
**Ships and marine technology — Flange
connection for fuel and lubrication oil
bunkering — Basic dimensions and
technical requirements**

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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.

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

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Ships and marine technology — Flange connection for fuel and lubrication oil bunkering — Basic dimensions and technical requirements

1 Scope

This document specifies the basic dimensions of PN 10 flanged connections for bunker fuel and lubricating oil transfer to ships from bunkering vessels or onshore facilities, and the technical requirements for the design of such connections.

This document is not applicable to connections of the ship's fuel system for the reception of liquefied natural gas.

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 4014, *Hexagon head bolts — Product grades A and B*

ISO 4032, *Hexagon regular nuts (style 1) — Product grades A and B*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7091, *Plain washers — Normal series — Product grade C*

ISO 7483, *Dimensions of gaskets for use with flanges to ISO 7005*

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Classification

4.1 The flange connections are classified as follows depending on the medium:

- Type F – flange connections for bunker fuel reception;
- Type L – flange connections for lubricating oil reception.

4.2 The flange connections are classified as follows depending on the execution (arrangement):

- Execution 1 – blind flange without handle;
- Execution 2 – blind flange with one handle;
- Execution 3 – blind flange with two handles.

5 Basic dimensions

5.1 The main dimensions of the flange connections shall be as shown in Figure 1 and in Table 1.

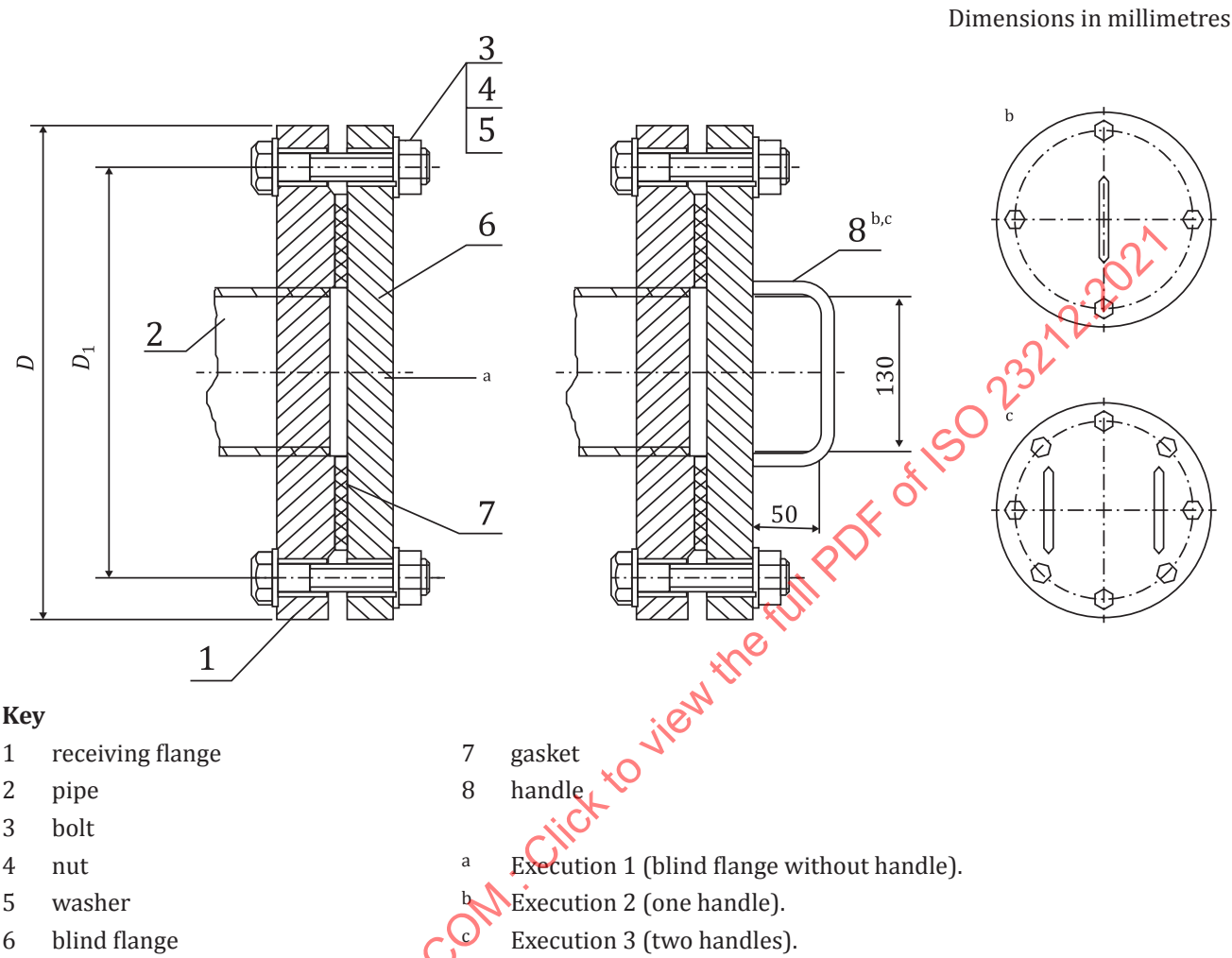


Figure 1 — Flange connections for bunker fuel and lube oil transfer

Table 1 — Basic dimensions of flange connections

Dimensions in millimetres

Execution	Nominal diameter DN	Outside diameter <i>D</i>	Diameter between the centres of the bolt holes <i>D</i> ₁	Number of handles on a blind flange	Bolts		
					Number of bolts		Thread
					Type F	Type L	
1	50	165	125	—	4	4	M16
2	100	220	180	1	8	8	
	150	285	240			2	12
3	200	340	295				
	250	395	350				
	300	445	400				

5.2 The dimensions of the main parts of the flange connections for receiving bunker fuel and lube oil shall be as shown in Figures 2 to 5 and in Tables 2 and 3. The inner diameter D_2 may vary according to the flange design.

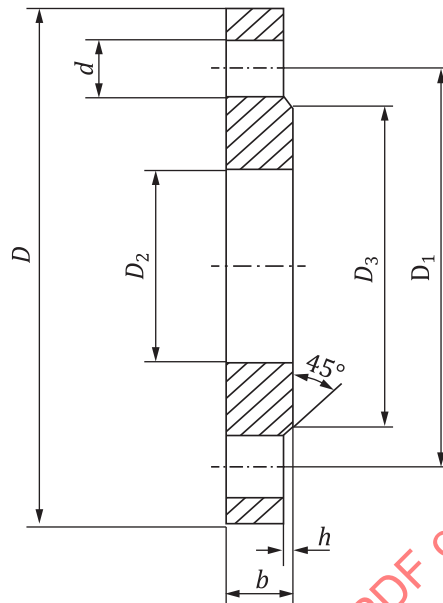


Figure 2 — Bunker fuel and lube oil transfer flange

Table 2 — Basic dimensions of type F and type L flanges

Dimensions in millimetres

Nominal diameter		Outside diameter D	Diameter between the centres of bolt holes D_1	Flange inner diameter D_2	Diameter protrusion D_3	Flange thickness b	Thickness of ledge h	Diameter of bolt holes d	Number of bolt holes	
Flange	Tube								Type F	Type L
50	32	165	125	43,5	102	20	3	18	4	4
	40			49,5						
	50			61,5						
100	65	220	180	77,5	158	22	3	18	8	8
	80			90,5						
	100			116						
150	125	285	240	141,5	212	24	3	22	8	—
	150			170,5						
200	200	340	295	221,5	268	26	3	22	12	—
250	250	395	350	276,5	320					
300	300	445	400	327,5	370		4			

