


METTALURGICAL TEST REPORT									
HAPPY FORGINGS LIMITED,LUDHIANA				RAW MATERIAL BILLET/FORGINGS					
(FROM SUB CONTRACTOR)									
(DOC. NO. FM:HT-LB-11)									
CUSTOMER	M/s	Ve Commercial (Dewas)							
STEEL MILL	JAYASWAL NECO				REPORT NO.		SM37834		
CHALLAN NO.					DATE		23.02.2018		
HEAT NO.	M-806415				SECTION SIZE		95 DIA		
GRADE	20MNCR5				NO. OF BARS/BILLET				
QTY.					LENGTH RANGE		4.5 TO 5.5 MTRS		
PART NO.	5193				COLOUR CODE		WHITE BASE+RED DOT		
CHEMICAL PROPERTIES									
SPEC.	C%	Mn%	Si%	S%	P%	Cr%	NI%	Mo%	
MIN.	0.17	1.1	0.15			1			
MAX	0.22	1.4	0.35	0.035	0.035	1.3			
OBSERVED	0.19	1.29	0.19	0.025	0.01	1.29	0.02	0.01	
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	A		B		C		D		
	TK	TN	TK	TN	TK	TN	TK	TN	
FIELD AS PER ASTM E-45	0	1.5	0	0.5	0	0	0	1	
OBSERVED JOMINY TRASVELET									
DISTT.			J11MM						
SPEC.			30/35						
HFL OBSERVED HRC			33						
REMARKS									
MILL T. C. ENCLOSED									
 AUTHORISED SIGNATURE									