

## Mill Test Certificate

Bri-Steel Manufacturing Inc.

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www.brichemsteel.com

Product Size: NPS 24 XS Production Date: May 24, 2012

Production Method: Hot Expansion Product Heat Treatment: As-rolled

Product Standards:

Product:

Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0344

ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2012 Grade B Type S, NACE MR0175-2009

Product Markings: .BRI-STEEL MFG NPS 24 XS ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0344 (PIPE # LENGTH MASS) 125.51b/ft NDE 970PSI NACE MR0175 2012/05 MADE IN CANADA.

Product Details       Product Details     Non-Destructive Testing       Non-Destructive Testing       Non-Destructive Testing       Non-Destructive Testing       Non-Destructive Testing       UT     UT     UT     ET     HydroTest     End       Length     Ib/ft     μR/hr     Gauss     Insp.     OD     WT     ASTM E309     970 psi/5s     Condition       BSM-0344     Heat     24     XS     8     DRL     125.50     <5     <20     Pass     Pass     Pass      Pass     Pass     37.5° Bevel
Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  HydroTest  Non-Destructive Testing  On UT UT UT ET HydroTest  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  On UT UT ET HydroTest  Non-Destructive Testing  Non-Destru
Product Details  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  UT UT ET HydroTest SCH Pieces Length Ib/ft μR/hr Gauss Insp. OD WT ASTM E213 ASTM E309 970 psi/5s Pass Pass Pass Pass Pass Pass
Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  HydroTest  Non-Destructive Testing  OT UT UT ET HydroTest  Non-Destructive Testing  Figure 1
Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  Non-Destructive Testing  HydroTest  Non-Destructive Testing  OT UT UT ET HydroTest  Non-Destructive Testing  Figure 1
Mass Geiger Res.Mag. Visual UT UT ET HydroTest 125.50 <5 <20 Pass Pass Pass Pass Pass Pass Pass Pass
Hon-Destructive Testing         Geiger μR/hr       Res.Mag.       Visual lnsp.       UT       UT       UT       ET       HydroTest         4       <
Res.Mag. Visual UT UT ET HydroTest Gauss Insp. OD WT ASTM E213 ASTM E309 970 psi/5s
Visual UT UT ET HydroTest Insp. OD WT ASTM E213 ASTM E309 970 psi/5s  Pass Pass Pass Pass Pass
Non-Destructive Testing  UT UT OD WT ASTM E213 ASTM E309 970 psi/5s Pass Pass Pass Pass Pass Pass Pass
Dn-Destructive Testing  UT  UT  UT  ASTM E213 ASTM E309 970 psi/5s  Pass  Pass  Pass  Pass  Pass  Pass
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B UT ET HydroTest M E213 ASTM E309 970 psi/5s Pass Pass Pass
ET HydroTest End ASTM E309 970 psi/5s Condition Pass Pass 37.5° Bevel
HydroTest End 970 psi/5s Condition Pass 37.5° Bevel
End Condition 37.5° Bevel

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BSM-0344	Heat		
Heat	Test Type		
Refining; Vacuum Degas	Blast Furnace; EAF; Ladle	Steelmaking Method	
0.20	С		
0.86	Μ'n		
0.010	Ъ		
0.010 0.014	S		Chemica
0.24	Si		ical Analysis (wt%)
0.03	c,		(wt%)
0.07	Cu		
0.01	Mo		
0.03	Z.		
0.002	<		
0.001	∄		
0.001	Nb		
0.0003	В		
0.36	(IIW)	Œ	
0.37	(CSA)	æ	

	BSM-0344	Heat		
	Heat	Test Type		
	Ferrite & Pearlite	Microstructure		
	76	HRBW	Hardness	
	Pass	Flattening Test		Mechan
Longitudinal	Transverse	Flattening Test 50mm GL; 38mm x WT	Tension Test	Mechanical Properties
48,600	42,900	psi	Yield (Rt0.5)	
49,000	41,700	psi	Yield (Rp0.2)	
73,000	73,000	psi	Tensile (Rm)	
0.67	0.59	(Rt0.5/Rm)	Τ/Υ	100000000000000000000000000000000000000
46	44	%	Elongation (A)	

Additional Details:

Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the results meet the corresponding 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. No weld repairs have been performed on this product. This product has no mercury contamination

✓ This pipe product meet the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour

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

Mill Test Certificate approved by:

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

2012 June 11