



**Bri-Steel Manufacturing Inc.**  
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## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe**     Product Heat Number: **BSM-0800**     Product Size: **NPS 24 SCH 60**     Production Date: **April 1, 2013**

Production Method: **Hot Expansion**     Product Heat Treatment: **Hot Worked (845 - 945°C) & Air Cooled**

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, A/SA333-2011 Grade 6, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA333 GR 6 A/SA106 GR B A/SA53 GR B NPS 24 SCH 60 0.969 inchWT HEAT BSM-0800 (PIPE # LENGTH MASS) 238.1lb/ft NDE SMLS NACE MR0175 2013/04 MADE IN CANADA.**

Product Details					Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End	
BSM-0800	Heat	NPS 24 SCH 60 0.969 In.-WT	4	DRL	lb/ft	µR/hr	Gauss	Insp.	Pass	WT	ASTM E213	ASTM E309	*	Plain End	
					238.10	<5	<20	Pass	Pass	Pass	Pass	Pass			

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0800	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.11	1.09	0.018	0.007	0.26	0.04	0.05	0.01	0.02	0.004	0.002	0.001	0.0002	-	-
	Product	Product	0.12	1.06	0.014	0.003	0.26	0.04	0.05	0.01	0.02	0.004	0.002	0.001	0.0001	0.31	0.27

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	V/T	Elongation (A)
					50mm GL	38.1mm x WT					
BSM-0800	Heat	Ferrite & Pearlite	HRBW	Pass	Longitudinal; 38.1mm x WT	43,500	43,500	64,000	0.67	61	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion								
				J	J	J	%	%	%	mm	mm	mm	mm	mm	mm	mm	mm	mm
BSM-0800	A/SA333	CVN Longitudinal (X-Y) 10x10	-45°C	294	295	295	100	100	100	unbroken	unbroken	unbroken	unbroken	unbroken	unbroken	unbroken	unbroken	unbroken

**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/SA333-2011, 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.
- \*Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

  
 2013 Apr 9

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