

Laboratory ARKKAYS Metallurgical Laboratory, ARKKAYS National Engineering & Foundry Company, B-73, Sipcot Industrial Park, Irungattukottai, Kancheepuram, Tamil Nadu

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6510

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Validity 15.11.2017 to 14.11.2019

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
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CHEMICAL TESTING

I.	METALS & ALLOYS			
1.	Plain Carbon & Low Alloy Steel	Carbon	ASTM -E 415- 2015 & IS 8811:1998 (RA 2013)	0.06 % to 1.5 %
		Silicon		0.002 % to 0.66 %
		Manganese		0.4 % to 1.20 %
		Sulphur		0.007 % to 0.33 %
		Phosphorus		0.001 % to 0.09 %
		Chromium		0.01 % to 2.5 %
		Nickel		0.001 % to 2.0 %
		Molybdenum		0.001 % to 1.0 %
		Aluminum		0.01 % to 1.0 %
		Copper		0.01 % to 1.0 %
		Vanadium		0.001 % to 0.5 %
		Boron		0.0001 % to 0.1 %
		Niobium		0.01 % to 0.3 %
2.	Stainless Steel	Lead	ASTM-E1086-14	0.01 % to 0.26 %
		cobalt		0.0001 % to 0.8 %
		Carbon		0.01 % to 0.25 %
		Silicon		0.40 % to 15 %
		Manganese		0.001 % to 10 %
		Sulphur		0.005 % to 0.060 %
		Phosphorus		0.01 % to 0.06 %
		Chromium		2 % to 28 %
		Nickel		0.7 % to 24 %
		Molybdenum		0.001 % to 5 %
		Copper		0.01 % to 0.05 %
		Vanadium		0.01 % to 0.8 %
		Titanium		0.0001 % to 0.5 %
		Niobium		0.001 % to 0.8 %

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		Boron		0.0001 % to 0.005 %
		Cobalt		0.001 % to 0.5 %
		Aluminum		0.001 % to 0.8 %

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous Alloys Semi Finished (Bars, Rods, Wires) and Finished Products	Tensile Test Tensile Strength	ASTM A 370:2017 IS 1608:2005 (RA 2017)	10 kN to 400 kN
		Yield Strength		10 kN to 400 kN
		% Elongation		1 % to 75 %
		% Reduction		1 % to 80 %
		Rockwell Hardness Test	ASTM A 370:2017 IS 1586 (Part 1): 2012 (RA 2017)	20 HRB to 100 HRB 20 HRC to 70 HRC
		Vickers Hardness Test	ASTM E 384-2016 IS 1501 (Part 1): 2013	HV 30 100 HV to 900 HV
		Brinell Hardness Test	ASTM A 370-2017 IS 1500 (Part 1): 2013	10/3000 HBW 80 HBW to 440 HBW 5/750 HBW 80 HBW to 440 HBW
2.	Steel Products	Average Grain Size Comparison method	ASTM E-112-2013 IS 4748:2009	1 to 10 Magnification 100 X
		Micro-structural Analysis	ASM Metals Hand Book Volume 9 IS 7739 (Part 1 & Part 5): 1975 (RA 2012)	Magnification 100 to 1000 X
		Macro Structural Analysis	ASTM E 381-01(2012) IS 13015:1991 (RA 2003)	Magnification 1 X to 10 X
		Inclusion Rating	ASTM E 45-2013 IS 4163:2004	Magnification 100 X
		Banding	ASTM E-1268-01 (2016)	Qualitative

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