

Laboratory IRC Engineering Services India Private Limited, A-53, Sector-63, Noida, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7212

Page 1 of 6

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 & ALLOYS				
1.	Carbon Steel (Low carbon, medium carbon & high carbon steel)	Carbon (C)	ASTM E 415	0.08% to 1.10%	
		Silicon (Si)		0.07% to 1.15%	
		Manganese (Mn)		0.10% to 2.0%	
		Sulphur (S)		0.01% to 0.055%	
		Phosphorus (P)		0.02% to 0.085%	
		Chromium (Cr)		0.02% to 2.25%	
		Molybdenum (Mo)		0.03% to 0.6%	
		Nickel (Ni)		0.02% to 5.0%	
		Vanadium (V)		0.004% to 0.30%	
2.	Stainless Steel	Carbon (C)	ASTM E 1086	0.005% to 0.25%	
		Silicon (Si)		0.01% to 0.90%	
		Manganese (Mn)		0.01% to 2.0%	
		Sulphur (S)		0.003% to 0.065%	
		Phosphorus (P)		0.003% to 0.15%	
		Chromium (Cr)		17.00% to 23.00%	
		Molybdenum (Mo)		0.01% to 3.0%	
		Nickel (Ni)		7.5% to 13.0%	
		Copper (Cu)		0.01% to 0.30%	
		Vanadium (V)		0.2% to 1.5%	
		Niobium (Nb)		0.05% to 2.0%	
		Boron (B)		IRC/SOP/01	0.0005% to 0.005%
		Nitrogen (N)			0.02% to 1.0%
		Tin (Sn)	0.008% to 0.02%		
Titanium (Ti)	0.05% to 2%				
3.	Tool Steel D, H, M Series	Carbon (C)	IRC/SOP/02	0.01% to 1.30%	
		Silicon (Si)		0.02% to 3.0%	
		Manganese (Mn)		0.05% to 16.0%	
		Sulphur (S)		0.01% to 0.08%	
		Phosphorus (P)		0.01% to 0.10%	

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Convenor

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Program Director

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Page 2 of 6

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		Chromium (Cr)		0.05% to 26.0%
		Molybdenum (Mo)		0.05% to 6.5%
		Nickel (Ni)		0.05% to 35.0%
		Copper (Cu)		0.05% to 2.5%
		Vanadium (V)		0.2% to 1.5%
		Niobium (Nb)		0.05% to 2.0%
4.	Copper and its alloys	Tin (Sn)	BS EN15079	0.1% to 20.0%
		Zinc (Zn)		10% to 50%
		Lead (Pb)		0.1% to 15%
		Iron (Fe)		0.1% to 5.00%
		Nickel (Ni)		0.1% to 10%
		Aluminium (Al)		0.1% to 15.05%
		Silicon (Si)		0.1% to 1.0%
		Manganese (Mn)		0.1% to 1.5%
		Phosphorous(P)		0.01% to 0.20%
5.	Aluminium & its Alloys	Magnesium (Mg)	ASTM E 1251	0.2% to 1.70%
		Silicon (Si)		0.2% to 0.20%
		Iron (Fe)		0.2% to 1.0%
		Nickel (Ni)		0.2% to 1.0%
		Manganese (Mn)		0.1% to 1.20%
		Zinc (Zn)		0.2% to 1.8%
		Lead (Pb)		0.02% to 0.5%
		Tin (Sn)		0.05% to 0.35%
		Chromium (Cr)		0.05% to 0.20%
		Copper (Cu)		0.05% to 2.0%
		6.		Zinc & its Alloys
Copper (Cu)	0.01% to 2.50%			
Tin (Sn)	0.01% to 0.25%			
Aluminium (Al)	0.10% to 15.00%			
Cadmium (Cd)	0.01% to 0.20%			
Lead (Pb)	0.01% to 2.00%			
Magnesium (Mg)	0.08% to 0.15%			
Iron (Fe)	0.08% to 0.30%			

