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

GB/T 40523.3-2021

**Ships and marine technology - Measurement of changes in hull
and propeller performance - Part 3: Alternative methods**

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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 of Standardization Documents"

Drafting.

This document is the third part of GB/T 40523 "Measurement of Hull and Propeller Performance Changes in Ships and Offshore Technology". GB/T 40523

The following parts have been released.

---Part 1.General Provisions;

---Part 2.Default method;

---Part 3.Alternative methods.

The translation method used in this document is equivalent to ISO 19030-3.2016 ``Ship and Offshore Technology Hull and Propeller Performance Change Measurement

Part 3.Alternative Methods.

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 6072.1-2008 Performance of reciprocating internal combustion engines Part 1.Power, fuel consumption and oil consumption calibration and

Additional requirements for test methods for general engines (ISO 3046-1.2002, IDT)

Introduction

The performance of the hull and propeller refers to the difference between the state of the ship's underwater hull and propeller and the power required for the ship to move in the water at a certain speed.

relation. Measure the performance of a specific hull and propeller of a ship over time, which can indicate the maintenance, repair and modification activities of the hull and propeller

The impact on the overall energy efficiency of the ship.

The purpose of this document is to specify practical methods for measuring changes in ship specific hull and propeller performance, and to provide

Repair and modification activities define a set of related performance indicators. These methods are not suitable for comparing different types of ships of different sizes (including sisters).

The performance of the sister ship is also not applicable to the regulatory framework.

This document consists of three parts.

---GB/T 40523.1 outlines the general principles of how to measure the

Performance indicators for maintenance, repair and modification activities of propellers.

---GB/T 40523.2 specifies the default method for measuring hull and propeller performance changes and calculating a set of basic performance indicators.

Guide the expected accuracy of each performance index at the time.

---GB/T 40523.3 specifies an alternative to the default method. Some of these methods reduce the overall accuracy, but increase the standard

applicability. Some methods may produce the same or higher overall accuracy, but include elements that have not been widely used in commercial shipping.

The general principles and defined methods outlined in this document are based on common and internationally recognized measurement equipment, information, procedures and methods.

Ship and Offshore Technology Hull and Propeller Performance Changes

Measurement part 3.alternative methods

1 Scope

This document specifies an alternative to the default method. Some of these methods will reduce the overall accuracy, but improve the applicability of the standard. Have

These methods may produce the same or higher overall accuracy, but include elements that have not been widely used in commercial shipping.

The general principles and defined performance indicators outlined in this document are applicable to all ship types with fixed pitch propellers.

Compared with the changes in the performance of the hull and propeller of the same ship over time.

Chapter 4 of this document specifies alternative methods of measurement parameters (primary and secondary parameters), and Chapter 5 specifies alternative measurement procedures

(Including alternative reference period and evaluation period), Chapter 6 specifies the calculation of performance indicators, Chapter 7 specifies the evaluation of the accuracy of performance indicators, and

The structure of GB/T 40523.2-2021 is similar to facilitate cross-reference between these two standards.

Note. Whether it supports other configurations (such as variable pitch propellers) will be revised in future standards as needed.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated

reference documents, the latest version (including all amendments) is applicable to

This document.

GB/T 40523.1-2021 Ship and Marine Technology Hull and Propeller Performance Change Measurement Part 1.General (ISO 19030-

1.2016, IDT)

GB/T 40523.2-2021 Ship and Offshore Technology Hull and Propeller Performance Change Measurement Part 2.Default Method

(ISO 19030-2.2016, IDT)

ISO 3046-1 Reciprocating Internal Combustion Engine Performance Part 1.Power, Fuel Consumption, Lubricant Consumption and Test Method Description

Additional requirements for general internal combustion engines (Reciprocating internal combustion engines-Performance-Part 1.

Declarations of power, fuel and lubricating oil consumptions, and test methods-Additional requirements for engines for general use)

3 Terms and definitions

The terms and definitions defined in GB/T 40523.1-2021 and GB/T 40523.2-2021 apply to this document.

4.1 General

GB/T 40523.2-2021 specifies the default method for the measurement of primary and secondary parameters, and this document specifies an alternative method. No matter if you use the default

Identification method or alternative method, any instruments, automation equipment and sensors used should comply with the requirements of 4.3 in GB/T 40523.2-2021

Perform installation, maintenance and calibration.