



## 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)

मानक भवन, 9, बहादुर शाह ज़फ़र मार्ग, नई दिल्ली - 110002

Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi - 110002

Phones: 23230131 / 2323375 / 23239402

Website: [www.bis.gov.in](http://www.bis.gov.in)

### व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 22:02/टी-01

04 जून 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(25804)WC	अग्निशमन के लिए प्राथमिक सहायता होज़-रील — विशिष्टि (आईएस 884 का दूसरा 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 कठिनाइयाँ आ सकती हैं।

**सम्मतियाँ भेजने की अंतिम तिथि: 05 जुलाई 2024**

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा [ced22@bis.gov.in](mailto:ced22@bis.gov.in) पर या उपरलिखित पते पर, संलग्न फॉर्मेट में भेजें। सम्मतियाँ बीआईएस ई-गवर्नेंस पोर्टल, [www.manakonline.in](http://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](http://www.bis.gov.in) पर भी उपलब्ध है।

धन्यवाद।

भवदीय

ह/-

द्वैपायन भद्र

वैज्ञानिक ई एवं प्रमुख  
सिविल अभियांत्रिकी विभाग

ई-मेल: [ced22@bis.gov.in](mailto:ced22@bis.gov.in)

फोन: +91-11 2323 5529

संलग्न: उपरलिखित



**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)

मानक भवन, 9, बहादुर शाह ज़फ़र मार्ग, नई दिल्ली – 110002  
Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi – 110002  
Phones: 23230131 / 2323375 / 23239402  
Website: [www.bis.gov.in](http://www.bis.gov.in)

**WIDE CIRCULATION DRAFT**

**Our Reference: CED 22:02/T-01**

**04 June 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
<b>CED 22(25804)WC</b>	Draft Indian Standard First-Aid Hose-Reel for Fire Fighting — Specification ( <i>Second Revision of IS 884</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: 05 July 2024**

Comments if any, may please be made in the enclosed format and emailed at [ced22@bis.gov.in](mailto: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](http://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 Chairperson, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairperson, Sectional Committee.

The document is also hosted on BIS website [www.bis.gov.in](http://www.bis.gov.in).

Thanking you,

**Yours faithfully,**

Sd/-

**Dwaipayan Bhadra**

**Scientist 'E' & Head**

**Civil Engineering Department**

**Email: [ced22@bis.gov.in](mailto: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](mailto:ced22@bis.gov.in) shall be appreciated.**]

**Doc. No.:** CED 22(25804)WC

**BIS Letter Ref:** CED 22:02/T-01

**Title:** Draft Indian Standard First-Aid Hose-Reel for Fire Fighting — Specification (*Second Revision of IS 884*) [ICS: 13.220.10]

Last date of comments: **05 July 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.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				

*NOTE- Kindly insert more rows as necessary for each clause/table, etc*

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

*(Not to be reproduced without the permission of BIS or used as a Standard)*

*Draft Indian Standard*

**FIRST-AID HOSE-REEL FOR FIRE FIGHTING — SPECIFICATION**

*(Second Revision of IS 884)*

(ICS 13.220.10)

---

**Fire Fighting Sectional  
Committee, CED 22****Last Date for Comments:  
05 July 2024**

---

**FOREWORD**

*(Formal clauses shall be added later)*

Hose-reels are recommended for use in fixed installations in various building and industrial premises and also mounted for first aid firefighting on fire engines. It is an equipment consisting of the reel, water inlet pipe, shut off nozzle, stop valve with hose reel tubing and provides a most effective means for initial fire fighting.

This standard was first published in 1969 and revised in 1985. In this revision following changes have been incorporated:

- a) This revision has been prepared to incorporate amendments and include latest designs of hose-reels in the market, and revised performance requirements.
- b) Stainless steel has been included as an optional material of construction.
- c) The indicative designs have been included.
- d) Hose-reel nozzle design and construction requirements (previously covered in IS 8090) have been included.
- e) New performance tests as resistance to external corrosion test, ageing test for plastic made nozzle and resistance to impact test for nozzle have been added.

