

## 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.brichemsteel.com

Seamless Carbon Steel Pipe Product Heat Number:

Production Method:

Product:

Product Size:

BSM-0923

NPS 24 XS

Production Date: May 22, 2013

**Hot Expansion** Product Heat Treatment: As-rolled

Product Standards: ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B 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 A/SA53 GR B NPS 24 XS 0.5 inchWT HEAT BSM-0923 (PIPE # LENGTH MASS) 125.5ib/ft NDE 970 PSI SMLS NACE MR0175 2013/05 MADE IN CANADA.

B2M-0873	5000	Heat	•		
Heat		lest Type			
NPS 24 XS 0.5 in.WT		Product Size			Product Detai
10		Dipops			8
DRL	ren Ben	ength			
125.50	10/16	- - - - - -	SCDIAL	1	
<5	HIVIII	10 /hr	Geiger	Colone	
<20	Conso	231155	Kes.Ividg.	Dankan	
Pass	IIISp.	3	VISUAL	177	
Pass	00	3			Non-De
Pass	VV	14/1	<u>_</u>	i	Destructive T
Pass	ASTIVI EZ13	ACTA ATTA	_		esting
Pass	ASTIVI ESUS	2000	г		
Pass	ASTIM EZ13 ASTIM E309 9/0 psi/5s   Condition		HydroTest		
32.5° Bevel	Condition		End		

Γ	BS			-		Τ
	BSM-0923		חפמנ			
Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;		Steelmaking Wiethod			
Product	1		Analysis			
0.21	0.18		0			
0.87		1	S			
0.018 0.009	0.014		ס			
0.009	0.005		S			Chemical Analysis (wt%)
0.26	0.25	I	<u>s</u>		21/2	Analysis
0.04	0.04		<del>ن</del>			(wt%)
0.09	0.08		5			
0.01	0.01		<u>S</u>			
0.04	0.04		<u>z</u> .			
0.004			<			
0.001	,		=!			
0.002			Z			
0.0002	0.0003		ס			
0.37	•	(4411)	(IIW)	5	3	
0.38	_	(000)	(050)	۲		

Heat Test Type Microstructure HRBW Flattening Test Somm GL psi (Rt0.5/Rm) %  Ferrite & Pearlite 74 Pass Longitudinal: 38.1mm x WT 41.000 68.000 0.60 46	40	0.00	20,000	. 2,000	0					
Mechanical Properties  Test Type Microstructure HRBW Flattening Test 50mm GL psi psi (Fig. 1)    Mechanical Properties  Tension Test Yield (Rt0.5) Tensile (Rm) (Fig. 1)    Test Type Microstructure HRBW Flattening Test 50mm GL psi psi (Fig. 1)    Mechanical Properties	76	0.60	68 000	41,000	Longitudinal: 38.1mm x WT	Pass	74	Ferrite & Pearlite	Heat	B2M-0373
Test Type Microstructure HRBW Flattening Test 50mm GL psi psi (f	,0	(110.0)	Pari.							2000
Mechanical Properties  Hardness Tension Test Vield (Rt0.5)	%	(Rt0 5/Rm)	psi.	ps.	50mm GL	Flattening Test	HRBW	Microstructure	lest Type	
Mechanical Properties  Tension Test  Yield (Rt0.5)	1								7	
Mechanical Pro	Elongation (A)	7/7	Tensile (Rm)	Yield (Rt0.5)	Tension Test		Hardness			
Mechanical Properties										
					nical Properties	Mechan				

	г	_		
	C760-141CG	CC00 M39	неат	
			Standard	lest
	1		Sample Details	Impact Test
			<u>°</u>	Temp
			_	
	1		_	Impact
			_	Energy
		-	AVG	
		1	%	
	t	-	%	% Shear
	t)	1	%	ear
			AVG	
	r		3	
	,		mm	Lateral Ex
	,		mm	xpansion
	ı	2	פאס	

## 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 MAX 28

Paul Sowden, T.T.

Assistant QA Manager