



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2702      Product Size: NPS 24 TRUE 40      Production Date: Apr 04, 2016  
 Production Method: Hot Expansion      Product Heat Treatment: As Rolled      Certificate No.: MTR- 002152  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B NDE, AS3-2012/SA53-2013 Grade B Type S, NACE MR0175-2009  
 Product Markings: MRO103-2012  
 NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/04 NDE 1200PSI  
 HEAT BSM-2702 (PIPE # LENGTH MASS) 171.2lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B A/SA53 GR B NACE MR0175/MRO103 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 ASTM E213	ET ASTM E309	HydroTest 1200PSI/ 5 s	End Condition	
BSM-2702	Heat	NPS 24 TRUE 40 0.688in. WT	6	DRL	171.2	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	32° Bevel	

Heat	BSM-2702	Steelmaking Method Blast Furnace: EAF, Ladle Refining, Vacuum Degass, 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	0.16	1.20	1.13	0.011	0.013	0.002	0.002	0.24	0.25	0.04	0.05	0.01	0.01	0.03	0.03	0.056	0.001	0.001	0.001	0.001	0.001	0.001	0.0002	0.40	0.37	-	-	0.40	0.37		

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2702	Heat	Ferrite & Pearlite	82 HRBW	Pass	Longitudinal; 1.5 in. x WT Longitudinal; 1.5 in. x WT	53 500 44 400	76 500 69 500	0.70 0.64	40 51

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2702	ASTM A333	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(3 Tests) AVG (64/38/42) 48	(3 Tests) AVG 13	(3 Tests) AVG (0.97/0.49/0.74) 0.73

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, AS3-2012/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