

DRAFT INTERNATIONAL STANDARD

ISO/DIS 5483

ISO/TC 8/SC 3

Secretariat: ANSI

Voting begins on:
2022-06-10

Voting terminates on:
2022-09-02

Ships and marine technology — Drain facilities from oil and water tanks

ICS: 47.020.30

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ISO/FDIS 5483

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Reference number
ISO/DIS 5483:2022(E)

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Published in Switzerland

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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 2.

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.

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ISO was prepared by Technical Committee ISO/TC 8, Subcommittee SC 3.

This third edition cancels and replaces the second edition (ISO 5483:2003), which has been technically revised.

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Introduction

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Ships and marine technology — Drain facilities from oil and water tanks

1 Scope

This international standard specifies the dimensions and materials for welding rings and drain screws of drain facilities situated at the bottom of oil and water tanks.

Oil and water tanks occur as:

- built-in tanks, as an integrated part of the hull structure, and,
- detachable tanks, located in appropriate rooms and compartments.

This standard covers facilities for both instances.

2 Normative references

The following referenced documents are indispensable for the application 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 68, *ISO general purpose screw threads — Basic profile*

ISO 261, *ISO general purpose metric screw threads — General plan*

ISO 683-13, *Heat-treatable steels, alloy steels and free-cutting steels — Part 13: Wrought stainless steels*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

3 Designation

For the purposes of this International Standard, four types of drain facilities are covered:

Type A, which is universally applicable, especially where flush mounting with the outer surface of hull plating at plate thickness less than 38 mm;

Type B and Type C, which are usable in other instances where the Type A is not applicable;

Type D, which is used in jackup platforms, where flush mounting with the outer surface of hull plating.

NOTE Type A, B, C and D arrangements are identified by the following two categories of drain plugs:

- square wrench connection for water tanks, and
- hexagonal wrench connection for oil tanks.

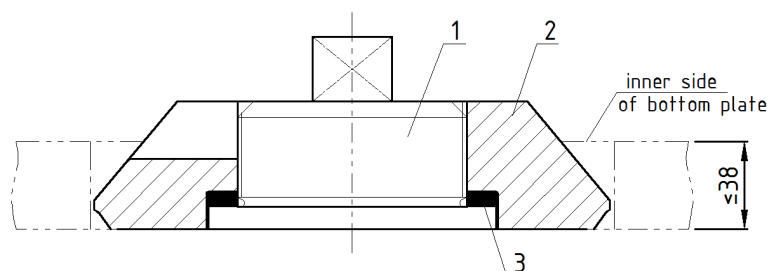
4 General assembly arrangement

4.1 Assembly

For Type A, refer to [Figure 1](#) and [Table 1](#). For Type B, refer to [Figure 2](#) and [Table 2](#). For Type C, refer to [Figure 3](#) and [Table 3](#).

For Type D, refer to [Figure 4](#) and [Table 4](#).

Dimensions in millimetres



Key

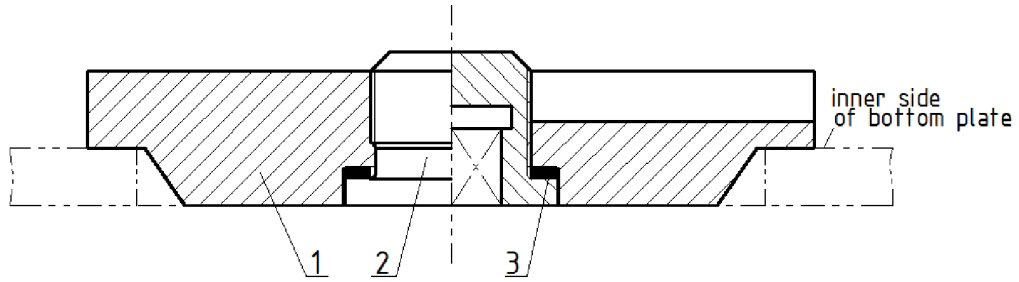
- 1 drain screw
- 2 welding ring
- 3 gasket

Note The extreme left and right sections represent hull plating.

