



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

BUREAU OF INDIAN STANDARDS

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

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व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 22:2/टी-35

20 अगस्त 2024

तकनीकी समिति : अग्नि शमन विषय समिति, सीईडी 22

प्राप्तकर्ता :

- सिविल अभियांत्रिकी विभाग परिषद, सीईडीसी के सभी सदस्य
- अग्नि शमन विषय समिति, सीईडी 22 और इसकी उपसमितियों के सभी सदस्य
- रुचि रखने वाले अन्य निकाय।

महोदय/महोदया,

निम्नलिखित मानक का मसौदा संलग्न है:

प्रलेख संख्या	शीर्षक
सीईडी 22(26389)WC	लैंडिंग वॉल्व — विशिष्टि (आईएस 5290 का चौथा पुनरीक्षण) का भारतीय मानक मसौदा [आईसीएस 13.220.10]

कृपया इस मसौदे का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजे कि यह मसौदा प्रकाशित हो तो इन पर अमल करने में आपको व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि: 19 सितंबर 2024

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा ced22@bis.gov.in पर या उपरलिखित पते पर, संलग्न फॉर्मेट में भेजें। सम्मतियाँ बीआईएस ई-गवर्नेंस पोर्टल, www.manakonline.in के माध्यम से ऑनलाइन भी भेजी जा सकती हैं।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रालेख को यथावत अंतिम रूप दे दिया जाएगा। यदि सम्मति तकनीकी प्रकृति की हुई तो विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रालेख को अंतिम रूप दे दिया जाएगा।

यह प्रालेख भारतीय मानक ब्यूरो की वेबसाइट www.bis.gov.in पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय

ह/-

द्वैपायन भद्र

वैज्ञानिक ई एवं प्रमुख

सिविल अभियांत्रिकी विभाग

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संलग्न: उपरलिखित



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

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WIDE CIRCULATION DRAFT

Our Reference: CED 22:02/T-35

20 August 2024

TECHNICAL COMMITTEE: FIRE FIGHTING SECTIONAL COMMITTEE, CED 22

ADDRESSED TO:

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of Fire Fighting Sectional Committee, CED 22 and its Subcommittees
3. All others interested.

Dear Sir/Madam,

Please find enclosed the following draft:

Doc No.	6 Title
CED 22(26389)WC	Draft Indian Standard Landing Valves — Specification (<i>Fourth Revision of IS 5290</i>) [ICS: 13.220.10]

Kindly examine the attached draft and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

Last Date for comments: 19 September 2024

Comments if any, may please be made in the enclosed format and emailed at ced22@bis.gov.in or sent at the above address. Additionally, comments may be sent online through the BIS e-governance portal, www.manakonline.in.

In case no comments are received or comments received are of editorial nature, kindly permit us to presume your approval for the above document as finalized. However, in case comments, technical in nature are received, then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in.

Thanking you,

Yours faithfully,

Sd/-

Dwaipayan Bhadra

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Civil Engineering Department

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Phone: +91-11 2323 5529

Encl: As above

FORMAT FOR SENDING COMMENTS ON THE DOCUMENT

[Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/ table/figure, etc, be stated on a fresh row. Information/comments should include reasons for comments, technical references and suggestions for modified wordings of the clause. **Comments through e-mail to ced22@bis.gov.in shall be appreciated.**]

Doc. No.: CED 22(26389)WC

BIS Letter Ref: CED 22:02/T-35

Title Draft Indian Standard Landing Valves — Specification (*Fourth Revision of IS 5290*) [ICS: 13.220.10]

Last date of comments: 19 September 2024

Name of the Commentator/ Organization: _____

SI No.	Clause/ Para/ Table/ Figure No. commented	Type of Comment (General/ Technical/ Editorial)	Comments/ Modified Wordings	Justification of Proposed Change
1.				
2.				
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NOTE- Kindly insert more rows as necessary for each clause/table, etc

BUREAU OF INDIAN STANDARDS**DRAFT STANDARD FOR COMMENTS ONLY**

(Not to be reproduced without the permission of BIS or used as an Indian Standard)

Draft Indian Standard

LANDING VALVES — SPECIFICATION

(Fourth Revision of IS 5290)

(ICS: 13.220.10)

**Fire Fighting
Sectional Committee, CED 22**

**Last Date for Comments:
19 September 2024**

FOREWORD

(Formal clauses shall be added later)

The landing valves are sometimes also referred to as internal hydrants or hydrant valves, because these are usually fitted to riser pipes of wet or dry riser system. These are primarily intended for being installed at or adjacent to the staircase landing at each floor level, from where fire-hose could be laid out by the fire brigade or trained men for fighting fire on the concerned floor. Because of this, the design of these valves has to be compact so as not to cause any obstruction to the passage where these may be installed. They are also installed outdoors in industrial premises, where they are fixed on hydrant standposts fitted on firewater pipelines. Here, these are used for operation of different water and foam fire fighting equipment in the event of fire/ emergency by fire fighters/ trained personnel.

