

## Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4

Tel: 001 (780) 469-6603 Fax: 001 (780) 469-6986

www.brichemsteel.com

NPS 36 STD Production Date: June 17, 2013

Production Method: Hot Expansion Product Heat Treatment: As-rolled

Product:

Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1000

Product Size:

Product Standards: ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

**Product Markings:** BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 36 STD 0.375 inchWT HEAT BSM-1000 (PIPE # LENGTH MASS) 142.71b/ft NDE 500 PSI SMLS NACE MR0175 2013/06 MADE IN CANADA.

_	Т		Т
BSM-1000	Heat		
Heat	Test Type		
NPS 36 STD 0.375 in.WT	Product Size		Product Detail
2	Pieces		S
DRL	Length		
142.70	lb/ft	Mass	
Ĝ	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	Insp.	Visual	
Pass	OD		Non-l
Pass	WT	TU	Destructive 1
Pass	ASTM E213	UT	esting
Pass	ASTM E309	ET	
Pass	500 psi/5s	HydroTest	
Plain End	Condition	End	

						Chemical Analysis (wt%)	Analysis	(wt%)									
:																CE	CE
Heat	Steelmaking Method	Analysis	C	ΜN	P	S	Si	۲ ر	Cu	Mo	Z.	<	<b>1</b>	Nb	В	(IW)	(CSA)
BSM-1000	Blast Furnace; EAF; Ladle Refining;	Heat	0.18	0.89	0.017	0.009	0.24	0.03	0.08	0.02	0.04	t		E	0.0001	6	1
	Vacuum Degas; Fully Killed	Product	0.21	0.88	0.014	0.014	0.24	0.03	0.08	0.02	0.04	0.003	0.001	0.001	0.0002	0.37	0.38

	1		Т
BSM-1000	Heat		
Heat	Test Type		
Ferrite & Pearlite	Microstructure		
74	HRBW	Hardness	
Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
43,700	psi	Yield (Rt0.5)	
70,000	psi	Tensile (Rm)	
0.62	(Rt0.5/Rm)	T/Y	
42	%	Elongation (A)	
	Heat Ferrite & Pearlite 74 Pass Longitudinal; 38.1mm x WT 43,700 70,000	Test Type Microstructure HRBW Flattening Test 50mm GL psi psi (R 00 Heat Ferrite & Pearlite 74 Pass Longitudinal; 38.1mm x WT 43,700 70,000	Test TypeMicrostructureHardnessTension TestYield (Rt0.5)Tensile (Rm)Y/TElonHeatFerrite & Pearlite74PassLongitudinal; 38.1mm x WT43,70070,0000.62

Test Impact Test Temp Impact Energy % Shear Lateral Expansion andard Sample Details   QC J J AVG % % AVG mm mm mm AVG	BSM-1000	Heat St	
Temp		andard	lest
p Impact Energy %Shear Lateral Expansion  J J J AVG % % AVG mm mm mm	ı	Sample Details	Impact Test
% Shear Lateral Expansion  AVG % % AVG mm mm mm	,	Эē	Temp
% Shear Lateral Expansion AVG % % AVG mm mm mm	ı	٢	
% Shear Lateral Expansion AVG % % AVG mm mm mm	ı	J	Impact
% Shear Lateral Expansion % % % AVG mm mm mm	10	J	Energy
% Shear Lateral Expansion with mm mm mm mm mm	Ċ	AVG	
r Lateral Expansion  % AVG mm mm mm		%	
r Lateral Expansion  % AVG mm mm mm	1	%	% Sł
mm mm mm	1	%	near .
Lateral Expansion mm mm		AVG	
mm -	ı	mm	
<b>-</b> ⊢ ³	t	mm	E
AVG		mm	xpansion
		AVG	

## Additional Details:

- and that the results meet the corresponding requirements. Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012, and the purchase order requirements, We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing
- Service, and NACE MR0103-2010 Section 2.1. ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour
- No weld repairs have been performed on this product.
- ✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes.
- $\checkmark$  This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

2013 JUN 27

Paul Sowden, T.T.

Assistant QA Manager