



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0376** Product Size: **NPS 18 XS** Production Date: **June 21, 2012**

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

Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SA53-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 18 XS ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0376 (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 lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition
BSM-0376	Heat	18	XS	16	DRL	93.45	<5	<20	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 (I/W)	CE (CSA)
BSM-0376	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass		0.18	0.88	0.009	0.009	0.21	0.03	0.09	0.01	0.04	0.003	0.002	0.002	0.0002	0.34	0.35

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-0376	Heat	Ferrite & Pearlite	74	Pass	50mm GL; 38mm x WT	Transverse	37,200	44,100	69,500	0.54	45
					Longitudinal		38,500	38,100	66,500	0.58	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/SA106-2011, A/SA53-2012 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 June 28

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