

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	VARDHMAN			REPORT NO.		2018/02/511		
CHALLAN NO.					DATE		21.03.2018		
HEAT NO.		U-64061			SECTION SIZE		90 RCS		
GRADE		1E1120				NO. OF BARS/BILLET			
QTY					LENGTH RANGE		4.5 TO 5.5 MTRS		
PART NO.		31112			COLOUR CODE		RED BASE/WHITE LINE		
CHEMICAL PROPERTIES									
SPEC.		C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
MIN.		0.19	0.8	.	0.015	.	0.45	.	0.08
MAX		0.23	1.1	0.18	0.025	0.02	0.7	.	0.25
HFL OBSERVED		0.208	1.07	0.149	0.017	0.014	0.68	0.05	0.112
PHYSICAL PROPERTIES									
INTERNAL SOUNDNESS		C2 R1 S1							
GRAIN FLOW									
SURFACE HARDNESS(BHN)									
UPSETTING TESTING		OK							
METALLOGRAPHY									
GRAIN SIZE-ASTM E-112		ASTM-7							
INCLUSSION 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
JOMINY TRASVELET									
DISTT.		J1/16	J3/16	J8/16					
SPEC.		43/48	35MIN	29MAX					
HFL OBSERVED HRC		43.5	38.5	23.5					
REMARKS		MILL T. C. ENCLOSED							
AUTHORISED SIGNATORY									