

Laboratory C & M Laboratory, Chittaranjan Locomotive Works, P.O. Chittaranjan, Bardhaman, West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7205

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Validity 26.04.2018 to 25.04.2020

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
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CHEMICAL TESTING

I.	METALS AND ALLOYS			
1.	Stainless Steel	Carbon	IS 9879	0.017 % to 1.02 %
		Manganese		0.42 % to 1.76 %
		Silicon		0.42 % to 0.90 %
		Sulphur		0.0012 % to 0.67 %
		Phosphorus		0.021 % to 0.035 %
		Nickel		0.30 % to 12.49 %
		Chromium		13.01 % to 25.90 %
		Molybdenum		0.134 % to 2.08 %
		Titanium		0.002 % to 0.48 %
2.	Mild Steel and Low Alloy Steel	Carbon	IS 8811	0.094 % to 0.819 %
		Manganese		0.31 % to 2.20 %
		Silicon		0.16 % to 1.83 %
		Sulphur		0.029 % to 0.110 %
		Phosphorus		0.028 % to 0.12 %
		Nickel		0.104 % to 3.97 %
		Chromium		0.32 % to 3.70 %
		Copper		0.06 % to 0.54 %

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous Metal	Tensile Strength	IS 1608	50 MPa to 1500 MPa
		Yield Strength		50 MPa to 1200 MPa
		Elongation		1 % to 60 %
		Reduction in Area		1 % to 80 %
		Rockwell Hardness	IS 1586 (Part 1)	20 HRB to 100 HRB 20 HRC to 70 HRC
		Brinell Hardness	IS 1500 (Part 1)	100 HBW to 450 HBW (10/3000)
		Micro structure	ASM VOL 9 IS 7739 (Part 1) IS 7739 (Part 5)	Qualitative (Magnification: 100X, 200X and 400X)
2.	Rubber / Polymer	Graphite size and distribution	IS 7754 (by comparison method)	Qualitative (Magnification 100X)
		Tensile Strength	IS 3400 (Part 1)	0.1 kN to 4.5 kN load
		Elongation	IS 3400 (Part 1)	1 % to 600 %