



-: Original :-

M/S.- FORGE INDIA (PVT.) LIMITED.
PLOT.NO.60, SEC-5,
PARWANOO. (H.P)

T.C.NO. 6352 Date :- 23/11/2017 19:00:03
Invoice No. 8426
Truck No. HR68B-7488

| GRADE | SIZE | HEAT NO. | MANUFACTURING ROUTE | COLOUR CODE | SUPPLY COND.N. | QTY. (MT) | NO. OF PCS. |
|----------|--------|----------|--------------------------|-------------|----------------|--------------|----------------|
| 20 MNCR5 | 65 RCS | 1235 | E.A.F.+L.F.+V.D.+CCM+EMS | YELLOW | AS ROLLED | 8.130 | 47 |

-: CHEMICAL COMPOSITION IN PERCENTAGE :-

| | C | Mn | S | P | Si | Ni | Cr | Mo | V | Al | Cu | Sn | Ti | B | Ca |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Min | 0.1700 | 1.1000 | -- | -- | 0.1500 | -- | 1.0000 | -- | -- | -- | -- | -- | -- | -- | -- |
| Max | 0.2200 | 1.4000 | 0.0350 | 0.0350 | 0.4000 | -- | 1.3000 | -- | -- | -- | -- | -- | -- | -- | -- |
| Actual | 0.1960 | 1.2600 | 0.0280 | 0.0130 | 0.2150 | 0.0260 | 1.2500 | 0.0010 | 0.0033 | 0.0290 | 0.0090 | 0.0031 | 0.0030 | 0.0004 | 0.0005 |

-: METALLURGICAL RESULTS :-

| | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|--|------|----------------------|------|
| INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A | | | | | | | | | Aust.Grain Size ASTM No. (E-112) | 7 | Gas Content (ppm) | |
| STD MAX | A | | B | | C | | D | | Decarb. (MM) | 0.11 | O2 | 15 |
| | T | H | T | H | T | H | T | H | | | N2 | 86 |
| ACTUAL | 1.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | Micro-Structure | P+F | H2 | .932 |

MECHANICAL PROPERTIES (ASTM A-370/IS-1608)
TEST CONDITION (N / H & T)

MACRO ULTRASONIC TEST MIX UP TEST

| | U.T.S. | Y.S. | EL% | RA% | Impact Value | Hardness B.H.N./Rb | BETTER THAN C2,R2,S2 MAX LEVEL AS PER PLATE 1st OF ASTM-E-381 | 100 % DONE OK | SPARK TEST 100% DONE OK |
|--------|--------|------|-----|-----|--------------|--------------------|---|---------------|-------------------------|
| Reqd. | - | - | - | - | - | 240 MAX | | | |
| Actual | - | - | - | - | - | 167-174 | | | |

-: HARDENABILITY (HRC) AS PER IS : 3848 :-

| Distance | J1/16 | J2/16 | J3/16 | J4/16 | J5/16 | J6/16 | J7/16 | J8/16 | J9/16 | J10/16 | J12/16 |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Required | - | - | - | - | - | - | - | - | - | - | - |
| Actual | - | - | - | 40 | - | - | - | - | - | - | - |

Remarks :- REDUCTION RATIO=9.5,100% MOBILE SPECTRO DONE OK (X-RAYS)

BILLET SIZE=200X200 MM,SURFACE SATISFACTORY

Note :- TESTED FOR RADIOACTIVE CONTAMINATION *OK*

Signature