National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)

SCOPE OF ACCREDITATION

Laboratory Name	NDT METAL SOLUTION LABORATORY, B1/3/9/10 NAVEENA, TELCO ROAD ,PIMPRI, PUNE, MAHARASHTRA , INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	TC-5431	Page No. :	1 / 27
Validity	22/05/2019 to 21/05/2021	Last Amended on	-

S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
Permanent Facility					
1	CHEMICAL- METALS & ALLOYS	Alluminium & its Alloys	Iron	IS 11035 : 1984 RA: 2000	0.10 % to 2.00 %
2	CHEMICAL- METALS & ALLOYS	Aluminiium & its alloys	Chromium	ASTM E 1251: 2011	0.03 % to 0.5 %
3	CHEMICAL- METALS & ALLOYS	Aluminium & its alloy	Silicon	IS 11035 : 1984 RA: 2000	0.10 % to 15.00 %
4	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Chromium	IS 11035 : 1984 RA: 2000	0.03 % to 0.5 %
5	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Copper	ASTM E 1251: 2011	0.013 % to 15.00 %
6	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Iron	ASTM E 1251: 2011	0.10 % to 2.00 %
7	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Lead	ASTM E 1251: 2011	0.002 % to 0.50 %
8	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Magnesium	ASTM E 1251: 2011	0.05 % to 5.00 %
9	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	magnesium	IS 11035 ; 1984: 2000	0.05 % to 2.00 %
10	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Manganese	ASTM E 1251: 2011	0.07 % to 1.00 %
11	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Manganese	IS 11035 : 1984 RA: 2000	0.07 % to 1.00 %
12	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Nickel	ASTM E 1251: 2011	0.01 % to 1.5 %
13	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Silicon	ASTM E 1251: 2011	0.10 % to 15.0 %

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14	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Tin	ASTM E 1251: 2011	0.05 % to 0.5 %
15	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Titanium	ASTM E 1251: 2011	0.013 % to 0.50 %
16	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Zinc	ASTM E 1251: 2011	0.03 % to 5.00 %
17	CHEMICAL- METALS & ALLOYS	Aluminium & its alloys	Zinc	IS 11035 : 1984 RA: 2000	0.03 % to 5.00 %
18	CHEMICAL- METALS & ALLOYS	Alumium & its alloys	Copper	IS 11035 : 1984: 2000	0.013 % to 15.0 %
19	CHEMICAL- METALS & ALLOYS	Cast Iron	Aluminium	IS 15338 : 2005 RA: 2018	0.008 % to 0.030 %
20	CHEMICAL- METALS & ALLOYS	Cast Iron	Aluminum	ASTM 1999: 2011	0.008 % to 0.030 %
21	CHEMICAL- METALS & ALLOYS	Cast Iron	Carbon	ASTM 1999: 2011	1.90 % to 3.75 %
22	CHEMICAL- METALS & ALLOYS	Cast Iron	Carbon	IS 15338 : 2005 RA: 2018	1.90 % to 3.75 %
23	CHEMICAL- METALS & ALLOYS	Cast Iron	Chromium	IS 15338 : 2005 RA: 2018	0.025 % to 1.00 %
24	CHEMICAL- METALS & ALLOYS	Cast Iron	Chromium	ASTM 1999: 2011	0.025 % to 1.00 %
25	CHEMICAL- METALS & ALLOYS	Cast Iron	Copper	ASTM 1999: 2011	0.020 % to 1.00 %
26	CHEMICAL- METALS & ALLOYS	Cast Iron	Copper	IS 15338 : 2005 RA: 2018	0.020 % to 1.0 %
27	CHEMICAL- METALS & ALLOYS	Cast Iron	Manganese	IS 15338 : 2005 RA: 2018	0.10 % to 1.20 %

