

Laboratory NDT Metal Solution Laboratory, B1/3/9/10 Naveena, Telco Road, Pimpri, Pune, Maharashtra
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number TC-5431 *(In lieu of T-1930 & T-1931)* **Page 1 of 5**
Validity 22.05.2017 to 21.05.2019 **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			
1.	Low Alloy Steel	C	IS 8811	0.010 % to 1.50 %
		Si	ASTM E 415	0.05 % to 2.00 %
		Mn		0.01 % to 2.00 %
		Cr		0.05 % to 5.00 %
		Mo		0.01 % to 1.50 %
		Ni		0.05 % to 5.00 %
		S		0.005 % to 0.40 %
		P		0.005 % to 0.10 %
		V		0.001 % to 1.00 %
		Al		0.005 % to 0.20 %
		Cu		0.01% to 1.00 %
		Pb		0.01 % to 0.30 %
		W		0.02 % to 0.20 %
2.	Stainless Steel	C	IS 9879	0.005 % to 0.25 %
		Si	ASTM E 1086	0.01 % to 2.00 %
		Mn		0.01 % to 2.00 %
		Cr		0.10 % to 26.00 %
		Mo		0.01 % to 10.00 %
		Ni		0.10 % to 15.00 %
		S		0.001 % to 0.50 %
		P		0.01 % to 1.00 %
		Cu		0.01 % to 2.50 %
		Ti		0.001 % to 1.00 %
		N		0.01 % to 0.50 %
3.	Tool Steel	C	NDT/ES/SOP/01	0.30 % to 2.20 %
		Si	Issue No.:01	0.20 % to 0.60 %
		Mn	Dtd. 25.11.2014	0.15 % to 0.80 %
		Cr		3.00 % to 12.50 %

Nikhil Kumar
Convenor

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Program Director

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		Mo		0.05 % to 6 .00 %
		S		0.010 % to 0.050 %
		P		0.020 % to 0.050 %
		V		0.10 % to 2.50 %
		W		0.05 % to 22.00 %
4.	Cast Iron	C	IS 15338 ASTM 1999	2.35 % to 3.75 %
		Si		0.10 % to 2.50 %
		Mn		0.60 % to 1.20 %
		Cr		0.025 % to 0.12 %
		Mo		0.01 % to 0.21 %
		S		0.02 % to 0.125 %
		P		0.001 % to 0.16 %
		Al		0.008 % to 0.030 %
		Cu		0.020 % to 0.56 %
		Ni		0.020 % to 0.30 %
5.	Alluminium & its Alloys	Si	IS 11035 ASTM E 1251	0.56 % to 13.0 %
		Fe		0.10 % to 3.00 %
		Cu		0.013 % to 12.5 %
		Mg		0.05 % to 1.4 %
		Mn		0.07 % to 0.60 %
		Ti		0.013 % to 0.16 %
		Zn		0.03 % to 0.53 %
		Ni		0.01 % to 1.2 %
		Pb		0.002 % to 0.15 %
		Cr		0.03 % to 0.5 %
II.	CORROSION TESTS			
1.	Metallic Components	Salt Spray Test	ASTM B 117	Qualitative

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous & Non Ferrous Metal	Tensile Strength Yield Strength % Elongation % Reduction Area Proof Stress	IS 1608 ASTM A 370 BPVC SEC-IX,QW 150 ISO-6892-1 ASTM E 8/E8M :2016a AWS-D-1.1-D.1.1M SEC-4.9 AWS D 1.6-1.6 M-SEC 4.10	100 N/mm ² to 1500 N/mm ² 50 N/mm ² to 1200 N/mm ² 0.5 % to 60 % 10 % to 75 %
2.	Ferrous, Alluminium, Copper, Nickel, Titanium material & their alloys	Charpy Impact Test V Notch U Notch Izod Impact	IS 1499 IS 1757 Part 1 ISO 148:1 ASTM A 370 IS 1598	5 J to 300 J (Ambient temp. to (-)60 °C)
		Bend Test	IS 1599 ISO 7438 ASTM A 370 BPVC SEC IX 2015: QW 140 AWS-D-1.1-D.1.1M SEC-4.9 AWS D 1.6-1.6 M-SEC 4.10	Qualitative (Mandrel Diameter : 5, 6, 8, 10, 12, 14, 16, 24, 30, 32, 36, 40, 44, 50, 64 mm)
3.	Ferrous & Alluminium, Copper alloy	Rockwell Hardness	IS 1586 Part I ASTM E 18 ASTM A 370 ISO 6508-1	45 HRA to 80 HRA 20 HRBW to 100 HRBW 20 HRC to 70 HRC
		Brinell Hardness	IS 1500 Part 1 ISO 6506-1 ASM E 10 ASTM A 370	250 HBW to 450 HBW (5/750) 60 HBW to 500 HBW (10/3000)
4.	Fasteners & Nuts	Proof Load Test	IS 1367 Part 6 ISO 898-2 ASTM A 370 ASTM A 370	Qualitative (Load: 600 kN, Size: M10, M12, M16, M20, M24)

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5.	Ferrous, Alluminium, Copper, Nickel, titanium material & their alloys	Fracture Test	BPVC SEC IX-QW 182 IS 3600 Part 8	Qualitative (Max Load: 600 kN)
6.	Metallic Test	Flattening Test	IS 2328 A999/999M SEC 21-16	Qualitative (Max Load: 600 kN)
7.	Ferrous & Non Ferrous Metal	Breaking load Test Pull & push load test	IS 1608	100 N/mm ² to 1500 N/mm ²
8.	Austentic Stainless Steels	Resistance to inter granular corrosion tests Practice A Practice B Practice E	ASTM A 262	Qualitative (Magnification: 250X, 500X) 5 to 75 Mils per year (1t/180° bend)
9.	Duplex (Austenite-Ferrite) Stainless Steels	Detecting presence of detrimental intermetallic phases Practice A	ASTM A 923	Qualitative (Magnification: 250X, 500X)
10.	Ferrous Materials	Hardenability of steel by end quench of Jominy Test	IS 3848	20 HRC to 65 HRC
II.	METALLOGRAPHY			
1.	Ferrous & Alluminium, Copper alloy	Microstructure	ASM Handbook Vol. 9 IS 7739 (Part 3 & 4) IS 7739-5 IS 7739-1	Qualitative (Magnification: 100X, 200X, 250X, 500X, 800X)
2.	Ferrous Materials	Macro Examination	IS 13015 BPVC SEC IX 2015 QW 183,184 IS 3600-9	Qualitative (Magnification: 5X to 20X)
		Grain Size by microscopic method	IS 4748 ISO 643 ASTM E 112	Qualitative (ASTM Grade 0.5 to 8, Magnification: 100X)

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		Inclusion Rating Method A	IS 4163 ASTM E45 ISO 4967	Qualitative
		Case Depth by microscopic method	IS 6416 ISO 2639	0.05 mm to 1.5 mm
		Decarb Measurement by microscopic method & hardness method	IS 6396 ASTM E 1077-01 ISO 3887	0.05 mm to 1.5 mm
		Grain Flow-Forgings	IS 11371 ASTM E 340	Qualitative (Magnification: 5X to 20X)
		Micro Vickers Hardness	IS 1501 Part-1 ISO 6507:1 ASTM A 370	200 HV ₁ to 750 HV ₁

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