



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2816 Product Size: NPS 24 STD Production Date: Jun 27, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002881

Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015

Product Markings: NPS 24 STD 0.375 INCHWT SMLS 2016/06 NDE 750PSI



HEAT BSM-2816 (PIPE # LENGTH MASS) 94.62lb/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	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 750PSI/ 5s	End Condition	
BSM-2816	Heat	NPS 24 STD 0.375in. WT	12	DRL	94.62	<5	<50	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel	

Heat	BSM-2816	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Chemical Analysis (wt%)																	
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	Product	0.21	0.93	0.012	0.005	0.25	0.02	0.01	0.01	0.01	0.01	0.001	0.002	0.001	0.0002	0.37	-
						0.24	0.95	0.009	0.008	0.28	0.03	0.01	0.01	0.003	0.001	0.0003	0.41	-	0.42	

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-2816	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	44 100	73 500	0.60	41

Heat	Test	Test Type	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2816	-	Standard	-	-	-	-	-	-	-

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/SA106-2015, A53-2012/SA53-2015, 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/ISO 17495:2015 Section 13.1

- ✓ 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 *Sune / 30 / 2016*

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