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, 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 specified value in this standard.

*Draft Indian Standard***FIRST-AID HOSE-REEL FOR FIRE FIGHTING — SPECIFICATION***(Second Revision of IS 884)***1 SCOPE**

This standard lays down the requirements for materials, constructional details and tests for first-aid hose reels intended for installation in buildings and for horizontal type hose reels used on industrial premises and for mounting on fire engine. Two designs, Type A and Type B are covered.

**2 REFERENCES**

The Indian Standards given 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**

**3.1** The hose reel shall consist of following components:

- a) Hub,
- b) Two sides
- c) Swivel joint
- d) Pipe with fitting
- e) Wall bracket
- f) Tubing
- g) Nozzle with shut off arrangement, and
- h) Stop valve.

**4 TYPES AND DIMENSIONS**

**4.1** The typical shape and essential dimensions for Type A and Type B first-aid hose-reels are given in Fig. 1 and Fig. 2 respectively.

**4.2** The indicative designs for hose-reel nozzles are given in Fig. 3 and Fig 4.

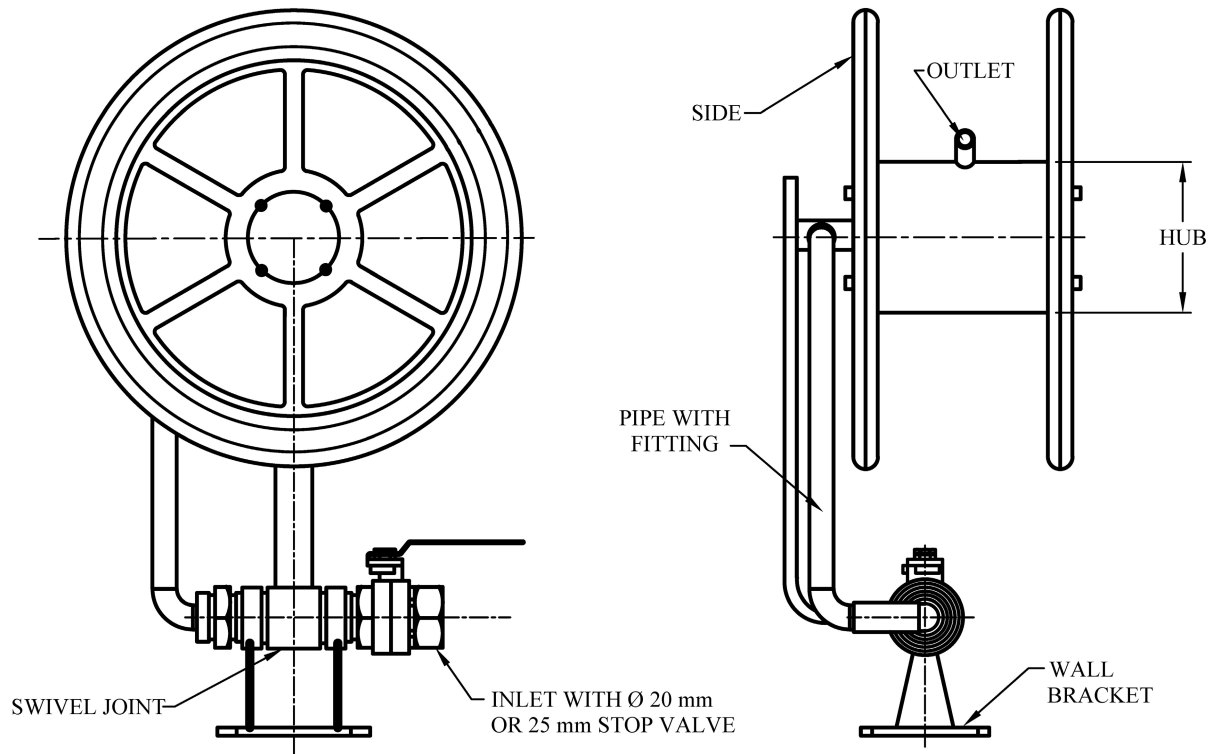
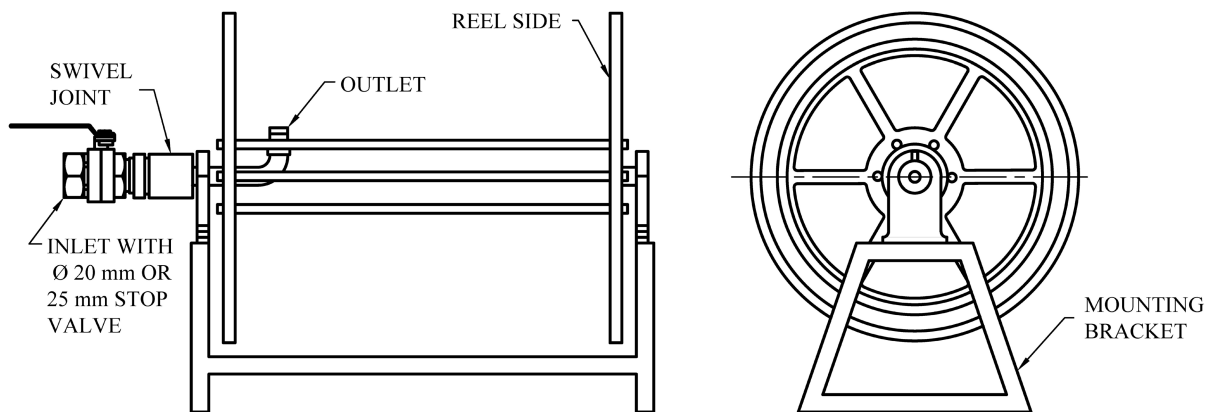


