



Shipbuilding – Cast steel 40 K angle valves

1. **Scope** This Japanese Industrial Standard specifies cast steel 40 K angle valves (hereinafter referred to as “angle valve”) used for steam, fresh water, feed water, fuel oil lines and lubricating oil lines in ships.

Remark: This standard makes reference to the following standards:

- JIS B 0205 – Metric coarse screw threads
- JIS B 0207 – Metric fine screw threads
- JIS B 0222 – 29° trapezoidal screw threads
- JIS B 1575 – Grease nipples
- 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 7400 – Shipbuilding – Valves and cocks – General inspection requirement
- JIS G 3101 – Rolled steel for general structure
- JIS G 3505 – Mild steel wire rods
- JIS G 4051 – Carbon steel for machine structural use
- JIS G 4105 – Chromium molybdenum steels
- JIS G 4303 – Stainless steel bars
- JIS G 4305 – Cold rolled stainless steel sheets and plates
- JIS G 4404 – Alloy tool steels
- JIS G 5101 – Carbon steel castings
- JIS G 5151 – Steel castings for high temperature and high pressure service
- JIS G 5501 – Grey 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 5111 – Bronze castings

2. **Pressure rating** The between fluid condition and maximum working pressure shall be as given in **Table 1** depending on the materials used for valve body.

Table 1

Fluid condition	Maximum working pressure MPa		
	Carbon steel	Molybdenum steel	Chromium molybdenum steel
Steam of 490°C	—	—	4.0
Steam of 475°C	—	4.0	4.2
Steam of 450°C	—	—	4.5
Steam of 425°C	4.0	—	4.8
Steam of 400°C	4.6	—	5.1
Steam of 350°C	—	—	5.2
Steam of 300°C	—	—	5.7
Air, gas, oil and pulsation water	—	—	6.2

Remark: When temperature or pressure is determined between the values of table, the working pressure or temperature may be specified according to interpolation.

3. Construction, shape, and dimensions The construction, shape, and dimensions shall, as a rule, be as shown in Fig 1.

The permissible deviation of body thickness "a" shall, as a rule, be within $\begin{smallmatrix} +15\% \\ -10 \end{smallmatrix}$.

4. Materials The materials shall, as a rule, be as shown in Fig. 2.

In carbon steel valves for use in a system served with steam exceeding 350°C, the material of body, bonnet and disc shall conform to JIS G 5151 – SCPH 2.

5. Tests and inspection The angle valves shall be subjected to the following items of inspection in accordance with 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 follows:

- (a) Water tight inspection for valve seat: 6.82 MPa
- (b) Hydraulic inspection for body: 9.3 MPa

6. Designation The angle valve shall be designated by the title and nominal diameter or symbol. JIS number may be used in place of the title.

Examples: 1. For a valve of nominal diameter 32 made of carbon steel castings:

Cast Steel 40 K-32 Angle Valve for Marine Use
or FL 40032 M or JIS F 7318-32

nominal diameter
nominal pressure
angle valve for marine use

2. For a valve of nominal diameter 32 made of molybdenum steel castings:

Molybdenum Cast Steel 40 K-32 Angle Valve for Marine Use
or FL 40032 M or JIS F 7318-32 M

body material

3. For a valve of nominal diameter 32 made of chromium molybdenum steel castings:

Chromium Molybdenum Cast Steel 40 K-32 Angle Valve for Marine Use
or FL 40032 CM or JIS F 7318-32 CM

Body material

7. Marking The following particulars shall be marked on the body:

- (1) Nominal pressure and nominal diameter

- Examples:**
1. For a valve made of carbon steel: 40 K – 32
 2. For a valve made of molybdenum steel: 40 K – 32 M
 3. For a valve made of chromium molybdenum: 40 K – 32 CM

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

Related Standards:

JIS B 1532 – Rolling bearing – Thrust ball bearing with flat back faces

ISO 5208 – Industrial valves – Pressure testing for valves