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Ships and marine technology — Measurement of changes in hull and propeller performance —

Part 3: Alternative methods

Navires et technologie maritime — Mesurage de la variation de performance de la coque et de l'hélice —

Partie 3: Méthodes alternatives

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 2, *Marine environment protection*.

A list of part of the ISO 19030 series can be found on the ISO website.

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Introduction

Hull and propeller performance refers to the relationship between the condition of a ship's underwater hull and propeller and the power required to move the ship through water at a given speed. Measurements of changes in ship specific hull and propeller performance over time make it possible to indicate the impact of hull and propeller maintenance, repair and retrofit activities on the overall energy efficiency of the ship in question.

The aim of this document is to prescribe practical methods for measuring changes in ship specific hull and propeller performance and to define a set of relevant performance indicators for hull and propeller maintenance, repair, retrofit activities. The methods are not intended for comparing the performance of ships of different types and sizes (including sister ships) nor to be used in a regulatory framework.

This document consists of three parts.

— ISO 19030-1 outlines general principles for how to measure changes in hull and propeller performance and defines a set of performance indicators for hull and propeller maintenance, repair and retrofit activities.

— ISO 19030-2 defines the default method for measuring changes in hull and propeller performance and for calculating the performance indicators. It also provides guidance on the expected accuracy of each performance indicator.

— ISO 19030-3 outlines alternatives to the default method. Some will result in lower overall accuracy but increase applicability of the standard. Others may result in same or higher overall accuracy but includes elements which are not yet broadly used in commercial shipping.

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

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Ships and marine technology — Measurement of changes in hull and propeller performance —

Part 3: Alternative methods

1 Scope

This document outlines alternatives to the default method. Some will result in lower overall accuracy but increase applicability of the standard. Others can result in same or higher overall accuracy but includes elements which are not yet broadly used in commercial shipping.

The general principles outlined and performance indicators defined are applicable to all ship types driven by conventional fixed pitch propellers, where the objective is to compare the hull and propeller performance of the same ship to itself over time.

This document presents alternatives to measurement parameters (primary and then secondary) in Clause 4, then alternatives to measurement procedures (including alternative reference and evaluation periods) in Clause 5, describes the calculation of performance indicators in Clause 6, and finally the estimation of performance indicator accuracy in Clause 7. The structure used duplicates the structure of ISO 19030-2 to facilitate cross-reference between the two documents.

NOTE Support for additional configurations (e.g. variable pitch propellers) will, if justified, be included in later revisions of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3046-1, *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 19030-1:2016, *Ships and marine technology — Measurement of changes in hull and propeller performance — Part 1: General principles*

ISO 19030-2:2016, *Ships and marine technology — Measurement of changes in hull and propeller performance — Part 2: Default method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19030-1 and ISO 19030-2 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

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