



Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1182** Product Size: **NPS 14 SCH 120** Production Date: **August 23, 2013**

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

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

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 14 SCH 120 1.094 inchWT HEAT BSM-1182 (PIPE # LENGTH MASS) 150.7lb/ft NDE SMILS NACE MR0175 2013/08 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	WT	UT	UT	ET	HydroTest	End Condition
BSM-1182	Heat	NPS 14 SCH 120 1.094 in. WT	2	DRL	150.70	<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-1182	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.20	0.89	0.011	0.002	0.31	0.05	0.06	0.00	0.03	0.003	0.002	0.001	0.0003	-	-
		Product	0.22	0.89	0.017	0.003	0.28	0.05	0.06	0.01	0.03	0.004	0.002	0.001	0.0001	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)	Lateral Expansion							
					50mm GL	Longitudinal: 19.1mm x WT				%	%	%	mm	mm	mm	AVG	
BSM-1182	Heat	Ferrite & Pearlite	78	Pass	-	47,500	72,500	0.66	-	-	-	-	-	-	-	-	-
BSM-1182	Heat	Standard	-	-	Temp °C	Impact Test		%	%	%	AVG	mm	mm	mm	AVG	-	-
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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:

Paul Sowden

2013 AUG 29
 Paul Sowden, T.T.
 Assistant QA Manager