



Mill Test Certificate

Bri-Steel Manufacturing Inc.
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.brichemsteel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1127** Product Size: **NPS 18 TRUE80** Production Date: **August 5, 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 18 TRUE80 0.938 inchWT HEAT BSM-1127 (PIPE # LENGTH MASS) 170.8lb/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	UT	UT	ET	HydroTest	End Condition
BSM-1127	Heat	NPS 18 TRUE80 0.938 in. WT	2	DRL	170.80 lb/ft	µR/hr	Gauss	Insp.	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)
			Heat	0.21	0.88	0.012	0.003	0.33	0.04	0.07	0.04	0.02	0.002	0.002	0.001	0.0003	-
BSM-1127	Blast Furnace: EAF; Ladle Refining; Vacuum Degass, Fully Killed	Product	0.21	0.92	0.013	0.003	0.28	0.05	0.07	0.01	0.02	0.002	0.005	0.005	0.0001	0.38	0.39

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) %
					50mm GL	Longitudinal; 19.1mm x WT				
BSM-1127	Heat	Ferrite & Pearlite	78	Pass	Pass	49,800	72,000	0.69	50	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion													
				J	J	J	%	%	%	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
BSM-1127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.

Mill Test Certificate approved by: _____
 2016 Mar 18
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D