



# 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-3027      Product Size: NPS 24 TRUE 80      Production Date: Jan 24, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003128  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 PSL1, ASTM/ASME A333-2016/SA333-2015 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: <API & L/C No.> API SPEC 5L NPS 24 TRUE 80 1.219 INCHWT GRB/X42 PSL1 SMLS 2017/01 NDE 2970PSI  
 HEAT BSM-3027 (PIPE # LENGTH MASS) 296.84lb/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	Res. Mag.	Visual	OD	UT (WT)	UT	ET	HydroTest	End Condition	
BSM-3027	Heat	NPS 24 TRUE 80 1.219in. WT	4	DRL	296.84	<5	<10	Pass	Pass	Pass	NI2.5 Pass	-	Pass	Plain End	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)																	
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)		
			BSM-3027	Blast Furnace: EAF; Ladle Refining: Vacuum Degass; Fully Killed (at TPCO China)	Heat	0.15	1.15	0.010	0.002	0.25	0.02	0.01	0.01	0.01	0.01	0.01	0.050	0.001	0.001	0.0001
		Product	0.13	1.11	0.011	0.002	0.26	0.05	0.01	0.01	0.01	0.02	0.056	0.002	0.001	0.0003	0.34	-	-	0.31
			0.13	1.07	0.009	0.002	0.26	0.05	0.01	0.01	0.02	0.056	0.001	0.001	0.0002	0.33	-	-	-	0.30

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					2 in. GL	0.5 in. Round Bar				
BSM-3027	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal: 0.5 in. Round Bar	Longitudinal: 0.5 in. Round Bar	53 500	77 500	0.69	35
				Pass	Longitudinal: 0.5 in. Round Bar		55 500	79 500	0.70	35

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(14/14/14) 18			
BSM-3027	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(3 Tests) AVG	(14/14/14) 18	(3 Tests) AVG (75/70/72) 72	(3 Tests) AVG (15/15/15) 15	(3 Tests) AVG (1.09/1.07/1.06) 1.07

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GRX42 ASTM/ASME A333-2016/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* Jan 30/2017

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