

Laboratory Patson Testing Services, Plot No. Pap-R-398, Rabale, M.I.D.C., Industrial Area, Navi Mumbai, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7627

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Validity 31.07.2018 to 30.07.2020

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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.	Carbon and Low Alloy Steel (By Optical Emission Spectrometer)	C	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.02 % to 1.50 %
		Si	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.05 % to 1.50 %
		Mn	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.01 % to 2.00 %
		P	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.005 % to 0.10 %
		S	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.002 % to 0.10 %
		Cr	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.005 % to 5.00 %
		Ni	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.005 % to 5.00 %
		Mo	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.002 % to 1.5 %
		Nb	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.001 % to 0.10 %
		As	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.001 % to 0.10 %
		Sn	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.003 % to 0.10 %
		Co	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.002 % to 0.20 %
		Cu	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.005 % to 0.50 %
		Ti	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.001 % to 0.20 %
V	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.001 % to 0.50 %		

Gaurav Saini
Convenor

Anuja Anand
Program Manager

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		Al	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.002 % to 0.10 %
		B	ASTM E 415:2017/ IS 8811:1998 (RA 2012)	0.0005 % to 0.015 %
		N	ASTM E 415:2017/ IS 228 (Part 23):2003	0.002 % to 0.050 %
2.	Stainless Steel (By Optical Emission Spectrometer)	C	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.01 % to 0.30 %
		Si	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.10 % to 0.70 %
		Mn	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.20 % to 2.00 %
		P	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.01 % to 0.10 %
		S	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.002 % to 0.10 %
		Cr	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	11.0 % to 27.00 %
		Ni	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.20 % to 25.00 %
		Mo	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.01 % to 4.00 %
		Cu	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.05 % to 0.70 %
		Ti	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.002 % to 0.70 %
		Nb	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.005 % to 0.10 %
		N	IS 228 (Part 23):2003	0.010 % to 0.20 %
		Co	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.010 % to 0.40 %
		W	ASTM E-1086:2014/ IS 9879:1998 (RA 2015)	0.005 % to 0.10 %

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3.	Aluminium and Aluminium Alloys (By Optical Emission Spectrometer)	Si	ASTM E 1251:2017a	0.70 % to 10.0 %
		Cu	ASTM E 1251:2017a	0.01 % to 2.50 %
		Mg	ASTM E 1251:2017a	0.10 % to 1.0 %
		Zn	ASTM E 1251:2017a	0.04 % to 2.00 %
		Sn	ASTM E 1251:2017a	0.001 % to 0.30 %
		Ni	ASTM E 1251:2017a	0.002 % to 0.50 %
		Fe	ASTM E 1251:2017a	0.08 % to 1.00 %
		Mn	ASTM E 1251:2017a	0.20 % to 0.60 %
		Cr	ASTM E 1251:2017a	0.05 % to 0.10 %
		Pb	ASTM E 1251:2017a	0.001 % to 0.50 %
		Ti	ASTM E 1251:2017a	0.01 % to 0.30 %
		V	ASTM E 1251:2017a	0.02 % to 0.09 %
		Co	ASTM E 1251:2017a	0.01 % to 0.020 %
4.	Copper Alloys (Brass, bronze, cupronickel) (By Optical Emission Spectrometer)	Zn	BS EN 15079:2015	0.05 % to 45.00 %
		Pb	BS EN 15079:2015	0.005 % to 10.00 %
		Sn	BS EN 15079:2015	0.005 % to 12.00 %
		Mn	BS EN 15079:2015	0.01 % to 1.00 %
		Ni	BS EN 15079:2015	0.1 % to 12.00 %
		Al	BS EN 15079:2015	0.001 % to 12.00 %
		Fe	BS EN 15079:2015	0.02 % to 5.00 %
		Si	BS EN 15079:2015	0.001 % to 0.10 %
		As	BS EN 15079:2015	0.001 % to 0.10 %
		S	BS EN 15079:2015	0.001 % to 0.10 %
		P	BS EN 15079:2015	0.002 % to 0.50 %
		Co	BS EN 15079:2015	0.002 % to 0.10 %
5.	Nickel & Nickel Alloys (By Optical Emission Spectrometer)	C	ASTM E 3047:2016	0.005 % to 0.15 %
		Si	ASTM E 3047:2016	0.02 % to 1.00 %
		Mn	ASTM E 3047:2016	0.03 % to 1.00 %
		P	ASTM E 3047:2016	0.002 % to 0.025 %
		S	ASTM E 3047:2016	0.001 % to 0.020 %
		Cr	ASTM E 3047:2016	0.01 % to 30.00 %
		Mo	ASTM E 3047:2016	0.004 % to 25.0 %
		Co	ASTM E 3047:2016	0.01 % to 0.50 %
V	ASTM E 3047:2016	0.001 % to 0.50 %		

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		W	ASTM E 3047:2016	0.01 % to 5.00 %
		Fe	ASTM E 3047:2016	0.10 % to 54.00 %
		Al	ASTM E 3047:2016	0.10 % to 3.00 %
		Cu	ASTM E 3047:2016	0.01 % to 35.00 %
		Nb	ASTM E 3047:2016	0.01 % to 6.00 %
		Ti	ASTM E 3047:2016	0.01 % to 0.50 %
6.	Positive Material Identification By XRF	Fe, Cu, Ni, Al, Co, Ti Bases Can be Detected and all Alloying Elements- Except the Following Elements C, Si, P, S, Al, Mg	ASTM E 1916:2011/ ASTM E1476:2004 (RA 2014)	Qualitative

