

JIS

JAPANESE INDUSTRIAL STANDARD

Ships' Bronze Side Scuttles

 **JIS F 2401—1983**

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.



1. Scope

This standard provides for ships' bronze side scuttles, hereinafter referred to as the "side scuttles".

Remark: The units and numerical values given in { } in this Standard are in accordance with the International System of Units (SI), and are appended for informative reference.

2. Classification

The side scuttles shall be classified according to classes, nominal diameter and types as given in Table 1.

Table 1

Item	Thickness of toughened glass ⁽¹⁾ mm					Type and symbol of glassholder	Type and symbol of deadlight	Provision of visor and symbol		
Class	200	250	300	350	400					
A	12	15	15	—	—	Non-opening type (F)	Hinged type (H)	—		
	—	15	15	—	—	Hinged type Upward opening (U)				
B	10	12	12	—	—	Non-opening type (F)			Hinged type (H)	—
	10	12	12	15	15	Hinged type Right-hand opening (R) Left-hand opening (L)				
C	10	10	10	12	12	Non-opening type (F)	Hinged type (H) or Detachable type (P)	With visor (W) or without		
	10	10	10	12	12	Hinged type				
D	10	10	10	10	10	Right-hand opening (R) Left-hand opening (L)	No-deadlight type (N)		With visor (W) or without	
E	8	8	8	10	10					

Note (1) The thickness of toughened glass is applicable to both clear and frosted glasses.

3. Construction, Shape and Dimensions

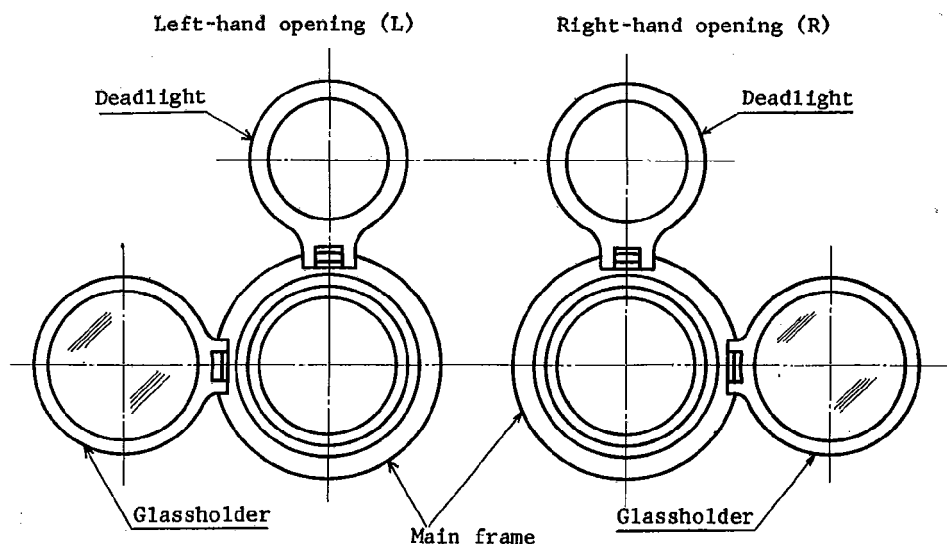
The construction, shape and dimensions shall be as shown in Attached Figs. 1 to 19 and be in accordance with the following requirements:

- (1) Side scuttles Class A, B and C shall be provided with locknuts as required.

Applicable Standards, Corresponding International Standards and Reference Standard: See page 4.

- (2) Side scuttles Class A and B (except non-opening type) shall be provided with outer plugs. Side scuttles Class C (except non-opening type) shall be provided with outer plugs as required. Other side scuttles may not be provided with outer plugs.
- (3) The directions of opening of glassholders shall be as shown in the following Figure.

Fig. Direction of Opening



- (4) For better fitting on the wall plating, the back face of main frame flange may partly be gouged as far as it does not affect the strength.
- (5) The toggle pin shall be of similar shape to that specified in JIS F 3905.

4. Material

The materials shall be as given in Table 2 and Attached Figs. 18 and 19.

