



Bri-Steel Manufacturing  
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# Mill Test Certificate

Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2659      Product Size: NPS 20 STD      Production Date: Feb 29, 2016  
 Production Method: Hot Expansion      As Rolled      Certificate No.: MTR- 002106  
 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 STD 0.375 INCHWT SMLS 2016/02 NDE 800PSI  
 HEAT BSM-2659 (PIPE # LENGTH MASS) 78.6lb/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 Pass	ET	HydroTest	End Condition
BSM-2659	Heat	NPS 20 STD 0.375in. WT	4	DRL	78.6	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	33° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2659	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.16	1.13	0.012	0.001	0.24	0.01	0.01	0.02	0.01	0.050	0.002	0.001	0.0001	0.37	0.36
		Product	0.15	1.13	0.010	0.001	0.26	0.05	0.01	0.01	0.02	0.058	0.002	0.001	0.0003	0.36	0.35
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2659	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	49 800	75 000	0.66	44

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2659	-	-	-	-	-	-	-

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