Figure 1 — General arrangement for Type A

Table 1 — Parts list for Type A

Part No.	Part name	Size
1	Drain screw	M42 x 2
		M72 x 3
2	Welding ring	162
		350
3	Gasket	—



Key

- 1 welding ring
- 2 drain screw
- 3 gasket

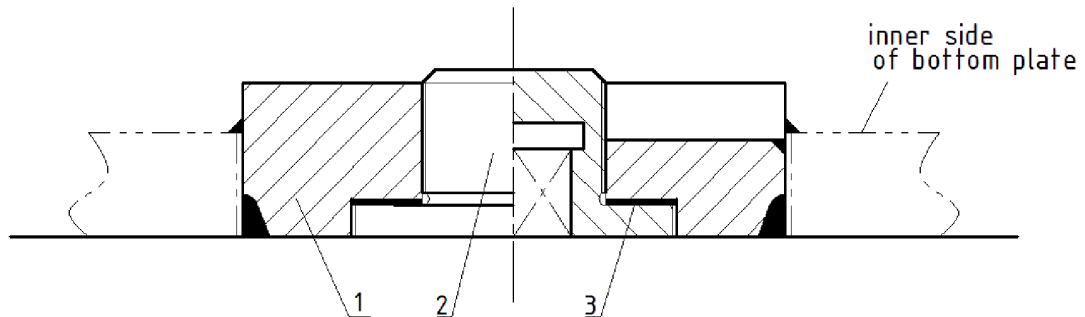
Note The extreme left and right sections represent hull plating.

Figure 2 — General arrangement for Type B

Table 2 — Parts list for Type B

Dimensions in millimetres

Part No.	Part name	Size
1	Welding ring	8
		15
		22
2	Drain screw	M42×2
		M72×3
3	Gasket	—



Key

- 1 welding ring
- 2 drain screw
- 3 gasket

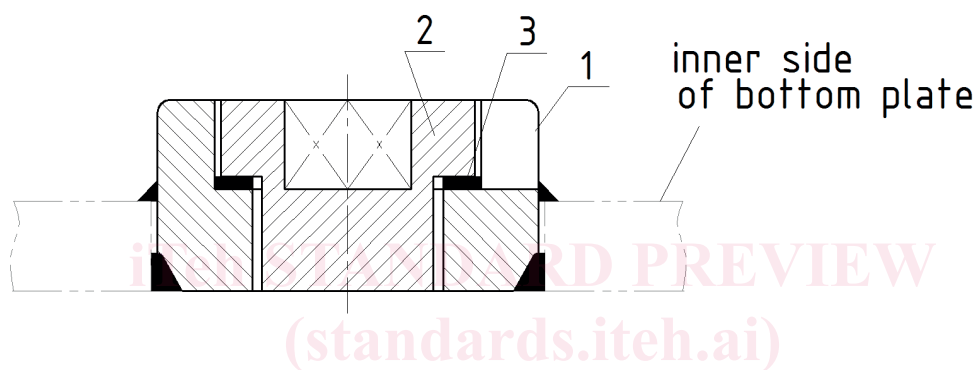
Note The extreme left and right sections represent hull plating.

Figure 3 — General arrangement for Type C

Table 3 — Parts list for Type C

Dimensions in millimetres

Part No.	Part name	Size
1	Welding ring	35
		45
		55
2	Drain screw	M42×2
		M52×2
		M62×2
		M72×3
3	Gasket	—



Key

- 1 welding ring
- 2 drain screw
- 3 gasket

Note The extreme left and right sections represent hull plating.

Figure 4 — General arrangement for Type D

Table 4 — Parts list for Type D

Dimensions in millimetres

Part No.	Part name	Size
1	Welding ring	35
		45
		55
2	Drain screw	M42×2
		M52×2
		M62×2
		M72×3
3	Gasket	—

4.2 Threads

For all types, the threads shall be accordance with ISO 68-1, ISO 261 and ISO 965-1, ISO 965-2 and ISO 965-3.

NOTE A non-toxic anti-seize compound grease may be used on the thread surfaces.

4.3 Materials

The welding ring, drain screw and gasket materials should be as given in [Table 5](#). Other materials shall be of equivalent quality and in all respects suitable for the intended purpose.

