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

GB/T 40523.2-2021

**Ships and marine technology - Measurement of changes in hull
and propeller performance - Part 2: Default method**

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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 second 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 19030-2:2016 "Ship and Marine Technology Hull and Propeller Performance Change Measurement"

Part 2. The default method.

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

Hull and propeller performance 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.

Relationship. Measuring the performance of a ship's specific hull and propeller over time can indicate the maintenance, repair and modification activities of the hull and propeller.

Impact on the overall energy efficiency of ships.

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

Change measurement part 2.default method

1 Scope

This document specifies the default method for measuring changes in hull and propeller performance and calculating a set of basic performance indicators.

The expected accuracy of the indicator is guided.

This document is applicable to all types of ships driven by traditional fixed pitch propellers. Its purpose is to compare the hull and propellers of the same ship.

Changes in performance over time.

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)

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)

ISO 15016.2015 Ship and marine technology speed test data analysis method for the evaluation of speed and dynamic performance guidelines (Ships

and marine technology-Guidelines for the assessment of speed and power performance by analysis of

speed trial data)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Hull and propeller performance changes in hull and propeller performance

Under the same environmental conditions and operating conditions, the ship needs to sail at a given speed to sail at a given power

The change in speed when the power is received and the transmission efficiency is given constant.

3.2

Reference period

A certain length of time period used to establish a baseline.

3.3