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

GB/T 11865-2008

Replacing GB 11866-1989

Marine centrifugal fans

船用离心通风机

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Product classifications...
- 5 Requirements...
- 5.3.2 Impeller
- 6 Test methods
- 6.7 Vibration
- 7 Inspection rules...
- 7.5 Factory-exit inspection
- 8 Marking, packaging, transportation and storage...

Foreword

This Standard replaces GB/T 11865-1989 "Marine centrifugal fans", and GB/T 11866-1989 "Marine centrifugal backward-curved blade fans". Compared with GB/T 11865-1989 and GB/T 11866-1989, the main technical content changes are as follows: - EXPAND the performance parameters table. The flow is expanded to 4 grades - 21 000 m³/h, 27 000 m³/h, 32 000 m³/h, and 40 000 m³/h; - UNIFY the representing method for fans' product model; - DESCRIBE the overall requirements AND fans' requirements to major parts; - REFINE the packaging requirements of fans' products. The Standard was proposed by China Shipbuilding Industry Corporation. This Standard shall be under the jurisdiction of the Deck Machinery and Auxiliary Machinery Sub-Technical Committee of China Marine Machinery Standardization Technical Committee. Drafting organization of this Standard. the 704 Institute of China Shipbuilding Industry Corporation. Main drafters of this Standard. Qiao Jiang, Ding Kejin, and Zhang Shuo. The previous versions replaced by this Standard are. - GB/T 11865-1989, GB/T 11866-1989. Marine centrifugal fans

1 Scope

GB/T 11865-2008 is the Chinese national standard on marine centrifugal fans, in the field of shipbuilding and marine structures. 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 3 March 2008 by the General Administration of Quality Supervision,

Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 September 2008. Classification: ICS 47.020.50, CCS U47. 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 Standard specifies the single-stage, single-suction marine centrifugal fans' (hereinafter referred to as "fans") product classification, requirements, test methods, inspection rules, marking, packaging, transportation, and storage. This Standard applies to the design, production, testing, and acceptance of the fans used for ventilation.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 191 Packaging - Pictorial marking for handling of goods (GB/T 191-2000, eqv ISO 780.1997)

GB/T 1236 Industrial fans - Performance testing using standardized airways (GB/T 1236-2000, idt ISO 5801.1997)

GB/T 1804-2000 General tolerances - Tolerances for linear and angular dimensions without individual tolerance indications (eqv ISO 2768-1.1989)

GB/T 2888 Methods of noise measurement for fans blowers compressors and roots blowers

GB/T 3235 Basic types sizes parameters and characteristics curve of fans

GB/T 8923-1988 Rust grades and preparation grades of steel surfaces before application of paints and related products (eqv ISO 8501-1.1988)

GB/T 9438 Aluminum alloy castings GB/T 13306 Plates

GB/T 13384 General specifications for packing of mechanical and electrical product

GB/T 16301-2008 Measurement and evaluation of vibration severity for marine engine-room auxiliaries CB 1146.1-1996 Environmental test and engineering guide of ship equipment - General principles CB 1146.6-1996 Environmental test and engineering guide of ship equipment - Impact CB 1146.8-1996 Environmental test and engineering guide of ship equipment - Tilt and swing CB 1146.9-1996 Environmental test and engineering guide of ship equipment - Vibration

JB/T 6445 Overspeed test for industrial fan impeller

JB/T 6886 Technical specification for draught fan application

JB/T 9101 Fan rotor balance

JB/T 10214 Specification of riveting and welding part for fans

3 Terms and definitions

3.1 rated condition The highest point of fans' theoretical design working efficiency is fans' rated condition. That is the work point determined by the pressure and flow at the rated point.

3.2 standard condition of inspiration The condition in which the atmospheric pressure is 101 325 Pa; the temperature is 20 °C; the relative humidity is 50%; and the air density is

3.3 standard condition of flux The air volume converted from fans' actual flow, under the standard condition of inspiration. coated, but the exposed surfaces shall get treatment such as polishing and passivation.

5.3.1.3 The steel-parts of fans shall get galvanization treatment. And the galvanization thickness shall not be less than 0.045mm. Rust grades of steel materials be used shall not be less than Grade B specified in GB 8923-1988. Spray rust-removal or projectile rust-removal shall reach Grade Sa3 specified in GB 8923-1988. Manual and power-tool rust-removal shall reach Grade St3 specified in GB 8923-1988.

5.3.1.4 Fans' chassis bottom (the lowest point) shall have a drain plug.

5.3.1.5 Fans' riveting parts and welding parts shall comply with the specifications of JB/T 10214.

5.3.1.6 Fans can be made into clockwise rotation (right-handed rotation) or counterclockwise rotation (left-handed rotation). Counterclockwise (left-handed rotation) - PLACE the electric-motor flatly. VIEW from the electric-motor. The impeller rotates counterclockwise when running. It is represented by "L". Clockwise (right-handed rotation) - PLACE the electric-motor flatly. VIEW from the electric-motor. The impeller rotates clockwise when running. It is represented by "R".

5.3.1.7 Fans' outlet position can be made into the following basic forms (see Figure 2) according to impeller's rotating direction. As needed, the outlet is allowed to adopt the 30° variation forms. Figure

5.3.2 Impeller

5.3.2.1 Impeller surface's shape and position tolerances shall not exceed the requirements in Table 3. Right 180° Right 135° Right 225° Right 270° Right 315° Right 45° Right 90°

Right 0° Left 90° Left 0° Left 45° Left 315° Left 270° Left 225° Left 180° Left 135° fog, and oil mist;

- b) Temperature of -25°C~ + 50°C;
- c) Relative humidity is less than 95%;
- e) Tilt and swing;

6 Test methods

6.1 Appearance OBSERVE the internal and external surfaces of fans, the surface quality of welding parts, and riveting parts visually. The test results shall meet the requirements of 5.1.

6.2 Dimension and weight MEASURE the main dimensions and weight of fans. The results shall meet the requirements of 5.2.

6.3 Impeller static and dynamic balance PERFORM the static and dynamic balancing calibration of the impellers according to the test requirements specified in JB/T 9101. The test results shall meet the requirements of 5.4.1.

6.4 Impeller overspeed Impellers shall run for at least 10 min at a speed that exceeds 20% of rated rotate speed. The evaluation of the preparation before test AND the test results after running shall be conducted according to the specifications of JB/T 6445. The test results shall meet the requirements of 5.4.2.

6.5 Running Fans shall run under rated condition. The observation time of stable running shall not be less than 10 min. The test results shall meet the requirements of 5.4.3.

6.6 Aerodynamics performance The performance test of fans shall be conducted according to the requirements specified in GB/T 1236. The test results shall meet the requirements of 5.4.4.

6.7 Vibration

7.4.3 Quantity of test sample For each type inspection, the quantity of samples of type inspection shall not be less than 2 sets. For tilt and swing test, vibration test, and impact test, SELECT 2 types from the same series.

7.4.4 Acceptance criteria When all inspection items of the product meet the requirements, the type inspection of this product is determined qualified. When any one of inspection items does not meet the requirements, it is allowed to take corrective actions before re-inspecting this item. If it still does not meet the requirements, then the type inspection of this product is determined unqualified.