



**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).

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