

**Laboratory** Dee Development Engineers Ltd. (Quality Control Lab), Village – Tatarpur, Palwal, Haryana

**Accreditation Standard** ISO/IEC 17025: 2005

**Discipline** Chemical Testing **Issue Date** 04.10.2014

**Certificate Number** T-1802 **Valid Until** 03.10.2016

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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. METALS AND ALLOYS**

| S.No. | Product / Material of Test | Specific Test Performed                              | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-------|----------------------------|--|---|--|
| 1.    | <b>Ferrous Material</b>    | Chemical Testing using Optical Emission Spectrometer | ASTM E 415 : 2014   |  |
|       | C                          |  |   | 0.05% to 0.55%                         |
|       | Si                         |  |   | 0.30% to 1.30%                         |
|       | Mn                         |  |   | 0.15% to 0.65%                         |
|       | P                          |  |   | 0.01% to 0.045%                        |
|       | S                          |  |   | 0.01% to 0.045%                        |
|       | Cr                         |  |   | 1.1% to 3.5%                           |
|       | Mo                         |  |   | 0.45% to 1.2%                          |
|       | Ni                         |  |   | 0.4% to 3.5%                           |
|       | Al                         |  |   | 0.02% to 0.12%                         |
|       | Cu                         |  |   | 0.05% to 0.50%                         |
|       | Nb                         |  |   | 0.006% to 0.048%                       |
|       | Ti                         |  |   | 0.01% to 0.039%                        |
|       | V                          |  |   | 0.005% to 0.25%                        |

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**Last Amended on**              **-**    **Page**              **2 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 |
|-------|----------------------------|--|---|--|
| 2.    | <b>Ferrous Material</b>    | Chemical Testing using Optical Emission Spectrometer | ASTM E 1086 : 2014  |  |
|       |                            | C  |   | 0.015% to 0.055%                       |
|       |                            | Si   |   | 0.30% to 0.65%                         |
|       |                            | Mn   |   | 1.20% to 1.90%                         |
|       |                            | P  |   | 0.015% to 0.040%                       |
|       |                            | S  |   | 0.01% to 0.040%                        |
|       |                            | Cr   |   | 15.50% to 20%                          |
|       |                            | Mo   |   | 0.35% to 2.40%                         |
|       |                            | Ni   |   | 8.50% to 12%                           |
|       |                            | Al   |   | 0.002% to 0.14%                        |
|       |                            | Cu   |   | 0.05% to 0.55%                         |
|       |                            | Nb   |   | 0.020% to 0.0270%                      |
|       |                            | Ti   |   | 0.002% to 0.55%                        |
|       |                            | V  |   | 0.05% to 0.15%                         |

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