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-06 **16 अगस्त 2024**

तकनीकी समिति : अग्नि शमन विषय समिति, सीईडी 22

प्राप्तकर्ता :

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

महोदय/महोदया,

निम्नलिखित मानक का मसौदा संलग्न हैं:

प्रलेख संख्या	शीर्षक
सीईडी 22(26380)WC	अग्निशमन के लिए डिलिवरी ब्रीचिंग — विभाजन और संग्रहण — तात्कालिक पैटर्न — विशिष्टि *(आईएस 905 का तीसरा 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: 15 सितंबर 2024

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा ced22@bis.gov.in पर या उपरलिखित पते पर, संलग्न फोर्मेट 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/-
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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-06 **16 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.	Title
CED 22(26380)WC	Draft Indian Standard Delivery Breechings for Fire Fighting — Dividing and Collecting — Instantaneous Pattern — Specification (*Third Revision of IS 905*) *[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: 16 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
Scientist 'E' & Head
Civil Engineering Department
Email: ced22@bis.gov.in
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(26380)WC **BIS Letter Ref**: CED 22:02/T-06

Title Draft Indian Standard Delivery Breechings for Fire Fighting — Dividing and Collecting — Instantaneous Pattern — Specification (*Third Revision of IS 905*) [ICS: 13.220.10]

Last date of comments: 15 September 2024

Name of the Commentator/ Organization: _____

Sl No.	Clause/ Para/ Table/ Figure No. commented	Type of Comment (General/ Technical/ Editorial)	Comments/ Modified Wordings	Justification of Proposed Change
1.				
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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

DELIVERY BREECHINGS FOR FIRE FIGHTING — DIVIDING AND COLLECTING — INSTANTANEOUS PATTERN — SPECIFICATION

(*Third Revision of IS 905*)

(ICS: 13.220.10)

Fire Fighting	**Last Date for Comments:**
Sectional Committee, CED 22	**15 September 2024**

FOREWORD

(*Formal clauses shall be added later*)

Delivery breechings are normally used for fire fighting operations along with the hoses. Dividing breeching is employed to meet those cases where it is necessary to divide or breech a line of hose under good pressure into two lines so that two branches may be used. A collecting breeching is employed in cases where the pressure is not adequate, and it is required to step up the same by an additional feed.

In the case of dividing breeching, there shall be a male fitting (single) on the inlet side and female fittings on the two outlets. In the case of collecting breeching, there shall be a female fitting (single) on the outlet side and male fittings on the two inlets.

This standard was prepared to ensure compatibility of breechings with other standard fire fighting equipment. It was first published in 1958 and subsequently revised in 1965 and 1980. In this revision, the following significant changes have been made:

a) The standard has been made performance oriented.
b) Only the dimensions for threads are made mandatory.
c) Salt spray test and ammonia air stress cracking test have been incorporated.
d) Stainless steel option has been added within material of construction
e) All the cross-referred standards have been made up to date.

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.

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

DELIVERY BREECHINGS FOR FIRE FIGHTING — DIVIDING AND COLLECTING — INSTANTANEOUS PATTERN — SPECIFICATION

(*Third Revision of IS 905*)

1 SCOPE

This standard lays down the requirements regarding materials, shape, dimensions, and performance requirements of delivery breechings, dividing and collecting types.

2 REFERENCES

The 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 indicated at Annex A.

3 TERMINOLOGY

For the purpose of this standard the following definitions shall apply:

3.1 Breechings

3.1.1 *Male/Collecting Breechings* — fitting used to unite two or more lengths of hose into one hose or pipe, usually to increase the pressure and quantity of discharge.

3.1.2 *Female/Dividing Breeching* — fitting used to divide one line of hose into two or more.

3.2 Coupling — device for connecting together hoses, branch pipes breechings etc, so as to secure continuity from the source of water supply to the delivery point.

