

TEST CERTIFICATE



|  |  |                                  |  |            |  |   |  |                 |  |             |  |
|--|--|----------------------------------|--|------------|--|---|--|-----------------|--|-------------|--|
| CUSTOMER NAME  |  | PROCESS ROUTE                    |  | BLOOM SIZE |  | SUPPLY CONDITION  |  | TC NO.          |  | DATE        |  |
| M/S SSB ENGINEERING PVT  |  | MBF.EOF.LRF.VD.CCM.(EMS/AM/C/RMS |  | 200x200    |  | As Rolled   |  | 240900713       |  | 23-Sep-24   |  |
| CUSTOMER SPECIFICATION   |  | HEAT NO.                         |  | GRADE      |  | SIZE (mm)   |  | REDUCTION RATIO |  | INVOICE NO. |  |
| Fin Auto 32414/01, Dated 11.02.2002  |  | 50523                            |  | 20MNCRSHL  |  | 80 DIA  |  | 7.96:1          |  | QTY (MT)    |  |
| L. CHEMICAL COMPOSITION  |  | 50523                            |  | 20MNCRSHL  |  | 80 DIA  |  | 7.96:1          |  | BUNDLE      |  |
|  |  |                                  |  |            |  |   |  |                 |  | VEHICLE NO. |  |
|  |  |                                  |  |            |  |   |  |                 |  | R326C4535   |  |
| II. PHYSICAL PROPERTIES  |  |                                  |  |            |  |   |  |                 |  |             |  |
| Tensile Properties<br>(Quenched & Tempered) (ASTM A370)                    |  |                                  |  |            |  | Impact Test<br>(Charpy)<br>(RT V-Notch (2mm))                               |  |                 |  |             |  |
| YS<br>(MPa)  |  |                                  |  |            |  | As Rolled<br>(BHN)  |  |                 |  |             |  |
| Min 885  |  |                                  |  |            |  | Min 25  |  |                 |  |             |  |
| Max 1420   |  |                                  |  |            |  | Max 240   |  |                 |  |             |  |
| Actual 1172  |  |                                  |  |            |  | Actual 172-178  |  |                 |  |             |  |
| IV. METALLOGRAPHY  |  |                                  |  |            |  |   |  |                 |  |             |  |
| Inclusion Rating (ASTM E45)  |  |                                  |  |            |  | Inclusion Rating<br>(As per DIN 50602)                                      |  |                 |  |             |  |
| A B C D DS   |  |                                  |  |            |  | S O S+O   |  |                 |  |             |  |
| T H T H T H T H  |  |                                  |  |            |  | (ASTM E112)   |  |                 |  |             |  |
| Spec 3.0 3.0 3.0 3.0 3.0 3.0   |  |                                  |  |            |  | ASTM E-1077   |  |                 |  |             |  |
| Actual 2 0.5 0 0 0 1.0   |  |                                  |  |            |  | 5 or finer  |  |                 |  |             |  |
|  |  |                                  |  |            |  | 1% of dia Max   |  |                 |  |             |  |
|  |  |                                  |  |            |  | Better Than CR232   |  |                 |  |             |  |
| V. OTHER TESTS   |  |                                  |  |            |  |   |  |                 |  |             |  |
| 100% Bars Checked by Manual UT - Found OK                                  |  |                                  |  |            |  | 100% Bars Checked by MPI - Found OK & Material is free from surface defects |  |                 |  |             |  |
| 100% Bars Checked for Mix-up by PMI & Spark - Found OK                     |  |                                  |  |            |  | Material is free from Radioactive contamination                             |  |                 |  |             |  |
| VI. REMARKS:   |  |                                  |  |            |  |   |  |                 |  |             |  |
| 1. Dimension tolerance: as per IS 3739 Grade - 1                           |  |                                  |  |            |  |   |  |                 |  |             |  |
| 2. Microstructure: Uniform Ferrite + Pearlite                              |  |                                  |  |            |  |   |  |                 |  |             |  |
| 3. Bending AS PER TDC OK   |  |                                  |  |            |  |   |  |                 |  |             |  |
| 4. The material is comply with ROHS (Pb, Cd, Hg, Cr+6) permissible limits. |  |                                  |  |            |  |   |  |                 |  |             |  |
| 5. Material is conforming to the customer specification.                   |  |                                  |  |            |  |   |  |                 |  |             |  |
| 6. Inspection Certificate as per EN10204:2004, type 3.1                    |  |                                  |  |            |  |   |  |                 |  |             |  |
| 7. Steelcast   |  |                                  |  |            |  |   |  |                 |  |             |  |
| Divaker H  |  |                                  |  |            |  |   |  |                 |  |             |  |
| Prepared By  |  |                                  |  |            |  |   |  |                 |  |             |  |
| SHASHIKUMAR K  |  |                                  |  |            |  |   |  |                 |  |             |  |
| Reviewed & Issued By   |  |                                  |  |            |  |   |  |                 |  |             |  |
| Ranjana Das  |  |                                  |  |            |  |   |  |                 |  |             |  |
| Authorized Signatory   |  |                                  |  |            |  |   |  |                 |  |             |  |