Table 2

Class	Main frame and glassholder	Deadlight	Outer plug	Hinge pin, swing bolt and toggle pin	Gasket
A	JIS H 5111-BC 2	JIS H 5111-BC 2 or JIS G 5101-SC 42	JIS G 3101-SS 41	JIS H 3250-C 4641 BE or C 4641 BD	Ageresisting rubber of high quality
B		JIS G 5702-FCMB 28 or JIS G 5502-FCD 45		JIS H 3250-C 3771 BE or C 3771 BD	
C					
D	JIS H 5111-BC 6	—			
E					

Remark: Parts made of iron or steel be galvanized.

5. Toughened Glass

The toughened glass shall be to JIS F 2410.

6. Inspection

6.1 Inspection of Construction The construction, shape and dimensions shall meet the requirements of 3.

6.2 Inspection of Materials The materials shall be subjected to the following inspection and shall satisfy all the requirements specified. However, these tests may be omitted for the materials for side scuttles Class D and Class E.

Tensile Inspection The test piece taken as described below shall be subjected to tensile inspection and shall satisfy the requirements given in Table 2. For main frames, glassholders and deadlights, take one test piece⁽²⁾ out of each melt, provided where the number of castings made from the same melt is more than 50, take one test piece out of every 50 castings or a fraction thereof. For hinge pins and swing bolts, and outer plugs of side scuttle Class A, take one test piece⁽²⁾ out of every 50 pieces or a fraction thereof.

Note (2) Test pieces for bronze casting (BC 2), steel casting (SC 42), malleable iron casting (FCMB 28) and nodular graphite iron casting (FCD 45) shall be to JIS Z 2201-No. 4 or No. 14 A.

Test pieces for copper and copper alloy-rod and bar (C 4641 BE, C 4641 BD, C 3771 BE and C 3771 BD) shall be to JIS Z 2201-No. 4 or No. 14 A, provided where the diameter of material is less than 14 mm, the diameter of test piece shall be the full size of the bar as rolled. Test pieces for rolled steel for general structure (SS 41) shall be to JIS Z 2201-No. 1 A or No. 14 B.

6.3 Hydraulic Inspection Each side scuttle not fitted with deadlight and outer plug, shall be subjected to a hydraulic pressure given in Table 3, which it shall withstand without showing any sign of leakage.

Table 3

Class	Hydraulic test pressure kgf/cm ² {MPa}
A and B	1 {0.098}
C	0.7 {0.069}
D	0.5 {0.049}
E	0.2 {0.020}

7. Designation

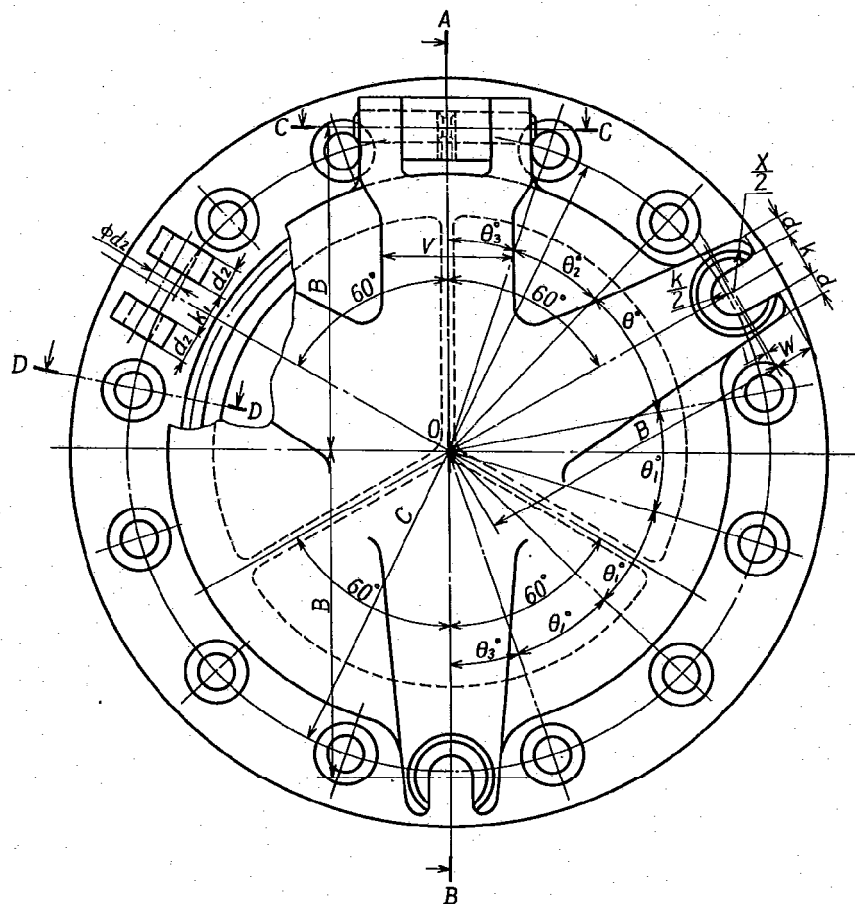
The side scuttles shall be designated in the title of standard, class, nominal diameter (clear light sides), type of glassholder, direction of opening, type of deadlight (in the case of having no deadlight, the symbol showing the direction of opening of glassholder is omitted), presence of visor (symbol W is added only to those with visor) and dimension H_3 of spigot, using the symbols in parentheses and figures given in Table 1. While for Classes A, B and C with locknuts, symbol "/" shall be added at the end of the above designation.