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28	CHEMICAL- METALS & ALLOYS	Cast Iron	Manganese	ASTM 1999: 2011	0.10 % to 1.20 %
29	CHEMICAL- METALS & ALLOYS	Cast Iron	Molybdenum	ASTM 1999: 2011	0.01 % to 1.00 %
30	CHEMICAL- METALS & ALLOYS	Cast Iron	Molybdinium	IS 15338 : 2005 RA: 2018	0.01 % to 1.00 %
31	CHEMICAL- METALS & ALLOYS	Cast Iron	Nickel	ASTM 1999: 2011	0.020 % to 1.00 %
32	CHEMICAL- METALS & ALLOYS	Cast Iron	Nickel	IS 15338 : 2005 RA: 2008	0.020 % to 1.00 %
33	CHEMICAL- METALS & ALLOYS	Cast Iron	Phosphorus	IS 15338 : 2005 RA: 2018	0.001 % to 0.20 %
34	CHEMICAL- METALS & ALLOYS	Cast Iron	Phosphorus	ASTM 1999: 2011	0.001 % to 0.20 %
35	CHEMICAL- METALS & ALLOYS	Cast Iron	Silicon	IS 15338 : 2005 RA: 2018	0.10 % to 2.50 %
36	CHEMICAL- METALS & ALLOYS	Cast Iron	Silicon	ASTM 1999: 2011	0.10 % to 2.50 %
37	CHEMICAL- METALS & ALLOYS	Cast Iron	Sulfur	ASTM 1999: 2011	0.02 % to 0.12 %
38	CHEMICAL- METALS & ALLOYS	Cast Iron	Sulfur	IS 15338 : 2005 RA: 2018	0.02 % to 0.12 %
39	CHEMICAL- METALS & ALLOYS	Copper Base Alloy	Lead	BS EN 15079: 2015	0.003 % to 4.00 %
40	CHEMICAL- METALS & ALLOYS	Copper base Alloy	Zinc	BS EN 15079: 2015	0.01 % to 31.0 %
41	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Aluminium	BS EN 15079: 2015	0.001 % to 9.00 %

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42	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Iron	BS EN 15079: 2015	0.010 % to 4.25 %
43	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Nickel	BS EN 15079: 2015	0.050 % to 4.50 %
44	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Phosphours	BS EN 15079: 2015	0.010 % to 1.00 %
45	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Silicon	BS EN 15079: 2015	0.004 % to 0.45 %
46	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Sulphur	BS EN 15079: 2015	0.002 % to 0.10 %
47	CHEMICAL- METALS & ALLOYS	Copper Base Alloys	Tin	BS EN 15079: 2015	0.003 % to 10.5 %
48	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Boron	IS 8811 : 1998 RA: 2018	0.0005 % to 0.003 %
49	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Boron	ASTM E 415: 2017	0.0005 % to 0.003 %
50	CHEMICAL- METALS & ALLOYS	Low Alloy steel	Carbon	IS 8811 : 1998 RA: 2018	0.010 % to 1.50 %
51	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Niobium	ASTM E 415: 2017	0.008 % to 0.085 %
52	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Titanium	IS 8811 : 1998 RA: 2018	0.01 % to 0.10 %
53	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Titanium	ASTM E 415: 2017	0.01 % to 0.10 %
54	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Aluminum	IS 8811 : 1998 RA: 2018	0.005 % to 0.20 %
55	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Aluminum	ASTM E 415: 2017	0.005 % to 0.20 %

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56	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Carbon	ASTM E 415: 2017	0.010 % to 1.50 %
57	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Chromium	IS 8811 : 1998 RA: 2018	0.05 % to 5.00 %
58	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Chromium	ASTM E 415: 2017	0.05 % to 5.00 %
59	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Copper	IS 8811 : 1998 RA: 2018	0.01 % to 1.00 %
60	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Copper	ASTM E 415: 2017	0.01 % to 1.00 %
61	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Manganese	IS 8811 : 1998 RA: 2018	0.01 % to 2.00 %
62	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Manganese	ASTM E 415: 2017	0.01 % to 2.00 %
63	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Molybdenum	ASTM E 415: 2017	0.01 % to 1.50 %
64	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Molybdenum	IS 8811 : 1998 RA: 2018	0.01 % to 1.50 %
65	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Nickel	ASTM E 415: 2017	0.05 % to 5.00 %
66	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Nickel	IS 8811 : 1998 RA: 2018	0.05 % to 5.00 %
67	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Niobium	IS 8811 : 1998 RA: 2018	0.008 % to 0.085
68	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Phosphorus	ASTM E 415: 2017	0.005 % to 0.10 %
69	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Phosphorus	IS 8811 : 1998 RA: 2018	0.005 % to 0.10 %

