



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0711** Product Size: **NPS 20 STD** Production Date: **February 13, 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/SAL106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> SL-0898 API SL GR B PSL1 ASTM/ASME A/SAL06 GR B/C A/SA53 GR B NPS 20 STD 0.375 inchWT HEAT BSM-0711 (PIPE # LENGTH MASS) 78.6lb/ft NDE 910 PSI SMLS NACE MR0175 2013/02 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition
BSM-0711	Heat	20	STD	26	DRL	78.60	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Heat		Chemical Analysis (wt%)														
BSM-0711	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0711	Heat	0.20	0.88	0.009	0.014	0.21	0.04	0.09	0.01	0.06	-	-	-	0.0005	-	-
	Vacuum Degass, Fully Killed	Product	0.21	0.87	0.010	0.21	0.03	0.10	0.02	0.05	0.001	0.001	0.001	0.0002	0.37	0.38

Heat		Mechanical Properties									
BSM-0711	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	38.1mm x WT					
BSM-0711	Heat	Ferrite & Pearlite	77	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	43,700	43,600	72,000	0.61	38
							42,600	42,700	71,000	0.60	41

**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/SAL106-2011, 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]*  
 2013Feb22

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