

Mill Test Certificate

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

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Production Method: Product: Seamless Carbon Steel Pipe **Hot Expansion**

> Product Heat Number: BSM-2400

Product Heat Treatment:

Product Size: 16T80

Production Date: May 21, 2015

As-rolled Certificate No.: MTR- 001794

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

Product Standards:

<API & L/C No. > API SPEC 5L NPS 16 TRUE 80 0.844 INCHWT 136.5LB/FT GR B PSL1 SMLS 2015/05 NDE 2250PSI HEAT BSM-2400 (PIPE # LENGTH MASS) 136.5lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

	BSM-2400		Heat	
	Heat		Test Type	
	NPS 16 TRUE 80 0.844in. WT		Product Size	Product: Details
	6		Pieces	
	DRL		Length	
Ç	136.5	lb/ft	Mass	
Chemical Analysis (wt%	<5	μR/hr	Geiger	
lysis (wt%)	<20	Gauss	Res. Mag.	2000000
	Pass	Insp.	Visual	
	Pass		9	Z
	Pass	WT	TU	on-Destruc
	Pass	ASTM E213	UΤ	Non-Destructive Testing
	Pass	ASTM E213 ASTM E309 2250 PSI/	ET	
	Pass	Status.	HydroTest	
	Plain End	5 _S Condition	End	

CHEMICAL AMAIYSIS (WL%)

Steelmaking Method Test Type C Mn P Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed Product 0.19 0.90 0.010				M-2400	Heat
C Mn P S Si Cr Cu Mo Ni V Ti Nb B C 0.18 0.91 0.011 0.006 0.24 0.03 0.07 0.01 0.04 0.0005 0.19 0.90 0.010 0.005 0.26 0.04 0.08 0.01 0.03 0.003 0.001 0.001 0.0003 0.001 0.0003 0.001 0.0003 0.001 0.001 0.0003			regas, runy Ninco		Steelmaking Method
Mn P S Si Cr Cu Mo Ni V Ti Nb B C 0.91 0.011 0.006 0.24 0.03 0.07 0.01 0.04 - - - 0.0005 0.90 0.010 0.005 0.26 0.04 0.08 0.01 0.03 0.001 0.001 0.0003 - - - - - - - - - - -			Product	Heat	Test Type
P S Si Cr Cu Mo Ni V Ti Nb B C 0.011 0.006 0.24 0.03 0.07 0.01 0.04 0.0005 0.010 0.005 0.26 0.04 0.08 0.01 0.03 0.003 0.001 0.001 0.0003 0.001 0.001 0.0003		ı	0.19	0.18	С
S Si Cr Cu Mo Ni V Ti Nb B C 0.006 0.24 0.03 0.07 0.01 0.04 0.0005 0.06 0.26 0.04 0.08 0.01 0.03 0.003 0.001 0.001 0.0003				0.91	Mn
S Si Cr Cu Mo Ni V Ti Nb B C 0.006 0.24 0.03 0.07 0.01 0.04 0.0005 0.06 0.26 0.04 0.08 0.01 0.03 0.003 0.001 0.001 0.0003		-	0.010	0.011	þ
Si Cr Cu Mo Ni V Ti Nb B C 0.24 0.03 0.07 0.01 0.04 0.0005 0.26 0.04 0.08 0.01 0.03 0.003 0.001 0.001 0.0003			0.005	0.00	S
Cr Cu Mo Ni V Ti Nb B C .03 0.07 0.01 0.04 0.0005 .04 0.08 0.01 0.03 0.001 0.001 0.0003	,		0.26	0.24	Si
Cu Mo Ni V Ti Nb B C 0.07 0.01 0.04 0.0005 0.08 0.01 0.03 0.003 0.001 0.001 0.0003			0.04	0.03	Cr
Ni V Ti Nb B C 0.04 0.0005 0.03 0.003 0.001 0.001 0.0003		L	0.08		Cu
V Ti Nb B C 0.0005 0.0003 0.001 0.001 0.0003		ı	0.01	0.01	Мо
Ti Nb B C 0.0005 0.0001 0.0003		1	0.03	0.04	N:
Nb B C 0.0005 0.0003		1:	0.003	1	<
0.0005 0.0003		1	0.001		Ti
100		1	0.001	ı	Nb
CE(IIW) - 0.36		-	0.0003	0.0005	В
			0.36	t	CE(IIW)
CE(CSA) - 0.36		I,	0.36	1	CE(CSA)

BSM

Mechanical Properties

O.t	0.50	12,500	41,000	Foligitudiliai, 0.5 iii. Noulid bal	r doo	70111000	. cities of carries	incar	20141 7-100
VC	0.50	72 500	41 900	longitudinal: 0 5 in Bound Bar	Dacc	76 HBBW	Ferrite & Pearlite	H Part	RSM-2400
%	(Rt0.5/Rm)	psi	psi	2 in. GL					
Elongation (A)	1/λ	Tensile (Rm)	Yield (Rt0.5)	Tension Test	Flattening Test	Hardness	Microstructure	Test Type	Heat

Heat	Test	Impact Test	Temp		Impact	Energy			% Shear	near			Lateral Expansio	pansion	1
	Standard	Sample Details	၁ိ	ſ	ſ	Ĺ	AVG	%	%	%	AVG	mm	mm	mm	
BSM-2400	•	-	-	1	я			,		ï	1	1	1	ı	

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API 5L-45th Ed., 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.

√ 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

No weld repairs have been performed on this product.

 \checkmark 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:

Tonya Lam, C.E.T.

Assistant QA Manager