


HAPPY FORGINGS LIMITED, LUDHIANA		METTALURGICAL TEST REPORT							
		RAW MATERIAL BILLET/FORGINGS							
		(FROM SUB CONTRACTOR)							
		(DOC. NO. FM:HT-LB-11)							
	VE COMM. (Dewas)								
STEEL MILL	Aarti	REPORT NO.		8007					
CHALLAN NO.		DATE		29.01.2018					
HEAT NO.	1645	SECTION SIZE		65 RCS					
GRADE	20MnCr5	NO. OF BARS/BILLET							
QTY.		LENGTH RANGE		4.5 TO 5.5 MTRS					
PART NO.	20103	COLOUR CODE		WHITE BASE+RED DOT					
 PROPERTIES									
	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%	
MIN.	0.17	1.10	0.15	-	-	1.00			
MAX	0.22	1.40	0.35	0.035	0.035	1.30			
OBSERVED	0.17	1.28	0.225	0.022	0.012	1.04	0.021	0.001	
PHYSICAL PROPERTIES									
INTERNAL SOUNDNESS	C2 R1 S1								
GRAIN FLOW									
SURFACE HARDNESS(BHN)									
UPSETTING TESTING	OK								
METALLOGRAPHY									
GRAIN SIZE-ASTM E-112	ASTM-7								
INCUSSION RATING WORST FIELD AS PER ASTM E-45	A		B		C		D		
	TK	TN	TK	TN	TK	TN	TK	TN	
	0.5	1.5	0	0.5	0	0	0	1	
JOMINY TRASVELET									
DISTT.			J4/16"						
SPEC.			33-37						
HRC			37						
INSPECTION RESULT OF BILLET&BARS									
REMARKS									
MILL T. C. ENCLOSED									
AUTHORISED SIGNATORY									