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| Laboratory | CQA (HV) Laboratory, CQA (HV), Avadi, Chennai, Tamil Nadu | | |
| Accreditation Standard | ISO/IEC 17025: 2005 | | |
| Discipline | Mechanical Testing | Issue Date | 02.08.2015 |
| Certificate Number | T-0308 | Valid Until | 01.08.2017 |
| 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. | MECHANICAL PROPERTIES OF MATERIALS | | | |
| 1. | Ferrous & Non-Ferrous Material | ImpactTest -Charpy 'V' Notch | IS 1757: 1988 (RA 2009) | 0.5 J to 3 00 J |
| | | Izod | IS 1598: 1977 (RA 2003) | 0.5 J to 170 J |
| | | Brinell Hardness | IS 1500 (Part 1): 2013 | 450 HBW 5/750 450 HBW 10/3000 |
| | | Rockwell Hardness 'A' scale | IS 1586 (Part 1): 2012 | 20 HRA to 88 HRA |
| | | Rockwell Hardness 'B' scale | IS 1586 (Part 1): 2012 | 20 HRB to 100 HRB |
| | | Rockwell Hardness 'C' scale | IS 1586 (Part 1): 2012 | 20 HRC to 70 HRC |
| | | Rockwell Hardness 'N' scale | IS 1586 (Part 1): 2012 | 20 HRN to 90 HRN |
| | | Rockwell Hardness 'T' scale | IS 1586 (Part 1): 2012 | 12 HRT to 93 HRT |
| | | Vickers Hardness in HV 30 | IS 1501 (Part 1): 2013 | 100 HV ₃₀ to 1800 HV ₃₀ |
| | | Tensile testing at ambient temperature UTS | IS1608 : 2005 (RA 2012) | 0.03 kN to 600 kN |
| | | % Elongation | | Upto 60 % |
| | | % RA | | Upto 70 % |
| | | Helical Compression of Springs | IS 7906 (Part 5): 2004 (RA 2012) | 0 to 2000 N |
| | | Helical Extension of Springs | IS 7907 (Part 1): 2004 (RA 2012) | 0 to 2000 N |

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| II. METALLOGRAPHY TEST | | | | |
| 1. | Ferrous Material | Estimation of Grain size by Comparison method | IS 4748: 2009 (RA 2012) | Grain Size 0 to 10 at 100 x (Qualitative) |
| | | Macro Etching Test | IS 11371: 1985 (RA 2012) | 6.7 x to 45 x (Qualitative) |
| | | Determination of Case Depth by Microscopic method | IS 6416: 1988 (RA 2012) | 0.05 mm to 2.00 mm at 100 x |
| 2. | Cast Iron | Determination of Graphite Flakes by Comparison Method (Type & Size) | IS 7754: 1975 (RA 2012) | No: 1 to 8 (0.015 mm to 1 mm Distribution A,B,C,D &E Form I ,II ,III ,IV , V ,VI (Qualitative) |

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