FIG. 1 HOSE-REEL SWINGING TYPE (TYPE A) — INDICATIVE DESIGN



(All dimensions in millimetres)

FIG. 2 HOSE-REEL HORIZONTAL TYPE (TYPE B) — INDICATIVE DESIGN

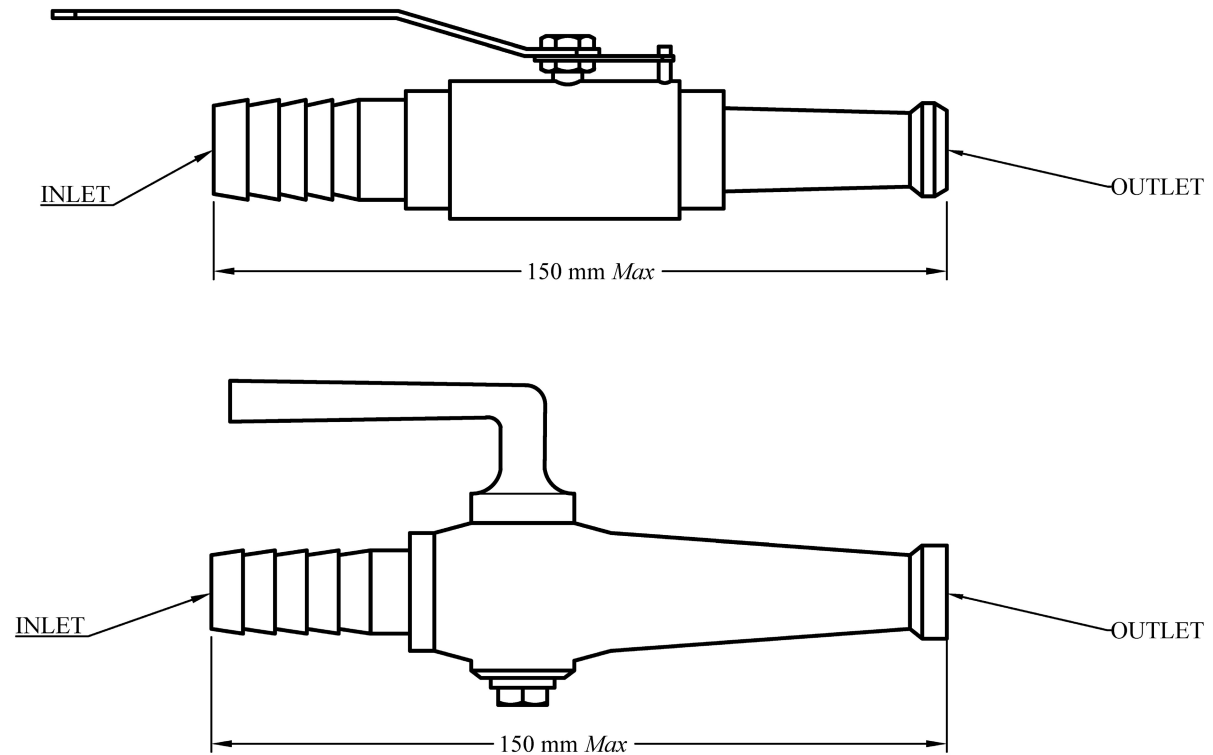


FIG. 3 HOSE-REEL NOZZLE (SHUT-OFF TYPE) — INDICATIVE DESIGN

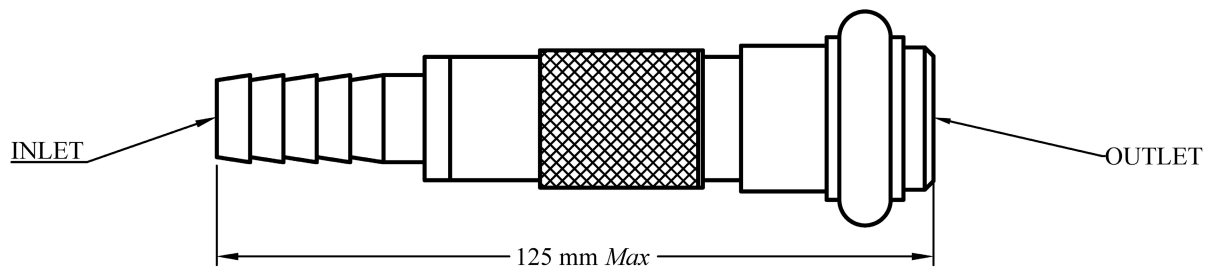


FIG. 4 HOSE-REEL NOZZLE (JET/SPRAY TYPE) — INDICATIVE DESIGN

## 5 MATERIAL

First-aid hose-reel construction should be possible in aluminium, carbon (mild) steel or stainless steel. For the various items comprising Type A and Type B design first aid hose-reels, Table 1 should be applicable for material selection and specification. The material of construction shall be declared by the manufacturer.