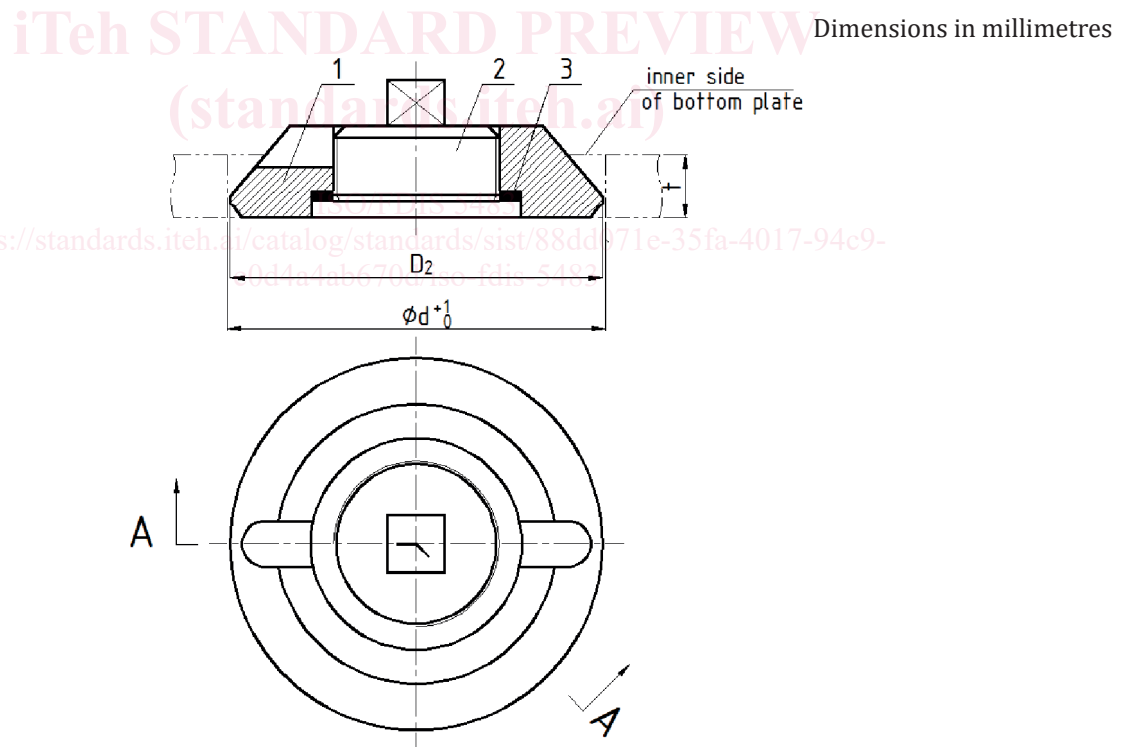
Table 5 — Material list for all types

Component	Material	Designation
Welding ring	Steel. To be of similar quality as surrounding tank bottom steel plating	Shipbuilding steel
Drain screw	Stainless steel	ISO 683-13 Austenitic steel Type 20A
	Lead brass	—
Gasket	Lead	—
	Neoprene	—

5 Mounting

5.1 Type A

For Type A mountings, see [Figure 5, 6](#) and [Table 6](#).



Key

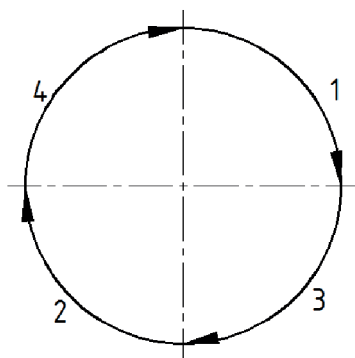
- 1 welding ring
- 2 drain screw
- 3 gasket

Figure 5 — Type A mounting

Table 6 — Main dimensions for Type A assembly

Dimensions in millimetres

Size (D_2)	Type	d	t
162	A-1	165	$t \leq 27,5$
350	A-2	353	$27,5 < t \leq 38$



NOTE 1 Ensure that alternate sections of the circumference are welded in sequence as shown to avoid heat deformation. Weld the 90° shown as “1”, skip 90°, then weld section “2”. Skip 180° and weld section “3”. Skip 90° and weld section “4”, the last section.

NOTE 2 Completed welding to be examined for cracks.

Figure 6 — Welding sequence

5.2 Type B

For Type B mountings, see [Figures 7, 8, 9](#) and [Table 7](#).