



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0729** Product Size: **NPS 20 XS** Production Date: **February 21, 2013**

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

Product Standards: **ASME B36.10-2004, API SL-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> SL-0998 API SL GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 20 XS 0.5 inchWT HEAT BSM-0729 (PIPE # LENGTH MASS) 104.1lb/ft NDE 1260 PSI SMLS NACE MR0175 2013/02 MADE IN CANADA.**

Product Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0729	Heat	NPS 20 XS 0.5 in. WT	1	DRL	104.10	µR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	1260 psi/5s	37.5° Bevel
						<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0729	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.91	0.010	0.010	0.22	0.03	0.07	0.01	0.05	-	-	-	0.0003	-	-
		Product	0.20	0.92	0.017	0.011	0.24	0.03	0.08	0.01	0.03	0.003	0.002	0.001	0.0003	0.37	0.38

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	Pass					
BSM-0729	Heat	Ferrite & Pearlite	77	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	44,800	44,800	70,500	0.71	31
							44,800	44,800	71,500	0.63	46

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API SL-44th Ed., ASTM/ASME 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:

[Signature]
 2013 Feb 28

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