

Laboratory IXAR Material Testing Laboratory, C-18/85, Krishna Industrial Estate,
Gorwa, Vadodara, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7002 (in lieu of T-2878 & T-2879)

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Validity 11.03.2018 to 10.03.2020

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			
1.	Carbon and Low Alloy Steel	C	ASTM E-415 IS 8811	0.25 % to 0.92 %
		Si		0.25 % to 1.02 %
		Mn		0.35 % to 1.70 %
		P		0.004 % to 0.067 %
		S		0.004 % to 0.046 %
		Cr		0.010 % to 1.37 %
		Mo		0.050 % to 0.20 %
		Ni		0.033 % to 4.54 %
		Al		0.013 % to 0.17 %
		Cu		0.16 % to 0.76 %
		N		0.004 % to 0.012 %
		V		0.007 % to 0.22 %
		2.	Stainless Steel	Co
Nb				0.04 % to 0.15 %
C	ASTM E-1086 IS 9879			0.013 % to 0.25 %
Si				0.24 % to 1.15 %
Mn				0.92 % to 1.54 %
P				0.01 % to 0.035 %
S				0.006 % to 0.032 %
Cr				14.20 % to 20.30 %
Mo				0.083 % to 3.05 %
Ni				1.75 % to 11.22 %
Cu		0.025 % to 0.030 %		
3.	Copper & its Alloys	V		0.030 % to 0.11 %
		Co		0.016 % to 0.13 %
		N		0.009 % to 0.07 %
		Zn	BS EN 15079	0.50 % to 28.95 %
		Pb		0.99 % to 9.70 %
Sn	0.99 % to 12.50 %			

Pooja Singh
Convenor

Alok Jain
Program Director

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		P	BS EN 15079	0.14 % to 0.55 %
		Mn		0.033 % to 0.13 %
		Fe		0.016 % to 0.25 %
		Ni		0.055 % to 3.18 %
		Si		0.005 % to 0.046 %
		Al		0.005 % to 0.060 %
		As		0.056 % to 0.24 %
		Sb		0.10 % to 0.26 %
		S		0.057 % to 0.07 %
4.	Nickel and its Alloys	C	ASTM E 3047	0.023 % to 0.15 %
		Si		0.025 % to 0.088 %
		Mn		0.022 % to 1.38 %
		Fe		1.67 % to 42.24 %
		Cu		0.006 % to 35.09 %
		Co		0.018 % to 0.16 %
		Al		0.024 % to 0.61 %

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MECHANICAL TESTING

I. MECHANICAL PROPERTIES OF METALS				
1.	Ferrous and Non-Ferrous Material	Tensile Test (UTS, 0.2 % Offset YS, % E, % RA)	ASTM A 370 ASTM E8/E8M ASME sec IX ISO 4136 IS 1608 ISO 6892	100 MPa to 1500 MPa 100 MPa to 1200 MPa 2 % to 80 % 2 % to 80 %
2.	High Strength Deformed Steel Bars	Bend Test Rebend Test	IS 1786	Qualitative Mandrel Size: 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm, 20 mm, 22 mm, 24 mm, 38 mm, 45 mm)
3.	Ferrous and Non-Ferrous Material	Bend Test	ASTM E 290 ASTM A 370 IS 1599 ISO 7438 IS 2329	Qualitative (Mandrel Size: 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm, 20 mm, 22 mm, 24 mm, 38 mm, 45 mm)
4.	Welded Joint in Ferrous Material	Bend Test	IS 7310 (Part 1) ASTM E190 ASME Sec IX API -1104	Qualitative (Mandrel Size: 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm, 20 mm, 22 mm, 24 mm, 38 mm, 45 mm)
5.	a) Ferrous (Tubes & Pipes) b) Non-Ferrous (Tubes & Pipes)	Nick Break Test Flattening Test	API-1104 ASTM A 370 IS 2328 ISO 8492	Qualitative (10 mm to 400 mm dia.)

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		Flaring Test	ASTM A 370 IS 2335 ISO 8493	Qualitative (10 mm to 40 mm dia. / 60 degree cone)
6.	Ferrous & Non-Ferrous Materials	Rockwell Hardness & Superficial	IS 1586 (Part 1) ISO 6508-1	50 HR to 80 HR 30N 60 HRB to 100 HRB 20 HRC to 70 HRC
		Impact Test- Charpy [V-Notch]	ASTM E 23 IS 1757 (Part 1) ISO148 (Part 1)	10 J to 240 J 2 J to 300 J at Room Temp.& Upto-80 °C
		Brinell Hardness	ASTM E10 IS 1500 (Part 1) ISO 6506 (Part 1)	180 HBW to 470 HBW 10/3000Kgf
		Vickers Hardness	ASTM E 92 IS 1501 (Part 1) ISO 6507 (Part 1)	100 to 600 HV5
II.	METALLOGRAPHY TEST			
1.	Metallic Materials (Ferrous Alloys)	Macro examination	ASTM E 340	Qualitative
		Microstructure	ASM Vol .9	Qualitative
		Grain Size measurement (Comparison method)	ASTM E 112	Grain size No:1 to 8
2.	Austenitic Stainless Steel	IGC Practice A	ASTM A 262	Qualitative
		IGC Practice E	ASTM A 262	Qualitative