

Bri-Steel Manufacturing Inc.

2125-64 Avenue, Edmonton, AB Canada T6P 1Z4 Fax: 001 (780) 469-6986 Tel: 001 (780) 469-6603 www.brichemsteel.com

Seamless Carbon Steel Pipe

Product Heat Number:

Production Date:

Production Method: Hot Expansion

Product Heat Treatment: As-rolled

BSM-0663 Product Size:

NPS 24 XS

January 22, 2013

Product Markings:

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

.BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 XS HEAT BSM-0663 (PIPE # LENGTH MASS) 125.5ib/ft NDE 970 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.

BSM-0663	Heat	3	
Heat	Test Type		
24	NPS		
XS	Thickness	Wall	Product Detai
14	Pieces		ls
DRL	Length		
125.50	lb/ft	Mass	
S	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	Insp.	Visual	
Pass	9		Non-l
Pass	WT	TI	Destructive '
Pass	ASTM E213	UT	Testing
Pass	ASTM E309	ET	
Pass	970 psi/5s	HydroTest	
37.5° Bevel	Condition	End	

	BSM-0663	Heat		
Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method	100 miles 100 mi	
Product	Heat	Analysis		
0.20	0.21	C		
0.86	0.91	Mn		
0.009 0.019	0.014	P		
0.019	0.010	S		Chemical Analysis (wt%)
0.23	0.26	Si		Analysis
0.03	0.05	Cr		(wt%)
0.10	0.10	Cu		
0.01	0.01	Mo		
0.04	0.07	<u>z</u> .		
0.002	1	<		
0.001	1	Ħ		
0.001	-	Nb		
0.0002	0.0003	В		
0.36	1	(IIW)	Œ	
0.37		(CSA)	CE	

	BSM-0663 Heat	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	74	HRBW	Hardness	The state of the s
	Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
43,600	47,300	psi	Yield (Rt0.5)	
43,700	46,200	psi	Yield (Rp0.2)	
72,500	67,000	psi	Tensile (Rm)	
0.60	0.71	(Rt0.5/Rm)	1/γ	
45	45	%	Elongation (A)	

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

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

Mill Test Certificate approved by:

Kenton Dechant, P.Eng. 2013 Jan 29



Bri-Steel Manufacturing Inc.

2125-64 Avenue, Edmonton, AB Canada T6P 1Z4 Tel: 001 (780) 469-6603 Fax: 001 (780) 469-6986

www.brichemsteel.com

Product Heat Number: BSM-0663 Product Size: NPS 24 STD Production Date: January 22, 2013

Production Method: Hot Expansion Product Heat Treatment: As-rolled

Product:

Seamless Carbon Steel Pipe

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 STD HEAT BSM-0663 (PIPE # LENGTH MASS) 12.5.1b/ft NDE 970 PSI SML5 NACE MR0175 2013/01 MADE IN CANADA.

BSM-0663	Heat		
Heat	Test Type		
24	NPS		
STD	Thickness	Wall	Product Details
14	Pieces		S
DRL	Length		
125.50	lb/ft	Mass	
3	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	insp.	Visual	
Pass	OD		Non-[
Pass	TW	TU	Non-Destructive 1
Pass	ASTM E213 A	TU	Testing
Pass	ASTM E309	ET	
Pass	ASTM E309 970 psi/5s	HydroTest	
37.5° Bevel	Condition	End	

						Chemical	Chemical Analysis (wt%)	(wt%)									
																Œ	CE
Heat	Steelmaking Method	Analysis	С	Mn	ъ	S	Si	Cr	Cu	Мо	Z.	<	∄	Nb	В	(IW)	(CSA)
RSM-0663	Blast Furnace; EAF; Ladle Refining;	Heat	0.21	0.91	0.014	0.010	0.26	0.05	0.10	0.01	0.07	r	ı	r	0.0003	ı	ts
0000	Vacuum Degas; Fully Killed	Product	0.20	0.86	0.86 0.009 0.019	0.019	0.23	0.03	0.10	0.01	0.04	0.002	0.001	0.001	0.0002	0.36	0.37

	BSM-066	Heat		
	BSM-0663 Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	74	HRBW	Hardness	
	Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
43,600	47,300	psi	Yield (Rt0.5)	
43,700	46,200	psi	Yield (Rp0.2)	
72,500	67,000	psi	Tensile (Rm)	
0.60	0.71	(Rt0.5/Rm)	T/Y	
45	45	%	Elongation (A)	

Additional Details:

- and that the results meet the corresponding requirements. ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements,
- 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
- This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

Kenton Dechant, P.Eng. Manager of Quality and R&D

2013 Jan 29



Bri-Steel Manufacturing Inc.

