



Shipbuilding – Forged steel 40 K angle valves

1. **Scope** This Japanese Industrial Standard specifies forged 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 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 7442 – Shipbuilding – Steel pipe 40 K welded unions

JIS G 3101 – Rolled steel for general structure

JIS G 3201 – Carbon steel forgings

JIS G 4051 – Carbon steel for machine structural 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 castings

JIS G 5502 – Spheroidal graphite 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 3260 – Copper and copper alloy wires

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

Table 1

Fluid condition	Max. working pressure MPa
Steam of 425°C	4.0
Steam of 400°C	4.6
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 is between the values in the table, the working pressure may be determined by interpolation.

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

Table 2

Type	Type of connection	Nominal diameter
S	Screw thread type	6 and 10
W	Socket weld type	15 ~ 25
F	Flange type	



4. **Construction, shape and dimensions** The construction, shape, and dimensions shall be as shown in Fig 1 to 3. The permissible deviation of body thickness "a" shall, as a rule, be within $\begin{matrix} +15 \\ -10 \end{matrix} \%$.

The bonnet may be either of the integral york type or of the separate york type.

5. **Materials** The materials of angle valve shall be as follows:

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

6. **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 valves shall be tested as follows:

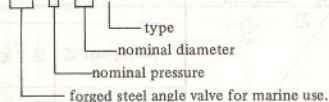
- (a) Watertight inspection for valve seat: 6.82 MPa
- (b) Hydraulic inspection for body: 9.3 MPa

7. **Designation** The angle valves shall be designated by the title, nominal diameter and classification or symbol. JIS number may be used in place of the title.

Example: For an angle valve of nominal diameter 6 mm and type S:

Forged steel 40 K-6 angle valve type S:

or FLU 40 006 S or JIS F 7330-6 S



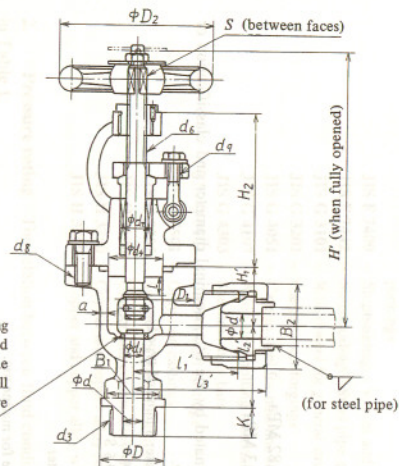
8. **Marking** The following particulars shall be marked on the body:

- (1) Nominal pressure and nominal diameter

Example: 40 K-6

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

In the case of 400°C or less, the seating faces on the body shall be deposited with metal. When exceeding 400°C, the seating faces on the body and disc shall be deposited with stellite. The valve seat may be of conical seating face.



Unit: mm

Nominal dia.	Pipe outside dia.	<i>d</i>	<i>d</i> ₁	<i>l</i> ₁ '	<i>l</i> ₂ '	(Approx.) <i>l</i> ₃ '	Threads <i>d</i> ₅	<i>K</i>	<i>D</i>	Height <i>H</i> ' (Fully opened)	Lift <i>l</i>	Handwheel <i>D</i> ₂	Body				(Reference)	Stem		Stuffing box <i>d</i> ₇	Nominal dia. of bolt		Between faces		Reference
													<i>a</i>	Reference		Height of bonnet <i>H</i> ₂	<i>d</i> ₆	<i>S</i>	<i>d</i> ₈		<i>d</i> ₉	<i>B</i> ₁	<i>B</i> ₂	Calculated mass (kg)	
														<i>H</i> ₁	<i>D</i> ₁										<i>d</i> ₄
6	10.5	6	8	51	38	60	M 20×1.5	12	28	136	5	63	5	30	68	28	78	M 10	7	17	M 10	M 6	27	30	1.6
10	17.3	10	10	51	45	63	M 24×2	16	34	136	5	80	5	30	68	28	78	M 10	8	17	M 10	M 6	27	41	1.9

Remarks:

1. The union shall conform to JIS B7442.
2. The threads d_5 , d_8 and d_9 shall conform to JIS B 0205, d_3 to JIS B 0207.
3. The name plate shall be specified by the purchaser as required.

Fig. 1 Type S