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पत्र संख्या-MD35131

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विषय: विशिष्टता संख्या RCF-MD-PS-2021-2 Rev-02 जारी करने हेतु।

कृपया चोरी-रोधी तंत्र के साथ अग्निशामक यंत्र के लिए तकनीकी आवश्यकताओं हेतु संलग्न विविष्टता संख्या RCF-MD-PS-2021-2 Rev-02 आवश्यक कार्यवाही हेतु प्राप्त करें।

S. No.	Description	SpecificationNo.
1.	SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM	RCF-MD-PS-2021-2 Rev-02

 12/03/25

उप मुख्य यांत्रिक अभियंता /  
डिजाइन / फर

SSE (LIB. Design)    SSE (Records)    SSE/FUR-I & II  
Dy. CMM/Fur/LHB    Dy CMM/G    Dy.CPLE-II & III  
CQM    CPLE    CWE (Fur)    CWE (Shell)    CMM/HSQ    CMM/TKJ    CMT

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## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

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### LIST OF AMENDMENTS:

S. No.	Amendment Date	Revision	Details
1.	05/02/2022	00	First issue for use on pantry and power coaches as per instructions contained in 1. RB letter no. No. 76/M(C)/137/31Vol V dated 27/12/2021 2. RDSO Letter No. MC/ACF/Fire Accidents dated 20/09/2021
2.	16/12/2024	01	<b>DIC No. MD240047</b> Specification modified as per RDSO recommendation report No. MC/ACF/Fire Detection/Non-AC dated 17-05-2024.
3.	06/03/2025	02	1. <b>DIC No. MD240047</b> - Specification modified as per RDSO recommendation report No. MC/ACF/Fire Detection/Non-AC dated 17-05-2024. 2. Clause-2.2.1, Audibility of alarm changed from 100 dB to 80 dB. 3. Clause 3.2 added.

## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

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### 1. Objectives and Scope of the specification

This document has been prepared with the objective of forming a standard specification for purchase of ABF water-based fire extinguishers along with anti-theft devices and mounting arrangements for Indian Railways.

### 2. Functional & Technical requirements

2.1 The functional and technical requirements are as under:

**Table-1**

S. No.	Description	Parameters of fire Extinguisher
1.	Type of Fire Extinguisher	Stored pressure water mist (or water) type with suitable additives to meet the fire rating requirements. Rechargeable
2.	Standard code	IS:15683-2018
3.	Fire rating	Class A: 3A or better Class B: 144B or better Class F: 75F or better
4.	Suitable for use on electrical equipment	Suitable for use on energized electrical equipment conforming to clause 8.8 of IS:15683-2018
5.	Service pressure	Low pressure extinguisher-19 bar maximum
6.	Extinguishing medium / Discharge Type	Water mist / water based (Capable of intermittent operation)
7.	Pressure Gauge / Indicator	A suitable pressure indicator shall be provided on the apparatus to indicate the gauge pressure inside the cylinder. The dial shall be marked with gauge pressure values and the background shall have a traffic light scale to indicate, optimum (green), attention required (amber) and non-functional / alarm (red) zones for the internal pressure.
8.	Gross weight	17 Kgs. (Max.)
9.	Maximum dimensions of extinguisher	Diameter 180 mm, Height 550 mm (For guidance only). However, the extinguishers shall be sized suitably for mounting in the given space as per concerned drawing.

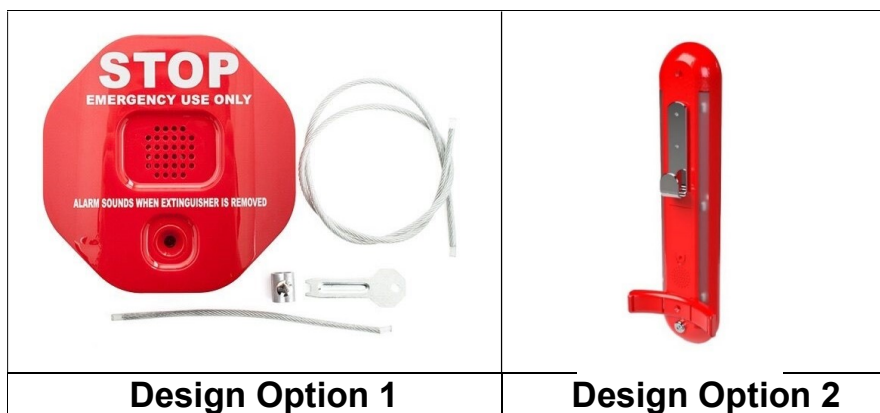
## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

