



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2189 Product Size: NPS 20 X 2.009 Production Date: Dec 10, 2014  
Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002174  
Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, AS3-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings NPS 20 X 2.009 2.009 INCHWT SMLS 2014/12 NDE 2800PSI  
HEAT BSM-2189 (PIPE # LENGTH MASS) 386lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA



Product: Details						Non-Destructive Testing												
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2800 PSI/ 5 s	End Condition				
BSM-2189	Heat	NPS 20 X 2.009 2.009in. WT	3	DRL	386	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End				
Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)/Max	CE(CSA)
BSM-2189	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.92	0.014	0.002	0.31	0.04	0.05	0.01	0.02	0.004	0.004	0.001	-	0.37	-	0.38
		Product	0.20	0.92	0.013	0.003	0.31	0.04	0.05	0.01	0.03	0.005	0.002	0.000	0.0003	0.37	-	0.38
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mechanical Properties																		
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %									
BSM-2189	Heat	Ferrite & Pearlite	73 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	40 200	70 500	0.57	36									
Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG											
BSM-2189	-	-	-	-	-	-	-											

## Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2013, AS3-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 97/23/EC.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 Section 2.1

✓ No weld repairs have been performed on this product.

✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes.

✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

  
2016 Apr 18.

Kenton Dechant, P.Eng.  
Manager of Quality and R&D