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

GB/T 26181-2025

Replacing GB/T 26181-2010

**Hermetic motor-compressors for household and similar
application heat pump water heaters using CO₂ refrigerant**

家用和类似用途CO₂制冷剂热泵热水器用全封闭型电动机-压缩机

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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. This document replaces GB/T 26181-2010 "Fully Enclosed Electric Motors for Household and Similar CO

2 Refrigerant Heat Pump Water Heaters - Compressor". Compared with GB/T 26181-2010, the main technical changes in the "Machinery" standard, apart from structural adjustments and editorial modifications, are as follows:

---The scope has been changed (see Chapter 1, Chapter 1 of the.2010 edition);

---Added terms and definitions for nominal values, heating capacity, and speed-controlled compressors (see 3.1, 3.3, 3.4);

---The terminology and definition of rated cooling capacity have been removed (see section 3.1 of the.2010 edition);

---The product classification, technical requirements, and test methods for reciprocating compressors have been deleted (see 4.1.1, Chapter 5, and Chapter 6 of the.2010 edition);

---The classification methods by compressor type and by capacity change have been removed (see sections

4.1.4 of the.2010 version);

---The operating ambient temperature has been changed (see 5.1,

5.2 in the.2010 version);

---Changes have been made to the compressor segmentation method, compressor performance coefficient limits, noise limits, vibration limits, and other technical specifications. Requirements (see Chapter 5, Chapter 5 of the.2010 edition);

---The testing methods for the compressor have been changed (see Chapter 6, Chapter 6 of the.2010 edition);

1 Scope

GB/T 26181-2025 is the Chinese national standard covering the transcritical CO₂ compressor - working at pressures several times those of a conventional refrigerant, with its capacity and efficiency at the rated conditions, its pressure containment, its lubrication and its endurance. CO₂ heat pumps make hot water at 90 degrees where an R134a machine cannot. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 26181-2010.

This document specifies the fully enclosed electric motor-compressor (hereinafter referred to as "compressor") for household and similar CO₂ refrigerant heat pump water heaters. The document outlines the requirements for the "machine" (likely referring to a specific type of machine), describes the corresponding test methods, specifies inspection rules, marking, packaging, transportation, and storage, and provides product specifications. The classification defines the relevant terminology. This document applies to vapor compression transcritical cycle compressors (including rotary and scroll compressors) using R744 (CO₂) as the refrigerant. The design, production, inspection and sales of compressors.

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 191 Packaging and Storage Graphic Symbols

GB/T 1019 General Rules for Packaging of Household and Similar Electrical Appliances

GB/T 2829 Periodic inspection sampling procedures and tables (applicable to the inspection of process stability)

GB/T 4214.1-2017 General requirements for noise testing methods of household and similar electrical appliances

GB/T 4706.17-2024 Safety of household and similar electrical appliances - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 4706.17-2024, as well as the following terms and definitions, apply to this document.

3.1 nominal parameter The values specified in the product's technical specifications.

3.2 The ratio of the compressor's heating capacity to its input power under specified operating conditions. Note

1. There are two methods for calculating the performance coefficient of a speed-controllable compressor. one is to exclude the controller's power loss when calculating the performance coefficient, and the other is to include the controller's power loss when calculating the performance coefficient. The power loss of the controller should be taken into account when calculating the performance coefficient. Note

2. The performance coefficients of the speed-controllable compressors in this document refer to calculations that do not include controller power losses. [Source: GB/T 29780-2023, 3.2]

3.3 heating capacity Under specified operating conditions, the compressor's cooling capacity is the sum of its input power and its cooling capacity. [Source: GB/T 29780-2023, 3.3]

17 Particular requirements for electric motors - compressors

GB/T 5773 Performance Test Methods for Positive Displacement Refrigerant Compressors

GB/T 9237 Safety and Environmental Requirements for Refrigeration Systems and Heat Pumps

GB/T 38734 Technical requirements and test methods for heat pump water heaters using CO₂ as refrigerant