

<b>Laboratory</b>	<b>Material Testing Laboratory, Ordnance Factory, Ambajhari, Nagpur, Maharashtra</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>13.03.2014</b>
<b>Certificate Number</b>	<b>T-0030</b>	<b>Valid Until</b>	<b>12.03.2016</b>
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<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>1.</b>	<b>MECHANICAL PROPERTIES OF MATERIALS</b>			
<b>1.</b>	<b>Steel alloys, Aluminum Alloys, Copper Alloys (bars, plates, strips &amp; sheets)</b>	Tensile Strength	IS 1608: 2005 Reaffirmed – 2010	50 MPa to 4500MPa (5 kN to 1000 kN, 0.1 kN to 100 kN 0.02 kN to 20 kN)
		Yield Stress 0.2 % proof stress 0.1 % proof stress		50 MPa to 2500MPa
		%Elongation		01-60%
		% Reduction of Area		05-60%
<b>2.</b>		<b>Ferrous and Non-ferrous Alloys</b>	Brinell Hardness Tests	IS 1500- 2005 Reaffirmed – 2010
	Vickers Hardness Tests		IS 1501- 2002 Reaffirmed – 2007	90 to 400 HV5 110 to 610 HV10 200 to 450 HV30
<b>3.</b>	<b>Ferrous Alloys</b>	Rockwell Hardness Test “C”	IS 1586- 2012 Part – I	20 to 70 HRC
<b>4.</b>	<b>Steel, Aluminum, Copper Plates, Sheets and Strips</b>	Bend Test	IS 1599- 2012 (Up to 500 kN)	90 ° to 180° Angle Single bend Mandrel (Diameter 10 mm-45 mm)

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<b>II. METALLOGRAPHY TEST</b>				
1.	<b>Rolled &amp; Extruded Products of Fe Alloys, Al Alloy, Cu Alloys &amp; Sheets</b>	Macro Structural Analysis by Visual Method	ASTM E 340-2013 ASTM E 381- 2001 Reapproved - 2012	Visual Examination / Magnification - 10X
2.	<b>Ferrous and Non-ferrous Alloys Cu &amp; Al base alloys</b>	Micro structural Analysis	ASM Handbook – Metallography Vol.9- December 2004 ASTM E 3 - 11 ASTM E 407-2007	Magnification 50 X to 1600 X Examination
3.	<b>Steel, Copper &amp; Aluminum Alloys</b>	Estimation of grain size by microscopic method	ASTM E 112-12 IS 4748 — 2009 Reaffirmed – 2010	Grain Size : ASTM E 112 - 12 Clause 1 to 12. IS 4748 – 2009 for Fe & Al base alloys Magnification - 100 X Cu base alloy – Magnification - 75 X
4.	<b>Steel products</b>	Determination of Inclusion Rating by Type - A	ASTM E 45- 13 IS 4163- 2004 Reaffirmed – 2010	Magnification-100 X

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