10.	Discharge Hose	Discharge hose shall be provided to enable to aim the discharge correctly. The size and length shall be suitable to meet the performance rating. The polymer used for the hose shall be capable of meeting the life cycle requirements.
11.	Carrying handle	A carrying handle shall be provided as per the standard.
12.	Operating force	The extinguisher shall be operable with full hand with a maximum force of 200N
13.	Percentage of discharge	90% minimum
14.	Cylinder material	Stainless Steel (IS:15683-2018, clause 9.2.6) Aluminium (IS:15683-2018, clause 9.2.7) Composite (IS:15683-2018, clause 9.2.8)
15.	Temperature range	+5 °C to +60 °C
16.	Safety locking mechanism	A positive locking system shall be provided to prevent inadvertent, accidental operation of the fire extinguisher. The design of the safety lock shall be such that it needs no more force to disable than what is required to operate the fire extinguisher.
17.	Propellant	Nitrogen (IS:1747-2023, N 5.0 Grade)
18.	Minimum effective discharge time	13 Second (Min.)
19.	Minimum effective range	2 Meters (Min)
20.	Shelf Life	10 Years

**Note: All other applicable clauses of the IS15683:2018 shall apply as required in the standard.**

### 2.2 Anti-theft system

The anti-theft system is a deterrent against theft of the fire extinguisher. The system shall sound a loud piercing alarm whenever the fire extinguisher is removed from the mounts. Any design of anti-theft system can be provided. Some options that have been found compatible to the mounting systems are illustrated in the following indicative images.



**Design Options for Anti-theft system**

**SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM****2.2.1 Functional & Technical Requirements of Anti-theft system**

1. The complete mechanism should be a wall mounted alongside the fire extinguisher using the holes provided as per the drawings enclosed.
2. An audio alarm shall be sounded when the fire extinguisher is removed from the holding brackets.
3. The design shall ensure that false alarms are minimized and are not triggered by the vibrations and movements caused by inputs from the moving coach.
4. If steel cables are used to secure the fire extinguisher, these shall be rust resistant and covered with sheath to prevent rusting of cables, scuffing of paint and shall dampen the noise due to vibration while in contact with the surfaces.
5. The alarm sound pressure level shall be 80 dB at 1 metre from the device. The alarm shall sound for 5 minutes and stop.
6. The alarm shall reset immediately when the alarm triggering action is reversed by replacing the fire extinguisher.
7. The unit shall be self-powered with long life battery. The quiescent power requirements shall be such that the battery lasts for at least 12 months.
8. The device weight shall be within 500gms. The size of the device should be limited to 150mm (L) X 150mm (W) X 60mm (H). This size is given as guidance only. Any design/size fixable using the mounting holes (in the specified drawing) is acceptable.
9. The device shall have a tamper proof, sturdy design.
10. The case material shall rust resistant and shall be made of stainless steel (AISI 304), Aluminium (IS 736, IS 1285) or engineering plastics.
11. The device shall be epoxy painted with the colour as per IS-5 shade number 536 / 538.
12. Warning signs shall be provided on the device or by stickers mountable on the wall next to the fire extinguisher. The following messages shall be prominently displayed and readable from 3 metres away:
  - 12.1. **STOP! EMERGENCY USE ONLY**
  - 12.2. **ALARM SOUNDS WHEN EXTINGUISHER IS REMOVED**

## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

### 3. Quality Assurance, Tests & Documents

The following table provides the overview of the system for quality assurance.

