



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2904 Product Size: NPS 18 STD Production Date: Sep 29, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002988

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 18 STD 0.375 INCHWT SMLS 2016/09 NDE 1000PSI
 HEAT BSM-2904 (PIPE # LENGTH MASS) 70.59lb/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	Geliger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-2904	Heat	NPS 18 STD 0.375in. WT	10	DRL	70.59	<5	23	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1000PSI/ 5s	30° Bevel

Heat	Test Type	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-2904	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed		Heat	0.21	0.92	0.013	0.005	0.23	0.03	0.01	0.01	0.01	0.01	0.004	0.001	0.001	0.0003	0.37	-	0.38
			Product	0.20	0.90	0.010	0.004	0.25	0.03	0.01	0.01	0.01	0.003	0.001	0.001	0.0003	0.36	-	-	0.37

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-2904	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	44 700 psi	73 500 psi	0.61	42

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2904	-	-	-	-	(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/SA106-2015, 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 2014/68/EU.

✓ 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:

T. Lam Oct 10/2016

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