भारतीय मानक

Indian Standard

IS 9625 : 2023

वाल्व हेतु बाय-पास एवं नाली कनेक्शन का स्थान

(पहला पुनरीक्षण)

Locations of By-Pass and Drain Connections for Valves

(First Revision)

ICS 23.060.01

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

August 2023 **Price Group 5**

Chemical Engineering Plants and Related Equipment Sectional Committee, MED 17

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Chemical Engineering Plants and Related Equipment Sectional Committee had been approved by the Mechanical Engineering Divisional Council.

This standard was first published in 1980. The present revision has been taken up with a view to incorporate the modification found necessary as a result of experience gained in the use of this standard. Also, in this revision, the standard has been brought into the latest style and format of Indian Standards, and references to Indian Standards, wherever applicable have been updated. The provisions of the amendment have been incorporated with the revision of this standard.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

LOCATIONS OF BY-PASS AND DRAIN CONNECTIONS FOR VALVES

(First Revision)

1 SCOPE

This standard covers the requirements of drain and by-pass connections for valves. This standard is applicable for all valves regardless of pressure or material whenever by-pass or drain connections are required.

2 REFERENCES

The standard given below contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of this standard:

IS No./Other Standards	*Title*
IS 554 : 1999/ ISO 7-11 : 1994	Pipe threads where pressure-tight joints are made on the threads — Dimensions, tolerances and designation (*fourth revision*)

3 LOCATION

3.1 Locations of openings for drain and by-pass connections shall be as indicated in Fig. 1. Each location is designated by a letter so that the desired location may be specified without using further sketches or descriptions.

3.2 For gate and ball valves the regular practice of attaching by-pass shall be at the side of the main valve with the stems of both the valves pointing upwards.

3.3 For globe valves the regular practice of attaching by-pass shall be on the right side of the main valve (locations E and F in Fig. 1) with the stems of both the valves parallel pointing vertically upwards.

3.4 The location of by-pass at the bottom of the main valve (C and D in Fig. 1) with the stem of the by-pass valve at right angles to the main valve stem, can also be furnished and is termed as by pass at the bottom.

3.5 Any other location or position of the by-pass, valve stem, if desired, shall be by agreement between the manufacturer and the user.

4 DIMENSIONS OF DRAIN AND BY-PASS CONNECTIONS

4.1 Drain sizes shall be as specified in Table 1. For valves with nominal size (DN) 750 mm and above, the size of drain tapping shall be decided by agreement between the manufacturer and the user.

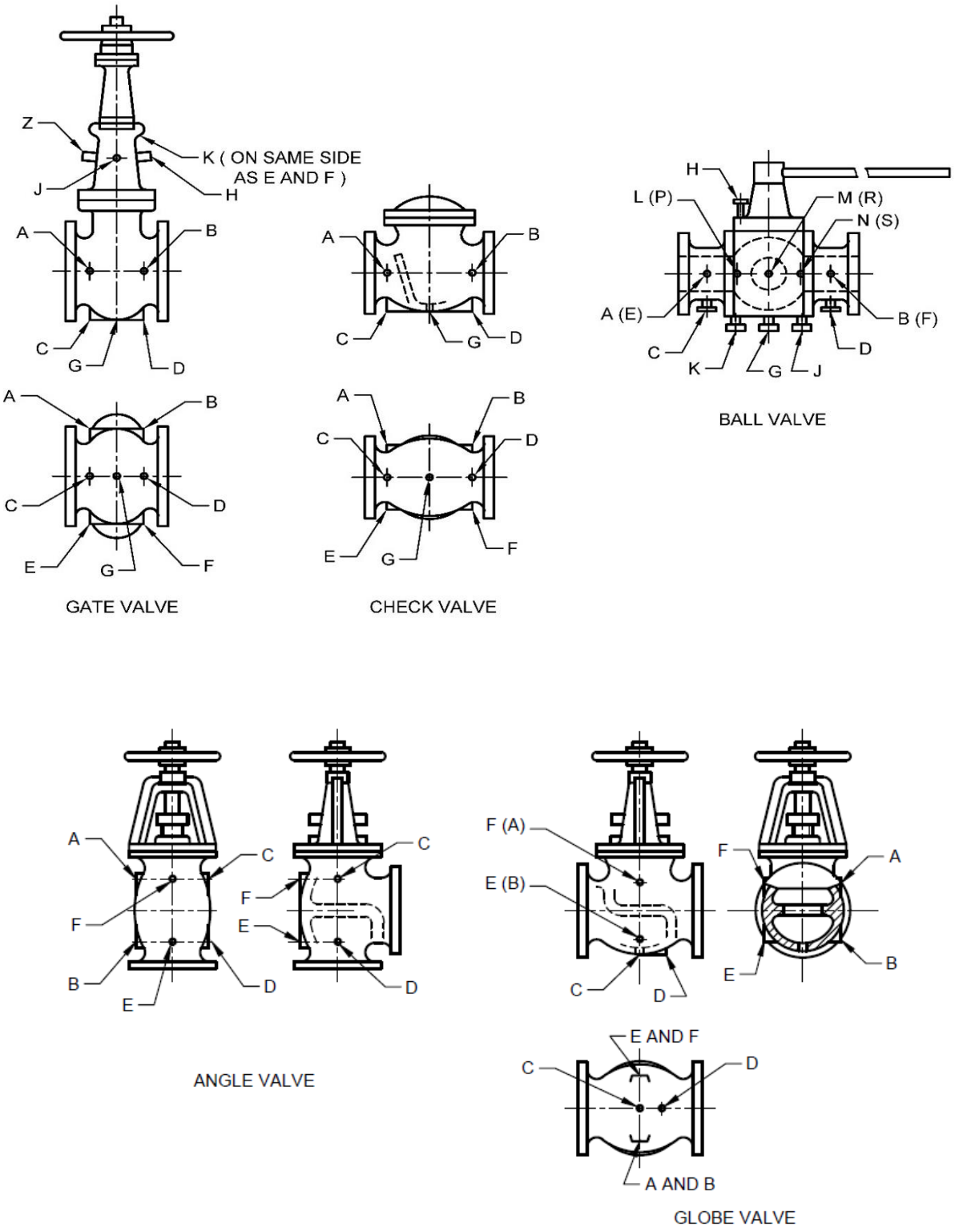
4.2 The recommended by-pass sizes are given in Table 2 when valves are ordered with by-pass connections. However, any other sizes of by-pass required by user shall be based on agreement between manufacturer and user.

