

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.	7849		
CHALLAN NO.					DATE	30.01.2018		
HEAT NO.		6044			SECTION SIZE	90 Dia		
GRADE		EN-353			NO. OF BARS/BILLET			
QTY.					LENGTH RANGE	4.5 TO 5.5 MTRS		
PART NO.		7048			COLOUR CODE	BLUE+WHITE BASE		
CHEMICAL PROPERTIES								
SPEC.	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	0.189	0.974	0.253	0.024	0.015	1.21	1.04	0.118
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.			J11MM					
SPEC.			38 HRC MIN					
HFL OBSERVED HRC			39					
REMARKS	MILL T. C. ENCLOSED							
AUTHORISED SIGNATURE								