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Works: (07184) 285551
CIN: L27100MH1984PLC034003

SUNFLAG IRON & STEEL CO. LTD.

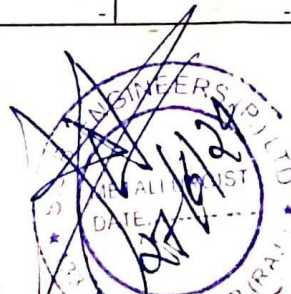
Regd. Office: 33, Mount Road, Sadar, Nagpur - 440 001 India
Works: Bhandara Road, Bhandara - 441 905 (Maharashtra)

TEST CERTIFICATE



CUSTOMER: SSB ENGINEERS (P) LTD				PROCESS ROUTE				TC NO. :0169873				DATE :23.06.2024													
				EAF-LHF-VD-CCM (M-EMS) -RM				INVOICE NO.:242709650				DATE :23.06.2024													
								DELIVERY ORDER NO.:81338097				TRUCK NO.:UP94T9177													
CUSTOMER SPECIFICATION No.				HEAT NO.	GRADE	SECTION IN (mm)	GRADE COLOR CODE		BLT/BLM SIZE (mm)		SUPPLY CONDITION				LENGTH (Mtrs)	NO. OF PIECES	QTY (MT)								
SSB:20MNCR5B:A/C M/S HGL / 21.09.2019				50988	20MNCR5	RND-90	HALF BLUE+HALF ORANGE		280x320		AS ROLLED				6.000		22.160								
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	1.00	-	0.020	-	1.00	-	-	-	-	0.020	-	-	-	-	-	-	-	-	-	-	-	90	-	
-MAX	0.22	1.40	0.025	0.035	0.40	1.30	0.25	0.25	0.10	-	0.050	-	-	-	0.03	-	-	-	0.006	-	-	-	20	170	2.0
ACTUAL	0.2150	1.3700	0.0150	0.0280	0.2900	1.2700	0.1500	0.1100	0.0720	-	0.0260	-	-	-	0.0010	-	-	-	0.0006	-	-	-	10	113	0.90
MECHANICAL PROPERTIES										JOMINY VALUE															
	AS ROLLED / H.T.				IMPACT (IZOD/CHARPY) ()	HARDNESS (BHN)	DI VALUE	CE VALUE	J1.5	J3	J5	J6	J7	J9	J10	J11	J13	J15	J20	J25	J30				
	PS/YS ()	UTS ()	%EL	%RA																					
SP-MIN	-	-	-	-	-	-	-	-	-	-	43.0	40.0	-	39.0	-	-	38.0	-	34.0	32.0	-	30.0			
-MAX	-	-	-	-	-	-	240	-	-	-	48.0	45.0	-	44.0	-	-	41.0	-	39.0	37.0	-	34.0			
ACTUAL	-	-	-	-	-	-	201	-	-	-	46.0	44.0	43.0	-	42.0	40.0	-	39.0	37.0	35.0	33.0	31.0	30.0		
METALLURGICAL PROPERTIES																									
	INCLUSION RATING (ASTM-E-45 / IS:4163)								GRAIN SIZE (ASTM-E-112)	SURFACE QUALITY	QUENCH HARDNESS ()	JISG0555			DECARBURIZATION (MM)			MACRO ETCH RESULTS ASTM-E-381	REDUCTION RATIO						
	A T	A H	B T	B H	C T	C H	D T	D H				dA	dB+DC	D	FULL	PARTIAL	TOTAL								
SP-MIN	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	6:1			
-MAX	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	C2R2S2	-	-			
ACTUAL	-	-	-	-	-	-	-	-	7.5	-	-	-	-	0.000	-	0.28	0.28	-	-	C1R1S1	-	14.09			

REMARKS: 100% SPARK/SPECTRAL: OK. U.S.T. (100%): OK. M.P.T. (100%): OK.
AL/N2 = 2.30 K4 = 12.7 M.S. = FERRITE+PEARLITE+TRANCES
OF BAINITE, CU+10 SN = 0.16



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

[Signature]
Mr. Samadhan Jadhav