



# 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-3079      Product Size: NPS 24 SCH 60      Production Date: Mar 08, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003243  
 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 SCH 60 0.969 INCH WT SMLS 2017/03 NDE 1900PSI  
 HEAT BSM-3079 (PIPE # LENGTH MASS) 238.55lb/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	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3079	Heat	NPS 24 SCH 60 0.969in. WT	9	DRL	238.55	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

Heat	BSM-3079	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Chemical Analysis (wt%)																																	
			Test Type		C		Mn		P		S		Si		Cr		Cu		Mo		Ni		V		Ti		Nb		B		CE(IIW)		CE(IIW)Max		CE(CSA)	
			Heat	Product	0.18	0.16	1.24	1.16	0.017	0.014	0.004	0.005	0.26	0.26	0.03	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.050	0.007	0.002	0.001	0.0001	0.41	-	-	0.41	0.37			

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-3079	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	51 000	76 500	0.67	36
				Pass	Longitudinal; 0.5 in. Round Bar	55 000	78 000	0.71	36

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-3079	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(92/86/97) 92	(20/20/25) 22	(1.44/1.33/1.77) 1.51

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 2014/68/EU.  
 ✓ 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  
 ✓ 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:

*T. Lam*      MMR/20/2017

Tonya Lam, P. Tech (Eng.)  
 Assistant QA Manager