Laboratory	**V-Chem Metal Testing Laboratory, Plot No. 16, Flat No. 1&3, Neelam Apt., Ambad-DGP Nagar Road, Ambad, Nashik, Maharashtra**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-6288** ***(in lieu of T-2029 & T-2030)*** **Page 1 of 3**
Validity	**08.10.2017 to 07.10.2019** **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

CHEMICAL TESTING

I.	**METALS & ALLOYS**			
1.	**Low Alloys steel**	Carbon	IS:8811:1998 ASTM E 415-15	0.020% to 1.50%
		Silicon		0.005% to 1.90%
		Manganese		0.10% to 2.40%
		Sulphur		0.002% to 0.42%
		Phosphorus		0.002% to 0.08%
		Chromium		0.015% to 2.80%
		Nickel		0.011% to 4.10%
		Molybdenum		0.0040% to 0.65%
		Copper		0.010% to 0.30%
		Aluminium		0.0020% to 0.20%
		Lead		0.001% to 0.36%
		Titanium		0.001% to 0.10%
		Vanadium		0.001% to 0.35%
		Niobium		0.001% to 0.33%
		Boron		0.001% to 0.0071%
2.	**Cr-Ni Steel**	Carbon	IS:9879 : 1998 ASTM E1086-14	0.015% to 0.31%
		Silicon		0.20% to 1.00%
		Manganese		0.40% to 2.00%
		Sulphur		0.005% to 0.30%
		Phosphorus		0.015% to 0.10%
		Chromium		10.00% to 30.0%
		Nickel		0.80% to 32.00%
		Molybdenum		0.080% to 7.00%
		Copper		0.05% to 1.90%
		Aluminium		0.0030% to 0.030%
		Titanium		0.002% to 0.45%
		Vanadium		0.070% to 0.15%
		Niobium		0.005% to 0.60%
		Boron		0.0006% to 0.001%

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Program Director

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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
		Cobalt		0.040% to 0.35%
3.	**Copper Base Alloy**	Tin	BS EN 15079-15	0.003% to 10.5%
		Lead		0.003% to 4.0%
		Zinc		0.01% to 31.0%
		Iron		0.010% to 4.10%
		Nickel		0.050% to 4.30%
		Aluminium		0.001% to 11.00%
		Silicon		0.004% to 0.45%
		Manganese		0.15% to 0.45%
		Bismuth		0.01% to 0.15%
		Phosphorus		0.050% to 0.90%
		Sulphur		0.002% to 0.03%
		Antimony		0.08% to 0.45%
		Arsenic		0.02% to 0.25%
4.	**Aluminium Base Alloy**	Silicon	IS:11035--1984 ASTM E1251-11	0.020% to 13.00%
		Iron		0.010% to 0.90%
		Copper		0.0015% to 5.60%
		Magnesium		0.0020% to 2.90%
		Manganese		0.0015% to 0.80%
		Titanium		0.0010% to 0.20%
		Chromium		0.0010% to 0.24%
		Zinc		0.010% to 8.10%
		Nickel		0.0030% to 0.80%
		Lead		0.005% to 0.30%
		Vanadium		0.0020% to 0.10%

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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

MECHANICAL TESTING

I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Metals & Alloys**	**Tensile Test**		
		Tensile Strength	IS 1608 - 2005	5 kN to 400.00 kN
		Yield Strength		4 kN to 380.00 kN
		% Elongation		2 % to 60 %
		%Reduction Area		10 % to 70 %
		Bend Test 180 degree	IS 1599 - 2012	5 kN to 400.00 kN (4,6,8,12,14,16,20,22,24, 30,32,40,50) mm
		3) Crushing Test on Tubes	IS:3074-2013	5 kN to 400.00 kN [Qualitative]
		4) Flattening Test on Tubes	IS 2328 – 2005	External Dia.< 100 mm & Thickness < 15% of External Dia. [Qualitative]
		5)Proof Load Test of Nuts	IS:1367(Part-6) :1994 [Reaffirmed 2004]	5 kN to 400.00 kN [Qualitative]
		Rockwell Hardness Test	IS 1586 – 2012	HRA 20 to 88 HRB 20 to 100 HRC 20 to 65
		Salt Spray Test	ASTM B:117:2011	Qualitative

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