

ICS 77.040.10

CCS H 22



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

GB/T 46777-2025

Metallic materials - Pin-type bearing test method

金属材料 销型（孔）挤压试验方法

Issued on: December 2, 2025

Implemented on: July 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
4.Symbols and Explanations	2
5.Principle	3
6 Sample	3
7.Experimental Apparatus	5
9 Failure Modes	8
10.Experimental Data Processing and Rounding of Experimental Results	8
9 References	10

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Iron and Steel Association. This document is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183). This document was drafted by: Steel Research NACK Testing Technology Co., Ltd., and Shanghai Aircraft Design and Research Institute of Commercial Aircraft Corporation of China, Ltd. Institute, Metallurgical Industry Information and Standardization Research Institute, National Standard (Beijing) Inspection and Certification Co., Ltd., and Guohe General (Qingdao) Testing and Evaluation Co., Ltd. The main drafters of this document are. Gao Yifei, Zhang Ren, Hou Huining, Gao Tianyin, Wu Lei, Wu Qiuping, Li Zhutie, Zhang Biao, Dong Li, Xiao Kai, and Gao Tuo. Liang Xibing, Guo Bicheng, Zang Haoliang. Metallic material pin (hole) extrusion test method

1 Scope

GB/T 46777-2025 is the Chinese national standard covering the bearing test - a pin loaded in a hole until the hole deforms, which gives the bearing strength a designer needs for a bolted or riveted joint, where the plate fails around the fastener rather than the fastener failing. First edition, under the China Iron and Steel Association. Issued on 2 December

2025, it has been in force since 1 July 2026.

This document specifies the principle, specimen, test apparatus, test procedure, failure mode, and test method for the pin (hole) extrusion test of metallic materials. Data processing, test result rounding, and test reports. This document applies to the determination of the properties of pin (hole) extrusion (hereinafter referred to as "hole extrusion") of metallic materials at room temperature.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 12160 Calibration of extensometer systems for uniaxial testing of metallic materials

GB/T 16825.1 Inspection and calibration of static uniaxial testing machines for metallic materials - Part

1. Tensile and/or compressive testing machines Inspection and calibration of force measurement system JJG139 Verification Procedures for Tensile, Compression and Universal Testing Machines JJG475 Electronic Universal Testing Machine Verification Procedure JJG762 Extensometer Verification Procedure JJG1063 Verification Procedure for Electro-hydraulic Servo Universal Testing Machine

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Pin-type bearing Hole extrusion To simulate the fit between bolts, bearing pins (pins), rivets, and plate-like components, the plate-like components are subjected to unidirectional compressive loads. The process of deformation and shearing.

3.2 Pin-type bearing area A_o The product of the diameter (D_o) of the bearing pin (pin) and the thickness (t) of the sample.

3.3 Pin-type edge distance The distance from the edge of the sample to the center of the pin hole.

Note. See Figure 1.