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| Document Title: Schedule of Technical Requirement for Vendor Approval for Manufacturing and Supply of Automatic Fire Suppression System for Signalling Installations |                            |                        |                     |             |



सत्यमेव जयते

**Government of India  
Ministry of Railways**

**Schedule of Technical Requirement (STR)  
for  
Vendor Approval for Manufacturing and Supply of  
Automatic Fire Suppression System for Signalling Installations  
(Specification No.: RDSO/SPN/218/2016 Ver. 1.0)  
STR No.: SIQ 0212  
(Ver. 1.0)**

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| <b>DOCUMENT DATA SHEET</b>   |  |                    |
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| <b>STR No. : SIQ 0212</b>  |  | <b>Version 1.0</b> |
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| <b>SCHEDULE OF TECHNICAL REQUIREMENT (STR) FOR VENDOR APPROVAL FOR MANUFACTURING AND SUPPLY OF AUTOMATIC FIRE SUPPRESSION SYSTEM FOR SIGNALLING INSTALLATIONS (SPECIFICATION NO. RDSO/SPN/218/2016 Ver. 1.0)</b> |  |                    |
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## Document Control Sheet

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## AMENDMENTS

| Number   | Chapter/<br>Annexure | Amendments  | Date       |
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**SCHEDULE OF TECHNICAL REQUIREMENT (STR) FOR VENDOR APPROVAL  
FOR MANUFACTURING AND SUPPLY FOR AUTOMATIC FIRE SUPPRESSION  
SYSTEM FOR SIGNALLING INSTALLATIONS**  
(SPECIFICATION NO.: RDSO/SPN/218/2016 Ver. 1.0-d0)

**1.0 SCOPE:**

The Schedule of Technical Requirement covers the norms, machinery & plants, testing equipment and quality assurance plan required for manufacturing of Automatic Fire Suppression System for Signalling Installations (Specification No. RDSO/SPN/218/2016 Ver. 1.0)

**2.0 REQUIREMENTS:**

Vendors seeking approval for manufacture and supply of Automatic Fire Suppression System for Signalling Installations shall procure the specification and go through the detailed technical stipulations. They shall comply the requirements given below:-

**2.1 GENERAL INFRASTRUCTURE:**

- 2.1.1 The infrastructure should be adequate for manufacturing of the Automatic Fire Suppression System for Signalling Installations and its sub-units as per specification and to ensure adherence to quality assurance plan. The manufacturing, testing, storage facilities etc. shall be close by and adjacent to each other. It should have a proper shed/ manufacturing hall.
- 2.1.2 All the statutory approvals by local, state & Central Government authorities (as applicable) for running the factory at the given premises, manufacture & sale of the product by the firm shall be available & submitted.
- 2.1.3 The plant & machinery shall be suitably laid out process wise and each line duly labeled. It shall be so arranged as to facilitate smooth flow of product from one stage to the next stage & avoid unnecessary blockages or to & fro movement.
- 2.1.4 Sanctioned Power Load should be adequate for meeting the load requirements for the plant. Diesel generator set back up facility shall also be available.
- 2.1.5 The factory premise shall be clean, adequately lightened and ventilated.
- 2.1.6 The factory premise shall have sufficient space to keep inwards and outwards.
- 2.1.7 There should be proper approach road to the factory.

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2.1.8 Machinery, Plant and Test equipment shall be kept clean, tidy and shall be free from dust and rust.

2.1.9 **Essential Plant & Machinery:** The minimum essential plant and machinery shall be available for the Automatic Fire Suppression System for Signalling Installations and its sub-units as stipulated in Clause 4.0 of this document. The plant and machinery should be in good working condition. The complete details of each plant and machinery like make, rating, date of installation, serial number etc. shall be duly maintained and submitted. Suitable arrangements for maintenance and upkeep of the plant and machinery by way of AMC or in-house maintenance shall be ensured. For equipments requiring calibration, valid calibration shall be ensured.

2.1.10 **Test and measuring facilities:** The testing and measuring equipments shall be available as stipulated in Clause 5.0 of this document. All the equipments shall be calibrated at regular interval specified by calibrating agency (Govt. test house or other agency having trace-ability to National standards). The complete detail of each testing and measuring equipment like Sl. No. , make, rating, date of installation etc. shall be duly maintained and submitted along with the application for registration.

2.1.11 The firm shall not withdraw any machinery and plants or testing equipments, which have been indicated at the time of capacity-cum-capability assessment except for repairs/renewals.