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70	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Silicon	ASTM E 415: 2017	0.05 % to 2.00 %
71	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Silicon	IS 8811 : 1998 RA: 2018	0.05 % to 2.00 %
72	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Sulfur	IS 8811 : 1998 RA: 2011	0.005 % to 0.40 %
73	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Sulfur	ASTM E 415: 2017	0.005 % to 0.40 %
74	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Vanadium	ASTM E 415: 2017	0.001 % to 1.00 %
75	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Vanadium	IS 8811 : 1998 RA: 2018	0.001 % to 1.00 %
76	CHEMICAL- METALS & ALLOYS	Salt Spray Test	Salt Spray test	ASTM B 117: 2018	Qualitative
77	CHEMICAL- METALS & ALLOYS	Salt Spray Test	Salt Spray Test	IS 6910 : 1985 RA: 2015	Qualitative
78	CHEMICAL- METALS & ALLOYS	Salt Spray Test	Salt Spray Test	ISO 9227: 2017	Qualitative
79	CHEMICAL- METALS & ALLOYS	Stainless Steel	Carbon	ASTM E 1086: 2014	0.005 % to 0.25 %
80	CHEMICAL- METALS & ALLOYS	Stainless Steel	Carbon	IS 9879 : 1998: 2015	0.005 % to 0.25 %
81	CHEMICAL- METALS & ALLOYS	Stainless Steel	Chromium	IS 9879 : 1998 RA: 2015	0.10 % to 25.00 %
82	CHEMICAL- METALS & ALLOYS	Stainless Steel	Chromium	ASTM E 1086: 2014	0.10 % to 25.00 %
83	CHEMICAL- METALS & ALLOYS	Stainless Steel	Copper	ASTM E 1086: 2014	0.01 % to 1.00 %

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84	CHEMICAL- METALS & ALLOYS	Stainless Steel	Copper	IS 9879 : 1998: 2015	0.01 % to 2.50 %
85	CHEMICAL- METALS & ALLOYS	Stainless Steel	Manganese	ASTM E1086: 2014	0.01 % to 2.00 %
86	CHEMICAL- METALS & ALLOYS	Stainless Steel	Manganese	IS 9879 : 1998: 2015	0.01 % to 2.00 %
87	CHEMICAL- METALS & ALLOYS	Stainless Steel	Molybdenum	ASTM E 1086: 2014	0.01 % to 10.00 %
88	CHEMICAL- METALS & ALLOYS	Stainless Steel	Molybdenum	IS 9879 : 1998: 2015	0.01 % to 10.00 %
89	CHEMICAL- METALS & ALLOYS	Stainless Steel	Nickel	IS 9879 : 1998: 2015	0.10 % to 12.00 %
90	CHEMICAL- METALS & ALLOYS	Stainless Steel	Nickel	ASTM E 1086: 2014	0.10 % to 12.00 %
91	CHEMICAL- METALS & ALLOYS	Stainless Steel	Niobium	JICS 1253: 2002 R-2013: 2013	0.006 % to 0.35 %
92	CHEMICAL- METALS & ALLOYS	Stainless Steel	Nitrogen	JICS 1253;2002 Revised 2013: 2013	0.01 % to 0.15 %
93	CHEMICAL- METALS & ALLOYS	Stainless Steel	Phosphorus	ASTM E 1086: 2014	0.01 % to 1.00 %
94	CHEMICAL- METALS & ALLOYS	Stainless Steel	Phosphorus	IS 9879 : 1998 RA: 2015	0.01 % to 1.00 %
95	CHEMICAL- METALS & ALLOYS	Stainless Steel	Silicon	IS 9879 : 1998 RA: 2015	0.01 % to 2.00 %
96	CHEMICAL- METALS & ALLOYS	Stainless Steel	Silicon	ASTM E 1086: 2014	0.01 % to 2.00 %
97	CHEMICAL- METALS & ALLOYS	Stainless Steel	Sulfur	IS 9879 : 1998: 2015	0.001 % to 0.50 %

