RAIL COACH FACTORY, KAPURTHALA

MD46111 DATED: 25/03/2026

Sub: - Issue of corrigendum-1 of "Schedule of Technical Requirements for Stainless Steel Fire Extinguisher with Anti-Theft Mechanism MDTS-46270 (Rev-06).

Following modifications are made to the Table-1, in specification no. MDTS-46270 Rev-06.

SN	Description	Earlier	Modified
1.	Type of Fire Extinguisher	Stored pressure DCP type (Mono Ammonium Phosphate based dry powder 90%)	Stored pressure DCP type (Mono Ammonium Phosphate based dry powder 90% with tolerance as per IS:4308 latest version)
2.	Extinguishing Medium	The powder shall conform to the requirements of IS:4308-2019. Dry chemical powder used as extinguisher agent should be Mono Ammonium Phosphate with more than 90% concentration conforming to IS:4308-2019. Powder should be ISI marked. It shall be water repellent.	The powder shall conform to the requirements of IS:4308 latest version. Dry chemical powder used as extinguisher agent should be Mono Ammonium Phosphate with 90% concentration conforming to IS:4308-latest version. Powder should be ISI marked. It shall be water repellent.
3.	Description of Anti-Theft Mechanism	It should be self-powered with suitable 9 Volts long life batteries (BIS certified) to provide a standby battery life of at least 12 months.	It should be self-powered with suitable 9 V long life batteries (of reputed make Duracell/Panasonic/Eveready) to provide a standby battery life of at least 12 months.
4.	Testing facilities	ii. Fatigue test 5000 cycles	ii. Fatigue test 500 cycles
5.	Warranty	All information required for filing a warranty claim shall be provided in a warranty certificate and on a QR code (engraved/embossed/itched etc. or with any related process with suitable technology, which makes the QR code undetachable from surface throughout its working) on the item provided.	All information required for filing a warranty claim shall be provided in a warranty certificate and engraved/embossed/itched on fire extinguisher which shall be available on surface throughout its life.
6.	Manufacturing Capability:	xii. Laser marking machine for Batch code and serial number marking.	Deleted

DY.CME/DF 25/03/26

CDE/RCF- May kindly approve

25/3/26

CME/QA, CPLE, CWE/FUR, CMM/HSQ, CMT, CWE/SHELL, DY.CME/LHB/HSQ
DY.CMM/G, DY. CPLE-II & III, DY.CMM/FUR,

SSE/Filing section
SSE/LIB. Mech. Design
SSE/Record (with original copy),
SSE/Design/RCF/TKJ

Copy for information to:
DY.CME/D Vendor, Shell, Bogie

No: MDTS 46270	Revision No: 06	Date: 26.12.2025
Schedule of Technical Requirements for Stainless Steel Fire Extinguisher with Anti-Theft Mechanism		

Document Control:

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List Of Amendments:

S. No.	Amendment Date	Revision	Details
1.	29/11/2014	00	First issue
2.	29/10/2018	01	1. Timer switch to avoid continued sounding of the hooter added in para 4.iii. 2. Para 1(b), Prototype approval (Para 6) 3(iii, v, vi) & 4(i) modified. 3. Aluminium body cylinder with seamless structure added in para's 2 & 3(i). 4. Weight and dimension in Table-1 modified.
3.	19/08/2024	02	**DIC No. MD240047** 1. Table-1 modified. 2. Clause- 2 & 3(i) modified to provide SS body cylinder in place of Aluminium body cylinder. 3. Clause 3(ix), fire rating changed from 1A:13B or 2A:34B to 3A:89B. 4. Clause 3(viii) & 5, Life of Fire extinguisher changed from 5 year to 10 year and routine testing added.

S. No.	Amendment Date	Revision	Details
4.	31/03/2025	03	1. Clause-2, capacity 4 Kg. deleted. 2. Clause- 3(i), word "seamless structure" deleted. 3. Clause 3(i) (Table-1, Sr. No.2), capacity 4 Kg. deleted and spec. added for capacity. 4. Clause 3(i) (Table-1, Sr. No.10) and Clause 3(vii), Grade and spec. of Nitrogen propellant added. 5. Clause 3(i), Sr. No.14 in Table-1 added for shelf life. 6. Clause 3(iii), word "OR EN 3-7:2004, EN 3-8:2006 Approved" deleted. 7. Clause 3(iv), spec. of DCP updated from IS:14609-1999 to IS:4308-2019. 8. Clause 3(v), sentence "The extinguisher shall have completely seamless body" has been deleted. 9. Clause 3(viii) deleted and other clause renumbered. 10. Clause-5 updated for warranty conditions.
5.	02/12/2025	04	Specification Redrawn
6.	04/12/2025	05	Specification Redrawn
7.	26/12/2025	06	1) Capacity updated as 6 Kg. 2) Under Clause 1 (b) & 5 "Issue date of test certificates submitted shall not be more than four years old from the date of opening of tender " and latest test report or within last one year deleted 3) Clause 4 (iv) revised 4) Clause 7.1 amended for powder testing, 5) Clause 8.2 (a) Amended for adding powder coating & shot blasting amended

