

ZARHAK STEELS PVT. LTD.

(WIRE DIVISION)

Plot No. L-20 MIDC Industrial Area, Taloja Tal Panvel, Dist Riagad

Navi Mumbai 410208 Maharashtra

Phone 27411905 / 27402909

Email:- wires@zarhak.com



Test Certificate

SOLD TO :

METAFORGE ENGG. (INDIA) PVT LTD.

S. NO.22/3 Nasik - Dindori Road, Mhasrul, Nashik,
Maharashtra 422004

T.C. No. & Dt. :

1478

16-12-2021

Invoice No. & Dt. :

403

16-12-2021

Challan No. & Dt. :

9232

16-12-2021

Grade :

1010

Mill :

JSW-Salem

Process

SDAPD

No. of bundles :

1

Prepared by :

Omkar Pawar

Reviewed by :

Tot. Wt (M.Ton) :

0.510

Heat No.

No. of Bundles

Coil no

A33336

1

2626

Mill TC No.

431432

Chemical Composition %

Grade Heat No.	Element	C %	Mn %	Si %	P %	S %													
1010	Min %	0.08	0.30	-	-	-													
	Max %	0.13	0.60	0.25	0.04	0.04													
A33336	Steel Mill value	0.11	0.42	0.082	0.011	0.003													

Sr.No	Characteristic		Evaluation Measurement System	Cust. Specification / Acceptance level		Result	
						Sample Coil No.	Heat No.
1	RM size / Wire Rod size		Digital Micrometre	9.00	mm	9.00	2626
2	Diameter of Finish wire		(Least count 0.001 mm)	6.88/92	mm	6.91	A33336
3	Finish UTS		UTM	--	Kgf/ sq.mm	38.2	mm
4	Hardness	Core	Hardness tester	-	HRB / HRC	68	mm
		Surface			HRB / HRC	64	HRB
5	Reduction Area %		RA gauge	-		78	Kgf/sq.mm
6	Micro-examination	Spheroidization %	Microscope (1000X)	Min 80% At cross sectional area on sample after annealing		80	%
		Micro-Structure	Microscope (100X)	Pearlite and Ferrite		Pearlite and Ferrite	
		Decarb	Microscope (100X)	Nil		No Decarb	
7	Visual Defects		Observation based on naked eye	No Rusty, No Pit mark, No Damage		No defect	
8	Surface cracks status		Acid Dip, Cleaning, magnified surface	100% of sample dipped into acid & checked		No crack	

Remarks :

211217C33)

P. Sandhu

MANAGER OF QUALITY ASSURANCE

We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. Free from radioactive elements contamination. All material supplied by us is 100% recyclable. After life of product ends the material should be recycled.

QAD-W-05, Rev. 01, 23.06.2018

JSW STEEL LIMITED - SALEM WORKS

QR / QA / 54

Works: pottaneri Village, Mecheri Post - 636 453, salem, india

Registered Office: "JSW CENTRE", Bandra Kurla Complex, Bandra (East), Mumbai - 400 051

TEST CERTIFICATE

Certificate No. : 431766					Date : 21.10.2021			Po Number:EMAIL			
Customer Name: Caravan Logistics Pvt. Ltd.					SO No : 401431885			Po date :23.09.2021			
Cust. Address : S. no. 99/1 A Village Wavange PANVEL, Maharashtra-410206, India					SO Date : 23.09.2021			Packing Slip No :710665302			
					Truck No.: TN52R6396			Invoice No :21SL3300039208			
Heat No	Grade	Size (mm)	Length (mm)	ML (mm)	No. of Bundles	No. of PCS	Weight	Billet/Bloom Size			
A33336	SAE 1010	17.30 mm DIA			12	12	18.130 MT	160mm 150mm			

