

Inspection, Maintenance, Hydro testing and refilling periods & parameters for Fire Extinguishers

LIFEGUARD has organized the following information to serve as a schedule of timetable for any inspection, maintenance, recharging, and testing of portable fire extinguishers.

S. No.	Extinguishers	Inspection	Maintenance	Recharging*	Hydrostatic Testing
1	Water type (Stored Pressure)	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	2 Years (APPENDIX-III)	3 years (APPENDIX-IV)
2	Mechanical Foam (Stored Pressure)	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	2 Years (APPENDIX-III)	3 years (APPENDIX-IV)
3	Dry Chemical (Stored Pressure)	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	3 Years (APPENDIX-III)	3 years (APPENDIX-IV)
4	Water type (Cartridge)	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	3 years (APPENDIX-IV)
5	Mechanical Foam (Cartridge)	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	3 years (APPENDIX-IV)
6	Water type 20/ 45/ 50/ 60 ltr.	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	3 years (APPENDIX-IV)
7	Mechanical Foam 20/ 45/ 50/ 60 ltr.	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	3 years (APPENDIX-IV)
8	CO ₂ Portable and Trolley Mounted	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	5 years (APPENDIX-IV)
9	Wet Chemical for Kitchen fires.	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	2 Years (APPENDIX-III)	3 years (APPENDIX-IV)
10	Clean Agent	30 days (APPENDIX-I)	Quarterly or Annually (APPENDIX-II)	5 Years (APPENDIX-III)	3 years (APPENDIX-IV)

* Recharging is also required to take place after every use and if the need is identified during maintenance or inspection.

LIFE OF LIFEGUARD FIRE EXTINGUISHERS

S. No.	Type of Extinguisher	Life Time (in Years)
1	Water type	10
2	Foam type	10
3	Powder type	10
4	Carbon dioxide type	15
5	Clean Agent	10

NOTES

- Life of extinguishers shall be considered from date of manufacture of extinguishers.
- In case of failure in hydraulic pressure testing, extinguisher shall be rejected immediately before the life time given above.

Inspection, Maintenance, Hydro testing and recharging periods and parameters for Fire extinguishers

Inspection: Periodic inspection of fire extinguishers shall include a check of at least the following items

1. Location in designated place.
2. No obstructions to access or visibility.
3. Operating instructions on nameplate legible and facing outward.
4. Safety seal and tamper indicators not broken or missing.
5. Fullness determined by weighing or "hefting."
6. Examinations for obvious physical damage, corrosion, leakage, or clogged nozzle.
7. Pressure gauge reading or indicator in the operable range or position.
8. Condition of tires, wheels, carriage, hose, and nozzle checked (for wheel units).
9. Label in place.

Maintenance: Procedures shall include a thorough examination of the basic elements of a fire extinguisher:

1. Mechanical parts of all fire extinguishers.
2. Extinguishing agent of cartridge or cylinder-operated dry chemical, stored pressure and pump tank fire extinguishers.
3. Expelling means of all fire extinguishers.

Internal examination during annual maintenance is not required for non-rechargeable fire extinguishers, carbon dioxide fire extinguishers, or stored pressure fire extinguishers. These fire extinguishers are to be thoroughly examined externally in accordance with the applicable items of IS 2190:2010.

As per IS 2190:2010 Stored pressure types containing a loaded stream agent shall be disassembled on an annual basis and subjected to complete maintenance. Prior to assembly, the fire extinguisher shall be fully discharged to check the operation of the discharge valve and pressure gauge. The loaded stream charge shall be permitted to be recovered and re-used provided it is subjected to agent analysis in accordance with the manufacturer's instructions.

Maintenance is to be performed by a trained person who has undergone the instructions necessary to reliably perform maintenance and has the manufacturer's service manual.

Maintenance, servicing, and recharging, are to be performed by trained persons having available the appropriate servicing manual(s), the proper types of tools, recharging materials, lubricants, and manufacturer's recommended replacement parts or parts specifically listed for use in the fire extinguishers.

Maintenance is to be performed in full compliance with the maintenance requirements of IS 2190:2010.

