

ICS 27.200
CCS J 73



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

GB/T 18430.2-2025

Replacing GB/T 18430.2-2016

**Water chilling (heat pump) packages using the vapor
compression cycle - Part 2: Water chilling (heat pump)
packages for household and similar applications**

蒸气压缩循环冷水(热泵)机组 第2部分：户用及类似用途的冷水(热泵)机组

Issued on: October 31, 2025

Implemented on: May 1, 2026

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

Table of Contents

Foreword	3
Introduction	5
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Types and basic parameters	3
5 Technical requirements	7
6 Test methods	12
7 Inspection rules	20
8 Marking, packing, transport and storage	22
Annex A (normative) Special requirements and test methods for packages with a heat recovery function	25
Annex B (normative) Special requirements and test methods for packages with a cold storage function	28
Annex C (normative) Performance test and calculation method for the domestic hot water function	29
Annex D (normative) Seasonal performance test and calculation method for air-cooled packages	33
Annex E (normative) Comparison table of the class B inspection items	41
Bibliography	42

Introduction

Refrigerating equipment covers the systems, plant and components used to control and regulate the temperature, humidity, flow and air quality that create human environments, particular artificial environments, process conditions and specific heating and cooling requirements. By the needs of the use side, main-unit products fall into two broad classes: the hot and cold air type and the hot and cold water type. Within that field GB/T 18430 is the basic standard for hot and cold water packages: it leads the development of the whole family of standards and, through its own changes, keeps shaping the standardisation system of the refrigeration and air conditioning industry.

GB/T 18430 consists of two parts. Part 1, packages for industrial or commercial and similar applications, sets the requirements for process-type water chilling (heat pump) packages of any capacity and for comfort-type packages with a cooling capacity above 50 kW. Part 2,

this document, sets the requirements for comfort-type packages for household and similar applications with a cooling capacity of 50 kW or less.

1 Scope

This document specifies the types, the model designation, the basic parameters, the technical requirements, the inspection rules and the marking, packing, transport and storage of water chilling (heat pump) packages for household and similar applications, and describes the corresponding test methods.

It applies to comfort-type water chilling (heat pump) packages for household and similar applications with a cooling capacity of not more than 50 kW.

2 Normative references

The contents of the following documents constitute indispensable provisions of this document through normative reference in the text. For dated references, only the edition corresponding to that date applies. For undated references, the latest edition, including all amendments, applies.

GB/T 2423.17 Environmental testing - Part 2: Test methods - Test Ka: Salt mist · GB 2894-2025 Safety signs and guideline for the use · GB/T 4208 Degrees of protection provided by enclosure (IP code) · GB/T 4706.1-2024 Safety of household and similar electrical appliances - Part 1: General requirements · GB/T 4706.32-2024 Safety of household and similar electrical appliances - Part 32: Particular requirements for heat pumps, air-conditioners and dehumidifiers · GB/T 9237 Refrigerating systems and heat pumps - Safety and environmental requirements · GB/T 9286-2021 Paints and varnishes - Cross-cut test · GB/T 10870-2014 The testing and rating of performance for water chilling (heat pump) packages using the vapor compression cycle · GB/T 13306 Plates · GB/T 13384 General specifications for packing of mechanical and electrical product · GB/T 18430.1-2024 Water chilling (heat pump) packages using the vapor compression cycle - Part 1: Water chilling (heat pump) packages for industrial or commercial and similar applications · GB/T 21362-2023 Heat pump water heaters for commercial and industrial and similar application · GB/T 26572 Requirements for concentration limits for certain restricted substances in electrical and electronic products · GB/T 29044 Water quality for heating and air conditioning system · JB/T 4330-1999 Refrigerating and air-conditioning equipment - Noise measurement · JB/T 7249 Refrigerating equipment - Terminology · JB/T 10916 Heat pump water heaters for household and similar application of heating and air conditioning · NB/T 47013.8-2012 Nondestructive testing of pressure equipment - Part 8: Leak testing

3 Terms and definitions

The terms and definitions given in JB/T 7249 and GB/T 18430.1-2024, together with the following, apply to this document.

cooling seasonal total load, CSTL: total heat removed from the interior of the building while the package is cooling during the cooling season. Note: in kilowatt hours (kW·h), to two decimal places, or at least three when used as an intermediate parameter.

