



Shipbuilding – Cast steel 10 K gate valves

1. Scope This Japanese Industrial Standard specifies marine cast steel 10 K gate valves (hereinafter referred to as "gate 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 0222 – 29°C 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 G 3101 – Rolled steel for general structure

JIS G 4303 – Stainless steel bars

JIS G 5101 – Carbon steel castings

JIS G 5501 – Gray 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 3260 – Copper and copper alloy wires

JIS H 5111 – Bronze castings

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

Table 1

Fluid condition	Maximum working pressure MPa	
	Nominal dia. 200 or less	Nominal dia. 250 or more
Saturated steam	0.7	0.5
Oil and pulsation water	1.0	
Non-shock water of 120°C or less	1.4	

3. Construction, shape and dimensions The construction, shape and dimensions of the gate valve shall be as shown in **Fig. 1**, and the body, bonnet and disc shall be properly ribbed where necessary. The permissible deviations of body thickness and bonnet thickness "a" shall, as a rule, be within $\begin{matrix} +15 \\ -10 \end{matrix}$ %, but when the calculated value is below 1 mm, the deviation may be permitted up to 1 mm.

4. Materials The materials for the gate valve shall be as follows:

- (1) The materials for body, bonnet, disc, valve seat, stem and screwed piece shall be as shown in **Fig. 2**. The gate valves shall be classified into Class B and Class S according to the combination of materials. However, for the valves in Class S, the valve seat of body and disc may be of directly deposited. The valve seat (with disc) with nominal diameter 200 or less may be of the construction integral with disc. The materials in this case shall be same as those of the valve seat.
- (2) The materials for other parts shall, as a rule, be as shown in **Fig. 2**.

5. Tests and inspection The gate valves shall be subjected to inspection on items (1) to (5) below in accordance with requirements of **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:

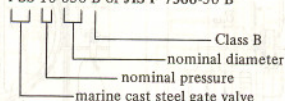
- (a) Watertight inspection for valve seat: 1.54 MPa
However, valves with nominal diameter 300 or more may be tested with the lower pressure specified by purchaser than the test pressure specified herein.
- (b) Hydraulic inspection for body: 2.1 MPa

6. Designation The gate valves shall be designated by the title or the abbreviated symbol, JIS number and nominal diameter and material classification mark.

Example: For a gate valve of Class B and nominal diameter 50:

Marine cast steel 10 K - 50 gate valve B or

FSS 10 050 B or JIS F 7366-50 B



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

- (1) Nominal pressure and nominal diameter

Example: 10 K-50

- (2) Test pressure of watertight inspection for valve seat (only when test pressure for valve seat with nominal diameter 300 or more is specified by purchaser, the valve shall be marked.)
- (3) Manufacturer's name or mark
- (4) Year and month of manufacture or the abbreviated

