




# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2653      Product Size: NPS 20 SCH 60      Production Date: Feb 23, 2016  
 Production Method: Hot Expansion      Product Heat Treatment: As Rolled      Certificate No.: MTR- 002098  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012  
 Product Markings  
 NPS 20 SCH 60 0.812 INCHWT SMLS 2016/02 NDE 1700PSI  
 HEAT BSM-2653 (PIPE # LENGTH MASS) 166.4lb/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	Geiger $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1700PSI/ 5 s	End Condition	
BSM-2653	Heat	NPS 20 SCH 60 0.812in. WT	10	DRL	166.4	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End	

Heat	BSM-2653	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(IW)	CE(IW)Max	CE(CSA)
			Heat	Product	0.20	0.57	0.019	0.014	0.22	0.18	0.01	0.00	0.05	0.001	0.001	0.001	0.0005	0.34	-	0.34

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-2653	Heat	Ferrite & Pearlite	72 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	38 400	69 000	0.56	42

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2653	-	-	-	-	(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 ASTM/ASME A106-2014/SA106-2013, 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, API Q1, and PED 97/23/EC.

This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 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:

*Kent*  
 2016 Feb 26

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