TDC NO : STD_SAE1010_SPEC

Process Route : BF_EOF LRF VD CCM EMS BRM

Reduction Ratio : / - 108.96 : 1

CHEMICAL ANALYSIS																		Prod STD No : QDQA06 4				
Element	C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%	B ppm	V%	Cu%	Pb%	Sn%	Ti%	Nb%	Zr%	As%	Sb%	Al%	Ca ppm	CE%	
MIN	0.0800		0.300																			
MAX	0.1300	0.300	0.600	0.040	0.0500														0.0400			
Actual	0.110	0.082	0.422	0.011	0.003	0.046	0.006	0.014	2	0.001	0.012	0.001	0.004	0.0021	0.004	0.002	0.002	0.002	0.027	19	0.19	
Gas Levels :		N ppm : [/ 90] -75					O ppm : [/ 20] -9.6					H ppm : [/ 2.00] -1.30										

MECHANICAL PROPERTIES :													
Tensile Test ()				Hardness Test				Impact Test ()					
Cond.							Spec.						
Spec.	YS	UTS	Elong.	RA	As Rolled	As Quenched	As Q&T	Test Temp	Imp. Value (min)	1	2	3	Avg.
		Kgf/mm ²	%	%									
Min													
Max													
Actual		40.650 - 41.070		67.050 - 67.930									

Edge / Corner Radius (mm) :				Upset Type :				Upsetability:					
JOMINY HARDENABILITY ()										Ideal Diameter (DI) : [/] -			
Distance													
MIN (HRC)													
MAX (HRC)													
Actual(HRC)													

METALLURGICAL PROPERTIES & PHYSICAL INSPECTION																
	Surface Inspection		Step Down Test		BFT Test		MPI Test		Segregation Test		Spark Test		Spectra Test		Metascope Test	
Actual	OK										100 % OK		100 % OK		100% OK.	
	Macro Etch Test		Micro Structure		CN		CZ Looser		CZ Closer		GBC Level		DEG. SPH		Distortion	
Spec					/		/		/							
Actual	C1R1S1		Ferrite - Pearlite													
	Grain Size	Decarb (mm)	Banding (µm)	A		B		C		D		DOS µm	Ultrasonic Test			
Spec	/	/	/	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick					
Actual	7.00	0.080 mm		0.50	0.00	0.00	0.00	0.00	0.00	0.50	0.00					

Inclusion Rating Test Standard: ASTM E45 - 18A				Grain Size Standard: ASTM E112 - 13				Decarb Standard: SAE J419_201801			
Macro Etch Test Standard: ASTM E381 - 17				Banding Test Standard:				UT Standard:			

JSW COLOR CODE : _____ CUSTOMER COLOR CODE : _____

INSPECTION CERTIFICATE 3.1 ACCORDING TO EN 10204 : 2004
Supply Condition : AS ROLLED
Remarks :
Reference : WE HEREBY CERTIFY THAT THE MATERIAL SHIPPED UNDER THIS TEST CERTIFICATE DID NOT COME IN DIRECT CONTACT WITH ANY MERCURY, CADMIUM HEXAVALENT CHROMIUM CONTAINING DEVICES, FREE FROM RADIOACTIVE CONTAMINATION EMPLOYING A SINGLE BOUNDARY OF CONTAINMENT DURING THE MANUFACTURING PROCESS TESTS.
INSPECTION AND STORAGE

<p>WE CERTIFY THAT CONTENTS OF THIS REPORT ARE CORRECT AND ACCURATE AND MEET THE REQUIREMENTS OF THE PURCHASE ORDER, TECHNICAL DELIVERY CONDITION, GENERAL STEEL REQUIREMENTS AND THE MATERIAL CERTIFICATION REQUIREMENTS</p>	<p>NOTE: 1. THE RESULTS RELATES ONLY TO THE ITEM TESTED 2. CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF ISSUING AUTHORITY.</p>	<p>For JSW STEEL LIMITED</p> <p>V. Jambukeswaran - AGM(QAD)</p>
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