



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-3127 Product Size: NPS 20 TRUE 80 Production Date: May 03, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003349
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B/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 20 TRUE 80 1.031 INCHWT GRB/X42 PSL1 SMLS 2017/05 NDE 2970PSI
 HEAT BSM-3127 (PIPE # LENGTH MASS) 209.08lb/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

Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	Non-Destructive Testing					End Condition
										UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 2970PSI/ 5 s	CE(IW) CE(IW)Max CE(CSA)	
BSM-3127	Heat	NPS 20 TRUE 80 1.031in. WT	15	DRL	209.08	<5	<10	Pass	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

Chemical Analysis (wt%)

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IW)	CE(IW)Max	CE(CSA)
BSM-3127	Blasr Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TRCO China)	Heat	0.18	1.21	0.014	0.004	0.25	0.02	0.05	0.01	0.01	0.050	0.002	0.002	0.0005	0.40	-	0.41
		Product	0.16	1.15	0.010	0.005	0.25	0.03	0.04	0.01	0.01	0.051	0.019	0.001	0.0004	0.37	-	0.37
			0.17	1.16	0.011	0.005	0.25	0.03	0.04	0.01	0.01	0.051	0.020	0.001	0.0004	0.39	-	0.38

Mechanical Properties

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
					2 in. GL	Longitudinal; 0.5 in. Round Bar				
BSM-3127	Heat	Ferrite & Pearlite	80 HRBW	Pass	Pass	Longitudinal; 0.5 in. Round Bar	53 000	75 000	0.71	36
				Pass	Pass	Longitudinal; 0.5 in. Round Bar	51 500	73 000	0.71	37

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-3127	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(3 Tests) AVG	(14/14/14) 18	(70/90/79) 80	(10/15/10) 12	(1.11/1.35/1.29) 1.25

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 9001:2015 (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 *May 125/2017*

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