

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 : RAMKRISHNA FORGINGS LTD

PROCESS ROUTE

TC NO. : 0009668 DATE : 09.01.2018

MBF-EAF-LRF-VD-CCM-RM

INVOICE NO. : 172716249 DATE : 09.01.2018
DELIVERY ORDER NO. : 81049279 TRUCK NO. : CG04JE0323

CUSTOMER SPECIFICATION NO.

HEAT NO.

SECTION IN (mm)

GRADE COLOUR CODE

BLT/BLM SIZE (mm)

SUPPLY CONDITION

LENGTH NO. OF QTY (Mtrs) PIECES (MT)

RF/14/D-401/150 R-05

/28.10.2017 07861

SCR420H

RND-56

PURPLE+BLUE

160x160 AS ROLLED

5.200 26.450

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
																						ppm	ppm	ppm
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	0.25	0.25	0.06	0.02	0.050	-	0.020	0.0006	0.02	-	0.01	-	0.010	-	0.0100	15	90	2.0
ACTUAL	0.17	0.84	0.0120	0.0060	0.2400	0.9700	0.0150	0.0100	0.0020	0.0060	0.0260	-	0.0026	0.0002	0.0011	-	0.0045	-	0.0007	-	0.0030	13	76	1.00

MECHANICAL PROPERTIES

JOMINY VALUE (MM - HRC)

PS/Y5	UTS	%EL	%RA	IMPACT (IZOD/CHARPY)	HARDNESS (BHN)	DI	CE	J1.5	J3	J5	J6	J7	J9	J10	J11	J13	J15	J20	J25	J30
()	()			()																
SPEC-MIN	-	-	-	-	-	-	-	40.0	37.0	32.0	-	29.0	-	-	21.0	-	-	-	-	-
-MAX	-	-	-	-	-	-	-	48.0	48.0	37.0	-	34.0	-	-	32.0	-	-	-	-	-
ACTUAL	-	-	-	-	-	-	-	42.0	41.0	34.0	-	30.0	26.0	-	23.0	21.0	19.0	17.0	14.0	11.0

METALLURGICAL PROPERTIES

INCLUSION RATING (ASTM-E-45 / IS-4163)	GRAIN SIZE (ASTM)	SURFACE QUALITY	QUENCH HARDNESS	JISG0555	DECARBURIZATION (MM)	MACRO ETCH RESULTS	REDUCTION 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	-	-	-	-	-	-	6:1
-MAX	2.00	1.00	2.00	0.50	0.50	2.00	1.00
ACTUAL	1.00	-	0.50	-	0.00	-	0.26

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

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

For Sunflag Iron & Steel Co. Ltd.

Opt

Signature

DATE

