

Laboratory	Industrial Development and Testing Laboratory, 40/107, Jay Bibi Road, Plot No. 18 & 20, Ghusuri, Howrah, West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	22.11.2014
Certificate Number	T-0484	Valid Until	21.11.2016
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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 Stress/Proof Stress/E.U.L % Elongation % Reduction in Area Breaking Load	IS 1608: 2005 IS 1367 (Part 3): 2002 ISO 6892-1:2009 ASTM A 370 - 2014	0.1 kN to 600 kN 50 Mpa to 3000 Mpa 50 Mpa to 1500 Mpa 1 % to 90 % 1 % to 90 % 0.1 kN to 600 kN
		Transverse Tensile Test Root Bend Test Face Bend Test Side Bend Test Macro Examination All weld Tensile Test Nick Break Fracture Test	IS 7310 (Part 1): 1974 (RA 2010) IS 7307 (Part 1): 1974 (RA 2008) ASME Sec. IX - 2013 ASTM A 370 - 2014	0.5 kN to 550 kN Qualitative Qualitative Qualitative Qualitative 0.5 kN to 550 kN Qualitative Qualitative
2.	Steel Fastener	Breaking/Tensile Load Test of Bolts	IS 1367 (Part 3): 2002 (RA 2007) ISO 898 : 1 : 1999	0.5 kN to 550 kN (M8 to M39 Threaded)
		Proof Load test of Bolt	IS 1367 (Part 3): 2002 (RA 2007) ISO 898 : 1 : 1999	1.0 kN to 550 kN (M8 to M39 Threaded)
		Proof Load Test of Nuts	IS 1367 (Part 6): 1994 (RA 2010) ISO 898 : 2 : 1992	1.0 kN to 550 kN (M8 to M39 Threaded)

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3.	Metallic Materials	Bend Test	IS 1599: 2012 ASTM A 370 - 2014	Qualitative (Mandrel Diameter: 2, 4, 5, 6, 8, 10, 12, 16, 18, 20, 24, 30, 32, 36, 40, 44, 48, 50, 56, 60, 66, 72, 75, 80, 90, 100, 108 mm)
		Brinell hardness test	IS 1500: 2013 ASTM A 370 - 2014	150 HBW to 500 HBW
		Rockwell hardness test C Scale	IS 1586 (Part 1): 2012 ASTM A 370 - 2014	20 HRC to 65 HRC
		Rockwell hardness test B Scale	IS 1586 (Part 1): 2012 ASTM A 370 - 2014	30 HRBW to 100 HRBW
4.	Metallic Tubes	Flattening test	IS 2328: 2005 (RA 2010) ASTM A 370 - 2014	Qualitative (Diameter Ferrous Tubes : 20, 25, 30, 33, 42, 48, 60, 73, 88, 101, 114, 141, 168, 219, 273, 323, 355 & 406 mm Diameter Non-ferrous Tubes 10, 13, 17, 20, 25, 33, 42, 48, 60, 73, 88, 101 & 114 mm)
5.	Steel Wire	Wrapping Test	IS 1755: 1983 (RA 2010)	Qualitative (Diameter: 0.3 mm to 5.0 mm)
6.	Ferrous & Non- Ferrous Tubes	Drift Expansion Test	IS 2335: 2005 (RA 2010)	10 mm to 100 mm (Diameter: Max. 10 mm)

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7.	Single Coil Rectangular Section Spring Washer (Steel)	Permanent Set Test	IS 3063: 1994 (RA 2010) Cl. 10.2	Qualitative (Nominal size of Washer: 2, 2.5, 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 30 & 36 mm Non - preferred size of Washer: 7, 14, 18, 22, 27 & 33 mm)
8.	Single Coil Rectangular Section Spring Washer (Steel)	Twist Test	IS 3063: 1994 (RA 2010) Cl. 10.2	Qualitative (Diameter: 2 mm to 10 mm)
9.	Ferrous & Non- Ferrous Metals fittings & MS Hardware fittings / Locking devices / G.I. Stay set , L.T. Pin	Slip Strength test	IS 2486 (Part 1): 1993 (RA 2008)	1.0 kN to 550 kN
		Tensile Load Test	IS 2486 (Part 2): 1989 (RA 2009)	1.0 kN to 550 kN
		Breaking Load	IS 7935: 1975 (RA 2011)	1.0 kN to 550 kN
		Visual examination	BS 3288 (Part 1): 1997	Qualitative
10.	Deformed steel bars	Re bend test	IS 1786: 2008 (RA 2013)	Qualitative (135° to 157½° Mandrel Diameter: 24, 30, 32, 36, 40, 42, 48, 50, 56, 60, 70, 72, 84, 96, 112, 120, 128, 140, 150, 160, 168, 175, 192, 196, 200, 224 & 256 mm)

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11.	Rolled steel products	Weight per meter (Mass)	IS 808: 1989 (RA 2009) IS 1732: 1989 (RA 2009) IS 1730: 1989 (RA 2009)	0.090 kg/m to 20 kg/m
12.	Zinc Coated Iron & Steel Articles	Adhesion Test	IS 2629: 1985 (RA 2010) Cl. 6.4	Qualitative
II. METALLOGRAPHY TEST				
1.	Ferrous & Non – Ferrous Metals & Alloys	Microstructure examination	ASM Metals Handbook Volume 9, 2001	Qualitative (Magnification: 50X, 75X, 100X, 200X, 450X, 600X & 900X)
2.	Cast Iron	Microstructure examination	ASTM A 247 - 2010 IS 7754: 1975 (RA 2003)	Qualitative (Magnification: 100X)
3.	Steels	Non – Metallic Inclusion	IS 4163: 2004 (RA 2010)	Qualitative (Magnification: 100X)
		Average Grain size/Austenitic Grain Size	IS 4748: 2009 IS 7739 (Part 1): 1975 (RA 2010) IS 7739 (Part 5): 1976 (RA 2007) ASTM E 112 - 2013 BS EN ISO 643 : 2003	Qualitative (Grain-size no. 0 to 10.0 Magnification: 100X)
		Decarburised Depth (Microscopic Method)	IS 6396: 2000 (RA 2007)	Upto 1.0 mm

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	Steels	Total Case depth (Microscopic Method)	IS 6416: 1988 (RA 2007)	Upto 1.0 mm
		Total Case depth (Macro Structure Method)	IS 6416: 2000 (RA 2007)	Qualitative (Magnification: 20X)
		Macroscopic study	IS 13015: 1991 (RA 2007) IS 7739 (Part 5): 1976 (RA 2007) IS 11371: 1985 (RA 2007) ASTM E 381 - 2001	Qualitative (Magnification: 10X)
4.	Aluminium And Its Alloys	Macroscopic Examination	IS 7739 (Part 3): 1975 (RA 2007)	Qualitative (Magnification: 20X)
		Average Grain Size	IS 7739 (Part 1): 1975 (RA 2010) IS 7739 (Part 3): 1975 (RA 2007) IS 7739 (Part 5): 1976 (RA 2007) ASTM E 112 – 2013	Qualitative (Magnification: 100X)
5.	Copper & Its Alloys	Average Grain Size	IS 7739 (Part 1): 1975 (RA 2010) IS 7739 (Part 4): 1975 (RA 2007) ASTM E 112 – 2013	Qualitative (Magnification: 75X)

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6.	Electroplated Coatings	Local thickness by micro- examination	IS 3203: 1982 (RA 2010)	5 micron to 1000 micron
-X-X-X-X-X-X-X-X-X-X-X-X-				

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