

## Shipbuilding - Spheroidal graphite iron (ductile iron) 16K globe valves

1. **Scope** This Japanese Industrial Standard specifies marine spheroidal graphite iron (ductile iron) 16K <sup>(1)</sup> globe valves (hereinafter referred to as "globe valve") used for steam, air, fuel oil, lubricating oil and fresh water piping systems of ships.

**Note <sup>(1)</sup>:** Nominal pressure (gauge pressure)

2. **Reference standards** The following standards form part of the requirements of this Standard when quoted. The latest edition of these standards shall be applied.

|                   |                                                                         |
|-------------------|-------------------------------------------------------------------------|
| <b>JIS B 0205</b> | Metric coarse screw threads                                             |
| <b>JIS B 0216</b> | Metric trapezoidal screw threads                                        |
| <b>JIS B 2239</b> | General rules for cast iron pipe flanges                                |
| <b>JIS F 7102</b> | Application for gaskets and packing to piping system in machinery space |
| <b>JIS F 7400</b> | Ships valves and cocks - General inspection requirement                 |
| <b>JIS G 3101</b> | Rolled steel for general structure                                      |
| <b>JIS G 4303</b> | Stainless steel bars                                                    |
| <b>JIS G 4305</b> | Cold rolled stainless steel plates, sheets and strip                    |
| <b>JIS G 4404</b> | Alloy tool steels                                                       |
| <b>JIS G 5121</b> | Stainless steel castings                                                |
| <b>JIS G 5121</b> | Stainless steel castings                                                |
| <b>JIS G 5501</b> | Grey iron castings                                                      |
| <b>JIS G 5502</b> | Spheroidal graphite iron castings                                       |
| <b>JIS H 3100</b> | Copper and copper alloy sheets, plates and strips                       |
| <b>JIS H 3250</b> | Copper and copper alloy rods and bars                                   |
| <b>JIS H 3260</b> | Copper and copper alloy wires                                           |
| <b>JIS H 5120</b> | Copper and copper alloy castings                                        |

3. **Pressure rating** The relationships between the fluid condition of a globe valve and maximum working pressure shall be as given in Table 1.

**Table 1 Pressure rating**

| Fluid condition                   | Maximum working pressure MPa |                        |
|-----------------------------------|------------------------------|------------------------|
|                                   | Class B <sup>(2)</sup>       | Class S <sup>(3)</sup> |
| Steam at 220°C or less            | —                            | 1.6                    |
| Steam at 205°C or less            | 1.6                          |                        |
| Air, gas, oil and pulsation water |                              |                        |
| Non-shock water at 120°C or less  |                              | 2.2                    |

**Note <sup>(2)</sup>:** Class B signifies that parts tabulated in the material column of Fig. 2 are made from copper and copper alloys.

**Note <sup>(3)</sup>:** Class S signifies that parts tabulated in the material column of Fig. 2 are made from stainless steels.

4. **Construction, shape and dimensions** The construction, shape and dimensions of globe valves shall be as shown in Fig. 1, and the permissible dimensional deviation of the thickness  $a$  of body shall be +15/-10%. Note, however, that if the calculated permissible dimensional deviation is less than 1 mm, a deviation up to 1 mm may be permitted.

5. **Materials** The materials of angle valves shall conform to the following requirements, a) and b).

- The materials of body, bonnet and main components (disc, valve seat and stem) shall be as given in Fig. 2. Globe valves shall be classified into Class B and Class S according to the combination of materials.
- The materials of other parts should preferably be as shown in Fig. 2.

**Tests and inspection** Globe valves shall be inspected for the following items, a) through e), in accordance with the requirements of JIS F 7400.

- Material inspection  
Visual inspection  
Dimensional inspection  
Assembly inspection  
Hydraulic inspection The hydraulic inspection shall be carried out at the following test pressures:
- |                                  |           |
|----------------------------------|-----------|
| 1) Leak tests for valve seat     | 2.42 MPa. |
| 2) Hydraulic inspection for body | 3.3 MPa.  |

**Designation** Globe valves shall be designated by title, nominal pressure, nominal dia, type, material symbol or abbreviation.

**Example 1:** For a globe valve of Class B and nominal diameter of 50:

Marine spheroidal graphite iron (ductile iron) 16K-50 globe valve B

or

F

D

16

50

B

Class B.

nominal diameter

body material: spheroidal graphite iron (ductile iron)

globe valve

marine

**Example 2:** For a globe valve of Class S and nominal diameter of 50:

Marine spheroidal graphite iron (ductile iron) 16K-50 globe valve S

or

F

G

D

16

50

S

Class S.

**Marking** The following particulars shall be marked on the surface of body.

- Material abbreviations of body and bonnet (FCD)  
Nominal pressure and nominal dia.  
Arrow indicating the flow direction  
Manufacturer's name or mark  
Year of manufacture