



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0365** Product Size: **NPS 20 TRUE80** Production Date: **June 13, 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-0365 (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 lb/ft	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD Pass	UT WT Pass	UT ASTM E213	ET ASTM E309	HydroTest 1000 psi/5s	End Condition
BSM-0365	Heat	20	TRUE80	4	DRL	208.90	<5	<20	Pass	Pass	Pass	---	Pass	Pass	Plain End

Steelmaking Method		Chemical Analysis (wt%)															
Heat	Test Type	Blast Furnace; EAF; Ladle	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0365	Heat	Refining; Vacuum Degass	0.16	1.01	0.018	0.005	0.25	0.04	0.06	0.02	0.02	0.004	0.002	0.001	0.0001	0.35	0.34

Mechanical Properties		Tension Test		Yield (Rt0.5)		Yield (Rp0.2)		Tensile (Rm)		Y/T		Elongation (A)	
Heat	Test Type	Microstructure	Hardness HRBW	50mm GL; 38mm x WT	psi	psi	psi	psi	psi	(Rt0.5/Rm)	%		
BSM-0365	Heat	Ferrite & Pearlite	72	Transverse	46,900	45,500	68,000	66,500	0.69		58		
				Longitudinal	42,600	41,600	66,500		0.64		58		

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 20

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