



**PRODUCT MANUAL FOR  
COPPER ALLOY GATE, GLOBE AND CHECK VALVES  
FOR WATERWORKS PURPOSES  
ACCORDING TO IS 778: 1984**

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.*

1.	<b>Product</b>	:	IS 778 : 1984
	<b>Title</b>	:	COPPER ALLOY GATE, GLOBE AND CHECK VALVES FOR WATERWORKS PURPOSES
	<b>No. of Amendments</b>	:	4
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	As per Clause 6.1 and Table 1 of IS 778 : 1984
b)	<b>Grouping guidelines</b>	:	Please refer <a href="#">ANNEX – A</a>
c)	<b>Sample Size</b>	:	For Mechanical Test – 1 No For Chemical Test – 1 No or Drillings 100 gm
3.	<b>List of Test Equipment</b>	:	Please refer <a href="#">ANNEX – B</a>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <a href="#">ANNEX – C</a>
5.	<b>Possible tests in a day :</b>		
	(i) Dimensions of valve (ii) Body Test (Hydrostatic) (iii) Back Seat Test (iv) Seat Test (Hydrostatic)		
6.	<b>Scope of the Licence :</b> Please refer <a href="#">ANNEX-D</a>		

**ANNEX A****Grouping Guidelines**

1. Copper Alloy Gate, Globe and Check Valves for Waterworks Purposes as per IS 778 : 1984 are categorized as under for GoL/CSoL:

Type	a) Gate Valve – Solid Wedge Type/ Split Wedge Type/ Double Disc Type b) Globe Valve – Straight Type/ Right Angle Type c) Check Valve – Swing Type/ Lift Type with Disc or Ball Check
Class	Class 1 / Class 2
Ends	Screwed Body Ends/Flanged Body Ends
Bonnets	Screwed-in Bonnet/Screwed-on Bonnet/Bolted Bonnet
Disc Assembly for Globe valve & Check valve	One piece disc/Renewable disc assembly
Body seat	Integral with body/Separate renewable seat ring
Size	8 mm - 100 mm (Screwed end valves) 15 mm - 100 mm (Flanged valves)

2. Considering the size, the following groups have been evolved:

Group	Screwed end valves	Flanged valves
	Size (mm)	Size (mm)
I	8 mm - 32 mm	15 mm - 32 mm
II	40mm -100 mm	40 mm - 100 mm

3. For the purpose of GoL/CSoL the following shall be considered:
- One sample from each group, preferably highest size, for each class and type of valve and its subtype shall be tested to cover all sizes of valves in that group for the class and type/subtype of valve tested.
  - Sample shall be tested from each type of Ends, Bonnets, Body seat and Disc Assembly to cover that particular type of Ends, Bonnets, Body seat and Disc Assembly.
4. The Firm shall declare the varieties of Valves they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the types and sizes covered in the Licence are tested in rotation, to the extent possible.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

<b>S. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1	Dimensions of valves including ends - Clause 7 and 8	Vernier caliper
		Micrometre
		Thread Gauges
		Go-NoGo gauge, Plug gauge, Snap gauge, Templates, Depth gauge, Thread gauge etc.
2	Body test (Hydrostatic), Back seat test and Seat Test (Hydrostatic) - Clause 9.3, 9.4 and 9.5	Hydrostatic test equipment with end plugs, pressure gauge etc

*The above list is indicative only and may not be treated as exhaustive.*

**ANNEX C**

**Scheme Of Inspection And Testing**

**1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipment.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** – As per the requirements of IS 778: 1984.

**4. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

**4.1** All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

**5. REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.1	Materials	6.1 & Table 1	IS 778	S	One for each type of raw material	Each lot/ cast received	No further testing is required, if received with test certificate or ISI marked.
7	Design and Manufacture	7.1 to 7.11	IS 778	R	All	-	-
8	Dimensions	8.1 to 8.6 Table 2 to 12	IS 778	R	All	-	May be checked with gauges. Random check shall also be made by measuring actual dimensions.
9.3	Body, Test (Hydrostatic)	9.3 & Table 13	IS 778	R	All	-	-
9.4	Back seat test	9.4 & Table 13	IS 778	R	All	-	-
9.5	Seat test (Hydrostatic)	9.5 & Table 13	IS 778	R	All	-	-
12	Preparation	12.1 to 12.4	IS 778	R	All	-	-

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

**ANNEX-D****SCOPE OF LICENCE**

“Licence is granted to use Standard Mark as per IS 778 : 1984 with the following scope:	
Name of the product	Copper Alloy Gate, Globe and Check Valves
Type	a) Gate Valve – Solid Wedge Type/ Split Wedge Type/ Double Disc Type b) Globe Valve – Straight Type/ Right Angle Type c) Check Valve – Swing Type/ Lift Type with Disc or Ball Check
Class	Class 1 / Class 2
Ends	Screwed Body Ends/Flanged Body Ends
Bonnets	Screwed-in Bonnet/Screwed-on Bonnet/Bolted Bonnet
Disc Assembly for Globe valve & Check valve	One piece disc/Renewable disc assembly
Body seat	Integral with body/Separate renewable seat ring
Size	Upto and including _____mm
Any other aspect required as per the Standard	NIL