During the time period that fire extinguishers are removed from service for maintenance or recharge a replacement fire extinguisher suitable for the type of hazard being protected and of at least equal rating is to be provided.

APPENDIX

APPENDIX-I

Clause 11.11 of IS 2190:2010- ‘All the extinguishers installed in the premises should be subjected to detailed inspection as per the check list (applicable to monthly as inspection) and after thorough examination and rectification, if found suitable, be re-charged and put in service.’

APPENDIX-II

Clause 11.14 of IS 2190:2010- ‘Over and above the quarterly inspection, all the extinguisher shall be subjected to a more thorough inspection atleast once in a year. Advantage should be taken of this annual inspection to train personnel in the operation of extinguishers. The annual inspection should consist of the following procedure:

- a) In the first instance, by rotation if the extinguisher is due for discharge test, after ensuring that the cap and components are fully tightened nozzles and vent holes are free of any dust or dirt, operate the extinguisher for testing the performance.
- b) In case the extinguisher is not falling due for discharge test as per the schedule of records, empty the contents of the extinguisher in clean buckets and remove all the components. In case the extinguisher is operated, after operation clean the extinguisher and remove all components. In case it is failing in discharge test, procedure given in this standard is to be followed.
- c) Examine the inside surface of the cylinder as well as the surface of the containers for the condition of plating, for any rust formation, etc.
- d) If there are visible rust marks, wash the cylinder thoroughly with clean water, dry it and fill it with water for 24 h and observe the surface again. If there are still signs of rust formation and plating thickness is not adequate, the surface should be freshly plated or phosphated as the case may be.
- e) The above procedures are for water type gas pressure, foam and dry powder type fire extinguisher. In case of CO₂ and clean agent extinguisher if the cylinders are not due for recharging than check the weight of the contents and the pressure of the container with its contents. If the same is in order as per the monthly checklist, then the contents need not be discharged. If, however, these extinguishers are due for an operational test, then after operational test, if facilities are available for pressure testing and recharging, the cylinders can be pressure tested and recharged at site after checking up the exterior and other components, or alternately should be sent to the manufacturer or other competent agency for pressure testing and re-charging.
- f) Examine the external surface of the fire extinguisher in respect of painting and if there is damage to the painting, the surface should be re-painted as per the requirements of relevant Indian Standard.
- g) Check up the condition of the label and if it is not in order ensure to replace with correct label.
- h) Examine the cylinder and its components in detail apart from functional point of view for any physical damage, cracks, dents, etc. In case of any doubt, such components, if those are pressure parts, should be subjected to hydraulic pressure test. If the damage is beyond repair, the part should be replaced by a correct component.
- j) The annual inspection should be combined with the testing requirements for operational test and hydraulic pressure test.
- k) The extinguishers after inspection should be refilled immediately and the date of inspection and refilling should be indelibly marked on the extinguishers and recorded in the register of fire extinguishers.’

APPENDIX-III

Annexure 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 confirming 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 with in any stipulated period. However, as regards the pressure of injections 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.

APPENDIX-IV

Annexure-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.

S. No.	Type of Extinguisher	Test Interval Year	Test Pressure (kg/cm ²)	Pressure maintained for (mins)
1.	Water type (gas cartridge) (IS 940)	3	35	2.5
2.	Water type (stored pressure) (IS 6234)	3	35	2.5
3.	Water type (gas cartridge) (IS 13385)	3	35	2.5
4.	Mechanical foam type (gas cartridge) (IS 10204)	3	35	2.5
5.	Mechanical foam type (stored pressure) (IS 15397)	3	35	2.5
6.	Mechanical foam type (gas cartridge) (IS 13386)	3	35	2.5
7.	Mechanical foam type (gas cartridge) 135 litre (IS 14951)	3	35	2.5
8.	Dry powder (stored pressure) (IS 13849)	3	35	2.5
9.	Carbon dioxide (IS 2878)	5	250	2.5
10.	Clean agent (IS 15683)	3	35	2.5
11.	Dry powder (gas cartridge) (IS 2171, IS 10658 and IS 11833)	3	35	2.5

Note: Extinguishers should be hydraulically tested with cap.

Annexure F (Clauses 12.2.1) LIFE OF FIRE EXTINGUISHERS