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Track Machine and Monitoring Directorate

SPECIFICATION NO. TM/HM/6/345
(Provisional)

SPECIFICATION OF PISTON ROD COMPLETE OF ROLLER CLAMP LIFTING CYLINDER OF DGS MACHINE (PART NO.HZ10.063.036.0180.1)

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1.0 Scope: This specification covers the dimensional, functional, and material requirements with testing criteria of the Piston and Piston Rod of Roller clamp cylinder of DGS machine. This specification may be treated as provisional subject to modifications based on service performance.

2.0 Reference Document: Following Document and specification have referred to in this specification. Full set of relevant drawings and the referred codes/specifications duly incorporating the updated corrections / amendments shall be available for reference at manufacturer's work.

i) BS: 970 Part II Specification of direct hardening alloy steel.
ii) IS: 77- 1976: Linseed oil for paints specifications.
iii) Drawing No: RDSO/TM/03/14 Piston and Piston Rod of Roller clamp cylinder of DGS machine

3.0 Functional Requirement: The Piston and Piston Rod of Roller clamp lifting cylinder of DGS machine is provided to hold the rail with the help of fork head, liver and roller clamp during stabilization of the track. It shall be capable to withstand 160 Kg / cm^2 hydraulic pressure coming on it. All surfaces meant for machining shall be finished as mentioned in the Drg. No. RDSO/TM/03/14

4.0 Dimensions and Tolerance: Dimension and tolerance of Piston and Piston Rod mentioned in drawing no. RDSO/TM/03/14.

5.0 Material: The Piston & Piston Rod (Part no HZ10.063.036.0180.1) shall be made of steel grade 817M40 (EN24) conforming to BS: 970 Part- II Specification of direct hardening alloy steel

6.0 Manufacturing Process: The Piston Rod and Piston shall be made by forging and machining process of specified material.

7.0 Heat Treatment: Heat treatment of the Piston rod shall be done by induction hardening to achieve case hardening of 50-55 HRC up to 1.25 mm depth.

8.0 Chromium plating: Hard chrome plating of .07-.10mm shall be done to provide hard, corrosion resistant surface of the Piston Rod.

9.0 Marking: Month and year of manufacture and manufacturer's code/identification shall be engraved / embossed on the non-functional surface of each component.

10.0 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. Minimum one or 2% of sample of the Piston Rod randomly picked up from each lot of consignment shall be checked for their hardness and hard chrome plating as per Para no.7.0 & 8.0.

iv. Minimum one no or 2 % sample of the piston rod and Piston 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 laboratory having proper facilities for testing. Before sending the samples for testing, the same shall be duly sealed and secret coding shall be done.

Any deviation in the test result shall be the cause of rejection.

11.0 Packing and Protection: Each Piston rod and Piston shall be protected with one coat of boiled linseed oil conforming to IS: 77-1976(Linseed oil for paint). Each component shall be packed in cardboard case.

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