

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	20.02.2018		
HEAT NO.		63552			SECTION SIZE	90 RCS		
GRADE		1E1120			NO. OF BARS/BILLET			
QTY					LENGTH RANGE	4.5 TO 5.5 MTRS		
PART NO.		3175			COLOUR CODE	READ 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	0.207	1.05	0.139	0.016	0.015	0.661	0.062	0.116

## 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 FIELD AS PER ASTM E-45	A		B		C		D	
	TK	TN	TK	TN	TK	TN	TK	TN
	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	44	39	23.5					

REMARKS	MILL T. C. ENCLOSED
AUTHORISED SIGNATURE	