

Web Site : www.sunflagsteel.com  
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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



CUSTOMER : DHAR AUTOMOTIVES PRIVATE LIMITED

PROCESS ROUTE

TC NO.

0028107

DATE

06.07.2018

MBF-EAF-LRF-VD-CCM-RM

INVOICE NO.

182707177

DATE

06.07.2018

DELIVERY ORDER NO. : 81071155

TRUCK NO. : MP13H2315

CUSTOMER SPECIFICATION NO.

HEAT

GRADE

SECTION

COLOUR CODE

BLT/BLM

SUPPLY CONDITION

LENGTH NO.OF QTY

(MTS) (PIECES) (MT)

DHAR: 20MNCR5 R-00 (J4/16-36-40)/01.01.2016 10867 20MNCR5 RCS-75 RED 210x232 AS ROLLED 5.500 18.000

### CHEMICAL COMPOSITION

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	-	-	-	-	-	-	-	-	-	-	ppm	ppm	ppm
-MAX	0.22	1.40	0.035	0.40	1.30	-	0.10	0.05	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-	-
ACTUAL	0.19	1.18	0.0180	0.2000	1.0700	0.0200	0.0130	0.0020	0.0040	0.0240	0.0002	0.0021	0.0002	0.0008	-	0.0056	0.0010	0.0008	-	-	-	90	2.0
																					12	72	0.90

### MECHANICAL PROPERTIES

MECHANICAL PROPERTIES				JOMINY VALUE (INCH - HRC)																					
As Rolled		H.T.		IMPACT		HARDNESS		DI		CE															
PS/YS	UTS	%EL	%RA	(IZOD/CHARPY)	(BHN)	VALUE	VALUE	VALUE	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			
(KG/MM2)	(KG/MM2)			( )																					
SPEC-MIN	55.00	8.00	35.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
-MAX	-	-	-	-	240	-	-	-	-	-	-	-	-	36.0	-	-	-	-	-	-	-	-			
ACTUAL	77.20	11.30	46.83	-	208	-	-	-	-	43.0	41.0	39.0	37.0	34.0	32.0	30.0	28.0	27.0	25.0	24.0	23.0	22.0			

### METALLURGICAL PROPERTIES

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INCLUSION RATING (ASTM-E-45 / IS-4163)										GRAIN		SURFACE		QUENCH		JISG0555		DECARBURIZATION (MM)		MACRO ETCH		REDUCTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
A		T		A		H		B		T		B		H		C		T		C		H		D		T		D		H		Full		Partial		Total		RESULTS		ASTM-E-381		RATIO																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

REMARKS : 100% SPARK/SPECTRAL OK. STEP DOWN TEST OK. U.S.T. (100%) OK. M.P.T. (100%) OK.

MATERIAL IS FREE FROM RADIOACTIVE ELEMENTS

We certify that the material described above conforms to the specs.

For Sunflag Iron & Steel Co. Ltd.

*[Signature]*  
HUMAN