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Ships and marine technology — Ship's mooring and towing fittings — Welded steel bollards for sea-going vessels

Navires et technologie maritime — Corps-morts et ferrures de remorquage de navires — Bittes d'amarrage en acier soudées pour navires de haute mer

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	1
4.1 Type	1
4.2 Nominal sizes	1
5 Dimensions	2
6 Materials	2
7 Construction	2
8 Manufacturing and inspection	2
9 Marking	2
Annex A (normative) Basis for strength assessment of welded steel bollards	10
Bibliography	13

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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.

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 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

This second edition cancels and replaces the first edition (ISO 13795:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- technical guidelines have been added in [7.4](#);
- the definition of SWL ([3.1](#)) has been reworded;
- the mark numbers and extension numbers in [Figures 1](#) and [2](#) have been amended;
- the values in [Table 1](#) and [Table 2](#) have been amended;
- the text in [Clause A.5](#) has been amended.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A bollard is a type of ship's mooring and towing fitting installed on board to belay the mooring and towing rope.

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Ships and marine technology — Ship's mooring and towing fittings — Welded steel bollards for sea-going vessels

1 Scope

This document specifies the types, nominal sizes, dimensions and materials, as well as construction, manufacturing and marking requirements, for welded steel bollards suitable for installation on sea-going vessels to meet normal mooring and towing requirements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IMO Circular MSC/Circ.1175, *Guidance on shipboard towing and mooring equipment*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

safe working load

SWL

safe load limit (maximum permissible load) of the fittings used for mooring

3.2

TOW

safe load limit (maximum permissible load) of the used for normal and other towing operations

4 Classification

4.1 Type

Depending on the construction, welded steel bollards shall be classified as belonging to one of the following two types:

- a) Type A: with compact base plate;
- b) Type B: with wide base plate.

4.2 Nominal sizes

The nominal sizes, D_n , of bollards are denoted by reference to the outside diameter of the post, in millimetres, in terms of the nearest number drawn from a basic series of preferred numbers. For the bollards having the same post diameter, the letter of the alphabet, i.e. A or B, is followed by the nominal size for the different safe working loads (SWL).

The nominal sizes are: 150, 200, 250A, 250B, 300A, 300B, 350A, 350B, 400A, 400B, 450A, 450B, 500A, 500B, 550A, 550B and 600.

5 Dimensions

The bollards shall have dimensions and particulars in accordance with [Tables 1, 2, 3 and 4](#), and [Figures 1 and 2](#).

6 Materials

The following materials shall be used for manufacturing the components of the bollards:

- base plates: weldable steel plates having a yield point of not less than 235 N/mm²;
- posts: weldable steel plates having a yield point of not less than 235 N/mm² or equivalent steel tubes.

7 Construction

7.1 The posts of the bollards shall be constructed from steel pipes or formed from plate.

7.2 Fins shall be installed to keep the ropes as low as possible so as to reduce the loads to the bollard posts from the mooring/towing ropes.

7.3 An eye plate for tying the stopping-off rope or chain shall be provided.

7.4 The selection of ship's mooring fittings and mooring lines should take into account the diameter, D , of surfaces of mooring fittings that are in contact with the mooring line diameter, d , (D/d ratio) to reduce or mitigate bend loss of strength.

7.5 The tensile strength of mooring rope may be reduced depending on bend radius (D/d ratio) through the mooring fittings, in accordance with the rope manufacturer's guidelines.

8 Manufacturing and inspection

8.1 All surfaces of the bollards, including welded surfaces, shall be free from any visible flaws or imperfections.

8.2 All surfaces in contact with the ropes shall be free from surface roughness or irregularities likely to cause damage to the ropes by abrasion.

8.3 The bollards shall be coated externally with an anti-corrosion protective finish.

8.4 A low-friction surface coating is not recommended so as to increase the holding force of the mooring ropes under figure-of-eight belay.

9 Marking

9.1 The safe working load (SWL) for the intended use of the bollards shall be noted in the towing and mooring plan available on board for the guidance of the shipmaster as specified in MSC/Circ.1175.

9.2 The actual SWL on board shall be determined by considering the under deck reinforcement, and it shall be marked on the towing and mooring plan. The actual SWL shall not be over the SWL indicated in this document.

9.3 The bollards shall be clearly marked with their SWL by weld bead or equivalent. The SWL shall be expressed in tonnes (symbol 't') and be placed so that it is not obscured during operation of the fitting.

