



-: Original :-

M/S.- MAHADEV FORGE (PVT.) LTD.
536/35D/A4, SUA ROAD. NEAR-
EASTMAN CHOWK, LUDHIANA.

T.C.NO. 7273 Date :- 31/12/2017 13:24:28
Invoice No. 9724
Truck No. PB10FV-9920

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
20 MNCR5	50 DIA	1212	E.A.F.+L.F.+V.D.+CCM+EMS	YELLOW	AS ROLLED	6.110	72

-: 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	0.1700	1.1300	0.0270	0.0180	0.2280	0.0240	1.0400	0.0010	0.0026	0.0300	0.0090	0.0040	0.0034	0.0004	0.0008

-: 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		Decarb. (MM)	0.09	O2	17
T	H	T	H	T	H	T	H			N2	82
STD	2.0	1.0	2.0	1.0	2.0	1.0	2.0	Micro-Structure	P+F	H2	.932
MAX											
ACTUAL	1.5	0.5	0.5	0.0	0.0	0.0	1.0				

MECHANICAL PROPERTIES (ASTM A-370/IS-1608) TEST CONDITION (N / H & T)				MACRO	ULTRASONIC TEST	MIX UP TEST
U.T. Review & Verified	RA% OK	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. -	Accepted/Rejected	OK	240 MAX			
Actual -	Sign. (QA)	Date 31/12/17	154-160			

-: 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	-	-	36-40	-	-	-	-	-	-	-	-
Actual	-	-	39	34	30.5	27.5	26	24	-	-	-

Remarks :- REDUCTION RATIO=13.0, 100% MOBILE SPECTRO DONE OK (X-RAYS) SURFACE SATISFACTORY

Note :- TESTED FOR RADIOACTIVE CONTAMINATION OK

CERTIFIED THAT THE TEST FINDINGS ARE CORRECT & ARE BASED ON
ACTUAL RESULTS CARRIED OUT ON SAMPLES DRAWN AS PER Q.A.P.

PREPARED BY

AUTHORISED SIGNATORY