



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-0417      Product Size: 20S120      Production Date: May 27, 2015  
 Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 001814  
 Product Standards: ASME B36.10-2004, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012  
 Product Markings: NPS 20 SCH 120 1.500 INCHWT 296.4LB/FT SMLS 2015/05 NDE 2970PSI  
 HEAT BSM-0417 (PIPE # LENGTH MASS) 296.4lb/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 $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2970PSI/ 5 s	End Condition
BSM-0417	Heat	NPS 20 SCH 120 1.500in. WT	1	DRL	296.4	2	5	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Heat	BSM-0417	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Chemical Analysis (wt%)																
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
			Heat	Product	0.21	0.89	0.006	0.011	0.23	0.07	0.06	0.05	0.03	-	-	-	-	0.0008	-
			Product	0.21	0.88	0.004	0.010	0.23	0.08	0.06	0.04	0.03	0.003	0.001	0.001	0.0004	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-0417	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	42,500	73,500	0.58	30

Heat	BSM-0417	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion						
					J	J	J	%	%	%	mm	mm	mm	mm	mm	AVG	
				-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:  
 We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2013 Grade B/C A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.  
 This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 Section 2.1  
 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*      *Suan 103/2015*

Tonya Lam, C.E.T.  
 Assistant QA Manager