Requirement Description	Requirement Detail	Remarks
Quality Assurance Plan	<p>The manufacturer shall have detailed quality assurance plan. The plan shall be submitted for approval by the indenter / purchaser.</p> <p>The QAP document shall clearly document the following and control the test record formats.</p> <ol style="list-style-type: none"> <li>1. Control over outsourced products and processes</li> <li>2. Testing of raw material and establishing its traceability.</li> <li>3. Sampling Plan</li> <li>4. Type Tests</li> <li>5. Routine Tests</li> <li>6. Acceptance Tests</li> </ol>	The QAP shall be submitted in PDF softcopy, digitally signed by the Head of Quality Department of the manufacturer.
Type Tests	<p>Tests required as per the IS15683:2018.</p> <p>These tests shall be conducted as per the QAP and are normally required in case of change of design.</p>	The records of the type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.
Routine Tests	<p>The manufacturer shall conduct routine tests as per the approved QAP.</p> <p>The records of tests conducted shall be verifiable upon request.</p>	The records of the type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.
Acceptance Tests	<p>The acceptance test shall be conducted on batches offered for delivery.</p> <p>The tests shall be conducted as per the details mentioned elsewhere in the document.</p>	<p>These shall be conducted by the consignee or their authorized agency prior to dispatch.</p> <p>All infrastructures required to enable acceptance tests shall be provided by the bidder / OEM.</p>

#### 3.1 Maker's test certificate for outsourced item

Makers test certificates shall be provided along with the consignment for all outsourced items and services.

#### 3.2 Information to be provided by bidder / supplier

The following information shall be provided by the bidder / supplier.

## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

### 3.2.1 Information to be provided at the time of the bid

The following information shall be included with the bid. These documents shall be used to determine suitability for placement of purchase orders.

S. No.	Information to be provided	Important Note
1.	The document indicating details of registration of the bidder on the MCA portal.	The document shall be verifiable from the MCA Portal.
2.	Letter of consent / MoU with manufacturer of the fittings. The document must have unambiguous authorization and address the warranty requirements specified in this specification.	This document is required in case the manufacturer is authorizing another entity to bid on their behalf. The document shall be traceable and verifiable and shall contain the contact details of the persons authorized to verify the same.
3.	Previous supply credentials / testimonials containing the list of supplies made in the last 4 (four) years.	The document shall contain the contact details (phone number / email-ID) of the purchasers. These may be contacted by the purchaser for performance feedback.
4.	Design approval certificate for conformance of the offered fire extinguisher to IS15638:2018	The certificate shall be verifiable. The bidder shall provide the details of the process to verify.
5.	PESO CCoE approval document for the cylinders for the offered fire extinguisher, where applicable.	The certificate shall be verifiable. The bidder shall provide the details of the process to verify. In case the cylinder does not need PESO approval, documentary evidence for the same shall be provided.
6.	Copy of the detailed QAP for the fire extinguisher ordered.	The document must contain the details as specified in the clause on quality assurance in this specification.
7.	Test Certificates for type tests (as detailed in IS15683:2018) conducted by the manufacturer or authorized third-party agencies.	The test certificates shall be traceable and verifiable.

### 3.2.2 Information to be supplied with the material consignment

S. No.	Information to be provided	Important Note
1.	Test Certificates for routine tests conducted by the manufacturer or third-party agencies.	The test certificates shall be traceable and verifiable.
2.	Test Certificates for acceptance conducted by the manufacturer or third-party agencies.	The test certificates shall be traceable and verifiable.
3.	Complete packing list for the consignment.	



## SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM

*Note: The manufacturer / supplier shall ensure that all material supplied shall comply to the requirements of this specification. The purchaser may audit and conduct a detailed check of supplied fittings, including its raw material as and when required.*

### 4. Marking, Labelling & Packaging

The items shall be suitably packed and labelled as described below.

The instructions contained here are in addition to the marking / labelling requirements mandated in the IS:15683.

