



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2301      Production Date: Mar 16, 2015  
Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 001637

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings  
 **<API & U/C No.>** API SPEC 5L NPS 30 XS 0.500 INCHWT GR B PSL1 SMLS 2015/03 NDE 800PSI  
HEAT BSM-2301 (PIPE # LENGTH MASS) 157.5lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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 µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 800 PSI/ 5 s	End Condition
BSM-2301	Heat	NPS 30 XS 0.500in. WT	5	DRL	157.5	<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)
			Heat	0.18	1.30	0.015	0.008	0.32	0.05	0.01	0.01	0.04	0.070	0.001	0.001	0.0007	-
		Product	0.16	1.26	0.015	0.006	0.31	0.05	0.01	0.01	0.04	0.067	0.002	0.001	0.0005	0.40	0.40
BSM-2301	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed																

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2301	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 38.1 mm x WT	47,600	73,000	0.65	47

Heat	Test	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
BSM-2301	Standard	ASTM A333	CVN Long 10 x 10 mm	-45	J	J	J	AVG	%	%	%	AVG	mm	mm	AVG
					112.0	120.5	90.5	107.7	30	35	20	28	1.94	2.03	1.76

## 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/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C 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 and API Q1.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 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, C.E.T.  
Assistant QA Manager

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