



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 778.1-2018

**Meters for cold potable water and hot water -- Part 1:
Metrological requirements and technical requirements**

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Foreword

GB/T 778, Meters for cold potable water and hot water, consists of 5 parts.

- Part 1. Metrological and technical requirements;
- Part 2. Test methods;
- Part 3. Test report format;
- Part 4. Non-metrological requirements not covered in GB/T 778.1;
- Part 5. Installation requirements.

This Part is Part 1 of GB/T 778.

This Part was drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 778.1-2007, Measurement of water flow in fully charged closed conduits - Meters for cold potable water and hot water - Part 1. Specifications.

Compared with GB/T 778.1-2007, its major technical changes are as follows.

- it changes the standard name;
- it extends the applicable scope of the standard, without specifying maximum admissible working pressure (see Clause 1; Clause 1 of 2007 edition);
- it adjusts the structure of the standard;
- it adds the terms, including "water meter", "tariff control device", "pre-setting device", "meter for two constant partners", "cartridge meter", "cartridge meter

connection interface", "meter with exchangeable metrological module", "exchangeable metrological module", "connection interface for meters with exchangeable metrological modules", "error", "durability", "metering conditions", "resolution of a displaying device", "combination meter changeover flow rate", "durability test", "temperature stability", "preconditioning", "conditioning", "recovery", "type evaluation" and "type approval" (see 3.1.1, 3.1.9, 3.1.10, 3.1.12, 3.1.20, 3.1.21, 3.1.22, 3.1.23, 3.1.24, 3.2.4, 3.2.10, 3.2.11, 3.2.14, 3.3.6, 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, 3.4.12, 3.4.13);

- it modifies the terms including "flow sensor", "correction device", "initial intrinsic error", "working temperature", "influence factor", "rated operating condition", "type P automatic checking facility" (see 3.1.3, 3.1.7, 3.2.7, 3.3.10, 3.4.2, 3.4.4 and 3.5.6; 3.26, 3.32, 3.49, 3.17, 3.50, 3.5 and 3.40 of 2007 edition);
- it deletes the definitions of the terms including "minimum admissible working pressure", "limiting conditions" and "power supply device" (see 3.15, 3.6 and 3.43 of 2007 edition);
- it modifies the selection of the value of Q3/Q1 (see 4.1.4; 5.1.2 of 2007 edition);
- it deletes the determination of reference flow (see 5.1.5 of 2007 edition);
- it adds the classification of water meter accuracy classes and adds the maximum permissible error requirements for class 1 meters (see 4.2.2);
- it deletes the column of reference conditions in the table of "temperature classes" (see 5.4.1 of 2007 edition);
- it adds different requirements for permanent flow and measuring range in two directions of reverse flow water meters (see 4.2.7);
- it adds the requirement that water meters are capable of withstanding static pressure without damage or leakage (see 4.2.10);
- it adds the requirement that for a replaceable battery, a low battery or exhausted battery indicator or a meter replacement date shall be indicated on the meter (see 5.2.3.2);

- it adds the requirement that, for a replaceable battery, if the register display gives an indication of "low battery", there shall be a minimum useful life for the register display from the time "low battery" indication is displayed to end of life (5.2.4.2);
- it adds the requirement that Replacement of the battery shall be carried out in a way that does not necessitate breaking the seal required for statutory metrological inspections (5.2.4.4);
- it adds the requirement that a water meter shall be of such design, composition, and construction that it does not facilitate the perpetration of fraud and that it does not exploit the MPE or favour any party (see 6.1.7 and 6.1.9);
- it adds the requirement that the adjustment of the meter may not exploit the MPE or systematically favour any party (see 6.2.1);
- it adds the requirements for meter installation conditions (see 6.3);
- it adds the requirements for accuracy classes and pressure loss classes on the nameplate (see 6.6.2);
- it deletes the requirements for the types of output signals provided for auxiliary devices on the nameplate (see 6.8 of 2007 edition);
- it is modified that it requires provision of environmental classes and electromagnetic compatibility only on the nameplate of water meters with electronic devices (see 6.6.2; 2007 edition);
- it adds the display requirements for electronic indication devices (see 6.7.2.2);
- it adds the requirements for resolution of the indicating device of class 1 water meters (see 6.7.3.2.3);
- it adds the requirements for the indicating device of combination water meters (see 6.7.3.3);
- it deletes the requirements for additional verification elements (see 6.6.3.3 of **2007 edition**);
- it adds the requirements for metrological controls, including type test and initial verification (see Clause 7);

- it deletes Annexes A and B to 2007 edition;
- it adds the annex "Performance tests for water meters with electronic devices" (see Annex A);
- it adds the annex "Permissible errors in service and subsequent verification" (see Annex C).

This Part identically adopts ISO 4064-1:2014, Water meters for cold potable water and hot water - Part 1. Metrological and technical requirements, using the translation method.

The following editorial modifications are made in this Standard.

- the standard name is modified.

This Part was proposed by the China Machinery Industry Federation.

This Part shall be under the jurisdiction of National Technical Committee 124 on Industrial Process Measurement, Control and Automation of Standardization Administration of China (SAC/TC 124).

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