

X

इंटरनेट

# 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 छोड नये के तरफ" Jawaharlal Nehru "Step Out From the Old to the New"

मानक

IS 14851 (2000): Maintenance of Fire Hose - Code of Practice [CED 22: Fire Fighting]



51111111

Made Available By Public.Resource.Org



"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 Bhartrhari-Nītiśatakam "Knowledge is such a treasure which cannot be stolen"





# BLANK PAGE



PROTECTED BY COPYRIGHT

# भारतीय मानक

# अग्नि शमन कार्यों के लिए होज के अनुरक्षण की रीति संहिता

# Indian Standard

# MAINTENANCE OF FIRE HOSE — CODE OF PRACTICE

ICS 13.220.10; 77.151

© BIS 2000

BUREAU OF INDIAN STANDARDS MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002

#### FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

Fire hose is a vital link between the water supply and nozzles used to project streams on the fire to extinguish it. Hose must be rugged and dependable, capable of carrying water under substantial pressure and yet flexible and easy to handle. Selection of the proper grades and types of hose and maintenance to assure maximum useful life are of concern to the fire services. Provision of unsuitable types or improper maintenance of hoses may lead to failure in tackling the fire effectively, thus involving greater loss of life and property. This standard has, therefore, been prepared for giving guidance regarding proper selection and maintenance of fire hoses so that such hoses will function at all times as intended throughout their useful life.

In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries. Assistance has been derived from ASTM C 39-86 'Standard test methods for compressive strength of cylindrical concrete specimen'.

# Indian Standard

# MAINTENANCE OF FIRE HOSE --- CODE OF PRACTICE

#### **1 SCOPE**

This standard lays down recommendation for selection, usage and maintenance of fire hoses.

#### **2 REFERENCES**

The Indian Standards listed below contain provision 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 agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards given below:

IS No.	Title
636 : 1988	Non-percolating flexible fire fighting
	delivery hose (third revision)
4927:1992	Unlined flax canvas hose for fire
	fighting (first revision)
8423:1994	Controlled percolating hose for fire
	fighting (first revision)

#### **3 GENERAL**

3.1 The fire hoses form a vital part of the whole system of fire protection and should receive consideration for provision at the design stage. The reliability and the length of life of hose mainly depend on three factors:

- a) Type of fire hose for the intended use.
- b) Handling of hose at fires.
- c) Maintenance of hose after fires.

**3.2** Under average field conditions and with proper care, hose should be serviceable for minimum three years unless subject to damage in use or training. There is no reason for discarding the hose at the end of three years if it is in good condition and possesses the relevant requirement.

#### **4 TYPE OF FIRE HOSE**

Basically, two types of fire hoses are manufactured as per usage:

- 1) Non-percolating, and
- 2) Percolating fire hose.

#### 4.1 Non-percolating Type Hose

**4.1.1** Rubber Lined or Rubberized Fabric Lined Fire Hose as per Type A of IS 636 or Indian Standard for Higher Pressure Hoses.

Normal fire hoses, rubber lined or rubbcrized fabric lined, woven-jacketed with or without elastomeric coating/covering for application under normal conditions.

### 4.1.1.1 Performance parameters and applications

The minimum proof pressure specified for this quality is 21 kg/cm<sup>2</sup>. It is recommended for rugged use by civil and defence personnel.

Abrasion resistance (durability factor) and Heat Resistance (reliability factor) of this house is more than 4 times as compared to that of ordinary rubber lined hose as per IS 636, Type 1.

**4.1.2** Impregnated Covered Fire Hose having Unified Lining and Cover as per Type B of IS 636 or Indian Standard for Higher Pressure.

Hose to which an elastomeric outer coating or covering has been applied or incorporated as reinforcement to give the hoses very low absorption of liquids, such as oils, greases, acids and alkalies, etc, and has high resistance to abrasion and direct heat.

#### **4.1.2.1** Performance parameters and applications

The minimum proof pressure specified for this quality is same as that of Type A, that is, 21 kgf/cm<sup>2</sup> but its Abrasion Resistance (durability factor) is twice as that of Type A and Heat Resistance (Reliability Factor) is half times more than that of Type A quality. This quality is recommended to be used under more severe conditions particularly against fire hazards arising out of refineries, Chemical Plants and High-rise buildings in metropolitan cities.

#### 4.2 Percolating Type Hose

4.2.1 Unlined Flax Canvas Fire Hose as per IS 4927.

**4.2.1.1** The minimum proof pressure specified is  $21 \text{ kg/cm}^2$  to ensure that this hose is suitable for rugged use under extreme hot conditions. Being unlined and made of strongest flax fibre, it can withstand hot water or sea water and has the longest shelf life amongst all types of fire hoses. In the event of emergency, it can also be used to carry drinking water to remote areas without any danger of contamination.