2125-64 Avenue, Edmonton, AB Canada T6P 1Z4 Fax: 001 (780) 469-6986 Tel: 001 (780) 469-6603 www.brichemsteel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0663A

Product Size: **NPS 24 XS**

Production Date: January 22, 2013

Production Method: **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/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

Product Markings: .BRI-STEEL MFG <API> 51-0898 API 51 GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 24 XS HEAT BSM-0663A (PIPE # LENGTH MASS) 125.5Ib/ft NDE 970 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.

	1	m	_		
		BSM-0663A	Heat		
		Heat	Test Type		
		24	NPS		
		XS	Thickness	Wall	Product Details
		14	Pieces		S
		DRL	Length		
		125.50	lb/ft	Mass	
Chemical A		<5	μR/hr	Geiger	
Chemical Analysis (wt%)		<20	Gauss	Res.Mag.	
_		Pass	Insp.	Visual	
		Pass	OD		Non-[
		Pass	WT	TU	Non-Destructive Testing
		Pass	ASTM E213	UI	Testing
		Pass	ASTM E213 ASTM E309 970 psi/5s Condition	ET	
		Pass	970 psi/5s	HydroTest	
		Pass 37.5° Bevel	Condition	End	

_		9 8					
CONTRACTOR OF THE PROPERTY OF			0000	BSM-0663A	Heat		
			Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method		
			Product 0.21	Heat	Analysis		
			0.21	0.19	C		
			0.86	0.87	Mn	1400000	
			0.86 0.009 0.009	0.010 0.018	P		
	Mechani		0.009	0.018	S		Chemical
	Mechanical Properties		0.24	0.25	Si		Chemical Analysis (wt%)
	rties		0.24 0.05	0.05	Cr		(wt%)
			0.12	0.04	Cu		
			0.01	0.01	Mo		
			0.06	0.10	Z.		
			0.002	ı	<		
			0.001	t	Ħ		
The second second			0.001	ē	Nb		
			0.0002	0.0003	В		
		-	0.38	t	(IIW)	CE	
			0.39	r	(CSA)	CE	

	BSM-0663A Heat	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	77	HRBW	Hardness	
	Pass	Flattening Test		Mechan
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
45,300	59,500	psi	Yield (Rt0.5)	
45,200	56,500	psi	Yield (Rp0.2)	
72,500	74,500	psi	Tensile (Rm)	
0.62	0.80	(Rt0.5/Rm)	T/Y	
46	46	%	Elongation (A)	

Additional Details:

and that the results meet the corresponding requirements. ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements,

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 certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1. This product has not come into contact with mercury during the Bri-Steel Manufacturing processes

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Kenton Dechant, P.Eng.

2013 Jan 29



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Fax: 001 (780) 469-6986

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Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-0663B

Product Size:

NPS 24 STD

Production Date:

January 22, 2013

Production Method: 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/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

Product Markings: .BRI-STEEL MFG <API> 51-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 24 STD HEAT BSM-0663B (PIPE # LENGTH MASS) 125-5Ib/ft NDE 970 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.

BSM-0663B	Heat		
Heat	Test Type		
24	NPS		-
STD	Thickness	Wall	Product Detail
14	Pieces		S
DRL	Length		
125.50	lb/ft	Mass	
<5	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	insp.	Visual	
Pass	OD		Non-E
Pass	TW	UT	Destructive 1
Pass	ASTM E213	TU	esting
Pass	ASTM E309	ET	
Pass	rM E309 970 psi/5s	HydroTest	
37.5° Bevel	Condition	End	

00000	RSM-0663R	Heat		
Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method		
Product 0.19	Heat	Analysis		
0.19	0.19	0		
0.90	0.83	Mn		
0.012	0.009	P		
0.90 0.012 0.014 0.21	0.83 0.009 0.015	S		Chemical Analysis (wt%)
	0.25	Si		Analysis
0.03	0.07	Cr		(wt%)
0.07	0.08	Cu		
0.01	0.01	Mo		
0.03	0.06	Z.		
0.003	1	<		
0.001	1	Ti	1002 8	
0.001	1	Nb		
0.0002	-	В		
0.36	1	(IIW)	CE	
0.36	1	(CSA)	CE	

	BSM-0663B Heat	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	76	HRBW	Hardness	
	Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
44,900	44,700	psi	Yield (Rt0.5)	
44,800	47,000	psi	Yield (Rp0.2)	
72,500	72,500	psi	Tensile (Rm)	
0.62	0.62	(Rt0.5/Rm)	Υ/Τ	
44	46	%	Elongation (A)	

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 certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1. √ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes

Mill Test Certificate approved by:

Kenton Dechant, P.Eng.



