



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0377** Product Size: **NPS 18 XS** Production Date: **June 25, 2012**

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

Product Standards: **ASTM/ASME A/SAL06-2011 Grade B/C, A/SAS3-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 18 XS ASTM/ASME A/SAL06 GR B/C A/SAS3 GR B HEAT BSM-0377 (PIPE # LENGTH MASS) 93.45lb/ft NDE 1370PSI NACE MR0175 2012/06 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	UT	ET	HydroTest	End		
BSM-0377	Heat	18	XS		DRL	93.45	µR/hr	Gauss	Insp.	OD	WT	ASTM E213	ASTM E309	1370 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel


		Chemical Analysis (wt%)																
Heat	Test Type	Steelmaking Method		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	TI	Nb	B	CE	CE
BSM-0377	Heat	Blast Furnace; EAF; Ladle	Refining; Vacuum Degass	0.20	0.88	0.009	0.012	0.19	0.03	0.09	0.01	0.04	0.003	0.001	0.001	0.0002	0.36	0.37

				Mechanical Properties						
Heat	Test Type	Microstructure	Hardness	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	V/T	Elongation (A)
BSM-0377	Heat	Ferrite & Pearlite	HRBW	50mm Gt; 38mm x WT	Transverse	psi	psi	psi	(Rt0.5/Rm)	%
			72	Longitudinal	Longitudinal	46,900	46,100	72,500	0.65	44
						42,500	42,000	72,000	0.59	46

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/SAL06-2011, A/SAS3-2012 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meet 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 no mercury contamination.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:


 2012 July 6
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D