This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.

First edition
2016-11-15

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

Part 2: Default method

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

Partie 2: Méthode par défaut

Reference number
ISO 19030-2:2016(E)

© ISO 2016

This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

 © ISO 2016 – All rights reserved

This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Measurement parameters **2**
4.1 General 2
4.2 Primary parameters 2
4.3 Secondary parameters 3
4.4 Sensor installation, maintenance and calibration 3
4.5 External information 4

5 Measurement procedures **5**
5.1 General 5
5.2 Data acquisition 5
5.3 Data storage 6
5.4 Data preparation 6
5.4.1 General 6
5.4.2 Data preparation frequency 7
5.4.3 Data retrieval 7
5.4.4 Data compilation 7
5.4.5 Data filtering and validation 8
5.4.6 Correction for environmental factors 8
5.4.7 Calculation of performance values (PVs) 8

6 Calculation of performance indicators (PIs) **9**
6.1 General 9
6.2 Definition of PIs 9
6.3 Calculation of PIs 9
6.3.1 General 9
6.3.2 Determination of reference conditions 10
6.3.3 Establishment of reference period and evaluation period 10
6.3.4 Extraction of subsets of PVs from the complete set with PVs that fulfil reference conditions for reference conditions for reference period(s) and evaluation period 11
6.3.5 Calculation of the PI 11

7 Accuracy of PIs **12**
7.1 General 12
7.2 Guidance on the expected accuracy of PIs 12

Annex A (informative) **Process of this document** **14**

Annex B (normative) **Approximating delivered power based on calculations of shaft power** **15**

Annex C (normative) **Approximating delivered power based on calculations of brake power** **16**

Annex D (informative) **SFOC reference curve** **19**

Annex E (normative) **Calculation of true wind speed and direction** **21**

Annex F (informative) **Procedure to obtain ship specific power-speed-draught-trim databases** **24**

Annex G (normative) **Correction for wind resistance** **25**

Annex H (informative) **Protocol to export data from data logger** **27**

Annex I (normative) **Outlier detection** **32**

Annex J (normative) **Validation** **34**

© ISO 2016 – All rights reserved

This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.

Annex K (informative) **Method for calculating power performance values (PPV) and power performance indicators (PPI)** **35**

Bibliography **37**

 © ISO 2016 – All rights reserved

This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.

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 all parts in the ISO 19030 series can be found on the ISO website.

© ISO 2016 – All rights reserved

This is a preview of "ISO 19030-2:2016". Click here to purchase the full version from the ANSI store.

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 and 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 include 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.

Clause 4 defines the primary and secondary parameters as well as external information needed. Clause 5 defines how measurement data are to be acquired, stored and prepared. Clause 6 defines how the performance indicators are to be calculated. Clause 7 provides guidance on the expected accuracy of each performance indicator.

Annex A illustrates the process in terms of a flow chart.

 © ISO 2016 – All rights reserved