Laboratory	**Raghavendra Spectro Metallurgical Laboratory, 326, Cross-9, Phase 4, Peenya Indl. Area, Bangalore, Karnataka**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Testing**	**Issue Date**	**31.01.2014**
Certificate Number	**T-0372**	**Valid Until**	**30.01.2016**
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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. MECHANICAL PROPERTIES OF MATERIALS				
1.	**Ferrous and Non Ferrous Material**	Tensile Strength		
		Yield Stress % Elongation % Reduction in area 0.1 to 0.5% Proof stress 0.2 % Offset Yield Limit of Proportionality	IS 1608-2005(RA2010) ASTM E 8-2013 ASTM Section IX-2011 ASTM A370 -12 EN10002-2001	Upto 1000 kN Dia 5 mm to 60 mm Thickness: 3 mm to 40 mm Upto 600 kN Dia 5 mm to 40 mm Thickness: 3 mm to 30 mm Upto 20 kN Dia 0.3 mm to 5.0 mm Thickness:0.3 mm to 3 mm
		Hardness BHN	IS 1500- 2005RA(2010) ASTM E-10- 2012	HBW 10/3000 150 HBW to 575 HBW HBW 10/1000 90 HBW to 255 HBW HBW 5/750 90 HBW to 350 HBW HBW 2.5/187.5 150 HBW to 400 HBW
		Rockwell hardness testing (HRB & HRC) HRA	IS 1586-2012 (Part 1)	50 HRB to 100 HRB 20 HRC to 68 HRC 60 HRA to 90 HRA

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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
2.	**Ferrous and Non Ferrous Metallic Materials**	Bend test	IS 1599-2012 ASMT E Section IX-2011	Upto 600 kN Thickness: 5 mm to 25 mm
3.	**Ferrous and Non Ferrous Metallic Materials-Weld samples**	Bend test	IS 7307-1974,RA 2008	Up to 600 kN Thickness: 5 mm to 25 mm
4.	**Metals**	Charpy Impact testing	IS 1499-77, RA 2009 IS 1757-88, RA 2009	Up to 300 J, LC 2 J Ambient temp - 196 ºC
		Izod Impact testing	IS 1598-77, RA 2009	Up to 168 J, LC 2 J, Ambient temp
		Micro Vickers hardness	IS 1501-2002(RA 2007)	80 HV to 1000 HV, Load:200 g to 1000 g
		Vickers Hardness	IS 1501-2002(RA 2007)	80 HV to 800 HV HV 10, HV 30
5.	**Cast Irons**	Graphite flake type & size Nodularity	IS 7754-1975, RA 2007	A to E,1 to 8 @ Magnification 100 x
			IS 7754-1975, RA 2007	5 % to 95 % @ Magnification 100 x

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Convenor

N. Venkateswaran
Program Manager

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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
6.	**Steels**	Total case depth by microscopic method	IS 6416-1988, RA 2007	Magnification 100 x
		Effective case depth by microhardness survey	IS 6416-1988, RA 2007	0.1mm to 8 mm, HV0.2, HV 0.5, HV 1
		Decarburization depth	IS 6396-2000 (RA 2007)	Magnification 100 x
7.	**Plated/Coated articles**	Coating thickness by microscopic method	IS 3203-1982, RA 2010 IS 13677-93, RA 2010	(10 to 200) Microns @ Magnification 100 x to 1000 x
8.	**Stainless steel**	Intergranular corrosion test (Practice B,C,F) Practice E	ASTM A262-2013	Upto 100 mils per year/, 1mil per year Sheets >1mm rods & pipes >5mm
9.	Ferrous (Torr Steel)	Tensile Strength Yield stress % Elongation Bend Test Rebend Test	IS 1786 - 2008	Upto 1000 kN Dia 6.0 mm to 32.0 mm
II. METALLOGRAPHY				
1.	**Metals & Alloys**	Macrostructure & Grain flow studies	IS 11371-85, RA 2007 IS 13015-1991, RA 2007	Magnification 1 x to 40 x
		Microstructure	IS7739-75Part IV-RA 2007	Magnification 100 x to 1000 x
		Grain size	IS 4748-2009	Grain size No. 1 to 10
		Inclusion rating of steel	IS 4163-2004(RA 2010)	0.5 to 3 @ Magnification 100 x

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Anitha Jayanthan
Convenor

N. Venkateswaran
Program Manager