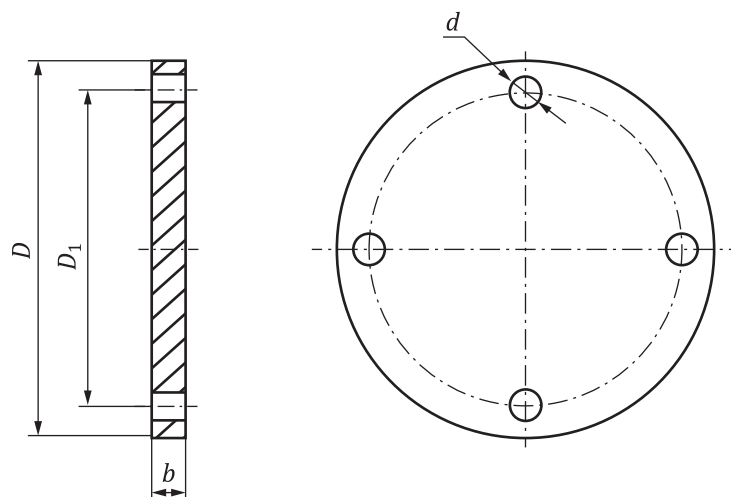
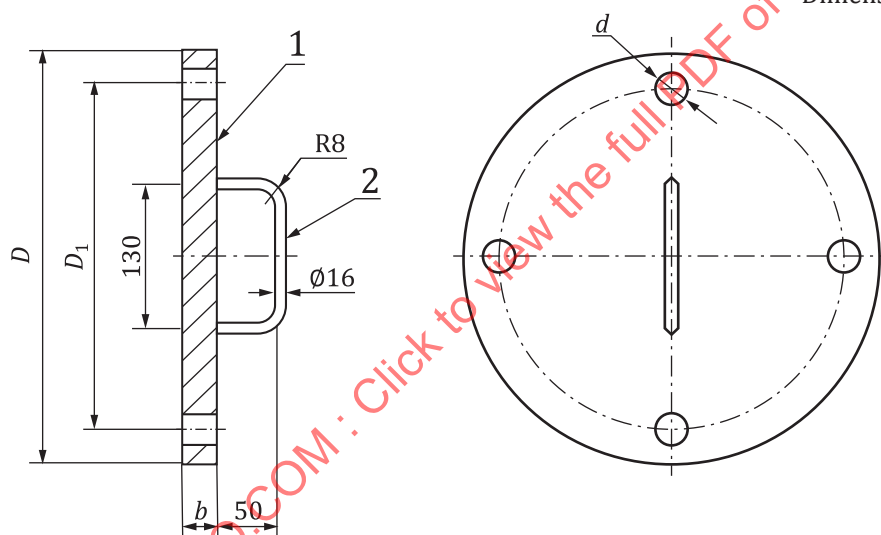


Figure 3 — Blind flange execution 1



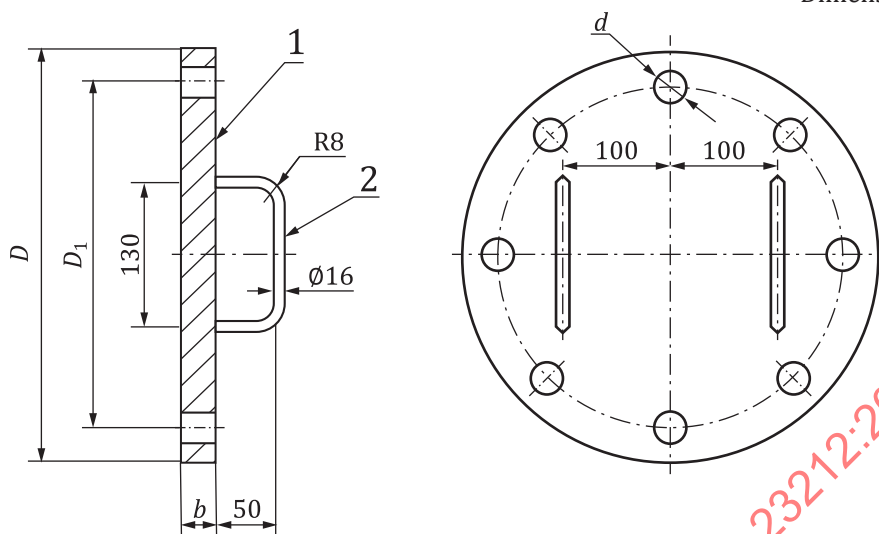
Dimensions in millimetres

Key

- 1 blind flange
- 2 handle

Figure 4 — Blind flange execution with one handle, DN 100 to DN 150, execution 2

Dimensions in millimetres



Key

- 1 blind flange
- 2 handle

Figure 5 — Blind flange with two handles, DN 200 to DN 300, execution 3

Table 3 — Basic dimensions blind flange

Dimensions in millimetres

Execution	Nominal diameter	Outside diameter	Diameter between the axes of the bolt holes	Flange thickness	Diameter of bolt holes	Number of holes under bolts		Number of handles of staples
						Type F	Type L	
1	DN	D	D_1	b	d	4	4	—
2	100	220	180	20	18	8	8	1
	150	285	240	22			22	12
3	200	340	295	24	26	12		
	250	395	350					
	300	445	400					

6 Technical requirements

6.1 Dimensions

6.1.1 The dimensions of the flange connections and the main connections shall be in accordance with [Clause 5](#).

6.1.2 The dimensions of the sealing surfaces of the flange connections shall be in accordance with ISO 7005-1.

6.1.3 The dimensions of the flat gaskets shall be in accordance with ISO 7483.