4.2.1 Series A is recommended for steam service for warming up before the main line is opened, and for balancing pressures where the lines are of limited volume.

Table 1 Drain Size

(*Clause* 4.1)

Sl No.	**Nominal Valve Size (DN)** mm	**50 to 100**	**125 to 200**	**250 to 600**
(1)	(2)	(3)	(4)	(5)
i)	Site of Tapping (Nominal size) in accordance with IS 554	1/2	3/4	1



NOTE — The above sketches represent valves with symmetrical shapes. Sketches are illustrative only and do not imply required design.

FIG. 1 LOCATION OF AUXILIARY CONNECTIONS FOR STEEL VALVES

4.2.2 Series B is recommended for lines conveying gases or liquids, where by-pass may facilitate the operation of the main valve by balancing the pressure on either side of the closure member.

4.3 Pipe Thread Tapping

For drain connections holes may be tapped in the wall of valves if the metal is thick enough to allow effective thread length as specified in Table 3. Where thread length is insufficient or the tapped hole needs reinforcement, a boss shall be added.

4.4 Welded Connections for By-Pass

4.4.1 *Sockets*

Size of sockets shall be as specified in Table 4. When the wall thickness is insufficient to provide the above connection directly, a boss shall be added.

Table 2 By-Pass Size

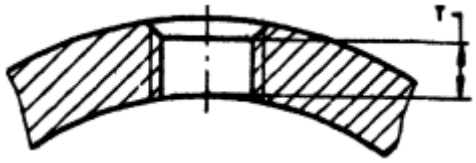
(*Clause* 4.2)

All dimensions are in millimetres.

Sl No.	Main Valve Size		100	125	150	200	250	300	350	400	450	500	600	750	900	1 100	1 200
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
i)	By-pass size	Series A	15	20	20	20	25	25	25	25	25	25	25	25	25	25	25
ii)		Series B	25	52	32	40	40	50	50	80	80	80	100	100	150	150	200

Table 3 Minimum Thread Length of Tapping

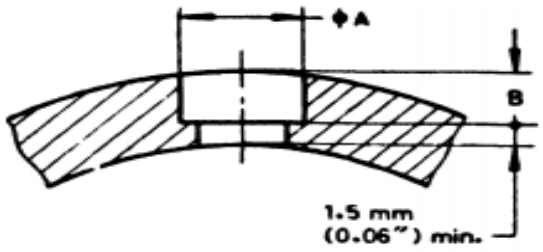
(*Clause* 4.3 *and* 4.4.3)



Sl No.	Size of Tapping as per IS 554	3/8	1/2	3/4	1	1-1/4	1-1/2	2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Length of thread '*T*', mm	10.5	13.5	14.0	17.5	18.1	19.3	19.4

Table 4 Welding Socket Dimensions

(*Clause* 4.4.1 *and* 4.4.3)



Sl No.	Nominal Pipe Size	3/8	1/2	3/4	1	1-1/4	1-1/2	2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Minimum diameter of socket A, mm	17.5	21.8	27.1	33.8	42.5	48.6	61.2
ii)	Minimum depth of socket B, mm	5.0	5.0	6.5	6.5	6.5	6.5	8.0

4.4.2 *Butt Welding*

Connections may be attached directly to the wall of the valve by butt welding. Where the size of opening is such that reinforcement is necessary, a boss shall be added as given in Table 5 (*see* Fig. 2).

4.4.3 *Bosses*

When provided the diameter of the boss shall not be less than those specified in Table 5 and the height of the boss shall be such as to provide the requisite lengths as given in Tables 3 and 4.

