

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 9890 (1981): General Purpose Ball Valves [MED 17:
Chemical Engineering Plants and Related Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard

SPECIFICATION FOR
GENERAL PURPOSE BALL VALVES

1. Scope — Specifies requirements for cast iron and carbon steel ball valves for general purposes.

It covers the valves of nominal sizes DN 10 to DN 600 in Classes 125, 150, 250, 300 and 600 with flanged ends or with internal screw threads in accordance with IS : 554 - 1975 ' Dimensions for pipe threads where pressure tight joints are required on the threads (*second revision*) ' for nominal sizes 1/4 to 4.

2. Pattern and Construction — Valves shall be of full bore or reduced bore pattern and either of one piece or split construction.

3. Nominal Size — The nominal size (DN) for flanged ends shall be as follows:

10, 15, 20, 25, 32*, 40, 50, 65*, 80, 100, 125*, 150, 200, 250, 300, 350, 400, 450, 500, 600.

3.1 For screwed ends the nominal size shall be as follows :

1/4, 3/8, 1/2, 3/4, 1, 1½, 1½, 2, 2½, 3, 4.

4. Pressure/Temperature Ratings — With the exception of seats and seals, all valve components shall be capable of withstanding the pressure/temperature ratings of the body for the class of valve concerned.

4.1 Maximum permissible working pressures in bar gauge and operating temperatures shall comply with the requirements for the shell material for the class of valve concerned, except that these ratings may be limited by the materials of the body seat rings and/or seats. Due to variety of lining and lubricant material it will be necessary to refer to the manufacturer's recommendation for pressure/temperature ratings. Seats, however, shall be capable of withstanding the body test pressures.

5. End Connection

5.1 Threaded end valves shall be internally threaded complying with the requirements of IS : 554 - 1975, either taper or parallel at manufacturer's option unless the particular form is specified in the order.

5.1.1 End faces of parallel threaded valves shall be provided with a smooth finish at right angles to the threaded axis. The minimum outside diameter of sealing face shall be in accordance with Table 1.

TABLE 1 MINIMUM OUTSIDE DIAMETER OF SEALING FACE

Nominal Size of Threading	Outside Diameter of Sealing Face (Min)
1/4	18
3/8	22
1/2	26
3/4	32
1	39
1½	49
1½	55
2	68

*Non-preferred sizes.

Adopted 14 July 1981

© November 1981, BIS

Gr 2

IS : 9890 - 1981

5.1.2 Other forms of threads may be provided when specified by the purchaser.

5.2 Flange dimensions shall comply with 'Indian Standard specification for steel pipe flanges and flanged fittings' (*under preparation*).

5.2.1 Face to face dimensions shall comply with IS : 9884-1981 'Ferrous valves — face-to-face and end-to-end dimensions'.

5.2.2 End flange face shall be finished smooth for cast iron valves and raised face serrated for cast steel valves as per 'Indian Standard specification for steel pipe flanges and flanged fittings' (*under preparation*). Any other type of facing shall be as specified by the purchaser.

5.2.3 End flanges of steel valves may be integral with or welded to body, when flanges are welded they shall comply with requirements of 'Indian Standard specification for steel pipe flanges and flanged fittings' (*under preparation*).

6. Drain Connection — When specified the body shall be tapped on valves DN 80 and above as per IS : 9625-1980 'Location of by-pass and drain connection for valves'.

7. Joints — Joints between the bodies and body connectors or inserts shall not, in the case of flanged valves, be adversely affected by normal bolting or unbolting of the connecting pipe work nor in the case of screwed valves by normal unscrewing or screwing in of the connecting pipe works.

8. Operation

8.1 Valve shall be designed for direct operation by a handwheel or wrench.

8.2 Manually operated valves shall close by turning the hand-wheel or wrench in a clockwise direction when facing the end of operating shaft.

8.3 Handwheels shall be marked 'Close' or 'Shut' with an arrow to indicate the direction of closure. Alternatively this marking may be shown on a plate secured below handwheel nut.

8.4 Wrenches shall be designed so that they are parallel to the flow passage of the ball. These shall be supplied as separate items and only when specified by the customer.

8.5 Handwheel and wrenches shall be fitted in such a way that, whilst held securely, they may be removed and replaced when necessary. Suitable stops shall be provided for both fully open and fully closed positions of the valves.

8.6 If chainwheel or gear operation is required it shall be specified in the order which shall also specify any chain to be supplied or the type of gearing.

8.7 If actuator operation is required, the details of the actuator and its power supply together with the design maximum pressure differential across the valve shall be specified in the purchase order.

9. Materials — Materials for the valve components are specified in Table 2. Unless otherwise agreed, the manufacturer has the option of selecting materials listed in Table 2 or using other materials, provided they are at least as suitable in all relevant respects.

10. Trim — When valves are required with a particular trim, this shall be specified by the purchaser and in this case the materials used shall be subject to agreement between the manufacturer and the purchaser.

11. Inspection and Test — If inspection by purchaser is specified in the purchase order, inspection shall be as per IS : 6517 'Valve inspection and test (*first revision*)'.

11.1 Each valve shall be pressure tested as specified in IS : 6517.

12. Marking — Marking shall be as specified in IS : 9866-1981 'Marking systems for valves'. The method of attachment or fixing and material of the plate which should be corrosion resistant is at the discretion of the manufacturer.

12.1 ISI Certification Marking — Detail available with the Indian Standards Institution.

13. Despatch Preparation — Each valve shall be drained, cleaned, prepared and suitably protected for despatch in such a way as to minimize the possibility of damage and deterioration during transit and storage. Painting of the finished valve shall be at the option of the manufacturer unless specified by the purchaser.

13.1 All valve balls shall be in the open position when despatched.

TABLE 2 VALVE COMPONENT MATERIALS

(Clause 9)

Components	Cast Iron Valves			Carbon Steel Valves		
	Material	IS :	Grade	Material	IS :	Grade
Body Body connector Insert Cover Ball	Cast Iron	210	FG 220	Carbon steel	2856 1875 2004	Gr I or II CI 2 and 3 CI 2 and 3
Exitting	Carbon Steel ; Min. tensile strength MPa 390 (N/mm ²)					
Stem, Gland	Carbon Steel — Rust proofed					
Seals and Gasket	Manufacturer's standard; suitable for duty					
Wrench/Handwheel	Malleable Iron, S.G. Iron or Steel					

13.2 Valve ends shall be suitably sealed to exclude foreign matter during transit and storage.

14. Information to be Given by the Purchaser — The following information is to be given by the purchaser in an enquiry or order:

- a) Pattern of valve (2);
- b) Nominal size DN (3);
- c) Nominal pressure — class designation (1), and service temp;
- d) Flanged ends, including facing (5.2.2 and 5.2.3);
- e) Screwed ends, state whether a specified thread form is required (taper or parallel) (5.1);
- f) Gear operation, if required, including type and arrangement (8.6);
- g) Power operation, if required, including power supply and maximum design differential pressure across the valve (8.7);
- h) Any preference for materials (9 and 10); and
- j) State whether any of the following is required:
 - i) Drain connection (6),
 - ii) Inspection is required by buyer (11),
 - iii) Test certificate and number of copies (11), and
 - iv) Painting (13).

EXPLANATORY NOTE

In the preparation of this standard assistance has been derived from BS 5159, BS 5351 and API 600.