

Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 124

Tel: 001 (780) 469-6603

Fax: 001 (780) 469-6986 www.bri-steel.com

BSM-2251 Product Size: 16STD As-rolled Production Date: Certificate No.: MTR- 001590 Feb 23, 2015

ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-Hot Expansion Product Heat Treatment:

Product Markings

Product Standards: Production Method: Product:

Seamless Carbon Steel Pipe

Product Heat Number:

<API & L/C No. > API SPEC 5L NPS 16 STD 0.375 INCHWT GR B/X42 PSL1 SMLS 2015/02 NDE 1680PSI
HEAT BSM-2251 (PIPE # LENGTH MASS) 62.58lb/ft ASTM/ASME A/SA106 GR B/C 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	89	UT	ST ST	ET	HydroTest	End
					17/4		>							
					ID/II	LK/nr	SSNPG	insp.		2	ASIM EZ13 ASIM	ASIM	1680 PSI/ 5 s	5 _s Condition
BSM-2251	Heat	NPS 16 STD 0.375in. WT	7	DRL	62.58	S	40	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel
												1		

		BSM-2251		Heat	
	Creation and source	Blast Furnace; EAF; Ladle Refining; Vacuum		Steelmaking Method	
1,00000	product	Heat	-	Test Type	
0,10	018	0.20	***************************************	C	
77.7	1 13	0.86	1	š	
C.O.L.	2100	0.020	+	ס	
0.000	0.000	0.015		S	Chemical
0.23	0 22	0.27		Si	Chemical Analysis (wt%)
0.05	2	0.06		Ω	wt%)
20.0	3	0.01		5	
10.0	2	0.01		ĕ o	
TO:0	2	0.03		Z	
0.049		0.002		<	
200.0		•		=1	
0.001		,		8	
0.0003		•		œ	
0.39		,		CE(IIW)	
0.39				CE(CSA)	

					Mechanical Properties					,
Heat	Test Type	Microstructure	Hardness	· Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	*	Elongation (A)	on (A)
					50mm GL	psi	psi	(Rt0.5/Rm)	%	338 725 73
BSM-2251	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 38.1 mm x WT	51,500	73,500	0.70	44	
Heat	Test		Impact Test	Temp	Impact Energy	% Shear	ar	Late	Lateral Expansion	
	Standard		Sample Details	റ്	J J J AVG	%	% AVG	mm mm	n mm	AVG

Additional Details:

BSM-2251

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 51-45th 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.

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

 \checkmark This product has not come into contact with mercury during the Bri-Steel Manufacturing processes

No weld repairs have been performed on this product.

Tonya Lam, C.E.T.

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

Assistant QA Manager



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Product: Seamless Carbon Steel Pipe

Hot Expansion

Product Heat Number:

BSM-2251 Product Size: 16STD

Production Date: Feb 23, 2015

Product Heat Treatment: As-rolled

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

Certificate No.: MTR- 001590

Product Markings

Product Standards: Production Method:

NPS 16 STD 0.375 INCHWT SMLS 2015/02 NDE 1680PSI

HEAT BSM-2251 (PIPE # LENGTH MASS) 62.58lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

32.5° Bevel	Pass	Pass	Pass	Pass	Pass	Pass	<10	\$	62.58	DRL	7	NPS 16 STD 0.375in. WT	Heat	BSM-2251
S Condition	1680PSI/ 5 s	ASTM	ASTM E213	W		insp.	Gauss	µR/hr	lb/ft					
End	Test	Ħ		5	9	Visual	Res. Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
			tive Testing	Non-Destructive Testin	Z.							Product: Details		

	BSM-2251	Heat		BSM-2251
Degas; Fully Killed	Blast Furnace;	Ste		Heat
iled	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method		NPS 16 STD 0.375in. WT
Product	Heat	Test Type		NT
0.18	0.20	C		7
1.12	0.86	Mn		DRL
0.015	0.20 0.86 0.020 0.015 0.27	Р	_	62.58
0 008	0.015	S	Chemical Analysis (wt%)	<5
0.23	0.27	Si	\nalysis ()	<10
0.03	0.06	Cr	wt%)	10
0.02	0.01	Сп		Pass
0.01	0.01	Mo		Pass
0.01	0.03	Z		Pass
0.049	0.002	<		Pass
0.002	1	=		55
0.001	1	Np		Pass
0.0003	,	В		Pass
0.39	,	CE(IIW)		
0.39	1	CE(CSA)		32.5° Bevel

	Heat		BSM-2251		Heat	
Standard	Test		Heat		Test Type	
ard			Ferrite & Pearlite		Microstructure	
Samp	lmp		arlite		ture	
Sample Details	Impact Test		78 HRBW		Hardness	
റ്	Temp		Pass		Flattening Test	
-						Mech
-	Impact		Longitudinal; 38.1 mm x WT	5	Тег	Mechanical Properties
_	Impact Energy		al; 38.1 m	50mm GL	Tension Test	erties
AVG			m x WT			
%					Υ	
%	% Shear		51,500	psi	Yield (Rt0.5)	
%	1еаг		7		Tens	
AVG			73,500	psi	Гensile (Rm)	
mm			0.70	(Rt0.5/Rm)	Υ/	
mm	Lateral 6		0	/Rm)	_	
mm	eral Exp					
AVG			13	J	ion (A)	

Standard Sample	Heat	Test	Impact Test	Temp		Impact	Energy				15 %	% Shear	% Shear	% Shear		% Shear Lateral Expansion
,		Standard	Sample Details	ာိင	ے	ſ	ſ	_	AVG	AVG %		%	%	% % %	% % % AVG	% % % AVG mm
	BSM-2251	,	ı	E	-		1	_	k	2	1 1		t.			

Additional Details:

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FL 124/2015

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