

Laboratory	Metal Analysis & Services Pvt. Ltd., 219/233/201, Bussa Udyog Bhavan, T. J. Road, Sewree (West), Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	27.12.2015
Certificate Number	T-0777	Valid Until	26.12.2017
Last Amended on	06.01.2016	Page	1 of 4

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. MECHANICAL PROPERTIES OF MATERIAL				
1.	Ferrous , Non Ferrous Metals & Alloys	TENSILE TEST Ultimate Tensile Strength Yield Strength 0.2 % P.S. % Elongation % RA Bend Test (Pipe/Rods)	IS 1608: 2005 (RA 2011) (3 rd Rev)/ASTM E 8/E 8M: 2015 IS 1599: 2012 (RA 2012) (3 rd Rev) /ASTM A 370: 2014	2 kN to 400 kN 100 Mpa to 3000 Mpa 100 Mpa to 2000 Mpa 100 Mpa to 2000 Mpa 2 % to 90 % 5 % to 90 % Qualitative Thick: Upto 30 mm Nominal Bore / Diameter: Upto 1 inch (Mandrel Diameter 2, 4, 6, 8, 10, 12, 18, 24, 32, 36, 48, 50, 56, 63, 75, 84, 132, 155, 180, 230, 313,500 mm) Qualitative OD: 5 mm to 75 mm Conical Mandrel: 30 °, 45 °, 60 ° OD: 5 mm to 600 mm
		Flaring Test	IS 2335: 2005 (RA 2011) (2 nd Rev)/ASTM A 370: 2014	Qualitative OD: 5 mm to 75 mm Conical Mandrel: 30 °, 45 °, 60 °
		Flattening Test	IS 2328: 2005 (RA 2011) (2 nd Rev) /ASTM A 370: 2014	OD: 5 mm to 600 mm
		Rockwell Hardness Test	IS 1586 (Part 1,2,3): 2012 (RA 2012) (4 th Rev) ASTM E 18: 2015	59.5 HRBW to 94.3 HRBW 21.4 HRC to 61.0 HRC
		Brinell Hardness Test	IS 1500 (Part 1,2,3): 2013 ASTM E 10: 2015	136.7 HBW to 489.9 HBW (10 Ø / 3000 kg)
		Vickers Hardness Test	IS 1501 (Part 1,2,3): 2013 ASTM E 384: 2010e2	196.2 HV5 to 548.0 HV 5 129.4 HV10 to 774.4 HV 10

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2.	Ferrous Metals and Alloys	Charpy Impact Test	IS 1757: 1988 (RA 2009) (2 nd Rev)	2 J to 280 J Ambient to (-)75 °C
		Impact Test – Izod	IS 1598: 1977 (RA 2009) (1 st Rev)	2 J to 150 J
II. METALLOGRAPHY TEST				
1.	Ferrous , Non Ferrous Metals & Alloys	Microstructure Analysis	ASM Handbook (Vol 7 & 9) IS 7739 (Part 1): 1975 (RA 2010) (3 rd Rev) IS 7739 (Part 5): 1976 IS 7739 (Part 2/Sec IV): 1975 (RA 2012) (3 rd Rev) ASTM E 407: 07e1	Qualitative (Magnification : 50 X, 75 X, 100 X, 200 X, 500 X, 1000 X, 2000 X)
		Macro structural Analysis	ASTM E 340: 2015 ASTM E 381- 01: 2012 IS 7739 (Part 5): 1976 (RA 2012) (3 rd Rev)	Qualitative Magnification: Upto 10 X
		Estimation of grain size (By comparison method)	IS 4748: 2009 (2 nd Rev) ASTM E 112: 2013	1 to 10 , 100 X Average diameter: (0.200, 0.150, 0.120, 0.090, 0.070, 0.060, 0.050, 0.045, 0.035, 0.025, 0.020, 0.015, 0.010, 0.005 mm) At 75 X
2.	Ferrous Metals and Alloys	Determination of Case Depth : Microscopic Method	IS 6416: 1988 (RA 2012) (1 st Rev)	10 μ to 1000 μ Upto 100 X

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	Ferrous Metals and Alloys	Determination of inclusion rating in steel: Method A	IS 4163: 2004 (RA 2010) (3 rd Rev)	Qualitative (Group A,B,C,D,DS 0.5 to 3.0, 100 X)
		Determination of depth of decarburized layer in steel: Microscopic Method	IS 6396: 2000 (RA 2012) (2 nd Rev)	Upto 700 μ Magnification: 100 X
3.	Cast Iron (SG & Grey Cast Iron)	Designation of the Microstructure of graphite (form, distribution & sizes) in cast iron by Comparison Method	IS 7754: 1975 (RA 2012)	Qualitative Magnification: 100 X
4.	Austenitic Stainless Steel	IGC Practice A	ASTM A 262: 2015	Qualitative Analysis (250 x to 500 x)
		IGC Practice B	ASTM A 262: 2015	Qualitative 1 Mils/Year to 500 Mils/ Year
		IGC Practice C	ASTM A 262: 2015	Qualitative 1 Mils/Year to 500 Mils/Year
		IGC Practice E	ASTM A 262: 2015	Qualitative 180 ° / Close Bend Mandrel Diameter: 1 T, 4 T Magnification: (10 X/15 X/20 X)

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5.	Austenitic Stainless Steel	Determination of resistance to Intergranular Corrosion of Stainless Steel	EN ISO 3651-2: 1998 Method A	Qualitative 90° Bend, Mandrel Diameter: (1 mm, 4 mm) Magnification: (10 X /15 X /20 X)
6.	Duplex Austenitic/ Ferritic Stainless Steel	Detecting Detrimental Intermetallic Phase	ASTM A 923: 2014	Qualitative Magnification: (400 X, 500 X)

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