Laboratory	**Sohm Analytical Services (I) Pvt. Ltd., A-121/101, B-33/35, Amargian Industrial Estate, Pokharan Road No. 1, Khopat, Thane (W), Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Testing**	**Issue Date**	**12.09.2016**
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Last Amended on	**22.09.2016**	**Page**	**1 of 8**

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Ferrous, Non-Ferrous Metals & Alloys**	Tensile Test (Y.S.,U.T.S., 1 % /0.2 % by Offset Method / Proof Stress %Elongation, % R.A)	IS 1608: 2005 ASTM A 370: 2015 ASTM E8 / E8M: 2015a BS EN ISO 6892-1: 2009 ASTM B557-15, IS 1608: 2005 IBR RULE: 2016 in force	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN 1 % to 75 % EL. 5 % to 75 % R.A.
		Elevated Temperature Tensile Test AT 100^0 - 950^0C (YS, UTS, %E, %RA)	ASTM E- 21: (2009) ISO 6892-2: 2011	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN
		Brinell Hardness	IS 1500: 2005 ASTM E 10: 2015 ISO 6506-1 : 2005	500 HBW Max 2.5.mm Diameter ball / 187.5 kgf load
		Vickers Hardness	IS 1501 (Part 1) : 2013 ASTM E384: 2016 ISO 6507-1: 2005	50 HV 5 to 750 HV 5 50 HV 10 to 900 HV 10 50 HV 30 to 750 HV 30
		Rockwell Hardness B & C	ASTM A 370: 2015 ASTM E 18: 2016 IS 1586 (Part 2): 2012 ISO 6508-1: 2015	50 HRBW to 100 HRBW 20 HRC to 70 HRC
2.	**Weld Metal**	Pull Out Test	ASME (Sec VIII) Div.1: 2015	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN, Qualitative

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	Weld Metal	Tensile Test (Y.S.,U.T.S., 1 % /0.2 % by Offset Method / Proof Stress % Elongation, % R.A)	IS 2825: 1969 (RA 2002) BS EN ISO 15614-1: 2004 Amd. 2: 2012 BS EN 895: 1995, AWS D1.1: 2013 Errata 2016 ASME (Sec IX): 2015 EN ISO 4136: 2012 IBR RULE: 2016 in force, API 1104: 2013 Addenda–2 (2016)	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN 1 % to 75 % EL. 5 % to 75 % R.A.
		Bend Test	ISO 5173: 2010 Amd. I : 2011 IS 2825:1969 (RA 2002) IBR RULE: 2016 in force, BS EN 910: 1996, AWS D1.1: 2013 Errata 2016, ASME (Sec IX): 2015 API 1104: 2013 Addendum–2 (2016)	Mandrel Diameter 0.5 mm to 725 mm Qualitative Analysis
3.	**Cladded steel Plate**	Shear Test	ASTM A 263: 2012/ SA 263: 2015 ASTM A 264: 2012 / SA 264: 2015 ASTM A 265: 2012/ SA 265: 2015	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN
4.	**Metals & Alloys**	Bend Test	IS 1599: 2012, IS 2329: 2005, ASTM A 370: 2015	Mandrel Diameter 2 mm to 725 mm Qualitative Analysis

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			ASTM E 290: 2014 IBR RULE: 2016 in force	
5.	**Ferrous, Non-Ferrous Metals & Alloys (Weld)**	Nick break Test	API 1104: 2013 Addenda – 2: (2016) IBR RULE: 2016 in force	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN Qualitative Analysis
6.	**Ferrous Alloys (Disc Spring Samples)**	Spring load test	IS 12511, ASTM E9: 2009	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN Qualitative Analysis
7.	**Ferrous Metals & Alloys**	Through Thickness Tensile (% R.A)	ASTM A 770-03: (2012), API 2H: 2006	10 kN to 400 kN/0.01 kN 30 kN to 1200 kN
		Charpy 'V' notch Impact Test	ASTM E 23-16b ASTM A370: 2015 IS 1757: 1988 (2003) ISO 148-1: 2009 ISO 9016: 2012 IBR RULE: 2015	1 J to 300 J (+)100 °C to (-)196 °C
		Izod Impact Test	IS 1598: 1988	2 J to 168 J
8.	**Concrete Cubes**	Compressive strength	IS 516: 1959(Amend.July.1991)	30 kN to 1200 kN
9.	**High Strength deformed bar for concrete reinforcement**	Rebend Test	IS 1786: 2008	10 kN to 400 kN 30 kN to 1200 kN Mandrel Diameter 0.5 mm to 210 mm Qualitative Analysis
10.	**Ferrous, Non-Ferrous Metals &**	Flattening Reverse Flattening	IS 2328 : 2005 ASTM A 370: 2015	6.0 mm OD to 600 OD Qualitative Analysis

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	Alloys Tube/Pipe	Test	ASTM A 1061: 2016 ASTM A 999: 2015	
	Ferrous, Non-Ferrous Metals & Alloys Tube/Pipe	Flaring Test/Drift Test	IS 2335: 2005 ASTM A 370: 2015 ASTM B 153: 2011 IS 2501: 1995(2006) ASTM A 1061: 2016	ID Upto 168.0 mm Qualitative Analysis
11.	**Ferrous, Non-Ferrous Metals & Alloys, Bolt Screws & Nuts**	Proof Load	IS 1367 (Part 6): 1994 (RA 2004) ASTM A194: 2015 ASTM A370: 2015 IS 1367 (Part 3): 2002	10 kN to 1200 kN Qualitative Analysis
II.	**METALLOGRAPHY TEST**			
1.	**Ferrous, Non-Ferrous Metals & Alloys Tube/Pipe**	Macro Examination	ASTM E 381: 2001 (2012) ASTM E 340: 2015 IS 11371: 1985 EN ISO 17639: 2013	Visual Examination Qualitative Analysis
2.	**Ferrous, Non-Ferrous Metals & Alloys**	Inclusion Rating Method A & D	ASTM E 45: 2013 Comparison Method IS 4163: 2004	100 X Magnification Qualitative Analysis
		Microstructure Examination, Average grain Size (Ferrite Grain)	ASTM Volume 9: 2004 (ASTM E3: 2011) ASTM E 112: 2013 (Comparison method)	100x, 400x, 500x, 1000x Magnification Qualitative Analysis
		Microstructure of Graphite Cast iron	IS 7754: 1975 (2003) ASTM A 247: 2016a	100x, 400x, 500x, 1000x Magnification Qualitative Analysis

