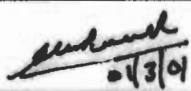
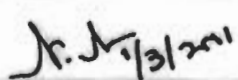
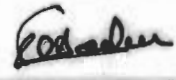


**GOVERNMENT OF INDIA
(MINISTRY OF RAILWAYS)**

**SPECIFICATION FOR
21 TONS
(19068 Kg/ 42000 lbs)
LADLE**

Issued By

**MECHANICAL DRAWING OFFICE
WHEEL AND AXLE PLANT
BANGALORE**

 04/3/09	 11/3/2011	
Dy. CME/W-I	WM/MELT	SSE/MDO
APPROVED BY	PREPARED BY	ISSUED BY

SPECIFICATION FOR LADLE 21 TONS**1.0 SCOPE**

The specification covers the manufacture and supply of the 21 tonne capacity ladle to Wheel and Axle Plant ,Yelahanka, Banagalore – 560 064.

2.0 GENERAL DISCRPTION


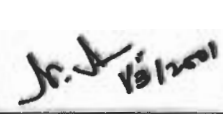
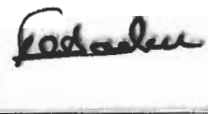
The ladle is used for to carry 21 tones of molten metal at about 1700 °C is placed in a pit which is sealed by a cover which also carries the pouring tube at center, this will be used for casting the Railway wheels.

Considering the critical nature of the item it is necessary that the tenderer possesses adequate knowledge of the process and has proven experience of having supplied such equipment to any other steel plant/foundry.

3.0 PRE-TENDER QUALIFICATION OF TENDERER

- 3.1 Manufactures of ladles/ furnaces alternatively vendors who regularly supply similar items to furnace manufactures foundries alone need to quote.
- 3.2 Firms participating in the tender shall also have radiographic quality welders in their rolls and also shall have in house welding, rolling, bending facilities.
- 3.3 Firm participating in the tender shall have in house testing facilities for radiographic testing of weldments.
- 3.4 Raw material should be purchased only from reputed sources.
- 3.5 The tenderers are there fore requested to furnish details of supplies made by them to any such plant in the world and also enclose performance report in support of their claims and consistency.
- 3.6 The tenderers are advised in their own interest to study the wheel manufacturing process at Wheel And Axle Plant , Yelahanka , Bangalore in order to understand the critical functional requirements.

The company should have highly qualified staff, most modern steel fabrication equipments material handling equipments and inspection facilities in order to achieve full control of quality.

		
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4.0. CONSTRUCTION MATERIAL REQUIREMENTS

- 4.1. The 21 tons capacity ladle will be manufactured as per the specification mentioned in the drawing No: C/ME -6/12 to alteration 'g'. The sides will be fabricated out of IS: 2062 plates and the bottom will be fabricated out of IS:961 Gr.540 W-HT, annealed or Tisten 55 or equivalent grade plates .

The rings will be of IS : 2062 grade hardened . The trunion pins will be of A 236 Cl. B or IS: 2004 class II The ladle to meet the AISI specification No: 9

The bottom dish plate construction shall be made of one single plate or with one weld joint cold spinning method and subsequent filling up of hole and *radiographic testing* of weld joint as specified in the drawing may also be adopted.

5.0 TECHNICAL SPECIFICATION

- 5.1 Welding procedure shall be in accordance with the IS : 823. All the butt welded joints should be tested 100% by *radiographic method* as per ASME Section V . The acceptance standards shall conform to ASME section 8 Div .1 UW -51. No cracks are permissible.

In addition to 10% of the fillet welded joints shall be *radio graphically tested* in accordance with ASME code section V.

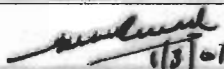

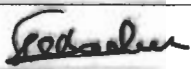
The ladle will be stress relieved by charging into the furnace at 150°C the temperature shall be raised at the rate of 100°C per Hour up to 650 °C. The soaking time will be half an hour per inch of maximum wall thickness (i.e. 2 ½ hour approx). The temperature will then lowered at 50 ° to 60 °C /Hour and the ladle removed from furnace at approx. about 200° C and cooled in still air. The welding electrode will conform to IS: 814 / IS :1442.

6.0 PAINTING AND NUMBERING

- 6.1 The ladle will be painted with two coats of red oxide primer and two coats of light gray enamel colour (Shade No : 631 of IS - 5) and the numbering will be done at the location shown in the drawing .

7.0 GUARANTEE

- 7.1 The equipment supplied will be guaranteed for 12 Calendar months from the date of supply for any manufacturing defects or any poor quality of work. The supplier should submit a Guarantee Certificate that the product conforms to the specification and to the effect, that in case their product fail to meet the requirement, they shall replace the whole supply free of cost.

		
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