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98	CHEMICAL- METALS & ALLOYS	Stainless Steel	Sulfur	ASTM E 1086: 2014	0.001 % to 0.50 %
99	CHEMICAL- METALS & ALLOYS	Stainless Steel	Titanium	JIS 1253:2002 Revised 2013: 2013	0.01 % to 1.00 %
100	CHEMICAL- METALS & ALLOYS	Tolol Steel	Cobalt	JIS 1253:2002 Revised 2013: 2013	0.10 % to 5.50 %
101	CHEMICAL- METALS & ALLOYS	Tool Steel	Carbon	JIS 1253:2002 Revised 2013: 2013	0.30 % to 2.50 %
102	CHEMICAL- METALS & ALLOYS	Tool Steel	Chromium	JIS 1253:2002 Revised 2013: 2013	3.00 % to 12.00 %
103	CHEMICAL- METALS & ALLOYS	Tool Steel	Manganese	JIS 1253:2002 Revised 2013: 2013	0.15 % to 0.80 %
104	CHEMICAL- METALS & ALLOYS	Tool Steel	Molybdenum	JIS 1253:2002 Revised 2013: 2013	0.05 % to 6.00 %
105	CHEMICAL- METALS & ALLOYS	Tool Steel	Phosphorus	JIS 1253:2002 Revised 2013: 2013	0.020 % to 0.050 %
106	CHEMICAL- METALS & ALLOYS	Tool Steel	Silicon	JIS 1253:2002 Revised 2013: 2013	0.20 % to 0.60 %
107	CHEMICAL- METALS & ALLOYS	Tool Steel	Sulfur	JIS 1253:2002 Revised 2013: 2013	0.010 % to 0.050 %
108	CHEMICAL- METALS & ALLOYS	Tool Steel	Tungsten	JIS 1253:2002 Revised 2013: 2013	0.05 % to 21.00 %
109	CHEMICAL- METALS & ALLOYS	Tool Steel	Vanadium	JIS 1253:2002 Revised 2013: 2013	0.10 % to 2.00 %
110	MECHANICAL- MECHANICAL PROPERTIES OF METALS	Austentic Stainless Steel	Resistance to inter granular corrosion tests Practice B	ASTM A 262: 2015	Qualitative

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111	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Austentic Stainless Steels	Resistance to inter granular corrosion tests Practice A	ASTM A 262: 2015	Qualitative
112	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Austentic Stainless Steels	Resistance to inter granular corrosion tests Practice E	ASTM A 262: 2015	Qualitative(250 to 500x)
113	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Duplex (Austentite - Ferrite) Stainless Steels	Detecting presence of detirmental intermetallic phases Practice A	ASTM A 923: 2014	Qualitative
114	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Fastners & Nuts	Proof Load Test - (600 kN Max load M6,M8,M10,M12,M14, M16,M20,M24,M30,M32,M36)	ISO 898 - 2: 2012	Qualitative
115	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Fastners & Nuts	Proof Load Test - (600 kN Max load M6,M8,M10,M12,M14, M16,M20,M24,M30,M32,M36)	IS 1367- 2004 PART 6 RA: 2015	Qualitative
116	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Fastners & Nuts	Proof Load Test - (600 kN Max load M6,M8,M10,M12,M14, M16,M20,M24,M30,M32,M36)	IS 1367- 2004 PART 6 RA: 2015	Qualitative
117	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrou & Non Ferrous Metal (Sheet Metal)	Erichsen Cupping	IS 10175: 2018	0.2 mm to 2 mm

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118	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Alloys	Micro Vicker Hardness (HV 0.1)	ISO 6507 :1 : 2018	50 to 800
119	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	BS EN 4136: 2012	0.5 % to 60 %
120	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	IS 1608 - Part 1: 2018	0.5 % to 60 %
121	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	ISO 6892-1: 2016	0.5 % to 60.00 %
122	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	ASTM E 8/E8M: 16a	0.5 % to 60.00 %
123	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	% Elongation	ASME SECTION IX: 2017	0.5 % to 60.00 %
124	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	ASTM A 370: 2018	0.5 % to 60 %

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125	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Elongation	AWS D 1.6 - 1.6 M : 2017	0.5 % to 60.00 %
126	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	% Elongation	AWS D 1.1-D 1.1 M: 2017	0.5 % to 60 %
127	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Reduction Area	ISO 6892-1: 2016	10 % to 75 %
128	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Reduction Area	AWS D 1.6-1.6 M: 2017	10 % to 75 %
129	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	% Reduction Area	ASME SECTION IX: 2017	10 % to 75 %
130	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	% Reduction Area	AWS D 1.1/D1.1 M: 2017	10 % to 75 %
131	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	% Reduction Area	IS 1608 : 2005 RA: 2017	10 % to 75 %