1. General:

a) This specification covers the general & technical requirements for stainless steel dry chemical powder type fire extinguisher with anti-theft mechanism to be provided in passenger coaches of Indian Railways.

b) While quoting, the supplier shall submit the following details:

- The details of M&P and testing equipments, mentioning - make, year and capacity (against clause 8.1 and 8.2).
- Clause wise compliance on the specification. Deviation statement with respect to specification, if any.
- Technical data sheet of the offered product.
- Credentials and performance of the original supplier i.e. OEM.
- In case of an authorized dealer of OEM, tender specific letter of authorization from the OEM.
- Test certificates from NABL certified Labs OR from the OEM Test Lab (NABL accredited Lab) indicating compliance to all the test parameters as per Clause 7.1 or mentioned anywhere else

2. Description:

The system shall consist of ABC type dry chemical powder SS body fire Extinguisher with anti-theft mechanism. The anti-theft mechanism shall be electro-mechanical device to prevent misuse/theft of the fire extinguisher system from its mounting location fixed inside the Railway passenger coaches. The Extinguisher should have a controllable discharge mechanism to provide flexibility of releasing extinguishing agent on targeted fire location.

3. Description of fire extinguisher:

The fire extinguisher should be ABC dry chemical powder SS body with stored pressure. The details requirements should be as per Table -1:

Table-1

SN	Description	Parameters of fire Extinguisher
1	Type of Fire Extinguisher	Stored pressure DCP type (Mono Ammonium Phosphate based dry powder 90%)
2	Capacity	6 Kg
3	Standard code	IS:15683-2018

4	Fire rating	3A:89B or higher
5	Gross weight	15 Kgs. (Max.)
6	Diameter of cylinder	160 ± 2.5 mm.
7	Overall height of extinguisher	550 mm. (Max.)
8	Cylinder material	AISI:316L
9	Working pressure	15 KGF/CM^2
10	Temperature range	-10°C to +60°C
11	Propellant	High grade dry Nitrogen (IS:1747-2023, N 5.0 Grade)
12	Minimum effective discharge time	13 Seconds (Min.)
13	Throw distance	2 Meters (Min)
14	Shelf Life	10 Years
15	Thickness	1.5 mm (Tolerance shall be as per IS 6911)
16	Pressure gauge & handle	To be provided as per IS 15683.
17	Hose	Braided PVC (Burst pressure- 50 kgf/cm^2) as per IS 15683
18	The fire extinguisher shall be ISI marked	
19	Surface coating as per IS 15683	

Extinguishing Medium: The powder shall conform to the requirements of IS:4308-2019. Dry chemical powder used as extinguisher agent should be Mono Ammonium Phosphate with more than 90% concentration conforming to IS:4308-2019. Powder should be ISI marked. It shall be water repellent.

4. Description of Anti-Theft Mechanism

i. The anti-theft mechanism should be an electro-mechanical device to prevent misuse/theft of fire extinguisher. The complete mechanism should be a wall mounted with a stainless steel cable/wire/chain, one end of which is attached to an alarm device and the other end is attached securely with the extinguisher. On removal of the extinguisher from its mounting, for any reason, the steel cable should get pulled out from the device and thereby activating an alarm.

ii. The steel cable attaching the alarm and the extinguisher should be more than 3.5 mm thick and should have a protective layer to prevent rusting during the normal life span of the product.

iii. The activated alarm should have audibility of not less than 80 decibels (dB) at a distance of 1 meter. The alarm should remain activated for at least 5 minutes.

iv. The device should also have a reset mechanism that in case the cable is reinserted, the alarm would be deactivated.

v. It should be self-powered with suitable 9 Volts long life batteries (BIS certified) to provide a standby battery life of at least 12 months.
vi. Weight & size of the device should not be more than purchaser requirements. Approval of purchase shall be taken for it.
vii. The mechanism should have tamper proof sturdy design and should be made from long-life rust-free material such as an engineering plastic.

