



Shipbuilding – Forged steel 20 K globe valves

1. Scope This Japanese Industrial Standard specifies marine forged steel 20 K globe valves (hereinafter referred to as "globe valve") used for fuel oil, lubricating oil, fresh water, feed water, etc. 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 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 F 7440 – Marine 20 K brazed unions for copper pipe
- JIS F 7442 – Marine 40 K welded unions for steel pipe
- JIS G 3101 – Rolled steel for general structure
- JIS G 3201 – Carbon steel forgings for general use
- JIS G 4051 – Carbon steels for machine structure use
- JIS G 4107 – Alloy steel bolting materials for high temperature service
- JIS G 4303 – Stainless steel bars
- JIS G 5101 – Carbon steel castings
- JIS G 5501 – Gray iron casting
- 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 5101 – Brass castings

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

Table 1

Fluid condition	Maximum working pressure MPa
Steam of 400 °C	2.2
Steam of 350 °C	2.6
Steam of 300 °C	2.9
Steam of 220 °C or less	3.1
Air, gas, oil and pulsation water	
Non-shock water of 120 °C or less	
	3.4

Remark: In case temperature or pressure is between the values in the above table, the maximum working pressure or temperature may be determined by interpolation.

3. Classification The globe valves shall be classified as given in **Table 2** according to the type of connection.

Table 2

Type	Type of connection	Applicable nominal diameter
S	Screwed	6 and 10
U	Union	
F	Flange	15 to 25

4. Construction, shape and dimensions The construction, shape and dimensions of the globe valve shall be as shown in Figs. 1 to 3, and shall also be in accordance with the following requirements. The permissible deviation of body thickness "a" shall, as a rule, be within $\begin{smallmatrix} +15 \\ -10 \end{smallmatrix}$ %.

- (1) The shape of the bonnet may be of solid yoke type or separate yoke type.
- (2) The union for copper pipe may be of bite type.

5. Materials The materials for the globe valve shall be as follows:

- (1) The materials for body, flange, bonnet, disc, and stem shall be as shown in Fig. 4
- (2) The materials for other parts shall, as a rule, be as shown in Fig. 4.

6. 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) Assemble inspection
- (5) Hydraulic inspection:

The globe valves shall be tested as follows:

- (a) Watertight inspection for valve seat: 3.74 MPa
- (b) Hydraulic inspection for body: 5.10 MPa

7. Designation The globe valves shall be designated by the title or the abbreviated symbol, JIS number and nominal diameter.

Example: 1. For a globe valve of nominal diameter 6, Type S with a union for copper pipe:

Marine forged steel 20 K-6 globe valve – Type S with union for copper pipe or
EGU 20 006 S C or JIS F 7421-6 SC

EGU 20 006 S C or JIS F 7421-6 SC

 union for copper pipe
 type
 nominal diameter
 nominal pressure
 marine globe valve

2. For a globe valve of nominal diameter 6, Type S with a union for steel pipe:

Marine forged steel 20 K-6 globe valve – Type S with union for steel pipe or
FGU 20 006 S S or JIS F 7421-6 SS

union for steel pipe

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

- (1) Nominal pressure and nominal diameter

Example: 20 K-6

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

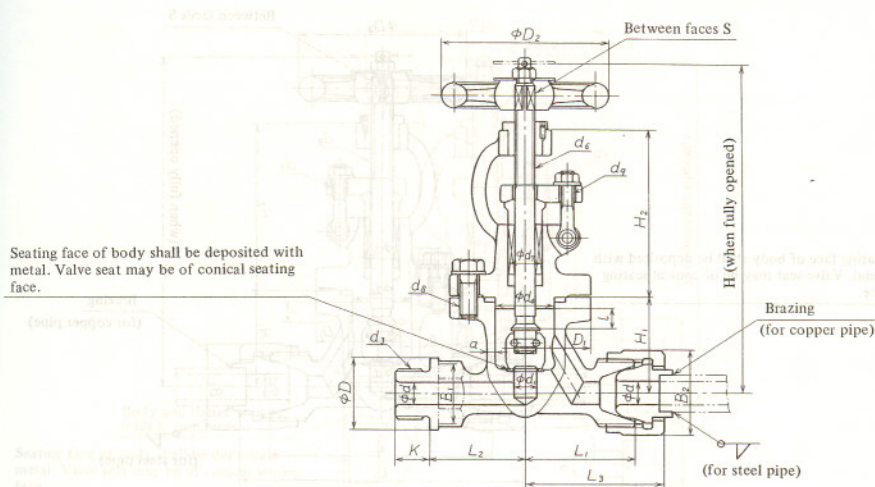
Table 1

Type	Type of connection	Applicable nominal diameter
a	screwed	6 and 10
b	flange	12 and 15

Related Standard:

ISO 5208 – Industrial valves – Pressure testing for valves

Type S



Unit: mm

Nominal dia.	Pipe out. dia.						(Approx.)	Threads				Ht. fully engaged (approx.)	Lift	Handwheel	Body				Reference Ht. of boiler H ₂	Stem		Stuffing box	Nominal dia. of bolt		Between faces		Reference				
	Copper	Steel	d	d ₁	L ₁	L ₂		d ₀	K	D	H				l	a	Reference			H ₁	D ₁		d ₄	Threads d ₆	S	d ₇	d ₈	d ₉	B ₁	B ₂	Calculated mass (kg)
6	8 10	10.5	6	8	42	38	51	M20×1.5	12	28	152	5	63	4	46	68	28	78	M 10	7	17	M 8	M 6	27	30	1.47					
10	15	17.3	10	10	51	45	63	M24×2	16	34	152	5	80	4	46	68	28	78	M 10	8	17	M 8	M 6	27	41	1.75					