

Laboratory Metallurgy Lab, Sansera Engineering Limited, No. 261/C,
Bommasandra Indl. Area, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6289

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Validity 30.01.2019 to 28.09.2019

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
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CHEMICAL TESTING

I.	METALS & ALLOYS			
1.	Carbon & Low Alloy Steel	Carbon	IS 8811	0.010 % to 1.500 %
		Silicon		0.050 % to 1.550 %
		Manganese		0.010 % to 2.000 %
		Sulphur		0.005 % to 0.080 %
		Phosphorus		0.005 % to 0.100 %
		Chromium		0.050 % to 3.300 %
		Nickel		0.050 % to 4.500 %
		Molybdenum		0.010 % to 1.100 %
		Aluminum		0.005 % to 0.150 %
		Copper		0.010 % to 0.500 %
		Vanadium		0.010 % to 0.600%

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<u>MECHANICAL TESTING</u>				
I.	MECHANICAL PROPERTIES OF MATERIALS			
1.	Steels	Tensile Strength Yield Strength Proof Strength % Reduction In Area % Elongation	IS 1608	6 kN to 100 kN (Diameter: 5 mm to 10 mm) 5 % to 90 % 5 % to 60 %
2.	Steels & Products	Rockwell Hardness	IS 1586 (Part 1)	60 HRA to 85 HRA 25 HRC to 66 HRC
		Brinell Hardness	IS 1500 (Part 1)	150 HBW to 400 HBW
		Macro Vickers Hardness	IS 1501 (Part 1)	180 HV ₁₀ to 800 HV ₁₀
II.	METALLOGRAPHY			
1.	Metallic Materials	Micro-Structural Analysis	IS 7739 (Part 5) ASM Hand Book Volume 9 9 th Edition	Qualitative (Magnification : 50X to 1000X)
2.	Steels	Inclusion Content	ASTM E45 IS 4163 (Comparison Method)	Qualitative (0.5 to 3.0 Magnification: 100X)
3.	Steels and Products	Grain Size / Austenite Grain Size (Un-twinned Grain)	ASTM E112 IS 4748 (Comparison Method)	Qualitative (0 to 10 Magnification : 100X)
		Depth of Decarburization	IS 6396 Microscopic Method	0.010 mm to 1mm (Magnification : 100X)

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4.	Case Hardened and Induction Hardened Steels	Effective Case Depth (ECD)	IS 6416 IS 1501(Part 1) By Hardness Traverse Method	180 HV ₁ to 800 HV ₁ (Case Depth: 0.10 mm to 20 mm at 400X Magnification)