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Ships and marine technology — Escorting and pull-back system for tankers

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Foreword

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

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.

Ships and marine technology — Escorting and pull-back system for tankers

1 Scope

This document specifies the technical requirements and test methods for escorting and pull-back system for tankers.

This document is applicable to the escorting and pull-back system for tankers not less than 20 000 deadweight tonnes (DWT).

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

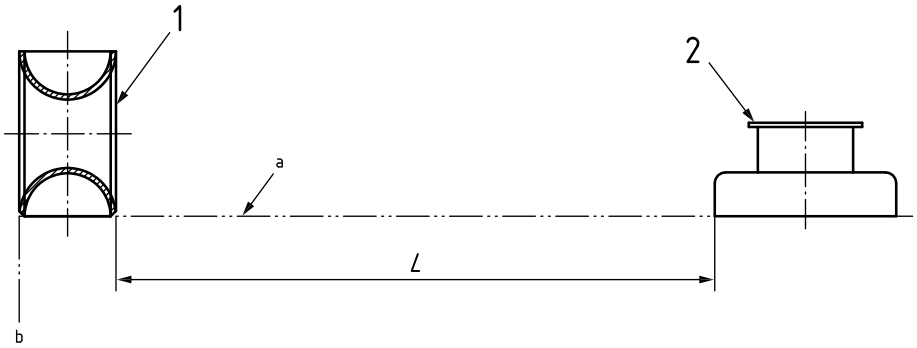
— IEC Electropedia: available at https://www.electropedia.org/

3.1
escorting and pull-back system
devices equipped on aft of tankers and used to escort and pull-back ships with tugs

4 Technical requirements

4.1 Design arrangement of escorting and pull-back system for tankers

The general design arrangement is given in Figure 1.



Key

L distance from strong point to chock ≥4,0 m

1 chock

2 strong point

a Deck.

b Stern.

NOTE 1 If the distance from the strong point to chock is less than 4,0 meters, it is aimed at ensuring that the eye splice of towing line sits inboard of the chock.

NOTE 2 This recommendation does not apply if the emergency towing arrangement is used as, in that case, the chafing gear will lie in the chock.

Figure 1 — General arrangement of escorting and pull-back system for tankers

4.2 Configuration and design manufacturing requirements for escorting and pull-back system for tankers

4.2.1 Chock

4.2.1.1 The configuration and load requirements are given in Table 1. The safety factor on yield of chocks should be minimum of 2,0 safe working load (SWL).

Table 1 — Configuration and load requirements of chock

Ship size	Minimum SWL	
	kN	t
20 000 ≤ DWT < 50 000	1 000	102
DWT ≥ 50 000	2 000	204

4.2.1.2 The general type of chock is given in Figure 2.

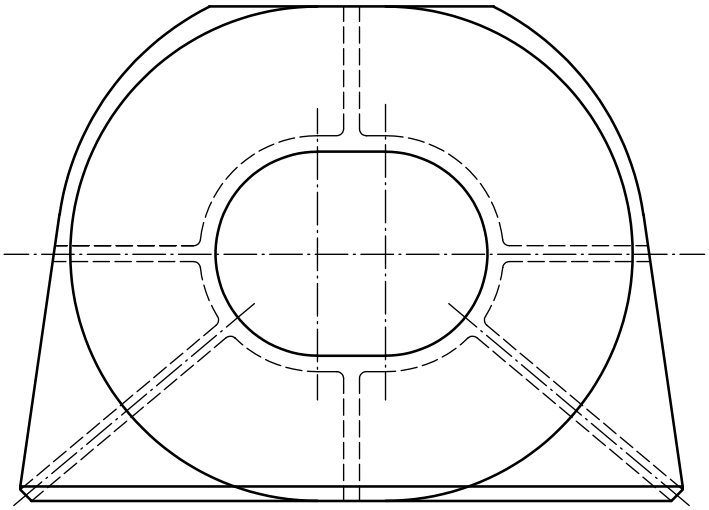


Figure 2 — Profile of chock

4.2.1.3 The chock shall be of closed type, with the opening dimensions of at least 600 mm in width and 300 mm in height.

4.2.1.4 The strength should be sufficient for all relevant angles of towline, that is, up to 90° from the ship's centreline to port and starboard and 30° vertical downwards.