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Page 3 of 6

Validity 26.04.2018 to 25.04.2020

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7.	Nickel & its Alloys	Carbon (C)	ASME 2594	0.05% to 0.20%
		Silicon (Si)		0.1% to 1.50%
		Copper (Cu)		0.01% to 3.0%
		Iron (Fe)		0.01% to 20.0%
		Manganese (Mn)		0.01% to 3.0%
		Chromium (Cr)		0.01% to 26.0%
		Titanium (Ti)		0.01% to 5.0%
		Aluminium (Al)		0.01% to 1.0%
		Cobalt (Co)		0.01% to 5.0%
		Molybdenum (Mo)		0.0.1% to 10.0%
Niobium (Nb)	0.01% to 6.0%			

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Page 4 of 6

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Steel Plates, Sheets, Rods Tor Steel, TMT Bars, Cast Iron, Steel Castings & Forgings	Tensile at Room Temperature -Yield Stress Tensile -Ultimate Stress -Elongation - Reduction in Area	ASTM E8 IS 1608	12 kN to 60kN 24 kN to 120kN 60 to 300 120 to 600 50 MPa to 1500 MPa 5 % to 80% 5% to 90 %
		Tensile - Yield Stress - Ultimate Stress - Elongation - Reduction in Area	ASTM E21	Upto 800 °C 20 kN to 100 kN 50kN to 250 kN 100 kN to 500 kN 200 kN to 1000 kN 50 MPa to 800 MPa 5 % to 80% 5% to 90 %
2.	Steel Plate, Sheet, Rod, Tor Steel, Steel Castings & Forgings	Bend	IS 1599 ASTM E290	5 mm to 45 mm (Mandrel Diameter: 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm, 22 mm, 24 mm, 26 mm, 28 mm, 30 mm, 32 mm, 34 mm, 36 mm, 38 mm, 40 mm, 44 mm, 48 mm, 52 mm, 60 mm, 70 mm, 80 mm, 84 mm, 90 mm, 112 mm, 140 mm 210 mm)

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Page 5 of 6

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3.	Tor Steel/TMT Bar	Re Bend	IS 1786	Qualitative (Mandrel diameter: 20 mm, 30 mm, 40 mm, 84 mm, 112 mm , 140 mm 210 mm)
4.	Steel Plate, Sheet, Rod, Tor Steel, Steel Castings & Forgings	Brinell Hardness	IS 1500 ASTM E10	135 HBW to 450 HBW
		Rockwell Hardness	IS 1586 (Part 1) ASTM E18 IS 1586 (Part 1) ASTM E18 IS 1501 ASTM E92 IS 1501	20 HRC to 64 HRC 50 HRBW to 95 HRBW
		Vickers Hardness	ASTM E 92	130 HV5 to 160 HV5 225 HV10 to 600HV10 200 HV30 to 750HV30
5.	Welded Plates & Pipes	Transverse Tensile	IS 1608 ASTM E8	20 kN to 1000kN
		Guided Bend Test(Transverse Root & Face Bend) Transverse Side Bend	IS 1599 ASTM E190	Qualitative (Mandrel diameter: 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm, 22 mm, 24 mm, 26 mm, 28 mm, 30 mm, 32 mm, 34 mm, 36 mm, 38 mm, 40 mm, 44 mm, 52 mm, 90 mm)
6.	Rolled Bar, Plates, Sheet, Pipes, Forgings, Steel Castings, Welded/ Fabricated Components	Charpy Impact	IS 1757 ASTM E23	2 J to 300 J Ambient temperature to (-)196°C

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Page 6 of 6

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7.	Load Bearing Components	Compression, Proof Load and Safe Working Load Test	IS 1367 (Part 1) IS 1367 (Part 3) IS 1367 (Part 5) IS 1367 (Part 6)	20kN to 1000 kN 20kN to 600 kN

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