



Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0510** Product Size: **NPS 24 TRUE40** Production Date: **October 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-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 24 TRUE40 HEAT BSM-0510 (PIPE # LENGTH MASS) 171.2lb/ft NDE 1220PSI SMLS NACE MR0175 2012/10 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	Hydro Test	End Condition
BSM-0510	Heat	24	TRUE40	4	DRL	171.20	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0510	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.86	0.012	0.007	0.25	0.05	0.11	0.01	0.07	-	-	-	0.0003	-	-
		Product	0.19	0.85	0.010	0.013	0.22	0.04	0.11	0.01	0.06	0.002	0.001	0.001	0.0001	0.35	0.36

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Tension Test		Yield (Rp0.2)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
				50mm GL	Flattening Test					
BSM-0510	Heat	Ferrite & Pearlite	HRBW 77	Pass	Transverse; 38.1mm x WT Longitudinal; 38.1mm x WT	51,500 49,300	51,000 49,500	74,500 72,500	0.69 0.68	46 49

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.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

[Signature]
 2012 Oct 25
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D