

Shipbuilding – Duplex oil strainers (H type)

1. Scope This Japanese Industrial Standard specifies duplex oil strainers H Type (hereinafter referred to as “strainer”) used for fuel oil and lubricating oil lines in ships.

- 2. Reference Standards** The following standards form part of this standard when quoted:
- JIS B 0205-1** ISO general purpose metric screw threads – Part 1: Basic profile
 - JIS B 0205-2** ISO general purpose metric screw threads – Part 2: General plan
 - JIS B 0205-3** ISO general purpose metric screw threads – Part 3: Selected sizes for screws, bolts and nuts
 - JIS B 0205-4** ISO general purpose metric screw threads – Part 4: Basic dimensions
 - JIS B 1532** Rolling bearings – Thrust ball bearings with flat back faces
 - JIS B 2239** Cast iron pipe flanges
 - JIS B 2401** O-rings
 - JIS C 2502** Materials for permanent magnet
 - JIS F 7102** Shipbuilding – Piping system in machinery space -- Application for gaskets and packings
 - JIS F 7200** Shipbuilding – General rules for inspection of strainers
 - JIS F 7207** Shipbuilding – Oil strainer -- Application for wire gauze
 - JIS F 7209** Shipbuilding – Simplex oil strainers
 - JIS F 7387** Shipbuilding – Bronze 16K cocks
 - JIS G 3101** Rolled steels for general structure
 - JIS G 3141** Cold-reduced carbon steel sheets and strips
 - JIS G 3311** Cold rolled special steel strip
 - JIS G 3454** Carbon steel pipes for pressure service
 - JIS G 3505** Low carbon steel wire rods
 - JIS G 3506** High carbon steel wire rods
 - JIS G 4051** Carbon steels for machine structural use
 - JIS G 4053** Low-alloyed steels for machine structural use
 - JIS G 4303** Stainless steel bars
 - JIS G 4305** Cold-rolled stainless steel plate, sheet and strip
 - JIS G 4309** Stainless steel wires
 - JIS G 4801** Spring steels
 - JIS G 5501** Grey iron castings
 - JIS G 5502** Spheroidal graphite iron castings
 - JIS G 3100** Copper and copper alloy sheets, plates and strips
 - JIS G 3250** Copper and copper alloy rods and bars
 - JIS G 3260** Copper and copper alloy wires
 - JIS G 3300** Copper and copper alloy seamless pipes and tubes
 - JIS G 5120** Copper and copper alloy castings
 - JIS K 7137-1** Plastics -- Polytetrafluoroethylene (PTFE) semi-finished products – Part 1: Requirements and designation

3. Type The types of strainer shall be classified into Type HS and Type HU according to the shape and Type F, Type M and Type D according to the materials of body casting and O-ring. Type D shall, however, be limited to strainers of 125 A or less and be sub-divided to Type GP, Type OR and Type CL according to the construction of the upper part of the cock and exchanging part.

Their combinations shall be as given in **Table 1**, **2** and **3**.

Table 1 Type of shape

Type	Shape	Applicable nominal dia.
HS	Inlet and outlet go straight.	25A~200A
HU	Inlet and outlet go into the same direction (U-turn).	25A~125A

Table 2 Materials of body and O-ring

Type	Material of casting	Material of O-ring	Applicable nominal dia.
F	FC200	JIS B 2401 Class 1-A	25A~200A
M	FC200	JIS B 2401 Class 4-D	25A~200A
D	FCD400-15	JIS B 2401 Class 1-A	25A~125A

Table 3 Upper part of the cock and exchanging part

Type	Gland construction	Applicable nominal dia.
GP	Gland packing is used at the gland of the bonnet of the upper cock.	50A~200A
OR	O-ring is used at the gland of the bonnet of the upper cock.	25A~200A
CL	Cum lever type with one exchanging handle of the upper cock	50A~25A

4. Relation between the fluid condition of strainer and the maximum working pressure The relation between the fluid condition of strainer and the maximum working pressure shall be as given in **Table 4**.

Table 4 Relation between the fluid condition of strainer and the maximum working pressure

Type of fluid	Fluid temperature				Maximum working pressure
	60°C or less	80°C or less	100°C or less	150°C or less	
Fuel oil	Type F	Type D			0.4 MPa
Lubricating oil	Type F	Type M	Type D		

Remark: Type D and type M may be used under the conditions for using Type F. Type D may be used under conditions for using Type M.

