

 Ranipet	Technical Delivery Condition(TDC) FOR CARBON STEEL CASTINGS (ASTM A 216)	Doc Ref:	TDC:RTF:314
		Rev.No.	0 4
		Date:	02 05 2002
		Page No	01 of 02

0.0 SCOPE

0.1 This TDC specifies the requirements for supply of steel castings as per ASTM A 216 in normalized condition.

2.0 CHEMICAL & MECHANICAL PROPERTIES

2.1 Chemical and mechanical properties shall be as per specification.

3.0 NON-DESTRUCTIVE TESTING (NDT)

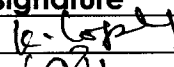
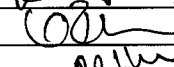
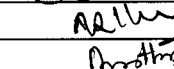
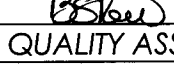
3.1 Casting shall be ultrasonically examined as per ASTM A 609 on the areas as specified in the drawing. Acceptance norm is level II as per ASTM A 609. If there is no requirements of NDT indicated in the drawing the same need not be done.

3.2 Radiography shall be conducted as per ASTM E 94, if specified in the drawing. Acceptance level shall be as follows when compared with reference radiographs of ASTM E 186/E280/E446.

Type of defect	Acceptance Level
Gas porosity	A3
Inclusions	B3
Shrinkage	C3
Unfused chaplets Hot tears and cracks)	Not acceptable

3.3 MPI shall be followed by UT/RT as per ASTM E 709 and the following are unacceptable.

- Cracks
- Relevant indications with major dimensions equal to greater than 4.8 mm.
- More than 10 relevant indications in any continuous 3750 sq mm area.
- Four or more indications in a line separated by less than 1.6 mm (edge to edge).

Prepared by 	Reviewed by	signature	Approved by  (Head/QA)
	ENG(G) (Fans)		
	QC(Proc)		
	MPL.		
	PUR		
	QA		
Issued by QUALITY ASSURANCE			

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		Page No	02 of 02

4 DIMENSIONAL TOLERANCE

- 3.1 Dimensions and their tolerances shall be as per drawing. If tolerance is not specified in the drawing, IS 4897 Cl II shall be acceptable.

5 MARKING

- 4.1 The melt Number, specification, grade and supplier's name/emblem shall be hard stamped / cast in visible un-machined and accessible place and bordered with white paint.

5.0 INSPECTION & TEST CERTIFICATE

- 6.1 The items manufactured within India, shall be subjected to inspection by BHEL or authorised agency.
- 6.2 The supplier shall furnish the test certificate in English. It shall contain the following information.
- | | | | |
|----|---|----|-----------------------------------|
| a) | PO NO. and date | g) | Dimensional conformance report |
| b) | Specification and grade | h) | Ultrasonic report, if applicable |
| c) | Drawing No. if applicable | i) | Radiography report, if applicable |
| d) | Size, No. and weight | j) | MPI report, If applicable |
| e) | Chemistry – melt wise | | |
| f) | Mechanical properties – melt wise & heat treatment batch wise | | |

Rev No	Clause revised	Revision made	Date
00	--	Original issue	11 12 95
01	5.3	Clause deleted	30 01 98
02	5.3	MPI included	12 09 00
03	5.1	UTACCEPTANCE NORM IS CORRECTED AS LEVEL II OF ASTM A 609	16 10 00
04	--	Totally modified with new format	02 05 02