

Laboratory **Chemical & Metallurgical Laboratory, Carriage Workshop, Lallaguda,
South Central Railway, Secunderabad, Telangana**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6367**

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Validity **06.10.2017 to 05.10.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>CHEMICAL TESTING</u>				
I.	METALS & ALLOYS			
1.	Carbon Steels (Low Alloy Steels)	Carbon	IS 228 (Part-1):1987 (RA 2012)	0.05 % to 1.5%
		Manganese	IS 228 (Part 2):1987 (RA 2012)	0.10% to 2.0%
		Phosphorus	IS 228 (Part 3):1987 (RA 2012)	0.02% to 0.1%
		Nickel	IS 228 (Part 5):1987 (RA 2014)	0.40% to 3.0%
		Chromium	IS 228 (Part 6):1987 (RA 2014)	0.40% to 1.5%
		Molybdenum	IS 228 (Part 7):1990 RA 2012	0.15% to 0.35%
		Silicon	IS 228 (Part 8):1989 (RA 2014)	0.05% to 2.5%
		Sulphur	IS 228 (Part 9):1989 (RA 2014)	0.02% to 0.1%
2.	High Manganese Steel	Manganese	IS 228 (Part 2):1987 (RA 2012)	10.0% to 14.0%
3.	Stainless Steel	Chromium	IS 228 (Part 6):1987 (RA 2014)	10.0% to 25.0%
		Nickel	IS 228 (Part 5):1987 (RA 2014)	6.0 % to 15.0%
4.	Cast Iron	Carbon	IS 12308 (Part 11):1991 (RA 2012)	2.1% to 3.7%

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<u>MECHANICAL TESTING</u>				
1	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous Materials & Alloys	Brinell Hardness	IS 1500 (Part-1):2013	100 HBW to 400 HBW (10 mm/3000 kgf)
		Rockwell Hardness B & C	IS 1586 (Part-1):2012	60 HRB to 100 HRB 20 HRC to 70 HRC
		Tensile Strength	IS 1608: 2005 (RA 2011)	50 kN to 800 kN
II.	METALLOGRAPHIC TESTS			
1.	Ferrous Materials & Alloys	Micro Structure Qualitative identification -Phases and Heat treatment conditions in Ferrous metals & Alloys -Types of Graphite in Cast Iron.	ASM Handbook - Vol 9 Metallography & Micro structures	(Qualitative) (50 X, 100 X, 200 X & 500 X)

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<u>NON-DESTRUCTIVE TESTING</u>				
I.	METALS & ALLOYS			
1	Forgings - Steel	By Ultrasonic Testing Contact Technique	RDSO K 405: 2017 ASTM E 388: 2016	Upto 2500 mm Upto 2500 mm