



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0386** Product Size: **NPS 20 TRUE80** Production Date: **July 2, 2012**

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

Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SA53-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 20 TRUE80 ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0386 (PIPE # LENGTH MASS) 208.9lb/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Gelger	Res.Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0386	Heat	20	TRUE80	2	DRL	208.90	μR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	1000 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	---	Pass	Pass	Plain End

		Steelmaking Method		Chemical Analysis (wt%)														
Heat	Test Type	Blast Furnace; EAF; Ladle		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0386	Heat	Refining; Vacuum Degass		0.15	1.04	0.018	0.004	0.24	0.05	0.07	0.01	0.03	0.004	0.002	0.001	0.0002	0.34	0.33

				Mechanical Properties						
Heat	Test Type	Microstructure	Hardness	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0386	Heat	Ferrite & Pearlite	HRBW 74	50mm GL, 38mm x WT	Transverse	psi	psi	psi		%
				Longitudinal		49,700	47,200	67,500	0.74	55
						50,000	50,000	69,500	0.72	60

**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 meet 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 no mercury contamination.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

*[Handwritten Signature]*  
 2012 July 9

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