

SCHEDULE OF TECHNICAL REQUIREMENTS

FOR

Axle and Alternator Pulleys for TL/AC Coaches

RDSO NO. RDSO/PE/STR/TL/0005-2003 (REV'D)

STR for Axle and Alternator Pulleys for TL/AC Coaches will consist of following Annexures :

1. It contains essential M&P and , infrastructure required for manufacturing and supply. It however does not specify the capacity and quantity of the various items of equipment/components, the quantity/capacity of the M&P will depend upon the manufacturing capacity. The firm should also have the facility for storing the raw material and finished product so as to maintain them in a healthy condition.
2. It contains testing facilities required. Record of calibration will be kept for all measuring apparatus. It has to be updated & valid at the time of inspection/testing.
3. It contains Quality Assurance Plan for implementation by the firm. It will also be a prerequisite for a firm to submit QAP for according approval for supply of Axle and Alternator Pulleys for TL/AC Coaches. The broad points which are essentially required to be covered are given in Annexure-III.

The details of above are given in Annexure-I, II & III.

ANNEXURE - I

(A) Manufacturing facilities :

1. Cupola Furnace 6 M/T per hour
2. Wet Scrubbing System
3. Blower
4. Engine
5. Electric Motor
6. Generator
7. Bench Grinders
8. Tumbling Barrel
9. Hand Grinder
10. Over Head Cranes
11. Lathe Machines
12. Shaper Machine
13. Radial Machines
14. Drill
15. Vertical Turret Lathe
16. Turret Lathe
17. Hydraulic Press 100 Ton
18. Dynamic Balancing Machine
19. Charge Welding
20. Analytical Balance

ANNEXURE - II

(B) Testing facilities :

1. Vernier Calipers
2. Moisture Tester
3. Bore Dial Gauge
4. Universal Testing Machine
5. Depth Gauge
6. Angle Gauge
7. Hardness Tester
8. Micrometer outside
9. Micrometer inside
10. Angle Protector
11. Chemical Test Equipment
12. Chemical Analyzer
13. Spectrometer
14. Ultrasonic Tester

ANNEXURE -III

1. **Organisation :**

The firm shall submit the organisational structure, along with the qualification of management involved in quality assurance programme.

2. **Documentation :**

The manufacture shall maintain all possible documents and data that will help him producing consistant quality of product.

3. **Purchase of raw material :**

The supplier shall ensure that the purchased product/raw material conforms to the specified requirement and is procured only on the basis of well-prepared, technical, specification.

4. **Quality Control-Process :**

Process control checks shall be conducted through well-evolved inspection procedure to ensure elimination of bad material at the early stage of manufacture.

5. **Inspection and Testing :**

(i) **Receiving Material :** The manufacturer shall ensure that incoming product is not used for procesing until it has been inspected or otherwise verified as conforming to specified requirements. Verification shall be in accordance with quality plan or documented procedures.

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

(iii) The supplier shall carryout all final inspections and test in accordance with the quality plan or documented procedures on the basis of RDSO specification and specified standards to complete the evidence of conformances of the finished product.

6. Instruments, Measuring and Testing Equipment :

The instrument and equipment, which shall be used for testing and inspection shall be of the required accuracy and shall be calibrated at the standard institutions.

7. R&D Organisation :

The firm shall indicate the organisational structure of R&D Organisation along with qualification of the personnel.

8. Laboratory Test House :

The manufacture shall have a well equipped Laboratory/Test House to carry out various tests on the raw material, stage inspection and inspection of the finished product.

9. Quality Audit : The manufacture shall regularly send the samples for testing by recognised national testing institutions for counter checking the characteristics and to ensure quality level of their product.

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.

11. After Sales Services : The supplier shall have sufficient qualified staff who can study the after sales problems and take corrective action