This standard was first published in 1969 and revised subsequently in 1977, 1983 and 1993. This revision has been prepared in order to address the pressure related problems faced with landing valves on industrial premises as described below, and to bring the provisions at par with other national and international standards.

It is noted that landing valves can be subjected to high pressures when installed in tall buildings and those installed in industrial sites (especially refineries and petrochemical plants). To address this, pressure regulating landing valves have been added in this standard, including their design, material specification and testing requirements. The option of having landing valve outlet as an integral part of the casting has been included. For installation in buildings, landing valves with threaded inlets are commonly used all around the world, as they can be easily installed where space is a constraint, and inside hose boxes; this option has also been included in the standard. In this revision, the following significant changes are incorporated:

- a) All the amendments issued so far.
- b) Allow landing valve female outlet as an integral part of landing valve body
- c) Threaded inlet option for landing valves, has been included.

- d) Double headed landing valves have been removed from this standard in view of operational problems and safety concerns at high pressures.
- e) Pressure regulating hydrant valves are included

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.

FOR INFORMATION ONLY (shall be deleted during publication)

S No.	Word Used	Intended Meaning
(1)	(2)	(3)
i)	'shall'	Indicates an obligatory requirement
ii)	'should'	Indicates a recommendatory requirement which is not obligatory
iii)	'may'	Indicates a permissible character
iv)	'can'	Expresses capability only

BUREAU OF INDIAN STANDARDS

DRAFT STANDARD FOR COMMENTS ONLY

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Draft Indian Standard

LANDING VALVES — SPECIFICATION

(Fourth Revision of IS 5290)

1 SCOPE

This standard lays down the requirements regarding materials, shape, dimensions, and performance requirements of landing valves. Landing valves are sub-divided based on application and inlet/outlet connections.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions 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 editions of the standards.

3 GENERAL

The landing valve assembly shall be of nominal 63 mm size and shall consist of valve body and parts/internal(s) as given in the figure's hereafter. The landing valve may have a flanged or threaded inlet and may have the female instantaneous outlet as an integral part of the body or have a separate female instantaneous outlet connected to the landing valve body using appropriate threads. Pressure regulating valves have additional parts/mechanism for carrying out the pressure regulating function, and therefore differ in design from standard landing valves.

NOTE – The instantaneous female outlets may also be manufactured as a part of landing valves.

4 CATEGORIES

4.1 The landing valves may be categorised as under:

4.1.1 *Normal Type*

Standard landing valves having flanged or threaded inlet connection options and having either an integral or a screwed-on female instantaneous outlet (see Fig. 1 to Fig. 3).

4.1.2 *Pressure Regulating Type*

Landing valves incorporating pressure regulating mechanism for giving approximately constant pressure with varying inlet high pressures. (see Fig. 4)

4.2 The shape and dimensions of the different types of landing valves and components/parts shall be given in Fig. 1 to Fig. 5, and manufacturer shall maintain the basic dimensions.

4.3 Inlet connection for normal landing valves can be flanged or threaded. For pressure regulating valves, the inlet connection shall be flanged only. The flange and thread dimensions shall be as given in Table 1.

Table 1 Dimensions for Flanged or Threaded Inlet Connections
(Clause 4.3)

SI No.	Landing Valve Type	Type of Inlet				
		Flanged mm				Threaded mm
		Outer Diameter	Thickness	Pitch Circle Diameter (PCD)	No. of Holes × Diameter of Hole	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Normal type	200	12	160	4 × 19	G2 ½" External thread as per IS 2643
		180	12	140	4 × 19	G2 ½" External thread as per IS 2643
ii)	Pressure regulating type	200	12	160	4 × 19	Not permitted.
		180	12	140	4 × 19	Not permitted.