3.3 Hose Coupling — means used to join two lengths of hose together or to connect other equipment to a hose.

4 WORKMANSHIP AND FINISH

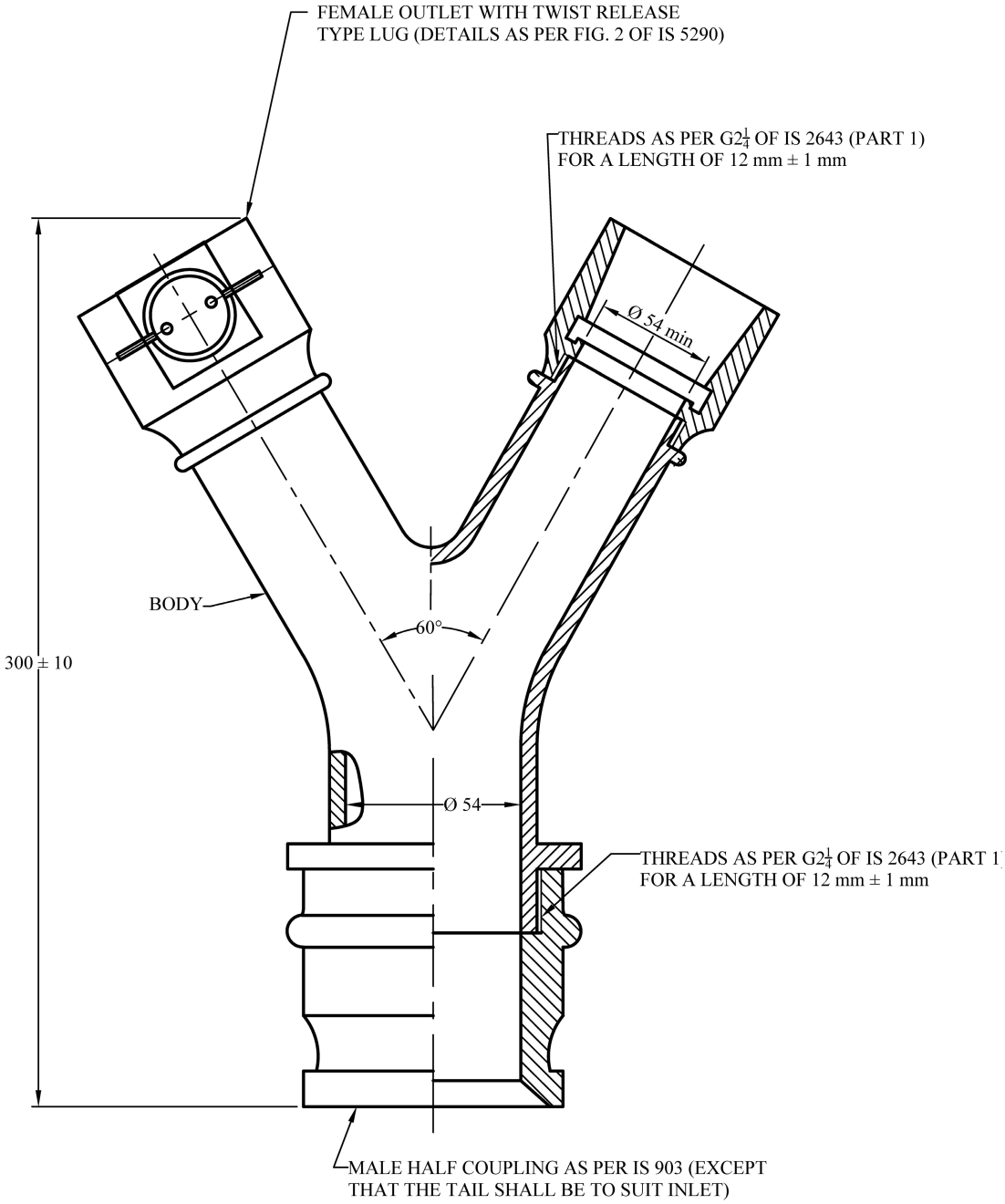
All fittings shall be of good workmanship, finish and free from all burrs and sharp edges. The forgings and castings shall be sound and free from porosity, blowholes, scales, cracks and other imperfections and shall not be repaired or filled so as to hide casting defects. The waterway of the fittings shall have a smooth finish. Where welding is used, welds shall be free from lack of fusion, cracks, non-metallic inclusions, porosity and cavities.

5 DESIGN AND MATERIAL

5.1 The delivery breechings shall be of two types as under:

a) Dividing (*see* Fig 1), and
b) Collecting (*see* Fig 2).