Nominal pressure			Nominal diameter		Test pressure		Material		Marking	
MPa	kgf/cm ²	mm	in.	MPa	kgf/cm ²	Class A	Class B	Marking	Abbreviated symbol	
1.0	10	10	3/8	1.0	10	10	10	10	10	
1.6	16	15	1/2	1.6	16	15	15	15	15	
2.0	20	20	3/4	2.0	20	20	20	20	20	
2.5	25	25	1	2.5	25	25	25	25	25	
3.0	30	30	1 1/8	3.0	30	30	30	30	30	
3.6	36	35	1 1/4	3.6	36	35	35	35	35	
4.0	40	40	1 1/2	4.0	40	40	40	40	40	
4.8	48	45	1 3/8	4.8	48	45	45	45	45	
5.0	50	50	1 1/2	5.0	50	50	50	50	50	
5.6	56	50	1 3/4	5.6	56	50	50	50	50	
6.0	60	60	2	6.0	60	60	60	60	60	
6.4	64	65	2 1/8	6.4	64	65	65	65	65	
7.0	70	70	2 1/4	7.0	70	70	70	70	70	
7.6	76	75	2 3/8	7.6	76	75	75	75	75	
8.0	80	80	2 1/2	8.0	80	80	80	80	80	
8.5	85	85	2 3/4	8.5	85	85	85	85	85	
9.0	90	90	3	9.0	90	90	90	90	90	
9.6	96	95	3 1/8	9.6	96	95	95	95	95	
10.0	100	100	3 1/4	10.0	100	100	100	100	100	
10.5	105	105	3 3/8	10.5	105	105	105	105	105	
11.0	110	110	3 1/2	11.0	110	110	110	110	110	
11.5	115	115	3 3/4	11.5	115	115	115	115	115	
12.0	120	120	4	12.0	120	120	120	120	120	
12.5	125	125	4 1/8	12.5	125	125	125	125	125	
13.0	130	130	4 1/4	13.0	130	130	130	130	130	
13.5	135	135	4 3/8	13.5	135	135	135	135	135	
14.0	140	140	4 1/2	14.0	140	140	140	140	140	
14.5	145	145	4 3/4	14.5	145	145	145	145	145	
15.0	150	150	5	15.0	150	150	150	150	150	
15.5	155	155	5 1/8	15.5	155	155	155	155	155	
16.0	160	160	5 1/4	16.0	160	160	160	160	160	
16.5	165	165	5 3/8	16.5	165	165	165	165	165	
17.0	170	170	5 1/2	17.0	170	170	170	170	170	
17.5	175	175	5 3/4	17.5	175	175	175	175	175	
18.0	180	180	6	18.0	180	180	180	180	180	
18.5	185	185	6 1/8	18.5	185	185	185	185	185	
19.0	190	190	6 1/4	19.0	190	190	190	190	190	
19.5	195	195	6 3/8	19.5	195	195	195	195	195	
20.0	200	200	6 1/2	20.0	200	200	200	200	200	
20.5	205	205	6 3/4	20.5	205	205	205	205	205	
21.0	210	210	7	21.0	210	210	210	210	210	
21.5	215	215	7 1/8	21.5	215	215	215	215	215	
22.0	220	220	7 1/4	22.0	220	220	220	220	220	
22.5	225	225	7 3/8	22.5	225	225	225	225	225	
23.0	230	230	7 1/2	23.0	230	230	230	230	230	
23.5	235	235	7 3/4	23.5	235	235	235	235	235	
24.0	240	240	8	24.0	240	240	240	240	240	
24.5	245	245	8 1/8	24.5	245	245	245	245	245	
25.0	250	250	8 1/4	25.0	250	250	250	250	250	
25.5	255	255	8 3/8	25.5	255	255	255	255	255	
26.0	260	260	8 1/2	26.0	260	260	260	260	260	
26.5	265	265	8 3/4	26.5	265	265	265	265	265	
27.0	270	270	9	27.0	270	270	270	270	270	
27.5	275	275	9 1/8	27.5	275	275	275	275	275	
28.0	280	280	9 1/4	28.0	280	280	280	280	280	
28.5	285	285	9 3/8	28.5	285	285	285	285	285	
29.0	290	290	9 1/2	29.0	290	290	290	290	290	
29.5	295	295	9 3/4	29.5	295	295	295	295	295	
30.0	300	300	10	30.0	300	300	300	300	300	
30.5	305	305	10 1/8	30.5	305	305	305	305	305	
31.0	310	310	10 1/4	31.0	310	310	310	310	310	
31.5	315	315	10 3/8	31.5	315	315	315	315	315	
32.0	320	320	10 1/2	32.0	320	320	320	320	320	
32.5	325	325	10 3/4	32.5	325	325	325	325	325	
