



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0186** Product Size: **NPS 20 XS** Production Date: **January 30, 2012**

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

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

Product Markings: **.BRI-STEEL MFG NPS 20 XS ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0186 (PIPE # LENGTH MASS) NDE 1260PSI NACE MR0175 2012/01 MADE IN CANADA.**

Product Details					Non-Destructive Testing										
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0186	Heat	20	XS	5	DRL	lb/ft	µR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	1260 psi/5s	Condition
						104.10	<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
BSM-0186	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass		0.20	0.94	0.017	0.011	0.25	0.03	0.13	0.02	0.04	0.004	0.001	0.001	0.0002	0.38	0.39

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0186	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GI; 38mm x WT	Transverse	psi	psi	psi	0.63	%
			77		Longitudinal		46,500	45,400	73,500	0.60	42
							43,600	43,500	72,500		45

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/SA106-2010, 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 Feb 16
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D