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

GB/T 18430.1-2024

**Water chilling (heat pump) packages using the vapor
compression cycle - Part 1: Water chilling (heat pump)
packages for industrial & commercial and similar applications**

蒸气压缩循环冷水（热泵）机组 第1部分：工业或商业用及类似用途的冷水（热
泵）机组

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Foreword

This document was issued on 29 September 2024 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 April 2025.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 18430.1-2024 is the Chinese standard for vapour compression water chillers and heat pump packages for industrial, commercial and similar applications, the machines that cool most large Chinese buildings. It is the document a chiller is bought, rated and tested against, and its centre of gravity has moved decisively toward part-load: a chiller spends almost none of its life at nominal conditions, so the standard sets not only the nominal condition performance but the part load performance, the seasonal performance, the maximum cooling and heating load, the minimum cooling load, the defrosting behaviour and the performance under application conditions. Around that it sets the types, model designation and basic parameters, the general requirements, the sealing and pressure test, the trial operation and the waterside pressure loss, and then the test methods, inspection rules and the marking, packaging, transport and storage that go with them. For a manufacturer, an importer or a building services engineer specifying a chiller in China, this is the governing text, and its seasonal performance definitions are what an efficiency claim in the Chinese market actually means. It takes effect on 1 April 2025.

This document specifies the types and basic parameters, technical requirements, test methods, inspection rules, as well as marking, packaging, transportation, storage of water chilling (heat pumps) for industrial & commercial and similar applications.

This document is applicable to water chilling (heat pumps) using steam compression refrigeration cycles driven by electric motors, including process water chilling (heat pumps) and comfortable water chilling (heat pumps), which has a nominal cooling

capacity greater than 50 kW (hereinafter referred to as "packages"). Other similar packages can be used as a reference.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in the text. Among them, for dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB 2894-2008 Safety signs and guideline for the use

GB/T 4208-2017 Degrees of protection provided by enclosure (IP code)

GB 4706.1-2005 Household and similar electrical appliances - Safety - Part 1.

General requirements

GB 4706.32-2012 Household and similar electrical appliances - Safety - Particular requirements for heat pumps, air-conditioners and dehumidifiers

GB/T 9237 Refrigerating systems and heat pumps - Safety and environmental requirements

GB/T 10870-2014 The methods of performance test for water chilling (heat pump) packages using the vapor compression cycle

5 Technical requirements

5.1 General requirements

5.1.1 The package shall be manufactured according to the drawings and technical documents approved by the prescribed procedures.

5.1.2 The installation of each component of the package shall be firm and reliable; the installation of pipeline accessories shall be horizontal and vertical; the arrangement shall be neat; the compressor shall have anti-vibration measures.

5.1.3 The package shall use non-toxic, odorless and flame-retardant thermal insulation materials; no condensation shall be generated on the insulation layer during normal operation of the package.

5.1.4 The package can be equipped with a cold (hot) water circulation pump according

to user requirements or actual use; its flow rate and head shall be able to ensure the normal operation of the package.

5.1.5 The package shall have functions such as motor overload protection, phase sequence protection (three-phase motor package), water system flow interruption protection, antifreeze protection, system high and low pressure protection, etc.

5.1.6 The appearance of the package shall comply with the following requirements.

- a) Ferrous metal parts shall be treated with anti-corrosion;
- b) The surface of electroplated parts shall be smooth and uniform in color; there shall be no defects such as peeling, bottom exposure, pinholes, obvious spots, scratches;
- c) The surface of painted parts shall be flat, with uniform coating and color; there shall be no obvious defects or damage such as bubbles, flow marks, wrinkles; there shall be no holiday or primer exposure;
- d) The surface of decorative plastic parts shall be flat and smooth, with uniform color; there shall be no cracks, bubbles, obvious shrinkage defects.

5.2 Sealing and pressure test

5.2.1 Sealing

5.2.1.1 Airtightness

The refrigeration system of the package shall have good sealing performance. When the airtightness test is carried out according to 6.4.1.1.1, there shall be no leakage in any part of the refrigeration system of the package.

5.2.1.2 Vacuum test

When the vacuum test is carried out according to 6.4.1.1.2, there shall be no leakage in the refrigeration system of the package; the pressure rise shall meet the following requirements.

- a) For packages with a single system cooling capacity of no more than 300 kW, the pressure rise of each system shall not be greater than 100 Pa;
- b) For packages with a single system cooling capacity of more than 300 kW, the pressure rise of each system shall not be greater than 150 Pa.