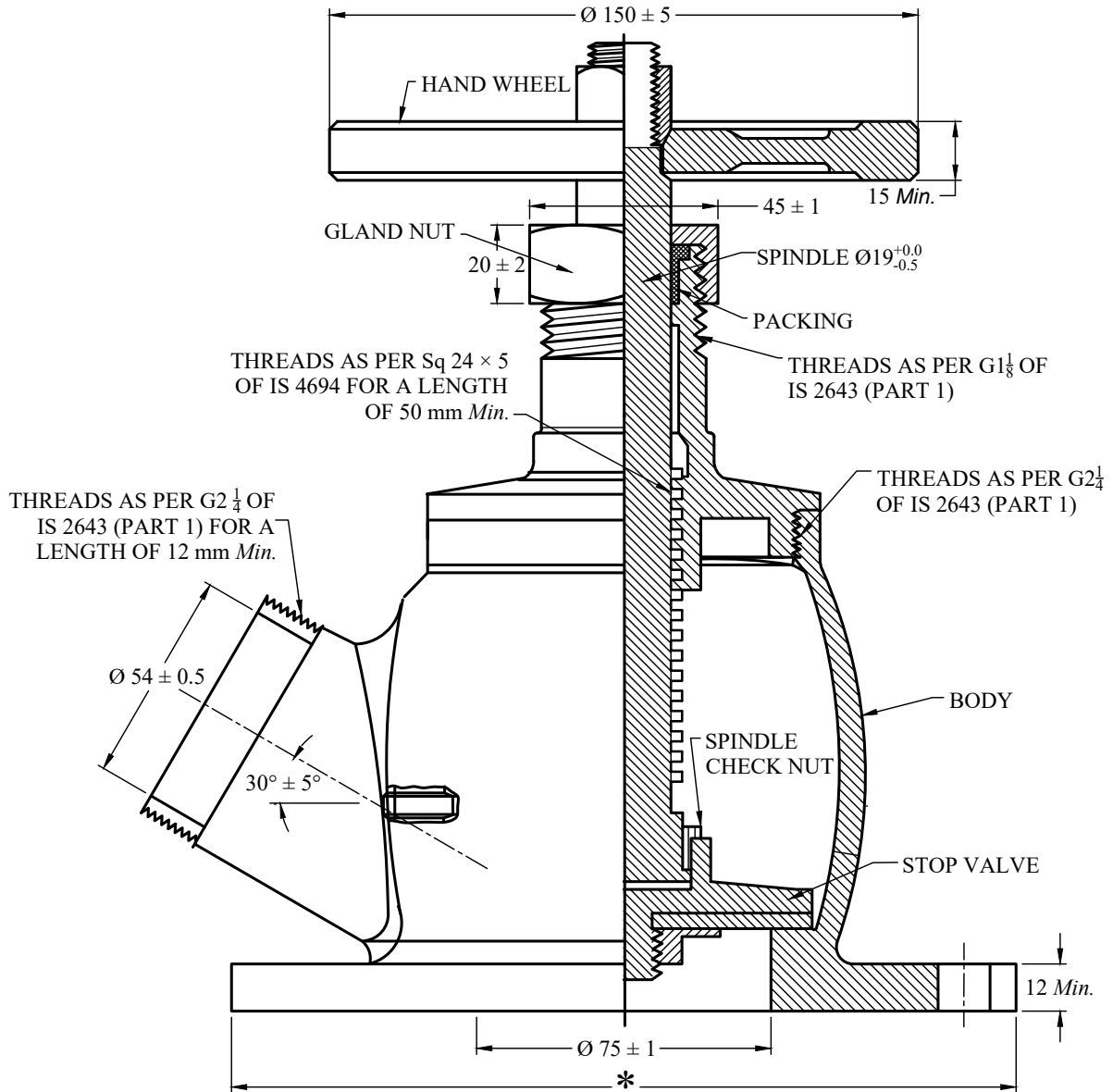
4.4 Outlet(s) of landing valve shall be 63 mm size female instantaneous type adaptor, which can be either as-cast, that is, as an integral part of the body or can be fitted onto the valve body using threaded connection. The dimensions of the instantaneous female outlet adaptor shall be as shown in Fig. 3. Blank cap for outlet shall be as shown in Fig. 5.

4.5 For pressure regulating type landing valve, a suitable mechanism shall be incorporated within the valve assembly to ensure that the outlet pressure will be regulated when tested in accordance with 7. The pressure regulating mechanism shall have suitable locking arrangement to ensure that the initial setting of the pressure regulating mechanism cannot be tampered with at site.

4.6 The following figures should be referred based on the type of landing valve and inlet/outlet options applicable:

- a) Fig. 1 for landing valve having flanged inlet with screwed-on instantaneous female outlet,
- b) Fig. 2 for instantaneous female outlet.
- c) Fig. 3 for landing valve having threaded inlet with integral instantaneous female outlet,

- d) Fig. 4 for pressure regulating landing valve having flanged inlet with integral instantaneous female outlet, and
- e) Fig. 5 for male instantaneous blank cap for use with the female instantaneous outlet of the landing valve.

