

SPECIFICATION FOR
CARBON STEEL CASTING COMPONENTS
OF 3-PHASE TRACTION MOTOR
TYPE 6FRA-6068 & 6FXA-7059
OF ELECTRIC LOCOMOTIVES

Specification No. 4TMS.096.059, Rev-1

TRACTION MOTOR DEPARTMENT
 CHITTARANJAN LOCOMOTIVE WORKS
 CHITTARANJAN – 713365
 WEST BENGAL

Approved By
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>RAJIV KUMAR BARNWAL</p> <p>CEE/TM</p> </div> <div style="font-size: 0.8em; line-height: 1.2;"> <p>Digitally signed by RAJIV KUMAR BARNWAL DN: c=IN, st=West Bengal, 2.5.4.20=c3b287a96c37ef6506b4c115d123fb200f0901067 01761364336d14503d4d6c5, postalCode=713331, street=OFFICE OF CEE / TM WORKS OFFICE CLW CHITTARANJAN, pseudonym=91033d17157100c9e488d715139bec7, serialNumber=c4c6235df288d9f4480fb614e443504b6ffc34 164f1219198474a97078559c9, ou=ELECTRICAL, cn=CHITTARANJAN LOCOMOTIVE WORKS, cn=RAJIV KUMAR BARNWAL Date: 2022.11.10 13:05:38 +05'30'</p> </div> </div>

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AMENDMENT SHEET

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GENERAL SPECIFICATION FOR CARBON STEEL CASTING
COMPONENTS OF 3-PHASE TRACTION MOTOR TYPE
6FRA-6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES

1.0. Scope

1.1. The material covered by this specification are required to be used in manufacture of 3-Phase Traction Motor type 6FRA-6068 & 6FXA-7059. The materials shall comply with this specification instruction in chemical composition, mechanical properties and all other listed requirements.

2.0. Specification

2.1. The material shall conform to IS: 1030-1998, Gr. 230-450W or Latest. The chemical composition and mechanical properties shall conform to the above standard.

3.0. Manufacturing

3.1 The steel casting shall be made from electric process only. Bessemer, basic oxygen or a combination of these processes are not acceptable. In case any other process is proposed to be employed by the tenderer, prior approval of CLW should be obtained.

4.0. Test and Test Methods

4.1 As per the above standard, the following test is to be carried out in presence of inspecting authority and values to be recorded.

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| a) Dimension (Finished) | : 20% of offered quantity. |
| b) Chemical analysis | : 2 samples from each batch. |
| c) Tensile, Yield, Elongation
and Impact test | : 2 samples from each batch. |
| d) Bend test | : 2 samples from each batch. |
| e) Radiography (only for Stator Chamber
DE & NDE, End Frame DE & NDE and
Rotor End Ring) | : 5% of offered qty. selected at random. |
| f) Magnetic particle or Liquid penetrant test
(after finish) | : 100% of offered quantity. |

4.2 Radiographic test – Casting made according to this specification shall be subject to Radiographic test. In case, Radiography is not possible due to special shape or contour of the casting, it may be subject to other Non-Destructive test single or in combination.

5.0. Static Balancing

5.1 Only Rotor End Ring required to be checked for 100% static unbalance. The permissible unbalance in fully machined component i.e. Rotor End Ring should be limited to 20±5 gm max.

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6.0. Repair to Casting

6.1 No repair to casting are acceptable without prior approval of the purchaser. The casting selected for repair (which is to be approved by purchaser) shall be done by welding in accordance with procedure laid down in IS: 5530'1986.

7.0. Inspection

7.1 The successful tenderer shall submit prototype to the competent authority of CLW/Chittaranjan before undertaking bulk production/supply.

7.2 The supplier shall offer prototype for inspection and test at his works with prior intimation to inspecting authority. They shall provide all necessary facilities for inspection and testing at their costs. After the test, if it is considered necessary by the authorised inspecting representative to carry out further additional test or trial of the prototype samples at CLW/CRJ, the supplier shall arrange the same by quickest means.

7.3 Any shortcoming/defects in the design and workmanship of the equipment shall be pointed out after the test to enable the suppliers to incorporate the necessary improvements before bulk supply is commenced without effecting the guaranteed programme and delivery.

7.4 Any testing and approval by the purchaser of the design, drawing and prototype shall in no way absolve the supplier of his responsibility under the terms of contract for the items supplied.

7.5 The supplier shall not offer any material of service production to the inspecting authority under the contract, until the prototype has been finally approved.

7.6 Routine inspection of the items shall be carried out only after the approval of prototype samples by the authorised representative. The manufacturer shall provide all the necessary facilities for inspection and testing for all tests in accordance with specification at their costs.

8.0. Marking

8.1 Each component shall be legibly marked with the following information:

- i) Grade of Steel.
- ii) Number of Identification mark, by which it can be traced from which metal it was made.
- iii) Manufacturer's name, Sl. No. and Batch No. etc.

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9.0. Packing

- 9.1 The components shall be suitably packed to prevent transit/long storing damage.
- 9.2 The components shall be coated with antirust varnish/compound after inspection.
- 9.3 Varnished components shall be wrapped in polythene paper followed by corrugated paper.
- 9.4 The wrapped components shall finally be sealed in thick polythene bag.
- 9.5 The sealed components shall be finally packed in wooden box filled with saw dust to prevent transit damage of machined surface.

10.0. Deviations

- 10.1 While submitting the offer, the tenderer shall furnish a list of deviations, if any, from this specification/concerned drawing. Even if tenderer has no particular deviation in their offer, a 'NIL' statement shall be submitted.
- 10.2 Firm should have their own Foundry duly approved by RDSO as Class-A foundry for casting raw material of specified grade (Carbon Steel Casting to IS: 1030-1998, Grade 230-450W or Latest) for item Stator Chamber DE & NDE or they have to submit adequate documentary evidence regarding sourcing of raw material (casting) from RDSO approved class-A foundry only.

- 11.0. Clause wise comments have to be furnished by the tenderer. Vague comments like noted and understood are not acceptable. Compliance have to be clearly stated, otherwise CLW reserves the right to reject the offer.

- 12.0. Metallurgical testing for prototype supplies shall be carried out by Dy.CC&M/CLW/CRJ or NABL approved laboratory for which sample to be drawn, stamped and sealed by authorised representative of Dy.CEE/TMD/CLW/CRJ and for bulk supplies, metallurgical test shall be done by Dy.CC&M/CLW/CRJ or NABL approved laboratory, to be witnessed by authorised representative of CLW Zonal Inspection Cell.

- 13.0. Firm shall make bulk procurement of individual items required for sub-assemblies or complete equipments from Part-I source of CLW/RDSO only. Procurement from Part-II sources can be made up to 15% of total procurable qty. or the highest qty. of a past order successfully executed in Rlys. Units/PUs in the preceding three years. Upper limit of the qty. to be procured from such Part-II source will not exceed 25% of the net procurable qty in a given procurement case. In case where Part-I source is not available, material may be procured from Part-II sources of respective items as indicated in ASL of CLW/RDSO. Firm shall keep all such procurement records and will submit the same to inspecting agency at the time of inspection to ensure that above procurement procedure is strictly adhered to.

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