JIS number may be used in place of the title.

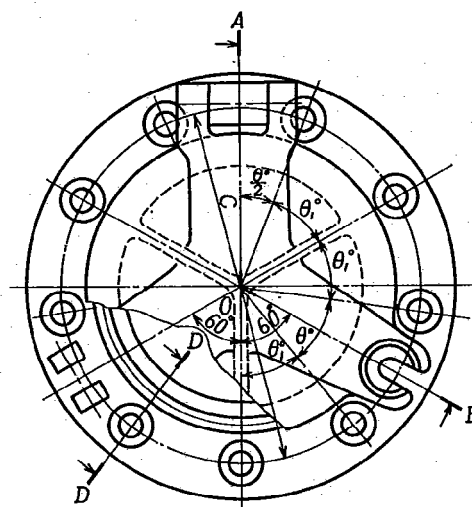
Attached Fig. 1. Side Scuttle AFH

Unit: mm

Nominal Diameters 250 mm and 300 mm



Nominal Diameter 200 mm



Side Scuttle AFH

Unit: mm

Nominal dia.	Main frame													
	D	D ₁	D ₂	D ₃	B	C	E	G	H	H ₁	H ₂	K	T	T ₁
200	200	214	228	217	152	300	70	13	35	40	18	50	8	13
250	250	264	278	267	182	358	80	16	40	45	21	52	9	14
300	300	314	328	317	208	408	80	16	40	45	21	56	9	14

Unit: mm

Nominal dia.	Main frame								
	d	d_1	d_2	d_3	e	k_1	T_4	θ	θ_1
200	18	36	16	32	12	25	8	44°	38°
250	20	40	19	38	13	27	9	37°50'	27°30'
300	20	40	19	38	13	27	9	35°50'	27°30'

Unit: mm

Nominal dia.	Main frame		Deadlight											
	θ ₂	θ ₁	A	D ₄	J	X	T ₂	T ₃	V	W	h	k	t	n
200	—	—	24	252	25	42	16	15	78	22	23	25	9	10
250	22°20'	18°40'	26	304	26	48	18	16	82	25	25	27	10	12
300	24°20'	18°40'	26	354	26	48	18	16	84	25	25	27	10	12

