



TEST CERTIFICATE

CUSTOMER : DHAR AUTOMOTIVES PRIVATE LIMITED

PROCESS ROUTE

TC NO.	0020587	DATE	26.04.2018
INVOICE NO.	182701597	DATE	26.04.2018
DELIVERY ORDER NO.:	81062358	TRUCK NO.:	RJ09GD4888

MBF-EAF-LRP-VD-CCM-RM

CUSTOMER SPECIFICATION No.	HEAT No.	GRADE	SECTION IN (mm)	GRADE	COLOUR CODE	BLT/BLM SIZE (mm)	SUPPLY CONDITION	LENGTH NO. OF (Mtrs)	PIECES	QTY (MT)
DHAR:20MNCR5 R-00(J4/16-36-40)/01.01.2016	109721	20MNCR5	RCS-75	RED		210x232	AS ROLLED	5.500	38	21.820

CHEMICAL COMPOSITION

%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Ni	%Mo	%V	%Al	%Pb	%Ti	%B	%Sn	%W	%As	%Ca	%Sb	%Co	%Nb	O2	N2	H2
SP-MIN	0.17	1.10	-	0.15	1.00	-	-	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-
-MAX	0.22	1.40	0.035	0.40	1.30	-	0.10	0.05	-	0.050	-	-	-	-	-	-	-	-	-	-	20	90	2.0
ACTUAL	0.18	1.16	0.0150	0.0210	0.2200	1.0800	0.0140	0.0090	0.0050	0.0230	0.0002	0.0025	0.0002	0.0010	-	0.0052	0.0010	0.0010	-	0.0030	14	77	0.90

MECHANICAL PROPERTIES

	As Rolled		/ H.T.		IMPACT (TZOD/CHARPY) (J)	HARDNESS (BHN)	DI VALUE	CE VALUE	J1/16 J2/16 J3/16 J4/16 J5/16 J6/16 J7/16 J8/16 J9/16 J10/16 J12/16 J14/16 J16/16														
	PS/YS (KG/MM2)	UTS (KG/MM2)	%EL	%RA					J1/16	J2/16	J3/16	J4/16	J5/16	J6/16	J7/16	J8/16	J9/16	J10/16	J12/16	J14/16	J16/16		
SPEC-MIN	55.00	80.00	8.00	35.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-MAX	-	110.00	-	-	-	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACTUAL	79.49	92.23	12.00	48.00	-	183	-	-	44.0	43.0	42.0	39.0	38.0	33.0	31.0	29.0	28.0	27.0	25.0	24.0	23.0		

METALLURGICAL PROPERTIES

JISG0555										DECARBURIZATION (MM)										MACRO ETCH REDUCTION RESULTS		RATIO	
QUENCH HARDNESS ()										+ dEdC = D										Full Partial		ASTM-E-381	
SURFACE QUALITY										da										Total		Ratio	
GRAIN SIZE (ASTM - E-112)										6										8:1		-	
8										1.50										0.60		C2R2S2	
7/7.5										1.50										0.36		C2R1S1	
8.66										0.000										-		-	

REMARKS : 100% SPARK/SPECTRAL:OK, STEP DOWN TEST:OK, U.S.T. (100%):OK, M.P.T. (100%):OK.
MTEL IS FREE FROM RADIOACTIVE ELEMENTS

We certify that the material described above conforms to the specs.
For Sunflag Iron & Steel Co. Ltd.

(Signature)
SUNFLAG STEEL