



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0685** Product Size: **NPS 24 STD** Production Date: **February 6, 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 NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL.MFG <API> SL-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SAS3 GR B NPS 24 STD HEAT BSM-0685 (PIPE # LENGTH MASS) 94.62lb/ft NDE 740 PSI SMIS NACE MR0175 2013/02 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Gelger	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition
BSM-0685	Heat	24	STD	1	DRL	94.62	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0685	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.87	0.012	0.009	0.25	0.03	0.08	0.02	0.04	-	-	-	0.0004	-	-
		Product	0.20	0.84	0.015	0.010	0.24	0.03	0.10	0.03	0.04	0.002	0.001	0.001	0.0003	0.36	0.37

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test					Y/T	Elongation (A)
					50mm GL	Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	(Rt0.5/Rm)		
BSM-0685	Heat	Ferrite & Pearlite	75	Pass	Transverse; 38.1mm x WT	44,000	43,700	70,000	0.63	41	
					Longitudinal; 38.1mm x WT	47,200	47,100	70,500	0.67	45	

**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/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 Feb 15  
 Kenton Dechant, P.Eng.  
 Manager of Quality and R&D