

**SLR Metaliks Limited**  
 Sy. No. 632, Narayanadevarakere, H.B. Halli, Tq. Bellary District, 583 222

# TEST CERTIFICATE



CUSTOMER	Unique Forging	PROCESS ROUTE		BLOOM SIZE (mm)	TRUCK NO	RJ19GCS039	TC NO	1803190	
		BF-EOF-LRF-VD-COM-FMS		200X200	INVOICE NO	SE17Y-14535	DATE	29.03.2018	
		CUSTOMER SPECIFICATION		HEAT NO	GRADE	SECTION (mm)	NO OF BUNDLES	QUANTITY (MT)	LENGTH (IN Mtr)
As per Sale Order No:RP17Y-00776				4610	20MnCr5	63 RCS	2	4.170	
SUPPLY CONDITION		REDUCTION RATIO						COLOR CODE	
AS ROLLED		10:1: 1						Half Red Half White with blue dot	

CHEMICAL COMPOSITION																			
%	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Sn	Al	V	Ti	Cu	B	Nb	Ca	As	Sb
Min	0.17	0.15	1.10	-	0.015	1.00	-	-	0.020	-	-	-	-	-	-	-	-	-	-
Max	0.22	0.40	1.40	0.035	0.035	1.30	-	-	0.040	-	-	-	-	-	-	-	-	-	-
Actual	0.20	0.24	1.23	0.022	0.025	1.064	0.013	0.017	0.031	-	-	0.006	0.0017	0.016	0.0004	0.001	0.0012	0.0014	0.0016
	H2(ppm)	N2(ppm)	O2(ppm)	CE	DI	Bsol	-	-	-	-	-	-	-	-	-	-	-	-	-
Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max	2	90	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Actual	1.20	85.6	15.8	0.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## PHYSICAL PROPERTIES

Test Condition									
Tensile	YS	UTS	%EL	%RA	Impact Strength (J)	Hardness	Rolling	Quench	Jointing
Min	-	-	-	-	-	BHN	-	-	34
Max	-	-	-	-	-	BHN	220	-	40
Actual	-	-	-	-	-	BHN	183-188	-	38.8
Inclusion Rating (As per ASTM E-45)									
Grain Size (ASTM E112)									
Decarb (mm)									
Banding (microns)									
Step Down									
Upset									
Macro etch (ASTM E-381)									
C2R2S2									
Better than C2R2S2									
SURFACE DEFECTS									
100% MPI, UT & SPARK DONE									
FREE FROM RADIOACTIVE ELEMENTS									
FREE FROM DEFECTS									
OK									

Remarks: Dimension tolerance as per IS 3739 Gr-ade-1.  
 Material is conforming to the customer specification.

Doc.No:IN/ST/CA/70,Rev.no:01,date:01.02.2018

REVIEWED  
 OK  
 Date 2/4/18

Prepared by  
 SELHARAMAK

AUTHORISED SIGNATORY  
 C.M. WALLEKAR