

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 Size: 16S100 Production Date: Mar 25, 2014

Certificate No.: MTR- 000991

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

Production Method:

Hot Expansion

Product:

Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1724

Product Heat Treatment:

As-rolled

Product Markings PARI-STEEL NPS 16 SCH 100 1.031 INCHWT SMLS 2014/03 NDE

MANUZASI TERMENTE HEAT BSM-1724 (PIPE # LENGTH MASS) 164.8Ib/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Plain End	*	Pass	Pass	Pass	Pass	Pass	<10	<5	164.8	DRL	4	NPS 16 SCH 100 1.031in. WT	Heat	BSM-1724
Condition		ASTM	ASTM E213 ASTM	WT		Insp.	Gauss	μR/hr	lb/ft					
End	HydroTest	ΕT	UΤ	TU	OD	Visual	Res. Mag.	Geiger	Mass	Length	Pieces	Product Size	Test Type	Heat
			tive Testing	Non-Destructive Testing	No							Product: Details		
	A 000000000000000000000000000000000000	00000000												

	BSM-1724	Heat	
cegar) and source	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed		
Product	Heat	Test Type	
0.21	0.20	С	
0.94	0.89	Mn	
0.014	0.011	P	
0.003 0.29	1 0.002	S	Chemical
0.29	0.31	Si	Chemical Analysis (wt%)
0.05	0.05	Ç	wt%)
0.06	0.06	Cu	0.00
0.01	0.00	Mo	
0.02	0.03	N.	
0.003	0.003	<	
0.002	0.002	Ti	
0.001	0.001	Nb	
0.0003	0.0003	В	
0.39		CE(IIW)	
0.39	ı	CE(CSA)	

	_	_	_
BSM-1724		Heat	
Heat		Test Type	
Ferrite & Pearlite		Microstructure	
79 HRBW		Hardness	
Pass		Flattening Test	
Longitudinal; 19.05 mm x WT	50mm GL	Tension Test	Mechanical Properties
49,300	psi	Yield (Rt0.5)	
73,000	psi	Tensile (Rm)	
0.68	(Rt0.5/Rm)	Υ/Τ	
45	%	Elongation (A)	

BS		
BSM-1724		Heat
)1	Standard	Test
ı	Sample Details	Impact Test
ı	°C	Temp
 ,	_	
ı	J	Impact E
,	J	Energy
	AVG	
ı	%	
í	%	% Shear
t	%	ear
t	AVG	
ı	mm	
r	mm	Lateral Ex
1	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 results meet the corresponding requirements. accordance with ASTM/ASME A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the
- √ 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.
- \checkmark This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

* Note that this product was hydrotested to 1000 psi for 5 seconds.

Assistant QA Manager

Paul Sowden, T.T.

Mill Test Certificate approved by:

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2014 APROZ



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Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-1724

Product Size: 16XXS

Production Date: Mar 25, 2014

Production Method: **Hot Expansion**

Product Heat Treatment: As-rolled

Certificate No.: MTR- 000998

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

Product Markings NBRI-STEEL] NPS 16 XXS 1.000 INCHWT SMLS 2014/03 NDE 1000PSI MANUFASTURINGENICE HEAT BSM-1724 (PIPE # LENGTH MASS) 160.2lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

	BSM-1724		Heat	
	Heat		Test Type	
	NPS 16 XXS 1.000in. WT		Product Size	Product: Details
	4		Pieces	
	DRL		Length	
	160.2	lb/ft	Mass	
	5	μR/hr	Geiger	
	<10	Gauss	Res. Mag.	
The same and the s	Pass	Insp.	Visual	
	Pass		OD	z
	Pass	TW	듸	on-Destruc
	Pass	ASTM E213 ASTM	П	Non-Destructive Testing
	Pass	ASTM	띄	
	Pass	1000 PSI/ 5 s	HydroTest	
	Plain End	S Condition	End	

		BSM-1724	неат		
	Const.	Blast Furnace; EAF; Ladle Refining; Vacuum	Steelmaking Method		
	Product	Heat	lest lype		
	0.21	0.20	С		
	0.94	0.89	Mn		
	0.014	0.011	P		
	0.003	0.002	S		Chemical Analysis (wt%)
	0.29	0.31	Si		Analysis (
	0.05	0.05	cr		wt%)
	0.06	0.06	Cu		
-	0.01	0.00	Mo		
-	0.02	0.03	Z		
-	0.003	0.003	<		
	0.002	0.002	1		
	0.001	0.001	Nb		
	0.0003	0.0003	В		
	0.39	,	CE(IIW)		
	0.39	ı	CE(CSA)		

	BSM			
	BSM-1724		Heat	
	Heat		Test Type	
	Ferrite & Pearlite		Microstructure	
	79 HRBW		Hardness	
	Pass		Flattening Test	
	Longitudinal; 19.05 mm x WT	50mm GL	Tension Test	Mechanical Properties
	49,300	psi	Yield (Rt0.5)	
	73,000	psi	Tensile (Rm)	
CONTRACTOR	0.68	(Rt0.5/Rm)	T/Y	
	45	%	Elongation (A)	

DSIVI-1/24	BSM-1724		Heat
1	1		Test
1	ī		Impact Test
,		റ്	Temp
ı			
ı		_	Impact
,		_	Energy
,		AVG	
		%	
-		%	% Shear
t		%	ear
1		AVG	
,		mm	
,		mm	Lateral Expansion
ı		mm	pansion
1		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 A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.
- √ 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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Paul Sowden, T.T.

Assistant QA Manager