



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0205** Product Size: **NPS 20 STD** Production Date: **February 13, 2012**

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

Product Standards: **ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 20 STD ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0205 (PIPE # LENGTH MASS) NDE 910PSI NACE MR0175 2012/02 MADE IN CANADA.**

Product Details						Non-Destructive Testing									
Heat	Test Type	NPS	SCH	Pieces	Length	Mass lb/ft	Gelger HR/hr	Res.Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 910 psi/5s	End Condition
BSM-0205	Heat	20	STD	8	DRL	78.60	<5	<20	Pass	Pass	Pass	---	Pass	Pass	37.5° Bevel

Chemical Analysis (wt%)																		
Heat	Test Type	Steelmaking Method		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
		Blast Furnace; EAF; Ladle Refining; Vacuum Degass		0.21	0.91	0.011	0.011	0.23	0.03	0.13	0.02	0.04	0.003	0.001	0.002	0.0003	0.38	0.39
BSM-0205	Heat																	

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.2) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (R0.5/Rm)	Elongation (A) %
					50mm GL; 38mm x WT	Transverse					
BSM-0205	Heat	Ferrite & Pearlite	77	Pass	Longitudinal	47,500	47,400	73,500	0.65	43	

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/SA53-2010 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meet 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 no mercury contamination.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:


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