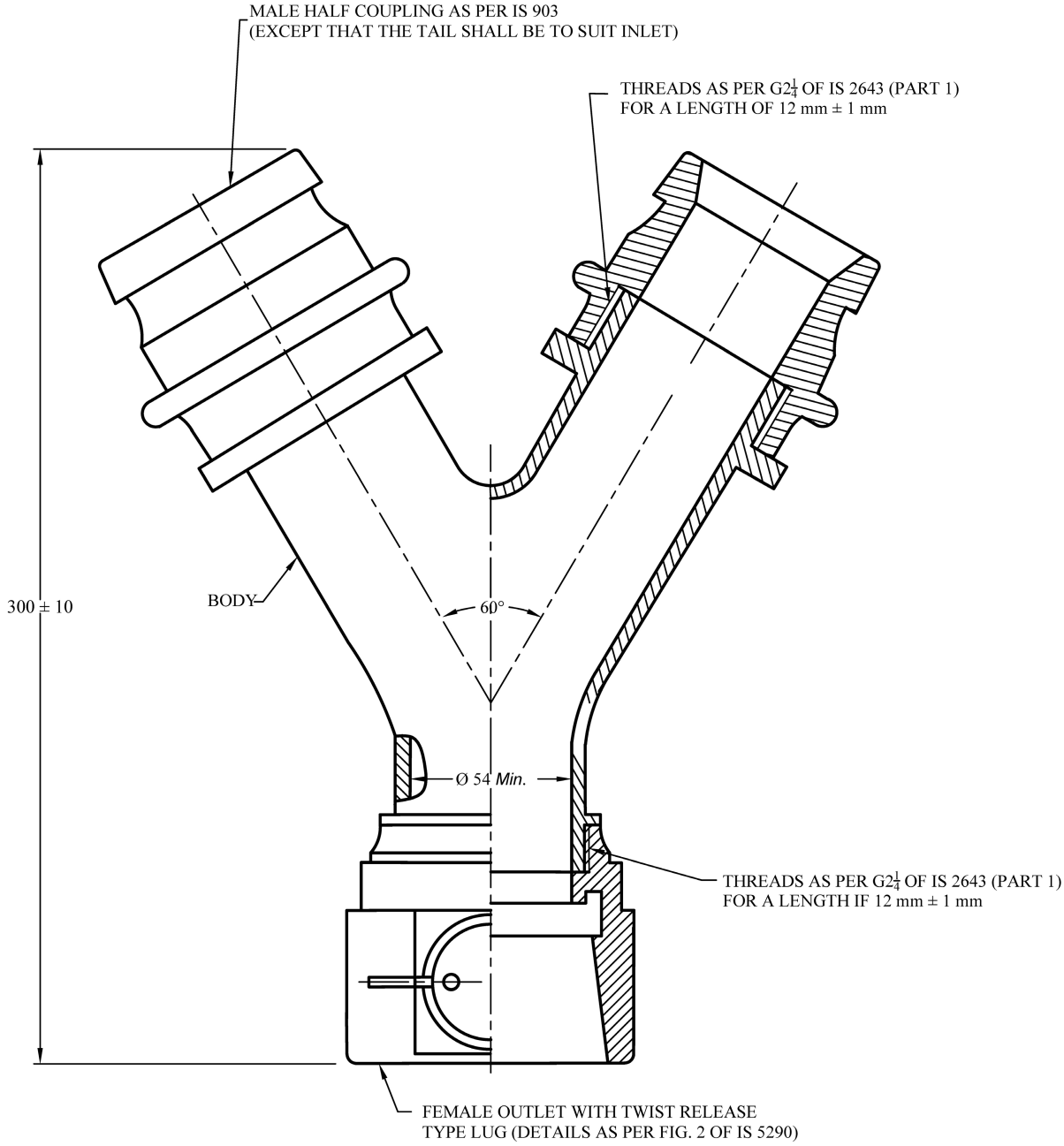
5.2 Typical designs of dividing and collecting breechings is given in Fig 1 and Fig 2 respectively. The design of breechings shall be such that they are suitable for use with the male and female instantaneous half couplings (*see* IS 903).



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

All dimensions in millimetres

FIG 1 DIVIDING BREECHING



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

All dimensions in millimetres

FIG. 2 COLLECTING BREECHING

5.3 Materials

5.3.1 Copper alloys used for castings or forgings shall conform to the requirements given in Table 1.

Table 1 Copper Alloys Used for Castings or Forgings
(*Clause* 5.3.1)

Sl. No	Type of Casting/ Forging	Criteria for Conformity
(1)	(2)	(3)
i)	Sand Castings	Grade LTB 2 of IS 318 or Grade HTB 1 of IS 304
ii)	Die Castings	Grade LCB 2 of IS 292
iii)	Hot Forgings	Grade FNB of IS 6912 with: Fe: max. 0.1% Other elements: max. 0.1% and Zinc: Balance.

5.3.2 Aluminium alloys shall be used in die casting only and shall conform to designation 4225, 4450 or 4600 of IS 617. Exposed aluminium surfaces shall have an anodized finish and all threaded parts of aluminium alloy components shall be coated with molybdenum listed grease.

5.3.3 Stainless Steel die casting conforming to IS 3444 Grade 1/ 4 shall be allowed.

5.3.4 Springs used in the plunger lugs in case of copper alloy breechings shall be made from phosphor bronze wire and shall conform to IS 7608.

