



Mill Test Certificate

Bri-Steel Manufacturing Inc.
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0660** Product Size: **NPS 24 XS** Production Date: **January 16, 2013**
 Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SAA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**


Product Markings: **.BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 24 XS HEAT BSM-0660 (PIPE # LENGTH MASS) 125.5lb/ft NDE 970 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.**

Product Details				Non-Destructive Testing												
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	WT	UT	UT	ET	HydroTest	End Condition
BSM-0660	Heat	24	XS	40	DRL	125.50	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0660	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.18	0.91	0.008	0.010	0.22	0.03	0.06	0.01	0.04	-	-	-	0.0003	-	-
		Product	0.20	0.92	0.012	0.011	0.22	0.03	0.07	0.01	0.03	0.003	0.001	0.001	0.0003	0.37	0.38

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Tension Test		Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
				HRBW	Flattening Test				
BSM-0660	Heat	Ferrite & Pearlite	77	Pass	Transverse; 38.1mm x WT	47,100	74,000	0.68	46
					Longitudinal; 38.1mm x WT	47,100	73,500	0.64	45

- Additional Details:
- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., 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:

 2013 Jan 29
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D



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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0660** Product Size: **NPS 24 STD** Production Date: **January 16, 2013**

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

Product Standards: **ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SAS3 GR B NPS 24 STD HEAT BSM-0660 (PIPE # LENGTH MASS) 125.5lb/ft NDE 970 PSI SMLS NACE MR0175 2013/01 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	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 970 psi/5s	End Condition
BSM-0660	Heat	24	STD	1	DRL	125.50	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Chemical Analysis (wt%)																
Heat	Steelmaking Method	Analysis														
		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
		Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.91	0.008	0.010	0.22	0.03	0.06	0.01	0.04	-	-	-	0.0003
Product		0.20	0.92	0.012	0.011	0.22	0.03	0.07	0.01	0.03	0.003	0.001	0.001	0.0003	0.37	0.38

Mechanical Properties												
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test					Y/T	Elongation (A) %	
					50mm GL		Yield (Rp0.2) psi	Yield (Rp0.2) psi	Tensile (Rm) psi			Y/T (Rt0.5/Rm)
					Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT						
BSM-0660	Heat	Ferrite & Pearlite	77	Pass	50,500	47,100	45,000	47,000	74,000	0.68	46	
									73,500	0.64	45	

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SAS3-2012 and the purchase order requirements, and that the results meet the corresponding requirements.
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Kenton Dechant
 2013 Jan 29
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 Manager of Quality and R&D