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Technical product documentation (TPD) — Indication of dimensions and tolerances —

Part 4: Dimensioning of shipbuilding drawings

Documentation technique de produits (TPD) — Indication des cotes et tolérances —
Partie 4: Cotes des dessins de construction navale

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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

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Contents

Page

Foreword

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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 10, *Technical product documentation*, Subcommittee SC 6, *Mechanical engineering documentation*.

ISO 129 consists of the following parts, under the general title *Technical product documentation (TPD) — Indication of dimensions and tolerances*:

— *Part 1: General principles*

— *Part 2: Dimensioning of mechanical engineering drawings*

— *Part 3: Architectural*

— *Part 4: Dimensioning of shipbuilding drawings*

Technical product documentation (TPD) — Indication of dimensions and tolerances —

Part 4: Dimensioning of shipbuilding drawings

1 Scope

This part of ISO 129 specifies the dimensioning for general use on metal hulls on shipbuilding drawings.

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 128-25, *Technical drawings — General principles of presentation — Part 25: Lines on shipbuilding drawings*

ISO 129-1:—[1)], *Technical drawings — Indication of dimensions and tolerances — Part 1: General principles*

3 General principles

General principles of dimensioning are as follows.

a) The basic types of lines, their designations, as well as general rules for draughting of lines, are specified in ISO 128-25.

b) The rule of indication of dimension and tolerances are specified in ISO 129-1.

c) The location dimension of the hull structure shall be indicated with the distance of the assembled moulded line of the member from reference line (BL = base line, CL = centre line, AP = after perpendicular, FP = forward perpendicular, WL = water line).

d) The dimensions of the same member(s) shall be indicated only once; the dimensions of the members with identical specifications and sizes shall be indicated only once; these dimensions should be on the view(s) of the drawing that displays the member(s) most clearly.

4 Basic requirements

4.1 General

Dimensions indicating the location of a structural member in the hull shall be referenced as follows.

— In longitudinal direction: to a structural frame or to a station or to midship

— In vertical direction: to a BL, to a WL, or to a deck line

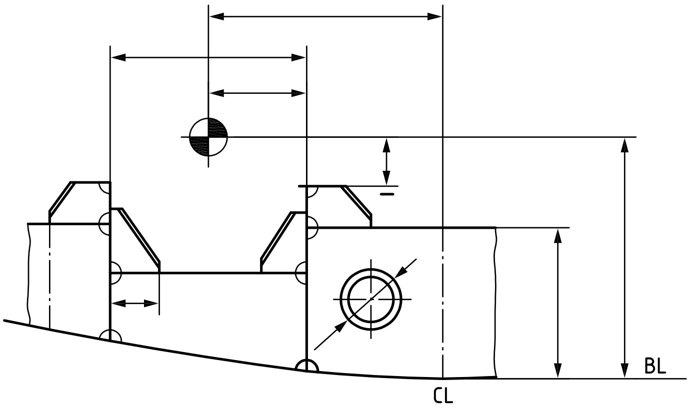
— In transverse direction: to a CL or to a broadside

1) To be published. (Revision of ISO 129-1:2004)

4.2 Dimension lines

4.2.1 Dimension lines shall be drawn with continuous narrow lines as per ISO 128-25.

Dimension lines should preferably be terminated on either end by closed 30°-arrowheads as shown in Figure 1, but other terminations as ISO 129-1:—, 5.3.2 are admissible.



Key

_ location of the assembled moulded line of the member

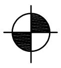
 shaft system section

Figure 1

4.2.2 In case of insufficient space for drawing arrowheads and writing measures, dimensions may be indicated as shown in Figure 2.

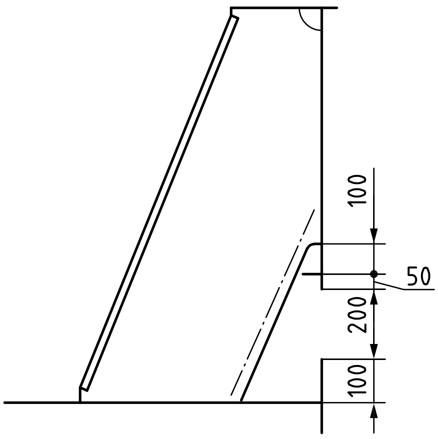


Figure 2

4.3 Extension lines

4.3.1 Extension lines shall be drawn with continuous narrow lines originating from the moulded line, frame line, station, axis, or reference line of the respective member. The extension lines terminate at the dimension lines as shown in Figures 1 and 3 and as defined in ISO 129-1:—, 5.4.

