

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

Product Heat Number:

BSM-1276 Product Size: 20XS

Production Date: Sep 25, 2013

As-rolled

Product Standards: Production Method: ASME B36.10-2004, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012 Hot Expansion Product Heat Treatment:

Certificate No.: MTR- 000490

Product Markings

NPS 20 XS 0.500 INCHWT SMLS 2013/09 NDE 1200PSI

HEAT BSM-1276 (PIPE # LENGTH MASS) 104.11b/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Plain End	Pass	Pass	Pass	Pass	Pass	Pass	S	< 5	104.1	DRL	13	NPS 20 XS 0.500in. WT	Heat	BSM-1276
S Condition	1200 PSI/ 5 s	ASTM	ASTM E213	WΤ		Insp.	Gauss	μR/hr	lb/ft					
End	HydroTest	띄	UT	TU	OD	Visual	Res. Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
			ive Testing	Non-Destructive Testin	N							Product: Details		

			The state of the s	-	The state of the s	-		-					The same of the sa				
0.39	0.39	0.0002	0.001	0.003	0.005	0.04	0.01	0.01	0.08	0.24	0.015	0.90 0.028 0.015 0.24	0.90	0.22	Product	Degas, rolly wheo	
П	,	,	1	1		0.04	,	0.01	0.07	0.22	0.010	0.022	0.82	0.19	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum	BSM-1276
CE(CS/	CE(IIW)	В	Nb	Ħ	<	Z	Mo	Cı	ני	Si	s	ъ	Mn	С	Test Type	Steelmaking Method	Heat
1									wt%)	Analysis (Chemical Analysis (wt%)						

					Mechan	Mechanical Properties	ties									
Heat	Test Type	Microstructure	Hardness	Flattening Test		Ten	Tension Test		Yie	Yield (Rt0.5)	Tensile (Rm	e (Rm)	1/4		Elongation (A)	уп (A)
						50	50mm GL			psi	psi	si	(Rt0.5/Rm	(m) 	%	
BSM-1276	Heat	Ferrite & Pearlite	75 HRBW	Pass	_	Longitudinal; 38.1 mm x WT	l; 38.1 m	m x WT		44,800	72,	72,000	0.62		43	
Heat	Test	lin	Impact Test	Temp		Impact Energy	nergy			% Shear	ar			Lateral Expansion	pansion	
	Standard		Sample Details	°C	L	J	٦	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-1276	r		•	,	1		1	-	1	,	1		1	1		r

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 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

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Teb/03/2015

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

Tonya Lam, C.E.T.

 \checkmark This product has not come into contact with mercury during the Bri-Steel Manufacturing processes. No weld repairs have been performed on this product.

Assistant QA Manager



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Product:

Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1276 Product Size: 20 XS Production Date:

Sep 25, 2013

Production Method: Product Standards:

Hot Expansion

Product Heat Treatment:

As-rolled

Certificate No.: MTR- 000490 ASME B36.10-2004, API 5L-45th 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

SAPI> SL-0898 API SPEC 5L NPS 20 XS 0.500 INCHWT GR B PSL1 SML5 2013/09 NDE 1200PSI

***HEAT BSM-1276 (PIPE # LENGTH MASS) 104.1|b/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

		Product: Details							N	on-Destruc	tive 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 1200 PSI/ 5 s	End Condition
BSM-1276	Heat	NPS 20 XS 0,500in. WT	13	DRL	104.1	ok	<5	Pass	Pass	-	Pass	Pass	Pass	Plain End

	CONTRACTOR					Chemical	Analysis (wt%)								STEWNS WAS	
Heat	Steelmaking Method	Test Type	С	Mn	Р	5	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	В	CE(IIW)	CE(CSA)
BSM-1276	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.19	0.82	0.022	0.010	0.22	0.07	0.01		0.04					-	
	Degas; rully kined	Product	0.22	0.90	0.028	0.015	0.24	0.08	0.01	0.01	0.04	0.005	0.003	0.001	0.0002	0.39	0.39

				M	lechanical Properties				
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0,5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-1276	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	44,800	72,000	0.62	43

Heat	Test	Impact Test	Temp		Impact	Energy			% S	hear			Lateral E	xpansion	
	Standard	Sample Details	°C	J	J	J.,	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-1276		-		T -	-	-		-	-	-	-	-	-	-	

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API SL-45th Ed., ASTM/ASME A/SA106-2011 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

✓ 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.

√ 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:

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Paul Sowden, T.T. Assistant QA Manager