

HAPPY FORGINGS LIMITED, LUDHIANA				METTALURGICAL TEST REPORT					
				RAW MATERIAL BILLET/FORGINGS					
				(FROM SUB CONTRACTOR)					
				(DOC. NO. FM:HT-LB-11)					
CUSTOMER	M/s	Ve Comme. (Dewas)							
STEEL MILL	M/S	AARTI STEEL			REPORT NO.	8227			
CHALLAN NO.					DATE	05.02.2018			
HEAT NO.		6192			SECTION SIZE	80 DIA			
GRADE		EN-353			NO. OF BARS/BILLET				
QTY.					LENGTH RANGE	4.5 TO 5.5 MTRS			
PART NO.		77145			COLOUR CODE	BLUE+WHITE BASE			
CHEMICAL PROPERTIES									
SPE		C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
MIN.			0.50	0.10	-	-	0.75	1.00	0.08
MAX		0.20	1.00	0.35	0.040	0.040	1.25	1.50	0.15
HFL OBSERVED		0.192	0.92	0.19	0.023	0.013	1.19	1.05	0.126
PHYSICAL PROPERTIES									
INTERNAL SOUNDNESS	C2 R1 S1								
GRAIN FLOW									
SURFACE HARDNESS(BHN)									
UPSETTING TESTING	OK								
METALLOGRAPHY									
GRAIN SIZE-ASTM E-112	ASTM-7								
	A		B		C		D		
INCLUSION RATING WORST	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.			J6/16"						
SPEC.			36-40						
HFL OBSERVED HRC			40						
REMARKS	MILL T. C. ENCLOSED								
AUTHORISED SIGNATURE									