RESEARCH DESIGN AND STANDARD ORGANISATION
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Track Machine and Monitoring Directorate

SPECIFICATION NO.TM/HM/6/551

SPECIFICATION OF ECCENTRIC VIBRATION SHAFT FOR UNIMAT (PART NO. DL23.102.2)

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1.0 Scope: This specification covers the dimensional, functional and material requirements with testing criteria of Eccentric Vibration Shaft with nut for Unimat tamping machine. This specification may be treated as provisional subject to modifications based on service performance.

2.0 Reference documents: Following documents have been referred to in this specification. Full sets of relevant drawings and the referred codes/ specifications, duly incorporating the up-dated corrections/amendments, shall be available for reference at manufacturer's works.

i) BS:970 - 1991 – Case hardening Alloy Steel - specification.
ii) IS:77-1976 - Linseed oil for paints - specification.
iii) RDSO Drg. No.- RDSO/TM/01/24 Eccentric Vibration Shaft with nut for Unimat.

3.0 Functional requirement: The Eccentric Vibration Shaft shall function for transmitting high vibrations in the range of 35 Hz to the tamping arms of Unimat tamping machine. All surfaces meant for machining shall be finished as mentioned in the drawing no. RDSO/TM/01/24.

4.0 Dimension & Tolerance: Dimensions and tolerances of Eccentric Vibration Shaft shall be as mentioned in RDSO drawing no. RDSO/TM/01/24.

5.0 Material: The Eccentric Vibration Shaft shall be made of steel of grade 817M40 (EN-24) conforming to BS: 970Part-II Specification of Direct hardening alloy steel and nut shall be made of grade 080M40 (EN-8).

6.0 Heat treatment: Heat treatment of each eccentric vibration shaft shall be done by induction hardening process to achieve surface hardening of 50 to 52 HRC unto 1.25mm depth over each bearing location.

7.0 Marking: Month and year of manufacture and manufacturer's code / identification shall be engraved / embossed on the non-functioning surface of Eccentric Vibration Shaft.

8.0 Inspection and Acceptance Criteria:

i) Each component offered by manufacturer shall be checked visually for their surface finish, freedom from defect 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 dimensional characteristics as per relevant drawing.

iii) Supplier shall produce the certificate that the raw material used for manufacturing of the Eccentric Vibration Shaft conforms to the Grade 817M40 (EN-24) of BS: 970-Part-II Specification of Direct hardening alloy steel.

iv) Induction hardening shall be carried out in presence of Rly representative.

v) The Ultra Sonic testing shall be done on any reputed laboratory.

vi) Minimum one no or 2 % sample of 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.

vii) 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 boil linseed oil conforming to IS: -77-1976 (linseed oil for paint) and shall be packed in card board case.

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