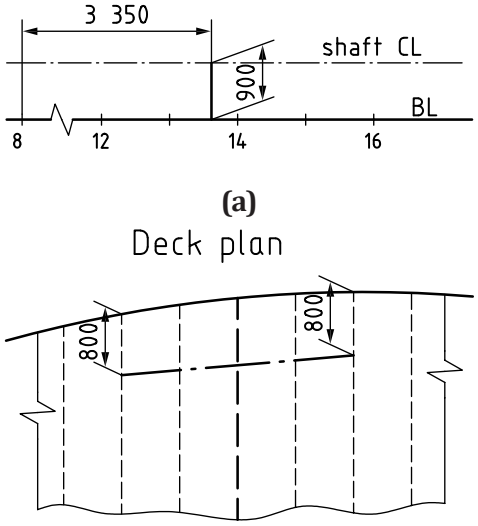


Figure 3

4.3.2 Extension lines shall be perpendicular to the dimension line. They may be oblique and parallel as shown in Figure 3 (b).

4.3.3 Dimension lines which start at one end at a reference line may be terminated at one end only if the dimension line otherwise would become too long. For examples, see Figure 4 (a) to Figure 4 (c).

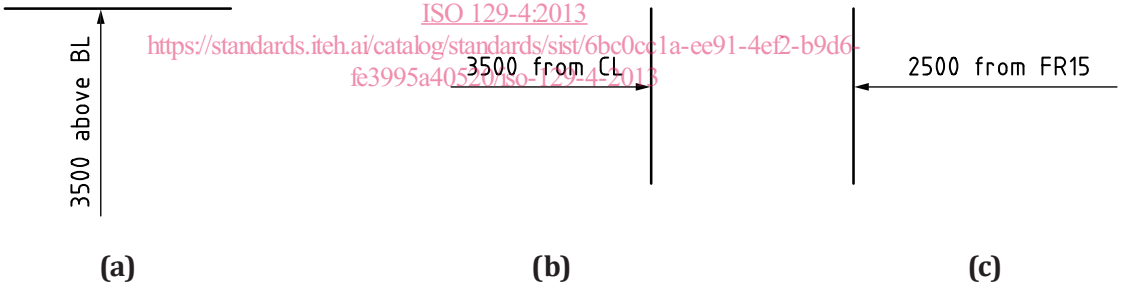


Figure 4

4.3.4 At a rounded corner of the shear strake, an idealized corner point shall be drawn by extension lines of the moulded plate edges, as shown in Figure 5. The dimensions are referenced to this corner point.

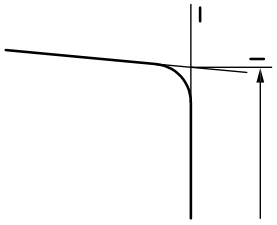


Figure 5

4.4 Types of dimensions indication

4.4.1 Dimensions shall be written above the dimension line. If the drawing would become too crowded, dimensions may be written above leader lines pointing towards the dimension lines.

4.4.2 Generally, dimension numbers shall not be crossed by lines.

4.4.3 When structural members, e.g. profile stiffeners, are equally spaced, this may be indicated as shown in Figure 6.

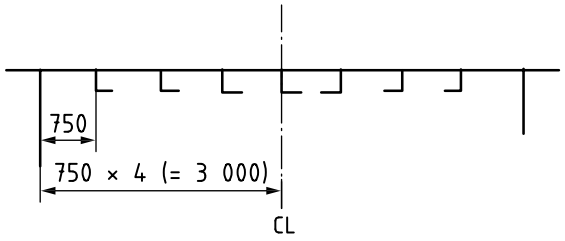


Figure 6

4.4.4 Offsets of curves are presented by offset tables as shown in Table 1, which is referenced to Figure 7.

Table 1 — Funnel offsets

Funnel offsets (half-breadths)											
Frame number	74	75	76	77	78	79	80	81	82	83	84
Top line			1 310	1 475	1 610	1 685	1 587	1 515	1 072		
Bottom line	1 332	1 530	1 722	1 890	2 045	2 170	2 235	2 200	2 032	1 710	1 040