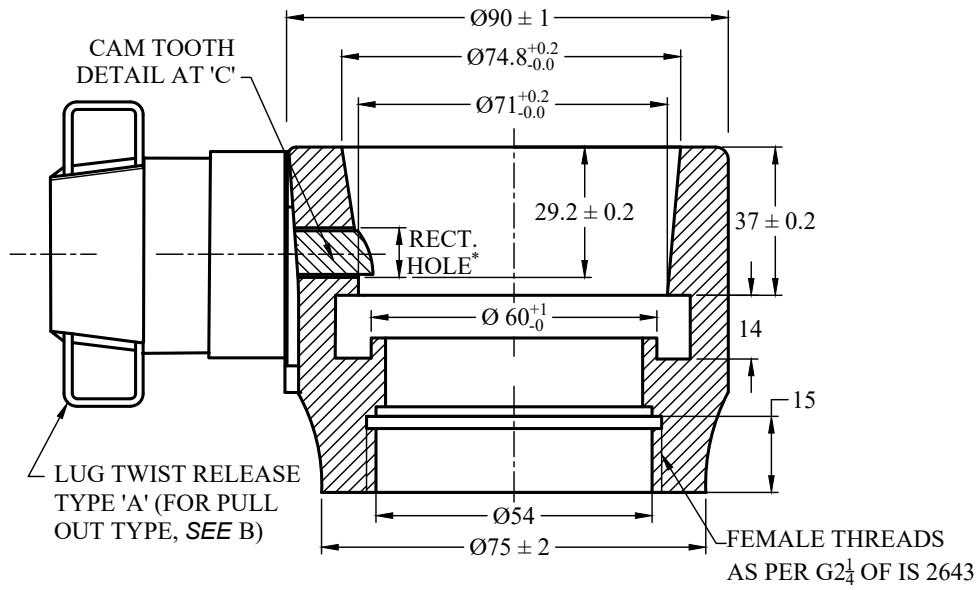


*FLANGED DIAMETER NORMALLY 200 mm AND P.C.D 160 mm, 4 HOLES OF 19 mm DIAMETER OR ELSE AS SPECIFIED BY CLIENT.

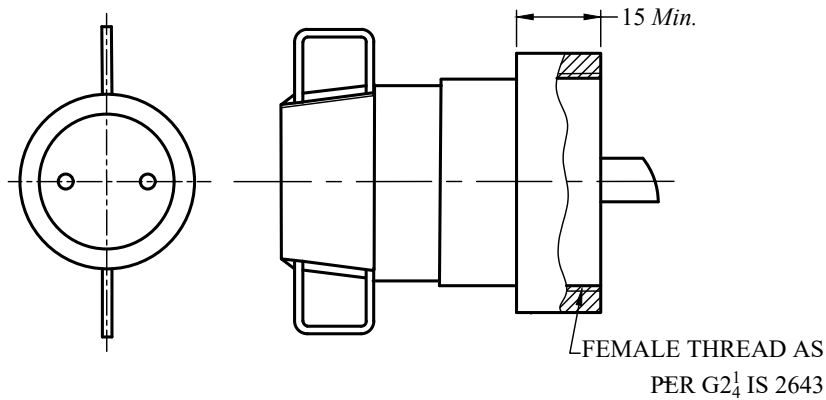
NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions are in millimetres.

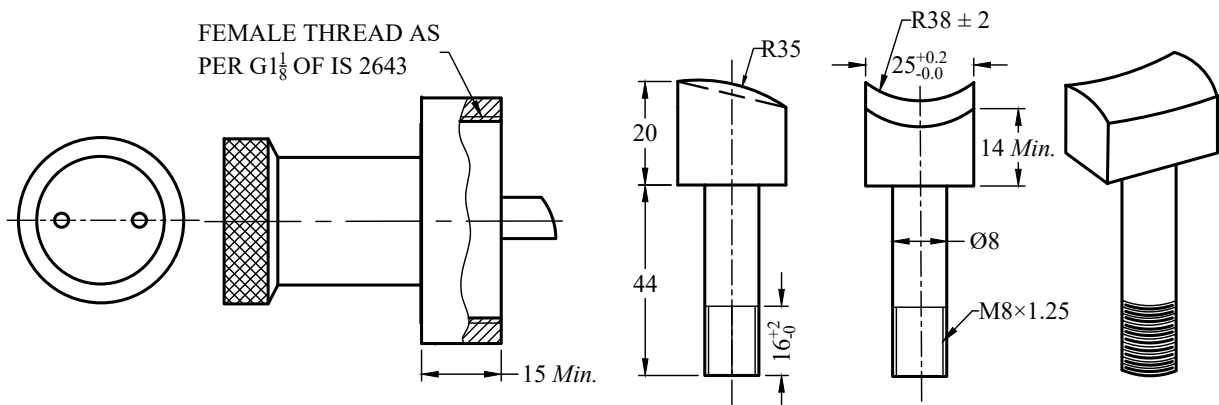
FIG. 1 LANDING VALVE, NORMAL TYPE, FLANGED INLET, WITH THREADED FEMALE INSTANTANEOUS OUTLET



2A OUTLET



2B LUG TWIST RELEASE TYPE 'A'

