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

GB/T 3475-2025

Replacing GB/T 3475-2008

**Requirement and test method for speed governing system of
marine diesel engine**

船用柴油机调速系统技术要求和试验方法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document replaces GB/T 3475-2008 "Technical requirements and test methods for speed control systems of marine diesel engines" and is compatible with GB/T 3475- Compared with 2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The definition of speed regulation system (see 3.1, 2008 edition, 2.1) and the definition of steady-state speed regulation (see 3.3, 2008 edition) have been changed. 2.11);
- b) Deleted the transition process of speed regulation, rated power, rated speed, rated operating conditions, maximum instantaneous speed, no-load speed, minimum Definitions of instantaneous speed and speed at partial load (see 2.2 to 2.9 of the 2008 edition);
- c) Deleted the recommended speed regulator in Table 1 (see 3.1 of the 2008 edition);
- d) The test classification has been changed (see 5.1, 4.1 of the 2008 edition);
- e) The test method for determining the speed fluctuation rate has been modified (see 5.3.2.2, 4.3.2.2 of the 2008 edition);
- f) The sudden load method has been changed (see 5.4.3.3, 4.4.3.1.3 of the 2008 edition);

g) Factory test has been deleted (see 5.6 of the 2008 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document is proposed and coordinated by the National Technical Committee for Standardization of Marine Machinery (SAC/TC 137).

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The previous versions of this document and the documents it replaces are as follows.

--First published in 1983 as GB/T 3475-1983;

--In the first revision in 2008, the contents of GB/T 3476-1983 "Test methods for speed control systems of marine diesel engines" were incorporated;

--This is the second revision.

Technical requirements for marine diesel engine speed control system and Test methods

1 Scope

This document describes the technical requirements and test methods for marine diesel engine speed control systems.

This document applies to the design, manufacture and acceptance of marine diesel engine speed control systems.

2 Normative references

GB/T 2820.5-2009

GB/T 6809.7

GB/T 21404

3 Terms and Definitions

The terms and definitions defined in GB/T 6809.7, GB/T 21404 and the following apply to this document.

3.1 speed governing system

A device that can automatically adjust the fuel supply according to load changes to maintain a stable speed of the diesel engine.

Note. The speed control system mainly consists of sensors, speed controllers, speed control actuators and adjustment mechanisms.

3.2 Speed stability bandwidth

The diesel engine is running under constant load conditions. The maximum speed n_1 and the minimum speed n_2 measured within a certain time interval (not less than 1 min) are The difference in speed n_2 is expressed as a percentage of twice the rated speed n_r and is calculated according to formula (1).

$$\text{upsilon} = \frac{n_1 - n_2}{2n_r} \times 100\% \quad (1)$$
 Where.

n_1 - the maximum speed measured, in revolutions per minute (r/min);

n_2 - the lowest speed measured, in revolutions per minute (r/min);

n_r - rated speed, in revolutions per minute (r/min).

3.3 Steady state speed regulation

Δn After the diesel engine speed control system is adjusted to the rated working condition, the load changes from rated load to no load or from no load to rated load (once or in stages).

When the speed is changed, the difference between the stable no-load speed and the rated speed is expressed as a percentage of the rated speed, and is calculated according to formula (2) and formula (3).