
**Ships and marine technology —
Manoeuvring of ships —**

**Part 2:
Turning and yaw checking**

*Navires et technologie maritime — Manoeuvres des navires —
Partie 2: Giration et contrôle de lacet*



This document is a preview generated by EBS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2013

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
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test-related physical quantities	2
5 General test conditions	7
6 Test 2.1 — Turning circle test	8
6.1 General	8
6.2 Analysis and presentation of results of a turning circle test	10
6.3 Designation of a turning circle test	10
7 Test 2.2 — Accelerating turn test	10
7.1 General	10
7.2 Analysis and presentation of results of an accelerating turn test	11
7.3 Designation of an accelerating turn test	12
8 Test 2.3 — Thruster turning test	12
8.1 General	12
8.2 Test at zero speed (Z)	12
8.3 Presentation of the results of a thruster turning test at zero speed	12
8.4 Thruster turning test at speed ahead (A)	13
8.5 Test at speed astern (optional) (O)	14
8.6 Analysis and presentation of results of a thruster turning test	14
8.7 Designation of a thruster turning test	14
9 Test 2.4 — Zig-zag test	14
9.1 General	14
9.2 Analysis and presentation of results of a zig-zag test	16
9.3 Designation of a zig-zag test	16
10 Test 2.5 — Course change test	16
10.1 General	16
10.2 Description	16
10.3 Analysis and presentation of results of a course change test	17
10.4 Designation of a course change test	18
11 Test 2.6 — Parallel track test	18
11.1 General	18
11.2 Description	19
11.3 Analysis and presentation of results of a parallel track test	19
11.4 Designation of a parallel track test	20
12 Test 2.7 — Person over board test	20
12.1 General	20
12.2 Williamson Turn (W)	21
12.3 Scharnow Turn (S)	21
12.4 Analysis and presentation of the results of a person overboard test	22
12.5 Designation of a person overboard test	22

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

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. 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.

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 2:

Turning and yaw checking

1 Scope

This part of ISO 13643 defines symbols and terms and provides guidelines for the conduct of tests to give evidences about the turning ability and the yaw containment of surface ships, submarines, and models. It is intended that it 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*

ISO 13643-5, *Ships and marine technology — Manoeuvring of ships — Part 5: Submarine specials*

ISO 80000-1, *Quantities and units — Part 1: General*

ISO 80000-3, *Quantities and units — Part 3: Space and time*

3 Terms and definitions

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

3.1

turning circle test

manoeuvring test to determine the ship's turning characteristics due to application of manoeuvring devices during the period of transient motion and the ensuing steady turn depending on initial speed, rudder angle or equivalent, and direction of turn

3.2

accelerating turn test

manoeuvring test to determine the ship's behaviour when accelerating from stand-still and simultaneously applying the manoeuvring devices hard over

3.3

thruster turning test

manoeuvring test to determine the capability to turn a ship at zero speed by using its thrusters and to determine the limiting speed at which no more turning effect from bow thrusters can be obtained

Note 1 to entry: This test is relevant to all types and arrangements of tunnel- or azimuth-thrusters. However, dynamic positioning or traversing tests are beyond the scope of this part of ISO 13643.

3.4

zig-zag test

manoeuvring test to determine the ship's turning and yaw checking ability depending upon initial speed, the amount of manoeuvring devices effect applied, and execute change of heading at which the manoeuvring device is applied in the opposite direction (execute change of heading)