



GERDAU STEEL INDIA PVT LIMITED

PLANT: TADIPATRI. DIST.: ANANTPUR. A.P.: 515411

TEST CERTIFICATE

F/QA-TC/12 Rev. 01

TC No : 2017/00081274	Invoice No. : ST2017000159	Quantity	16.394 t	Rolling Input : 160X160 mm
Customer : GERDAU STEEL INDIA PVT. LTD		S.O. No. / Date : 45036		
PROCESS ROUTE :- BF>>BOF>>LRF>>VD>>CCM>>RM		Size : 50 Dia	Truck No.: AP02TB 6528	
Heat No:- 30719		Product : Rolled Bar	Colour Code:	GREEN/BLACK
NO OF BUNDLES: 6 NO OF BARS: 178	Grade :- SAE 8620			
TAS No. : 1488/2015	TDC No :- BGL.TS.01, REVISION NO.11, Dt 10/10/2013	Condition :As Rolled	Reduction Ratio:	13.04 :1

CHEMICAL COMPOSITION

Element	%C	%Mn	%Si	%P	%S	%Cr	%Ni	%Cu	%Mo	%Al	%Pb	%V	%Ti	%Ca
Min.	0.18	0.70	0.10	-	0.020	0.40	0.40	-	0.15	0.020	-	-	-	-
Max.	0.23	0.90	0.25	0.035	0.035	0.60	0.70	0.25	0.25	0.040	-	0.040	0.006	0.0020
Actual	0.22	0.86	0.20	0.017	0.029	0.58	0.46	0.01	0.24	0.026	0.00	0.004	0.0020	0.0010
OTHER ELEMENTS														
Element	%B	%Nb	%As	%Sb	%Sn	%W	%Co							
Min.	-	-	-	-	-	-	-							
Max.	0.0004	0.02	-	-	-	0.04	0.05							
Actual	0.0003	0.00	-	-	-	0.00	0.00							

GAS LEVEL			
O ₂ PPM	H ₂ PPM	N ₂ PPM	
Min	-	-	-
Max	20	2.5	90
Actual	17	1.0	72

MECHANICAL PROPERTIES

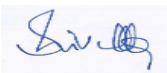
Requirement	Hardness (BHN)	Impact Strength (IZOD/CHARPY)	Yield Strength (Kg/mm ²)	UTS (Kg/mm ²)	%Elong.	%RA	JOMINY HARDENABILITY (HRC)					
							J4/16"	-	-	-	-	-
Min.	-	-	-	-	-	-	Min.	37	-	-	-	-
Max.	240	-	-	-	-	-	Max.	41	-	-	-	-
Actual	194	-	-	-	-	-	Actual	37.6	-	-	-	-

METALLURGICAL PROPERTIES

Requirement	Depth of Decarb (mm) (SAE J419 TYPE III)	Macro Etch (ASTM E 381)	Max. Depth of Surface Defect (mm)	Grain Size (ASTM E 112)	INCLUSION RATING AS PER ASTM E45 (METHOD A)							
					A		B		C		D	
					T	H	T	H	T	H	T	H
Min.	-	-	-	6	Min	-	-	-	-	-	-	-
Max.	1 % of Dia	C2R2S2	-	8	Max	2.5	2.0	2.0	0.5	2.0	-	2.0
Actual	0.24	C1R1S1	-	6-6.5	Actual	2.0	1.0	1.0	-	-	-	1.0

Spark & Spectral Test:	100% OK	Other Tests: 1. MFL: 2. Step Turn: 3. Blue Fracture: 4. Upset Test:	-	Oil Quenched Core Hardness:		
Surface Inspection:	100% OK		100% OK			
Ultrasonic Test:	100% OK		Found Satisfactory			
MPI:	-		-			
			-	Min. in HRC	-	-
				Actual in HRC	-	-

Remarks	Microstructure : Pearlite + Ferrite	Banding (30 µm max)- 22 µm
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Length of Bar :- 6000 mm	"We certify that the contents of this report are correct & accurate & meet the requirements of the purchase order, technical delivery conditions, general steel requirements & the material certification requirements". Supplied material is free from radioactive element.	
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Technical Service 11.07.2017

Corporate Office: 304/305 World Trade Centre, Brigade Gateway Complex, Malleswaram (West), Bangalore: 560046, India

Please contact in case of query e-mail id: inml.techservice@gerdau.com