



Bri-Steel Manufacturing Inc.
 2125-64 Avenue, Edmonton, AB Canada T5P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.brichemsteel.com

Mill Test Certificate

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-0332 Product Size: NPS 24 X5

Production Date: May 17, 2012

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

Product Standards: ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2012 Grade B Type S, NACE MR0175-2009

Product Markings: BRI-STEEL MFG NPS 24 X5 ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0332 (PIPE # LENGTH MASS) 125.5lb/ft NOE 970PSI NACE MR0175 2012/05 MADE IN CANADA.

Product Details							Non-Destructive Testing								
Heat	Test Type	NPS	SCH	Pieces	Length	Mass lb/ft	Gelger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 970 psi/Ss	End Condition
BSM-0332	Heat	24	X5	10	DRL	125.50	<5	<20	Pass	Pass	Pass	—	Pass	Pass	37.5° Bevel

		Chemical Analysis (wt%)																
Heat	Test Type	Steelmaking Method		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIR)	CE (CSA)
		Blast Furnace; EAF; Ladle	Refining; Vacuum Degass															
BSM-0332	Heat			0.21	0.88	0.009	0.013	0.24	0.09	0.09	0.01	0.04	0.003	0.001	0.002	0.0003	0.37	0.38

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL; 38mm x WT	50mm GL; 38mm x WT				
BSM-0332	Heat	Ferrite & Pearlite	75	Pass	50mm GL; 38mm x WT		psi	psi	psi	%
					Transverse	41,100	39,200	72,500	0.57	43
					Longitudinal	44,600	45,300	72,500	0.62	44

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 meet the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Section 2.1 Service, and NACE MR0103-2010 Section 2.1

Mill Test Certificate approved by: