INTERNATIONAL STANDARD

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Ships and marine technology — Propulsion plants for ships —

Part 1: Vocabulary for geometry of propellers

Navires et technologie maritime — Installations de propulsion des navires —

Partie 1: Termes et définitions relatifs à la géométrie de l'hélice

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 3715 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3715-1 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

ISO 3715 consists of the following parts, under the general title *Ships and marine technology — Propulsion plants for ships*:

— *Part 1: Vocabulary for geometry of propellers*

— *Part 2: Vocabulary for controllable-pitch propeller plants*

Ships and marine technology — Propulsion plants for ships —

Part 1:
Vocabulary for geometry of propellers

Scope

This part of ISO 3715 gives terms and definitions for screw propellers used in the propulsion plants of ships and other vessels (such as mobile offshore drilling units) that are self-propelled or propulsion-assisted.

The definitions are valid only for the hydrodynamically effective part of the propeller. No definitions are given for the mechanical construction of the hub.

Vocabulary for hydraulically operated controllable-pitch propeller plants is given in ISO 3715-2.

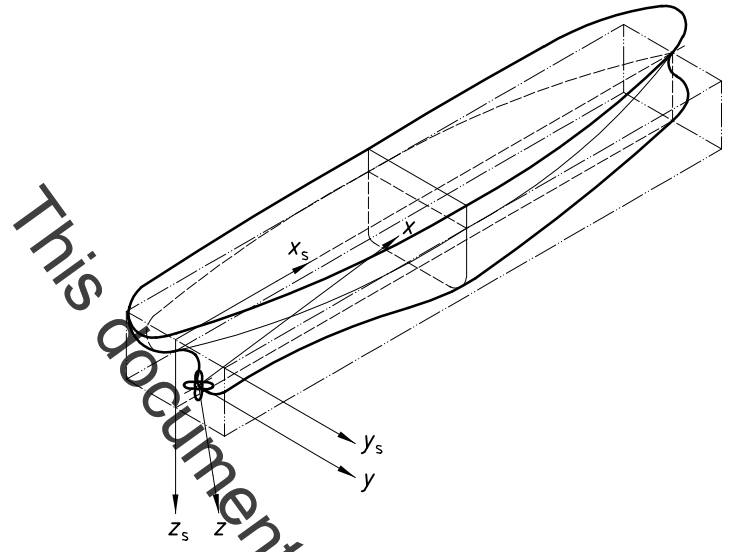
Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 3715. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 3715 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3715-2, *Ships and marine technology — Propulsion plants for ships — Part 2: Vocabulary for controllable-pitch propeller plants*

Systems of coordinates

System of rectangular coordinates for definition of propeller position at hull (see Figure 1).

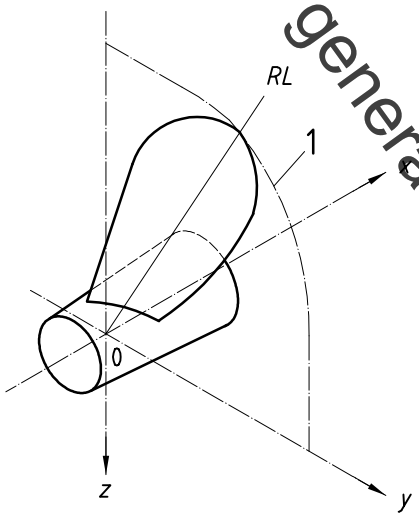


NOTE Coordinates of the ship given in this figure are marked with subscript s [deviating from the International Towing Tank Conference (ITTC), agreement].

Figure 1 — Rectangular coordinates for definition of propeller position at hull

System of rectangular coordinates for definition of propeller geometry (see Figure 2).

This system of coordinates is not in agreement with that of the ship in general.



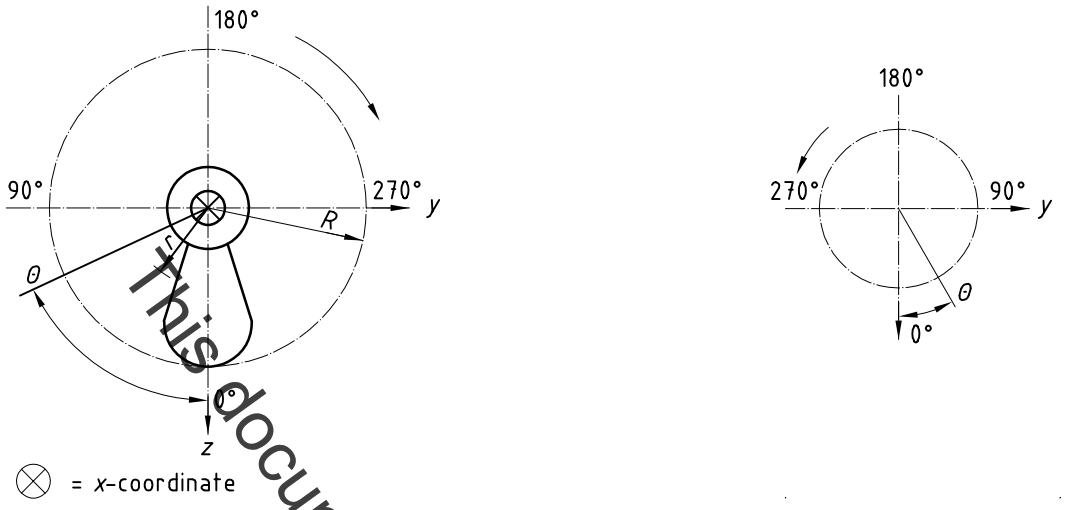
Key

1	Limit of propeller disc area	y	Direction to starboard
0	Origin of coordinates	z	Direction perpendicular to x- and y-coordinates
x	Direction of shaft centre	RL	Reference line (see 6.4)

NOTE This system of coordinates is valid independently of the direction of rotation of the propeller.

Figure 2 — Rectangular coordinates for definition of propeller geometry

System of cylindrical coordinates for definition of propeller geometry (see Figure 3)



a) **Going ahead with a right-handed propeller**

b) **Going ahead with a left-handed propeller**

Key

Θ Angular coordinate of the system of cylindrical coordinates

r Radial coordinate of the system of cylindrical coordinates

x Coordinate perpendicular to the r-plane and identical to the x-coordinate as defined in Figure 2

R Radius of propeller

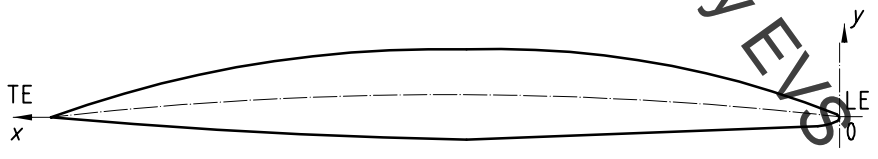
NOTE This system of coordinates is used, for example, to define the geometry of propeller blades.

Left-handed propellers are drawn in general as being right-handed.

$\overline{r} = \frac{r}{R}$ = dimensionless radius.

Figure 3 — Cylindrical coordinates for definition of propeller geometry

System of rectangular coordinates for definition of cylindrical blade sections (see Figure 4 and 6)



Key

TE Trailing edge

LE Leading edge

Figure 4 — Rectangular coordinates for definition of cylindrical blade section