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Ships and marine technology — Ship's mooring and towing fittings — Steel rollers

Navires et technologie maritime — Corps-morts et ferrures de remorquage de navires — Rouleaux en acier

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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).

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 (see 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.

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 13755:2012), which has been editorially and technically revised.

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

— technical guidelines have been added in 7.3 and 7.4;

— the definition of SWL (3.1) has been reworded;

— the object line, extension line, dimension line and welding volume in Figures 1, 4 and 6 have been amended;

— the column titles in Table 1 have 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

The steel roller is a type of ship's mooring fitting installed on board, to lead the mooring rope from the ship's inboard to outboard as a shipside roller fairlead, and to change the direction of the ropes as a pedestal fairlead.

Ships and marine technology — Ship's mooring and towing fittings — Steel rollers

1 Scope

This document specifies the types, nominal sizes, dimensions and materials, as well as construction, manufacturing and marking requirements, for steel rollers installed to lead the mooring rope of a ship.

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.

ISO 13767, *Ships and marine technology — Ship's mooring and towing fittings — Shipside roller fairleads*

ISO 13776, *Ships and marine technology — Ship's mooring and towing fittings — Pedestal fairleads*

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 and towing

4 Classification

4.1 Type

Depending on the construction, steel rollers shall be classified as belonging to one of the following three types:

a) Type A: made of steel casting without upper dust cover;

b) Type B: made of steel casting with upper dust cover;

c) Type C: made of steel plate with dust cover.

4.2 Nominal sizes

The nominal sizes, D_n, of steel rollers are denoted by reference to the outside diameter of the roller, in millimetres, from a basic series of preferred numbers.

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

5 Dimensions

The steel rollers shall have dimensions and particulars in accordance with Tables 1, 2, 3, 4, 5, 6, 7 and 8, and Figures 1, 2, 3, 4, 5, 6, 7 and 8.

6 Materials

The following materials shall be used for manufacturing the different components of steel rollers:

a) roller: steel casting having a yield point of not less than 205 N/mm^2, or steel plates having a yield point of not less than 235 N/mm^2;

b) axle: weldable steel casting having a yield point of not less than 350 N/mm^2 or equivalent;

c) bush: brass, bronze or equivalent.

7 Construction

7.1 The rollers of the steel rollers (Type C) shall be constructed from steel tubes or formed from plate.

7.2 The foundation of the steel rollers shall be determined by the manufacturer in accordance with ISO 13767 and ISO 13776. The foundation and welding connections shall guarantee a reliable transmission of the maximum loading of the steel rollers to the hull construction without any plastic deformation or cracks.

7.3 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.

7.4 The tensile strength of a mooring rope may be reduced depending on the 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 steel rollers, 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 steel rollers shall be coated externally with an anti-corrosion protective finish.

8.4 All rotating parts shall be greased.

9 Marking

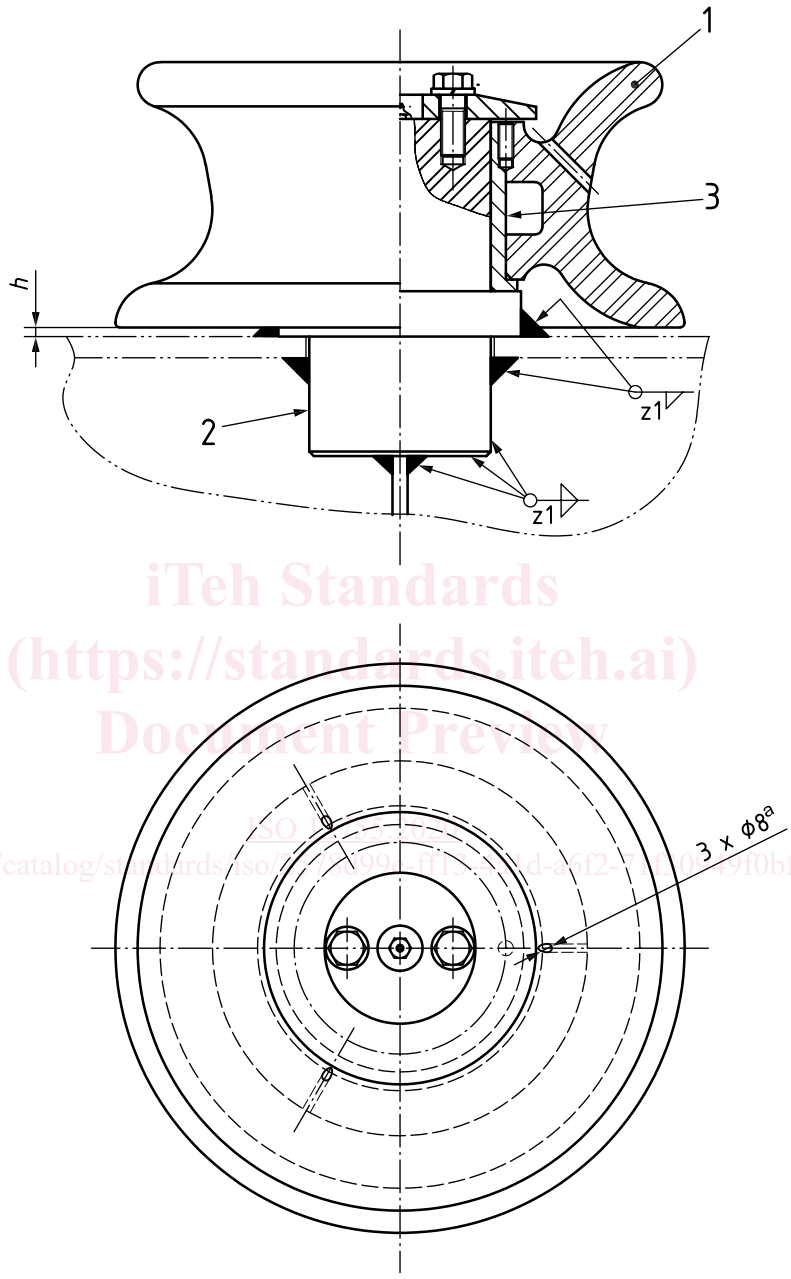
9.1 The safe working load (SWL) for the intended use of the steel rollers shall be noted in the towing and mooring plan available on board for the guidance of the shipmaster as specified in IMO circular MSC/Circ.1175.

9.2 The actual SWL on board shall be determined by considering the foundation and 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.

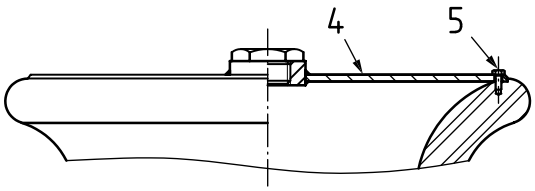
9.3 The steel rollers shall be clearly marked on their seat or foundation with their SWL by weld bead or equivalent. The SWL shall be expressed in tonnes (symbol 't') and be placed so that it is not obscured during operation of the fitting.

EXAMPLE SWL XXX t

Dimensions in millimetres



a) Type A



b) Type B

Key

1 roller
2 axle
3 bush
4 dust cover to apply on type B only
5 N-M6 bolt
[a] Drain hole.

Figure 1 — Assembly of steel rollers for nominal sizes 150, 200 and 250 (type A and type B)