



# AARTI STEEL INTERNATIONAL LIMITED

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MANUFACTURER'S OF :- CARBON ALLOYS & SPECIAL STEELS

TEST CERTIFICATE :-

Original :-

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

T.C.NO. 5489

Date :- 22/02/2025 12:51:06

Invoice No. 5401

Truck No. PB10JD-0462

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
SAE 1053H	120 DIA	8218	E.A.F.+L.F.+V.D.+CCM+EMS	YELLOW+GREEN DOT	AS ROLLED	29.865	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	0.0600	--	0.0500	0.2500	--	--	0.0005	0.0010
Actual	0.4930	0.7900	0.0230	0.0220	0.2080	0.0620	0.1860	0.0120	0.0023	0.0220	0.1700	0.0190	0.0100	0.0005	0.0006

## :- 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		Decarb. (MM)			0.23	O2	13
T	H	T	H	T	H	T	H						
STD MAX	2.0	1.5	2.0	1.0	0.5	0.5	1.0	1.0			N2	79	
ACTUAL	1.5	0.5	0.5	0.0	0.0	0.0	1.0	0.0	Micro- Structure	P+F	H2	.826	

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

	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	984 MPA	796 MPA	9.0	-	45 J	185-193			

## :- 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	57.5	45.5	34	32.5	31.5	30.5	29	28	26	23

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-OK

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