4.2.1.5 Materials can be weldable cast steel, forged steel, or rolled steel, which conform to the corresponding manufacturing standard.

4.2.1.6 The product shall be free from defects that affect its use, such as cracks, sand holes, and pores.

4.2.2 Strong point

4.2.2.1 The configuration and load requirements shall be consistent with those of the matching chock.

4.2.2.2 The general type of strong point is given in Figure 3 and Figure 4.

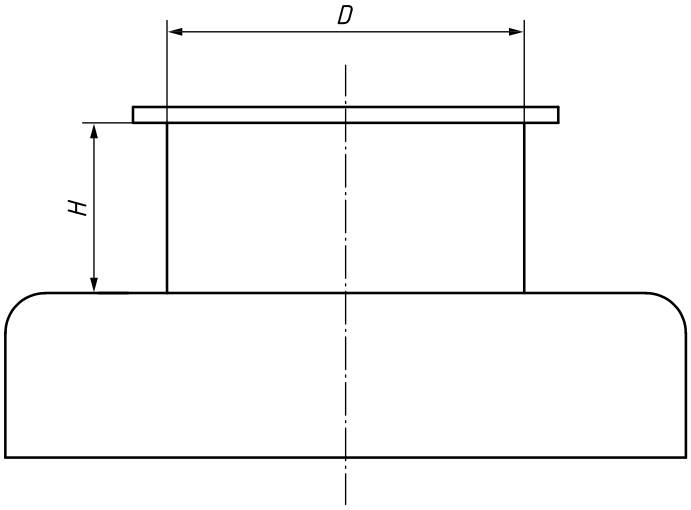
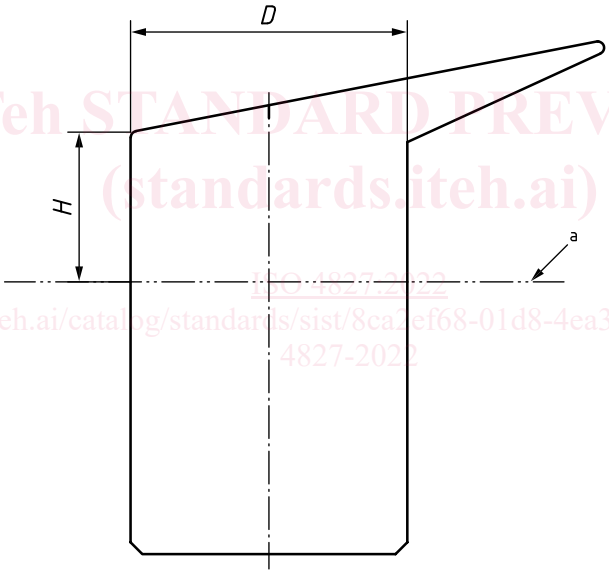


Figure 3 — Profile of strong point type A



Key

a Deck.

Figure 4 — Profile of strong point type B

4.2.2.3 The diameter, *D*, shall be not less than 600 mm with height, *H*, not less than 300 mm.

4.2.2.4 If the aft emergency towing arrangement is also used as escorting and pull-back system, the strong point may be designed as combined type which is given in Figure 5.

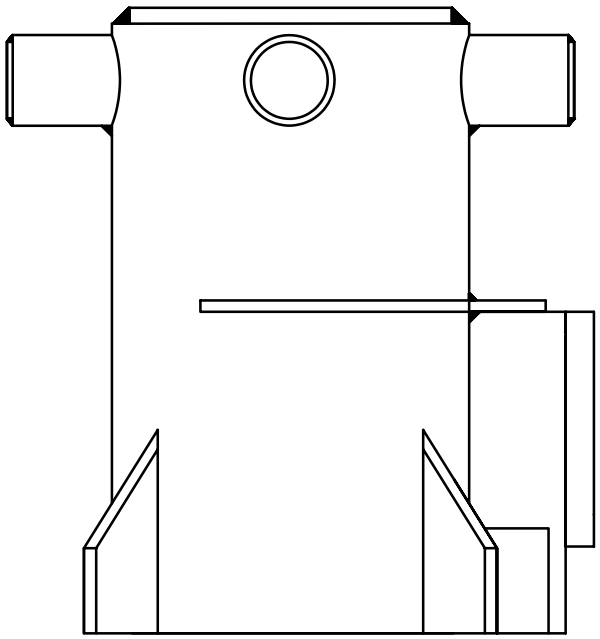


Figure 5 — Profile of strong point type C

4.2.2.5 Materials can be weldable cast steel, forged steel, or rolled steel, which conform to the corresponding manufacturing standard.

