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

GB/T 25016-2026

Replacing GB/T 25016-2010

Marine air conditioners - General technical specification

船用空调器 通用技术规范

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Foreword

This document was issued on 30 July 2026 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 February 2027.

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

It is classified under ICS 47.020.90 and Chinese classification U 47.

The document runs to 19 pages. The identification, the dates, the classification and the table of contents on this page are taken from the cover and the printed contents of the standard itself.

This document was drafted in accordance with GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document replaces GB/T 25016-2010 "General specification for marine air conditioners". Compared with the 2010 edition, apart from structural adjustments and editorial changes, the main technical changes are as follows:

- a) the field of application of the document has been changed (see Clause 1; Clause 1 of the 2010 edition);
- b) the terms "direct-expansion type air conditioner", "indirect-cooling type air conditioner" and "air leakage rate" have been added (see 3.2, 3.3 and 3.4);
- c) the requirements for ambient temperature, mould growth and vibration adaptability have been changed (see 4.1.1, 4.1.5 and 4.1.7; 4.1.1, 4.1.3 and 4.1.6 of the 2010 edition), and a requirement for air relative humidity has been added (see 4.1.2);
- d) a requirement for the cleanliness of the outer surface of the air conditioner has been added (see 4.2.3);

- e) the requirements for the selection of materials for the components of the air conditioner have been changed (see 4.3; 4.3 of the 2010 edition);
- f) the requirements for the selection of the air filter have been changed (see 4.4.2; 4.4.4 of the 2010 edition);
- g) the requirements for connecting the refrigerant pipework by flanged or threaded joints have been changed (see 4.4.22; 4.4.25 of the 2010 edition);
- h) the humidifying capacity requirement of the humidifying system has been changed (see 4.4.24; 4.4.27 of the 2010 edition);
- i) the requirements for the arrangement of the pipework and the placing of its components have been changed (see 4.4.26; 4.2.3 of the 2010 edition);
- j) requirements for the interfaces have been added (see 4.5);
- k) the performance parameters of central and unitary air conditioners under each operating condition have been changed (see 4.6.1.1; 4.5.1 of the 2010 edition);
- l) the requirements for the measured air volume, cooling capacity, heating capacity and external static pressure of the air conditioner have been changed (see 4.6.1.2; 4.5 of the 2010 edition).

1 Scope

GB/T 25016 is the Chinese general specification for marine air conditioners, the units that condition cabin and accommodation air on board ship. It specifies the technical requirements, the marking, packaging, transport and storage, and describes the corresponding test methods, and it applies to the design, manufacture and acceptance of such units. What separates a marine unit from a shore one is the environment it has to survive, and the standard puts numbers on it: list and trim, roll and pitch, salt spray at 2 mg/m³, 95 % relative humidity with condensation permitted, minus 25 degrees Celsius on an exposed deck, mould growth and vibration. The 2026 edition replaces GB/T 25016-2010, distinguishes direct-expansion from indirect-cooling types, introduces an air leakage rate, and revises the temperature, humidity, mould and vibration adaptability requirements along with the performance parameters. For a shipbuilder or an equipment supplier this is the text a Chinese acceptance is judged against.

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 191 Packaging - Pictorial marking for handling of goods; GB/T 713.2-2023 Steel plates and strips for pressure equipment - Part 2; GB/T 1176-2013 Casting copper and copper alloys; GB/T 1527-2017 Drawn tubes of copper and copper alloys; GB/T 1591-2018 High strength low alloy structural steels.

GB/T 2423.16-2022 Environmental testing - Part 2: Test methods - Test J and guidance: Mould growth; GB/T 2501 Marine flange connecting dimensions and sealing surfaces; GB/T 3625-2007 Titanium and titanium alloy tubes for heat exchangers and condensers; GB/T 3783 Basic requirements for marine low voltage apparatus; GB/T 3785.1-2023 Electroacoustics - Sound level meters - Part 1.

GB/T 4208-2017 Degrees of protection provided by enclosure (IP code); GB/T 5231-2022 Designation and chemical composition of wrought copper and copper alloys; GB/T 5625 Flared straight-through tube couplings; GB/T 7060 Basic technical requirements for marine rotating electrical machines; GB/T 7061 Marine low voltage switchgear and controlgear assemblies.

GB/T 7778-2017 Number designation and safety classification of refrigerants; GB/T 8890-2015 Seamless copper alloy tubes for heat exchangers; GB/T 8923.1-2011 Preparation of steel substrates before application of paints; GB/T 9124 (all parts) Steel pipe flanges; GB/T 9439-2023 Grey iron castings.

GB/T 10891 Refrigerating systems and heat pumps - Environmental adaptability requirements; GB/T 13306 Plates; GB/T 14294 Combined air conditioning units; GB/T 14295 Air filters; GB/T 17758 Unitary air conditioners; GB/T 4196 Marine flanges; JB/T 4330 Measurement of noise emitted by refrigerating and air conditioning equipment; NB/T 47012 Pressure vessels for refrigeration plant.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 normal working: the operating state in which the variation of the performance parameters of the air conditioner remains within the predetermined range under the specified working conditions.

3.2 direct-expansion type air conditioner: an air conditioner providing ventilation, circulation, filtration, cooling, heating and humidification of cabin air, in which the air is cooled directly by a vapour compression refrigeration system.

3.3 indirect-cooling type air conditioner: an air conditioner cooled by chilled water supplied from outside the unit.

3.4 air leakage rate: the ratio of the air leakage of the unit to its nominal air flow.

4 Technical requirements

4.1 Environmental adaptability

4.1.1 Ambient temperature. The air conditioner shall work normally under the following ambient temperature conditions: a) general cabins, 0 degrees Celsius to 50 degrees Celsius; b) exposed decks, minus 25 degrees Celsius to 50 degrees Celsius; c) other special spaces, according to the actual ambient temperature range, to be specified by the purchaser at the time of order.

4.1.2 Air relative humidity. The air conditioner shall work normally at a relative humidity of 95 % at an ambient temperature of 36 degrees Celsius, condensation being permitted.

4.1.3 Inclination and rolling. The air conditioner shall work normally under the following conditions: a) list plus or minus 15 degrees, trim plus or minus 5 degrees; b) roll plus or minus 22.5 degrees, pitch plus or minus 7.5 degrees; c) where the length of the ship exceeds 100 m, the trim angle is taken as $500/L$, L being the overall length of the ship in metres.

4.1.4 Salt spray. The electrical components of the air conditioner shall work normally in a salt spray environment of 2 mg/m³; the change in appearance of metal electroplated parts exposed to the air shall meet the requirements of GB/T 3783.

The clause continues with mould growth and vibration adaptability, appearance quality, the selection of materials for the components, the air filter, the refrigerant pipework and its flanged or threaded joints, the humidifying system, the arrangement of the pipework, the interfaces, and the performance parameters of central and unitary air conditioners under each operating condition, including measured air volume, cooling capacity, heating capacity and external static pressure.