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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 228.1-2021

Replacing GB/T 228.1-2010

Metallic Materials — Tensile Testing — Part 1: Method of Test at Room Temperature

金属材料 拉伸试验 第1部分：室温试验方法

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Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document is Part 1 of GB/T 228 "Metallic materials - Tensile testing". The following parts of GB/T 228 have been issued:

- Part 1: Method of test at room temperature;
- Part 2: Method of test at elevated temperature;
- Part 3: Method of test at low temperature;
- Part 4: Method of test in liquid helium.

This document replaces GB/T 228.1-2010 "Metallic materials - Tensile testing - Part 1: Method of test at room temperature". Compared with GB/T 228.1-2010, in addition to structural and editorial changes, the main technical changes in this document are as follows:

b) Add 3 terms and definitions: "modulus of elasticity", "default value" and "coefficient of determination" (see Chapter 3 of this document);

c) Add selection of extensometer gauge length (see Chapter 8 of this document);

d) Add general information about testing rate (see 10.3.1 of this document);

e) Add two different types of strain rate control modes in the testing rate based on strain rate (Method A): Method A1 and Method A2, as well as specific explanations for Method A1 and Method A2 (see 10.3.2 of this document);

f) Add representation of computer-compatible standards (see C.5 of this document);

g) Add the normative annex "Determination of modulus of elasticity for metallic materials by uniaxial tensile test" (see Annex D of this document);

h) Change the longitudinal arc specimen (see Table H.1 of this document, Table i) Change the estimation of the displacement rate of the compensating beam to account for the deformation of the testing machine system (see Annex I of this document, Annex F of Edition 2010);

strength, plastic extension (Rp)" from normative to informative (see Annex J of this document, Annex J of Edition 2010);

k) Change the assessment of measurement uncertainty (see Annex O of this document, Annex L of Edition 2010).

The revision of this document uses ISO 6892-1:2019 "Metallic materials - Tensile testing - Part 1: Method of test at room temperature".

Compared with ISO 6892-1:2019, there are many structural adjustments in this document. See Annex A for a list of structural changes between the two documents.

There are many technical differences between this document and ISO 6892-1: 2019. The outer margins of the clauses involved are marked with a vertical single line (|). See Annex B for a list of these technical differences and their reasons.

The following editorial changes have been made to this document:

- Add the informative annex "Determination of proof strength, plastic extension (Rp) by step-by-step approximation method" (see Annex J of this document);

- Add the informative annex "Examples for determination of permanent set strength (Rr0.2) by force-unloading method" (see Annex K of this document).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority shall not be held responsible for identifying any or all such patent rights.

This document was proposed by China Iron and Steel Association.

This document shall be under the jurisdiction of National Technical Committee on Steel of Standardization Administration of China (SAC/TC 183).

The drafting organizations of this document: Iron and Steel Research Institute, Metallurgical Industry Information Standards Research Institute, Shenzhen Wanshi Testing Equipment Co., Ltd., Jiangyin Xingcheng Special Steel Co., Ltd., China Machinery Testing Equipment Co., Ltd., Shanxi Taigang Stainless Steel Co., Ltd., Nanjing Iron and Steel Co., Ltd., Pabo Testing Technology Service Co., Ltd., Shanghai Shenli Testing Machine Co., Ltd., Lishi (Shanghai) Scientific Instrument Co., Ltd., Nippon Steel Yingkou Medium Plate Co., Ltd., Bengang Plate Co., Ltd., Zhejiang Special Equipment Science Research Institute, Zhongshan Iron and Steel Co., Ltd. Steel Group Zhengzhou Metal Products Research Institute Co., Ltd., Shougang Group Co., Ltd., Baoshan Iron and Steel Co., Ltd., Xuanhua Iron and Steel Group Co., Ltd., Xiwang Metal Technology Co., Ltd., Zhejiang Jinzhou Tubeline Technology Co., Ltd., National Steel and Product Quality Supervision and Inspection Center, Qiqihar Huagong Machine Tool Co., Ltd., Shandong Xindadi Holding Group Co., Ltd., Shanghai Institute of Materials, Changsha Dicastal Technology Co., Ltd., Shandong Juncheng Metal Technology Co., Ltd., Xiamen Special Equipment Inspection and Testing Institute, Beijing Tiger Ruixiang Technology Co., Ltd., Jianlong Xilin Iron and Steel Co., Ltd., Chengde Jianlong Special Steel Co., Ltd., Guohe General Testing, Evaluation and Certification Co., Ltd., Southwest Aluminum (Group) Co., Ltd., Anshan Iron and Steel Co., Ltd., Steel Research Nanogram Testing Technology Co., Ltd.

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