



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0835** Product Size: **NPS 20 SCH 60** Production Date: **April 15, 2013**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 20 SCH 60 0.812 inchWT HEAT BSM-0835 (PIPE # LENGTH MASS) 166.4lb/ft NDE SMILS NACE MR0175 2013/04 MADE IN CANADA.**

Product Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger	Res. Mag.	Visual	OD	WT	UT	ET	HydroTest	End Condition
BSM-0835	Heat	NPS 20 SCH 60 0.812 in. WT	11	DRL	166.40	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	*	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0835	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.91	0.015	0.007	0.39	0.07	0.07	0.00	0.02	0.005	0.003	0.001	0.0004	-	-
		Product	0.20	0.92	0.017	0.010	0.38	0.07	0.07	0.01	0.03	0.005	0.002	0.001	0.0003	0.38	0.39

Mechanical Properties														
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5)	Tensile (Rm)	V/T	Elongation (A)	Lateral Expansion			
BSM-0835	Heat	Ferrite & Pearlite	82	Pass	50mm GL	38.1mm x WT	psi	psi	(Rt0.5/Rm)	%	mm	mm	mm	%
							52,500	73,500	0.71	54				
Heat	Test Standard	Impact Test	Temp °C	Impact Energy	% Shear	AVG	%	AVG	mm	mm	mm	mm	mm	AVG
BSM-0835	-	Sample Details	-	J	-	-	-	-	-	-	-	-	-	-

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 meets 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 not come into contact with mercury during the Bri-Steel Manufacturing processes.
- ✓ 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

[Signature]
 2013 APR 19

*Note that this product was hydrotested to 1000 psi for 5 seconds.