


# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-1701    Product Size: 24STD    Production Date: Mar 13, 2014  
Production Method: Hot Expansion    Product Heat Treatment: As-rolled    Certificate No.: MTR- 000954  
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings  <API & L/C No.> API SPEC 5L NPS 24 STD 0.375 INCHWT GR B/X42 PSL1 SMLS 2014/03 NDE 1180PSI  
HEAT BSM-1701 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA106 GR B/C 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 $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 1180 PSI/ 5 s	End Condition
BSM-1701	Heat	NPS 24 STD 0.375in. WT	10	DRL	94.62	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-1701	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.86	0.019	0.007	0.24	0.05	0.01		0.04					-	-
		Product	0.22	0.91	0.021	0.013	0.26	0.06	0.01	0.01	0.04	0.003	0.002	0.001	0.0005	0.39	0.39

Mechanical Properties													
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL		Yield (Rt0.5) psi		Tensile (Rm) psi		Y/T (Rt0.5/Rm)		Elongation (A) %
BSM-1701	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 38.1 mm x WT		46,500		73,500		0.63		38

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-1701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-45th Ed., ASTM/ASME A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

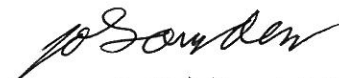
✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2010 Section 2.1

✓ 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:

  
2014 MAR 18

Paul Sowden, T.T.  
Assistant QA Manager