**Table 1 Material Specification for Hose-Reel**  
(Clause 5)

SI No.	Item / Part	Aluminium Construction	Mild Steel Construction	Stainless Steel Construction
(1)	(2)	(3)	(4)	(5)
i)	Hub	Aluminium sheet conforming to IS 737	Mild steel conforming to IS 513 (Part 1)	Stainless Steel
ii)	Sides	Aluminium alloy conforming to IS 617	Mild steel conforming to IS 513 (Part 1)	Stainless Steel conforming to Grade 1 or Grade 4 of IS 3444
iii)	Wall bracket (Type A) / mounting stand (Type B)	Cast iron conforming to IS 210 or mild steel conforming to IS 2062.	Cast iron conforming to IS 210 or mild Steel conforming to IS 2062.	Stainless Steel
iv)	Swivel joint	Copper Alloy conforming to LTB-2 of IS 318	Copper Alloy conforming to LTB-2 of IS 318	Copper Alloy conforming to LTB-2 of IS 318
v)	Hose-reel tubing	Rubber hoses conforming to IS 444 or thermoplastic hose conforming to IS 12585	Rubber hoses conforming to IS 444 or thermoplastic hose conforming to IS 12585	Rubber hoses conforming to IS 444 or thermoplastic hose conforming to IS 12585
vi)	Nozzle	Aluminium alloy conforming to IS 617 or ABS plastic	Copper alloy conforming to LTB-2 of IS 318 or ABS plastic	Stainless steel conforming to Grade 1 / Grade 4 of IS 3444 or ABS plastic
vii)	Stop valve	Stainless steel or copper alloy conforming to LTB-2 of IS 318.	Stainless steel or copper alloy conforming to LTB-2 of IS 318.	Stainless steel
viii)	Pipework and fittings	Carbon steel conforming to IS 1239 (Part 1 and Part 2) or stainless steel	Carbon steel conforming to IS 1239 (Part 1 and Part 2)	Stainless steel



## 6 CONSTRUCTION

**6.1** Type A design shall be swinging (180°) wall mounting type, to be used for mounting inside buildings on wet and dry risers. This can be directly mounted on the wall or custom-built cabinets for housing the hose-reel.

**6.2** Type B design shall be horizontal type hose-reel which can be mounted on custom built pedestals or in suitable position on fire engines.

**6.3** Hose-reel design shall be accommodated with tubing of 19 mm or 25 mm diameter for rubber hose as per IS 444 and 20 mm or 25 mm diameter for thermoplastic hose as per IS 12585 and of 30 m length (*Min*) without any outside projection of tubing. The nozzle used for hose reel shall be either shut off type or combination (jet/spray) type.

**6.4** Inlet stop valve shall be 20 mm or 25 mm size as per internal diameter of tube and outlet pipe shall be matched with the size of tubing.

**6.5** Nozzle inlet shall be matched with tubing outlet.

## 7 PERFORMANCE REQUIREMENT

### 7.1 Resistance to Leakage

**7.1.1** The complete assembly shall be capable of operating at 10 bar maximum working pressure without leakage, when tested in accordance with **7.1.2**.

**7.1.2** Connect the hose reel to a water supply at a pressure of 10 bar and with the hose fully wound into the drum. Close the nozzle for 5 min, subjecting the reel to a pressure of 10 bar. Unwind the hose completely, maintaining the pressure of 10 bar for a further 5 min.

### 7.2 Strength

#### 7.2.1 Impact Resistance Test (*Strength Test*)

**7.2.1.1** Rest a steel bridge 100 mm × 25 mm cross-section centrally across the two-reel side plates vertically above the centre line of the spindle. The length of the steel bridge shall be such that it extends by at least 10 mm on either side of the two round plates when kept on them. The steel bridge shall have two numbers of suitable parallel grooves, say 10 mm wide by 5 mm deep to ensure that the bridge shall not slip and fall down during the conduct of impact resistance test.

**7.2.1.2** Mount a steel cylindrical hammer of 25 kg mass and with flat faces in guides above the steel bridge so that it falls freely through a height of 300 mm to strike the steel bridge midspan between the two plates. As a result of single impact due to free fall of 25 kg mass from a height of 300 mm, the reel shall not get deformed and the distance between the parallel round plates shall not change more than  $\pm 10$  mm. After a single impact, test the reel in accordance with **7.1.2**. The arrangement of the impact test is shown in Fig. 5. This shall be a type test.