cooling seasonal total energy, CSTE: total electricity consumed while the package is cooling during the cooling season.

cooling seasonal performance factor, CSPF: ratio of the total heat removed from the interior to the total electricity consumed while the package is cooling during the cooling season, in (kW·h)/(kW·h).

heating seasonal total load, HSTL: total heat delivered to the interior of the building while the package is heating during the heating season.

heating seasonal total energy, HSTE: total electricity consumed while the package is heating during the heating season.

heating seasonal performance factor, HSPF: ratio of the total heat delivered to the interior to the total electricity consumed while the package is heating during the heating season.

annual performance factor, APF: ratio of the sum of the heat removed from the interior in cooling and the heat delivered to it in heating, over a year comprising one adjacent cooling and heating season, to the total electricity consumed.

useful water temperature, T_m : lowest water temperature that contributes to the useful energy content when water is drawn in a water use model, in degrees Celsius.

useful water flow, f : smallest flow of hot water that contributes to the useful energy content when water is drawn in a water use model, in litres per minute.

useful energy content, Q_{tap} : energy content of the hot water produced at or above the useful water temperature and the useful water flow, in kilowatt hours.

water use models: series of given combinations of useful water flow, useful water temperature and useful energy content that simulate the water-drawing habits of the user.

mixed water at 40 degrees Celsius, V_{40} : volume of water above 40 degrees Celsius that the water heater can supply under the specified test conditions, in litres.

energy efficiency in water use models, η_{ta} : ratio of the heat of the hot water supplied by the water heater in a particular water use model to the primary energy it consumes, expressed as a percentage.

4 Types and basic parameters

By the way heat is exchanged on the heat source side in cooling, packages are divided into

water-cooled, air-cooled and evaporatively cooled. Air-cooled packages are further divided by the type of heating terminal they are matched with: floor radiant heating, fan coil heating, radiator heating and others. By function they are divided into cooling-only and heat pump; by the type of refrigerant compressor into reciprocating, rotary and scroll; and by structural form into unitary and split.

By the way the capacity is staged, packages are either fixed-capacity or variable-capacity; variable-capacity water chilling packages are further divided by the way they unload into continuously unloading (steplessly adjustable down to 25 % load or below), partly continuously unloading (steplessly adjustable to above 25 % load) and non-continuously unloading.

Packages may also be classified by the additional functions they have: heat recovery (full or partial), cold storage and domestic hot water.

Model designation: the manufacturer may decide the method of coding, but the model should show the cooling capacity of the package at the nominal condition.

Basic parameters: the supply is normally single-phase 220 V or three-phase 380 V alternating current at a rated frequency of 50 Hz. Normal working conditions are, for air-cooled and evaporatively cooled packages, an ambient temperature of -7 degrees Celsius to 43 degrees Celsius for heat pump packages and of 18 degrees Celsius to 43 degrees Celsius for cooling-only packages; for water-cooled packages the condenser inlet water temperature in cooling shall not exceed 34 degrees Celsius. Where the manufacturer declares a wider range of normal working conditions than this document specifies, the declared conditions govern the assessment.

Test conditions: the standard conditions for the general performance tests of each type of package are given in Tables 1, 2 and 3; those for the part-load performance test of water-cooled and evaporatively cooled packages, for IPLV and for NPLV, in Table 4; and those for the seasonal performance test of air-cooled packages in Table 5. For a water-cooled package the standard cooling condition is a use-side outlet water temperature of 7 degrees Celsius and a heat-source-side inlet water temperature of 30 degrees Celsius, with a water flow of 0.172 m³/(h·kW) on the use side and 0.215 m³/(h·kW) on the heat source side; the maximum-load cooling condition is 15 degrees Celsius and 33 degrees Celsius, the minimum-load cooling condition 5 degrees Celsius and 19 degrees Celsius, the nominal heating condition 45 degrees Celsius and 15 degrees Celsius, and the maximum-load heating condition 50 degrees Celsius and 21 degrees Celsius.

5 Technical requirements

General requirements: the package shall meet this document and shall be made to drawings and technical documents approved by the prescribed procedure. Its parts shall be mounted firmly and reliably; pipework fittings shall be mounted true and laid out neatly, and