

Revision History:

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| <div>dlw</div>   |  | <div>INDIAN RAILWAY<br/>DIESEL LOCOMOTIVE WORKS<br/>VARANASI</div> <div>STR</div> |  | <div>No.: DEL/EL/STR/007</div> <div>ISSUE DATE: 13.06.2015</div> <div>REVISION: 0.0</div> <div>SHEET : 1-5</div> |
| <div>Schedule of Technical Requirement for Molding Strain Relief used on Diesel Electric Locomotives and controlled by DLW</div> |  |   |  |  |

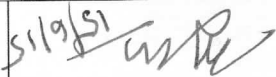
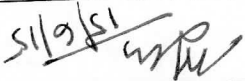
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| Prepared by<br>SSE/Elect/D | Checked by<br>SSE/Elect/D (in charge) | Approved by<br>Dy. CDE/EM   | Revision & Date |
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## 1. SCOPE:

This schedule of technical requirements (STR) is issued to stipulate the qualifying criteria/assessment of firm's capability for "Molding Strain Relief" of several sizes being used on Diesel Electric Locomotives and controlled by DLW. This STR will only be used for capability assessment of new firms and will not be used for placement of bulk order for regular procurement.

## 2. GENERAL REQUIREMENT:

2.1 The Schedule of Technical Requirements (STR) is used to serve for the Molding Strain Relief manufactures (hereafter called "the firm") and shall be read in conjunction with the product specification (Purchase specification or EDPs or other applicable specification). The firm should satisfy themselves about having complied with the technical requirements of the product specification and infrastructures, testing facilities & eligibility criteria requirement as per the STR.

2.2 The qualifying firm shall be an IS/ISO or TS16949 or any equivalent QMS certification latest version and should have a well structured system for the following:

- A system of regular submission of rejection details of material giving rejection rate, cause of rejection, corrective action taken etc. on quarterly basis.
- The firm shall have a system of documentation with respect to rejection by the customer, warranty replacement and failure of items supplied by them during service.
- The firm shall have system of recording the plant, machinery and control equipments remaining out of service, nature of repairs done etc.
- Established system for calibrating the testing and measuring equipments through NABL accredited lab.
- The firm shall have a system of easy traceability of the product from manufacturing stage to finished product stage.

## 3. ELIGIBILITY/QUALIFICATION CRITERIA:

The firm shall have an experience of design, manufacture and supply of Molding Strain Relief for Railways / non Railways customer. In this regard tenderer shall provide satisfactory documentary evidence to DLW/ IR along with offer.

## 4. FACILITIES:

Following Manufacturing / testing facilities shall be available with the firm and firm shall furnish the same along with their offer.

## 4.1 PLANT &amp; MACHINERY:

| SN | Machine        | Capacity/Remark |
|----|----------------|-----------------|
| 1. | Oven           |                 |
| 2. | Mixing Machine |                 |

|                            |            |                                       |                   |                           |         |                 |
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| Prepared by<br>SSE/Elect/D | S.K. Gendy | Checked by<br>SSE/Elect/D (in charge) | Nov 06<br>15/6/15 | Approved by<br>DY. CDE/EM | 15/6/15 | Revision & Date |
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|    |                             |  |
|----|-----------------------------|--|
| 3. | Electronic Weighing Machine |  |
| 4. | Molding Machine & Dies      |  |
| 5. | Drill Machine               |  |
| 6. | Burr removal machine        |  |
| 7. | Air Compressor              |  |
| 8. | Threading Machine           |  |
| 9. | Cutting Machine/Tools       |  |

## 4.2 MEASURING INSTRUMENTS FOR TESTING:

| SN | Machine  | Capacity/Remark |
|----|--|-----------------|
| 1. | Vernier Calliper                                       |                 |
| 2. | Flame Tester   |                 |
| 3. | Megger (500/1000Volt)                                  |                 |
| 4. | High Voltage Tester                                    |                 |
| 5. | Heat Gun   |                 |
| 6. | Complete test bench for measuring different parameters |                 |

## 4.3 OUTSOURCING OF COMPONENTS/TESTING FACILITY:

If a manufacturer outsources any part of the Molding Strain Relief or testing facility during testing, it should be clearly mentioned in their offer with valid documents in their proof.

## 5. TESTING:

- 5.1 All the required testing facilities shall be available at firm's premises. In case of non-availability of any type of testing facilities at the works of the firm, those tests may be conducted at NABL approved laboratory, test results of which shall be submitted to DLW at the time of prototype testing. The accuracy and capacity of the testing & measuring equipments shall be adequate to meet the requirements of the product specification. The valid calibration certificate shall be produced on demand at the time of inspection. In respect of bought out items, sufficient documentary evidence to be produce at the time of inspection. Acceptance tests as required under concern specification, services of a NABL approved laboratory or in-house test facilities of the sub-supplier may be utilized with prior approval of DLW.

- 5.2 Detailed records of in-house/preliminary testing of Molding Strain Relief shall be maintained with traceability for verification (if necessary).

- 5.3 Firm will submit all documents regarding purchase of item part during inspection to inspecting authority as per specification.

- 5.4 Firm has to clearly define the part of subject item which is to be out-sourced to sub-vender with their address/ phone/ fax etc for further reference.

## 6. QUALITY ASSURANCE PLAN

### 6.1 Organization:

The firm shall submit the organizational chart, along with qualification and experience of key persons in management involved in quality assurance programme for tendered item.

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| Prepared by<br>SSE/Elect/D | Checked by<br>SSE/Elect/D (In charge) | Approved by<br>Dy. CDE/EM | Revision & Date |
| Sr. Engineer               | No. 615                               | 15/6/15                   | Page 4 of 5     |

6.2 **Documentation:** The manufacturer shall maintain all necessary documents and data that will help him to have consistency in producing quality product.

6.3 **Purchase of raw material:** Raw material/equipments shall be procured only from well-proven sources, conforming to relevant standards. Critical components shall be procured from ISO: 9001 certified vendors only.

6.4 **Quality Control-Process:** Screening of critical component/devices shall be carried out as a part of in-process quality control.

7. **INSPECTION AND TESTING:**

7.1 **Receiving Material:** The manufacturer shall ensure that incoming material is not used for processing unit until it has been inspected or otherwise verified as conforming to specified requirements. Verification shall be in accordance with quality plan or laid down documented procedures.

7.2 **In process inspection and testing:** Inspect, test and identify product as required by the quality plan of documented procedures evolved on the basis of DLW specification and other relevant specification/standard.

7.3 **The supplier shall carryout all final tests and inspection in accordance with the quality plan or documented procedures evolved on the basis of DLW specification and specified standard to complete the evidence of conformances of the finished product.**

8. **TESTING / MEASURING INSTRUMENTS:**

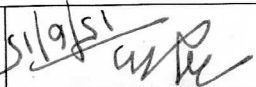
Calibration of the testing / measuring equipments should be done at least once in a year unless stated otherwise and the same to be calibrated and certified to international standards.

9. **R&D ORGANIZATION:**

The firm shall indicate the organizational structure of their R&D wing along with qualification of the personnel involved.

10. **HANDLING/STORAGE/DELIVERY:**

The manufacture shall have proper facilities for handling and storage of raw material and finish product. The supplier shall control packing presentation and marking process so as to ensure conformity to the railway requirement.

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