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# Mill Test Certificate

Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-2758    Product Size: NPS 16 XS    Production Date: May 09, 2016  
 Production Method: Hot Expansion    Product Heat Treatment: As Rolled    Certificate No.: MTR- 002819

Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings: NPS 16 XS 0.500 INCHWT SMLS 2016/05 NDE 1310PSI  
 HEAT BSM-2758 (PIPE # LENGTH MASS) 82.77lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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 µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End					
BSM-2758	Heat	NPS 16 XS 0.500in. WT	44	DRL	82.77	<5	<20	Pass	Pass	N12.5 Pass	-	-	Pass	31° Bevel					

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2758	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	1.18	0.012	0.007	0.25	0.03	0.04	0.02	0.01	0.050	0.020	0.002	0.0005	0.41	0.42
		Product	0.17	1.17	0.019	0.005	0.27	0.03	0.03	0.04	0.01	0.046	0.023	0.002	0.0004	0.39	0.39
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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-2758	Heat	Ferrite & Pearlite	91 HRBW	Pass	Longitudinal; 1.5 in. x WT	74 500	88 000	0.85	34
				Pass	Longitudinal; 1.5 in. x WT	79 000	92 000	0.86	37
				Pass	Longitudinal; 1.5 in. x WT	72 500	86 500	0.84	39

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2758	ASTM A333	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(180/187/179) 182	(90/90/90) 90	(2.11/2.15/1.99) 2.08

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2015/SA333-2013, 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 (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 MR0103-2012 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*    May 12/2016

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