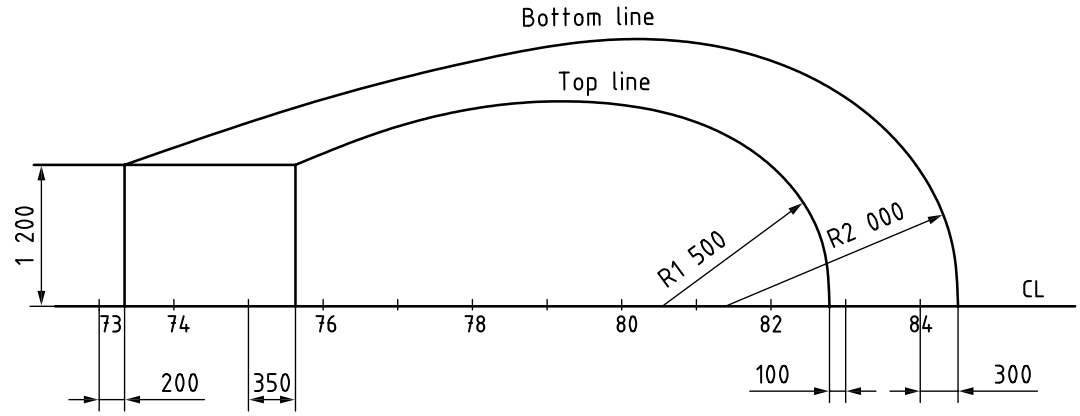


Figure 7

4.4.5 Inclinations of structures like funnel envelopes or front bulkheads of deckhouses shall be defined using rectangular coordinates and not angular measures.

4.4.6 When dimensioning a wall with various openings, one of the following principles shall be observed (see Figure 8).

a) Measures of rectangular openings should preferably, but not compulsorily, follow the sequence long side by short side. Measures are separated by “x”.

b) The coaming height, h, i.e. the distance of the lower edge of a door opening from the upper side of the deck below, may be defined by “h” preceding the measure, e.g. h200 in the opening far right.

c) The four corner radii of an opening shall typically be presented once by “R” preceding the measure.

d) Dimensions locating openings shall refer to their centres. The vertical distance, thereby, is normally referenced to the deck below.

e) There is no need to dimension the distance from the centre of openings to the moulded lines of neighbouring stiffeners if it is intended to locate the opening in the middle between the stiffeners.

f) Equally sized and arranged openings shall be dimensioned only once.

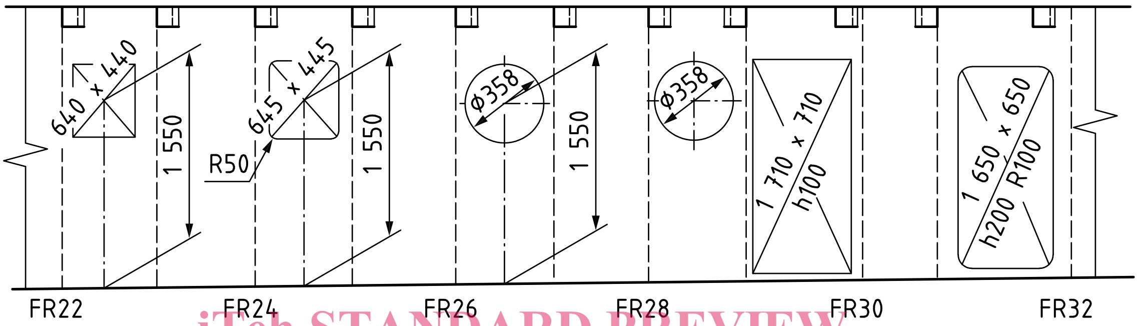
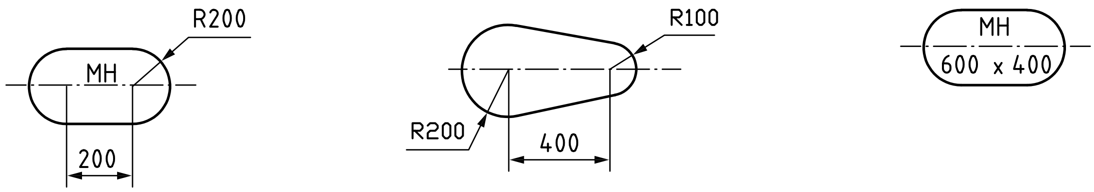


Figure 8

4.4.7 Dimensioning of manholes and lightening holes shall be as shown in Figure 9 (a) and (b); abbreviated “MH” shall be stated as shown in Figure 9 (a). Simplified dimensioning of manholes shall be stated as shown in Figure 9 (c).



(a) **(b)** **(c)**

Figure 9

4.4.8 Indications of opening dimensions for a drain hole, a clearance hole, and an air hole are shown in Figure 10.

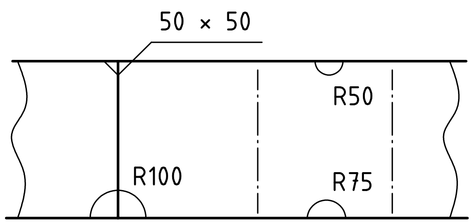


Figure 10

