



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2651      Product Size: NPS 20 X 0.750      Production Date: Feb 23, 2016  
 Production Method: Hot Expansion      Product Heat Treatment: As Rolled      Certificate No.: MTR- 002806  
 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 X 0.750 0.750 INCHWT SMLS 2016/02 NDE 1700PSI  
 HEAT BSM-2651 (PIPE # LENGTH MASS) 154.2lb/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	Gelger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition	
BSM-2651	Heat	NPS 20 X 0.750 0.750in. WT	14	DRL	154.2	<5	<20	Pass	Pass	Pass	Pass	N12.5 Pass	1700 PSI/ 5 s	Pass	Plain End

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2651	Blast Furnace, EAF, Ladle Refining, Vacuum Degass, Fully Killed	Heat	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
			Product	0.20	0.57	0.017	0.011	0.24	0.18	0.01	0.01	0.05	0.003	0.002	0.001	0.0002	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-2651	Heat	Ferrite & Pearlite	71 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	38 900	68 000	0.57	39

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-2651	-	-	-	-	-	-	-

**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 (APIQR-1584), 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:

*T. Lam* *May 10/2016*

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