Laboratory	**Advanced Metallurgical Laboratory, #18 & 18/1, (Old No. 118/193) Peenya 1st Stage, Tumkur Road, Peenya, Bangalore**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Chemical Testing**	**Issue Date**	**26.08.2013**
Certificate Number	**T-1651**	**Valid Until**	**25.08.2015**
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. METALS & ALLOYS				
1.	**Carbon and Low alloy steel**	Carbon	Optical Emission Spectrometer	0.015 – 1.500%
		Manganese	IS-8811-1998, RA 2006	0.05 – 2.00%
		Phosphorous		0.005 – 0.100%
		Sulphur		0.005 – 0.100%
		Silicon		0.01 – 1.50%
		Copper		0.03 – 0.70%
		Nickel		0.02 - 4.50%
		Chromium	`	0.05 – 5.00%
		Molybdenum		0.02 – 1.50%
		Vanadium		0.02 – 1.00%
		Aluminium		0.010- 0.50%
2.	**Stainless steel**	Carbon	Optical Emission Spectrometer	0.015 – 0.30%
		Manganese	IS-9879-1998	0.10– 2.50%
		Phosphorous		0.005 – 0.050%
		Sulphur		0.001 – 0.350%
		Silicon		0.10 – 1.50%
		Copper		0.05 – 3.50%
		Nickel		0.25 – 15.00%
		Chromium		11.50 – 23.00%
		Molybdenum		0.05 – 3.60%
		Titanium		0.010 – 0.50%
3.	**Cast iron**	Carbon		1.50– 4.00%
		Manganese	Optical Emission Spectrometer	0.20 – 1.00%
		Phosphorous	IS-15338-2003, RA 2008	0.002 – 1.00%
		Sulphur		0.002 – 0.150%
		Silicon		0.10 – 3.00%
		Copper		0.01 – 0.60%
		Nickel		0.05 – 1.50%
		Chromium		0.02 – 0.50%
		Molybdenum		0.01–0.60%
		Vanadium		0.01–0.70%

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
4.	**Aluminium and its alloys**	Silicon	Optical Emission Spectrometer	0.01 – 22.0%
		Copper	ASTM E 1251- 11	0.01– 6.00%
		Nickel		0.01 – 3.00%
		Chromium		0.02 – 0.32%
		Titanium		0.01 – 0.35%
		Tin		0.01 – 0.90%
		Lead		0.01 – 0.90%
		Magnesium		0.05 – 7.75%
		Zinc		0.01 – 7.50%
		Iron		0.01 – 1.50%
		Manganese		0.01 – 1.50%
		Vanadium		0.01 – 0.15%
		Zirconium		0.02 – 0.30%
5.	**Copper and its alloys**	Zinc	Optical Emission Spectrometer	0.10 – 1.00%
		Tin	Baird manual AML/TM/ 01	0.02 – 0.20%
		Nickel		3.00 – 7.00%
		Lead		0.04 – 0.10%
		Iron		3.00 – 7.00%
		Silicon		0.02 – 0.25 %
		Aluminium		8.00 – 12.00%
		Chromium		0.03 – 0.15%
		Magnesium		0.02 – 0.15%
		Manganese		0.10 – 1.50%
6.	**Titanium & its alloys**	Carbon	Optical Emission Spectrometer	0.010 – 0.160%
		Copper	Baird manual AML/TM/ 03	0.010 – 0.500%
		Chromium		0.02 – 3.00%
		Aluminium		3.00– 8.50%
		Vanadium		3.50 – 15.00%
		Iron		0.01– 0.25%
		Zirconium		0.01 – 4.00%
		Silicon		0.01 – 0.05%
		Tin		0.01 - 4.00%
		Molybdenum		0.01 – 2.00%

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	**Cobalt & its Alloys**	Carbon	Optical Emission Spectrometer	0.01 – 2.50%
		Manganese	Baird manual AML/TM/ 04	0.01 – 2.00%
		Nickel		0.01 - 30.00%
		Chromium		0.10 – 30.00%
		Aluminium		0.010– 1.00%
		Tungsten		0.010 – 15.00%
		Iron		0.010– 25.00%
		Phosphorous		0.010 – 0.050%
		Sulphur		0.001 – 0.060%
		Boron		0.001 – 0.150%
		Niobium		0.010 – 4.200%
		Vanadium		0.001 – 1.10%

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