
INTERNATIONAL STANDARD



5894

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Shipbuilding — Manholes with bolted covers

Construction navale — Trous d'homme avec couvercle boulonné

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[ISO 5894:1978](#)

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Descriptors : shipbuilding, access openings, lids, bolted construction, fasteners, specifications, dimensions.

Price based on 5 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5894 was developed by Technical Committee ISO/TC 8, *Shipbuilding*, and was circulated to the member bodies in August 1977.

It has been approved by the member bodies of the following countries :

Australia	Greece	Poland
Austria	India	Romania
Belgium	Ireland	Spain
Brazil	Italy	Sweden
Bulgaria	Japan	Turkey
Chile	Korea, Dem. P. Rep. of	United Kingdom
Czechoslovakia	Korea, Rep. of	U.S.S.R.
Finland	Netherlands	
France	Norway	

The member body of the following country expressed disapproval of the document on technical grounds :

Germany, F.R.

Shipbuilding — Manholes with bolted covers

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies requirements for watertight and oiltight manholes of current type with bolted covers up to 13 mm thickness, for general shipboard use other than for pressure vessels.

It specifies the dimensions for the holes in the plating and the number, size and position of the fasteners. All forms of manhole, whether of raised coaming, surface mounted, recessed or hinged cover types shall conform to these principal particulars.

The details of the manholes shall be the responsibility of the manufacturer.

NOTE — Users of this International Standard should note that, while observing the requirements of the standard, they should at the same time ensure compliance with such statutory requirements, rules and regulations as may be applicable to the individual ship concerned.

2 MANHOLE TYPES

Manholes shall be classified as type A, B, C or D according to shape and number of fasteners (see figures 1 and 2).

3 DIMENSIONS

The dimensions of the manholes and the spacing of the fasteners shall be in accordance with figures 1 to 6 and associated tables.

The nominal size $a_1 \times b_1$ shall correspond to the length and width of the clear opening as given in figure 1, and the nominal size c_1 shall correspond to the diameter of the circular clear openings given in figure 2.

4 MATERIALS

Cover plate, ring and/or coaming shall be of ship's quality mild steel or shall be of equivalent welding quality. Minimal tensile strength : 400 N/mm².

Studs and screws shall be of steel and of mechanical property class 4.8 minimum and 4.6 minimum respectively.

The gasket material shall be suitable for service in contact with oil, sea and fresh water.