#### 4.1 Marking / Labelling

S. No.	Item	Marking / Labelling Requirement
1.	Bare fire extinguisher	1. Manufacturer's name 2. Cylinder number 3. Manufacturing date of cylinder 4. Tare weight 5. Total weight <b>PROPERTY OF INDIAN RAILWAYS (in bold font)</b> shall be provided in punched / engraved / laser etched (or any alternate method that creates markings for life of the cylinder), and clearly readable by human eye, near the neck of each cylinder.
2.	Bare fire extinguisher	QR code stickers, conforming to ISO/IEC18004 Model2 shall be pasted on each cylinder containing the above data and all information required for warranty claims in XML form. The stickers shall be machine readable using mobile phone-based apps. The life of the sticker shall be such that it shall be readable over the lifecycle of the equipment.
3.	Anti-theft device	QR code stickers, conforming to ISO/IEC18004 Model2 shall be pasted on each device containing all information required for warranty claims in XML form. The stickers shall be machine readable using mobile phone-based apps. The life of the sticker shall be such that it shall be readable over the lifecycle of the equipment.

#### 4.2 Packaging

S. No.	Item	Packaging Requirement
1.	Bare fire extinguisher	Each fire extinguisher shall be packed independently in cartons preventing damage during transit.
2.	Mounting brackets	Each set shall be packed in carton which shall be placed inside the main packing carton.
3.	Anti-theft system	Each set shall be packed in carton which shall be placed inside the main packing carton or supplied along side the main carton.

*Note: All packing and labeling materials used shall be environment friendly and as per the approved norms.*



**SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM****5. Prototype Approval**

Prototype approval shall be required for the first-time supply of the equipment. This approval shall be granted by the indenter / purchaser, or any agency authorized by the indenter.

The prototype approval shall be done prior to bulk supply and shall include the following

1. Review and approval of QAP
2. Review and approval of all test certificates: raw materials, maker's certificates for outsourced items and type test certificates and any other certificates as deemed necessary.
3. Review and approval of the product BoM
4. Review and approval of all documents governing the form, fit, function and interface requirements.

**5.1 Validity of prototype approval**

The prototype approval granted shall be valid till such time the following remain unchanged

1. The specification (this document)
2. Manufacturer's design
3. QAP
4. BoM
5. Form, fit, function and interface documentation

**6. Acceptance tests**

The acceptance test shall be done following the SQC processes defined in IS:2500-Part1. The inspecting agency shall prepare an inspection plan and conduct the inspection.

The tests would require discharging the fire extinguishers. The discharged extinguishers shall be recharged and supplied if the lot passes.

**6.1 Inspection Plan****6.1.1 Parameters**

The following parameters shall be used for determination of the sampling requirements.

Sampling Plan Type	Inspection Level	AQL Critical	AQL Major	AQL Minor
Single Sampling	G-II	0.0	2.5	4.0

*Note: The sample size and accept/reject numbers shall be determined based on the offered lot as per the SQC plan parameters detailed in the table above.*

**6.1.1.1 Critical Attribute**

Attributes that create a loss of function shall be treated as critical attributes. All requirements specifically mentioned in this specification, shall be treated as critical attributes.

**SCHEDULE OF TECHNICAL REQUIREMENTS FOR WATER BASED FIRE EXTINGUISHER WITH ANTI-THEFT MECHANISM****6.1.1.2 Major Attribute**

Attributes that create loss of form, fit and interfacing issues shall be treated as major attributes.

**6.1.1.3 Minor Attribute**

Attributes that create loss of appearance.

**6.1.2 Normal, tightened, and reduced inspection**

The inspection shall start with normal inspection level-II above and shall be switched to reduced (G-I) or tightened (G-III) following the process described in the standard.

**7. Guarantee/Warranty**

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.

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.

The fire extinguisher should be tested at an interval of 3 years for its functioning and suitability.

All information required for filing a warranty claim shall be provided in a warranty certificate and on a QR code sticker pasted on the item.

*Note: In case any maintenance schedule, inspection/checks are required to be done during the warranty period, this shall be clearly indicated by the bidder.*

*The purchaser shall specify if the payments for the same shall be made upfront or upon actual conduct of the schedule.*

*Lapse of warranty on account of non-conduct of specified schedule shall not be acceptable.*