

Laboratory **Metals & Minerals Testing Laboratory, Ichapur Sealdanga,
Santragachi, Howrah, West Bengal**

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

Certificate Number **TC-6389**

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Validity **26.09.2018 to 25.09.2020**

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 & ALLOYS			
1.	Steels (Plain Carbon & Low Alloy)	Carbon	ASTM E 415 IS 8811	0.01 % to 1.50 %
		Manganese	ASTM E 415 IS 8811	0.03 % to 2.00 %
		Silicon	ASTM E 415 IS 8811	0.04 % to 2.0 %
		Sulphur	ASTM E 415 IS 8811	0.003 % to 0.10 %
		Phosphorus	ASTM E 415 IS 8811	0.004 % to 0.10 %
		Nickel	ASTM E 415 IS 8811	0.10 % to 3.00 %
		Chromium	ASTM E 415 IS 8811	0.01 % to 4.00 %
		Molybdenum	ASTM E 415 IS 8811	0.04 % to 1.40 %
		Vanadium	ASTM E 415 IS 8811	0.009 % to 0.60 %
		Aluminium	ASTM E 415 IS 8811	0.01 % to 0.15 %
2.	Steels (Stainless Steel, High Alloy steel)	Carbon	ASTM E 1086 IS 9879	0.01 % to 0.3 %
		Manganese	ASTM E 1086 IS 9879	0.1 % to 2.0 %
		Silicon	ASTM E 1086 IS 9879	0.10 % to 1.2 %
		Sulphur	ASTM E 1086 IS 9879	0.006 % to 0.06 %

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		Phosphorus	ASTM E 1086 IS 9879	0.005 % to 0.06 %
		Nickel	ASTM E 1086 IS 9879	2.0 % to 15.0 %
		Chromium	ASTM E 1086 IS 9879	5.0 % to 23.0 %
		Molybdenum	ASTM E 1086 IS 9879	0.08 % to 3.0 %
		Tungsten	IS 9879	0.02 % to 20.0 %
		Titanium	IS 9879	0.001 % to 0.4 %
		Vanadium	IS 9879	0.01 % to 2.0 %
		Cobalt	IS 9879	0.01 % to 6.0 %
3.	High Manganese Steel	Carbon	ASTM E 2209	0.7 % to 1.50 %
		Manganese	ASTM E 2209	7.0 % to 15.0 %
		Silicon	ASTM E 2209	0.25 % to 0.50 %
		Phosphorus	ASTM E 2209	0.025 % to 0.05 %
		Nickel	ASTM E 2209	0.2 % to 2.0 %
		Chromium	ASTM E 2209	0.1 % to 1.0 %
		Molybdenum	ASTM E 2209	0.03 % to 0.3 %
		Aluminium	ASTM E 2209	0.02 % to 0.15 %
4.	Aluminium and Its Alloys	Copper	ASTM E 1251	0.05 % to 0.60 %
		Zinc	ASTM E 1251	0.01 % to 0.15 %
		Manganese	ASTM E 1251	0.03 % to 1.0 %
		Nickel	ASTM E 1251	0.01 % to 0.60 %
		Iron	ASTM E 1251	0.20 % to 1.50 %.
		Lead	ASTM E 1251	0.04 % to 0.15 %
		Tin	ASTM E 1251	0.01 % to 0.15 %
		Titanium	ASTM E 1251	0.01 % to 0.12 %
		Silicon	ASTM E 1251	7.0 % to 14.0 %
		Magnesium	ASTM E 1251	0.02 % to 0.35 %
		Chromium	ASTM E 1251	0.03 % to 0.15 %
5.	Copper and Its Alloys	Aluminium	BS-EN 15079	0.001 % to 13.00 %
		Silicon	BS-EN 15079	0.001 % to 4.00 %
		Zinc	BS-EN 15079	0.001 % to 45.0 %

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		Manganese	BS-EN 15079	0.02 % to 1.50 %
		Iron	BS-EN 15079	0.0005 % to 4.00 %
		Phosphorus	BS-EN 15079	0.001 % to 0.60 %
		Lead	BS-EN 15079	0.002 % to 14.00 %
		Tin	BS-EN 15079	0.002 % to 12.00 %
		Nickel	BS-EN 15079	0.002 % to 3.50 %
		Antimony	BS-EN 15079	0.02 % to 0.80 %

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous and other Non Ferrous Materials, Alloys & Products (Steel, Stainless Steel, Alloy Steels, Aluminum & Copper)	Tensile Test	IS 1608 (Part-1)	100 MPa to 1600 MPa
		Tensile Strength		100 MPa to 1400 MPa
		Y.S		100 MPa to 1400 MPa
		0.2 % Proof Stress		5 % to 85 %
		% Elongation		1 % to 75 %
	Steel Products	Bend Test	IS 1599 ASTM A 370	Mandrel Size-10, 16, 20, 24, 30, 32, 36, 40, 60, 64, 70, 76, 80, 84, 100, 120, 130, 140, 150, 160, 180, 200 & 205mm
		Others (Fasteners)	Brinell Hardness HBW/10/3000	IS 1500 (Part-1)
	Fasteners Bolt , Stud & Screw (Ferrous)	Rockwell Hardness 'B' Scale (HRBW)	IS 1586 (Part-1)	60 HRBW to 100 HRBW
		'C' Scale (HRC)		20 HRC to 70 HRC
	Nuts (Ferrous)	Permanent Set Test	IS 3063	10 kN to 750 kN
		Twist Test		2 mm size to 36 mm size
	D-Shackle	Proof Load Test	IS 1367(Part 3)	10 KN to 900 KN load (L.C.-200N)
			IS 1367 (Part 6)	(Bolt, Stud & Screw-M6-M39
			IS/ISO 2415	Nut-M6-M64)