



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-3098    Product Size: NPS 18 SCH 160    Production Date: Apr 04, 2017  
 Production Method: Hot Expansion    Product Heat Treatment: Normalizing Forming    Certificate No.: MTR- 003272

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 PSL1, ASTM/ASME 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 18 SCH 160 1.781 INCHWT GRB/X42 PSL1 SMLS 2017/04 NDE 2970PSI  
 HEAT BSM-3098 (PIPE # LENGTH MASS) 308.81lb/ft ASTM/ASME 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) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 2970PSI/ 5 s	End Condition
BSM-3098	Heat	NPS 18 SCH 160 1.781in. WT	3	DRL	308.81	<5	<10	Pass	Pass	N12.5 Pass	-	Pass	Pass	Plain End

Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Test Type	C	Min	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3098	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at HYST Valin China)	Heat	0.11	1.28	0.010	0.002	0.28	0.05	0.05	0.01	0.02	0.002	0.010	0.001	0.0001	0.34	-	0.28
		Product	0.11	1.29	0.010	0.002	0.31	0.05	0.05	0.01	0.02	0.004	0.014	0.011	0.0003	0.34	-	0.28
			0.11	1.30	0.009	0.002	0.31	0.05	0.05	0.01	0.02	0.004	0.015	0.012	0.0004	0.34	-	0.29

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-3098	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	46 800	71 500	0.65	37

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-3098	-	-	-	-	-	-	-	-

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-9001:2008 (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* APR 12 2017

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