5. Warranty:

i. The fire extinguishers are expected to be fit and forget type with inspection intervals matching the maintenance schedule of rolling stock on which it is installed.
ii. The supplier shall provide a warranty for all supplied items for a period of 6 (Six) years from the date of fitment or 7 (Seven) years from the date of supply whichever is earlier.
iii. The fire extinguisher should be tested at an interval of 3 years for its functioning and suitability. HPT testing of fire extinguisher shall be carried out as per IS 2190:2024 & IS 15683: 2018..Maintenace activities & refilling to be carried out only by certified agencies & quality control to be ensured during it.
iv. All information required for filing a warranty claim shall be provided in a warranty certificate and on a QR code engraved (laser printing) on the item provided.

6. Prototype approval:

The firm who has not got their prototype sample approved earlier, shall submit following documents for prototype from CDE/RCF before bulk supply:

- Mounting details & dimensions
- Technical and safety data-sheet of the offered product
- Test certificates from NABL certified Labs for tests OR from the OEM Test Lab (NABL accredited lab) indicating compliance to all the test parameters.
- Tender specific letter of authorization from the OEM (in case of an authorized dealer of OEM).

The prototype and drawings shall be examined from all viewpoints and supplier shall incorporate modifications suggested by RCF on the basis of this review of prototype and drawings. Only after getting approval of drawings and prototype from CDE/RCF, the firm can undertake manufacture of bulk supply.

7. Test sampling plan, stage inspection, final inspection:

7.1. Tests

The following table summarizes the tests sampling plan, must be conducted by the inspecting agency, for portable fire extinguishers as per IS 15683:2018.

SN	Test Name	Clause Number	Sampling
1	Hydrostatic Pressure Test at 35 kg/cm2	6.1 of IS 15683	100% by firm (records to be shown to inspecting agency) and 1 in 100 nos by inspecting agency
2	Leakage Test	7.4.2 of IS 15683	
3	Pressure Cycling Test	9.2.4 of IS 15683	1 in 500 nos by inspecting agency
4	Burst test at 55 Kg/cm2	9.2.2 of IS 15683 Break should not occur in the weld up to a pressure of 80 Bar	
5	Crushing Test	9.2.3 of IS 15683	
6	Vibration Resistance Test	7.5.2 of IS 15683	
7	Impact resistance Test	7.5.1 of IS 15683	
8	Tapping Test	7.7 of IS 15683	
9	Resistance to Temperature Changes	7.3 of IS 15683	
10	Chemical analysis of cylinder	By hand held Spectro	100% by firm (records to be shown to inspecting agency) and 5 in 100 nos by inspecting agency
11	Method of operation	9.9 of IS 15683	1 in 500 by inspecting agency
12	Safety-Locking Devices	9.10 of IS 15683	
13	Minimum Effective Discharge Time and Bulk Range of Discharge	7.2 of IS 15683	
14	Retention of Charge	7.4 of IS 15683	
15	Intermittent Discharge Test	7.8 of IS 15683	
16	Determination of maximum service pressure (P_{max})	9.2.1.8 of IS 15683	

17	Resistance to Corrosion	7.6 of IS 15683, Firm to carry out this test (NABL certified lab) and produce results to inspecting agency, if required test may be recarried.
18	Visual & Dimensional inspection	IS: 2500 Pt. I/2000 GIL-II AQL-2.5 (Wall thickness shall be checked in fire extinguishers used in destructive testing)
19	Checking of labelling, serial numbering, and marking as per IS:15683-2018.	

- Performance Requirements for Test Fires (clause 8 of IS 15683) is a type test and certificate (NABL certified) to be produced to inspecting agency. Test to be conducted every year.
- The current and valid BIS certification of IS:15683-2018 with latest amendments needs to be submitted by the vendor.
- Extinguishing Medium (Dry Powder) MAP content test reports as per IS 4308 to be provide. Chemical testing & fluidity testing of MAP content of one fire extinguisher to be tested inhouse/NABL accredited lab/OEM lab by inspection agency.
- Valid BIS license for ISI marking for Extinguisher confirming to IS 15683/2018 shall be shown at time of inspection. Any other additional test requirement shall also be performed by the firm.
- Firm shall demonstrate extinguishing of fire by fire extinguisher.

