



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2823      Production Date: Jun 29, 2016  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 002890  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015



NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/06 NDE 1200PSI  
 HEAT BSM-2823 (PIPE # LENGTH MASS) 171.2lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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 1200PSI/ 5s	End Condition
BSM-2823	Heat	NPS 24 TRUE 40 0.688in. WT	9	DRL	171.2	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel

Heat	BSM-2823	Steelmaking Method Blast Furnace; EAF; ladle Refining; Vacuum Degas; Fully Killed	Chemical Analysis (wt%)																	
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	Product	0.18	1.13	0.021	0.003	0.29	0.03	0.02	0.00	0.01	0.056	0.003	0.002	0.0002	0.39	-	0.39
			Product	0.17	1.12	0.018	0.005	0.31	0.03	0.02	0.01	0.064	0.002	0.001	0.0003	0.38	-	0.38		

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-2823	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal: 1.5 in. x WT Longitudinal: 1.5 in. x WT	53 000	77 000	0.69	50
				Pass		51 000	76 500	0.67	51

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2823	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(67/78/72) 72	(40/45/45) 43	(1.12/1.23/1.18) 1.18

**Additional Details:**

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2016/SA333-2015, 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 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/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:

*Tonya Lam* July 10 6/2016

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