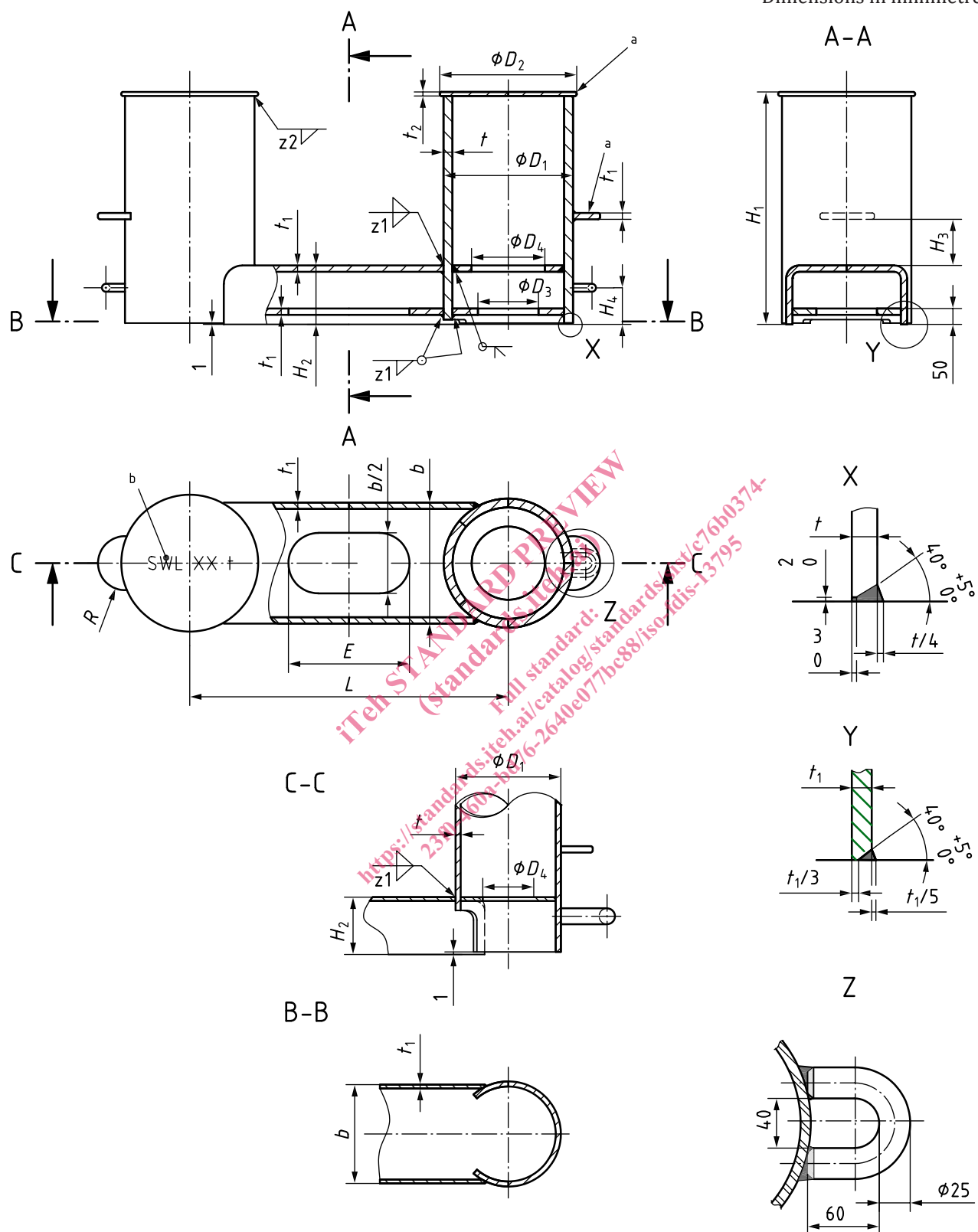
9.4 In case the bollard is used both for mooring and towing, both the SWL and the TOW for mooring and/or towing purposes shall be marked.

EXAMPLE 1 SWL XXX t.

EXAMPLE 2 TOW XXX t.

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Dimensions in millimetres



- a Edges smooth grinding.
- b SWL marking.

Figure 1 — Type A (for nominal sizes 150, 200, 250A and 250B)