5 QUALITY OF MANUFACTURE

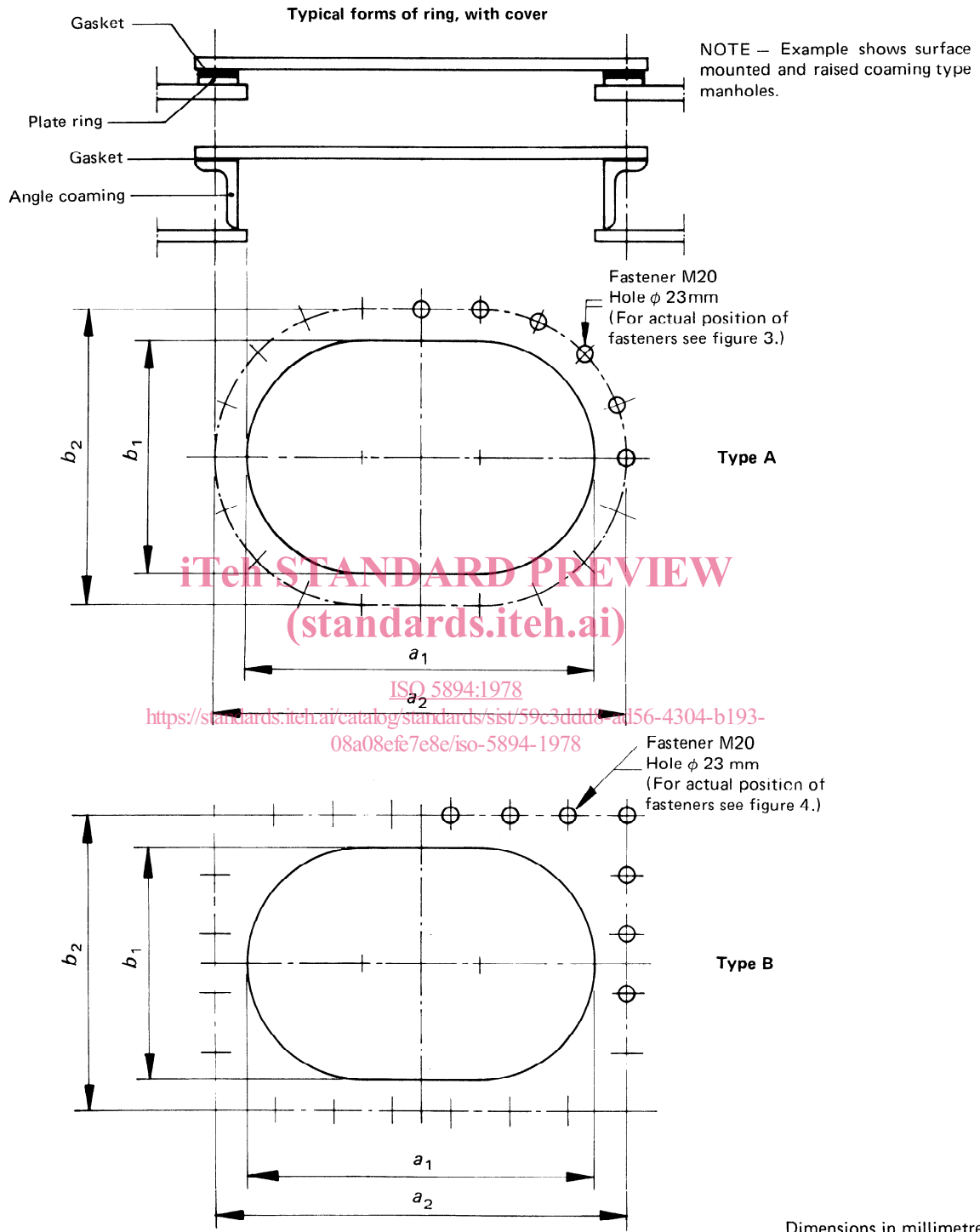
The steel plate and sections shall be flat and free from pitting, reasonably clean and sufficiently smooth for a satisfactory joint to be made without recourse to machining the surface.

The gasket material shall have a thickness appropriate to the intended service.

The dimensional accuracy of the manhole cover, and of the gasket and of the drilling and spacing of the holes for fasteners shall be such as to ensure interchangeability of these components.

The access openings shall be free from all rough edges or surfaces likely to cause injury to the hands.

