

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.		2018/01/463		
CHALLAN NO.					DATE		28.02.2018		
HEAT NO.		63556			SECTION SIZE		90 RCS		
GRADE		1E1286		NO. OF BARS/BILLET					
QTY					LENGTH RANGE		4.5 TO 5.5 MTRS		
PART NO.		3144			COLOUR CODE		RED BASE/WHITE LINE		
CHEMICAL PROPERTIES									
SPEC.		C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
MIN.		0.28	0.9	0.15	0.05	.	0.9	.	.
MAX		0.33	1.2	0.35	0.08	0.035	1.2	.	.
HFL OBSERVED		0.319	1.15	0.247	0.062	0.017	1.17	0.091	0.026
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
JOMINY TRASVELET									
DISTT.		J1/16"	J14/16"	J16/16					
SPEC.		50/55	37MIN	48MAX					
HFL OBSERVED HRC		51	47.5	45.5					
REMARKS		MILL T. C. ENCLOSED							
AUTHORISED SIGNATORY									