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Ships and marine technology — Manoeuvring of ships —

Part 5: Submarine specials

Navires et technologie maritime — Manoeuvres des navires —

Partie 5: Spécificités des sous-marins

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Contents

Page

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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation and ship operations*.

ISO 13643 consists of the following parts, under the general title *Ships and marine technology — Manoeuvring of ships*:

— *Part 1: General concepts, quantities and test conditions*

— *Part 2: Turning and yaw checking*

— *Part 3: Yaw stability and steering*

— *Part 4: Stopping, acceleration, traversing*

— *Part 5: Submarine specials*

— *Part 6: Model test specials*

Ships and marine technology — Manoeuvring of ships —

Part 5:
Submarine specials

1 Scope

This part of ISO 13643 defines symbols and terms and provides guidelines for the conduct of tests to give evidence about the manoeuvring ability in the vertical plane of submarines and models. It is intended to be read in conjunction with ISO 13643-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13643-1, *Ships and marine technology — Manoeuvring of ships — Part 1: General concepts, quantities and test conditions*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
meander test
manoeuvring test to establish a submarine's manoeuvring characteristics and to verify the submarine's dynamic stability in the vertical plane

3.2
vertical overshoot test
manoeuvring test to determine the effectiveness of the stern planes when initiating and terminating changes of depth

3.3
neutral level flight test
manoeuvring test to determine the trim angle and the hydroplane angles at which the submarine maintains a constant dived depth at any given speed during submerged operation

Note 1 to entry: Neutral level flight is obtained

— for submarines with retracted bow planes by using a definite trim angle and a definite angle of stern planes, and

— for submarines with non-retractable bow planes, by using definite angles of the bow and stern planes for arbitrary trim angles (preferably $\theta_S = 0°$).

3.4
critical speed test
manoeuvring test to determine the speed at which the effect of the hydroplanes is reversed during submerged operation