



Shipbuilding – Cast steel 40K globe valves

1. Scope This Japanese Industrial Standard specifies cast steel 40K globe valves (hereinafter referred to as “globe 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 – Gray iron castings
- JIS H 3100 – Copper and copper alloy sheets, plates, and strips
- JIS H 3250 – Copper and copper alloy rods and bars
- JIS H 5111 – Brass castings

2. Pressure rating The relation 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 or less		5.7	
Air, gas, oil and pulsation water		6.2	

Remark: When temperature or pressure is between the values of the table, the working pressure or temperature may be determined by 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 $\pm 15\%$.

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 globe 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 globe valves shall be tested as follows:

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

6. Designation

The globe valves 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 globe valve of nominal diameter 32 made of carbon steel castings:

Cast Steel 40 K – 32 Globe Valve for Marine Use

or FG 40032 or JIS F 7317-32

nominal diameter
nominal pressure
globe valve for marine use

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

Molybdenum Cast Steel 40 K – 32 Globe Valve for Marine Use

or FG 40032 M or JIS F 7317-32 M

body material

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

Chromium Molybdenum Cast Steel 40 K – 32 Globe Valve for Marine Use

or FG 40032 CM or JIS F 7317-32 CM

body material

7. Marking

The following particulars shall be marked on the body.

- (1) Nominal pressure and nominal diameter

Examples: 1. For a globe valve made of carbon steel
40K – 32

2. For a globe valve made of molybdenum steel
40K – 32M

3. For a globe valve made of chromium molybdenum steel
40K – 32CM

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

Related Standard:

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

ISO 5208 – Industrial valves – Pressure testing for valves