

Laboratory Testing Laboratory, Good Luck Engineering Co., Khasra No. 2839,
Gram Dhoom, Manikpur, G.T. Road, Gautam Budh Nagar, Dadri, Uttar
Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5801

Page 1 of 4

Validity 03.08.2018 to 02.08.2020

Last Amended on --

Sl.	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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CHEMICAL TESTING

I.	METALS & ALLOYS			
(i)	Carbon and Low Alloy Steel	Carbon (C)	ASTM E 415	0.05 % to 1.10 %
		Manganese (Mn)	IS 8811	0.10 % to 2.00 %
		Silicon (Si)		0.05 % to 1.00 %
		Sulfur (S)		0.001 % to 0.080 %
		Phosphorous (P)		0.001 % to 0.10 %
		Chromium (Cr)		0.02 % to 4.00 %
		Nickel (Ni)		0.02 % to 4.00 %
		Molybdenum (Mo)		0.01 % to 1.00 %
		Copper (Cu)		0.02 % to 0.60 %
		Vanadium (V)		0.001 % to 0.50 %
		Aluminum (Al)		0.010 % to 0.30 %
		Cobalt (Co)		0.004 % to 0.02%
		Lead (Pb)		0.0002 % to 0.0006 %
		Niobium (Nb)		0.001 % to 0.10 %
		Titanium (Ti)		0.001 % to 2.00 %
(ii)	Austenitic Stainless Steel	Tin (Sn)		0.001 % to 0.01 %
		Boron (B)		0.0001 % to 0.010%
		Tungsten (W)		0.0001 % to 0.010%
		Carbon (C)	ASTM E1086	0.01 % to 0.2%
		Manganese (Mn)	IS 9879	0.20 % to 2.00 %
		Silicon (Si)		0.20 % to 1.40 %
		Sulfur (S)		0.001 % to 0.030%
		Phosphorous (P)		0.002 % to 0.04 %
		Chromium (Cr)		10.00 % to 25.00%
		Nickel (Ni)		5.00 % to 22.00 %
		Molybdenum (Mo)		0.01 % to 4.00 %

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Page 2 of 4

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		Copper (Cu)		0.01 % to 1.0 %
		Vanadium (V)	ASTM E-353	0.10 % to 0.20 %
		Aluminum (Al)		0.005 % to 0.03 %
		Titanium (Ti)		0.01% to 0.50 %
		Niobium (Nb)		0.05 % to 1.00 %
		Cobalt (Co)		0.05 % to 0.20 %
		Tin (Sn)		0.001 % to 0.010 %
		Tungsten (W)		0.01 % to 0.60%
		Boron (B)		0.001 % to 0.010 %

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Program Director

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Page 3 of 4

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS				
1.	Ferrous & Non Ferrous Material & Components	Tensile Test			
		Ultimate Tensile Strength	ASTM- E8/E8M ASTM- A370 IS 1608 ISO 6892 EN10002-1	8 kN to 400 kN	
		Yield Stress (0.2 & 1% Proof Stress)			
		% Elongation			2 to 80%
		% Area reduction			2 to 80%
		Hardness Test			
		Rockwell Hardness Test	IS 1586 (Part-1) ISO 6508-1 ASTM-E-18-17E1 ASTM A370-17a	20 to 100 HRBW 20 to 70 HRC	
		Brinell Hardness Test	ASTM E-10 ASTM- A370-17a ISO:6506-1	130 to 350 HBW	
Impact Test					
	Charpy Impact Test (RT to -196° C)	ASTM A370 ASTM E 23-16b IS 1757: Part-1 ISO 148-1 (en)	2 to 280 J		
2.	Austenite Stainless Steel	Corrosion Test			
		IGC Test Method 'E'	ASTM A 262	Bend Test (180° / 1t/ 20x) Qualitative	

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Page 4 of 4

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II	METALLOGRAPHY TEST			
1.	Ferrous & Non Ferrous Material & Components	Grain Size Measurement By Comparison Method	ASTM E 112	Qualitative GS No. 1 to 10 Grains
		Non Metallic Inclusion Rating by Method A	IS 4163 ASTM E45	Qualitative Thin & Heavy (A.B.C.D 0 to 3)/ 100 X
		Microstructure Examination	ASTM E-407-07 ASM Handbook Vol.9 Metallography & Microstructure	50X/100X /200X /500X