



An ISO/TS 16949:2009 COMPANY

AARTI STEELS LIMITED
Registered Office : G.T.Road, Miller Ganj, Ludhiana.
Works : Focal Point, LUDHIANA - 141010. (INDIA)
Phone no. :- 0161-3006200 Fax :- 0161-3006250
MANUFACTURER'S OF :- CARBON ALLOYS & SPECIAL STEELS



—: TEST CERTIFICATE : — -: Original :-

M/S.- HAPPY FORGINGS LTD.-II, B-XXIX, 2254 | T.C.NO. 8990 | Date -: 28/02/2018 19:13:07
/1.&OPP.HINDUSTAN TYRE. | Invoice No. 21874
KANGANWAL ROADJUGIANA.LUDHIANA | Truck No. PB10CH-6505

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
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EN 353	90 DIA	6396	E.A.F.+L.F.+V.D.+CC+EMS	GREEN+WHITE+PINK LINE	AS ROLLED	16.060	48
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—: CHEMICAL COMPOSITION IN PERCENTAGE :—

	C	Mn	S	P	Si	Ni	Cr	Mo	V	Al	Cu	Sn	Ti	B	Ca
Min	--	0.5000	--	--	--	1.0000	0.7500	0.0800	--	--	--	--	--	--	--
Max	0.2000	1.0000	0.0500	0.0500	0.3500	1.5000	1.2500	0.1500	--	--	--	--	--	--	--
Actual	0.1760	0.9500	0.0220	0.0190	0.1960	1.0800	1.2000	0.1200	0.0065	0.0260	0.2500	0.0180	0.0035	0.0004	0.0009

—: METALLURGICAL RESULTS :—

INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A										Aust. Grain Size ASTM No. (E-112)	Gas Content (ppm)
A		B		C		D		7			
T	H	T	H	T	H	T	H	Decarb. (MM)	O2	N2	H2
STD	2.0	1.0	2.0	1.0	2.0	2.0	1.0	1.0	0.16		15
MAX											84
ACTUAL	1.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	B+F+P		.912

MECHANICAL PROPERTIES (ASTM A-370/IS-1608)	AS ROLLED	MACRO	ULTRASONIC TEST	MIX UP TEST
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TEST CONDITION (N / H & T)	U.T.S.	Y.S.	EL%	RA%	Impact Value	Hardness B.H.N./Rb	BETTER THAN C2,R2,S2 MAX LEVEL AS PER PLATE 1st OF ASTM-E-381	100 % DONE OK	SPARK TEST 100% DONE OK
Reqd.	-	-	-	-	-	-			
Actual	-	-	-	-	-	256-262			

—: HARDENABILITY (HRC) AS PER IS : 3848 :—

Distance	J1/16	J2/16	J3/16	J4/16	J5/16	J6/16	J7/16	J8/16	J9/16	J10/16	J12/16
Required	-	-	-	-	-	-	-	37-41	-	-	-
Actual	-	-	44	43	42	40.5	38.5	36.5	-	-	-

Remarks :- BILLET SIZE=240X240 MM, 100% MOBILE SPECTRO DONE OK (X-RAYS) REDUCTION RATIO=9.1, SURFACE SATISFACTORY

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

[Signature]