Web Site : www.sunflagsteel.com
E-mail : admin@sunflagsteel.com
Regd. Off. : (0712) 2524661
Works : (07184) 285551
CIN : L27100MH1984PLC034003

SUNFLAG IRON & STEEL CO. LTD.

Regd. Office : 33, Mount Road, Sadar, Nagpur - 440 001 India
Works : Bhandara Road, Bhandara - 441 905 (Maharashtra)

TEST CERTIFICATE

SUNFLAG STEEL
F031504

CUSTOMER : DHAR AUTOMOTIVES PRIVATE LIMITED

PROCESS ROUTE: MBF-EAF-LRF-VD-CCM-RM

TC NO. : 0022861 | DATE : 18.05.2018
INVOICE NO. : 182703311 | DATE : 18.05.2018
DELIVERY ORDER NO. : 81065244 | TRUCK NO. : MP09HF9023

CUSTOMER SPECIFICATION No.	HEAT No.	GRADE	SECTION IN (mm)	GRADE COLOUR CODE	BLT/BLM SIZE(mm)	SUPPLY CONDITION	LENGTH (Mtrs)	NO.OF PIECES	QTY (MT)
DHAR:20MNCR5 R-00:J5/16"=36-40/01.01.2016	10166	20MNCR5	RCS-63	RED	160x160	AS ROLLED	5.600		18.860

CHEMICAL COMPOSITION

	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Ni	%Mo	%V	%Al	%Pb	%Ti	%B	%Sn	%W	%As	%Ca	%Sb	%Co	%Nb	O2 ppm	N2 ppm	H2 ppm
SP-MIN	0.17	1.10	-	-	0.15	1.00	-	-	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-
-MAX	0.22	1.40	0.035	0.035	0.40	1.30	-	0.10	0.05	-	0.050	-	-	-	-	-	-	-	-	-	-	20	90	2.0
ACTUAL	0.20	1.24	0.0160	0.0130	0.2700	1.1000	0.0210	0.0570	0.0210	0.0050	0.0240	0.0002	0.0026	0.0002	0.0011	-	0.0068	0.0015	0.0008	-	0.0030	15	83	0.90

MECHANICAL PROPERTIES

	PS/YS (KG/MM2)	As Rolled UTS (KG/MM2)	/ H.T. %EL	%RA	IMPACT (IZOD/CHARPY) ()	HARDNESS (BHN)	DI VALUE	CE VALUE
SPEC-MIN	55.00	80.00	8.00	35.00	-	-	-	-
-MAX	-	110.00	-	-	-	240	-	-
ACTUAL	79.87	92.74	11.70	47.70	-	195	-	-

JOMINY VALUE (INCH - HRC)

	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	-	-	-	-	36.0	-	-	-	-	-	-	-	-
-MAX	-	-	-	-	40.0	-	-	-	-	-	-	-	-
ACTUAL	43.0	42.0	41.0	37.0	34.0	32.0	29.0	27.0	26.0	25.0	23.0	22.0	21.0

METALLURGICAL PROPERTIES

	INCLUSION RATING (ASTM-E-45 /IS:4163) A T	A H	B T	B H	C T	C H	D T	D H	GRAIN SIZE(ASTM - E- 112)	SURFACE QUALITY	QUENCH HARDNESS ()	JISG0555 dA	+ dB+dC	= D	DECARBURIZATON (MM) Full	Partial	Total	MACRO ETCH RESULTS ASTM-E-381	REDUCTION RATIO
SPEC-MIN	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	7.44:1
-MAX	2.00	1.50	2.00	1.50	2.00	1.50	2.00	1.50	8	-	-	-	-	-	-	0.50	0.50	C2R2S2	-
ACTUAL	2.00	0.50	0.50	-	0.00	-	1.50	-	7/7.5	-	-	-	-	0.000	-	0.35	0.35	C2R2S1	6.45

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

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