

Laboratory	Controllerate of Quality Assurance (Metals), P.O. Ichapur-Nawabganj, Dist.: 24 Parganas (North), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	19.10.2016
Certificate Number	T-0089	Valid Until	18.10.2018
Last Amended on	09.12.2016	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 METALS				
1.	Ferrous & Non-ferrous metals & alloys	Tensile test	IS 1608: 2005 (RA 2011)	0.1 kN to 1000 kN
		UTS		
		Yield Strength		
		Proof Stress,		
		% Elongation		
		% Reduction of area		2 % to 70 %
				5 % to 80 %
		Compression Test	JSS 9510-1: 2007	2 kN to 800 kN Qualitative
		Charpy Impact Test (U & V Notch)	IS 1499:1977 (RA 2015) IS 1757 (Part 1): 2014	2 J to 240 J (RT & Sub-Zero Upto -50 °C)
		Izod Impact Test	IS 1598 : 1977 (RA 2015)	2 J to 120 J (Ambient Temperature)
Spring Test	CQA(MET)/LAB/ MECH/18 Issue. 01 Rev. 03 Issue Dated. 01.04.2014	1 kgf to 2000 kgf		
Hardness Test				
	Brinell Hardness	IS 1500 (Part 1): 2013	125 HBW to 500 HBW (10/29.4) 125 HBW to 500 HBW (5/7.355)	
	Vickers Hardness	IS 1501 (Part 1): 2013	100 HV to 1000 HV (HV 1 kg, HV5 kg, HV 10 kg HV30 kg)	

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	Ferrous & Non-ferrous metals & alloys	Rockwell & Rockwell superficial Hardness	IS 1586 (Part 1): 2012	20 HRA to 75 HRA 20 HRB to 100 HRB 20 HRC to 70 HRC 78 HR to 91 HR15N 73 HR to 87 HR15T 55 HR to 80 HR30N 43 HR to 69 HR30T 20 HR to 70 HR45N 12 HR to 72 HR45T
		Vickers Hardness test	ASTM E 384 – 2011 IS 1501 (Part 1): 2013	100 HV to 1500 HV (0.2 kg, 0.5 kg, 1 kg)
		Bend Test	IS 1599: 2012	Qualitative Mandrel Dia. 1 mm to 75 mm
		Torsion Test	IS 1717: 2012	Qualitative 0.30 mm to 3.0 mm dia.
		Wrapping Test	IS 1755: 1983 (RA 2011)	Qualitative 0.3 to 1.0 dia.
		Flattening Test	IS 2328: 2005 (RA 2011)	Qualitative 5 mm to 75 mm dia. Tube
		Drifting Test	IS 2335: 2005 (RA 2011)	Qualitative 10 mm to 50 mm dia. Tube

Amit Kumar
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Program Manager

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II. METALLOGRAPHY TEST				
1.	Ferrous & Non-Ferrous Metals & Alloys	Macrostructural Examination	IS 12573: 2010 IS 11371: 1985 (RA 2012) ASTM E 381: 2001 (RA 2006) GOST-10243: 1962 IS 13015: 1991(RA 2012) CQAM/MET/WI/11, Issue. 01, Date of Issue. 02/09/2014	Qualitative (0.02mm to 15mm)
		Microstructural examination	CQAM/MET/WI, Issue. 01 Date of Issue. 02/09/2014	Qualitative (Upto 1000X)
		Graphite Flake-Type, size & Distribution in Grey cast Iron	IS 7754: 1975 (RA2012) ASTM A 247: 2010 (Comparison Method)	Qualitative
		Inclusion Rating	IS 4163: 1982 (RA 1996) ASTM E45-2011a –Method A, (Comparison procedure) (Microscopic Method)	Qualitative Inclusion Types A B C D & DS Rating 0.5 to 3.0
		Depth of decarburization layer	IS 6396: 2000 (RA 2012) ASTM E1077: 2001 (RA 2005) IS 1367: 2002 (Microscopic Method)	10 microns to 900 microns
		Coating Thickness	ASTM B 487-85 (RA 2007) IS 3203: 1982 (RA 2011) (Microscopic Method)	10 microns to 900 microns
		Case depth	IS 6416: 1988 (RA 2012) (Microscopic method)	10 microns to 900 microns

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2.	Ferrous Metals & Alloys	Grain Size	IS 4748: 2009 (For Ferrous Material) ASTM E 112: 2012 , ASTM E 1181/112: 2012 & GOST 5639: 1982 (Comparison procedure) (Microscopic Method)	Qualitative Grain Size 1 to 10

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