5. Construction, shape and dimensions The construction, shape and dimensions of strainers shall be as shown in **Fig. 1**, **Fig. 3**, **Fig. 5**, **Fig. 7** and **Fig. 9**. The permissible deviation of body thickness “a” shall be within $\pm 15\%$, but when the calculated value is below 1 mm, the permissible deviation may be 1 mm.

It is recommended that sufficient attention be paid to the construction and the assembly of strainers with high-mesh gauze wires of 200 mesh or $50\mu\text{m}$.

6. Materials The materials of strainers shall be as follows.

- a) The materials of body, cover, upper cover of cock, cock plug and O-ring shall be as shown in **Fig. 2, Fig. 4, Fig. 6, Fig. 8 and Fig. 10.**
- b) The materials of other parts shall be as shown in **Fig. 2, Fig. 4, Fig. 6, Fig. 8 and Fig. 10.**

7. Tests and inspections Strainers shall be inspected for the following items, **a)** through **e)** in accordance with the requirements of **JIS F 7200.**

- a) Material inspection
- b) Visual inspection
- c) Dimensional inspection
- d) Assembly inspection
- e) Hydraulic inspection The hydraulic inspection shall be carried out at the following test pressures:
 - 1) Hydraulic inspection 0.6 MPa
 - 2) Leak tests for cock plug 0.44 MPa

The rate of leakage of the cock plug shall be $\frac{6 \text{ ml} \times \text{nominal dia.}}{25 \text{ mm}}$ or less per minute.

8. Designation Strainers shall be designated by title, symbol, or JIS number, nominal dia., and type. Designations of type GP and type OR can, however, be omitted when ordered because the manufacturers specifies manufacturing methods.

Example 1: For a Type HS strainer with a nominal diameter of 65 used for fuel oil at a temperature of 60°C or less and when packing is used for a gland.

- a) Marine duplex oil strainer (Type H) HS-65F-GP
- b) FFH HS-65F-GP (FFH signifies marine duplex oil strainer, HS, form, 65, nominal diameter, F, materials of body and O-ring, GP, packing used for the gland)
- c) **JIS F 7208**-HS-65F-GP

Example 2: For a Type HU strainer with a nominal diameter of 40 with a packing gland used for lubricating oil at a temperature of 100°C or less.

- a) Marine duplex oil strainer (Type H) HU-40M-OR
- b) FFH HU-40M-OR (FFH signifies marine duplex oil strainer, HU, form of U-turn, 40, nominal diameter, M, materials of body and O-ring, OR, O-ring used for the packing gland)
- c) **JIS F 7208**-HU-40M-OR

Example 3: For a Type HS strainer with a nominal diameter of 125 for lubricating oil at a temperature of 150°C or less. Cum lever type with one exchanging handle above the cock.

- a) Marine duplex oil strainer (Type H) HS-125D-CL
- b) FFH HS-125D-CL (FFH signifies marine duplex oil strainer (Type H), HS, form, 125, nominal diameter, D, materials of body and O-ring, CL, Cum lever type with one exchanging handle above the cock.)
- c) **JIS F 7208**-HS-125D-CL

