



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2657 Production Date: Feb 29, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002103
 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 STD 0.375 INCHWT SMLS 2016/02 NDE 800PSI
 HEAT BSM-2657 (PIPE # LENGTH MASS) 78.6lb/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	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 800 PSI/ 5 s	End Condition	
BSM-2657	Heat	NPS 20 STD 0.375in. WT	5	DRL	78.6	<5	<20	Pass	Pass	Pass	Pass	-	Pass	33° Bevel	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
BSM-2657	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.16	1.13	0.012	0.001	0.24	0.01	0.01	0.01	0.02	0.01	0.059	0.002	0.001	0.0001	0.37	0.36
		Product	0.16	1.13	0.008	0.003	0.28	0.05	0.01	0.01	0.02	0.02	0.059	0.001	0.002	0.0003	0.37	0.37

Heat	Test Type	Microstructure	Hardness	Flattening Test				Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
				2 in. GL	2 in. GL	1.5 in. x WT	1.5 in. x WT	psi	psi				
BSM-2657	Heat	Ferrite & Pearlite	82 HRBW	Pass	Pass	Longitudinal; 1.5 in. x WT	57,000	76,500	0.75	41			

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion					
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG		
BSM-2657	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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:

 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager
 March 10/2016