

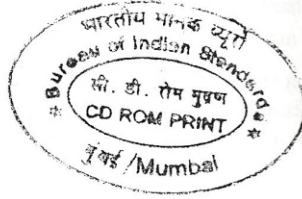
IS 2190 : 2010

भारतीय मानक
प्राथमिक सहायता अग्नि शामकों का चुनाव,
संस्थापन एवं रख-रखाव — रीति संहिता
(चौथा पुनरीक्षण)

Indian Standard

SELECTION, INSTALLATION AND MAINTENANCE
OF FIRST-AID FIRE EXTINGUISHERS —
CODE OF PRACTICE
(*Fourth Revision*)

ICS 13.220.10



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

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Price Group 8

FOREWORD

This Indian Standard (Fourth Revision) 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.

Portable fire extinguishers are not expected to deal with large fires since they are essentially first-aid fire fighting equipment. Nevertheless, they are very valuable in the early stages of a fire when used promptly and effectively. Provision of unsuitable types, incorrect operation, or improper maintenance of the extinguishers have, at times, led to failure in tackling the fire effectively in the early stages, thus involving greater loss of life and property. This standard has, therefore been formulated for giving guidance regarding proper selection, installation and maintenance of portable first-aid fire extinguishers so that such extinguishers will function at all time as intended throughout their useful life. This standard does not cover the requirements applicable to fixed installation systems for extinguishing fire even though portions of such systems may be portable.

This standard was first published in 1962 and subsequently revised in 1970, 1979 and 1992. In the past 15 years, additional types of fire extinguishers both portable as well as wheeled/trolley-mounted type have been developed and are in use. It is, therefore, necessary to enlarge the coverage of this standard so as to include the provision of all types of fire extinguishers and wheeled fire extinguishers for which Indian Standards have been formulated till date. While doing so, opportunity has also been taken to update the maintenance requirements based on current international practices.

The halon based extinguishers have been restricted for essential use as long as the technically suitable replacements are not available, as per the Montreal Protocol.

In this standard provision of fire buckets has been mentioned. However, users may provide fire buckets [(see IS 2546 : 1974 'Specification for galvanized mild steel fire buckets (first revision)'] over and above the requirements given in this standard. The use of fire buckets, however, *in lieu* of fire extinguisher, is not recommended.

In order that fire extinguishers are effective, they should,

- a) be portable/wheeled;
- b) operate instantly;
- c) have adequate throw;
- d) have adequate quantity of extinguishant as per fire rating; and
- e) specified shelf-life from the date of manufacture.

All these characteristics are incorporated in portable extinguishers and are manufactured to deal with different types of fires. In order that these could be effective, these should conform to relevant Indian Standards. Number and size for purpose of installations shall be determined by type, fire rating and fire hazard classification of protected risk.

As decided by the Committee, soda acid and chemical foam type extinguishers have been phased out. The halons have been restricted for essential use only. Number and size for purpose of installations shall be determined by type, fire rating.

It was also decided by the Committee that the following standards shall be withdrawn with the implementation of IS 15683 : 2006 'Portable fire extinguisher — Performance and construction':

- a) IS 940 : 2003 Specification for portable fire extinguishers, water type (gas cartridge) (*fourth revision*)
- b) IS 2171 : 1999 Specification for portable fire extinguishers, dry powder (cartridge type) (*fourth revision*)
- c) IS 6234 : 2003 Specification for portable fire extinguishers, water type (stored pressure) (*second revision*)

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- d) IS 10204 : 2001 Specification for portable fire extinguisher mechanical foam type
- e) IS 13849 : 1993 Specification for portable fire extinguisher dry powder type (stored pressure)
- f) IS 15397 : 2003 Specification for portable fire extinguisher mechanical foam type (stored pressure)

Clause 3.1(a) of IS 2878 : 2004 'Specification for fire extinguisher, carbon dioxide type (portable and trolley mounted) (*third revision*)' shall also be deleted simultaneously with the implementation of IS 15683.

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 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of specified value in this standard.

