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

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Replacing GB/T 4167-2011

**Weights
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 4167-2011 "Weights". Compared with GB/T 4167-2011, except for structural adjustments and editorial changes, in addition, the main technical changes are as follows.

- a) Special weights suitable for certain test instruments have been added to the scope (see Chapter 1);
- b) Change the term "reduced mass" to "agreed mass" (see 3.5, 3.1.3 of the 2011 edition);
- c) Added the definition of weight set (see 3.4);
- d) The requirements for weight shape have been changed to accommodate special weights (see 5.1.1.4, 5.1.5, and 5.1.1 of the 2011 edition);
- e) The structure of the weights has been changed. Weights of F2 class greater than 50 kg

may consist of a box composed of several parts (see 5.2.2.2, 5.2.2.2 of the 2011 edition);

f) Added the requirements for the parallelepiped weight adjustment cavity (see 5.2.3.3);

g) Added the requirement that the weight may have one or more adjustment cavities (see 5.2.3.6);

h) Added the requirements for factory marking (see 5.9.3);

i) Added the method of measuring the polarization intensity of the weight using the magnetometer method (see B.2)

j) In the density (volume) measurement method, the hydrostatic comparison method is changed to the volume comparison method (see Appendix C, C.3, 2011 edition).

k) Density (volume) measurement methods include weighing with standard weights in air and in liquid, direct measurement, and acoustic volume meter.

Four methods including measurement method and geometric measurement method (see C.4, C.5, C.6 and C.8);

Introduction

Quality inspection technology plays an increasingly important role in economic development, and weights are widely used measuring instruments in quality inspection.

Weights are usually used as standard instruments for measurement verification and calibration of weighing instruments. At present, there are many weight manufacturers at home and abroad, and their technical level is the levels of weights vary. Metrology technical institutions in various provinces and cities, large factories and mines, colleges and universities, and scientific research institutes have different requirements for the use of weights of different levels.

At the same time, with the rapid development of various types of weighing instruments in China, verification institutions, third-party calibration laboratories and weighing instruments There is a huge demand for weights among users.

On May 21, 2019, the mass unit began to adopt the new definition of the kilogram given by the International Committee for Weights and Measures. using the fixed Planck constant.

The value is used as the unit of mass. Various countries are conducting research on miniaturization of mass value reproduction devices and flattening of traceability methods to achieve the the level can be directly traced back to physical constants. As an important carrier for the reproduction of mass values, weights need to be combined with the new form after the mass unit is redefined.

We should formulate national standards based on the trend to meet long-term market demand.