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132	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Reduction Area	ASTM E 8/E8M: 16a	10 % to 75 %
133	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Reduction Area	ASTM A 370: 2018	10 % to 75 %
134	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	% Reduction in area	ISO 4136: 2012	10 % to 75 %
135	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	Proof Stress	ISO 4136: 2012	125 N/mm² to 1000 N/mm²
136	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	Proof Stress	AWS D-1.1-D1.1 M: 2017	50 N/mm2 to 1000 N/mm2
137	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Proof Stress	IS 1608 -Part 1: 2018	125 N/mm² to 1000 N/mm²
138	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Proof Stress	ISO 6892 -1: 2016	125 N/mm² to 1000 N/mm²

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139	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	Proof Stress	AWS D 1.6-1.6.M: 2017	50 N/mm2 to 1000 N/mm2
140	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Proof Stress	ASTM E8/E8 M :16a: 2016	125 N/mm2 to 1000 N/mm2
141	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Proof Stress	ASTM A 370: 2018	125 N/mm2 to 1000 N/mm2
142	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Proof Stress	ASME SECTION IX: 2017	125 N/mm² to 1000 N/mm²
143	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	ISO 6892-1: 2016	100 N/mm2 to 1500 N/mm2
144	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	astm E 8/E8M: 16a	100 N/mm2 to 1500 N/mm2
145	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	AWS - D 1.1-D1.1 M: 2017	100 N/mm2 to 1500 N/mm2

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146	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	Tensile Strength	IS 1608-Part 1: 2018	100 to 1500 N/mm2
147	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	ASME SECTION IX: 2017	100 N/mm2 to 1500 N/mm2
148	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	ASTM A 370: 2018	100 N/mm2 to 1500 N/mm2
149	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Tensile Strength	AWS D 1.6-1.6 : 2017	100 N/mm2 to 1500 N/mm2
150	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non ferrous Metal	Tensile Strength	ISO 4136: 2012	100 N/mm² to 1500 N/mm²
151	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	ASME SECTION IX: 2017	50 N/mm2 to 1200 N/mm2
152	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	ISO 6892 - 1: 2016	50 N/mm2 to 1200 N/mm2

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
153	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	ASTM A 370: 2018	50 N/mm2 to 1200 N/mm2
154	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	IS 1608 - Part 1: 2018	50 N/mm2 to 1200 N/mm2
155	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	AWS D 1.6 - 1.6 M: 2017	50 N/mm2 to 1200 N/mm2
156	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	AWS D-1.1 - D1.1 M: 2017	50 N/mm2 to 1200 N/mm2
157	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strength	ASTM E 8/E8M: 16a	50 N/mm2 to 1200 N/mm2
158	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal	Yield Strentgh	ISO 4136: 2012	50 N/mm² to 1200 N/mm²
159	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal & Alloys	Portable hardness Test (Leeb Hardnes)	ASTM A 956: 2017	20 HRC to 65 HRC

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
160	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Metal (Sheet Metal)	Erichsen Cupping	IS 10175: 2018	0.2 mm to 2 mm
161	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous metal (Sheet Metal)	Erichsen Cupping	ISO 20482: 2013	0.2 mm to 2 mm
162	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Pipes & Tubes	Flaring/Drift Expansion Test (UPTO 150 mm OD) Max applied load 600 kN)	IS 2335 : 2008 RA: 2017	Qualitative
163	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Pipes & Tubes	Flaring/Drift Expansion Test (UPTO 150 mm OD) Max applied load 600 kN)	ASTM A 370: 2018	Qualitative
164	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous & Non Ferrous Pipes & tubes	Flaring/Drift Expansion Test (UPTO 150 mm OD) Max applied load 600 kN)	ISO 8493: 1998	Qualitative
165	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous , Aluminium, Copper alloys	Brinell Hardness - HBW 2.5/187.5	IS 1500 PART 1: 2013	100 HBW 2.5/187.5 to 550 HBW 2.5/187.5
166	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous ,Aluminium & Copper Alloys	Rockwell Hardness - HRBW	ISO 6508 - 1: 2016	20 to 100

