



Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0566** Product Size: **NPS 16 STD** Production Date: **November 22, 2012**

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

Product Standards: **ASME B36.10-2004, API 5L-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> 5L-0998 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 16 STD HEAT BSM-0566 (PIPE H 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	DRL	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition
BSM-0566	Heat	16	STD	14			62.58	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Heat		Steelmaking Method	Chemical Analysis (wt%)														
BSM-0566	Heat	Vacuum Degass: Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
			0.19	0.88	0.007	0.004	0.23	0.05	0.06	0.04	0.01	-	-	-	0.0004	-	-
			0.20	0.88	0.008	0.007	0.23	0.05	0.06	0.04	0.03	0.001	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	Transverse: 38.1mm x WT					
BSM-0566	Heat	Ferrite & Pearlite	77	Pass	Longitudinal: 38.1mm x WT		46,200	46,000	71,500	0.65	42

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-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:

Kenton Dechant
 2012 Nov 28
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D