



# Mill Test Certificate

**Bri-Steel Manufacturing Inc.**  
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Product: **Seamless Carbon Steel Pipe**      Product Heat Number: **BSM-0409**      Product Size: **NPS 24 SCH 60**      Production Date: **July 12, 2012**  
 Production Method: **Hot Expansion**      Product Heat Treatment: **As-rolled**  
 Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SAS3-2012 Grade B Type S, NACE MR0175-2009**  
 Product Markings: **.BRI-STEEL MFG NPS 24 SCH 60 ASTM/ASME A/SA106 GR B A/SAS3 GR B HEAT BSM-0409 (PIPE # LENGTH MASS) 238.1lb/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD Pass*	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1000 psi/5s	End Condition
BSM-0409	Heat	24	SCH 60	1	DRL	238.10	<5	<20	Pass	Pass	Pass	---	Pass	Pass	Plain End

Heat		Test Type		Steelmaking Method		Chemical Analysis (wt%)														
BSM-0409	Heat	Heat	Heat	Blast Furnace; EAF; Ladle	Refining; Vacuum Degass	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIV)	CE (CSA)
						0.13	0.95	0.017	0.005	0.25	0.04	0.07	0.02	0.03	0.004	0.002	0.001	0.0001	0.31	0.28

Heat				Test Type				Microstructure				Hardness HRBW				Flattening Test				Tension Test				Yield (Rt0.5) psi				Yield (Rp0.2) psi				Tensile (Rm) psi				Y/T (Rt0.5/Rm)				Elongation (A) %			
BSM-0409	Heat	Heat	Heat	Heat	Heat	Heat	Heat	Ferrite & Pearlite	Ferrite & Pearlite	Ferrite & Pearlite	Ferrite & Pearlite	66	66	66	66	Pass	Pass	Pass	Pass	50mm GL; 38mm x WT	Transverse	Longitudinal	43,000	40,400	43,000	40,500	41,200	40,500	65,000	64,500	0.66	0.63	0.66	0.63	57	60							

**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/SAS3-2012 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.

\*OD dimensions as per API 5L.

Mill Test Certificate approved by:

*[Signature]*  
 2012 Aug 13  
 Kenton Dechant, P. Eng.  
 Manager of Quality and R&D