4.2.2.6 The product shall be free from defects that affect its use, such as cracks, sand holes, and pores.

5 Test method

5.1 Chock

5.1.1 Material test

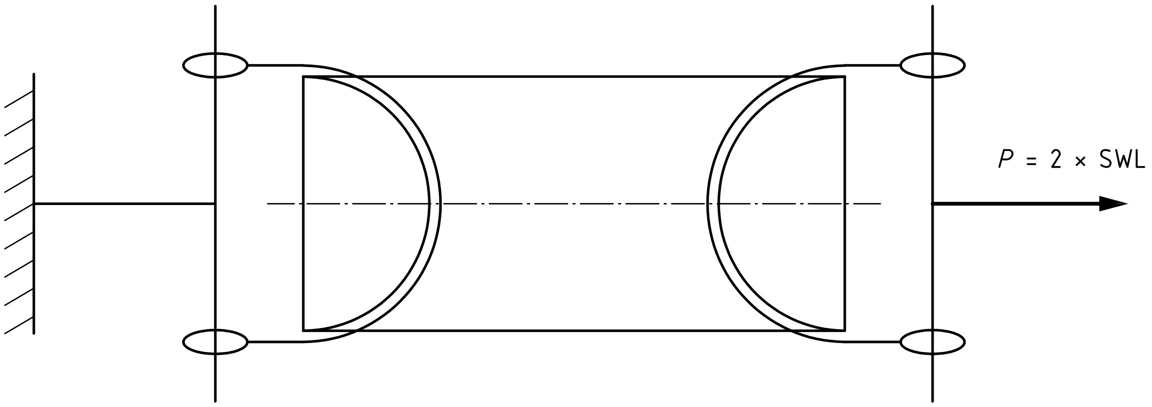
If the material is cast steel, physical and chemical inspection shall be carried out for the material test rods and inspection results shall conform to the corresponding material standards. Magnetic particle inspection shall be carried out after surface polishing, and the product shall be free from defects that affect its use, such as cracks, sand holes, and pores.

For components made of forgings, physical and chemical inspection shall be carried out for the material test rods and inspection results shall conform to the corresponding material standards. Ultrasonic detection shall be made according to grade II forging requirements, and the component shall be free from cracks, folding, or other defects that affect its use.

The welds on the weldments shall be smooth and flat; ultrasonic detection shall be made for main welds, which shall be free from defects that affect the use, such as cracks, sand holes, pores, and weld flashes.

5.1.2 Strength test

The test load shall be applied for 1 min and magnetic particle inspection shall be carried out for the chock after unloading, to ensure its main welds or castings shall be free from defects that affect its use. The procedure is shown in Figure 6.



Key

P test load

SWL safe working load

Figure 6 — Strength test on chock

5.2 Strong point

5.2.1 Material test

If the material is cast steel, a physical and chemical inspection shall be carried out for the material test rods and inspection results shall conform to the corresponding material standards. Magnetic particle inspection shall be carried out after surface polishing, and the product shall be free from defects that affect its use, such as cracks, sand holes, and pores.

For components made of forgings, physical and chemical inspection shall be carried out for the material test rods and inspection results shall conform to the corresponding material standards. Ultrasonic detection shall be made according to grade II forging requirements, and the component shall be free from cracks, folding, or other defects that affect its use.

The welds on the weldments shall be smooth and flat; ultrasonic detection shall be made for main welds, which shall be free from defects that affect the use, such as cracks, sand holes, pores, and weld flashes.

5.2.2 Strength test

The test load shall be applied for 1 min and magnetic particle inspection shall be carried out for the strong point after unloading, to ensure its main welds or castings shall be free from defects that affect its use. The procedure is shown in Figure 7.

