



BSI
ISO/TS 16949:2005 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. 8227 Date :- 02/02/2018 13:48:50
/1.&OPP.HINDUSTAN TYRE. Invoice No. 20900
KANGANWAL ROADJUGIANA.LUDHIANA Truck No. PB11BK-7592

GRADE	SIZE	HEAT NO.	MANUFACTURING ROUTE	COLOUR CODE	SUPPLY COND.N.	QTY. (MT)	NO. OF PCS.
EN 353	80 DIA	6192	E.A.F.+L.F.+V.D.+CCM+EMS	BLUE+WHITE	E	AS ROLLED	31.640 148

--- 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	0.1920	0.9200	0.0230	0.0130	0.1900	1.0500	1.1900	0.1260	0.0047	0.0250	0.0960	0.0090	0.0027	0.0004	0.0005

--- METALLURGICAL RESULTS ---

INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A

	A			B			C			D			Aust.Grain Size ASTM No. (E-112)	Gas Content (ppm)
	T	H	T	T	H	T	T	H	T	T	H	T		
STD MAX	2.0	1.0	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	1.0	0.13	17
ACTUAL	1.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	Micro-Structure B+F+P	85 .908

MECHANICAL PROPERTIES (ASTM A-370/IS-1608)

TEST CONDITION (N / H & T)										MACRO	ULTRASONIC TEST	MIX UP TEST
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	-	-	-	-	250-263							

--- 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	43.5	42.5	40	39	37	-	-	-

Remarks :- REDUCTION RATIO-8.0,100% MOBILE SPECTRO DONE OK (X-RAYS)

SURFACE SATISFACTORY

Note :- TESTED FOR RADIOACTIVE CONTAMINATION

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

PREPARED BY

AUTHORISED SIGNATORY