



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1134** Product Size: **NPS 18 TRUE80** Production Date: **August 6, 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/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SAS3 GR B NPS 18 TRUE80 0.94 inchWT HEAT BSM-1134 (PIPE # LENGTH MASS) 170.8lb/ft NDE SMLS NACE MR0175 2013/08 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	WT	UT	UT	ET	HydroTest	End Condition	
BSM-1134	Heat	NPS 18 TRUE80 0.94 in.WT	3	DRL	170.80	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass		*	Plain End

Chemical Analysis (wt%)																		
Heat	BSM-1134	Steelmaking Method Blast Furnace, EAF, Ladle Refining; Vacuum Degass, Fully Killed	Analysis															
			C	Mn	P	S	Si	Cr	Cu	Mo	NI	V	Ti	Nb	B	CE (IIW)	CE (CSA)	
			0.20	0.93	0.011	0.002	0.32	0.05	0.07	0.01	0.02	0.002	0.002	0.001	0.0003	-	-	
			Product	0.20	0.88	0.014	0.004	0.32	0.05	0.07	0.01	0.03	0.004	0.002	0.001	0.0001	0.36	0.37

Mechanical Properties																
Heat	BSM-1134	Test Type Heat	Microstructure Ferrite & Pearlite	Hardness HRBW	Flattening Test Pass	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %					
						50mm GI	Longitudinal, 19.1mm x WT									
				77				51,500	69,500	0.74	48					
Heat	BSM-1134	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion					
					J	J	J	AVG	%	%	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/SAS3-2012, 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