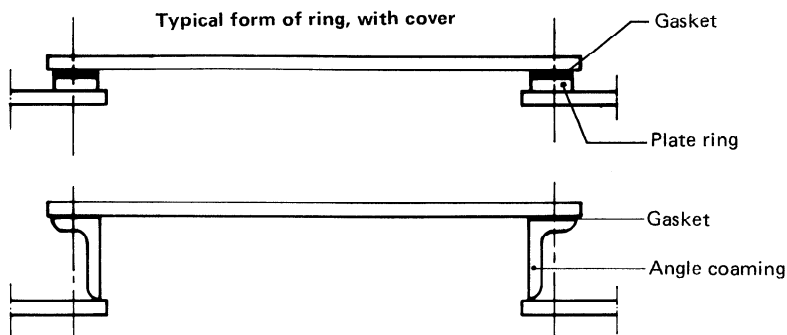
6 DIMENSIONS AND NUMBER OF FASTENERS



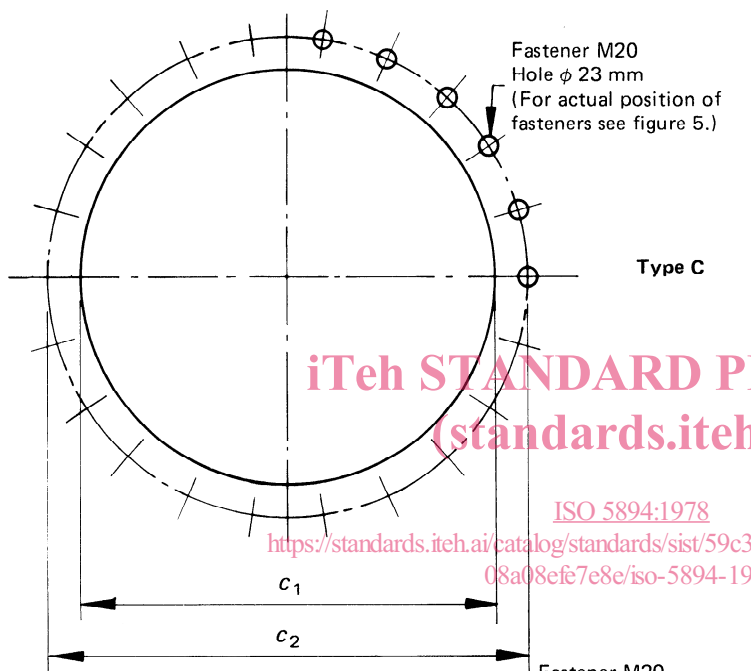
Dimensions in millimetres

Preference 1	Nominal size $a_1 \times b_1$		a_2	b_2	Number of M20 fasteners	
	Preference 2	Preference 3			Type A	Type B
600 × 400	450 × 350	500 × 400	550	450	16	22
		500 × 400	600	500	18	22
		600 × 450	700	500	20	24
		600 × 450	700	550	20	26

FIGURE 1 — Manholes, types A and B — Dimensions and layout of fasteners



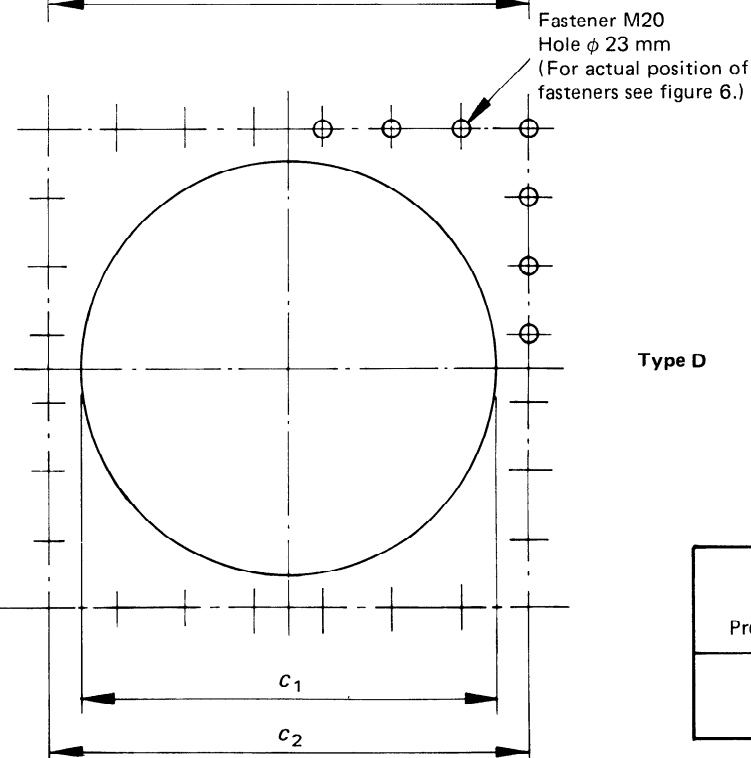
NOTE — Example shows surface mounted and raised coaming type manholes.



