



UNIT-I

TEST CERTIFICATE

TEST CERTIFICATE ACCORDING TO EN10204 TYPE 3.1

Customer Address: M/S- S.S.B. ENGINEERS PVT.LTD. 133,MATSYA INDUSTRIAL AREA ALWAR -RAJASTHAN-(INDIA) PIN CODE NO.301030	Material Process Route Specification Heat No. Grade Supply Size Supply Condition Colour Code	Billet Route EAF-LRF-VD-CCM-AMLC-EMS-RM TDC No -12,Rev No -1,DATE-14.06.2024 DANA Spec. Q.F. 1001 - R3, Dated- 14.06.2024 A33038 C40 70 MMØ AS HOT ROLLED WHITE+RED DOT	Test Certificate No. Date Invoice No. Weight (MT.) Input/Billet Size Reduction Ratio No's of Pcs No's of Bundle Length Size	2024-25/0022964 16-12-2024 15989. 22.130 250X250 MM 16.25:1 (Spec-7:1 min) 128 9 4.0 to 4.5 meters

TEST RESULT

CHEMICAL ANALYSIS (ASTM E 415 / IS 8811)

Element	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%	V%	Al%	Cu%	B%	Ca%	-	-	-	-	AL/N2 Ratio
Spec.	Min	0.370	0.500	0.150	0.020	-	0.200	-	-	0.020	-	-	-	-	-	-	-	2.10
	Max	0.440	0.800	0.400	0.040	0.035	0.300	0.120	0.060	-	0.050	0.300	0.0005	0.0010	-	-	-	-
Achieved		0.430	0.755	0.215	0.027	0.018	0.245	0.105	0.030	0.002	0.026	0.135	0.0003	0.0008	-	-	-	3.42

JOMINY HARDENABILITY TEST (IS:3848, ASTM A255, SAE J406)

Distance (MM)	5	10	20	30														
Spec. (HRC)	Min	32	26	24	21													
	Max	40	31	28	26													
Achieved (HRC)		39.5	30.5	26.0	23.5													

Mechanical Properties

Parameters		IS:1608/ASTM A370 Test Condition: Q & T				IS:1757		ASTM A255		IS:1500	
		Tensile Strength (Mpa)	Yield Strength (Mpa)	Elongation (%)	Reduction Area (%)	Impact Strength Charpy U-notch (Joules)		D.I. Value		Surface Hardness As Rolled (BHN)	
								(Inch)	(mm)		
Spec.	Min	700	490	15	-	25 J min		-	-	-	
	Max	840	-	-	-			-	-	240	
Achieved		774	657	16.2		37.5 J		-	-	179/197	

Metallurgical Results

Parameters		Inclusion Rating (IS : 4163 / ASTM : E45A / JK Chart) WORST FIELD RATING									Grain Size IS 4748 / ASTM E112 (No.)	Depth of Decarburization IS 6396/ASTM E1077		Micro Structure	
		Type	A		B		C		D			DS	Complete		Partial
		Series	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick					
Spec.	Min	-	-	-	-	-	-	-	-	-	5-8	Not Allowed	0.6% of the nominal diameter with maximum of 0.6 mm	Banding OK as per UNI 8449 (A max of GR-4 is acceptable)	
	Max	2.5	1.5	2.0	1.0	0.5	0.5	1.0	1.0	-					
	Achieved	1.5	0.5	0.5	0.0	0.0	0.0	1.0	0.0	-					6.0 to 6.5

Physical Properties, Non Destructive Test & Other Test

Parameters	Internal Soundness ASTM E381	Step Down Test IS 4075	Surface Inspection IS 13352	Magnetic Particle Inspection ASTM E1444	Ultrasonic Test ASTM A388	Upsetting Test IS 10167
Spec.	S3, C2, R3 MAX	Free From Streaks	Free from surface defects	Free From Crack	Defect Echo max 20% of back wall Echo	-
Achieved	Better than S1,C2,R1	OK	Satisfactory	100% Done ok	100% Done ok	Satisfactory

Parameters	Dimensional Tolerance	Spark Test	X-RF	Gas Analysis Report Test method-Leco		
				O ₂ (ppm)	N ₂ (ppm)	H ₂ (ppm)
Spec.	As per IS 3739 Grade 1	-	-	20 max	60-120	2.5 max
Achieved	As per IS 3739 Grade 1	100% Done ok	100% Done ok	11.00	76.0	0.83

Remarks :

Material conforms to Graziano Spec. DANA Spec. Q.F. 1001 - R3, Dated-14.06.2024

This material comply with RoHS (Pb, Cd, Hg, Cr6+) and REACH permissible limits. 3TG (Tantalum, Tin, Tungsten and Gold) not added intentionally in the product. Material is free from radioactive contamination.

MACHINE STRAIGHTENED MATERIAL

Prepared By: Vishwakarma Sharma	Approved By: 	Pre Dispatch Inspection: 
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In case of any Test certificate Issue, please inform Dinesh Singla at quality04@arorairon.com, Mobile No. +919914538700