

## 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.bri-steel.com

Product: Seamless Carbon Steel Pipe

Production Method:

Hot Expansion

Product Heat Number:

8SM-1302

Product Size: 18T80

Production Date:

Oct 09, 2013

Product Heat Treatment:

As-rolled

Certificate No.: MTR- 000511

ASME B36.10-2004, ASTM/ASME A/SA333-2013 Grade 6 LT(M4SC) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-

**Product Markings** 

Product Standards:

brirtee

NPS 18 TRUE 80 0.940 INCHWT SMLS 2013/10 NDE
HEAT BSM-1302 (PIPE # LENGTH MASS) 170.8lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN

		Product: Detail	tails								Z	Non-Destructive Testing	ctive Testi	곮			
Heat	Test Type	Product Size	Pie	Pieces	Length	Mass	Geiger		Res. Mag.	Visual	g <sub>D</sub>	TU	TU	_	ET	HydroTest	st End
						lb/ft	μR/hr	G	Gauss	insp.		¥	ASTM E	ASTM EZ13 ASTM	MTS		Condition
BSM-1302	Heat	NPS 18 TRUE 80 0.940in. WT	T.W.	4	DRL	170.8	<u>ح</u>		<10	Pass	Pass	Pass	Pass	$\dashv$	Pass	*	Plain End
						***************************************											
						0	Chemical Analysis (wt%)	nalysis (	wt%)								
Heat	Ste	Steelmaking Method	Test Type	C	š	70	s	51	ರ	5 C	No.	Z.	<	=	В	В	CE(IIW) CE(CSA)
BSM-1302	Blast Furnace, EAF	Blast Furnace, EAF; Ladle Refining; Vacuum Depart: Fully Killed	Heat	0,20	0.91	0.91 0.013 0.002 0.32	0.002	0.32	0.04	0.06	0.01	0,02	0.002 0.001 0.001	0.001		0.0002	,

ņ		BSM-1302 Heat Ferrite & Pearlite 76 HRBW Pass			Heat lest ype Microstructure Hardness Flattening Test	7	Mecha
3		earlite			icture	-	
מרר ו באר	Tort	76 HRBW			Hardness		
s lessing	7	Pass			Flattening Test		
impact Energy		Longitudinal; 19.05 mm x WT	COLUMN OF	50mm GI	Tension Test		Mechanical Properties
% Shear		45,100	יכין	2.	Yield (Rt0.5)		
		70,000	led	2.	Tensile (Rm)		
Latera		0.64	(UCO-CANII)	(BtO E/B-)	Υ/1		
Lateral Expansion		50	%		Elongation (A)		

Product

0.21

0.92

0.018

0.006

0.32

0.05

0.06

0.01

0.03

0.003

0.001

0.001

0.0001

0.38

0.38

0.71	25.0	0.90	0.92	W	0	v	ы	39.5	28.0	44.5	46.0	-45	CVN long 10 × 10 mm	ASIM A333	BSM-1302
										-	-	-			2000
AVG	mm	3	mm —	AVG	%	%	%	AVG	_	_	_	۲,	Sample Details	DIBUIDIC	
	,									-	***************************************	;		7	-
	noisneax	Lateral E			% Shear	15%		<u></u>	t Energy	Impact		Temp	Impact Test	lest	neat
					-	The state of the s	A		-						

Additional Details:

We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with 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

✓ 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.

 $\checkmark$  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

Note that this product was hydrotested to 1000 psi for 5 second.

Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-1302

Product Size: 18T80

Production Date:

Oct 09, 2013

Tonya Lam, C.E.T.

28.2015

Mill Test Certificate approved by:

Assistant QA Manager



## Mill Test Certificate

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Production Method:

Hot Expansion

Product Heat Number:

BSM-1302

Product Size: 18 TRUE 80

Production Date:

Oct 09, 2013

Certificate No.: MTR- 000511

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

Product Heat Treatment:

As-rolled

**Product Markings** 

NPS 18 TRUE 80 0.940 INCHWT SMLS 2013/10 NDE

\*\*\*CANNEX STEEL\*\* NPS 18 TRUE 80 0.940 INCHWT SMLS 2013/10 NDE

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	BSM-1302		T	
	1302		Heat	
	Heat		Test Type	
	NPS 18 TRUE 80 0.940in. WT		Product Size	Product: Details
	4		Pieces	
	DRL		Length	
	170.8	lb/ft	Mass	
	ç,	μR/hr	Geiger	
	<10	Gauss	Res. Mag.	
	Pass	Insp.	Visual	
The second secon	Pass		do do	No
	Pass	WT	TU	Non-Destructive Testin
	Pass	ASTM E213	TU	ive Testing
	Pass	ASTM	ET	
The same of the sa	*		HydroTest	
	Plain End	Condition	End	

		BSM-1302	Heat	
	Constant Constant	12 Blast Furnace; EAF, Ladle Refining; Vacuum Degac, Fully Killed	Steelmaking Method	The state of the s
	Product	Heat	Test Type	
	0.21	0.20	5	
	0.92	0.91	Mn	
	0.018	0.013	P	
	0.006	0.002	S	Chemical
	0.32	0.32	Si	Analysis (wt%
Committee Commit	0.05	0.04	Cr	wt%)
	0.06	0.06	Cu	
	0.01	0.01	Mo	
CONTRACTOR CONTRACTOR CONTRACTOR	0.03	0.02	Z:	
Contraction of the Contraction o	0.003	0.002	<	
	100.0	100.0	11	
	100.0	100.0	Nb	
	0.0001	0.0002	В	
	0.38	1	CE(IIW)	
	0.38	•	CE(CSA)	

50	0.64	70,000	45,100	Longitudinal; 19.05 mm x WT	Pass	76 HRBW	Ferrite & Pearlite	Heat	BSM-1302
%	(Rt0.5/Rm)	psi	psi	50mm GL					
Elongation (A)	1/4	Tensile (Rm)	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
	•			iviecnanical Properties					

	BSA	Γ	
	35M-1302		Heat
		Standard	Test
	·	Sample Details	Impact Test
	1	റ്	Temp
	1	_	
	ı	J	Impact
	•	J	Energy
	1	AVG	
	1	%	
-		%	% S1
		%	% Shear
		AVG	
	,	mm	
***************************************	,	mm	Lateral Ex
-	1	mm	xpansion
-	,	AVG	

Additional Details:

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\* Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

2013 OCT B

Paul Sowden, T.T.

Assistant QA Manager