

# AARTI STEEL INTERNATIONAL LIMITED



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MANUFACTURER'S OF :- CARBON ALLOYS & SPECIAL STEELS

AN IATF-16949:2016 COMPANY : TEST CERTIFICATE :- Original :-

M/S.- S.S.B. ENGINEERS PVT. LTD.  
PLOT NO.C-158A, M.I.A ALWAR  
RAJASTHAN-301030

T.C.NO. 5941 Date :- 21/03/2025 13:50:07  
Invoice No. 5821  
Truck No. PB10HL-6250

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
SAE 1053H	120 DIA	8358	E.A.F.+L.F.+V.D.+CCM+EMS	GREY+RED	AS ROLLED	31.490	60

## --: CHEMICAL COMPOSITION IN PERCENTAGE :-

	C	Mn	S	P	Si	Ni	Cr	Mo	V	Al	Cu	Sn	Ti	B	Ca
Min	0.4800	0.6000	0.0150	--	0.1500	--	--	--	--	0.0200	--	--	--	--	--
Max	0.5500	0.9000	0.0350	0.0350	0.4000	0.2500	0.2500	0.9600	--	0.0500	0.2500	--	--	0.0005	0.0010
Actual	0.4900	0.8500	0.0210	0.0220	0.2050	0.0550	0.1900	0.0150	0.0019	0.0220	0.1280	0.0076	0.0100	0.0005	0.0005

## --: METALLURGICAL RESULTS :-

INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A									Aust.Grain Size ASTM No. (E-112)	6.5	Gas Content (ppm)	
A		B		C		D						
T	H	T	H	T	H	T	H					
STD	2.0	1.5	2.0	1.0	0.5	0.5	1.0	1.0	Decarb. (MM)	0.24	O2	12
MAX											N2	79
ACTUAL	1.5	0.5	0.5	0.0	0.0	0.0	1.0	0.0	Micro- Structure	P+F	H2	.848

MECHANICAL PROPERTIES (ASTM A-370/IS-1608) AS ROLLED MACRO ULTRASONIC MIX UP TEST  
TEST CONDITION (N / H & T) TEST

	U.T.S.	Y.S.	EL%	RA%	Impact Value	Hardness BHN / HRB	C2,R2,S2 LEVEL AS PER PLATE 1st OF ASTM-E-381	100 % DONE OK	SPARK,MOBILE SPECTRO TEST 100% DONE OK
Reqd.	930-1130	706 MIN	8 MIN	-	30 J MIN	240 MAX			
Actual	992 MPA	798 MPA	9.0	-	46 J	189-198			

## --: HARDENABILITY (HRC) AS PER IS : 3848 :-

Distance	1.5MM	3 MM	5 MM	7 MM	9 MM	11 MM	13 MM	15 MM	20 MM	25 MM	30 MM
Required	59-63	50-61	45-58	32-50	28-42	26-36	25-33	24-31	22-30	20 MIN	20 MIN
Actual	59.5	57.5	51.5	37	31.5	30.5	29.5	28.5	27	25.5	24.5

Remarks :- REDUCTION RATIO=5.1:1.BILLET SIZE=240X240 MM,SURFACE SATISFACTORY MPI 100% DONE FOUND OK, %AL/%N2=RATIO=2.784 (2.1 MIN)  
INCLUSION RATING CERTIFIED AS PER WORST FIELD RATING ASTM E45 METHOD A BANDING OK AS PER UNI 8449 (A MAX OF GR-4 ACCEPTABLE).  
ULTRA SONICALLY TESTING OK WITH:1/16 PLATE BOTTOM HOLE  
MATERIAL CONFORMS TO DANA SPEC.QF 1001.REV.LEVEL-3

Note :- TESTED FOR RADIOACTIVE CONTAMINATION

CERTIFIED THAT THE TEST FINDINGS ARE CORRECT & ARE BASED ON  
ACTUAL RESULTS CARRIED OUT ON SAMPLES DRAWN AS PER Q.A.P.

PREPARED BY

AUTHORISED SIGNATORY