



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-3135      Product Size: NPS 20 TRUE 40      Production Date: May 10, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003337  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 PSL1, ASTM/ASME A106-2014/SA106-2015 Grade B 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 40 0.594 INCHWT GRB/X42 PSL1 SMLS 2017/05 NDE 2250PSI  
 HEAT BSM-3135 (PIPE # LENGTH MASS) 123.24lb/ft ASTM/ASME A/SA106 GR B 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	Geliger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3135	Heat	NPS 20 TRUE 40 0.594in. WT	24	DRL	123.24	<5	<10	Pass	Pass	Pass	Pass	-	Pass	Plain End

Heat	Test Type	Steelmaking Method	Chemical Analysis (wt%)																
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)	
BSM-3135	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TPCCO China)		Heat	0.16	1.29	0.019	0.004	0.30	0.05	0.02	0.01	0.01	0.040	0.003	0.002	0.0004	0.40	-	0.39
			Product	0.16	1.26	0.016	0.004	0.31	0.06	0.02	0.01	0.01	0.042	0.002	0.001	0.0004	0.39	-	0.39
				0.16	1.26	0.011	0.004	0.33	0.05	0.02	0.01	0.01	0.041	0.004	0.001	0.0005	0.39	-	0.39

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-3135	Heat	Ferrite & Pearlite	83 HRBW	Pass	Longitudinal; 1.5 in. x WT	51 000	76 000	0.67	49

Heat	Test	Test Type	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3135	-	Standard	-	-	-	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG

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

*Kenton Dechant*  
 2017 May 16