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

Fax: 001 (780) 469-6986 Tel: 001 (780) 469-6603 www.brichemsteel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0663C

Production Date:

January 22, 2013

Production Method: Hot Expansion

Product Markings:

Product Heat Treatment: As-rolled

Product Size: NPS 24 STD

Product Standards: ASME B36.10-2004, API 5L-44th 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

.BRI-STEEL MFG <API > SL-0898 API SL GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SA53 GR B NPS 24 STD HEAT BSM-0663C (PIPE # LENGTH MASS) 125.5Ib/ft NDE 970 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.

Product Details Wall Wall Heat Test Type NPS Thickness ASTD 14 DRL 125.50 ASTM E213 ASTM E309 ASTM E309 ASTM E213 ASTM E309 ASTM E213 ASTM E309 ASTM E309 ASTM E309 ASTM E213 ASTM E309 AS				_
Product Details Wall Wall Non-Destructive Testing Wall Non-Destructive Testing Visual UT UT ET Hy Non-Destructive Testing Hy ASTM E213 ASTM E309 97 Pass	BSM-0663C	Heat		
Product Details Wall Wall Mass Geiger Res.Mag. Visual UT UT ET Hy Thickness Pieces Length DRL 125.50 420 Pass Pas	Heat	Test Type		
Non-Destructive Testing Mass Geiger Res.Mag. Visual Pieces Length lb/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 97 14 DRL 125.50 <5 <20 Pass Pass Pass Pass Pass Pass	24	NPS		,
Non-Destructive Testing Mass Geiger Res.Mag. Visual Pieces Length lb/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 97 14 DRL 125.50 <5 <20 Pass Pass Pass Pass Pass Pass	STD	Thickness	Wall	roduct Detai
Mass Geiger Res.Mag. Visual UT UT ET Hy Ib/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 97	14	Pieces		S
Seiger Res.Mag. Visual UT UT ET Hy μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 97 c5 <20 Pass Pass Pass Pass Pass Pass	DRL	Length		
Res.Mag. Visual UT UT ET Hy Gauss Insp. OD WT ASTM E213 ASTM E309 97 <20 Pass Pass Pass Pass Pass Pass	125.50	lb/ft	Mass	
Non-Destructive Testing Visual UT UT Insp. OD WT Pass	<5	μR/hr	Geiger	
Non-Destructive Testing UT UT OD WT ASTM E213 ASTM E309 97 Pass Pass Pass Pass Pass Pass Pass	<20	Gauss	Res.Mag.	
Pass Pass Pass Pass	Pass	Insp.	Visual	
B UT ET Hy M E213 ASTM E309 97 ass Pass	Pass	OD		Non-E
B UT ET Hy M E213 ASTM E309 97 ass Pass	Pass	TW	TU	Destructive T
ET HydroTest End ASTM E309 970 psi/5s Condition Pass Pass 37.5° Bevel	Pass	ASTM E213	TU	Testing
HydroTest End 970 psi/5s Condition Pass 37.5° Bevel	Pass	ASTM E309	ET	
End Condition 37.5° Bevel	Pass	970 psi/5s	HydroTest	
	37.5° Bevel	Condition	End	

Chemical Analysis (wt%)

		000						
	BSM-0663C	Heat			00000	RSM-06630	Heat	
	Heat	Test Type				Vacuum Deg	Blast Furnace; E	Steelmak
	Ferrite & Pearlite	Microstructure			Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method	
	fite	ire			Product	Heat	Analysis	
	77	HRBW	Hardness		0.20 0.92 0.017 0.012 0.22	0.19	_	
	7	3W	ness		0.92	0.91	Mn	
	Pass	Flatteni			0.017	0.010	7	
	SS	Flattening Test		Mechan	0.012	0.010	S	
Longitudi	Transver		Te	Mechanical Properties	0.22	0.22	Si	
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	rties	0.03	0.03	C,	
nm x WT	m x WT		#		0.08	0.07	Cu	
46,600	53,500	psi	Yield (Rt0.5)		0.01	0.01	Mo	
0	ō				0.03	0.05	Z	
46,700	53,500	psi	Yield (Rp0.2)		0.003	1	<	
73	73				0.001		=	
73,500	73,500	psi	Tensile (Rm)		0.001	t	В	
0.63	0.73	(Rt0.5/Rm)	۲/۲		0.0002 0.37	0.0003	В	
		1)	Elong		0.37		(IW)	
44	40	%	Elongation (A)		0.38	-	(CSA)	

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

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Mill Test Certificate approved by:

Kenton Dechant, P.Eng. 2013 Jan 29