

ICS 27.200
CCS J73



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

GB/T 10891-2025

**Refrigerating systems and heat pumps - Environmental
adaptability requirements**

制冷系统及热泵 环境适应性要求

Issued on: October 5, 2025

Implemented on: May 1, 2026

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

Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
4.Environmental Categories and Requirements	2
4.1 Environmental Category	2
4.2 Test Conditions	2
4.3 Product Standard Requirements	2
4.4 Environmental adaptability test items	3
4.5 Requirements for Natural Environment Adaptability Testing	3
5.Test Methods	3
5.1 High Temperature Test (Operating Condition).....	3
5.2 High Temperature Test (Durability).....	4
5.3 Low Temperature Test (Operating Condition).....	6
5.4 Low Temperature Test (Durability).....	7
5.5 Simulated Solar Radiation Test (Operating Condition)	8
5.6 Simulated Solar Radiation Test (Durability)	10
5.7 Sinusoidal Vibration Test (Operating Condition).....	11
5.8 Sinusoidal Vibration Test (Durability).....	13
5.9 Low Temperature and Low Pressure Test	14
5.10 Constant Damp Heat Test (Operating Condition)	15
5.11 Constant Damp Heat Test (Durability)	16
5.12 Salt spray test	18
5.13 Water Spray Test.....	19
5.14 Freefall Test.....	20
5.15 Transportation Vibration Test.....	21
6.Environmental Parameter Impact and Evaluation	22
6.1 Impact of Environmental Parameters	22
15 Main Influences of a Single Environmental Parameter and Post-Test Items.....	22

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. This document replaces GB/T 10891-1989 "Safety Requirements for Air Handling Units". Compared with GB/T 10891-1989, the main differences are in structural adjustments. Aside from integration and editorial changes, the main technical changes are as follows:

- a) The basic, general safety requirements have been removed, retaining only the requirements regarding environmental adaptability (see Chapter 5, 1989 edition). Chapters 5-8 and Chapters 10-20);
- b) Added environmental categories and common testing requirements (see Chapter 4);
- c) Corresponding environmental adaptability testing methods have been added (see Chapter 5);

d) Environmental parameter impact and evaluation have been added (see Chapter 6). 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 Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Refrigeration and Air Conditioning Equipment (SAC/TC238). This document was drafted by: Hefei General Machinery Research Institute Co., Ltd., Gree Electric Appliances, Zhuhai, and Midea Heating & Ventilation Equipment, Guangdong. Limited Liability Company, Qingdao Hisense Hitachi Air Conditioning Systems Co., Ltd., Guangdong Fenny Energy Technology Co., Ltd., Hisense Air Conditioning Co., Ltd., Shenzhen Mike Weir Air Conditioning Co., Ltd., Guangdong New Energy Technology Co., Ltd., Hefei General Machinery & Electrical Products Testing Institute Co., Ltd., Guojitong Yong Machinery Technology Co., Ltd. The main drafters of this document are. Zhang Xiuping, Lu Lei, Hu Mingxia, Zhang Yiwen, Zhang Wenqiang, Liu Yang, Bie Qingfeng, Pan Likui, Zhao Misheng, and Wang Rujin. Ma Jinping, Liang Ping, Wu Junfeng, Zhang Shuo, Guo Yang. This document was first published in 1989, and this is its first revision. Environmental adaptability requirements of refrigeration systems and heat pumps

1 Scope

GB/T 10891-2025 is the Chinese national standard on refrigerating systems and heat pumps - environmental adaptability requirements, in the field of energy and heat transfer engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 5 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026. Classification: ICS 27.200, CCS J73. This page is published from the official record of the standard held by the Chinese standards

administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document defines the environmental categories for refrigeration systems and heat pumps, specifies the test items for environmental adaptability requirements, and describes the corresponding test... Verification method. This document applies to temperature, humidity, and flow conditions used to create comfortable human environments, specific artificial environments, technological processes, and specific heating and cooling requirements. Refrigeration systems and heat pumps and their components for quantity, air quality control and regulation.

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 2421 Overview and Guidelines for Environmental Testing

GB/T 2422 Guidelines for Writing Environmental Testing Methods. Terms and Definitions

GB/T 2423.10 Environmental testing - Part

3 Terms and Definitions

The terms and definitions defined in JB/T 7249, GB/T 17758, GB/T 2421, GB/T 2422 and GB/T 4796, as well as the following terms and definitions, apply. In this document.

3.1 Pre-conditioning Treatments performed on the prototype before conditional testing are intended to eliminate or partially offset various effects previously experienced by the prototype.

3.2 Conditioning Tests that expose a prototype to a test environment to determine the effect of such environmental conditions on the prototype.

3.3 Restore recovery The treatment performed on the test prototype after the conditional test to ensure the stability of its performance before the test.

3.4 The product is able to achieve all its intended functions, performance and/or characteristics under various environmental conditions that it may encounter during its expected lifespan. The ability to remain undamaged.