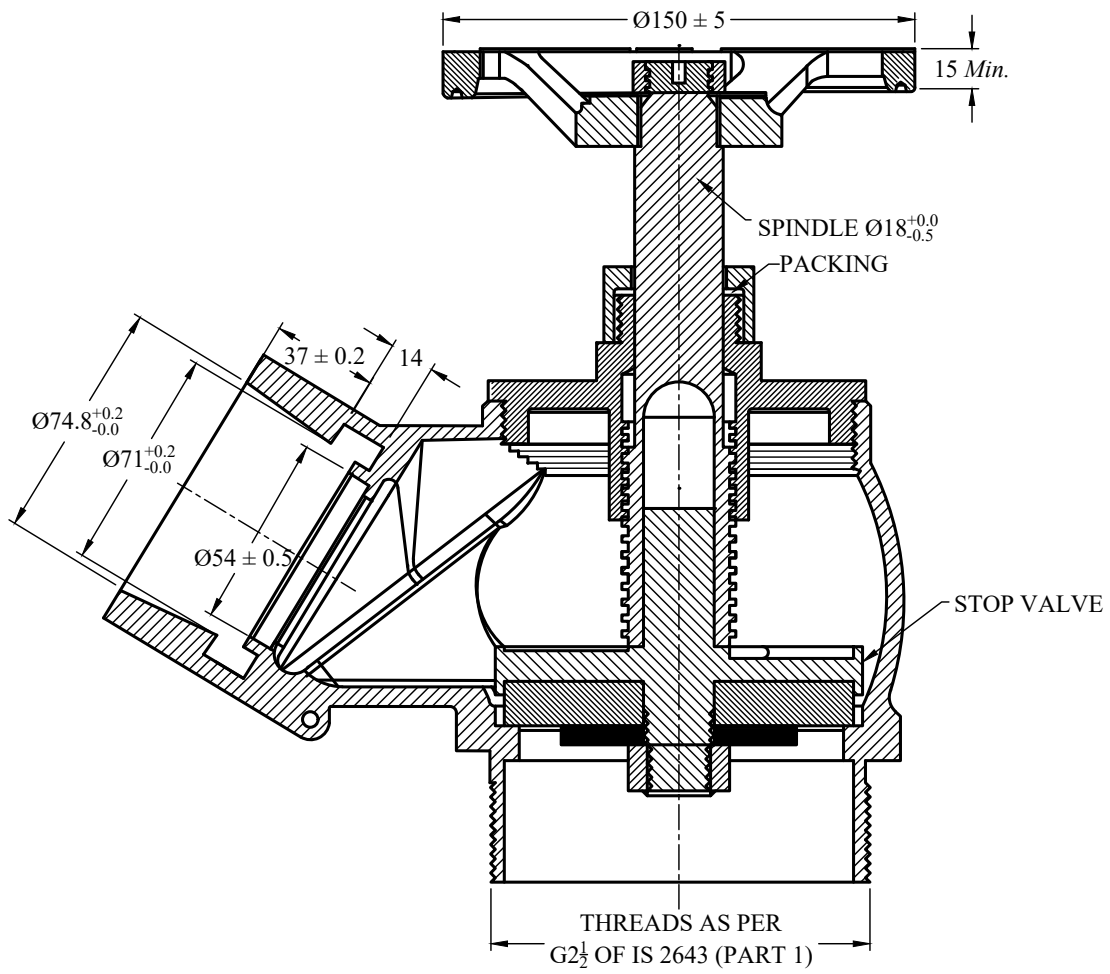


2C LUG PULL OUT TYPE 'B' (ALTERNATE)

2D CAM TOOOTH DETAIL 'C'

NOTE — Tolerance where not specified shall be ± 0.5 mm.

