

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 : M M FORGINGS LIMITED	PROCESS ROUTE	TC NO. : 0016506	DATE : 14.03.2018
		INVOICE NO. : 172721458	DATE : 14.03.2018
	MBF-EAF-LRF-VD-CCM-RM	DELIVERY ORDER NO.: 81057763	TRUCK NO. : TN48J5689

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)
MSA044A R-3	/10.10.2017	08682	SCR420H	RND-60	RED+PINK DOT+RED	160x160 AS ROLLED	5.800		11.930

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	0.55	-	-	0.15	0.85	-	-	-	-	0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
-MAX	0.23	0.90	0.030	0.030	0.35	1.05	0.30	0.25	0.06	0.02	-	0.01	0.020	0.0006	0.02	-	0.01	-	0.01	-	0.0100	20	100	2.0
ACTUAL	0.19	0.82	0.0150	0.0070	0.2200	0.9900	0.0280	0.0180	0.0030	0.0050	0.0250	0.0003	0.0034	0.0002	0.0011	-	0.0050	0.0013	0.0007	-	0.0030	15	92	1.10

MECHANICAL PROPERTIES

JOMINY VALUE (MM - HRC)

	As Rolled / H.T.				IMPACT	HARDNESS	DI	CE														
	PS/YS	UTS	%EL	%RA	(IZOD/CHARPY)	(BHN)	VALUE	VALUE	J1.5	J3	J5	J6	J7	J9	J10	J11	J13	J15	J20	J25	J30	
	()	()			()																	
SPEC-MIN	-	-	-	-	-	-	-	-	-	-	32.0	-	29.0	-	-	-	-	-	-	-	-	
-MAX	-	-	-	-	-	-	-	-	-	-	37.0	-	34.0	-	-	-	-	-	-	-	-	
ACTUAL	-	-	-	-	-	165	-	-	-	-	34.0	-	30.0	-	-	-	-	-	-	-	-	

METALLURGICAL PROPERTIES

	INCLUSION RATING (ASTM-E-45 /IS:4163)								GRAIN	SURFACE	QUENCH	JISG0555				DECARBURIZATION (MM)			MACRO ETCH	REDUCTION	
									SIZE (ASTM	QUALITY	HARDNESS								RESULTS	RATIO	
	A T	A H	B T	B H	C T	C H	D T	D H	- E- 112)		()	dA	+	dB+dC	=	D	Full	Partial	Total	ASTM-E-381	
SPEC-MIN	-	-	-	-	-	-	-	-	6		OK	-		-		-	-	-	-	-	6:1
-MAX	2.00	1.00	2.00	1.00	0.50	0.50	2.00	1.00	8		-			-		-	-	0.48	0.48	C2R2S2	-
ACTUAL	1.00	-	0.50	-	0.00	-	1.50	-	7/7.5		OK	-		-		0.000	-	0.26	0.26	C2R1S1	9.06

REMARKS : 100% SPARK/SPECTRAL: OK. U.S.T. (100%): OK. M.P.T. (100%): OK. MICRO STRUCTURE: FERRITE + PEARLITE.

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

For Sunflag Iron & Steel Co. Ltd.

%PB=0.00, %HG=0.00, %CD=0.00 HEXAVALENT CHROME=0.00

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