


HAPPY FORGINGS LIMITED,LUDHIANA		METTALURGICAL TEST REPORT							
		RAW MATERIAL BILLET/FORGINGS							
		(FROM SUB CONTRACTOR)							
		(DOC. NO. FM:HT-LB-11)							
STE 		VE COMM. (Deras)		REPORT NO.		222639			
CHALLAN NO.		JSW		DATE		02.02.2018			
HEAT NO.		E-71773		SECTION SIZE		75 RCS			
GRADE		20MnCr5		NO. OF BARS/BILLET					
QTY.				LENGTH RANGE		4.5 TO 5.5 MTRS			
PART NO.		51192		COLOUR CODE		WHITE BASE+RED DOT			
CHEMICAL PROPERTIES									
SPEC.	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	0.22	1.31	0.309	0.026	0.013	1.27	0.024	0.004	
PHYSICAL PROPERTIES									
INTERNAL SOUNDNESS	C2 R1 S1								
GRAIN FLOW									
SURFACE HARDNESS(BHN)									
UPSETTING TESTING	OK								
METALLOGRAPHY									
GRAIN SIZE-ASTM E-112	ASTM-7								
INCLUSION 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.			J11MM						
SPEC.			36-40						
HRC			40						
INSPECTION RESULT OF BILLET&BARS									
REMARKS	MILL T. C. ENCLOSED								
AUTHORISED SIGNATURE									