

BHUSHAN POWER & STEEL LTD



Works: RENGALI, DIST- SAMBALPUR (ORISSA) Bhushan Power & Steel Limited
 Phone: (0)663-2535000, 2562024, (Fax) 2535277, 2562024 Plot No. 264, Sector-24
 Faridabad (Haryana)

Test Certificate

Format No.: BPSL/QC/F - TC01, Rev-01, Rev. Date- 20.05.2015

mass metal

29591

T.C. No. & Date		X9325/03.03.2018						Heat No.		18A4403					
Customer ref.No./REV.No		-----						Grade of Steel		16/20MNCR5					
P.O. / Ref. No.		-----						Size		75 MM RCS					
Customer Name		BHUSHAN POWER & STEEL LTD T DIV III/FBD						No. of PCS. / Coils							
Supply Condition		As Rolled						Quantity (MT)		29.236 19.50					
Process Rout		BF-EAF-LRF-VD-CCM (EMS) - RM						Colour code		YELLOW+GREEN					
Billets Size mm		200X200		Reduction Ratio		7.11:1		Multiple length		6.00 MTR					
Chemistry %		%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Mo	%Cu	%Al	%V			
Specification	Min.	0.17	1.10	--	--	--	1.00	--	--	--	--	--			
	Max.	0.19	1.30	0.030	0.025	0.400	1.10	--	--	--	--	--			
	Actual	0.18	1.26	0.014	0.011	0.250	1.08	0.011	0.004	0.005	0.025	0.004			
Gas Contents (ppm)		Hydrogen		Specified		Actual		Oxygen		Specified		Actual		Nitrogen	
				--		1.5				--		18		--	
Mechanical Properties															
Test Condition		Hardness on TP		UTS (N/mm ²)		YS / 0.2 % PS		%E		%RA		Hardness (AC Rolled) (BHN)		Imp.Value Joules	
												Izod/ Charpy		Cold/Hot Upset as per Cust Req.	
Specified		NA		NA		NA		NA		NA		NA		NA	
Actual		--		--		--		--		--		160		--	
Metallurgical Test															
Macro-Etch (ASTM E-381)		Grain size 100x ASTM IS:4748		PARTIAL Decarb (mm)		DI Value		Inclusion Rating (As per IS:4163)							
						As per SAE J 406		A		B		C		D	
								T		H		T		H	
Specified		--		--		NA									
Actual		C2R2S2		7.00		0.25		--		1.5		--		1.0	
Micro Structure: Ferrite & pearlite															
Hardenability test (JOMINY TEST) IS:3848 / ASTM A255 / SAE J 406															
Dist. (INCH)		4/16"													
Required (HRC)		34-38													
Actual (HRC)		37.5													
Non Destructive Test															
Anti Mix Up Control (100%):				OK				Ultrasonic :				OK			
MPI:				OK											
Remarks															
Prepared By: D N NAYAK															
DECLARATION: Certified that the test findings are correct and based on actual result carried on samples drawn as per quality plan.															
For Bhushan Power & Steel Ltd Authorized Signatory (Quality Assurance)															