



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0488** Product Size: **NPS 24 XS** Production Date: **October 6, 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/SAA106-2011 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 XS HEAT BSM-0488 (PIPE # LENGTH MASS) 125.5lb/ft NDE 890PSI 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	HydroTest	End Condition
BSM-0488	Heat	24	XS	22	DRL	125.50	μR/hr	Gauss	Insp.	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-0488	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.20	0.86	0.009	0.003	0.24	0.06	0.06	0.01	0.04	-	-	-	0.0003	-	-
		Product	0.21	0.84	0.010	0.007	0.24	0.06	0.06	0.01	0.04	0.002	0.001	0.001	0.0001	0.37	0.38

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
				HRBW	Flattening Test					
BSM-0488	Heat	Ferrite & Pearlite	77	Pass	Pass	44,400	42,200	72,500	0.61	47
						45,700	45,200	71,000	0.64	46

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:

Kenton Dechant
 2013 Mar 11

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