

HAPPY FORGINGS LIMITED, LUDHIANA				METTALURGICAL TEST REPORT					
RAW MATERIAL BILLET/FORGINGS				(FROM SUB CONTRACTOR)					
(DOC. NO. FM:HT-LB-11)									
CUSTOMER	M/s	Ve Commercial (Dewas)							
STEEL MILL	M/S	RL Steels		REPORT NO.	17-4218				
CHALLAN NO.				DATE	03.03.2018				
HEAT NO.		2-VYU-4		SECTION SIZE	115DIA				
GRADE		EN-353		NO. OF BARS/BILLET					
QTY				LENGTH RANGE	4.5 TO 5.5 MTRS				
PART NO.		7731		COLOUR CODE	YELLOW+BLUE+WHITE				
CHEMICAL PROPERTIES									
SPEC.		C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
MIN.			0.5				0.75	1	0.08
MAX.		0.2	1	0.35	0.05	0.05	1.25	1.5	0.15
HFL OBSERVED		0.19	0.94	0.23	0.03	0.023	1.14	1.04	0.133
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	1.5
JOMINY TRASVELET									
DISTT.		J11MM							
SPEC.		34-38							
HFL OBSERVED HRC		37							
REMARKS	MILL T. C. ENCLOSED								
AUTHORISED SIGNATURE									