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167	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous ,Aluminium & Copper Alloys	Rockwell Hardness - HRA	ASTM A 370: 2018	45 to 80
168	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Alluminium & Copper Alloys	Rockwell Hardness - HRC	ASTM A 370: 2018	20 to 70
169	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Material	IZOD Impact Test - (Ambient temerature)	IS 1598-1977 RA: 2015	2 J to 168 J
170	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous material & Alloys	Brinell Hardness - HBW (10/3000)	ASTM A 370: 2018	60 to 500
171	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous material & Alloys	Brinell Hardness - HBW 5/750)	ASTM E 10: 2018	250 to 450
172	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous material & alloys	Rockwell Hardness - HRBW	ASTM A 370: 18	20 to 100
173	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous material &Alloys	Brinell Hardness - HBW (5/750)	ASTM A 370: 2018	250 to 450

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
174	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Materials	Hardenability of steel by end quench of Jominy Test	IS 3848 : 1981 RA: 2014	20 to 65
175	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Alluminium & Copper Alloys	Rockwell hardness - HRC	ASTM E 18: 19	20 to 70
176	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium & Copper Alloys	Rockwell Hardness - HRC	ISO 6508 - 1: 2015	20 to 70
177	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium, Copper, Nickel,Titranium material & their alloys	Charpy Impact Test (V Notcch/U Notch) (Ambient to -196 deg C)	ISO 15614: 2017	5 J to 300 J
178	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper alloys	Rockwell Hardness Test - HRA	IS 1586 - 1: 2018	45 to 80
179	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper,Nickel,Titanium material & their alloys	Fracture Test	AWS D 1.6 - 1999: 2017	Qualitative
180	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper,Nickel,Titanium material & their alloys	Fracture Test	ISO 15614 PART 1: 2017	Qualitative

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
181	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper,Nickel,Titanium material & their alloys	Fracture test (Max applied load 600 kN)	IS 3600(PART 8) : 1985 RA: 2013	Qualitative
182	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper,Nickel,Titanium material & their alloys	Fracture Test (Max load applied 600 kN)	AWS D 1.1/D1.1 M: 2017	Qualitative
183	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous, Aluminium,Copper,Nickel,Titanium material & their alloys	Fracture Test (Max applied load 600 kN)	ASME SECTION IX: 2017	Qualitative
184	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness - HBW (5/750)	ISO 6506 - 1: 2014	250 to 450
185	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness - HBW (10/3000)	IS 1500 PART 1: 2013	60 to 500
186	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness - HBW (10/3000)	ISO 6506 - 1: 2014	60 to 500
187	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness - HBW (10/3000)	ASTM E 10: 2018	60 to 500

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
188	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness (Dia 2.5/62.5 Kg)	ISO 6506 Part 1:2014, IS 1500 PART 1: 2017	75 to 200
189	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Brinell Hardness -HBW (5/750)	IS 1500 PART 1: 2013	250 to 450
190	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Rockwell Hardness - HRA	ISO 6508 - 1: 2016	45 to 80
191	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Rockwell Hardness - HRBW	IS 1586 PART 1: 2012	20 to 100
192	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Rockwell Hardness - HRBW	ASTM E 18: 2016	20 to 100
193	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Rockwell Hardness - HRC	IS 1586 PART 1: 2012	20 to 70
194	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium & Copper Alloys	Rockwell Hardness Test - HRA	ASTM E 18: 19	45 to 80

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
195	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium ,Copper,Nickel,titanium material & their alloys	Charpy Impact Test - V Notch /u notch (Ambient temerature to -196°c)	ISO 148 : 1: 2016	5 J to 300 J
196	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium ,Copper,Nickel,titanium material & their alloys	Charpy Impact Test - V Notch/U Notch (-60 to 35°C)	IS 1757 PART 1: 2014	5 J to 300 J
197	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium ,Copper,Nickel,titanium material & their alloys	Charpy Impact test: V Notch/U Notch (-60 to 35°C)	IS 1499-1977: RA:2015	5 to 300 J
198	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel, Titamium material & their Alloys	Charpy Impact Test (V Notch) (Ambient to -196 C)	ASTM E 23: 2018	5 J to 300 J
199	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	Bend Test	IS 1599 : 2012 RA: 2017	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))
200	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	BEND TEST	ASTM A 370: 2018	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))
201	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	BEND TEST	ISO 7438: 2016	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))

