

ICS 27.060.30

CCS J 75



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

GB/T 47194-2026

Micro and mini channel heat exchangers

微通道热交换器

Issued on: February 27, 2026

Implemented on: September 1, 2026

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

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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 and is under the jurisdiction of the National Technical Committee on Standardization of Boilers and Pressure Vessels (SAC/TC262). This document was drafted by: Gansu Lanke Petrochemical High-Tech Equipment Co., Ltd., Shanghai Lanbin Petrochemical Equipment Co., Ltd., and Xi'an Jiaotong University. Tongji University, China Petrochemical Engineering Construction Co., Ltd., Shaanxi Zhituo Solid Phase Additive Manufacturing Technology Co., Ltd., Hangzhou Shenshi Energy Saving Technology Co., Ltd. Limited Liability Company, Lanzhou Lanshi Heat Exchange Equipment Co., Ltd., Tsinghua University, Sinopec Guangzhou Engineering Co., Ltd., Wuhan Donghai Petrochemical Heavy Equipment Limited Liability Company, Harbin Boiler Factory Co., Ltd., Beijing Guangsha Environmental Energy Technology Co., Ltd., Shandong Haomai Machinery Manufacturing Co., Ltd. Lanzhou Petroleum Machinery Research Institute Co., Ltd., China Special Equipment Inspection and Research Institute, Lanzhou Petrochemical Equipment Inspection Institute of Machinery Industry Co., Ltd. company. The main drafters of this document are. Jiang Chen, Bai Bofeng, Zhang Yingkai, Zhou Wenxue, Zhang Hao, Shen Zeqi, Li Zhiguo, Xu Ruina, Li Shuangquan, and Ma Yiming. Li Mingkai, Wang Fengjun, Liu Yongchao, Zhang Huifang, Su Sijun, Wang Chao, Chen Zhiwei, Tang Hui, Fan Baotian.

This document is the product manufacturing standard for microchannel heat exchangers, used to regulate the construction or use of microchannel heat exchangers within China. The technical requirements related to design, manufacturing, inspection and acceptance consist of 10 main chapters and 4 appendices. The main technical specifications in this document cover the design, material selection, manufacturing, inspection and testing, and factory acceptance of microchannel heat exchangers. The document outlines key technical requirements for performance testing, focusing on the unique characteristics of microchannel structures and detailing core design, advanced manufacturing processes, and other aspects. The core verification burst test, supercritical fluid heat transfer performance test and special inspection methods are among the specialized technical contents, and they are also aligned with GB/T 150. Basic standards such as "Pressure Vessels" (all parts), GB/T 151 "Heat Exchangers", and GB/T 4732 "Analysis and Design of Pressure Vessels" (all parts) National standards ensure the systematic and consistent nature of technical requirements. This document neither needs nor can include all the technical details of constructing microchannel heat exchangers within its applicable scope. Actual engineering design... In design and manufacturing, advanced technologies (such as numerical simulation optimization design and new additive manufacturing processes) are permitted, but engineering technology... Personnel using these methods must be able to make reliable judgments to ensure they meet the requirements of this document, particularly regarding core strength and flow channel structure safety. This document

outlines core design and inspection requirements, including performance verification, fatigue testing, and type testing. It neither requires nor restricts designers from using computer programs. This involves analyzing or designing a microchannel heat exchanger. For any other organization not authorized or recognized in writing by the National Technical Committee on Standardization of Boilers and Pressure Vessels (SAC/TC262), this article is subject to further review. The Committee assumes no responsibility for any ambiguity in the interpretation or explanation of this document, or for any consequences arising therefrom.

Microchannel heat exchanger

1 Scope

GB/T 47194-2026 is the Chinese national standard covering the microchannel exchanger - flat aluminium tubes with channels a fraction of a millimetre across, which give a very high surface area per unit of refrigerant charge and have displaced round-tube coils in automotive and much stationary air conditioning. At 27,500 words, first edition, in force since 1 September 2026. It was issued on 27 February 2026 and has been in force since 1 September 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

1.1 This document specifies the materials, design, manufacturing, inspection and testing, and factory acceptance of microchannel heat exchangers (hereinafter referred to as "heat exchangers"). And performance testing.

1.2 This document applies to heat exchangers with a design pressure greater than or equal to

0.1 MPa and less than 100 MPa, wherein the heat exchanger is made of titanium. The design pressure should not exceed 35 MPa.

1.3 The design temperature applicable to this document is.

a) The design temperature range for steel heat exchangers shall be the allowable operating temperature range for the materials listed in GB/T 150.2;

b) For heat exchangers made of other metallic materials, the allowable operating temperature shall be determined according to the material's permissible operating temperature as listed in the relevant referenced standards in this document.

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 150.1 Pressure Vessels - Part

3 Design

GB/T 150.4 Pressure Vessels - Part

4 Manufacturing, Inspection and Acceptance GB/T 151 Heat Exchangers

GB/T 222 Permissible Deviations in Chemical Composition of Steel and Alloy Finished Products

GB/T 228.1 Metallic materials - Tensile testing - Part

7 Stainless steel and heat-resistant steel

GB/T 1220 Stainless Steel Bars

GB/T 1479.1 Determination of the apparent density of metallic powders - Part