



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1120** Product Size: **NPS 18 SCH 120** Production Date: **July 31, 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-1120 (PIPE # LENGTH MASS) 244.1lb/ft NDE SMLS NACE MR0175 2013/07 MADE IN CANADA.**

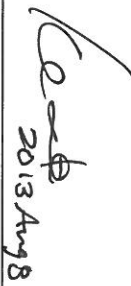
Product Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition	
BSM-1120	Heat	NPS 18 SCH 120 1.375 in. WT	2	DRL	244.10	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	*	Plain End

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-1120	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.21	0.91	0.016	0.003	0.31	0.05	0.05	0.01	0.03	0.004	0.003	0.001	0.0003	-	-
		Product	0.21	0.93	0.016	0.003	0.32	0.07	0.07	0.01	0.03	0.005	0.002	0.001	0.0002	0.39	0.40

Mechanical Properties														
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %	Impact Energy		Lateral Expansion	
					50mm GL	Longitudinal; 19.1mm x WT					AVG	AVG	mm	mm
BSM-1120	Heat	Ferrite & Pearlite	76	Pass			35,600	69,500	0.51	49				
BSM-1120	Heat	Standard	-	-			-	-	-	-				

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.

Mill Test Certificate approved by:

 2013 Aug 8
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D

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