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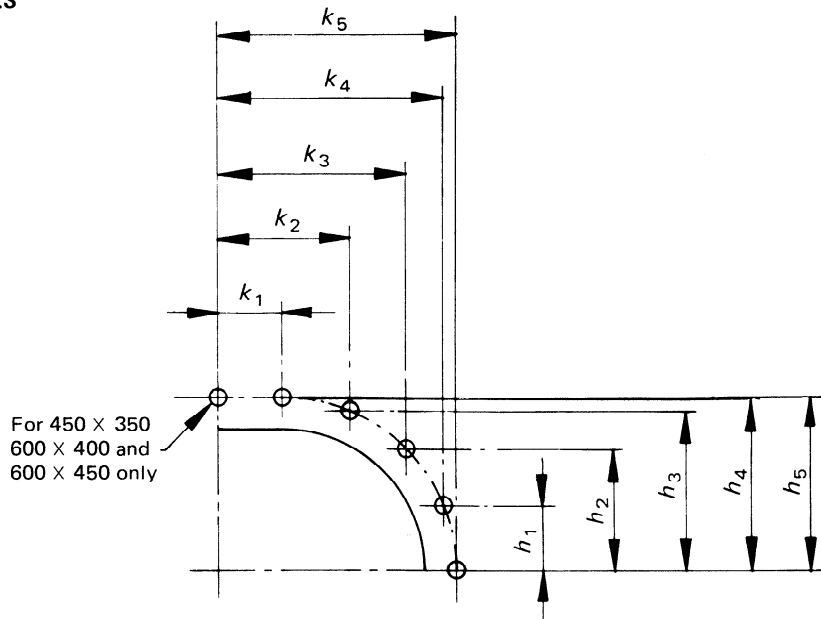


Dimensions in millimetres

Nominal size		c_2	Number of M20 fasteners	
Preference 1	Preference 2		Type C	Type D
600	450	550	18	24
		700	22	28

FIGURE 2 — Manholes, types C and D — Dimensions and layout of fasteners

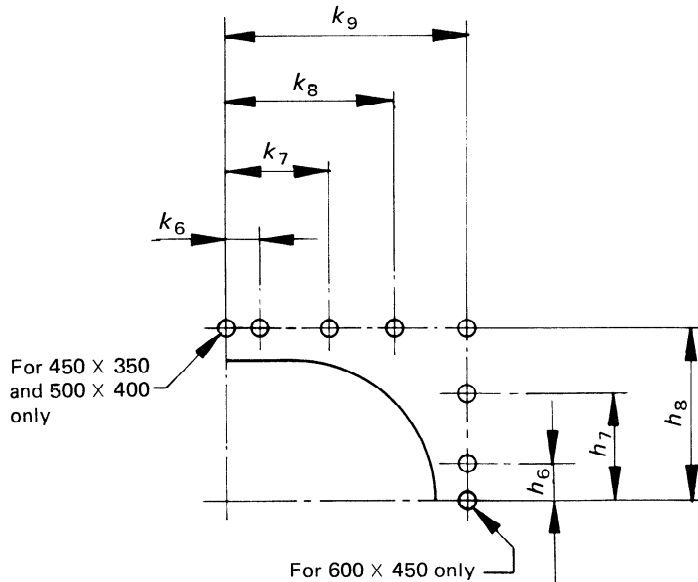
7 FASTENING DETAILS



Dimensions in millimetres

Nominal size $a_1 \times b_1$	No. of fasteners	h_1	h_2	h_3	h_4	h_5	k_1	k_2	k_3	k_4	k_5
450 × 350	16	97	176	219	—	225	—	101	190	253	275
500 × 400	18	96	177	231	250	—	49	145	227	281	300
600 × 400	20	96	177	231	250	250	99	195	276	331	350
600 × 450	20	99	185	246	274	275	101	198	278	332	350