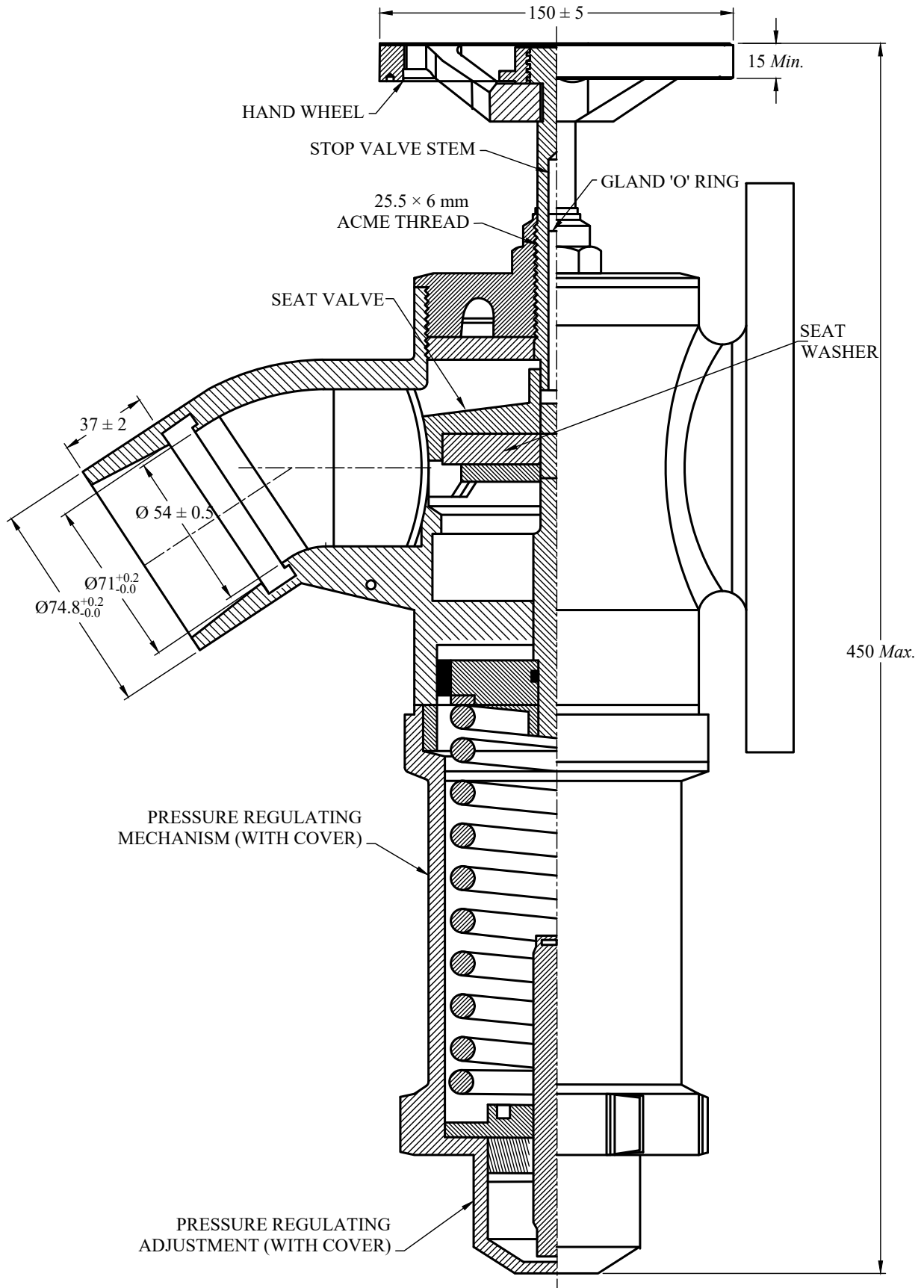
All dimensions are in millimetres.
FIG. 2 INSTANTANEOUS FEMALE OUTLET



NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions are in millimetres.

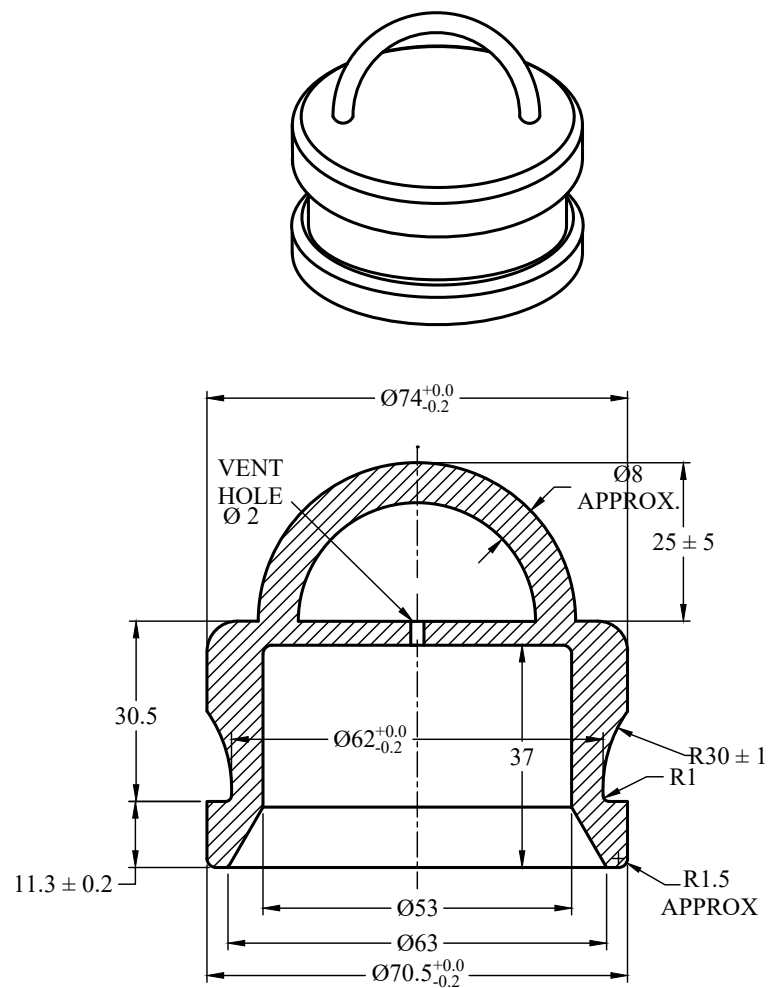
FIG. 3 LANDING VALVE, NORMAL TYPE, THREADED INLET, WITH INTEGRAL FEMALE INSTANTANEOUS OUTLET



NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions are in millimetres.

