



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0687** 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/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/SA106 GR B/C A/SA53 GR B NPS 24 STD HEAT BSM-0687 (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	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition
BSM-0687	Heat	24	STD	9	DRL	94.62	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Steelmaking Method		Chemical Analysis (wt%)														
Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0687		0.19	0.87	0.012	0.009	0.25	0.03	0.08	0.02	0.04	-	-	-	0.0004	-	-
		0.20	0.85	0.015	0.012	0.24	0.03	0.10	0.02	0.04	0.003	0.001	0.001	0.0003	0.36	0.37

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
					HRBW	Pass				
BSM-0687	Heat	Ferrite & Pearlite	75	Pass	Transverse: 38.1mm x WT	Longitudinal: 38.1mm x WT	41,700	70,000	0.60	43
							43,300	69,500	0.62	44

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 13

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