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# Mill Test Certificate

Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-2700    Product Size: NPS 24 STD    Production Date: Mar 24, 2016  
 Production Method: Hot Expansion    Product Heat Treatment: As Rolled    Certificate No.: MTR- 002149

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 24 STD 0.375 INCHWT SMLS 2016/03 NDE 660PSI  
 HEAT BSM-2700 (PIPE # LENGTH MASS) 94.62lb/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 Pass	ET	HydroTest	End Condition
BSM-2700	Heat	NPS 24 STD 0.375in. WT	7	DRL	94.62	<5	<20	Pass	Pass	N12.5	Pass	-	Pass	32° Bevel

Chemical Analysis (wt%)																
Heat	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2700	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	0.16	1.13	0.010	0.002	0.25	0.01	0.01	0.01	0.01	0.050	0.001	0.001	0.0001	0.36	0.36
	Product	0.16	1.13	0.008	0.004	0.27	0.05	0.01	0.01	0.02	0.059	0.001	0.001	0.0003	0.37	0.37
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties						
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Elongation (A) %
BSM-2700	Heat	Ferrite & Pearlite	81 HRBW	Pass	Yield (Rt0.5) psi Tensile (Rm) psi	Y/T (Rt0.5/Rm)
				Pass	51 500 77 500	0.66
					52 000 77 000	0.68

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2700	ASTM A333	CVN Long 10 x 7.5 mm	-48	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG
				(11/11/11) 14	(53/64/64) 60	(15/20/20) 18	(1.23/1.45/1.61) 1.43

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, 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* April 06/2016  
 Tonya Lam, P. Tech (Eng.)  
 Assistant QA Manager