



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0134** Product Size: **NPS 20 STD** Production Date: **2011 Dec 07**

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

Product Standards: **ASTM/ASME A/SA106-2010 Grade B/C, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **BRI-STEEL MFG NPS 20 STD ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0134 (PIPE # LENGTH MASS) NDE 910PSI NACE MR0175 2011/11 MADE IN CANADA.**

Product Details					Non-Destructive Testing										
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 910 psi/5s	End Condition
BSM-0134	Heat	20	STD	1	DRL	3144 LB	<5	<20	Pass	Pass	Pass	---	Pass	Pass	37.5° Bevel

		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-0134	Heat	Refining; Vacuum Degass		0.20	0.87	0.010	0.006	0.21	0.04	0.13	0.02	0.04	0.003	0.001	0.001	0.0002	0.37	(IIW)	(CSA)

		Mechanical Properties												
Heat	Test Type	Microstructure		Hardness		Flattening Test		Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0134	Heat	Ferrite & Pearlite		HRBW		Pass		50mm GL, 38mm x WT	Transverse	psi	psi	psi	(Rt0.5/Rm)	%
				76				Longitudinal		42,700	42,000	74,500	0.57	42
										49,600	49,600	75,000	0.66	42

**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/SA106-2010, A/SA53-2010 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:

2011 Dec 14

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