



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0368** Product Size: **NPS 20 TRUE80** Production Date: **June 14, 2012**

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

Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SA53-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 20 TRUE80 ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0368 (PIPE # LENGTH MASS) 208.9lb/ft NDE 1000PSI NACE MR0175 2012/06 MADE IN CANADA.**

Product Details					Non-Destructive Testing										
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Galiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0368	Heat	20	TRUE80	1	DRL	208.90	µR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	1000 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	---	Pass	Pass	Plain End

Steelmaking Method		Chemical Analysis (wt%)														
Heat	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0368	Heat	0.16	1.01	0.019	0.007	0.25	0.05	0.06	0.02	0.03	0.005	0.002	0.001	0.0001	0.35	0.34
		Blast Furnace; EAF; Ladle Refining; Vacuum Degass														

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rp0.2)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0368	Heat	Ferrite & Pearlite	HRBW	Pass	50mm GL, 38mm x WT	Transverse	psi	psi	psi	psi	%
			71		Longitudinal		45,500	44,000	66,500	0.68	59
							41,000	40,400	64,000	0.64	61

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 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 June 27

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