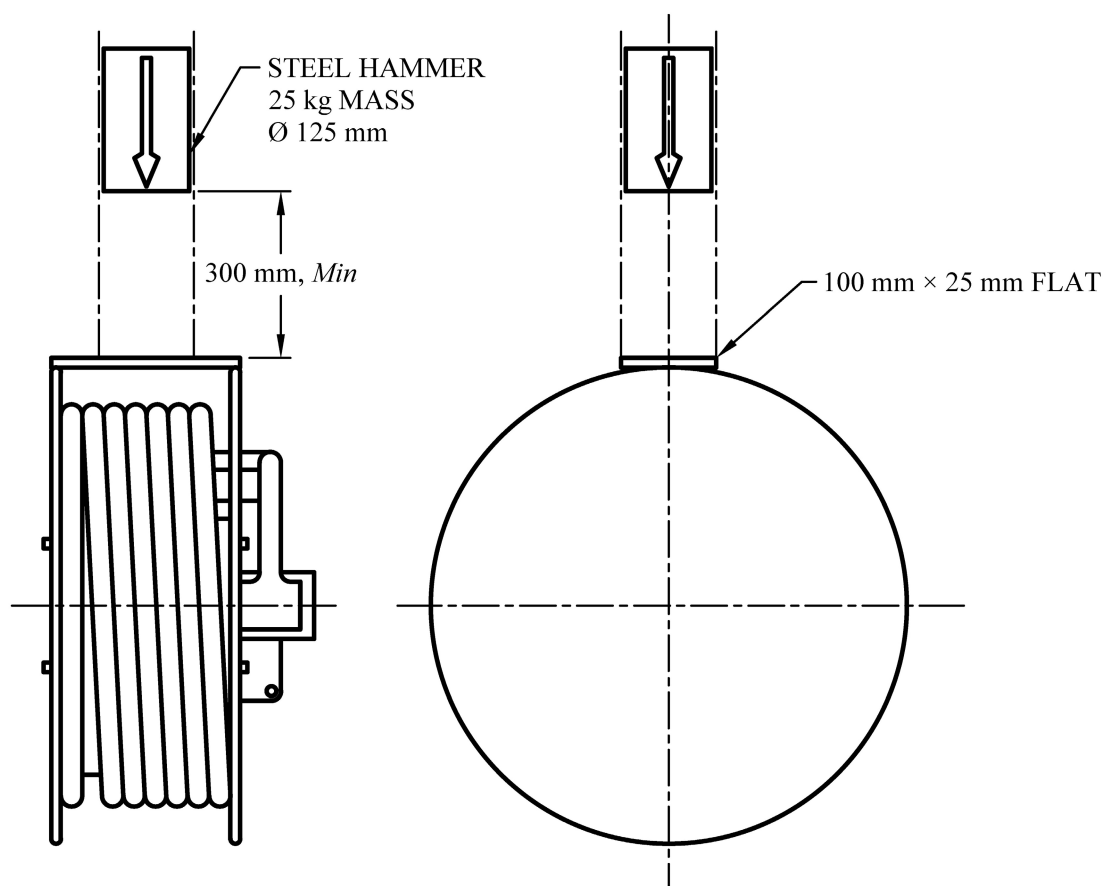


FIG. 5 DETAIL OF IMPACT RESISTANCE TEST ON TYPE A HOSE REEL

### 7.2.3 Load Resistance Test

A mass of 80 kg is suspended using steel wire ropes on the top edge of front round plate (with clamps) constituting one side of the hose reel. Remove the mass after 72 h and test the reel in accordance with 7.1.2. The arrangement of the load test is shown in Fig. 6. This shall be a type test.

## 7.3 Range and Water Flow Rate

**7.3.1** When tested in accordance with 7.3.1, the water flow rate shall not be less than 27 lpm for 19 mm size hose reel and 35 lpm for 25 mm size hose reel, and the range of jet shall be not less than 6 m.

**7.3.2** Measure the range and water flow rate of the reel at inlet pressure of  $3.5 \text{ kg/cm}^2 \pm 0.1 \text{ kg/cm}^2$ . The range is the distance from the nozzle to the point on the ground beyond which 50 percent of the discharge falls. Measure the range with the nozzle 1 m above floor level at an angle of elevation to give maximum range. This shall be a type test.

