

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	Aarti Steels				REPORT NO.		8990	
CHALLAN NO.						DATE		03.03.2018	
HEAT NO.		6396				SECTION SIZE		90 DIA	
GRADE		EN-353				NO. OF BARS/BILLET			
QTY						LENGTH RANGE		4.5 TO 5.5 MTRS	
PART NO.		5690				COLOUR CODE		GREEN+WHITE+PINK LINE	
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		0.176	0.95	0.196	0.022	0.019	1.2	1.08	0.12
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	0.5	1.5	0	0.5	0	0	0	1
JOMINY TRASVELET									
DISTT.			J11MM						
SPEC.			38 HRC MIN						
HFL OBSERVED HRC			38.5 HRC						
REMARKS		MILL T. C. ENCLOSED							
AUTHORISED SIGNATURE									