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous, Non Ferrous Metals & Alloys	Tensile Test U.T.S. Y.S./0.2%/1% PS, % Elongation, % R.A.	IS 1608:2005 (RA 2017) ASTM A 370:2017a ASTM E8/E8M:2016a BS EN ISO 6892-1:2016 ASTM B557:2015 IBR RULE-2017	12kN to 600kN/0.04kN 50 to 2000MPa 50 to 1800MPa 1% to 75% EL. 5% to 75% R.A.
2.	Weld Metal	Tensile Test U.T.S. Y.S./0.2%/1% PS, % Elongation, % R.A.	IS 2825-1969 (RA 2002) BS EN 895-1995, AWS D1.1-2013 Errata 2016 ASME SEC. IX-2017 EN ISO 4136-2012 IBR RULE-2017 API 1104-2013 Addenda-2(2016)	12kN to 600kN/0.04kN 50 to 1500MPa 50 to 1200MPa 1% to 75% EL. 5% to 75% R.A.
3.	Cladded Steel Plate	Shear Test	ASTM A 263-2012/SA 263-2017 ASTM A 264-2012/SA 264-2017 ASTM A 265-2012/SA 265-2017	12kN to 600kN/0.04kN
4.	Metals & Alloys (Plate, Rod & Pipe/Tube)	Bend Test	IS 1599-2012 IS 2329-2005 ASTM A 370-2017a ASTM E 290-2014 IBR RULE-2017	Qualitative Mandrel Dia. 6, 10, 12, 16, 20, 24, 28, 32, 40, 44, 50, 75, 80, 90, 110, 200, 220, 240, 256, 321, 401, 506, 580, 724mm Available

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5.	Weld Metal (Plate & Pipe/Tube)	Bend Test	IS 2825-1969(Ra2002) IBR RULE-2017 BS EN 910-1996, ASTM E 190-2014 AWS D1.1-2013 Errata 2016, ASME SEC. IX-2017 API 1104-2013 Addenda-2(2016) ISO 5173-2010+AI:2011	Qualitative Mandrel Dia. 6, 10, 12, 16, 20, 24, 28, 32, 40, 44, 50, 75, 80, 90, 110, 200, 220 and 240mm Available
6.	High Strength Deformed Bar for Concrete Reinforcement	Re-bend Test	IS 1786-2008	Qualitative Mandrel Dia. 6, 10, 12, 16, 20, 24, 28, 32, 40, 44, 50, 75, 80, 90, 110, 200, 220 and 240mm Available
7.	Ferrous, Non Ferrous Metals & Alloys	Brinell Hardness	ASTM A 370-2017a IS 1500(Part 1)-2013 ASTM E 10-2017 BS EN ISO 6506-1:2014	500 HBW Max 2.5.mm Ø ball/187.5 Kgf load
		Hardness Rockwell B & C	ASTM A 370-2017a ASTM E 18-2017E1 IS 1586(Part 1)-2012 BS EN ISO 6508-1:2016	50 HRBW to 100 HRBW 20 HRC to 70 HRC
		Vickers Hardness	IS 1501(Part1)-2013 ASTM E 384-2017 ASTM E 92-2016 ISO 6507-1:2005 BS EN 1043-1:1995	50 HV-5 to 750 HV-5 50 HV-10 to 900 HV-10 50 HV-30 to 750 HV-30
		Portable Hardness Testers	ASTM A 956-2012	20 HRC to 70 HRC

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8.	Ferrous, Non Ferrous Metals & Alloys (Weld)	Nick Break Test	API 1104:2013 Addenda-2(2016) IBR RULE-2017	Qualitative
9.	Weld Metal (Plate & Pipe/Tube)	Fracture Test	ASME SEC. IX-2017 (QW 182)	Qualitative
10.	Ferrous Metals & Alloys	Through Thickness Tensile	ASTM A 770-03 (2012)E1, API 2H-2006.	5% to 80% R.A.
		Charpy 'V' notch Impact Test	ASTM E 23-16b ASTM A 370-2017a IS 1757-2014 ISO 148-1:2009 BS EN 875-1995 IBR RULE-2017	1 J to 300 J (+)50°C to (-)196°C
11.	Ferrous, Non Ferrous Metals & Alloys Tube/Pipe	Flattening Test	IS 2328-2005 ASTM A 370-2017a ASTM A 1016-2017a ASTM A 999-17	Qualitative 6.0mm OD to 600 OD
		Flaring Test/Drift Test	IS 2335-2005 IS 2501-1995 (RA 2006) ASTM A 370-2017a ASTM B 153-2011(2017) ASTM A 1016-2017a	Qualitative ID Up to 168.0mm (Angle 30°, 45°, 60°)
12.	Ferrous, Non Ferrous Metals & Alloys Nuts	Proof Load	IS 1367(Part 6)-1994 (RA 2004) ASTM A 194-2017a ASTM A 370-2017a	Qualitative (12kN to 600kN)
II.	METALLOGRAPHY TEST			
1.	Ferrous, Non Ferrous Metals & Alloys (Tube/Pipe)	Macro Examination	ASTM E 340-2015 BS EN 1321-1995 ASME Sec IX-2017	Qualitative (Visual Examination)