



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0570** Product Size: **NPS 16 STD** Production Date: **November 26, 2012**

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 16 STD HEAT BSM-0570 (PIPE # LENGTH MASS) 62.58lb/ft NDE 1140 PSI SMIS NACE MR0175 2012/11 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 ASTM E213	ET ASTM E309	HydroTest 1140 psi/5s	End Condition
BSM-0570	Heat	16	STD	1	DRL	62.58	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Steelmaking Method		Chemical Analysis (wt%)														
Heat	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0570	Blast Furnace: EAF; Ladle Refining; Vacuum Degass; Fully Killed	0.19	0.90	0.012	0.019	0.23	0.05	0.10	0.03	0.05	0.002	-	-	-	-	-
	Product	0.21	0.90	0.010	0.016	0.22	0.05	0.10	0.03	0.05	0.003	0.001	0.002	0.0004	0.39	0.39

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	38.1mm x WT					
BSM-0570	Heat	Ferrite & Pearlite	77	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	43,800	41,400	72,500	0.60	43

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.

Mill Test Certificate approved by:

 2012N10V28
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D