



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0304** Product Size: **NPS 20 STD** Production Date: **April 26, 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-0304 (PIPE # LENGTH MASS) 78.6lb/ft NDE 910PSI NACE MR0175 2012/04 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0304	Heat	20	STD	1	DRL	78.60	µR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	910 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	...	Pass	Pass	37.5° Bevel


		Chemical Analysis (wt%)																
Heat	Test Type	Steelmaking Method		C	Min	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
		Blast Furnace: EAF; Ladle	Refining: Vacuum Degass	0.20	0.88	0.012	0.011	0.22	0.03	0.14	0.02	0.04	0.003	0.001	0.002	0.0002	0.37	0.38
BSM-0304	Heat																	

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rp0.2)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
					HRBW	Pass					
BSM-0304	Heat	Ferrite & Pearlite	78	Pass	Longitudinal	48,100	47,900	73,500	73,000	0.58	38

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:


 2012 May 9
 Kerton Dechant, P. Eng.
 Manager of Quality and R&D