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Specification of wear plates for ballast cleaning machine (provisional) – 1993 (Second rev. –2015)			



**RESEARCH DESIGN AND STANDARD ORGANISATION
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**STANDARD SPECIFICATION NO. TM/HM/6/15 OF WEAR PLATES FOR
BALLAST CLEANING MACHINE (PROVISIONAL) - 1993
(SECOND REVISION –2015)**

DTM-III	EDTM	Page 1 of 3
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1.0 This specification covers the requirements of wear plates for use with the Ballast Cleaning Machines deployed on Indian Railways for deep screening of ballast. There are two troughs on either side of the machine in which the cutter chain moves and scoops the material for throwing it onto the screens. These troughs are lined by wear plates, which are bolted to the main body of the troughs to facilitate replacement once these get worn out.

2.0 This specification is provisional and subject to modification based on experience gained during service performance.

3.0 MATERIAL AND PHYSICAL PROPERTIES

- a) Recommended Material: Steel Grade 31Ni10Cr3Mo6 to IS: 5517-1993 (Indian Standard steel for Hardening and tempering specification) or equivalent material which can achieve the specified hardness after suitable heat treatment.
- b) Hardness : 341 to 430 BHN
- c) Heat Treatment: Suitable Heat treatment shall be done to achieve the specified hardness.

4.0 MANUFACTURE

Manufacturer should have the essential facilities required for manufacture of the above components as appended below:

4.1 The items shall be procured from the reputed steel makers in the rolled condition and the following requirement shall be satisfied:

- i) The steel shall be killed.
- ii) Use of wide-end up moulds desired.
- iii) Minimum 10% top discard and 4% bottom discard.
- iv) For ingot practice 16:1, and for continuously casting practice 8:1 reduction ratio are to be ensured.
- v) Two stage rolling with intermediate dressing to be required.
- vi) All the materials procured, shall be covered with proper test certificates indicating the complete test results to ensure that they conform to the requirements of the relevant specifications.

4.2 Heat Treatment

- i) Oil fired/electric furnace equipped with temperature indicating-cum-recording facilities.
- ii) Quenching tank with suitable agitating system.

DTM-III	EDTM	Page 2 of 3
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4.3 The supplier shall carry out the detailed cross check of the components, procured by him for which following facilities are required at his end:

- i) Chemical analysis (Instrumental/Wet method)
- ii) Hardness testing (Brinell/Rockwell)
- iii) Tensile
- iv) Bend
- v) Izod /Charpy impact test
- vi) Macroscopic test
- vii) Microscopic test with magnification 100 x min. (Photography attachment preferable).

DTM-III	EDTM	Page 3 of 3
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