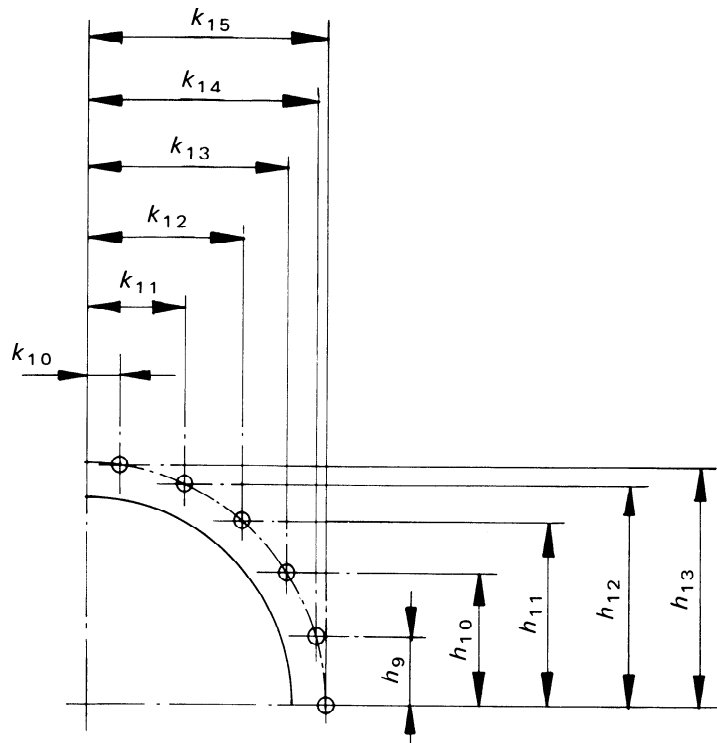
FIGURE 3 – Fastener co-ordinates for manholes, type A



Dimensions in millimetres

Nominal size $a_1 \times b_1$	No. of fasteners	h_6	h_7	h_8	k_6	k_7	k_8	k_9
450 × 350	22	45	135	225	—	92	183	275
500 × 400	22	50	150	250	—	100	200	300
600 × 400	24	50	150	250	50	150	250	350
600 × 450	26	92	183	275	50	150	250	350

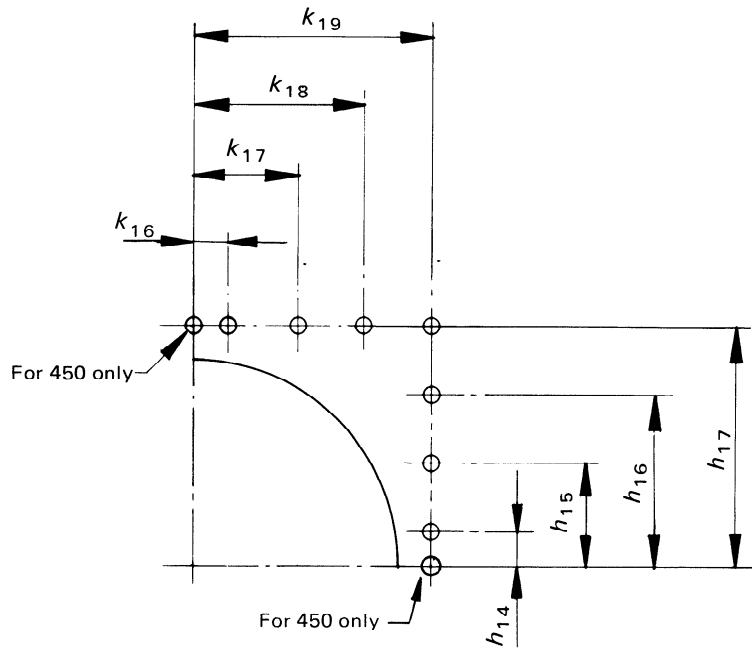
FIGURE 4 – Fastener co-ordinates for manholes, type B



Dimensions in millimetres

Nominal size c_1	No. of fasteners	h_9	h_{10}	h_{11}	h_{12}	h_{13}	k_{10}	k_{11}	k_{12}	k_{13}	k_{14}	k_{15}
450	18	94	176	238	271	—	—	47	138	210	258	275
600	22	99	189	265	319	346	50	145	229	295	335	350

FIGURE 5 — Fastener co-ordinates for manholes, type C



Dimensions in millimetres

Nominal size c_1	No. of fasteners	h_{14}	h_{15}	h_{16}	h_{17}	k_{16}	k_{17}	k_{18}	k_{19}
450	24	—	92	183	275	—	92	183	275
600	28	50	150	250	350	50	150	250	350

FIGURE 6 — Fastener co-ordinates for manholes, type D

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