 Ranipet	Technical Delivery Condition (TDC) For ERW TUBES	Doc Ref:	TDC: RTA: 401
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1.0 SCOPE

1.1 This TDC covers the requirement of ERW Tubes used in Tubular Air Heater as per the specification below

- a) EN 10305 –Part 3, E195 EW +A (Carbon steel)
- b) ASTM A423Grade I, ASTM A 714 CLASS 4 Type E, GRADE VII (Low Alloy Steel)

2.0 Chemical & Mechanical Properties

- 2.1 a) Chemistry for carbon steel shall be as per Table 2 of EN 10305 –Part 3.
- b) Mechanical property shall be as per Table 4 - EN 10305 –Part 3
- 2.2 Chemistry & Mechanical Properties for LOW ALLOY STEEL shall be as per respective specification and it should meet the requirement of Atmospheric corrosion index of 6.6 to 9.1 based on the chemical composition as per ASTM G101.


3.0 Supply Condition.

- 3.1 Fins on the entire length of outer diameter and minimum 300 mm on Inner diameter (both ends) to be removed.
- 3.2 The tube straightness shall be within 1mm/meter subject to a max of 5mm and length tolerance for tube shall be -0 mm to +3 mm.
- 3.3 The tube shall be coated with rust preventive fluid for protection against corrosion **for a minimum period of 6 months.**

4.0 Hydro Test

- 4.1 Each tube shall pass hydraulic test at a pressure of 50 bar for a duration of not less than 5 seconds

Prepared by <i>Engr. V</i>	Reviewed by	Signature	Approved by
	Engineering (APH)	<i>P. Kumar</i>	<i>[Signature]</i> (SDGM/QA&OLI)
	Purchase	<i>[Signature]</i>	
	MPL	<i>[Signature]</i>	
	QC/proc.	<i>P. Kumar</i>	
	QA	<i>B. Srinivas</i>	
Issued by QUALITY ASSURANCE			

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5.0 Marking

- 5.1 Each tube shall be clearly stenciled with paint /pasted with stickers containing Specification & Grade and Maker's Identification. In addition, a metallic tag shall be provided on the bundle with PO reference, Material Specification, size and No. of tubes.

6.0 Packing

- 6.1 The tubes shall be end capped and packed in bundles suitably to facilitate safe handling till they reach BHEL Stores.

7.0 Test Certificate

- 7.1 TC will be in English and it shall contain
- Purchase order number and date
 - TDC number
 - Specification and grade
 - Chemical composition (Melt wise)
 - Mechanical properties
 - Size, Number & Weight
 - Hydro Test (compliance TC for hydro)

- 8.0 BHEL reserves the right to carryout test and reject the items wherever non-Conformance to the Contract is noticed.

Rev.No	Date	Changes made
00	26 02 2002	TDC RTA/001/01 IS REVISED AND RE NUMBERED AS RTA 401
01	10 05 2002	TDC REVIEWED & UPDATED AND REQUIREMENTS OF TDC: RTA: 402 ARE INCLUDED, TDC RTA 402 DELETED.
02	24 11 2004	Clause 4.1 corrected.
03	15 02 07	Revised to include Grade EN 195 of EN 10305-3 in place of BS6323--5