



-: Original :-

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

T.C.NO. 8629 Date :- 15/02/2018 18:43:28
Invoice No. 21390
Truck No. HP65-1165

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
20 MNCR5	65 RCS	1622	E.A.F.+L.F.+V.D.+CCM+EMS	YELLOW+BROWN	AS ROLLED	9.000	68

-: 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	0.1800	1.2400	0.0260	0.0130	0.2250	0.0220	1.0000	0.0005	0.0032	0.0230	0.0150	0.0026	0.0039	0.0004	0.0007

-: METALLURGICAL RESULTS :-

INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A									Aust.Grain Size ASTM No. (E-112)	7	Gas Content (ppm)	
	A		B		C		D					
	T	H	T	H	T	H	T	H				
STD	2.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	Decarb. (MM)	0.11	O2	16
MAX											N2	84
ACTUAL	1.5	0.5	0.5	0.0	0.0	0.0	1.0	0.0	Micro- Structure	P+F	H2	.942

MECHANICAL PROPERTIES (ASTM A-370/IS-1608)	AS ROLLED	MACRO	ULTRASONIC TEST	MIX UP TEST
TEST CONDITION (N / H & T)				

	U.T.S.	Y.S.	EL%	RA%	Impact Value	Hardness B.H.N./Rb	BETTER THAN C2,R2,S2 MAX LEVEL AS PER PLATE Ist OF ASTM-E-381	100 % DONE OK	SPARK TEST 100% DONE OK
Reqd.	-	-	-	-	-	240 MAX			
Actual	-	-	-	-	-	156-165			

-: 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	-	-	-	34	-	-	-	-	-	-	-

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

SURFACE SATISFACTORY

Note :- TESTED FOR RADIOACTIVE CONTAMINATION