



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0610** Product Size: **NPS 20 SCH 120** Production Date: **December 17, 2012**

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 120 HEAT BSM-0610 (PIPE # LENGTH MASS) 296.4lb/ft NDE SMLS NACE MR0175 2012/12 MADE IN CANADA.**


Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition
BSM-0610	Heat	20	SCH 120	6	DRL	296.40	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	CE
BSM-0610	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.97	0.016	0.003	0.30	0.04	0.10	0.01	0.04	0.004	0.003	0.001	0.0001	-	-
		Product	0.20	1.00	0.016	0.005	0.28	0.05	0.08	0.01	0.03	0.004	0.003	0.001	0.0002	0.39	0.40

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rp0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
					50mm GL						
BSM-0610	Heat	Ferrite & Pearlite	HRBW	Pass	Transverse; 19.1mm x WT	Longitudinal; 19.1mm x WT	psi	psi	psi	(Rt0.5/Rm)	%
			78				44,800	47,600	72,500	0.62	46
							47,800	45,400	71,000	0.67	46

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