

Mill Test Certificate

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

Tel: 001 (780) 469-6603

Fax: 001 (780) 469-6986 www.bri-steel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-2118

Product Size: 24STD

Production Date: Nov 05, 2014

Production Method: Hot Expansion

ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, CSA Z245.1-2007 Grade 241/290 CAT 1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, AS3-2012/SA53-2013 Grade Product Heat Treatment: As-rolled Certificate No.: MTR- 001446

Product Markings

Product Standards:

B Type S, NACE MR0175-2009 MR0103-2012

HEAT BSM-2118 (PIPE # LENGTH MASS) 94.62Ib/ft CSA Z245.1 GR 241/290 CAT 1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 <API & L/C No.> API SPEC 5L NPS 24 STD 0.375 INCHWT GR B/X42 PSL1 SMLS 2014/11 NDE 1470PSI

MADE IN CANADA

		Product: Details							No	Non-Destructive Testin	ive Testing			
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	QD	ΤU	TU	ET	HydroTest	End
					lb/ft	⊔R/hr	Gauss	insp.		T.	ASTM E213	ASTM	1470 PSI/ 5 s	s Condition
BSM-2118	Heat	NPS 24 STD 0.375in, WT	17	DRL	94.62	G	<10	Pass	Pass	Pass	Pass	Pass	Pass	Plain End
	The state of the s			The second secon									The second secon	

	BSM-2118	Heat	
Degas, ruly killed	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method	
Product	Heat	Test Type	
0.20	0,19	С	
0.97	86.0	Mn	
0.012 0.006	0.008	P	
0.006	0.008 0.004	S	Chemical Analysi
0.22	0.20	Si	
0.09	0.07	Cr	; (wt%)
0.04	0.03	Cu	
0.01	0.01	Mo	
0.04	0.02	Z.	
0.003	0.001	<	
0.002		Ti	
0.001		NP.	
0.0006		В	
0.39		CE(IIW)	
0.39	i	CE(CSA)	

	BSM-2118		Heat	
	Heat		Test Type	
	Ferrite & Pearlite		Microstructure	
	78 HRBW		Hardness	
	Pass		Flattening Test	-
	Longitudinal; $38.1 \text{mm} \times \text{WT}$	50mm GL	Tension Test	Mechanical Properties
The second secon	43,300	psi	Yield (Rt0.5)	
The second secon	72,500	psi	Tensile (Rm)	
	0.60	(Rt0.5/Rm)	Υ/Т	
The second secon	42	%	Elongation (A)	

Heat	Test	Impact Test	Temp		Impact I	Energy			% Shear	ear			Lateral Ex	cpansion	
	Standard	Sample Details	rc	ſ	ľ	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2118	٠	ŧ	1	,	,	,	ı	1	1	r	1	ı	1	,	1

Additional Details:

🗸 We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q.1. API 5L-45th Ed., CSA Z245.1-2007 Grade 241/290 CAT 1, ASTM/ASME A106-2014/SA106-2013 Grade B/C A53-2012/SA53-2013, and the

✓ 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.

 \checkmark This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

47/02/01/NON

Tonya Lam, C.E.T.

Assistant QA Manager



Product:

Seamless Carbon Steel Pipe

Mill Test Certificate

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

Tel: 001 (780) 469-6603

Fax: 001 (780) 469-6986

www.bri-steel.com

Product Heat Number: BSM-2118 Product Size: 24STD

Production Date: Nov 05, 2014

Product Standards: Production Method: ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001451

Product Markings

<API & L/C No.> API SPEC 5L NPS 24 STD 0.375 INCHWT GR B/X42 PSL1 SMLS 2014/11 NDE 1180PSI HEAT BSM-2118 (PIPE # LENGTH MASS) 94.62Ib/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

					````									
32.5° Bevel	Pass	Pass	Pass	Pass	Pass	Pass	<10	Ġ	94.62	DRL	17	NPS 24 STD 0.375in, WT	Heat	BSM-2118
Condition	1180PSI/ 5 s		ASTM E213 ASTM	WT		Insp.	Gauss	μR/hr	lb/ft					
End	HydroTest	ET	UŢ	UT	8	Visual	Res. Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
			tive Testing	Non-Destructive Testing	Z							Product: Details		

Г	BSM	T	Ī
	BSM-2118	Heat	
C Paris March	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method	
Product	Heat	Test Type	
0.20	0.19	С	
0.97	0.98	Μ'n	
0.012	0.008	סי	
0.012 0.006	0.008 0.004	S	Chemical
0.22	0.20	Si	Chemical Analysis (wt%)
0.09	0.07	Cr	wt%)
0.04	0.03	Си	
0.01	0.01	Mo	
0.04	0.02	N:	
0.003	100.0	٧	
0.002		L	
0.001		dN	
0.0006		В	
0.39	,	CE(IIW)	
0.39	ı	CE(CSA)	

Heat BSM-2118	Test Type Heat	Microstructure Ferrite & Pearlite	Hardness 78 HRBW	Flattening Test Pass	Mechanical Properties  Tension Test  50mm GL  Longitudinal; 38.1 mm x WT	Yield (Rt0.5) psi 43,300	Tensile (Rm) psi 72,500	Y/T (Rt0.5/Rm) 0.60	Elongation (A) %
BSM-2118	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 38.1 mm x WT	43,300	72,500	0.60	42

BSM-2118		Heat
	Standard	Test
*	Sample Details	Impact Test
,	ಗೆ	Temp
,		
1	lmpact	
,	L	Energy
,	AVG	
ı	%	
,	%	% Shear
,	%	ear
ŗ.	AVG	
1	mm	
-	mm	Lateral Expansion
	mm	pansion
	AVG	

## 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 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.

Mill Test Certificate approved by:

✓ 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

Assistant QA Manager

Tonya Lam, C.E.I.