

Laboratory Heat Fabs, T-183, MIDC, Bhosari, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5008 (in lieu of T-0634 & T-0635)

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Validity 11.02.2017 to 10.02.2019

Last Amended on 27.02.2017

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.	Plain Carbon, Low Alloy Steel	C	ASTM E 415 : 2015, IS 8811: 1998	0.03 % to 1.50 %
		Si		0.03 % to 2.0 %
		Mn		0.09 % to 2.0 %
		P		0.005 % to 0.08 %
		S		0.005 % to 0.10 %
		Cr		0.02 % to 2.60 %
		Ni		0.03 % to 4.0 %
		Mo		0.01 % to 1.5 %
		V		0.005 % to 0.65 %
		Cu		0.02 % to 0.50 %
		Nb		0.005 % to 0.12 %
2.	Stainless Steel	Ti	ASTM E 1086 :2015 IS 9879 : 1998	0.003 % to 0.05 %
		Al		0.015 % to 0.070 %
		C		0.01 % to 0.15 %
		Si		0.10 % to 1.14 %
		S		0.005 % to 0.050 %
		P		0.005 % to 0.06 %
		Mn		0.27 % to 2.0 %
		Ni		6.10 % to 15.0 %
3.	Aluminium Alloy	Cr	ASTM E 1251: 2011	12.0 % to 21.80 %
		Mo		0.02 % to 3.0 %
		Cu		0.03 % to 0.44 %
		Cu		0.15 % to 5.70 %
		Si		7.5 % to 14.5 %
		Fe		0.15 % to 1.0 %
		Mg		0.15 % to 1.0 %

Nikhil Kumar
Convenor

N. Venkateswaran
Program Director

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		Zn		0.21 % to 0.23 %
		Mn		0.14 % to 0.19 %
		Cr		0.031 % to 0.04 %
		Ni		0.015 % to 0.020 %
		Pb		0.135 % to 0.14 %
		Sn		0.006 % to 0.070 %

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MECHANICAL TESTING

I. MECHANICAL PROPERTIES OF METALS				
1.	Metallic Materials (Steel, stainless steel, Cast Iron, Weldment, aluminium & copper alloys)	Tensile Test 0.2% Proof Strength Yield Strength % Elongation % Reduction Area	IS.1608-2005 (RA 2013) ASTM-A370-2016 ASTM E-8/8M-2016a	0.1 kN to 900 kN 100 Mpa to 1400 Mpa 100 Mpa to 1400 Mpa 2 % to 80% 10 % to 85%
		Bend	IS 1599: 2012 (RA 2015) ASTM A-370-2016	Qualitative (Mandrel Diameter: 8 mm to 100 mm)
		Rockwell hardness Rockwell Superficial Hardness	IS 1586: 2000 IS 1586 (Part 1): 2012 ASTM A 370 – 2016 ASTM E 18 - 2016	30 HRBW to 100 HRBW 20 HRC to 65 HRC 67 HR _{15T} to 93 HR _{15T} 29 HR _{30T} to 82 HR _{30T} 1 HR _{45T} to 72 HR _{45T} 70 HR _{15N} to 94 HR _{15N} 42 HR _{30N} to 86 HR _{30N} 20 HR _{45N} to 77 HR _{45N}
		Brinell Hardness	IS 1500: 2005 (RA 2010) IS 1500 (Part 1): 2013 ASTM A 370 – 2016 ASTM E-10-2015a	100 HBW to 650 HBW
		Vickers Hardness	IS 1501 (Part 1): 2013 ASTM A 370 – 2016	60 HV ₅ to 800 HV ₅ 60 HV ₁₀ to 800 HV ₁₀
2.	Metallic materials (Steel & Stainless Steel Tubes)	Drift Expansion	IS 2335: 2005 (RA 2011) ASTM A 370 - 2016	Qualitative test
3.	Metallic Materials (Tubes)	Flattening Test Rockwell Hardness Test	IS 2328: 2005 (RA 2011) ASTM A-370-2016	Qualitative test
4.	Metallic Material (Steel)	Izod Impact	IS 1598: 1977 (RA 2015)	2 Joule to 180 Joules
		Charpy Impact "V" Notch	IS 1757 - Part - 1-2014	2 Joule to 300 Joule (Temperature : -50°C to 35°C)

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		Erichson Cupping	IS 10175 (Part 1): 1993 (RA 2009)	Thickness: 0.6 mm to 2 mm, Depth: 20 mm
II.	METALLOGRAPHY TEST			
1.	Metallic Material (Steel, Stainless Steel)	Microstructure Examination	ASM Handbook Vol. 7 Microstructure Atlas (EDITION 8 – 1972)	Qualitative (Magnification: 100X & 450X)
		Average grains size	IS 4748: 2009 (RA 2013) comparison method	ASTM No. : 1 to 10 (Magnification: 100X)
2.	Metallic Materials Ferrous Material, Weld joint, Welding Fusion, Welded joints	Macro etch Measurement of throat, leg length, concavity convexity & Weld penetration	BS EN ISO 17639: 2013 ISO 5817 : 2014 ASME Sec – IX: 2015 ASTM E 340 - 2015	1 mm to 20 mm (Magnification: 5X to 80X)

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