

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

Seamless Carbon Steel Pipe

Production Method:

Hot Expansion

Product Heat Number:

BSM-1855 Product Size: 18XS

Production Date: May 26, 2014

Certificate No.: MTR- 001143

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Heat Treatment:

As-rolled

Product Markings

NERT-STEEL NPS 18 XS 0.500 INCHWT SMLS 2014/05 NDE HEAT BSM-1855 (PIPE # LENGTH MASS) 93,451b/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	<10	Ġ	93,45	DRL	2	NPS 18 XS 0.500in, WT	Heat	BSM-1855
Condition		ASIM	ASIM E213	8		insp.	Gauss	µR/hr	lb/ft					
ָ בַּ	Hydrorest	ū		-	S	VISUAL	nes. Mag.	_	Widss	Length	Pieces	Product Size	rest rype	пеас
בי	UvdenTart	ח	117	1	3	1/3-1-1	D Ma-			1	7	Donald Cinn	7 1 7	11
			tive Testing	Non-Destructive Testir	Nc							Product: Details		
The Party of the P														

0 30	050	95 0 1 1000 0 100 0	0 001	2002	0 000	004	201	2	000	230	2011	0 22 0 00 0 024 0 00 0 000	200	222		Degas; Fully Killed	Dega	
ı						0.04		0.01	0.07	0.28	0.011	0.020 0.011	0.19 0.85	0.19	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum	BSM-1855 Blast	BS
CE(CSA)	CE(IIW)	В	МР	TI	<	Z	Mo	Си	Cr	Si	S	P	Mn	0	Test Type C	Steelmaking Method	Heat	
									'wt%)	Chemical Analysis (wt%)	Chemical							
32.5° Bevel	32		Pass		Pass	Pass	Pass	Pass	46		ŝ	93,45	DRL	2	M	Heat NPS 18 XS 0.500in, WT	BSM-1855 H	BS

45	0.59	73,000	43,100	Longitudinal; 38.1 mm x WT	Pass	80 HRBW	Ferrite & Pearlite	Heat	BSM-1855
%	(Rt0.5/Rm)	psi	psi	50mm GL					
Elongation (A)	۲/۲	Tensile (Rm)	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
	Absonomentary of the second se			Mechanical Properties					

	1	,			1	1	,	,	,	,	,	,	,	•	BSM-1855
AVG	mm	mm	mm	AVG	%	%	%	AVG	J	J	J	°C	Sample Details	Standard	
	iteral Expansion	Lateral E			ear	% Shear			Energy	Impact E		Temp	Impact Test	Test	Heat

Additional Details:

 \checkmark We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in results meet the corresponding requirements. accordance with ASTM/ASME A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that 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 MR0103-2010 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

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

Mill Test Certificate approved by:

المصا May 29-2014

Tonya Lam, C.E.T.

Assistant QA Manager



Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 124

Tel: 001 (780) 469-6603

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Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1855

Product Size: 18XS

Production Date: May 26, 2014

Certificate No.: MTR- 001143

Production Method: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010 Hot Expansion

Product Heat Treatment: As-rolled

Product Standards:

Product Markings

NPS 18 XS 0.500 INCHWT SMLS 2014/05 NDE HEAT BSM-1855 (PIPE # LENGTH MASS) 93.45lb/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	<10	S	93.45	DRL	2	NPS 18 XS 0.500in. WT	Heat	BSM-1855
Condition		ASTM	ASTM E213	WT		Insp.	Gauss	µR/hr	lb/ft					
End	HydroTest	Ħ		Π	OD	Visual	Res, Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
			Destructive Testing	Non-Destruct	NC							Product: Details		

	BSM-1855	Heat	
Degas; Fully Killed	Blast Furnace; EAF, Ladle Refining; Vacuum	Steelmaking Method	
Product	Heat	Test Type	
0.22	0.19	С	
0.90	28.0	Mn	
0.021	0.020	P	
0.011	0.011	S	Chemical
0.30	0.28	Si	Ical Analysis (v
0.08	0.07	Cr.	wt%)
0.01	0.01	Cn	
0.01		Mo	
0.04	0.04	Z.	
0.003		٧	
0.003		ı	
0.001		N.	
0.0004		В	
0.39		CE(IIW)	
0.39		CE(CSA)	

-								1000
_	73,000	43,100	Longitudinal; 38.1 mm x WT	Pass	80 HRBW	Ferrite & Pearlite	Heat	RSM-1855
(Rt0.5/R	psi	psi	50mm GL					
_	Tensile (Rm	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
			Mechanical Properties	7				

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,	

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/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

Mill Test Certificate approved by:

✓ No weld repairs have been performed on this product. √ 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

This product has not come into contact with mercury during the Bri-Steel Manufacturing processes

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Tonya Lam, C.E.T.

Assistant QA Manager



Mill Test Certificate

Bri-Steel Manufacturing Inc.

2125-64 Avenue, Edmonton, AB Canada T6P 124 Tel: 001 (780) 469-6603

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

Product: Seamless Carbon Steel Pipe Prod

Production Method:

Hot Expansion

Product Heat Number:

Product Heat Treatment:

BSM-1855 Product

Product Size: 18XS

Production Date: May 26, 2014

Certificate No.: MTR- 001142

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

As-rolled

Product Markings STEEL] <API & L/C No.> API SPEC 5L NPS 18 XS 0.500 INCHWT GR B PSL1 SMLS 2014/05 NDE 1300PSI

		Product: Details							No	Non-Destructive Testin	ive Testing				
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	90	IU	UT	띄	HydroTest	_	End
					lb/ft	µR/hr	Gauss	insp.		WT	ASTM E213 ASTM		1300 PSI/	5 5	Condition
BSM-1855	Heat	NPS 18 XS 0.500in. WT	2	DRL	93.45	â	<10	Pass	Pass	Pass	Pass	Pass	Pass	32	32.5° Bevel

	BSM-1855	Heat		
Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method		
Product	Heat	Test Type		
0.22	0.19	5		
0.22 0.90	0.85	Mn		
0.021 0.011	0.02	P		
0.011	0,011	S	Chemical Analysis (wt%)	
0.30	0.28	Si	Analysis (
0.08	0.07	Ç	wt%)	
0.01	0.01	Cu		
0.01		Mo		
0.04	0.04	Z		
0.003		<		
0.003		ī		
0.001		Νb		
0.0004		В		
0.39	-	CE(IIW)		
0.39	,	CE(CSA)		

				The second secon				***************************************	
45	0.59	73,000	43,100	Longitudinal; 38.1 mm x WT	Pass	80 HRBW	Ferrite & Pearlite	Heat	BSM-1855
			Pos.	000000000000000000000000000000000000000					
%	(Rt0.5/Rm)	· psi	os.	50mm GI					
Flongation (A)	Υ/-	Tensile (Rm)	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
				Mechanical Properties					

CCOT-1AICG	DCM 10EE		Heat
		Standard	Test
		Sample Details	Impact Test
		°C	Temp
	ì	J	
	,	J	Impact
	,	J	Energy
	ı	AVG	
	ı	%	
		%	% Sh
	1	%	Shear
	ı	AVG	
		mm	
	1	mm	Lateral E
		mm	xpansion
		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 A/5A106-2013 Grade B/C A/5A53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

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√ 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

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am May - 29 - 2014

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Assistant QA Manager