



**RESEARCH DESIGNS AND STANDARDS ORGANISATION
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Track Machine and Monitoring Directorate

**FUNCTIONAL REQUIREMENT SPECIFICATION NO.TM/HM/6/FRS/001
FUNCTIONAL REQUIREMENT SPECIFICATION OF LIFTING HOOK WITH CASTLE
NUT FOR UNIMAT
(Part no. UD313.1304)
(Date effective: 19/12/2024)**

FUNCTIONAL REQUIREMENT SPECIFICATION NO.TM/HM/6/FRS/001
FUNCTIONAL REQUIREMENT SPECIFICATION OF LIFTING HOOK WITH CASTLE
NUT FOR UNIMAT
(Part no. UD313.1304)

- 1.0 Scope:** This functional requirement specification covers the dimensional, functional and material requirements with testing criteria of Lifting Hook with castle nut for Unimat. This functional requirement may be treated as provisional subject to modifications based on service performance.
- 2.0 Reference documents:** Following documents have been referred to in this functional requirement specification. Full sets of relevant drawings and the referred codes/specifications duly incorporating the updated corrections/amendments, shall be available for reference at manufacturer's works.
- i) IS:2062 - 1992 - Steel for general engineering purposes - specification.
 - ii) BS: 970 Part II Specification of direct hardening alloy steel.
 - ii) IS:77-1976 - Linseed oil for paints - specification.
 - iii) RDSO Drg. No. RDSO/TM/21/24 Lifting Hook with castle nut for Unimat.
- 3.0 Functional requirement:** Lifting Hook is used to lift the track. All surfaces meant for machining shall be finished as mentioned in the drawing.
- 4.0 Dimension & Tolerance:** Dimensions and tolerances of Lifting hook with castle nut shall be as mentioned in RDSO drawing no. RDSO/TM/21/24.
- 5.0 Material:** The Lifting Hook shall be made of steel grade 817M40 (EN24) conforming to BS: 970 Part- II Specification of direct hardening alloy steel and Castle nut shall be made from Steel of Grade A or B (Mild Steel) conforming to IS:2062-1992 having minimum tensile strength 410 MPa i.e. 410 N/mm² with minimum percentage elongation of 23.
- 6.0 Manufacturing Process:** Lifting Hook shall be made by either machining from billet/bar of specified material or by forging or machining process.
- 7.0 Marking:** Month and year of manufacture and manufacturer's code / identification shall be engraved / embossed on the non-functioning surface of the Lifting Hook.
- 8.0 Inspection and Acceptance Criteria:**
- i) Each components offered by manufacturer shall be checked visually for their surface finish, freedom from defects like porosity, cracks, improper edges etc. Machined surface shall be checked by any suitable pneumatic or electronic equipment.
 - ii) The component found suitable after visual inspection, shall be checked for their dimensions as per relevant drawing.

- iii) Supplier shall produce the certificate that the raw material used for manufacturing of the component conforms to the relevant code as mentioned in Para 5.0.
- iii) Manufacturer shall also produce a test result of chemical property/ analysis report of raw material used for manufacturing of the component.
- iv) Minimum one no or 2 % sample of the component randomly picked up out of each lot of consignment and shall be subjected to chemical composition test. The consignee shall test the material for chemical composition at his laboratory or get the material tested in a reputed (NABL accredited or accredited by other international body like APLAC, MRA, ILAC etc) laboratory having proper facilities for testing. Before sending the samples for testing, the same shall be duly sealed and secret coding shall be done.
- v) Any deviations in the test result from the requirement of the specification and drawing shall be the cause of rejection.

9.0 Packing and Protection: Each component shall be protected with one coat of boiled linseed oil conforming to IS:77-1976 (linseed oil for paint) and shall be packed in card board case or any other packing arrangement as per best trade practice.