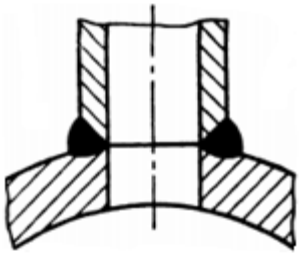
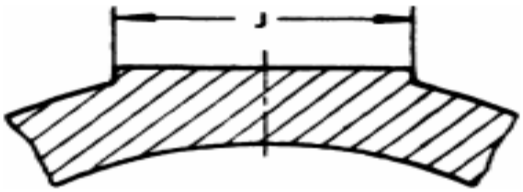


FIG. 2 BUTT WELDING

Table 5 Bosses

(*Clause* 4.4.2 *and* 4.4.3)



Sl No.	**Nominal Pipe Size**	**3/8**	**1/2**	**3/4**	**1**	**1-1/4**	**1-1/2**	**2**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Diameter of the boss '*J*', mm	32.0	38.0	44.5	54.0	63.5	70.0	86.0

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Chemical Engineering Plants and Related Equipment Sectional Committee, MED 17

Organization	*Representative(s)*
CSIR - Indian Institute of Petroleum, Dehradun	DR MRITUNJAY KUMAR SHUKLA **(*Chairperson*)**
Advance Valves Global, Noida	SHRI PRANAY S. GARG SHRI CHANDRAKANT WADKAR (*Alternate*)
Auma India Private Limited, Bengaluru	SHRI YASHWANT M. JANNU
Bharat Heavy Electrical Limited, New Delhi	SHRI Y. SRINIVASA RAO SHRI ABHISHEK KUMAR PANDEY (*Alternate*)
Blast Carboblocks Private Limited, Mumbai	SHRI DHAWAL SAXENA
Central Power Research Institute, Bengaluru	DR P. THOMAS SHRI SADASIVA MURTHY P. (*Alternate* I) SHRI AJITH KUMAR N. (*Alternate* II)
Chemtrols Industries Private Limited, New Delhi	SHRI P. KRISHNA KUMAR
Confederation of Indian Industry, New Delhi	SHRI DUSHYANT SINGH
Directorate General Factory Advice Service and Labour Institutes, Mumbai	SHRI TANOJ CHANDAN SHRI KUNAL SHARMA (*Alternate*)
Engineers India Limited, Gurugram	SHRI HASMUKH K. PARMAR SHRI MRAGANG SHEAKHAR (*Alternate*)
GMM Pfaudler Limited, Anand	SHRI DHIRAN PANCHAL SHRI SATVIK PATEL (*Alternate*)
Hindustan Petroleum Corporation Limited, Mumbai	SHRI KRISHANU GHOSH SHRI N. K. RAI (*Alternate*)
Indian Oil Corporation Limited, New Delhi	SHRI KARAN AGRAWAL
Indian Rubber Manufacturers Research Association, Mumbai	DR K. RAJ KUMAR DR DEBDIPTA BASU (*Alternate*)
Indian Valve and Actuator Manufacturers Association (IVAMA), Coimbatore	SHRI R. MURUGANANTHAM SHRI JAY DOSHI (*Alternate*)
Kejriwal Casting Limited, Kolkata	SHRI SANDEEP KEJRIWAL
L&T Valves, Chennai	SHRI ROHIT SHARMA SHRI SURIYANARAYANAN (*Alternate*)
Lathia Rubber Manufacture Company Private Limited, Mumbai	SHRI SANJIV S. LATHIA
MECON Limited, Ranchi	SHRI YOGENDRA KUMAR SINGH SHRI ARVIND BHUSHAN (*Alternate*)

Organization	*Representative(s)*
Plastics Machinery Manufacturers Association of India (PMMAI), New Delhi	SHRI NANDHA KUMAR T. SHRI PRADIP VANWANI (*Alternate*)
Project and Development India Limited, Noida	SHRI SANJIV KUMAR MISHRA SHRI RAJEEV RANJAN KUMAR (*Alternate*)
Tata Consulting Engineers Limited, Navi Mumbai	SHRI SHIVNARAYAN PAREEK SHRI SHIREESH S. SWAMI (*Alternate*)
BIS Directorate General	SHRI NAVINDRA GAUTAM SCIENTIST 'E'/DIRECTOR AND HEAD (MECHANICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
MS NEHA THAKUR
SCIENTIST 'B'/ASSISTANT DIRECTOR
(MECHANICAL ENGINEERING), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: MED 17 (19954).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	2821 8093

Branches : AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. CHANDIGARH. CHENNAI. COIMBATORE. DEHRADUN. DELHI. FARIDABAD. GHAZIABAD. GUWAHATI. HIMACHAL PRADESH. HUBLI. HYDERABAD. JAIPUR. JAMMU & KASHMIR. JAMSHEDPUR. KOCHI. KOLKATA. LUCKNOW. MADURAI. MUMBAI. NAGPUR. NOIDA. PANIPAT. PATNA. PUNE. RAIPUR. RAJKOT. SURAT. VISAKHAPATNAM.

Published by BIS, New Delhi