7.2. Firm shall provide following type test reports of accessories of Fire extinguisher:

i. As per clause 9.5.5 of IS 15683, cap, valves or closure shall withstand the burst test pressure specified for the cylinder for 1min without rupture.
ii. As per clause 9.7 of IS 15683, Plastic components. Shall be tested for Air-Oven Ageing, Impact Resistance, Exposure to Extinguishing medium.
iii. As per clause 9.8.3 of IS 15683, the burst pressure test of hose assembly shall be carried out.
iv. As per clause 9.11.2, Calibration Test of Gauges and Indicators from a NABL accredited laboratory.
v. As per clause 9.11.3, Burst Strength Test of Gauges and Indicators shall be carried out
vi. As per clause 9.11.4, Water Resistance Test of Gauges and Indicators to be carried out.
vii. Material safety data sheet of the DCP powder being used needs to be provided.
viii. The extinguishers pressurized with using high grade dry Nitrogen (propellant) as per IS:1747-2023, N 5.0 Grade. OEM declaration should be submitted for it.

8. M&P and Testing requirements:

8.1. Manufacturing Capability:

8.1.1. The manufacturer shall possess in-house fabrication and assembly facilities for the complete manufacture and supply of the fire extinguisher.

8.1.2. Procurement of Steel sheets shall be strictly from primary producers only (e.g., Tata, Jindal, SAIL).

8.1.3. Mill Test Certificates (MTCs) for every batch of raw material used shall be verified and maintained for traceability.

8.2. Minimum Machinery and Testing Infrastructure: Manufacturer must have at least one each equipment for manufacturing and testing facilities:

a) Manufacturing facilities:

i. Laser cutting machine or Shearing machine capable of cutting upto 1.5 mm SS 316L material
ii. Deep drawing press for end cups
iii. Roll bending machine
iv. MIG or TIG welding set up (Automatic & circumferential)
v. Pickling & passivation / shot blasting facility
vi. Painting/powder coating facilities

b) Testing facilities:

i. Hydrostatic Pressure Testing (HPT) machine upto 35 bar
ii. Fatigue test 5000 cycles
iii. Burst Test setup
iv. Crushing test
v. Water tightness test
vi. Water Immersion Test
vii. Impact test for handle
viii. Vibration Test setup
ix. Tapping Test setup
x. Temperature Cycling Chamber (-30^0 C to $+60^0$ C)
xi. Salt spray test
xii. Minimum Effective Discharge Time and Bulk Range of Discharge test set up
xiii. Resistance to Temperature Changes test set up
xiv. MAP content chemical testing facility & fluidity testing facility

c) Welding Process and Qualification:

i. Only MIG / TIG welding shall be employed for fabrication of the body of the fire extinguisher.
ii. All welders engaged in the process of welding shall be certified by a recognized agency as per national/international standards and their qualification records shall be maintained for inspection. Their qualification records shall be maintained for inspection.
iii. Acceptance standards for welds shall be as per EN25817-1992 MIG/TIG welding intermediate
iv. Argon gas: Gr 1 of IS 5760- 1983
v. Grinding wheels shall be free from iron, iron oxide, zinc or tother undesirable materials that may cause contamination on the surface.

9. Stage inspection by TPI : Stage inspection shall be carried out by TPI in the following stages:

9.1. Stage I:

- Pre-Fabrication and Material Verification: - Verification of all incoming materials and their sources of supply.
- Confirmation of MAP powder grade, ISI marking and test certificates.
- Inspection of welded cylinder with Hydrostatic Pressure Test up to 35 kg/cm2 (1 in 100 nos)
- Visual inspection of welding
- Confirmation of grade of SS cylinder

9.2. Stage II:

- Inspection of assembly: Tests as per Para 7 shall be carried out by inspection agency

10. Quality Assurance Plan:

Each manufacturer shall prepare a detailed Quality Assurance Plan (QAP) describing very stage of manufacture, inspection and testing of fire extinguishers. QAP must be submitted by the vendor to the nominated vendor approving agency at the time of registration. The QAP shall be approved by the nominated vendor approving agency prior to approval of the vendor.

The QAP may include:

i. Process flow chart covering material receipt to manufacturing of the final product.
ii. Inspection and testing plan.
iii. List of measuring and testing equipment (with calibration details).
iv. Specification of raw material (SS sheets, ABC powder MAP 90 etc.).
v. Welding processes and welder qualification records.

11. Up-Gradation of Design:

Suppliers may offer alternate design of anti-theft mechanism for all of the above or any of the above clauses with a view to upgrade design/concept. Clause wise justification shall be given by the supplier in such case. Specification details for the subject item may be deviated from those specified above, if sufficient technical justification is provided. However, RCF's decision on all such matters shall be final and bindings.

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