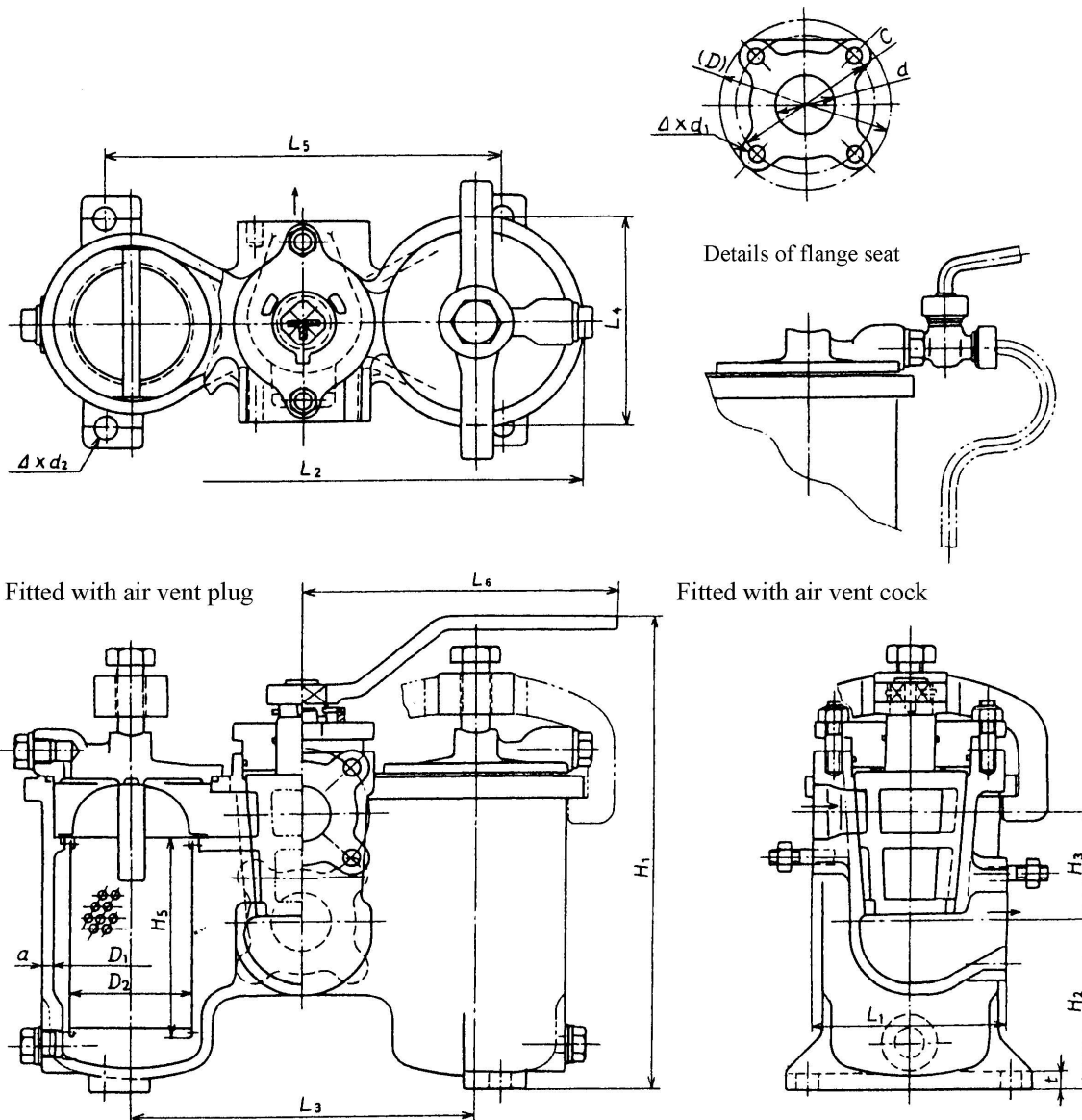
9. Marking

9.1 The following particulars shall be marked on the surface of the cover or the body.

- a) Nominal diameter Example: 50
- b) Material type of O-ring and body casting
- c) Manufacturer's name or abbreviated trade name

9.2 Oil strainer body The following particulars shall be marked on the surface of the body.

- a) Arrowhead indicating the direction of flow at the inlet and outlet flanges or on the surface of body.
- b) Year and month of manufacture



Boltholes of flanges shall straddle body centerlines.

Unit: mm

Nominal dia.	d	L_1	L_2	Flange			Reference	Body and cock					Strainer cylinder		Mounting leg						Reference	
				D	Bolt		Total height	L_3	H_2	H_3	D_1	a	D_2	H_5	L_4	L_5	t	d_2	L_6	Area ratio of Strainer cylinder holes	Calculated mass (kg)	
					Hole PC dia. C	Nominal dia. d_1																
					H_1																	
25	25	115	268	95	75	M10	247	180	82.5	50	70	6	48	98	100	200	10	12	170	15	13.6	
32	40	140	390	115	90	M12	347	240	123	80	110	8	86	148	146	275	13	15	220	25	29.5	
40	40	140	390	120	95	M12	347	240	123	80	110	8	86	148	146	275	13	15	220	16	29.5	

- Remarks:**
1. The pitch circle diameter of bolts for flanges shall conform to the requirements of JIS B 2239 for nominal pressure of 5K.
 2. The thread shall conform to the requirements of JIS B 0205-1 to -4.
 3. Air vent cocks and plugs shall be as specified by the purchaser.
 4. The diameter of strainer cylinder holes shall be 8 mm and the pitch of holes shall be 10 mm.
 5. Mesh of wire gauge shall be as specified by the purchaser. (See JIS F 7207)
 6. The provision of a magnet shall be as instructed by the purchaser. The shape and fitting procedure may differ from that shown in the figure.
 7. Components with Part nos. 2 and 10 to 24 (See Fig. 2) are common with those shown in the requirements of JIS F 7209.
 8. The fitting procedure for wire gauge may differ from that shown in the figure.

Fig. 1 Construction, shape and dimension for Type HS and nominal dia. 25 to 40