

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.bri-steel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1841 Product Size: 24T80

Production Date: May 14, 2014

Production Method: **Hot Expansion**

Product Heat Treatment: As-rolled

Certificate No.: MTR- 001123

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

Product Standards:

| STEEL | SAPI & L/C No.> API SPEC 5L NPS 24 TRUE 80 1.219 INCHWT GR B PSL1 SMLS 2014/05 NDE 2400PSI

Product Markings EDIZAGIUENCEING HEAT BSM-1841 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

		Product: Details							z	Non-Destructive Testing	tive Testing		
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	TU	TU	_	ET
					lb/ft	μR/hr	Gauss	Insp.		TW	ASTM E213 ASTM		ASTM 2400PSI/ 5 s Condition
BSM-1841	Heat	NPS 24 TRUE 80 1.219in. WT	5	DRL	296.4	ç.	<10	Pass	Pass	Pass	Pass	-	Pass

	BSM-1841	Heat	
Degay, rully siled	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method	
Product	Heat	Test Type	
0.20	0.20	С	
0.88	0.91	Mn	
0.008	0.011	Р	
0.009	0.011	S	Chemical Analysis (wt%)
0.24	0.23	Si	Analysis (
0.05	0.05	Cr	wt%)
0.06	0.05	Cu	
0.01	0.01	Мо	
0.04	0.05	N.	
0.003		٧	
0.001		II	
0.001		dN	
0.0002	0.0003	В	
0.36	-	CE(IIW)	
0.36		CE(CSA)	

48	0.56	68,000	38,100	Longitudinal; 19.05 mm x WT	Pass	74 HRBW	Ferrite & Pearlite	Heat	BSM-1841
%	(Rt0.5/Rm)	psi	psi	50mm GL					
Elongation (A)	Υ/Τ	Tensile (Rm)	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat
				Mechanical Properties					

	П	r	
	BSM-1841		Heat
	ı	Standard	Test
		Sample Details	Impact Test
	a	°C	Temp
	1	J	
		J	Impact
	•	J	Energy
	1	AVG	
	t	%	
	C	%	% Shear
	·	%	ear
	ı	AVG	
	•	mm	
	L	mm	Lateral Exp
900	t	mm	Expansion
	ı	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 SL-45th Ed., ASTM/ASME A/SA106-2013 Grade B A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.
- \checkmark 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:

2014 MAY 21

10 Dayden

Paul Sowden, T.T.

Assistant QA Manager



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Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1841 Product Size: 24T80

Production Date:

May 14, 2014

Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001124

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

Product Markings NPS 24 TRUE 80 1.219 INCHWT SMLS 2014/05 NDE 2400PSI

NUERGEDERNO HEAT BSM-1841 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

BSM-1841		Heat	
Heat		Test Type	
NPS 24 TRUE 80 1.219in. WT		Product Size	Product: Details
5		Pieces	
DRL		Length	
296.4	lb/ft	Mass	
<5	μR/hr	Geiger	
<10	Gauss	Res. Mag.	
Pass	Insp.	Visual	
Pass		OD	Z
Pass	TW	TU	on-Destruc
Pass	ASTM E213 ASTM	TU	Non-Destructive Testing
Pass		ET	
Pass	2400 PSI/ 5 s Condition	HydroTest	
Plain End	Condition	End	

		BSM-1841	Heat	
	Cegas, rony viece	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method	
	Product	Heat	Test Type	
	0.20	0.20	С	
000000000000000000000000000000000000000	0.88	0.91	Mn	
W	0.008	0.011	Р	
	0.009	0.011	S	Chemical
	0.24	0.23	Si	Chemical Analysis (wt%)
	0.05	0.05	Cr	wt%)
	0.06	0.05	Cu	
	0.01	0.01	Мо	
	0.04	0.05	Ni	
	0.003		٧	
	0.001		Τi	
	0.001		Nb	
	0.0002	0.0003	В	
	0.36	1	CE(IIW)	
	0.36	1	CE(CSA)	

BSM-1841 Heat Ferrite & Pearlite 74 HRBW Pass Longitudinal; 19.05 mm x WT 38,100 68,000 0.56 48

Heat	Test	Impact Test	Temp		Impact	Energy			% Shear	lear			Lateral Expansion	kpansion	
	Standard	Sample Details)°	J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-1841		•	ı		-	-	ı	t	1		-	i.		L	Е

Additional Details:

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- \checkmark 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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