



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

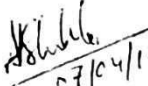
SCHEDULE OF TECHNICAL REQUIREMENTS FOR
MANUFACTURE & SUPPLY OF COMMUTATOR NUT
FOR HITACHI TRACTION MOTOR (HS:15250A)
OF ELECTRIC LOCOMOTIVES.



APRIL 2010

ISSUED BY

TRACTION MOTOR DEPARTMENT
CHITTARANJAN LOCOMOTIVE WORKS
CHITTARANJAN - 713 331
WEST BENGAL

APPROVED BY -


07/04/10
CEE/ TM



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ALTERATION/REVISION SHEET FOR MANUFACTURE & SUPPLY OF
COMMUTATOR NUT FOR HITACHI TRACTION MOTOR

Sl No.	Alt No./Rev.No.	Authority	Description	Initial	Date

PREPARED BY -	CHECKED BY -
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SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE & SUPPLY
OF COMMUTATOR NUT FOR HITACHI TRACTION MOTOR
OF ELECTRIC LOCOMOTIVES.

1. Scope:- This schedule of technical requirement (STR) is being issued to serve as guidelines to manufacturers/firms for manufacturing COMMUTATOR NUT for HTM as per specn. No. 4TMS.095.001, Rev-1, format of quality assurance plan to be followed, minimum machinery and plant, testing facilities & measurement facilities required. This STR should be read in conjunction with the relevant specn. The firm should satisfy themselves having complied with the requirements of the specification Drg. and STR.

2. Reference :- Drg. No. 10S.778-667, Alt-D, 10S.778-668.
Specn. No. 4TMS.095.001, Rev.1

3 Requirement :- The firm should be certified to ISO 9001 by an agency accredited by NABCB.

4. Production Capacity: Annual production capacity calculation for the full production range must be given on the basis of time required for each process.

5 Desired aspect in QAP :- QAP has to be specific for each produc. as per page- 4 of 5.

6 M&P, Testing and Measuring instrument :- List of typical M&P required for manufacture, testing and measuring instruments furnished in page 5 of 5 is for general guidance only and actual manufacturing operations, specific testing & measuring instruments shall be submitted and get approved by the firm as a part of QAP.

7 Internal Quality Control System :-

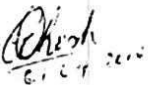

7.1 The manufacturer shall procure all the raw materials from standard brand preferably from RDSO/CLW approved sources along with test certificates and sources should be available as and when asked for. If RDSO/CLW sources are not available then raw material from reputed firm shall be procured.

7.2, Quality Assurance Process of incoming materials, manufacturing process used for the subject items including type test, supply criteria covering specn. acceptance norms, agency if tested from out side lab. format of records etc.

7.3 Detailed process flow chart indicating process of manufacture and individual product.

7.4 The testing and measuring equipments and validity of calibration should be current and calibration certificate issued by the calibration agency should be maintained.

7.5 Relevant Standards like IS/BS/IEC/ASTM etc. shall be available with the firm.

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QAP to be submitted by the vendor shall cover the following aspects :-

1. Index pages.
2. Copy of ISO 9001 certificate from NABCB registered body.
3. Organisation Chart clearly bringing out the quality control set up.
4. Qualification of the personnel manning only the quality control set up.
5. List of M&P and testing facilities
6. Process flow chart indicating step by step process of manufacture of an item or a family of items for which the process is same.
7. Details of sub-vendors:-

Name of item	Sub vendors	ISO status	Inspection plan of sub vendor

-The sub-vendor should have all the requisite infrastructure of manufacturing and testing facilities preferably under one roof

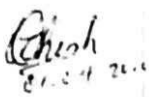

8. Quality Assurance System – Inspection and testing plan with formats to be filled up for:-

- Incoming material
- Process Control
- Product Control

This must be furnished in the following format:-

Subject/Product/Process	Sample size & its frequency of Inspection.	Parameters of Inspection	Mode of Inspection./ Equipment Used	Acceptance Limit/criteria/ Specified value as per Drg./Specn.	Format No. where record will be kept

- Notes:-
1. Sample formats used for recording must be submitted.
 2. General ISO 9001 documents not to be submitted.
 3. Firm must not depend only on TC for incoming material.
 4. Record of SN (8) above shall be checked during inspections at firm's premises.
 5. QAP has to be specified for each product.

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Annexure-I

SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE
& SUPPLY OF COMMUTATOR NUT FOR HITACHI TRACTION,
MOTOR (HS:15250A) OF ELECTRIC LOCOMOTIVES.

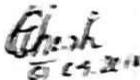
A. Machinery and Plant.

1. Firm should have own forging facilities or they should have tie-up with other ISO certified firm for getting raw material of specific grade.
2. Lathe Machine with thread cutting facilities for M 210 P-3.
3. Shaping machine (length of stroke minimum. 300 mm.).

B. Testing & Measuring facilities: -

1. Tensile testing machine (50 MT or higher capacity)
2. Hardness testing machine (BHN-350 or higher cap.)
3. Magna Flux / Die Penetrant test facilities
4. Micro meter (inside & outside)- accuracy 0.01 mm.
5. Vernier calliper (least count 0.02mm) & range 0 to 300mm.
6. Angle protector with L/C of 1°
7. Thread gauge for M210 P3
8. Radius gauge

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