

**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**

<b>Certificate No. : SAMPLE TC</b>					<b>Date :</b>			<b>Po Number:</b>		
<b>Customer Name:</b>					<b>SO No :</b>			<b>Po date :</b>		
<b>Cust. Address :</b>					<b>SO Date :</b>			<b>Packing Slip No :</b>		
					<b>Truck No.:</b>			<b>Invoice No :</b>		
Heat No	Grade	Size (mm)	Length (mm)	M/L (mm)	No. of Bundles	No. of PCS	Weight	Billet/Bloom Size		
A3445	SCM 420H	95.0 mm RCS	6,000.00 mm	0 mm	1		0.000 MT	280MM_370MM		

TDC NO : DAPL\_QA\_F\_28\_05\_SCM420H\_0\_04.05.2017

Process Route : BF\_EOF\_LRF\_VD\_CCM\_EMS\_BM

Reduction Ratio : 8.00 / - 11.62 : 1

CHEMICAL ANALYSIS																			Prod STD No : QDQA06_30			
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	0.1800	0.150	0.600		0.020	0.900	0.150												0.0200			
MAX	0.2300	0.350	0.850	0.035	0.0350	1.200	0.300												0.0400			
Actual	0.192	0.271	0.808	0.011	0.024	1.120	0.207	0.021	3	0.003	0.015	0.001	0.004	0.0035	0.003	0.002	0.003	0.001	0.023	5	0.595	

Gas Levels : N ppm : [ / 90 ] -60					O ppm : [ / 30 ] -11.8					H ppm : [ / 2.00 ] -1.41				
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MECHANICAL PROPERTIES :																		
	Tensile Test ( )				Hardness Test				Impact Test ( )									
Cond.					As rolled				Spec.									
Spec.	YS	UTS	Elong.	RA	As Rolled	As Quenched		As Q&T	Test Temp	Imp. Value (min)	1		2		3		Avg.	
			%	%	BHN													
Min																		
Max					240													
Actual					179.0													

Edge / Corner Radius (mm) :					Upset Type :					Upsetability:				
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<b>JOMINY HARDENABILITY ( ASTM A255 - 10(2014) )</b>																			Ideal Diameter (DI) : [ / ] -	
Distance	J9																			
MIN (HRC)	34.0																			
MAX (HRC)	38.0																			
Actual(HRC)	36.20																			

METALLURGICAL PROPERTIES & PHYSICAL INSPECTION															
	Surface Inspection		Step Down Test		BFT Test		MPI Test		Segregation Test		Spark Test		Spectra Test		Metascope Test
Actual	OK		Pass				OK				OK		OK		
	Macro Etch Test		Micro Structure		CN		CZ Looser		CZ Closer		GBC Level		DEG. SPH		Distortion
Spec	C2R2S2		F_P		/		/		/						
Actual	C2R2S2		Ferrite - Pearlite												
	Grain Size	Decarb (mm)	Banding (µm)	A		B		C		D		DOS µm	Ultrasonic Test		
				Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick				
Spec	6.0 / 8.0	/	/	2.5	1.5	2.0	1.0	2.0	0.0	2.0	1.0		20% / 80% Back Wall Echo		
Actual	7.00	0.350 mm		2.00	0.50	0.50	0.00	0.00	0.00	0.50	0.00				

Inclusion Rating Test Standard: ASTM E45 - 13, A					Grain Size Standard: ASTM E112 - 13					Decarb Standard: SAE J419_198312				
Macro Etch Test Standard: ASTM E381 - 01(2012)					Banding Test Standard:					UT Standard: ASTM A388/A388M - 16				

JSW COLOR CODE :					CUSTOMER COLOR CODE :				
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<b>INSPECTION CERTIFICATE 3.1 ACCORDING TO EN 10204 : 2004</b>																		
<b>Supply Condition : AS ROLLED</b>																		
<b>Remarks :</b>																		
<b>Reference :</b> WE HERE BY 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.																		

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 ANDTHE MATERIAL CERTIFICATION REQUIREMENTS.							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.							For JSW STEEL LIMITED  S. M. KUMAR - AVP (PC & QAD)				
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