

Shipbuilding – valves and cocks-General inspection requirement

1. **Scope** This Japanese Industrial Standard specifies the general inspection requirement of ships valves and cocks (hereinafter referred to as "valve").

Remark: This standard makes reference to the standard as follows:

JIS B 2203 – Tolerance for pipeflanges

2. **Inspection items** The inspection items shall be as follows. The inspection items for the specific valves shall be as given in the respective standards.

- (1) Material inspection
- (2) Non-destructive inspection
- (3) Visual inspection
- (4) Dimensional inspection
- (5) Assembly inspection
- (6) Pressure resistant inspection
 - (a) Leakage inspection for valve seat
 - (b) Hydraulic inspection for body

3. **Material inspection** The specified materials shall be tested in accordance with the respective standards with the exception of authorized materials.

4. **Non-destructive inspection** The inspection should preferably be as per the following three items, and carried out when required by purchasers.

The method and judgement in inspection shall be provided by agreement between the parties concerned.

- (1) Radiographic inspection
- (2) Magnetic particle inspection
- (3) Liquid penetrant inspection

5. **Visual inspection** The visual inspection shall be as follows:

- (1) The castings shall be free from detrimental defects such as blowhole, fin, sand burning, etc. in both inside and outside faces.
- (2) The forgings shall be free from lap cracks and cutler cracks.
- (3) The machined surfaces shall be free from abnormal defects, irregularity in finish, etc.
- (4) The seating face shall be free from blowholes or other defects objectionable in use.
- (5) The corners on which no dimensions are given shall be suitably round off.
- (6) The fluid passages shall have been carefully finished, cleaned and conditioned.
- (7) The bodies shall be clearly marked with the essential particulars of the respective valves.

6. **Dimensional inspection** The dimensions of each part shall be checked against the specified dimensions.

- (1) The permissible dimensional deviation for the dimensions of machined and unmachined parts, if not specifically indicated by the purchasers, should preferably be as given in Table 1.

Table 1 Permissible dimensional deviation

Unit: mm				
Range of size	Permissible dimensional deviation			
	Dia. of opening (castings)	Thickness (°)	Machined parts (°)	
			Medium grade	Lower grade
4 or less	±0.5	+15 % -10 %	±0.1	±0.3
Exceeding 4 to 16	+1.0 -0.5		±0.2	±0.5
Exceeding 16 to 63	±1.5		±0.3	±0.7
Exceeding 63 to 125	±2.0	—	±0.5	±1.2
Exceeding 125 to 250	±2.5			
Exceeding 250 to 500	±3.0		±0.8	±2.0
Exceeding 500 to 1000	±4.0			
Exceeding 1000 to 1600	±5.0		±1.0	±2.2

Notes: (°) For copper alloys, the permissible deviation shall be 0.5 mm when the calculated valve is below 0.5 mm, and for other materials, it shall be 1 mm when the calculated valve is below 1 mm.

(°) Shall be either medium or lower grade according to the necessity in accuracy.

- (2) The dimensions of flanges of flanged type valves shall be inspected in accordance with JIS B 2203 and the permissible deviation α on right angularity, parallelism and face-to-face dimensions of flanges shall be as given in Table 2.

Table 2 Permissible deviation

Nominal dia. of valve mm	Permissible deviation		
	Parallelism and right angularity α	Face-to-face dimensions mm	
		Globe valve	Angle valve
100 or less	± 30'	± 1.5	± 0.8
125 to 250	± 20'		
300 to 600	± 15'	± 3.0	± 1.5
650 to 800	± 10'		

Remark: The permissible deviation on gate valves and the like shall follow those of globe valves.