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		Nodularity in SG Iron	IS 1865: 1991 (2005)	100 x Magnification
	Ferrous, Non-Ferrous Metals & Alloys	Thickness of Coating (Microscope Method)	ASTM B487: 2013	0.01 mm to 1.6 mm
		Determination of depth Of decarburized layer in Steel	IS 6396: 2000 (RA 2007) Rev. 2 ASTM E1077: 2014	100 x Magnification 0.01 mm to 1.6 mm
		Determination of case Depth, microscopic Method in steel.	IS 6416: 1988 (RA 2003)	100x Magnification
3.	**Austenitic Stainless Steel**	IGC Practice A	ASTM A 262: 2015	Qualitative Analysis (250 x to 500 x)
		IGC Practice B	ASTM A 262: 2015	Weight loss Method 0.002 g to 220 g
		IGC Practice C	ASTM A 262: 2015	Weight loss Method 0.002 g to 220 g
		IGC Practice E	ASTM A 262: 2015	20 x, 200 x, 250 x Qualitative Analysis
		IGC Practice F	ASTM A 262: 2015	Weight loss Method 0.002 g to 220 g
4.	**Corrosion Test**	Salt spray test	ASTM B 117: 2016 BS EN ISO 3651-1: 1998 ISO 9227: 2006	Qualitative Analysis

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5.	**Stainless Steel and Related Alloys**	Ferric Chloride pitting test	ASTM G 48: 2015 (Method A)	Visual & Weight loss Method 22˚C and 50˚C, 0.002 g to 220 g
		Ferric Chloride crevice test	ASTM G 48: 2015 (Method B)	Visual & Weight loss Method 22˚C and 50˚C, 0.002 g to 220 g
6.	**Nickel base and chromium bearing alloy**	Critical pitting temperature test	ASTM G 48: 2015 (Method C)	Qualitative 0˚C to 85˚C
		Critical crevice temperature test	ASTM G 48: 2015 (Method E)	Qualitative 0˚C to 85˚C
7.	**Stainless Steel**	Critical pitting temperature test	ASTM G 48: 2015 (Method D)	Qualitative 0˚C to 85˚C
		Critical crevice temperature test	ASTM G 48: 2015 (Method F)	Qualitative 0˚C to 85˚C
8.	**Wire, Sheet, Strip, Plate**	Mass of Zinc Coating (By Stripping Method)	IS 6745: 1972 (2006)	Weight loss Method1 Mg (L.C.) 0.002 g to 220 g
9.	**Ferritic, Austenitic and Duplex Stainless Steel**	IGC Method A	BS EN ISO 3651 (Part 2): 1998	Qualitative Analysis
10.	**Nickel Rich Chromium**	IGC - Method A	ASTM G28-02(2015)	Weight loss Method 0.002 g to 220 g

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	Bearing Alloys			
		IGC - Method B	ASTM G28-02: (2015)	Weight loss Method 0.002 g to 220 g
11.	**Ferrous Metals & Alloys**	Ferrite Content Test (By Metallography)	ASTM E 562-11	2 % to 100 %, Qualitative
		Ferrite Content Test (Ferritoscope method)	ASTM A 800-14	
12.	**Ferrous Metal & Alloys**	HIC Test	NACE TM 0284: (2011)	Qualitative Analysis
		SSCC-Method A SSCC-Method C	NACE TM 0177: (2005) IS 15490: (2004) ASTM B858: 2013	Qualitative Analysis
		SSCC Method B (Four Point Bend)	NACE TM 0177: (2005) ASTM G39-99: (2016)	Qualitative Analysis
		Chloride Stress Corrosion Cracking Test $MgCl_2$	NACE TM 0177: (2005) ASTM G36-94: (2013)	Qualitative Analysis
		Chloride Stress Corrosion Cracking Test CaCl2	NACE TM 0177: (2005) ASTM G36-94: (2013)	Qualitative Analysis
13.	**Duplex Stainless steel**	Detection of Detrimental Intermetallic Phases Method A,B, & C	ASTM A923: 2014	Qualitative Analysis
14.	**Ferritic Stainless Steel**	IGC Method W	ASTM A 763: 2015	Microscopic Examination Qualitative
		IGC Method X	ASTM A 763: 2015	Weight Loss Method 0.002 g to 220 g Microscopic Examination

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				Qualitative
	Ferritic Stainless Steel	IGC Method Y	ASTM A 763: 2015	Weight Loss Method 0.002 g to 220 g Microscopic Examination Qualitative
		IGC Method Z	ASTM A 763: 2015	Bend test Method Qualitative
15.	**Ferrous Metals & Alloys (Tubes & Tube Sheets)**	Macro etch Test (Minimum Leak Path & Leg Length)	ASME (Sec IX): 2015 & AWS D1.1: 2015	Qualitative
16.	**Brazed Products**	Peel Test Fracture Test	ASME (Sec IX): 2010 QB 170 QW 182	Qualitative

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