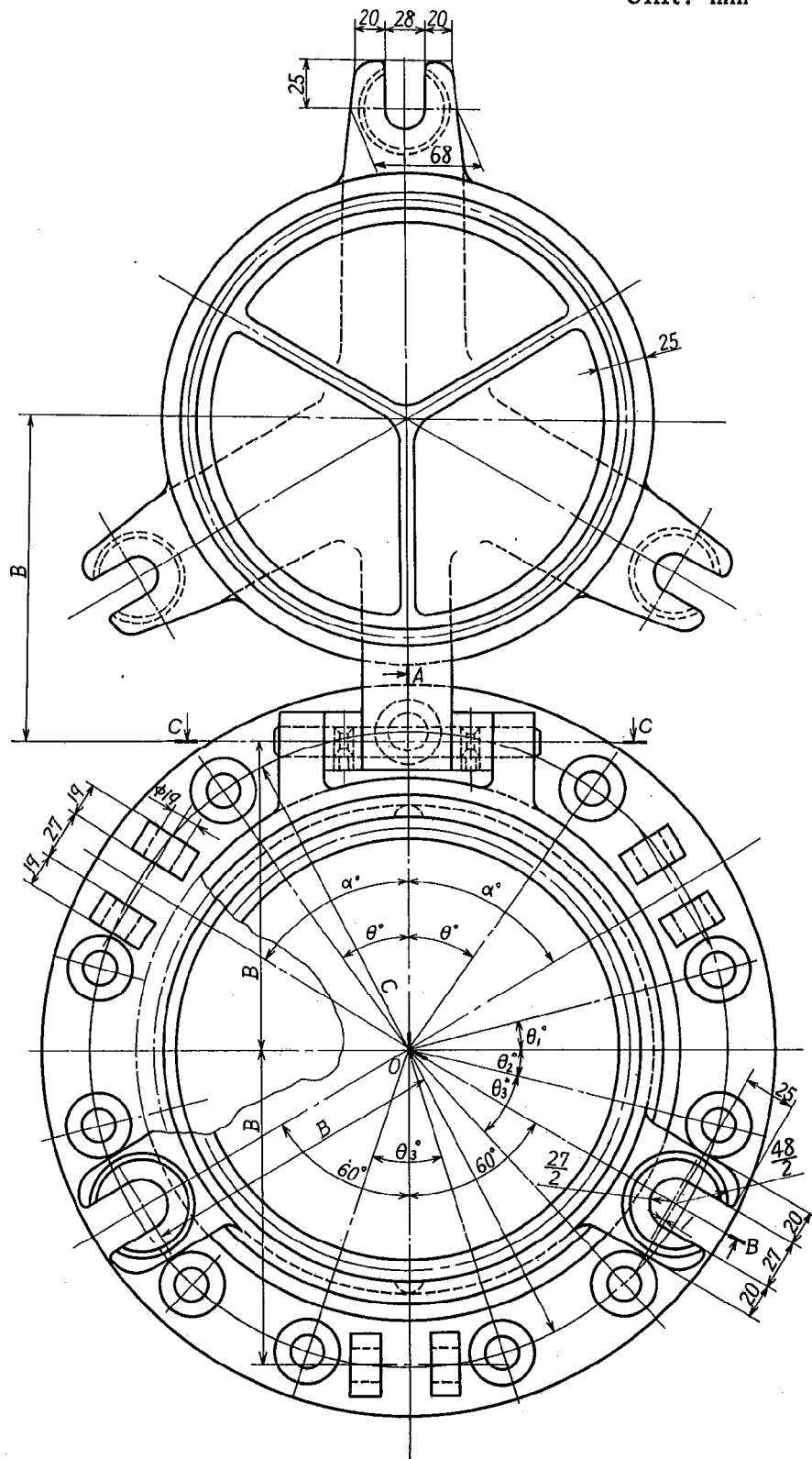
Unit: mm

Nominal dia.	Deadlight		Swing bolt with locknut for deadlight			Securing bolt for main frame			Hinge pin for deadlight		Toughened glass		Reference
	θ ₂	θ ₁	Nominal size of screw threads	Length	Number	Nominal size of screw threads	Dia. of bolt hole	Number	Dia.	Length	Dia.	Thick-ness	Calculated mass (kg)
200	—	—	M 22	80	2	M 20	24	9	18	103	212	12	19.88
250	22°20'	18°40'	M 24	90	3	M 20	24	12	20	107	262	15	32.20
300	24°20'	18°40'	M 24	90	3	M 20	24	12	20	111	312	15	39.00

