

Mill Test Certificate

Bri-Steel Manufacturing Inc.

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Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-0806

Product Size:

NPS 20 TRUE80

April 3, 2013

Production Date:

Production Method: Hot Expansion Product Heat Treatment: Hot Worked (845 - 945ºC) & Air Cooled

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, A/SA333-2011 Grade 6, NACE MR0175-2009, MR0103-2010

Product Markings: .BRI-STEEL MFG ASTM/ASME A/SA333 GR 6 A/SA106 GR B A/SA53 GR B NPS 20 TRUE80 1.031 inchWT HEAT BSM-0806 (PIPE # LENGTH MASS) 208.91b/ft NDE SMLS NACE MR0175 2013/04 MADE IN CANADA.

BSM-0806	Heat		
6 Heat	Test Type		
NPS 20 TRUE80 1.031 in.WT	Product Size		Product Details
9	Pieces		S
DRL	Length		
208.90	lb/ft	Mass	
\$	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	Insp.	Visual	
Pass	OD	337-5	Non-I
Pass	WT	TU	Destructive 1
Pass	ASTM E213	TU	esting
Pass	ASTM E309	ET	
*		HydroTest	
Plain End	Condition	End	

	_		_		_
		BSM-0806			
	Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method		
	Product	Heat	Analysis		
	0.14	0.10	C		
	1.08	1.08	Mn		
	0.015	0.008	P		
	1.08 0.015 0.004	0.002	S		Chemica
	0.25	0.26	Si		Chemical Analysis (wt%)
	0.10	0.09	Cr		(wt%)
	0.06	0.07	Cn		
	0.03	0.02	Mo		
	0.02	0.02	Ni		
(A) (A) (A) (A)	0.003	0.002	٧		
The second second	0.002	0.002	T		
	0.001	0.001	Nb		
	0.0001	0.0002	В		
-	0.35	ı	(IIW)	Œ	
	0.33	-	(CSA)	CE	

B	Γ		Γ
BSM-0806	Heat		
Heat	Test Type		
Ferrite & Pearlite	Microstructure		
71	HRBW	Hardness	
Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
46,900	psi	Yield (Rt0.5)	
65,000	psi	Tensile (Rm)	
0.72	(Rt0.5/Rm)	Т/А	
59	%	Elongation (A)	

Test Impact Test Impact Test Standard Sample Details 9C J J AVG % No. 100 100 Unbroken Unbrok		B7	Γ	
Impact Test Temp Impact Energy % Shear Lateral Expansion Temp Impact Energy % Shear Lateral Expansion Temp Impact Energy % Shear Lateral Expansion Temp Te		SM-0806	Heat	
Test Temp Impact Energy % Shear Lateral Expansion Details ºC J J AVG % AVG mm mm mm AVG al (X-Y) 10x10 -45°C 298 298 298 100 100 100 unbroken unbroken unbroken unbroken unbroken		A/SA333	Standard	Test
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% Shear Lateral Expansion % % % AVG mm mm mm AVG 100 100 100 100 unbroken unbroken unbroken		298	_	Energy
% Shear Lateral Expansion % % AVG mm mm mm AVG 100 100 100 unbroken unbroken unbroken unbroken	2000	298	AVG	
6 Shear Lateral Expansion % AVG mm mm mm AVG 100 100 unbroken unb	The second second second	100	%	
r Lateral Expansion % AVG mm mm mm AVG 100 unbroken unbroken unbroken unbroken		100	%	% Sh
Lateral Expansion mm mm mm AVG unbroken unbroken unbroken unbroken		100	%	ear
Lateral Expansion mm mm AVG ken unbroken unbroken unbrok		100	AVG	
teral Expansion mm AVG broken unbroken unbroken		unbroken	mm	
AVG n unbrok		roke	mm	Lateral E
AVG unbroken		unbroken	mm	xpansion
		unbroken	AVG	

Additional Details:

- and that the results meet the corresponding requirements. Inc. in accordance with ASTM/ASME A/SA333-2011, 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.
- \checkmark This product has not come into contact with mercury during the Bri-Steel Manufacturing processes
- *Note that this product was hydrotested to 1000 psi for 5 seconds. √ 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. 2013Apr12

Manager of Quality and R&D