

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

Hot Expansion

Product Heat Treatment:

As-rolled

Product Heat Number:

BSM-2209 Product Size: 24T40

Production Date: Jan 07, 2015

Certificate No.: MTR- 001533

Product Markings

Product Standards: Production Method:

NPS 24 TRUE 40 0.688 INCHWT SMLS 2015/01 NDE 1400PSI

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

HEAT BSM-2209 (PIPE # LENGTH MASS) 171.2Ib/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

BSM-2209 Heat		Heat Test Type	And the second s
NPS 24 TRUE 40 0.688in. WT		Product Size	Product: Details
4		Pieces	
DRL		Length	
171.2	lb/ft	Mass	
\$	µR/hr	Geiger	
<20	Gauss	Res. Mag.	
Pass	insp.	Visual	
Ssed		do	N
Pass	WT	TU	Non-Destructive Testin
Pass	ASTM E213	UT	tive Testing
Pass	ASTM	ET	
Pass	1400 PSI/ 5 s	HydroTest	
Plain End	S Condition	End	

	BSM-2209	Heat	
propas, rusy rusco	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method	
Product	Heat	Test Type	
0.21	0.20	C	
0.95	0.95	Mn	
0.016	0.016	ъ	
0.006	0.005	s	Chemical Analysis
0.30	0.30	Si	Analysis (
0.05	0.06	Ç	(wt%)
0.07	0.07	Си	
0.01	0.01	Mo	
0.02	0.03	N.	
0.004	0.004	٧	
0.003	0.003	I.I.	
0.001	100.0	qN	
0.0003	2000.0	В	
0.39	-	CE(IIW)	
0.39	•	CE(CSA)	

1		-						
50,500 73,000		Ş.	Longitudinal; 25.4 mm x WT	Pass	79 HRBW	Ferrite & Pearlite	Heat	BSM-2209
psi psi			50mm GL	-				
eld (Rt0.5) Tensile (Rm)	d	¥.	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
			Mechanical Properties					

BSM-2209	Sta	Heat T
•	standard	Test
•	Sample Details	Impact Test
ŧ	റ്	Temp
1	J	
1	<u></u>	Impact
,	J	Energy
ŧ	AVG	
	%	
,	%	% Shear
,	%	iear
,	AVG	
,	mm	
,	mm	Lateral Expansio
,	mm	(pansion
ş	AVG	

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

Assistant QA Manager Tonya Lam, C.E.T.

Tibar

✓ 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.



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Jan 07, 2015

Seamless Carbon Steel Pipe Product Heat Number: BSM-2209 Product Size: 24T40 Production Date:

Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001533

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings

Production Method:

Product:

brizteel

<API & L/C No.> API SPEC 5L NPS 24 TRUE 40 0.688 INCHWT GR B PSL1 SMLS 2015/01 NDE 1400PSI HEAT BSM-2209 (PIPE # LENGTH MASS) 171.2Ib/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

s Pass	J 1	Pass	Pass	<20	\$	171.2	DRL	4	NPS 24 TRUE 40 0.688in. WT	Heat	BSM-2209
WT			Insp.	Gauss	μR/hr	lb/ft					
OD UT	9	_	Visual	Res. Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
Non-Destructive Testing	Non								Product: Details		

 Heat BSM-2209	Steelmaking Method Blast Furnace; EAF; Ladie Refining; Vacuum Degas; Fully Killed	Test Type Heat	C 0.20	0.95	0.016	S 0.005	Chemical Analysis (wt%) S Si (0.005 0.30 0.	0.06 0.05	Cu 0.07	0.01 0.01	0.03	0.004	0.003	0.001	B 0.0002		CE(CSA)
BSM-2209	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.95	0.95 0.016		0.30	0.06	0.07	0.01	0.03	0.004	0.003		0.0002	- 0.39	_ [

BSM-2209		Heat	
209		eat	
Heat		Test Type	
Ferrite & Pearlite		Microstructure	
79 HRBW		Hardness	
Pass		Flattening Test	
Longitudinal; 25.4 mm x WT	50mm GL	Tension Test	Mechanical Properties
50,500	psî	Yield (Rt0.5)	
73,000	psi	Tensile (Rm)	
0.69	(Rt0.5/Rm)	Υ,	
45	%	Elongation (A)	

Heat	Test	Impact Test	Temp		Impact	Energy			% Shear	ear			Lateral Ex	xpansi	n
	Standard	Sample Details	°C	J	ſ	J	AVG	%	%	%	AVG	mm	mm	ם	mm
BSM-2209	3	3	t		,		,	1	,	1	•	,	,		•

Additional Details:

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Mill Test Certificate approved by:

m Jan. 13.2

Tonya Lam, C.E.T.

Assistant QA Manager