



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe**      Product Heat Number: **BSM-0583**      Product Size: **NPS 20 TRUE80**      Production Date: **December 3, 2012**

Production Method: **Hot Expansion**      Product Heat Treatment: **As-rolled**

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA106 GR B/C A/SAS3 GR B NPS 20 TRUE80 HEAT BSM-0583 (PIPE # LENGTH MASS) 208.9lb/ft NDE SMLS NACE MR0175 2012/12 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition
BSM-0583	Heat	20	TRUE80	9	DRL	208.90	<5	<20	Pass	Pass	Pass	Pass	Pass	*	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis															
		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)	
BSM-0583	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.21	0.85	0.011	0.003	0.31	0.04	0.05	0.01	0.02	0.003	0.002	0.001	0.0002	-	-
		Product	0.21	0.93	0.011	0.004	0.29	0.04	0.05	0.01	0.02	0.003	0.003	0.001	0.0002	0.38	0.39

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test					Elongation (A) %	
					HRBW	Pass	50mm GL	Yield (Rt0.5) psi	Yield (Rp0.2) psi		Tensile (Rm) psi
BSM-0583	Heat	Ferrite & Pearlite	76	Pass	Transverse; 38.1mm x WT	Pass	30,000	44,400	70,000	0.43	55
					Longitudinal; 38.1mm x WT	Pass	47,900	48,200	70,000	0.68	54

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2010 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.

\*Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

*Kenton Dechant*  
 2012 Dec 21  
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 Kenton Dechant, P.Eng.  
 Manager of Quality and R&D