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202	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	Bend Test	ASME SEC IX: 2017	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))
203	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	Bend Test	AWS D 1.6-1.6 M: 2017	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))
204	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	Bend Test	AWS - D 1.1 - D 1.1 M: 2017	Qualitative((Mandrel Diameter : 5,6,8,10,12,14,16,24,30,32,36,40,44,50,64 mm))
205	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,Nickel,Titanium material & their alloys	Charpy Impact Test - V Notch /u notch (Ambient temerature to -196°c)	ASTM A 370: 2018	5 J to 300 J
206	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous,Aluminium,Copper,nickel,Titanium material & their alloys	Charpy Impact Test (U Notch) (Ambient temerature to Minus - 196 C)	ASTM E 23: 2018	5 J to 300 J
207	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metallic Test	Flattening Test	ASTM A 370: 2018	Qualitative
208	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metallic Test	Flattening Test	IS 2328 :: 2018	Qualitative

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209	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metallic Test	Flattening Test	A 999/999M : 2018	Qualitative
210	MECHANICAL-METALLOGRAPHY TEST	Cast Iron	Microstructure	ISO 945 -1: 2017	Qualitative
211	MECHANICAL-METALLOGRAPHY TEST	Cast Iron,Gray Iron,metallable Iron,Ductille Iron/SG iron	Graphite type distribution size nodularity & nodule count)	ISO 945 PART 1: 2017	Qualitative
212	MECHANICAL-METALLOGRAPHY TEST	Cast Iron/ Gray Irons / Metallable Iron / Ductile Iron/ SG Iron	Graphite type distribution size nodularity & nodule count)	IS 7754 : 1975 RA: 2003	Qualitative
213	MECHANICAL-METALLOGRAPHY TEST	Cast Iron/Gray Iron/Metallable,Iron Ductile Iron/SG iron	Graphite type distribution size nodularity & nodule count)	ASTM A 247: 2017	Qualitative
214	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Alloys	Micro Vickers Hardness (HV 0.1)	IS 1501: 2013	50 to 800
215	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Non Ferrous Metal Alloys	Vicker's Hardness including Micro Hardness	ASTM A 370: 2018	100 HV5 to 800 HV5
216	MECHANICAL-METALLOGRAPHY TEST	Ferrous & non ferrous Metal Alloys	Vicker's Hardness including Micro Hardness	IS 1501: 2013	100 HV10 to 800 HV10
217	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Non ferrous Metal Alloys	Vicker's Hardness including Micro Hardness	ISO 6507 :1: 2018	100 HV10 to 800 HV10

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S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
218	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Non Ferrous Metal alloys	Vicker's Hardness including Micro Hardness	ASTM A 370: 2018	100 HV10 to 800 HV10
219	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Non Ferrous Metal Alloys	Vicker's Hardness including Micro Hardness	IS 1501: 2013	100 HV5 to 800 HV5
220	MECHANICAL-METALLOGRAPHY TEST	Ferrous & Non Ferrous Metal Alloys	Vicker's Hardness including Micro Hardness	ISO 6507 PART 1: 2018	100 HV5 to 800 HV5
221	MECHANICAL-METALLOGRAPHY TEST	Ferrous ,Aluminium & Copper Alloys	Microstructure	IS 7739 - 3,4: 2007	Qualitative
222	MECHANICAL-METALLOGRAPHY TEST	Ferrous Allloys	Micro Vickers Hardness	ISO 6507 PART 1: 2005	50 HV1 to 800 HV1
223	MECHANICAL-METALLOGRAPHY TEST	Ferrous Alloys	Micro vickers Hardness	IS 1501 PART 1: 2013	50 HV1 to 800 HV1
224	MECHANICAL-METALLOGRAPHY TEST	Ferrous Alloys	Micro Vickers Hardness	ASTM A 370: 2018	50 HV1 to 800 HV1
225	MECHANICAL-METALLOGRAPHY TEST	Ferrous Material	Grain Size by microscopic method	IS 4748 : 2009 RA: 2017	Qualitative(ASTM Grade 0.5 to 8 at 100x magnification)
226	MECHANICAL-METALLOGRAPHY TEST	Ferrous Material	Grain Size by microscopic method	ISO 643: 2012	Qualitative(ASTM Grade 0.5 to 8 at 100x magnification)
227	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Case Depth by microscopic method	IS 6416 : 1988 RA: 2017	0.05 mm to 1.5 mm

