



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0960** Product Size: **NPS 24 TRUE80** Production Date: **June 3, 2013**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SAA106-2011 Grade B NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SAA106 GR B A/SAS3 GR B NPS 24 TRUE80 1.219 inchWT HEAT BSM-0960 (PIPE # LENGTH MASS) 296.4lb/ft NDE SMLS NACE MR0175 2013/06 MADE IN CANADA.**


Product Details				Non-Destructive Testing												
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition	
BSM-0960	Heat	NPS 24 TRUE80 1.219 in.WT	3	DRL	296.40	<5	<20	Pass	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)	
			BSM-0960	Blast Furnace; FAF; Ladle Refining; Vacuum Degass; Fully Killed	Product	0.22	0.91	0.012	0.003	0.31	0.07	0.06	0.02	0.03	0.004	0.002	0.001	0.0004
			Product	0.21	0.85	0.019	0.003	0.31	0.04	0.06	0.01	0.03	0.005	0.002	0.001	0.0001	0.37	0.38

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) %	Lateral Expansion mm	AVG		
					50mm GL	Longitudinal; 19.1mm x WT							% Shear	AVG
BSM-0960	Heat	Ferrite & Pearlite	77	Pass			45,600	69,000	0.66	49				
Heat	Test Standard	Impact Test Sample Details	Temp $^{\circ}$ C	Impact Energy		AVG	%	%	%	AVG	mm	mm	mm	AVG
				J	J									
BSM-0960	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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/SAA106-2011, A/SAS3-2012, 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: _____

 2013 June 12
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D