



# Mill Test Certificate

Bri-Steel Manufacturing  
 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-2799      Product Size: NPS 24 STD      Production Date: Jun 13, 2016  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 002863  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015  
 Product Markings: NPS 24 STD 0.375 INCHWT SMLS 2016/06 NDE 660PSI  
 HEAT BSM-2799 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA



Product: Details										Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	UT ASTM E309	HydroTest 660 PSI/ 5 s	End Condition					
BSM-2799	Heat	NPS 24 STD 0.375in. WT	14	DRL	94.62	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel					
Chemical Analysis (wt%)																			
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)/Max	CE(CSA)	
BSM-2799	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.22	0.93	0.014	0.004	0.25	0.03	0.01	0.01	0.01	0.001	0.002	0.001	0.0003	0.38	-	0.39	
		Product	0.24	0.92	0.010	0.003	0.26	0.03	0.01	0.01	0.01	0.003	0.002	0.001	0.0003	0.40	-	0.41	

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2799	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal: 1.5 in. x WT Longitudinal: 1.5 in. x WT	51 000 48 100	77 000 76 500	0.66 0.63	42 41

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2799	ASTM A333	Pass	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(3 Tests) AVG (32/40/38) 37	(10/10/10) 10	(3 Tests) AVG (0.79/0.91/0.90) 0.87

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2015/SA333-2015, A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 97/23/EC.

Mill Test Certificate approved by:

- ✓ 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/ISO 17495:2015 Section 13.1

*Kenton Dechant*  
 2016 June 15.

- ✓ 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.

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