Laboratory	**Materials Engineering Laboratory, Central Quality, Tata Motors Limited, Pimpri, Pune, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Testing**	**Issue Date**	**30.01.2016**
Certificate Number	**T-1281**	**Valid Until**	**29.01.2018**
Last Amended on	**-**	**Page**	**1 of 2**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	**METALLOGRAPHY TEST**			
1.	**Cast Iron, Steel, Stainless Steel, Copper & Aluminium Alloys**	Microstructure Examination	American Society for Metals (ASM) Hand Book- Volume - 9 (Edition-2004) by Optical Microscopy	Qualitative (50 X to 1000X)
2.	**Ferrous and non-ferrous materials**	Macro-Fractography	American Society for Metals (ASM) Hand Book- Volume - 11 (Edition -2002) by Stereo Microscopy	Qualitative (6.5X to 50X)
II.	**MECHANICAL PROPERTIES OF MATERIALS**			
1.	**Ferrous and non-ferrous materials**	Rebound Hardness	ISO 6508 2005	20 HRB to 100 HRB 100 HBW to 425
		Brinell Hardness	IS 1500 – 2005 RA: 2010 IS 1500 – Part -1 - 2013	100 to 450 HBW 2.5/187.5
		Rockwell Hardness	IS 1586 – 2000 RA:2010 IS 1586-Part – 1 - 2012	HRA (20 to 85) HRC (20 to 70)
		Vickers Hardness	IS 1501 – 2002 RA:2013	200 HV 1 to 1200 HV 1 200 HV5 to 800 HV5
2.	**Ferrous and non-ferrous materials –**	Tensile Test a) Yield Strength b) 0.2% offset proof stress c) Ultimate Tensile Strength d) % Elongation	IS 1608 – 2005 RA:2010	 a) 20 KN to 400 KN b) 20 KN o 400 KN c) 0 to 2000MPa d) Up to 60%
3.	**Carbon Steel and Alloy Steel**	Charpy "U" Notch test	IS 1499 – 1977 RA:2009	1 to 300 J @ 23 ± 5 º C

Anita Rani
Convenor

N. Venkateswaran
Program Manager

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
4.	**Steel sheets**	Drawability Test	In – house SOP : PA60PW1128 Issue no. 01 Revision 03 date 26.08.15	R-bar 0.486 to 2.99 for 0.20 to 2.00 mm thick sheets
III.	**PROPERTIES OF POWDER METALLURGICAL PRODUCTS**			
1.	**Case Hardened Steel**	Case Depth Measurement (Hardness Traverse Method)	IS 6416 – 2012	(0.2 mm to 12 mm) / HV1

-X-X-X-X-X-X-X-X-X-X-X-X-X-X-