



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1374** Product Size: **NPS 18 STD** Production Date: **November 6, 2013**
 Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled** Certificate Number: **573**
 Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA333 Grade 6, A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **NPS 18 STD 0.375INCH WT SMLS 2013/11 NDE PAULSEN PIPE PO# 10330** **MADE IN CANADA**
HEAT BSM-1374 (PIPE# LENGTH MASS) 70.59LB/FT ASTM/ASME A/SA333 GR 6 A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103

Product Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End	
BSM-1374	Heat	NPS 18 STD 0.375 in. WT	16	DRL	lb/ft 70.59	µR/hr <5	Gauss <20	Insp. Pass	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (Pcm)	CE (CSA)
BSM-1374	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.09	1.09	0.018	0.011	0.23	0.10	0.10	0.04	0.05	0.040	0.010	0.003	0.0003	-	-
		Product	0.10	1.08	0.018	0.011	0.23	0.10	0.09	0.03	0.05	0.037	0.011	0.002	0.0003	0.18	0.25

Mechanical Properties														
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test			Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	% Shear			Elongation (A) %
					Pass	50mm GL	38.1mm x WT				%	%	AVG	
BSM-1374	Heat	Ferrite & Pearlite	83	Pass	Longitudinal	38.1mm x WT	60,500	72,000	0.84					37
Heat	Test Standard	Impact Test Sample Details	Temp °C	J	J	J	AVG	%	%	AVG	mm	mm	mm	AVG
BSM-1374	A/SA333	CVN Longitudinal (X-Y) 10x8	-45°C	115	115	109	113	50	50	50	1.70	2.00	2.30	2.00

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/SA333-2011, 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:

2014 Jan 9
 Kerton Dechant, P. Eng.
 Manager of Quality and R&D