## 7.4 Swinging Arrangement

In case of Type A hose reel, swivel joint(s) shall be incorporated in the construction to enable the users to swing the hose-reel by 180 degrees while pulling the hose in either direction.

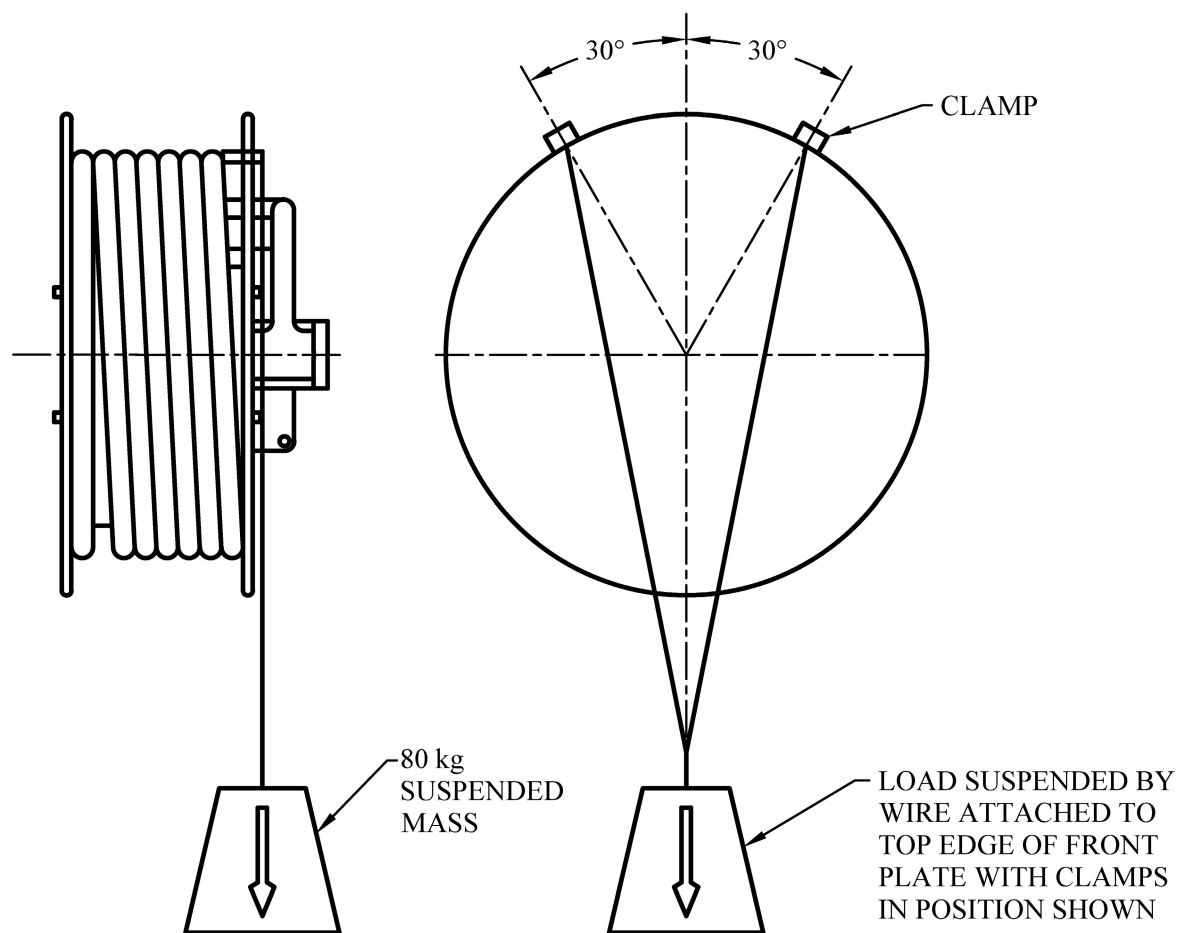


FIG. 6 DETAIL OF LOAD RESISTANCE TEST ON TYPE A HOSE REEL

### 7.5 Reel Action

In case of both Type A and Type B hose reels, it shall be possible to easily and smoothly unwind the hose by pulling the hose end having nozzle fitted. Also, it shall be easy to wind up the hose after use.

