



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2617 Product Size: NPS 16 STD Production Date: Jan 06, 2016
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 002043
 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 16 STD 0.375 INCHWT SMLS 2016/01 NDE 1000PSI
 HEAT BSM-2617 (PIPE # LENGTH MASS) 62.58lb/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 1000 PSI/ 5 s	End Condition				
BSM-2617	Heat	NPS 16 STD 0.375in. WT	1	DRL	62.58	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	31° Bevel				
Chemical Analysis (wt%)																		
Heat BSM-2617	Steelmaking Method Blast Furnace: EAF; Ladle Refining: Vacuum Degass; Fully Killed	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
			Heat	0.20	0.87	0.009	0.005	0.23	0.05	0.03	0.01	0.01	0.005	-	-	-	0.36	0.37
			Product	0.23	0.89	0.021	0.017	0.29	0.07	0.01	0.01	0.03	0.003	0.003	0.001	0.0004	0.40	0.41

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-2617	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 1.5 in. x WT	48,200	76,000	0.63	44

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy					% Shear			Lateral Expansion				
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG	
BSM-2617	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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:

T. Lam
 Jan 13 / 2016

Tonya Lam, C.E.T.
 Assistant QA Manager