



Shipbuilding – Cast iron 5 K screw-down check angle valves

1. Scope This Japanese Industrial Standard specifies marine cast iron 5 K screw-down check angle valves (hereinafter referred to as "angle valve") used for steam, air, fuel oil, lubricating oil, fresh water and feed water, etc. lines in ships.

Remark: This standard makes reference to the following standards:

- JIS B 0205** – Metric coarse screw threads
- JIS B 0222** – 29°C trapezoidal screw threads
- JIS B 2210** – Basic dimensions of ferrous materials pipe flanges
- JIS F 7102** – Shipbuilding – Piping system in machinery space – Application for gaskets and packings
- JIS F 7306** – Shipbuilding – Cast iron 5 K angle valves
- JIS F 7400** – Shipbuilding – Valves and cocks – General inspection requirement
- JIS G 3101** – Rolled steel for general structure
- JIS G 4303** – Stainless steel bars
- JIS G 5121** – Stainless steel castings
- JIS G 5501** – Gray iron castings
- JIS H 3100** – Copper and copper alloy sheets, plates and strip
- JIS H 3250** – Copper and copper alloy rods and bars
- JIS H 3260** – Copper and copper alloy wires
- JIS H 5111** – Bronze castings

2. Relation between fluid condition and maximum working pressure The relation between fluid condition and maximum working pressure for the angle valve shall be as given in **Table 1**.

Table 1

Fluid condition	Maximum working pressure MPa			
	Nominal dia. 200 mm or less	Nominal dia. 250 and 300	Nominal dia. 350 and 400	Nominal dia. 450 or more
	Class B	Class S	Class B	
Steam of 230°C or less	0.5	0.5	—	—
Steam of 205°C or less				
Air and gas	0.5	0.5	0.5	0.4
Oil and pulsation water				
Non-shock water of 120°C or less	0.7		0.6	0.5

Remark: As for Class B and Class S, refer to **4. (1)**.

3. Construction, shape and dimensions The construction, shape and dimensions of the angle valve shall be as shown in **Figs. 1 and 3**. The permissible deviation of body thickness "a" shall, as a rule, be within $\pm 15\%$, but when the calculated value is below 1 mm, the deviation may be permitted up to 1 mm.

In case of valves with nominal diameter of 400 or less, except for the disc and stem, all requirements shall be common to **JIS F 7306**.

In case of valves with nominal diameter of 450 or more, the handwheel may be provided with gear operating device specified by purchaser.

4. Materials The materials for the angle valve shall be as follows:

- (1) The materials for body, bonnet, disc, valve seat and stem shall be as shown in **Figs. 2 and 4**.
The angle valves shall be classified into Class B and Class S according to the combination of materials. Those with nominal diameter 250 or more shall belong to Class B only.
- (2) The materials for other parts shall, as a rule, be as shown in **Figs. 2 and 4**.

5. Tests and inspection The angle valves shall be subjected to inspection on items (1) to (5) below in accordance with the requirements of **JIS F 7400**.

- (1) Material inspection
- (2) Visual inspection
- (3) Dimensional inspection
- (4) Assembly inspection
- (5) Hydraulic inspection

The angle valves shall be tested as given in **Table 2**.

Table 2

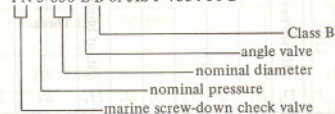
Nominal diameter	Test pressure MPa		
	Watertight inspection for valve seat		Hydraulic inspection for body
	Inlet side	Outlet side	
300 or less	0.77	0.77 to 0.4	1.05
350, 400	0.66	0.66 to 0.3	0.9
450 or more	0.55	0.55 to 0.20	0.75

6. Designation The angle valves shall be designated by the title or the symbol, **JIS** number, nominal diameter and material classification mark.

Example: 1. For an angle valve of Class B and nominal diameter 50:

Marine cast iron 5 K – 50 screw-down check angle valve B or

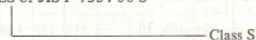
FN 5 050 L B or JIS F 7354-50 B



2. For an angle valve of Class S and nominal diameter 50:

Marine cast iron 5 K – 50 Screw-down check angle valve S or

FN 5050 LS or JIS F 7354-50 S



7. Marking

7.1 The following particulars shall be marked on the body.

- (1) Nominal pressure and nominal diameter

Example: 5 K – 50

- (2) Arrowhead indicating the direction of flow
- (3) Manufacturer's name or mark
- (4) Year of manufacture or the abbreviated

7.2 For indication of check valve, the top of the stem shall be marked with a cross-groove painted in black.

Related Standard:

ISO 5208 – Industrial valve – Pressure testing of valves