33.0	330	330	11	33.0	330	330	330	330	330	
33.5	335	335	11 1/8	33.5	335	335	335	335	335	
34.0	340	340	11 1/4	34.0	340	340	340	340	340	
34.5	345	345	11 3/8	34.5	345	345	345	345	345	
35.0	350	350	11 1/2	35.0	350	350	350	350	350	
35.5	355	355	11 3/4	35.5	355	355	355	355	355	
36.0	360	360	12	36.0	360	360	360	360	360	
36.5	365	365	12 1/8	36.5	365	365	365	365	365	
37.0	370	370	12 1/4	37.0	370	370	370	370	370	
37.5	375	375	12 3/8	37.5	375	375	375	375	375	
38.0	380	380	12 1/2	38.0	380	380	380	380	380	
38.5	385	385	12 3/4	38.5	385	385	385	385	385	
39.0	390	390	13	39.0	390	390	390	390	390	
39.5	395	395	13 1/8	39.5	395	395	395	395	395	
40.0	400	400	13 1/4	40.0	400	400	400	400	400	
40.5	405	405	13 3/8	40.5	405	405	405	405	405	
41.0	410	410	13 1/2	41.0	410	410	410	410	410	
41.5	415	415	13 3/4	41.5	415	415	415	415	415	
42.0	420	420	14	42.0	420	420	420	420	420	
42.5	425	425	14 1/8	42.5	425	425	425	425	425	
43.0	430	430	14 1/4	43.0	430	430	430	430	430	
43.5	435	435	14 3/8	43.5	435	435	435	435	435	
44.0	440	440	14 1/2	44.0	440	440	440	440	440	
44.5	445	445	14 3/4	44.5	445	445	445	445	445	
45.0	450	450	15	45.0	450	450	450	450	450	
45.5	455	455	15 1/8	45.5	455	455	455	455	455	
46.0	460	460	15 1/4	46.0	460	460	460	460	460	
46.5	465	465	15 3/8	46.5	465	465	465	465	465	
47.0	470	470	15 1/2	47.0	470	470	470	470	470	
47.5	475	475	15 3/4	47.5	475	475	475	475	475	
48.0	480	480	16	48.0	480	480	480	480	480	
48.5	485	485	16 1/8	48.5	485	485	485	485	485	
49.0	490	490	16 1/4	49.0	490	490	490	490	490	
49.5	495	495	16 3/8	49.5	495	495	495	495	495	
50.0	500	500	16 1/2	50.0	500	500	500	500	500	
50.5	505	505	16 3/4	50.5	505	505	505	505	505	
51.0	510	510	17	51.0	510	510	510	510	510	
51.5	515	515	17 1/8	51.5	515	515	515	515	515	
52.0	520	520	17 1/4	52.0	520	520	520	520	520	
52.5	525	525	17 3/8	52.5	525	525	525	525	525	
53.0	530	530	17 1/2	53.0	530	530	530	530	530	
53.5	535	535	17 3/4	53.5	535	535	535	535	535	
54.0	540	540	18	54.0	540	540	540	540	540	
54.5	545	545	18 1/8	54.5	545	545	545	545	545	
55.0	550	550	18 1/4	55.0	550	550	550	550	550	
55.5	555	555	18 3/8	55.5	555	555	555	555	555	
56.0	560	560	18 1/2	56.0	560	560	560	560	560	
56.5	565	565	18 3/4	56.5	565	565	565	565	565	
57.0	570	570	19	57.0	570	570	570	570	570	
57.5	575	575	19 1/8	57.5	575	575	575	575	575	
58.0	580	580	19 1/4	58.0	580	580	580	580	580	
58.5	585	585	19 3/8	58.5	585	585	585	585	585	
59.0	590	590	19 1/2	59.0	590	590	590	590	590	
59.5	595	595	19 3/4	59.5	595	595	595	595	595	
60.0	600	600	20	60.0	600	600	600	600	600	
60.5	605	605	20 1/8	60.5	605	605	605	605	605	
61.0	610	610	20 1/4	61.0	610	610	610	610	610	
61.5	615	615	20 3/8	61.5	615	615	615	615	615	
62.0	620	620	20 1/2	62.0	620	620	620	620	620	
62.5	625	625	20 3/4	62.5	625	625	625	625	625	
63.0	630	630	21	63.0	630	630	630	630	630	
63.5	635	635	21 1/8	63.5	635	635	635	6		