ANNEX D
(Clauses 11.4.1 and 12.3)

**REFILLING SCHEDULE FOR FIRE EXTINGUISHERS AND SCHEDULE FOR
OPERATIONAL TEST ON FIRE EXTINGUISHERS**

**D-1 EXTINGUISHERS TO BE REFILLED/
OPERATED FOR PERFORMANCE TEST IN
ANNUALLY CYCLIC MANNER**

D-1.1 Once in Two Years

- a) Portable fire extinguisher, water type stored pressure.
- b) Portable fire extinguisher, mechanical foam type stored pressure.
- c) 135 litre fire engine, foam type.

D-1.2 Once in Three Years

BC and ABC powder extinguisher conforming to IS 4308 and IS 14609 respectively.

D-1.3 Once in Five Years

- a) Portable fire extinguisher, water type 9 litre (gas cartridge).
- b) Portable fire extinguisher, mechanical foam type 9 litre (cartridge type).

- c) Portable fire extinguisher, water type 50 litre (gas cartridge).
- d) Portable fire extinguisher, mechanical foam type 50 litre (cartridge type).
- e) Fire extinguisher, carbon dioxide type (portable and trolley mounted).
- f) Higher capacity dry powder fire extinguisher (trolley mounted).
- g) Dry powder fire extinguisher for metal fires.
- h) Clean agent fire extinguishers.

NOTES

1 In corrosive environments, it is desirable to have the discharge test carried out at half the frequency mentioned.

2 As per the restriction on release of halon in atmosphere, it need not be necessary to refill/operate Halon 1211 type portable fire extinguisher within any stipulated period. However, as regards the pressure of injection gas, that is dry N₂ should be checked up for the adequate pressure on the pressure gauge/indicating gauge and the contents by weighing the fire extinguisher.

ANNEX E
[Clauses 12.2.1 and 12.2.2 (g)]

SCHEDULE FOR HYDRAULIC PRESSURE TESTING OF FIRE EXTINGUISHERS

E-1 Every extinguisher installed in premises shall be hydraulically pressure tested as per the schedule given below. There shall not be any leakage or visible distortion. Extinguisher which fails in this requirement shall be replaced.

E-2 The carbon dioxide type and clean agent type fire extinguishers shall be pressure tested every time when the cylinders are sent for recharging (after periodic discharge test or otherwise) to the pressure specified in the relevant Indian Standard specifications.

Sl No.	Type of Extinguisher	Test Interval Year	Test Pressure kg/cm ²	Pressure Maintained for min
i)	Water type (gas cartridge) (IS 940)	3	35	2.5
ii)	Water type (stored pressure) (IS 6234)	3	35	2.5
iii)	Water type (gas cartridge) (IS 13385)	3	35	2.5
iv)	Mechanical foam type (gas cartridge) (IS 10204)	3	35	2.5
v)	Mechanical foam type (stored pressure) (IS 15397)	3	35	2.5
vi)	Mechanical foam type (gas cartridge) (IS 13386)	3	35	2.5
vii)	Mechanical foam type (gas cartridge) 135 litre (IS 14951)	3	35	2.5

<i>Sl No.</i>	<i>Type of Extinguisher</i>	<i>Test Interval Year</i>	<i>Test Pressure kg/cm²</i>	<i>Pressure Maintained for min</i>
viii)	Dry powder (stored pressure) (IS 13849)	3	35	2.5
ix)	Carbon dioxide IS 2878	5	250	2.5
x)	Clean agent (IS 15683)	3	35	2.5
xi)	Dry powder (gas cartridge) (IS 2171, IS 10658 and IS 11833)	3	35	2.5

NOTE — Extinguisher's should be hydraulically tested with cap.

ANNEX F

(Clauses 12.2.1)

LIFE OF FIRE EXTINGUISHERS

<i>Sl No.</i>	<i>Type of Extinguisher</i>	<i>Life Time, Year</i>
i)	Water type	10
ii)	Foam type	10
iii)	Powder type	10
iv)	Carbon dioxide	15
v)	Clean agent	10

NOTES

1 Life of extinguishers shall be considered from date of manufacture of extinguishers.

2 In case of failure in hydraulic pressure testing, extinguisher shall be rejected immediately before the life time given above.