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भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय Ministry of Railways

TI/STR/xxx

DRAFT Schedule of infrastructure Requirements for Manufacturing & testing facilities and Quality Control Requirements

FOR
Rigid Catenary Overhead Conductor System for use in Tunnels
and
Retractable Rigid Overhead Conductor System in Sidings/Depots

(2025)

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1.0 **SCOPE**: This schedule covers the technical requirement for manufacturing Rigid Catenary Overhead Conductor System for use in Tunnels and Retractable Rigid Overhead Conductor System in Sidings/Depots as per RDSO Specification No. TI/SPC/OHE/ ROCSRRCS/XXXX (latest).

2.0 Manufacturer should full fill following requirements:

(i) **Adequate Covered Accommodation**: Manufacturer should have adequate covered accommodation for storing raw material, finished items awaiting dispatch and arranging Inspection.

(ii) **MACHINARY & PLANT:** Following machinery and plant of suitable capacity should be available for applicable processes for manufacturing ROCS and RRCS.

SNx	MACHINARY & PLANT FOR FORGED ALUMINIUM FITTING		**MCHINERY & PLANT FOR ALLUMINIUM ALLOY DIE CSTINGFITTINGS**		**MCHINERY &PLANT FOR ALLUMINIUM ALLOY EXTRUSION FITTINGS**
i	Bench grinder of various capacities	i	Bench grinder of various capacities	i	Billet furnace
ii	Shaping machine / molding machine	ii	Shaping machine/moldin gmachine	ii	Hot top casting
iii	Drilling machine	iii	Drilling machine	iii	Die preheatingOven
iv	Lathe machine	iv	Lathe machine	iv	Extrusion puller
v	Induction Furnace or oil fired furnace or gas fired furnace (With Suitable Temperature Control Device)	v	Induction Furnace or oil firedfurnace or gas fired furnace (With Suitable Temperature Control Device)	v	Stretching machine
vi	Threading machine	vi	Threading machine	vi	Finish cutting machine
vii	Sand blasting machine or Shot blasting Machine	vii	Sand blasting machine/shot blasting machine	vii	Ageing furnace
viii	Metallic Die/ permanent Mould (Gravity die casting)	viii	Metallic die/ permanent mould (gravity die)	viii	Tooling
ix	Power press	ix	Hand shank (small ladles)	ix	Dies metallic
x	Drop hammer or Forging screw press	x	Pattern for sand casting	x	
Xi	Spark Erosion machine or Vertical machining Centre or CNC	Xi	Hacksaw machine/ Degatingmachine	Xi	
xii	Hacksaw machine/ Degating machine	xii	Magnesium treatment ladle	xii	
Xiii	Milling machine	Xiii		Xiii	

Note a) Aluminum conductor rail made through a process (extrusion etc) as per design requirement can be procured through outsourcing. If aluminum conductor rail are manufactured in house then firm will submit the list of required machineries and plants other than mentioned above.

b) All the sources of outsourcing shall have ISO 9001:2008 certificate for the product/ material being outsourced.

c) Insulators are to be procured from RDSO approved source. If insulators procurement is to be done from new source, then it has to be processed for approval from RDSO separately. After RDSO approval and inclusion in RDSO approved vendor directory only, insulators of new sources can be supplied as part of the ROCS and RRCS.

d) Manufacturer shall mention the name of outsourced agencies in the Quality Assurance Plan.

e) Fasteners shall be outsourced from RDSO/CORE approved vendors as per the specification TI/SPC/OHE/fasteners/0120 (latest).

f) Manufacturer should have the facility for repair of the dies/patterns in use to get precise dimension.

3.0 TESTING FACILITIE5: Manufacturer should have adequate facility to test the raw materials aswell as the finished product as follows:

SN.	Testing facilities	SN.	Testing facilities
i	Electromagnetic crack detecting machine (if fittings are made from ferrous fitting)/ Dye Penetration Testing Facility & Radiographic examination of Aluminium bronze , Aluminium alloys & aluminum castings. (Alternatively radiographic examination can be carried out at NABL/NABCB accredited laboratory)	vi	Measuring instrument like Vernier caliper, Screw gauge. thread gauge etc
ii	Metallurgical microscope	vii	Meter to measure the thickness of Galvanizing product.
iii	Micro polishing machine .	viii	Hardness Testing Machine
iv	Spectrometer or Chemical laboratory for Chemical composition.		
v	UTM machine		

Note: 1. If the testing facilities as mentioned at SN (i), (ii, (iii) & (iv) for ROCS and RRCS arenot available in the house then the testing can be out sourced to a NABL/NABCB accredited laboratory and manufacturer has to submit the references of laboratories.

2. Manufacturer should to carry out the following test on ROCS and RRCS and its component:

i. Short – circuit test

ii. Temperature rise test

These test can be carried out from NABL accredited Lab or government lab.

4.0 QUALITY CONTROL REQUERENENTS:

4.1. The firm should have preferably acquired ISO-9000 series certification for the product broadly for which approval is being sought.

4.2. The system of easy traceability of the product from the raw-material stage to the finished product stage should be available.

4.3. The manufacturer should have a system of monitoring the supplied products. The complaints made by the customer should be identifiable to the various manufacturing stages of the product and linking the complaint for corrective and preventive action of the product.

4.4. Quality assurance plan for the product detailing following aspect should be available: - ¬ Organization chart. ¬ Flow process chart. ¬ Stage inspection details. ¬ Various parameters to maintain the control over the manufacturing. ¬ Policy of disposal of rejected material and its record for documentary evidence.

4.5. Quality manual of the firm indicating the extent of control over production and testing should be available.

4.6. At least a diploma holder must be the head of the inspection / testing / quality control section with 5 years' experience in the relevant field.

4.7. System of documentation in respect of rejection at the customer end and its warranty replacement, if any, should be available.

4.8. System should exist for documentation of the following:

- Incoming raw material with the reference of suppliers as well as internal test results.
- Details regarding stage inspection and test results.
- Details regarding the final testing and dispatch to the customer in proper packed condition.
- System for timely calibration of testing and measuring instruments.

4.9. Quality assurance plan (QAP) for the subject item shall be approved by RDSO.