## 2.2 QUALITY CONTROL:

2.2.1 The Quality Assurance Plan for the product should detail various parameters and to ensure control over them. Quality Assurance Process Flow Chart for broad guideline is given at Annexure-I to this document. The quality assurance plan & flow chart shall cover the complete process from the testing of raw material, stage by stage in process testing to final product testing i.e. complete process.

2.2.2 There should be a system to ensure the traceability of the product from raw material stage to finished product stage. This system should also facilitate to identify the raw material composition from the finished product stage.

2.2.3 Inward goods Inspection report should be maintained by firm and verified by Inspecting Official (I/O).

2.2.4 In process testing should be verified by various high level/competent officials of firm.

2.2.5 Adequate qualified and trained technical manpower shall be available.

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2.2.6 Quality In-charge shall be responsible for day to day inspection, testing and quality control and compliance of QAP etc. of the product right from raw material stage till the finished goods stage. He shall be technically qualified and have adequate experience.

2.2.7 The firm should have experience of manufacturing of Automatic Fire Suppression System for Signalling Installations and its sub-units.

2.2.8 All the relevant specification, relevant standards mentioned in the specification should be available and properly documented with the firm.

### 3.0 CHECK LIST

3.1 Local, state, & central authorities & other commercial documents/certificates required to be ensured & submitted with the application along with the summary/checklist.

### 4.0 ESSENTIAL MACHINERY & PLANT REQUIRED FOR PRODUCTION:

4.1 All manufacturing process stages should be automatic to the maximum extent. Correction, minimal human intervention, and synchronization between processes shall be ensured. Vendors should specify make, model and details of machines used and get it approved from RDSO.

4.2 Required essential machinery & plant shall be as follows:-

| S. No. | Description of the Machinery & Plant                                  |
|--------|---|
| 1.     | UL/FM/Vds/LPCB approved and licensed software for design calculation. |
| 2.     | Mechanical system assembly work station.                              |
| 3.     | Electrical assembly work stations.                                    |
| 4.     | System Testing work stations.   |
| 5.     | Non erasable printing setup for instruction printings.                |
| 6.     | Drill machines.   |
| 7.     | Grinding Machine.   |
| 8.     | Hot Chamber and Cold chambers.  |
| 9.     | Gas filling machine.  |
| 10.    | Welding equipment.  |

### 5.0 ESSENTIAL TESTING EQUIPMENTS REQUIRED FOR QUALITY ASSURANCE:

5.1 The firm shall have full furnished laboratory for conducting testing as per specification. All testing equipment shall have calibration certificate with NABL traceability with valid calibration certificate.

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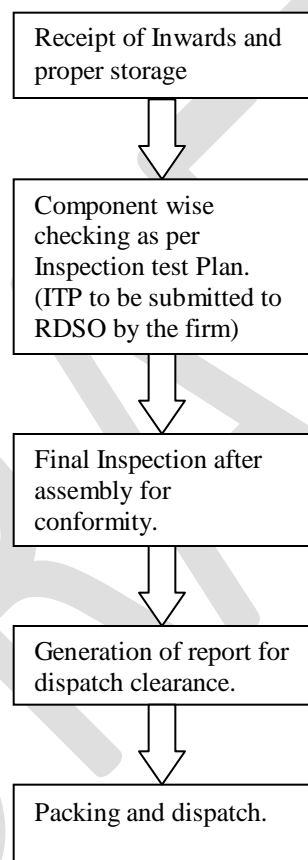
### 5.1.1 **Testing & Measuring Equipments Required for Testing and Production:**

| S. No. | Essential Testing Equipments  |
|--------|---|
| 1.     | Complete test set up to test response of gas suppression system.                |
| 2.     | High Voltage Tester.  |
| 3.     | Insulation Resistance Tester.   |
| 4.     | True R.M.S digital multimeter- 4 ½ digits suitable up to 50 KHz, high accuracy. |
| 5.     | Variable DC power supply (0-48V) (of suitable current capacity as required).    |
| 6.     | Digital Megger 500V DC.   |
| 7.     | Vernier calipers  |
| 8.     | Micrometers   |
| 9.     | Measuring scales.   |
| 10.    | Salt Spray Tester.  |
| 11.    | Tapping Tester.   |
| 12.    | Impact Resistance Tester.   |
| 13.    | Hydro Test Equipment.   |
| 14.    | System Testing Work Stations.   |
| 15.    | Fire and smoke simulation test bench/room.                                      |
| 16.    | Sound level measurement meter.  |

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## 6.0 Quality Assurance flow chart for “Automatic Fire Suppression System for Signalling installations



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