5.3.5 Springs used in the plunger lugs in case of aluminium alloy, and stainless-steel breechings shall be made from stainless steel wire and shall conform to IS 6528.

5.3.6 Springs used in the plunger lugs in case of aluminium alloy and zinc alloy breechings shall be made from stainless steel wire and shall conform to IS 6528.

5.3.7 Plunger springs shall be of such stiffness that they can be compressed to a length sufficient to free the plunger from engagement by a force of not less than 45 N and not greater than 65 N.

5.3.8 The washers used in the breeching shall conform to Type A of IS 937.

5.3.9 The material of construction shall be declared by the manufacturer.

NOTES

1 The possibility of corrosion, especially that of bi-metallic corrosion may be given due regard in the choice of materials. Temporary, occasional contact of different metals connected during use do not typically pose problems. However prolonged contact is known to cause severe corrosion in some metals, such as that of aluminium and its alloys corroding in contact with copper or its alloys. Where it is imperative that different such materials have to be used in combination and prolonged contact is anticipated, suitable measures should be taken to prevent corrosion.

2 The possibility of corrosion due to environmental conditions may also be given due regard. Particular care should be exercised in the selection of materials for use in marine environments where the water to be used in the fire hose might be seawater.

3 Materials should be free from toxic substances and should not give rise to taste, odour, cloudiness or discolouration of the water or foster any microbiological growth.

5.4 Hydraulic Test

The assembled fitting shall be subjected to a hydraulic pressure of 2.1 N/mm^2 (21 kg/cm^2) (increasing at a rate not more than 1 N/mm^2 per minute) for a period of 150 seconds after the pressure is obtained. There shall be no sign of leakage or sweating.

5.5 Salt Spray Test

5.5.1 Fittings made from brass, bronze or ferrous metals shall be exposed to 240 hours salt spray exposure in a salt chamber as per IS 11864.

5.5.2 Fittings constructed from metallic materials other than brass, bronze or ferrous metal shall be exposed to 720 hours of salt spray exposure as per IS 11864.

5.5.3 After exposure the fittings shall show no sign of leakage or sweating when subjected to hydraulic test as per **5.5**. When dissimilar metals or alloys are used in combination, the components shall not show any visible galvanic corrosion. The surfaces of the samples having no protective coating shall not show any visible damage.

5.6 Ammonia Air Stress Cracking Test

5.6.1 For the purpose of this test, fittings shall be exposed to aqueous ammonia of specific gravity 0.94 in a suitable closed container. The sample shall be positioned by a suitable mechanism, such that, the lowest point of the sample shall not be more than 38 mm above the surface of the ammonia solution. The chamber shall be maintained at ambient temperature and pressure.

5.6.2 The sample shall be continuously exposed to the moist ammonia-air mixture for 14 days. After exposure, the fittings shall be examined at 25 times magnification for any cracking. The sample shall then be subjected to hydraulic test as per **5.5** at four times the operating pressure. There shall be no sign of cracking, leakage, or sweating.

6 MARKING

6.1 Each fitting shall be separately, clearly and permanently marked with the following information:

a) Manufacturer’s name or trademark,
b) Type (where applicable)
c) Material of construction, and
d) Month and Year of manufacture.

6.2 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.

ANNEX A
(Clause 2)
LIST OF REFERRED INDIAN STANDARD

IS No.	*Title*
IS 292: 1983	Specification for leaded brass ingots and castings *(second revision)*
IS 304: 1981	Specification for high tensile brass ingots and castings *(second revision)*
IS 318: 1981	Specification for leaded tin bronze ingots and castings *(second revision)*
IS 617: 1994	Cast aluminium and its alloys — ingots and castings for general engineering purposes — specification *(third revision)*
IS 903: XXXX	Fire hose delivery couplings, branch pipes, nozzles, breechings, and nozzle spanners — specification (*fifth revision*) *Under revision*
IS 937: 1981	Specification for washers for water fittings for fire fighting purposes *(second revision)*
IS 2643: 2005	Pipe threads where pressure-tight joints are not made on the threads — dimensions, tolerances and designation (third revision)
IS 5290: XXXX	Landing valves — specification (*fourth revision*) *Under revision*
IS 6528: 1995	Stainless steel wire – specification *(first revision)*
IS 6912: 2005	Copper and copper alloys forging stock and forging — specification *(first revision)*
IS 7608: 1987	Specification for phosphor bronze wires for general engineering purposes *(first revision)*
IS 11864: 1986	Recommended construction practice of apparatus for spray cabinet for various salt spray tests