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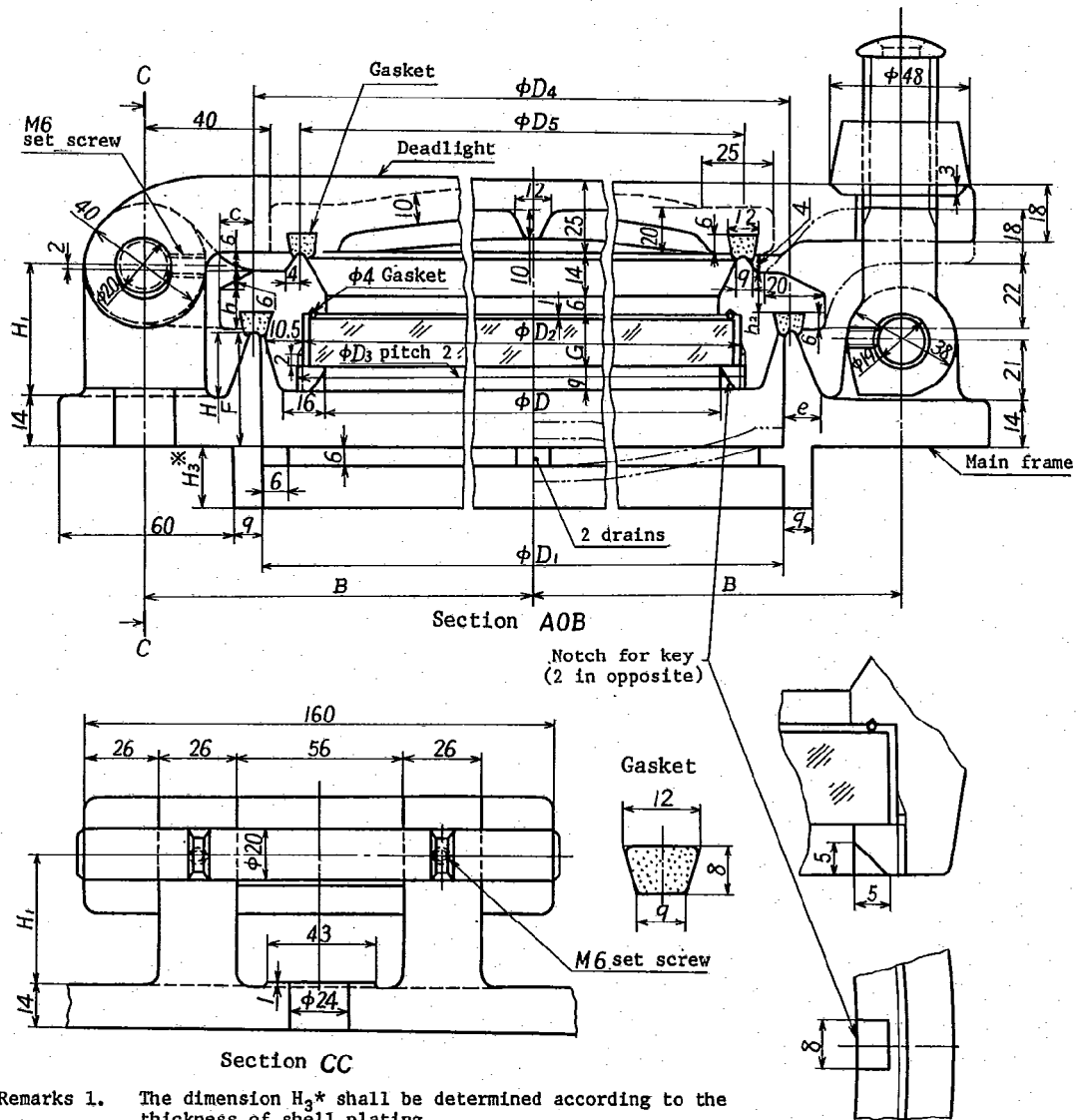
Attached Fig. 3. Side Scuttle AUH

Unit: mm



Attached Fig. 4. Side Scuttle AUH

Unit: mm



- Remarks 1. The dimension H_3^* shall be determined according to the thickness of shell plating.
2. Details of swing bolt shall be as shown in Attached Figs. 18 and 19.

Unit: mm

Nominal dia.	Main frame										
	D_1	B	C	F	G	H	H_1	e	α	θ	θ_1
250	290	182	380	39	16	23	45	10	58°	35°	15°
300	340	208	425	38	16	25	48	11	60°	36°	13°30'

Unit: mm

Nominal dia.	Main frame		Glassholder								Swing bolt with locknut for glassholder
	θ_2	θ_3	D	D_2	D_3	D_4	D_5	c	h	h_2	Nominal size of screw threads
250	13°	34°	250	264	267	294	264	12	14	15	M 24
300	13°30'	33°	300	314	317	344	314	13	15	16	M 24

Unit: mm

Nominal dia.	Swing bolt with locknut for glassholder		Swing bolt with locknut for deadlight			Securing bolt for main frame			Toughened glass		Reference
	Length	Number	Nominal size of screw threads	Length	Number	Nominal size of screw threads	Dia. of bolt hole	Number	Dia.	Thickness	Calculated mass (kg)
250	80	2	M 24	90	3	M 20	24	11	262	15	42.82
300	80	2	M 24	90	3	M 20	24	11	312	15	52.41