

Laboratory	L & T Special Steels and Heavy Forgings Laboratory, Hazira Manufacturing Complex, PO: Bhatha, Surat, Gujarat		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	07.06.2014
Certificate Number	T-2255	Valid Until	06.06.2016
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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
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I. MECHANICAL PROPERTIES OF MATERIALS

1.	Carbon, Low Alloy & Stainless Steels & Forgings	Hardness Testing		
		Brinell Hardness	ASTM E 10-2012 / ISO 6506-1 (2005) / IS 1500-2005	101 to 600 HBW
		Hardness Testing		
		Rockwell Hardness in "C" Scale	ASTM E 18-2012 / ISO 6508-1 (2005) / IS 1586-1 (2012)	20 to 65 HRC
		Rockwell Hardness in 'B' Scale	ASTM E 18-2012 / ISO 6508-1 (2005) / IS 1586-1 (2012)	50 to 105 HRBW
		Vickers Hardness	ASTM E 384-2011 / ISO 6507-1 (2005)	100 to 700 HV
		Microhardness in HV	ASTM E 384-2011 / ISO 6507-1 (2005)	100 to 800 HV
		at Room Temperatures		
		Tensile Strength	ASTM A 370 -2013 / ASTM E 8 -2013 / EN 10002-1 (2001) / ISO 6892-1 (2009) / IS 1608-2005 / ASME Sec IX-2013	2 kN to 300 kN
		Yield Strength		2 kN to 250 kN
	% Elongation		Upto 200 mm Gauge Length	
	% Reduction in area		Upto 25 mm Thickness/ Dia.	

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		Bend Testing	ASTM E 290-2013 / ASTM E 190-2008 / IS 1599-2012 / ASME Sec IX-2013	2 kN to 100 kN
		at Elevated Temperatures		
		Tensile Strength	ASTM A 370-2013 / ASTM E 21-2009 /	2 kN to 150 kN
		Yield Strength	EN 10002-5 (1992) / ISO 6892-2 (2011)	2 kN to 120 kN
		% Elongation		Upto 200 mm Gauge Length
		% Reduction in area		Upto 20 mm Thickness/Dia.
		Impact Testing		
		Impact Test	ASTM E 23-2012 ASTM A 370-2013	0 to 450 J
		Drop Weight Testing		
		Nil Ductility Transition Temperature	ASTM E 208-2006	340 J to 750 J

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II. METALLOGRAPHY TEST

1.	Steel & Forging Testing	Microstructure	ASTM E 562-2011 / ASTM E 3-2011 / IS 7739-1 (1975) / IS 7739-5 (1976) / ASM Vol. 9	Upto 1000 X Magnification
	Steel & Forging Testing	Grain Size	ASTM E 112-2013/ ISO 643-2012 / IS 4748-2009	ASTM 1 to 8
		Inclusion Rating	ASTM E 45-2013 / ISO 4967-2013 / EN 10247-2007 / IS 4163-2004	0 to 3 ABCD in Thin & Thick series
		Macro Examination	ASTM E 381-2001 / ASTM E 340-2013 / IS 11371-1985	40 X Magnification
		Sulfur Print Examination	ASTM E 1180-2008	200 mm X 280 mm
		IGC Study Inter Granular Corrosion	ASTM A 262-2013	Practice A, C and E

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