



MODERN STEELS LIMITED

Regd. Office & Works : G. T. Road, MANDI GOBINDGARH-147301(Pb.)

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METALLURGICAL TEST REPORT

CUSTOMER :	HEAT NO. :	REPORT NO. :
M/S ALLOY STEEL INDIA CHANDIGARH	J9431	MSL/11995
	GRADE :	DATED :
	EN353	02-02-2018
	SECTION :	CHALLAN NO. :
	63D1A	
	SPEC :	TOTAL PCS :
	LENGTH :	WEIGHT :

PROCESS ROUTE :	E.A.F/L.R.F/V.D/C.C.M WITH E.M.S & A.M.L.C	CONDITION: HOT ROLLED
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% CHEMICAL COMPOSITION														
SPEC	C%	Mn%	S%	P%	Si%	Ni%	Cr%	Mo%	V%	Al%	B%	Cu%	Ca%	Sn%
MIN	---	0.50	---	---	---	1.00	0.75	0.080	---	---	---	---	---	---
MAX	0.200	1.00	0.050	0.050	0.35	1.50	1.25	0.150	---	---	---	---	---	---
ACT	0.185	0.88	0.029	0.015	0.24	1.06	1.21	0.115	0.004	0.025	0.0004	0.06	0.0004	0.004

METALLOGRAPHIC CHARACTERISTICS										GAS CONTENT					
INCLUSION RATING IS:4163					DECARB IS: 6396		GRAIN SIZE IS: 4748		MICRO STRUCT.	INTERNAL SOUNDNESS ASTM, E-381	GAS CONTENT (PPM)				
REQ.			ACT.		REQ.	ACT.	REQ.	ACT.	PEARLITE FERRITE	REQ.	GAS	REQ.	ACT.		
Tn	Tk		Tn	Tk											
A	--	--	1.50	NIL	--	-- /	---	6.5/7				O2	-	12.4	
B	--	--	0.50	NIL											
C	--	--	NIL	NIL										N2	---
D	--	--	1.50	NIL											H2
										BETTER THAN C2R2S2					

HARDENABILITY TEST (IS: 3848)												
DISTANCE	J1/16"	2/16"	3/16"	4/16"	5/16"	6/16"						
REQ. (HRC)	---	---	---	---	---	---						
ACT. (HRC)	43.00	42.50	42.00	40.00	37.50	35.00						

MECHANICAL PROPERTIES						PHYSICAL PROPERTIES	
	T. S. (N/mm2)	Y. S. (N/mm2)	% ELONG	% RA	HARDNESS AS ROLLED (BHN)	COLOUR CODE	BLOOM SIZE / REDUCTION RATIO
REQ.	---	---	---	---	---	---	---
ACT.	---	---	---	---	217/229	BLACK YELLOW	210*232(16:1)

PHYSICAL PROPERTIES		
SURFACE	MIX-UP TEST	STEP DOWN (IS: 4075)
FREE FROM HARMFUL DEFECTS	100% MIXUP TESTED	O.K

REMARKS IF ANY : 100% ULTRA SONIC TESTED

PREPARED BY

Authorised Signature