer fitted between the stop valve and the meter and, in the case of a helix type meter, upstream of the straight length or the straightening device.

3.1.4 If required, a means of sealing the water meter to the water inlet line in order to detect any unauthorized removal of the water meter.

3.2 Downstream side

3.2.1 If required, an adjustable length device to allow for easy installation and removal of the water meter. This device is recommended for meters with $q_n \geq 15 \text{ m}^3/\text{h}$.

3.2.2 If required, a device including a drain valve which may be used for pressure monitoring, sterilization and water sampling.

3.2.3 For meters with $q_n > 2,5 \text{ m}^3/\text{h}$, a stopcock; or a valve; for flanged meters, a full-bore valve, operated in the same sense as the upstream valve.

3.2.4 If required, a check valve.

4 INSTALLATION

4.1 General requirements

4.1.1 The water meter shall be easily accessible for reading (without the use of mirror or ladder, for instance), for fitting in, for maintenance, for removal and for *in situ* dismantling of the mechanism if required.

In addition, for water meters of mass in excess of 25 kg, clear access to the installation site to allow the water meter to be brought to, or removed from, its working position, and adequate space around the working position for the installation of lifting gear, shall be provided.

The following points shall be taken into account :

- adequate illumination of the installation site is required;
- flooring shall be clear of obstacles, and shall be even, rigid and not slippery.

4.1.2 All fittings specified in clause 3 shall also be readily accessible and the prescriptions of 4.1.1 relating to large meters are also applicable for the fittings.

4.1.3 In all cases, contamination shall be avoided, especially when the meter is installed in a pit, by mounting the water meter and the fittings at a sufficient height above the floor.

If necessary, the pit shall be provided with a sump or drain for water removal.

4.2 Installation requirements

4.2.1 The meter shall be protected from the risk of damage by shock or vibration induced by the surroundings at the place of installation.

4.2.2 The meter shall not be subjected to undue stresses caused by pipes and fittings. If necessary, it shall be mounted on a plinth or bracket.

Furthermore, the water pipe lines upstream and downstream shall be adequately anchored to ensure that no part of the installation can be displaced under water thrust when the meter is dismantled or disconnected on one side.

4.2.3 The meter shall be protected from the risk of damage by extreme temperature of water and ambient air.

4.2.4 The meter pit shall be protected from flooding and rain water.

4.2.5 The orientation of the meter shall be appropriate to its type.

4.2.6 The meter shall be protected from the risk of damage due to external environmental corrosion.

4.2.7 National legislation and local rules in force concerning the use of water pipes for earthing shall always be consulted.

In the case where the water meter is part of an electrical earthing, in order to minimize the risk to operational staff, there shall be a permanent shunt for the water meter and its associated fittings.

4.2.8 Precautions shall be taken to prevent damage to the meter by unfavourable hydraulic conditions (cavitation, surging, water hammer).

4.2.9 Precautions shall be taken to avoid, if necessary, sudden variation of the flow section close to the meter.

5 SPECIAL REQUIREMENTS GOVERNING THE INSTALLATION OF HELIX TYPE METERS KNOWN AS WOLTMAN METERS

This type of meter is sensitive to upstream flow disturbances, which cause large errors and premature wear.

A flow can be subject to two types of disturbances : velocity profile distortion and swirl.

Velocity profile distortion is caused typically by an obstruction partially blocking the pipe, for example the presence of a partly closed valve. This effect can be easily minimized.

Swirl is caused mainly by two or more bends in different planes. This effect can be controlled either by ensuring an adequate length of straight pipe upstream of the meter or, if this is not possible, by installing a straightening device.

6 FIRST OPERATION OF NEW OR REPAIRED WATER METERS

Before installation, the water-main shall be flushed to removed debris and the strainer, if fitted, shall be cleaned.

After installation, water shall be let into the main slowly and with air bleeds opened so that entrained air does not cause the water meter to race, thereby causing damage.