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228	MECHANICAL-METALLOGRAPHY TEST	Ferrous materials	Case Depth by microscopic method	ISO 2639: 2002	0.05 mm to 1.5 mm
229	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Decarb Measurment by microscopic method & Hardness method	IS 6396: 2018	0.05 to 1.5
230	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Decarb Measurment by microscopic method & Hardness method	ISO 3887: 2017	0.05 mm to 1.5 mm
231	MECHANICAL-METALLOGRAPHY TEST	Ferrous materials	Grain Size by microscopic method	ISO 4967: 2013	Qualitative(ASTM Grade 0.5 to 8 at 100x magnification)
232	MECHANICAL-METALLOGRAPHY TEST	Ferrous materials	Grain Size by Microscopic method	ASTM E 112: 2013	Qualitative(ASTM Grade 0.5 to 8 at 100x magnification)
233	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Inclusion Rating Method A	ASTM E 45: 2018	Qualitative
234	MECHANICAL-METALLOGRAPHY TEST	Ferrous materials	Inclusion Rating Method A	ISO 4967: 1998	Qualitative
235	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Inclusion Rating Method A	IS 4163: 2009	Qualitative
236	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Macro etch test	ASTM E 340: 2015	Qualitative
237	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Macro etch test	IS 11371 : 1985 RA: 2018	Qualitative

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238	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Macro Examination	IS 13015: 2012	Qualitative
239	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Macro Examination	ASME SECTION IX: 2017	Qualitative
240	MECHANICAL-METALLOGRAPHY TEST	Ferrous Materials	Macro Examination	IS 3600 - 9 : 1985 RA: 2008	Qualitative
241	MECHANICAL-METALLOGRAPHY TEST	Ferrous Metal	Decarb Measurment by microscopic method & Hardness method	ASTM E 1077: 2014	0.05 mm to 1.5 mm
242	MECHANICAL-METALLOGRAPHY TEST	Ferrous Method A	Inclusion Rating	IS 4163 : 2004 RA: 2017	Qualitative
243	MECHANICAL-METALLOGRAPHY TEST	Ferrous, Aluminium Copper Alloy	Microstructure	IS 7739 - 1: 2010	Qualitative
244	MECHANICAL-METALLOGRAPHY TEST	Ferrous,Alluminium Copper Alloys	Microstructure	IS 7739 - 5-2007/ASM HAND BOOK VOL 9-2004: .	Qualitative
245	MECHANICAL-METALLOGRAPHY TEST	Ferrous,Alluminium,Copper Alloys	Microstructure	ASM HANDBOOK VOL.9: 2004	Qualitative
246	MECHANICAL-METALLOGRAPHY TEST	Sheets, Plates,Weldments of ferrous & Non ferrous Metal	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld joint (10X to 40X)	BS EN ISO 9606: 2012	Qualitative

SCOPE OF ACCREDITATION

Laboratory Name	NDT METAL SOLUTION LABORATORY, B1/3/9/10 NAVEENA, TELCO ROAD ,PIMPRI, PUNE, MAHARASHTRA , INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	TC-5431	Page No. :	27 / 27
Validity	22/05/2019 to 21/05/2021	Last Amended on	-

S.No	Discipline / Group	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
247	MECHANICAL-METALLOGRAPHY TEST	Sheets,Plates weldments of ferrous & non ferrous	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld joint	IS 3600 PART 9 : 2003 RA: 2008	Qualitative
248	MECHANICAL-METALLOGRAPHY TEST	Sheets,Plates weldments of Ferrous & Non ferrous metals	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld join (10X to 40x)	ASTM E 340: 2015	Qualitative
249	MECHANICAL-METALLOGRAPHY TEST	Sheets,Plates weldments of Ferrous & Non ferrous metals	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld join (5X,10X,20X,40X)	ISO 17639: 2013	Qualitative
250	MECHANICAL-METALLOGRAPHY TEST	Sheets,plates,weldments of ferrous & Non ferrous metal	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld joint (5X to 40 X)	ASME Sec IX: 2017	Qualitative
251	MECHANICAL-METALLOGRAPHY TEST	Sheets,Plates,wledments of ferrous and Non ferrous Metal	Weld Joints ,Welding fusion,Weldedjoint,Macro & Dimensional measurment of weld joint (5X to 40 X)	ASME SECTION IX: 2017	Qualitative
252	MECHANICAL-METALLOGRAPHY TEST	Steel blooms, bars, billets	macro etch test	ASTM E 381: 2017	Qualitative