

# JJG

## INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

### JJG 162-2019

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#### Cold Potable Water Meters (English Translation)

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### 1 Scope

This Regulation applies to the initial verification, subsequent verification, in-use inspection of cold portable water meters.

The cold portable water meter referred to in this Regulation is a water meter, which has a temperature grade T30 and T50, measures cold portable water flowing through a closed full pipe, including water meters whose working principle is based on mechanical principle,

water meters whose working principle is based on electronic or electromagnetic principle, water meters based on mechanical principle with electronic device.

## **2 Normative references**

This Regulation makes reference to the following documents.

JJG 164 Verification regulation of standard facilities for liquid flowrate

JJG 643 Verification regulation of flow standard facilities by master meter method

JJG 1113 Verification regulation of verification facility for water meters

JJF 1777-2019 Program of pattern evaluation of cold potable water meters

For any dated references, only the dated version applies to this Regulation; for any undated referenced document, its latest version (including all amendments) applies to this Regulation.

### **3.1.1 Water meter**

Under measurement conditions, an instrument used to continuously measure, record, and display the volume of water flowing through the measurement transducer.

### **3.1.2 Measurement transducer**

The water meter component that converts the measured water flow or volume into a signal and transmits it to the calculator, including a sensor.

### **3.1.13 Permanent flow rate (Q3)**

The maximum flow rate under rated working conditions. At this flow rate, the water meter shall work normally and meet the maximum allowable error requirements.

### **3.1.14 Overload flow rate (Q4)**

The maximum flow rate that requires the water meter to meet the maximum allowable error requirements in a short period of time and then maintain the metering characteristics under rated working conditions.

## **4.1 Principle and structural composition**

Cold portable water meter (hereinafter referred to as water meter) is a measuring instrument named after its use. It is used to measure the total volume of cold portable water flowing through a closed full pipe. It is widely used in the trade settlement measurement of the tap water delivery volume, as supplied by the tap water supply department to residents and industrial and commercial users.

## **4.2 Classification**

According to the working principle and structural characteristics of the water meter, it can generally be divided into.

### **5.1 Flow characteristics of water meters**

#### **5.1.1**

The flow characteristics of water meters shall be determined according to the values of  $Q_1$ ,  $Q_2$ ,  $Q_3$ ,  $Q_4$ .

#### **5.1.5**

The ratio  $Q_2/Q_1$  is 1.6.

#### **5.1.6**

The ratio  $Q_4/Q_3$  is 1.25.

### **5.2 Accuracy level and maximum allowable error**

#### **5.2.1**

The accuracy level of water meters is divided into level 1 and level 2. The maximum allowable error of water meters with different accuracy levels at different working temperatures shall comply with the provisions of Table 4.

#### **5.2.2**

If all indication errors of the water meter have the same sign, at least one of the indication errors shall not exceed  $1/2$  of the maximum allowable error.

#### **6.1.2.1 Measurement legal sign**

The water meter shall be marked with the type approval sign and number of the measuring instrument in a prominent position.

#### **6.1.2.2 Marking of measuring instruments**

The water meter shall clearly and permanently indicate the following information on the housing, the dial or nameplate of the indicating device, the inseparable cover, either centrally or dispersedly.

#### **6.1.3 Seal**

##### **6.1.3.1**

The water meter shall have a protective device with a seal or a closed structure, to ensure that before and after correct installation of water meter, it cannot disassemble or change the

water meter and its adjustment device, correction device, related measuring instruments, without damaging the protective device or the seal of the protective device. The verification sign and protective seal of the water meter shall be applied to the part that can be seen without opening or disassembling the water meter.

## **6.2 Functions of electronic devices**

### **6.2.1**

For water meters with electronic devices, it shall explain various functions related to user use and operation in the instruction manual and other accompanying documents.

The modifiable parameters stored in the electronic device that affect the measurement results, such as sensor coefficient, instrument coefficient, signal equivalent, correction coefficient, etc., shall be available on the nameplate or accompanying documents of the water meter and related measuring instruments.

## **6.3 Tightness**

### **6.3.1**

Newly manufactured water meters shall be able to withstand a tightness test of

1.6 MAP for 1 min without seepage, leaking or damage.

### **6.3.2**

Water meters in use shall not leak under working conditions.

## **7 Measuring instrument control**

Measuring instrument control includes initial verification, subsequent verification, and in-use inspection.

### **7.3.1 Inspection of appearance, sign, seal**

#### **7.3.1.1**

Carry out visual inspection for the appearance of the water meter; it shall comply with the provisions of 6.1.1.

#### **7.3.1.2**

Carry out visual inspection for the sign of the water meter; it shall comply with the provisions of 6.1.2.

#### **7.3.1.3**

Carry out visual inspection for the protective device and seal of the water meter.