

<b>Laboratory</b>	<b>L&amp;T Heavy Engineering Calibration and Testing Laboratory, Larsen &amp; Toubro Limited, Technology Block, Hazira Manufacturing Complex, Post: Bhatha, Dist: Surat, Gujarat</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>30.07.2016</b>
<b>Certificate Number</b>	<b>T-2295</b>	<b>Valid Until</b>	<b>29.07.2018</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>I. METALS &amp; ALLOYS</b>				
<b>1.</b>	<b>Stainless Steel , Low Alloy Steel &amp; Carbon Steel</b>	Carbon	ASTM E1019-11	0.001 % to 3.35 %
		Sulfur	ASTM E1019-11	0.0005 % to 0.042 %
<b>OES Method</b>				
<b>2.</b>	<b>Carbon &amp; Low Alloy Steel</b>	Carbon	ASTM E415-15 IS 8811: 1998	0.01 % to 1.1 % 0.01 % to 1.27 %
		Sulfur	ASTM E415-15 IS 8811: 1998	0.002 % to 0.055 % 0.005 % to 0.092 %
		Phosphorous	ASTM E415-15 IS 8811: 1998	0.003 % to 0.038 % 0.005 % to 0.038 %
		Manganese	ASTM E415-15 IS 8811: 1998	0.0040 % to 1.8 % 0.0100 % to 1.8 %
		Silicon	ASTM E415-15 IS 8811: 1998	0.0070 % to 1.15 % 0.050 % to 1.28 %
		Chromium	ASTM E415-15 IS 8811: 1998	0.02 % to 2.25 % 0.050 % to 5.0 %
		Nickel	ASTM E415-15 IS 8811: 1998	0.02 % to 5.0 % 0.05 % to 5.0 %
		Molybdenum	ASTM E415-15 IS 8811: 1998	0.003 % to 0.6 % 0.01 % to 1.5 %
	Niobium	ASTM E415-15 IS 8811: 1998	0.02 % to 0.085 % 0.008 % to 0.076 %	

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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
	<b>Carbon &amp; Low Alloy Steel</b>	Titanium	ASTM E415-15 IS 8811: 1998	0.001 % to 0.20 % 0.01 % to 0.25 %
		Copper	ASTM E415-15 IS 8811: 1998	0.04 % to 0.4 % 0.01 % to 0.4 %
		Vanadium	ASTM E415-15 IS 8811: 1998	0.004 % to 0.3 % 0.01 % to 1.0 %
		Cobalt	ASTM E415-15 IS 8811: 1998	0.008 % to 0.1 % 0.01 % to 0.20 %
		Tin	ASTM E415-15 IS 8811: 199808	0.001 % to 0.037 % 0.003 % to 0.010 %
		<b>OES Method</b>		
3.	<b>Stainless Steel</b>	Carbon	ASTM E1086-15 IS 9879: 1998	0.01 % to 0.25 % 0.01 % to 0.30 %
		Sulfur	ASTM E1086-15 IS 9879: 1998	0.003 % to 0.038 % 0.002 % to 0.038 %
		Phosphorous	ASTM E1086-15 IS 9879: 1998	0.003 % to 0.038 % 0.003 % to 0.038 %
		Manganese	ASTM E1086-15 IS 9879: 1998	0.01 % to 1.80 % 0.10 % to 1.73 %
		Silicon	ASTM E1086-15 IS 9879: 1998	0.01 % to 0.67 % 0.10 % to 0.67 %
		Chromium	ASTM E1086-15 IS 9879: 1998	17.0 % to 23.0 % 5.0 % to 20.0 %

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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
	Stainless Steel	Nickel	ASTM E1086-15 IS 9879: 1998	7.5 % to 13.0 % 2.0 % to 15.0 %
		Molybdenum	ASTM E1086-15 IS 9879: 1998	0.01 % to 3.0 % 0.01 % to 3.0 %
		Copper	ASTM E1086-15 IS 9879: 1998	0.01 % to 0.30 % 0.05 % to 0.28 %
4.	Carbon & Low Alloy Steel (XRF)	Manganese	ASTM E322-12	0.20 % to 1.5 %
		Chromium	ASTM E322-12	0.1 % to 1.0 %
		Nickel	ASTM E322-12	0.10 % to 1.0 %
		Molybdenum	ASTM E322-12	0.04 % to 0.40 %
		Copper	ASTM E322-12	0.05 % to 0.30 %
5.	Stainless Steel (XRF)	Vanadium	ASTM E322-12	0.03 % to 0.25 %
		Manganese	ASTM E572-13	0.38 % to 1.80 %
		Chromium	ASTM E572-13	9.0 % to 24.0 %
		Nickel	ASTM E572-13	0.20 % to 31 %
		Molybdenum	ASTM E572-13	0.05 % to 3.0 %
		Niobium	ASTM E572-13	0.003 % to 0.70 %
		Copper	ASTM E572-13	0.05 % to 3.5 %
	Cobalt	ASTM E572-13	0.05 % to 0.50 %	

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