**4.2.2** Controlled Percolating Fire Hose having Inner Coating as per IS 8423.

#### 4.2.2.1 Performance parameters and applications

Under Controlled Percolation, the minimum proof

pressure specified is 21 kgf/cm<sup>2</sup>. When subjected to pressure, the inner coating of the jacket develops holes to ensure controlled percolation. It is recommended to subject each hose length to service test at regular intervals.

# **5 HANDLING OF HOSE AT FIRE**

5.1 When used for fighting fires, fire hose is subjected to severe strains, pressure surges and mechanical injury. Care should be taken to lay hose so that injury will not result from contact with sharp or rough objects at fires as far as possible. Too often hose is treated as though it were a rugged water pipe, instead of a flexible tube protected only by the fabric jacket. Vehicles should never be driven over hose lines. Where it is necessary for fire department vehicles to cross, hose ramps/ bridges should be used where possible; however it is desirable to detour all non emergency traffic from. the fire area. When it is necessary to hoist lines, mechanical injury can be avoided and the task made easier by use of hose rollers. When hose lines are extended up ladders, the hose should be supported by placing hose rope tools, so as to take the strain off couplings.

**5.2** Pressure surges are the principal cause of damage to fire hose. Shut off nozzles should be opened and closed slowly because sudden closing of nozzles can cause severe pressure surges of shock waves which are unpredictable and can be extremely damaging both to hose and to pumping appliances. Pressure relief devices on pumping engines should always be used to control sudden increase in pressure. During pump operation, it is preferable to reduce pressure at the pump when signalled to do so before shutting nozzles because this avoids pressure surges which may occur even when the engine governor or relief valve is functioning properly.

**5.3** The usual required relief valves or pressure governors are designed to protect the discharge side of the pump. When water is relayed from a pump at a water source to a pump at a fire, special precautions should be taken to prevent damaging pressure surges. If not provided as part of the pumping apparatus, some form of relay relief valve should be attached to the inlet or suction side of the pump near the fire to which the relay hose line is to be attached. The lower the setting of this relief valve on the inlet of the receiving pump, the greater the protection to the pump and to

the hose supplying the relay.

### **6 MAINTENANCE OF HOSE AFTER FIRES**

**6.1** When hose is returned back, it should be laid out where it can be brushed and washed as required. Machines may be used for this purpose. It is important to remove dirt and other foreign material from the jackets. A scrub brush and mild soap and water may be used but frequently a small hose is used for washdown purposes. Clean dry hose should only be loaded on the appliance to replace the hose that has been used.

**6.2** After cleaning to remove grime and contaminants, hose should be thoroughly dried. Hose hung in hose towers or laid on racks for drying is the best method for drying hose. Where drying cabinets are used, sufficient number should be provided to properly service the hose. When hose has been thoroughly dried, it should be removed from the drying equipment, rolled for storage and placed on storage racks ready for use.

**6.3** For hoses marked as per IS 636, Type B or oil resistant as per Indian Standard for higher pressure hoses, the hose does not need to be dried as this is a covered hose.

### **7 INSPECTION**

7.1 It is necessary for the Fire Service Management to keep accurate data of the performance of each hose length to keep the hose fighting fit. Service tests should be conducted on each length as per the service schedule or at least annually. Test should also be carried out after repairs, or any time the hose has had hard usage and its condition is suspect.

7.2 Record for hose on racks, on reels or in enclosures may be kept at the hose location or at a central location of the premises where the hose is located. Fire Department records include a complete hose inventory, and a record of use of hose by the individual fire fighting units to which it is assigned. Upon delivery and acceptance, each length of hose is given an identification number. This is used to record its history throughout its service life, and ultimately the reason the hose was condemned and removed from service can also be seen. Such records enable fire department administrators to determine the cost effectiveness of the various sizes and types of hose in service, the work to which hose is subjected, service tests, repairs and other pertinent data. If hose fails within the guarantee period, this should be indicated prominently.

## **Bureau of Indian Standards**

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of stardardization, marking and quality certification of goods and attending to connected matters in the country.

# Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publication), BIS

## **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 take: up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. CED 22 (5710).

## **Amendments Issued Since Publication**

Amend No	. Date of Issue	Text Affected
	BUREAU OF INDIAN STANDARDS	
Headquarte	ers:	
Manak Bha Telephone	avan, 9 Bahadur Shah Zafar Marg, New Delhi 110002 s: 323 01 31, 323 3375, 323 94 02	Telegrams: Manaksanstha (Common to all offices)
Regional Offices:		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17, 323 38 41
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi CALCUTTA 700054	{337 84 99, 337 85 61 337 86 26, 337 91 20
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43 60 20 25
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	{235 02 16, 235 04 42 235 15 19, 235 23 15
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	<b>832 92 95, 832 78 58</b> <b>832 78 91, 832 78 92</b>
Branches	: AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM.	