



Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0503** Product Size: **NPS 24 SCH 120** Production Date: **October 17, 2012**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 SCH 120 HEAT BSM-0503 (PIPE # LENGTH MASS) 429.4lb/ft NDE SMIS NACE MR0175 2012/10 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest	End Condition
BSM-0503	Heat	24	SCH 120	3	DRL	429.40	<5	<20	Pass	Pass	Pass	Pass	Pass	*	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	Chemical Analysis (wt%)														
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
			BSM-0503	Blast Furnace: EAF; Ladle Refining: Vacuum Degas: Fully Killed	Heat	0.20	0.91	0.015	0.002	0.32	0.05	0.05	0.01	0.02	0.002	0.002	0.001
		Product	0.21	0.90	0.015	0.006	0.28	0.03	0.05	0.01	0.02	0.003	0.003	0.001	0.0002	0.37	0.38

Mechanical Properties														
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test					Y/T (Rt0.5/Rm)	Elongation (A) %			
					50mm GL		Transverse: 19.1mm x WT					Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi
					BSM-0503	Heat	Ferrite & Pearlite	73	Pass					

Additional Details:

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

 20120 ctz3
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D