

## Mill Test Certificate

2125-64 Avenue, Edmonton, AB Canada T6P 1Z4 **Bri-Steel Manufacturing Inc.** Fax: 001 (780) 469-6986 Tel: 001 (780) 469-6603 www.brichemsteel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0485

Product Size: **NPS 24 SCH60** 

Production Date:

October 1, 2012

Production Method:

Product Markings:

Hot Expansion

Product Heat Treatment: As-rolled

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

B	Т		П
BSM-0485	Heat		
Heat	Test Type		
24	NPS		
SCH60*	Thickness	Wall	roduct Detai
20	Pieces		ls
DRL	Length		
296.40	lb/ft	Mass	
ŝ	µR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	Insp.	Visual	
Pass	OD		Non-E
Pass	WT	TU	estructive T
1	ASTM E213	TU	esting
Pass	ASTM E309	ET	
*		HydroTest	
Plain End	Condition	End	

.BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 SCH60 HEAT BSM-0485 (PIPE # LENGTH MASS) 296,41b/ft NDE SMLS NACE MR0175 2012/10 MADE IN CANADA.

Analysis C Mn P S Si Cr Cu Mo
Analysis C Mn P S Si Cr Cu Mo
Blast Furnace; EAF; Ladle Refining; Heat 0.19 0.87 0.009 0.005 0.24 0.04 0.08 0.01 0.03
Vacuum Degas; Fully Killed Product 0.18 0.86 0.009 0.005 0.22 0.03 0.10 0.00 0.03 0.002 0.001 0.000

	BSM-0485	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	75	HRBW	Hardness	
	Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
42,300	42,500	psi	Yield (Rt0.5)	
43,100	41,000	psi	Yield (Rp0.2)	-
68,500	70,000	psi	Tensile (Rm)	
0.62	0.61	(Rt0.5/Rm)	۲/۲	
43	52	%	Elongation (A)	

Additional Details:

and that the results meet the corresponding requirements. Inc. in accordance with API 5L-44th Ed., ASTM/ASME 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.

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.

\* Note that this product was downgraded from NPS 24 True80. Note that a hydrotest was performed at 1000 psi for 5s.

Mill Test Certificate approved by:

Kenton Dechant, P.Eng. るいのない

Manager of Quality and R&D



## Mill Test Certificate

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Fax: 001 (780) 469-6986 www.brichemsteel.com Tel: 001 (780) 469-6603

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0485

Product Size: NPS 24 TRUE80

Production Date: October 1, 2012

Production Method:

**Hot Expansion** 

Product Heat Treatment: As-rolled

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

Product Markings: .BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 TRUE80 HEAT BSM-0485 (PIPE # LENGTH MASS) 296.41b/ft NDE SMLS NACE MR0175 2012/10 MADE IN CANADA.

Heat Test Type NPS Thickness Pieces Length BSM-0485 Heat 24 TRUE80 20 DRL 296.40 <5 <a href="#">296.40</a> deiger Res.Mag. Visual Visual UT UT ET HydroTest End UT UT UT ET HYDROTEST END UT UT UT UT ET HYDROTEST END UT	<u></u>	1			1
Product Details       Non-Destructive Testing         Wall       Mass       Geiger       Res.Mag.       Visual       UT       UT       ET       HydroTest         Test Type       NPS       Thickness       Pieces       Length       Ib/ft       μR/hr       Gauss       Insp.       OD       WT       ASTM E213       ASTM E309         Heat       24       TRUE80       20       DRL       296.40       <5	BSM-0485	Heat			
Product Details       Non-Destructive Testing         Wall       Mass       Geiger       Res.Mag.       Visual       UT       UT       ET       HydroTest         Thickness       Pieces       Length       lb/ft       μR/hr       Gauss       Insp.       OD       WT       ASTM E213       ASTM E309         TRUE80       20       DRL       296.40       <5					
Non-Destructive Testing  Mass Geiger Res.Mag. Visual UT UT ET HydroTest Pieces Length Ib/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309  20 DRL 296.40 <5 <20 Pass Pass Pass Pass *	24	NPS		-	
Non-Destructive Testing  Mass Geiger Res.Mag. Visual UT UT ET HydroTest Pieces Length Ib/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309  20 DRL 296.40 <5 <20 Pass Pass Pass Pass *	TRUE80	Thickness	Wall	roduct Detail	
Mass Geiger Res.Mag. Visual UT UT ET HydroTest Ib/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 296.40 <5 <20 Pass Pass Pass Pass *	20	Pieces		S	
Hon-Destructive Testing         Geiger       Res.Mag.       Visual       UT       UT       ET       HydroTest         μR/hr       Gauss       Insp.       OD       WT       ASTM E213       ASTM E309         <5	DRL	Length			
Res.Mag. Visual UT UT ET HydroTest Gauss Insp. OD WT ASTM E213 ASTM E309 *	296.40	lb/ft	Mass		
Visual UT UT ET HydroTest Insp. OD WT ASTM E213 ASTM E309  Pass Pass Pass Pass *	\$	μR/hr	Geiger		
Non-Destructive Testing  UT UT OD WT ASTM E213 ASTM E309  Pass Pass Pass Pass Pass Pass Pass Pa	<20	Gauss	Res.Mag.		
on-Destructive Testing  UT  UT  UT  ET  HydroTest  ASTM E213 ASTM E309  Pass  Pass  *	Pass	Insp.	Visual		
IVE TESTING  UT  ASTM E213 ASTM E309  Pass  *	Pass	OD		Non-I	
B UT ET HydroTest M E213 ASTM E309 Pass *	Pass	WT	TU	Ve	
HydroTest *	t e	ASTM E213	LI	Testing Testing	
HydroTest End Condition * Plain End	Pass	ASTM E309	ET		
End Condition Plain End	*		HydroTest		
	Plain End	Condition	End		

	0.141.00	RSM_0485	Heat		
	Vacuum Degas; Fully Killed	Blast Furnace; EAF; Ladle Refining;	Steelmaking Method		
	Product	Heat	Analysis		
	0.18	0.19	C		
	0.86	0.87	Mn		
	0.009	0.009	P		3
	0.009 0.005	0.005	S		Chemical
	0.22	0.24	Si		Chemical Analysis (wt%)
	0.03	0.04	Cr		(wt%)
	0.10	0.08	Cu		
	0.00	0.01	Mo		
	0.03	0.03	Z.		
	0.002	ı	<		
35	0.001	ı	ı		
	0.000	-	Nb		
	0.0001	0.0003	В		
	0.34		(IIW)	CE	
	0.34		(CSA)	CE	

	BSM-0485 Heat	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	75	HRBW	Hardness	
	Pass	Flattening Test		Mechar
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43	52	%	Elongation (A)	

Additional Details:

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Manager of Quality and R&D Kenton Dechant, P.Eng.

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