### 7.6 Resistance to Impact Test for Nozzle

Carry out the test using the fully assembled length of hose including couplings and nozzle. Unwind the hose and lay it out completely. Fill the hose with water and pressurize to  $10 \text{ kg/cm}^2$ . Hold the nozzle in the closed position at  $900 \text{ mm} \pm 5 \text{ mm}$  above a concrete floor and allow it to drop freely 3 times without any initial force. Examine the nozzle for damage. The nozzle shall not break or show any visible leakage.

### 7.7 Ageing Test for Plastic Made Nozzle

Subject at least two plastic make nozzles to accelerated ageing in an oven at  $100 \text{ }^\circ\text{C}$  for 10 days. Following the exposure, condition the components for 5 h at  $27 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$  and subsequently inspect them for cracking or brittleness. No cracking or brittleness shall be permitted.

## 7.8 Resistance to External Corrosion Test

**7.8.1** The test salt solution for salt spray be prepared by dissolving 50 g ± 5 g of sodium chloride per litre of potable water.

**7.8.2** Keep the first aid hose reel at perpendicular position without tubing but including their mounting, that is, the test bracket and wall hook, and metallic nozzle into a salt spray test for a period of 240 h. Following a drying period of at least 24 h at room temperature, carefully wash the equipment to remove any salt deposits. Salt spray test apparatus covered in IS 11864, shall be used for salt spray test. At the conclusion of the test the following requirements shall be satisfied:

- a) There shall be no corrosion of the metal.
- b) Discolouration/superficial corrosion of non-ferrous metals is acceptable, but galvanic corrosion between dissimilar metals shall not be permitted.

## 8 WORKMANSHIP AND FINISH

**8.1** All parts shall be of good workmanship and shall be free from burrs and sharp edges. All casting shall be clean and sound and shall be free from plugging, welding, or repaired defects.

**8.2** All the internal and external surface of the ferrous components of the hose reel shall be painted with fire red conforming to Shade No. 536 or 538 of IS 5 to protect it against rusting.

## 9 CRITERIA FOR CONFORMITY

Each fitting shall be checked for the requirements given in this standard.

## 10 MARKING

**10.1** Each fitting shall be clearly and permanently marked with the following information:

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

## 10.2 BIS Certification Marking

The fittings 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 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 casting ( <i>second revision</i> ).
513 (Part 1): 2016	Cold reduced carbon steel sheet and strip Part 1: Cold forming and drawing purpose ( <i>sixth revision</i> )
444: 2017	Rubber hoses, textile-reinforced, for general-purpose water applications — Specification ( <i>fifth revision</i> )
617: 2024	Aluminium and aluminium alloys ingots for remelting and castings for general engineering purposes — Specification ( <i>fourth revision</i> )
737: 2008	Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes – Specification
1239 (Part 1): 2004	Steel tubes, tubulars and other wrought steel fittings — Specification Part 1: Steel tubes ( <i>sixth revision</i> )
1239 (Part 2): 2011	Steel tubes, tubulars and other steel fittings — Specification Part 2: Steel pipe fittings ( <i>fifth revision</i> )
2062: 2011	Hot rolled medium and high tensile structural steel — Specification ( <i>seventh revision</i> )
3444: 1999	Corrosion resistant high alloy steel and nickel based castings for general applications — Specification ( <i>third revision</i> )
11864: 1986	Recommended construction practice of apparatus for spray cabinet for various salt spray tests
12585: 2023	Specification for thermoplastic hoses (textile reinforced) for water — General purpose ( <i>first revision</i> )