

# ISO 15016:2025-02 (E)

## Ships and marine technology - Specifications for the assessment of speed and power performance by analysis of speed trial data

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	1
4	Symbols and abbreviated terms .....	4
4.1	Symbols .....	4
4.2	Abbreviated terms .....	8
5	Responsibilities .....	9
5.1	Shipbuilder's responsibilities .....	9
5.2	Trial team .....	10
6	Trial preparations .....	10
6.1	General .....	10
6.2	Step 1: Installation and calibration .....	10
6.3	Step 2: S/P trial agenda and pre-trial meeting .....	11
7	Ship conditions .....	11
7.1	Trim .....	11
7.2	Displacement volume .....	12
7.3	Hull, propeller, and shaft .....	12
8	Trial boundary conditions .....	13
8.1	General .....	13
8.2	Location .....	13
8.3	Wind .....	13
8.4	Sea state .....	15
8.5	Water depth .....	16
8.6	Current .....	17
9	Trial procedure .....	17
9.1	General .....	17
9.2	Tank test information .....	18
9.3	Scope and conduct of the measurements .....	19
9.3.1	Ship track and speed over ground .....	19
9.3.2	Torque .....	19
9.3.3	Wind .....	19
9.3.4	Water depth .....	19
9.3.5	Waves .....	19
9.3.6	Water and air properties .....	20
9.3.7	Current .....	20
10	Conduct of the trial .....	20
10.1	General .....	20
10.2	Initiation .....	20
10.3	Trajectory of ship during trial .....	20

10.4	Run duration and timing .....	21
10.5	Trial direction .....	21
10.6	Steering .....	22
10.7	Approach .....	22
10.8	Power settings .....	22
10.9	Number of speed runs .....	22
10.9.1	General .....	22
10.9.2	"Iterative" method .....	22
10.9.3	"Mean of means" method .....	22
10.9.4	Sister ships .....	23
10.9.5	Power settings in case of non-availability of tank test data .....	23
10.9.6	Additional runs due to limiting wave height .....	23
10.10	S/P Trial test sequence .....	23
11	Data acquisition .....	24
11.1	General .....	24
11.2	Acquisition system .....	24
11.2.1	General .....	24
11.2.2	System requirements .....	24
11.2.3	Location .....	25
11.3	Manual data collection .....	25
11.4	Sign convention .....	25
12	Analysis procedure .....	27
12.1	General .....	27
12.2	Description of the analysis procedure .....	27
12.2.1	General .....	27
12.2.2	Resistance data derived from the acquired data .....	29
12.2.3	Evaluation of the acquired resistance data .....	30
12.2.4	Evaluation of resistance data based on direct power method .....	30
12.2.5	Analysis of the measured ship speed due to the effect of current .....	30
12.2.6	Analysis of the power curve from trial condition to full load/stipulated condition .....	30
13	Processing of the results .....	31
14	Reporting .....	32
15	Example of speed trial data analysis .....	34
Annex A (normative)	Trial log sheet .....	51
Annex B (informative)	Beaufort scale for wind velocity and Sea state scale .....	55
Annex C (normative)	Correction for wind .....	58
Annex D (normative)	Resistance increase due to waves .....	92
Annex E (normative)	Effect of water temperature and water density .....	101
Annex F (normative)	Effect of current .....	104
Annex G (normative)	Effect of shallow water .....	109
Annex H (normative)	Effect of displacement deviation .....	113
Annex I (normative)	Determination and conversion of the S/P curve .....	114
Annex J (normative)	Derivation of load variation coefficients .....	117
Annex K (normative)	Direct power method .....	121
Bibliography	.....	125