



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2680 Product Size: NPS 24 STD Production Date: Mar 09, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002126
 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 24 STD 0.375 INCHWT SMLS 2016/03 NDE 660PSI
 HEAT BSM-2680 (PIPE # LENGTH MASS) 94.62lb/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 μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 660 PSI/ 5 s	End Condition	
BSM-2680	Heat	NPS 24 STD 0.375in. WT	2	DRL	94.62	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	31° Bevel	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(I/W)	CE(II/W)Max	CE(CSA)
			Heat	0.16	1.14	0.006	0.002	0.26	0.02	0.01	0.01	0.01	0.02	0.056	0.002	0.002	0.0003	0.37
BSM-2680	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Product	0.16	1.12	0.007	0.001	0.28	0.04	0.01	0.01	0.02	0.056	0.002	0.002	0.0003	0.37	-	0.36

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-2680	Heat	Ferrite & Pearlite	84 HRBW	Pass	Longitudinal; 1.5 in. x WT	53 500	78 000	0.69	40

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2680	-	-	-	(3 Tests) AVG	(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:

Tony Lam
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager
 March 11/4/2016