23

STR No.ELRS/STR/SJ/0005

Government of India
Ministry of Railways

Schedule of Technical Requirements

For

INDUCTIVE SHUNT (SJ)

For

25 Kv A C ELECTRIC LOCOMOTIVES

JULY-2003

Issued by

Electrical Directorate,
Research Designs & Standards Organisation
Manak Nagar, Lucknow-226 011

Schedule of Technical Requirements of Inductive Shunt

1.0 GENERAL

1.1 Inductive Shunt (SJ) is used in the field weakening circuit of traction motor to smoothen change of current associated with operation of field weakening contactor for desired performance of traction motor. Procurement of inductive shunts is done by Production Units and user Railways conforming to CLW specification No. 4TES.133.001 (or its latest version).

1.2 The schedule of technical requirements mentioned here under is issued to serve as a guide to the manufacturers and should be read in conjunction with CLW's latest procurement specifications and drawings for Inductive Shunt.

2.0 DOCUMENTATION

2.1 The firm should have current valid ISO-9000 certification including the subject item under its range of production.

2.2 Firm will maintain list of bought out items of assembly along with :-

- Basis of procurement i.e. specification / test programme etc. and assurance that the material is of standard quality.
- Tests carried out by the sub-vendor on bought out items and test certificate for each lot of supply.
- Test carried out by the firm on the bought out items before permitting their assembly.
- Sources of procurement with details of quality assurance plan of such sources.

2.3 The firm shall maintain :

- List of in-house manufactured items.
- Detailed drawings, jigs & fixtures required and process being adopted for these items.
- Details of the process followed and routine checks observed for assembly of these items.
- Record of Shelf life of items like varnish / epoxy resin / chemicals etc. used.

2.4 Testing be done as per specification under competent technical staff of the firm and document to indicate his competence be maintained.

3.0 MANUFACTURE

3.1 The general assembly shall be according to CLW Drg. No. O TWD. 133. 021(or its latest version) and the various parts shall be as per Drgs. / Specification mentioned therein.

3.2 All raw materials and finished products should be stored in a neat, clean and dust free atmosphere.

3.3 The coil shall be formed from a single length of copper strip.

3.4 The minimum requirement of machinery and plants at the firm's works shall be as under :-

- Special tools for burr free punching of holes.
- Flat winding machine.
- Baking oven.
- Annealing Plant.
- Hydraulic press.
- Drill machine.
- Special Jig for winding the coils.
- Electro carbon brazing equipment.
- Tinning bath with temperature monitor.
- VPI plant.
- Special Jig for assembly of SJ to ensure correct dimensions.
- Storage chamber for varnish and insulation at requisite temperature.
- Bending machine.
- Grinding machine.
- Lifting crane (EOT 10 tones capacity)
- Pickling Plant for cleaning of copper coils.

137522

4.0 TESTING

4.1 The minimum requirement of test facilities at the firm's premises for testing of the equipment shall be as under :-

- Coil resistance measurement system.
- Inductance measurement equipment.
- Power source for heat run test (for short time as well as continuous rating)
- HV test set up (0-15 KV)
- Insulation resistance measurement meter (Megger – 1000 volts)
- Shunt 75 mV at 1500 A dc.
- Current transformer 200/5 class-1.
- AC Ammeter 0-5 Amps.
- Digital Multimeter.

- Digital Voltmeter (0-200 mV)
- Mercury thermometer (0-250°C)
- Stop watch.
- DC source of 4.5 volts.
- Spot Galvanometer.
- Surge comparison tester.

4.2 The capacity / accuracy of the testing and measuring instruments shall be adequate to meet the requirements of the specification.

4.3 All testing equipments should have valid calibration certificate from a **Government approved laboratory.**

****