



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1379** Product Size: **NPS 18 STD** Production Date: **November 6, 2013**
 Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled** Certificate Number: **574**
 Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA333 Grade 6, A/SA106-2011 Grade B/C, 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
 HEAT BSM-1379 (PIPE# LENGTH MASS) 70.59LB/FT ASTM/ASME A/SA333 GR 6 A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 **MADE IN CANADA**

Product Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	UT	UT	ET	HydroTest	End		
BSM-1379	Heat	NPS 18 STD 0.375 in.WT	15	DRL	lb/ft	µR/hr	Gauss	Insp.	Pass	OD	WT	ASTM E213	ASTM E309	890 psi/5s	Condition
					70.59	<5	<20	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	CE
BSM-1379	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.09	1.08	0.016	0.012	0.25	0.06	0.08	0.04	0.04	0.034	0.014	0.001	0.0003	-	-
		Product	0.11	1.09	0.020	0.017	0.23	0.07	0.09	0.04	0.05	0.030	0.013	0.002	0.0004	0.19	0.27

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-1379	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GL	psi	psi	(Rt0.5/Rm)	%
			79	Pass	Longitudinal; 38.1mm x WT	57,000	70,000	0.81	42

Heat	Test Standard	Impact Test Sample Details	Temp	J	J	J	AVG	%	%	%	AVG	mm	mm	mm	mm	AVG
BSM-1379	A/SA333	CVN Longitudinal (X-Y) 10x8	9C	92	154	96	114	30	40	50	40	-	1.90	-	1.90	1.90
			-459C													

- 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