



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1050** Product Size: **NPS 18 SCH 120** Production Date: **July 8, 2013**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 18 SCH 120 1.375 inchWT HEAT BSM-1050 (PIPE # LENGTH MASS) 244.1lb/ft NDE SMLS NACE MR0175 2013/07 MADE IN CANADA.**

Product Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD**	UT	UT	ET	HydroTest	End Condition
BSM-1050	Heat	NPS 18 SCH 120 1.375 in.WT	6	DRL	244.10	<5	Gauss	Insp.	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	CE
BSM-1050	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.89	0.014	0.004	0.31	0.05	0.04	0.01	0.03	0.003	0.002	0.001	0.0002	-	-
		Product	0.21	0.92	0.017	0.004	0.31	0.04	0.08	0.01	0.04	0.005	0.002	0.001	0.0002	0.38	0.39

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-1050	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GL	psi	psi	(Rt0.5/Rm)	%
			74		Longitudinal; 19.1mm x WT	39,600	69,000	0.57	48

Impact Test												
Heat	Test Standard	Impact Test	Temp	Impact Energy			Lateral Expansion					
BSM-1050	-	Sample Details	°C	J	J	J	AVG	%	mm	mm	mm	AVG
			-	-	-	-	-	-	-	-	-	-

**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.  
 \*\*OD Tolerances as per API

Mill Test Certificate approved by:

Paul Sowden, T.T.  
 Assistant QA Manager

2013 JUL 12