FIG. 4 LANDING VALVE, PRESSURE REGULATING TYPE, FLANGED INLET WITH INTEGRAL FEMALE INSTANTANEOUS OUTLET



NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions are in millimetres.

FIG. 5 BLANK CAP FOR FEMALE INSTANTANEOUS OUTLET OF LANDING VALVE

5 MATERIAL OF CONSTRUCTION

5.1 Based on application and client specifications, different materials such as copper alloy, stainless steel or aluminium alloy may be used for manufacture of the Landing valves.

5.2 For the various items comprising the hydrant valve, the material selection and specification shall be according to Table 2. Type of materials for components shall be strictly maintained in accordance with Table 2 for a specific type of material construction.

Table 2 Landing Valve, Normal or Pressure Regulating Type
(Clause 5.2)

SI No	Item Description	Material Specification		
		Copper Alloy Construction	Stainless Steel Construction	Aluminium Alloy Construction
(1)	(2)	(3)	(4)	(5)
i)	Body, Bonnet, Check nut (spindle), Seat Check nut, Gland Bush, Gland Nut, Instantaneous Female Outlet, Upper Lug, Lower Lug, Valve Body	Copper Alloy: LTB-2 of IS 318 and HTB-1 of IS 304 (Sand Cast) IS 292 Gr. 3 (Die Cast) IS 291 DCB 1 (Hot Forging) IS 1264 (Gravity Die casting)	Stainless Steel: IS 3444 Grade 1/ Grade 4	Aluminium Alloy: IS 617 Gr. 4450 / 4225 / 4600 (Die Casting)
ii)	Blank cap	Copper Alloy – IS 318 LTB-2 Polymer - ABS Plastic	Stainless Steel – IS 3444 Gr. I & IV Polymer - ABS Plastic	Aluminium Alloy – IS 617 Gr. 4450/4225/4600 Polymer - ABS Plastic
iii)	Spindle, Valve Stems	Brass – IS 319 Gr. 1 IS 320 HTB-1	Stainless Steel – IS 6603 Gr. 04Cr18Ni10 / 04Cr17Ni12Mo2	Stainless Steel – IS 6603 Gr. 04Cr18Ni10 / 04Cr17Ni12Mo2
iv)	Hand wheel	Cast Iron – IS 210 FG 200 Mild Steel – IS 1030	Cast Iron – IS 210 FG 200 Mild Steel – IS 1030	Cast Iron – IS 210 FG 200 Mild Steel – IS 1030
v)	Seat Washer	Rubber IS 937	Rubber IS 937	Rubber IS 937
vi)	Rubber ring, Gaskets	Rubber IS 937	Rubber IS 937	Rubber IS 937
vii)	Gland packing/ Gland Sealing O Ring	Asbestos Rope – IS 4687/ Rubber IS 937	Asbestos Rope – IS 4687/ Rubber IS 937	Asbestos Rope – IS 4687/ Rubber IS 937
viii)	Lug Assembly Spring	Phosphor Bronze Wire - IS 7608	Stainless Steel Wire - IS 6528	Stainless Steel Wire - IS 6528

SI No	Item Description	Material Specification		
		Copper Alloy Construction	Stainless Steel Construction	Aluminium Alloy Construction
(1)	(2)	(3)	(4)	(5)
			X04Cr18Ni10 / X04Cr17Ni12Mo2	X04Cr18Ni10 / X04Cr17Ni12Mo2
ix)	Cam tooth	Grade FLB, IS 6912	Stainless Steel – IS 3444 Gr. I / IV	Grade FLB, IS 6912
x)	Pressure Regulating Spring	Stainless Steel Wire - IS 6528 X04Cr18Ni10	Stainless Steel Wire - IS 6528 X04Cr18Ni10	Stainless Steel Wire - IS 6528 X04Cr18Ni10

6 FINISH

6.1 All parts shall be of good finish, clear of burrs and sharp edges. All casting shall be of clean and sound and shall be free from plugging welding or repair of any defects.

6.2 The valve top except the face of the flange and the instantaneous outlet shall be painted fire red or shade No. 536 of IS 5. The outside of instantaneous outlet shall be highly polished. The hand wheel shall be painted black. Paints shall conform to IS 2932 (Part 1).

7 PERFORMANCE REQUIREMENTS

7.1 Water Tightness Test for the Stop Valve

7.1.1 The stop valve shall be fully closed by screwing down the spindle. Hydrostatic pressure shall then be applied to the valve on the inlet side for a period of 2½ minutes.

7.1.2 For Normal Type

A hydrostatic pressure of 1.4 MN/m² (14 kg/cm²) shall be applied on the inlet side.

7.1.3 For Pressure Regulating Type

A hydrostatic pressure of 2.1 MN/m² (21 kg/cm²) shall be applied on the inlet side.

7.1.4 There shall be no leakage through the valve and its seat.

7.2 Hydrostatic Pressure Test

7.2.1 For testing the integrity of the valve body (locating porosity), bonnet connection and stem seal (gland packing), a hydrostatic pressure test shall be conducted. The assembled unit shall be subjected to hydrostatic pressure applied from the inlet side with the valve fully open and outlet closed, for a period of 2½ minutes.

