



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0572** Product Size: **NPS 16 STD** Production Date: **November 22, 2012**

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

Product Standards: **ASME B36.10-2004, API SL-44th Ed. Grade B PSL1, ASTM/ASME A/SAA106-2011 Grade B/C NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> SL-0898 API SL GR B PSL1 ASTM/ASME A/SAA106 GR B/C A/SAS3 GR B NPS 16 STD HEAT BSM-0572 (PIPE # LENGTH MASS) 62.58lb/ft NDE 1140 PSI SMLS NACE MR0175 2012/11 MADE IN CANADA.**

Product Details				Non-Destructive Testing												
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition
BSM-0572	Heat	16	STD	2	DRL	62.58	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Heat	Steelmaking Method	Chemical Analysis (wt%)														
		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0572	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.93	0.008	0.004	0.25	0.04	0.08	0.01	0.04	-	-	-	0.0003	-
		Product	0.21	0.97	0.013	0.005	0.23	0.03	0.08	0.01	0.04	0.003	0.002	0.002	0.0002	0.39

Mechanical Properties											
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) %
					50mm GL	Transverse; 38.1mm x WT					
BSM-0572	Heat	Ferrite & Pearlite	79	Pass	Longitudinal; 38.1mm x WT	48,900	48,500	74,000	0.66	41	

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API SL-44th Ed., ASTM/ASME A/SAA106-2011, A/SAS3-2012 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.

Mill Test Certificate approved by:

 2012 Nov 22
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D