7.2.2 For Normal Type

A hydrostatic pressure of 2.1 MN/m² (21 kg/cm²) shall be applied to the valve.

7.2.3 For Pressure Regulating Type

A hydrostatic pressure of 3.5 MN/m^2 (35 kg/cm^2) shall be applied to the valve.

7.2.4 When so tested it shall not fail or show any sign of leakage either through the valve body or through the gland of the spindle.

NOTE — During the hydrostatic pressure test, the initial drops of water should be allowed up to the period of proper rubber sealing with the male blank cap.

7.3 Flow Test

7.3.1 Pressure gauge shall be fitted near the inlet of the hydrant valve. Water shall be discharged through the valve assembly and its flow shall be measured using a flow meter or V-notch. The flow shall not be less than 900 lpm for both type of valves at 0.7 MN/m^2 (7 kg/cm^2) pressure at the inlet of the valve, provided that the water supply to the valves, for the purpose of this test, is not less than these figures. It shall be a type test.

Additionally, for pressure regulating type landing valve, a pressure regulation test shall be carried out as given in **7.3.2**.

7.3.2 Pressure Regulation Testing

The test apparatus for testing of pressure regulating landing valve shall consist of suitable pipework matching to the inlet/outlet of landing valve, pressure gauges to measure pressure at inlet and outlet of landing valve, flow meter or V-notch to measure flow, and control valves fitted near the inlet and outlet of the Landing valve to control flow, if required. A means of pressurized supply of water shall be provided with flow not less than that required as given in **7.3.1**, and pressure generated shall be not less than that required as given in **7.3.3**.

7.3.3 The landing valve shall be fitted in the test apparatus and valve opened fully. Adjust the valves to get a flow of 900_{-0}^{+45} lpm. Check that flow at outlet valve is between $7.0 \text{ kg/cm}^2 \pm 0.5 \text{ kg/cm}^2$. Increase the inlet pressure to 10 kg/cm^2 ensuring that the flow is maintained as above. Record the outlet pressure. Increase the inlet pressure in increments of 3 kg/cm^2 to 13 kg/cm^2 and 16 kg/cm^2 and record the outlet pressure in each case. The outlet pressure shall be between $7.0 \text{ kg/cm}^2 \pm 0.5 \text{ kg/cm}^2$.

8 MARKING

8.1 Each landing valve assembly shall be clearly and permanently marked on the valve body and female outlet as follows:

- a) Manufacturer's name or trademark,
- b) Year and month of manufacture, and
- c) Batch number.

8.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the revolving branches may be marked with the Standard Mark.

9 CRITERIA FOR CONFORMITY

9.1 Each landing valve assembly shall be examined/tested for the requirements given in respective clauses and shall satisfy each of them.

ANNEX A
(Clause 2)**LIST OF REFERRED INDIAN STANDARDS**

<i>IS No.</i>	<i>Title</i>
5 : 2007	Colours for ready mixed paints and enamels (<i>sixth revision</i>)
210 : 2009	Grey iron castings — Specification (<i>fifth revision</i>)
318 : 1981	Specification for leaded-tin-bronze ingots and castings (<i>second revision</i>)
319 : 2007	Free cutting brass bars, rods and sections — specification (<i>fourth revision</i>)
320 : 1980	Specification for high tensile brass rods and sections (other than forgings stock) (<i>second revision</i>)
581 : 1976	Specification for vegetable tanned hydraulic leather (<i>second revision</i>)
617 : 1994	Cast aluminium and its alloys — ingots and castings for general engineering purposes — specification (<i>third revision</i>)
937 : 1981	Specification for washer for water fittings for firefighting purposes (<i>second revision</i>)
291 : 1989	Naval brass rods and section for machining purposes — specification (<i>third revision</i>)
1030 : 1998	Carbon steel castings for general engineering purpose — specification (<i>fourth revision</i>)
2643 : 2005	Pipe threads where pressure-tight joints are not made on the threads — dimensions, tolerances, and designation (<i>third revision</i>)
2932 (Part 1) : 2013	Enamel, synthetic, exterior: (a) undercoating (b) finishing — specification Part 1: for domestic and decorative applications (<i>fourth revision</i>)
4687 : 1995	Gaskets and packings — gland packing asbestos — specification (<i>second revision</i>)
6528 : 1995	Stainless steel wire — specification (<i>first revision</i>)
3444 : 1999	Corrosion resistant high alloy steel and nickel base castings for general applications — specification (<i>third revision</i>)
6603 : 2001	Stainless steel bars and flats — specification (<i>first revision</i>)
6912 : 2005	Copper and copper alloy forgings stock and forgings — (<i>second revision</i>)
7608 : 1987	Specification for phosphor bronze wire for general engineering purpose (<i>first revision</i>)