

Bri-Steel Manufacturing Inc.

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www.brichemsteel.com

Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-0412

Mill Test Certificate

NPS 24 SCH 60

Production Method: **Hot Expansion**

Product Heat Treatment:

As-rolled

Product Size:

Production Date: July 12, 2012

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

Product Markings: .BRI-STEEL MFG NPS 24 SCH 60 ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0412 (PIPE # LENGTH MASS) 238.11b/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.

Product Details Non-Destructive Testing

Pieces Length Mass lb/ft Geiger μR/hr Res.Mag. Gauss Visual lnsp. OD WT ASTM E213 ASTM E309 1000 psi/5s Pass CE Mo Ni P S Si Cr Cu Mo Ni V Ti Nb B (IIW)							
Wall NPS Thickness Pieces Length lb/ft μR/hr Gauss Insp. OD WT 24 SCH 60 2 DRL 238.10 <5 <20 Pass Pass Pass Steelmaking Method Blast Furnace; EAF; Ladle C Mn P S Si Cr Cu Mo Ni V	Heat			BSM-0412	Heat		
cces Length Ib/ft μR/hr Geiger Gauss Res.Mag. Visual Gauss Visual Gauss UT 2 DRL 238.10 <5	Test Type			Heat	Test Type		
cces Length Ib/ft μR/hr Geiger Gauss Res.Mag. Visual Gauss Visual Gauss UT 2 DRL 238.10 <5	Blast Fu	Steel		24	NPS		
cces Length Ib/ft μR/hr Geiger Gauss Res.Mag. Visual Gauss Visual Gauss UT 2 DRL 238.10 <5	ırnace; EAF; La	making Metho		SCH 60	Thickness	Wall	000000000000000000000000000000000000000
Mass Geiger Res.Mag. Visual UT Ib/ft μR/hr Gauss Insp. OD WT 238.10 <5 <20 Pass Pass Pass Pass Chemical Analysis (wt%) Cr Cu Mo Ni V	adle	ď		2	Pieces		
Mass Geiger Res.Mag. Visual UT Ib/ft μR/hr Gauss Insp. OD WT 238.10 <5 <20 Pass Pass Pass Pass Chemical Analysis (wt%) Cr Cu Mo Ni V	0			DRL	Length		
Geiger μRes.Mag. μR/hr Visual Gauss UT U	Mn			2			
Visual UT Insp. OD WT Pass Pass Pass Vass	v			38.10	lb/ft	Mass	
Visual UT Insp. OD WT Pass Pass Pass Vass	s		Chemical A	S	μR/hr	Geiger	
Visual UT Insp. OD WT Pass Pass Pass Vass	Si		nalysis (w	<20	Gauss	Res.Ma	
OD WT Pass Pass	<u>ح</u>		(%)				
SS Pass	5			Pass	Insp.	Visual	
UT	Mo			Pass	OD		11011
ASTM E213 ASTM E309 1000 psi/5s Cond	<u>z</u> .			Pas	TW	TU	הבשנו מבנ
Ti Nb B (IIW) (0	<			s	Þ.		IVE IES
ET HydroTest Er ASTM E309 1000 psi/5s Conc Pass Pass Plain Nb B (IIW) (0	=!			!	STM E213	TU	GIIIS
HydroTest Er 1000 psi/5s Cond Pass Plain	S S			Pass	ASTM E309	ET	
S Cond Plain		C		Pass	9 1000 psi/5	HydroTes	
nd dittion n End	W) (CSA)			Plain End	s Condition	t End	

	BSM-04	Heat			
	BSM-0412 Heat	Test Type			
	Ferrite & Pearlite	Microstructure			
	73	HRBW	Hardness		
	Pass	Flattening Test		Mechar	
Longitudinal	Transverse	Flattening Test 50mm GL; 38mm x WT	Tension Test	Mechanical Properties	
45.900	41,700	psi	Yield (Rt0.5)		
46.500	36,700	psi	Yield (Rp0.2)		
67.000	69,500	psi	Tensile (Rm)		
0.69	0.60	(Rt0.5/Rm)	Υ/Τ		
57	58	%	Elongation (A)		

Additional Details:

BSM-0412

Refining; Vacuum Degas

0.16 0

0.98 S

0.015

0.002

0.28 S

0.06 Q

0.06 S

0.01 S o

0.02 Z.

0.004

0.002

0.001 В

0.0001 В

0.34 (EW)

(CSA) 0.34

Test Type Heat

- results meet the corresponding requirements. Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the 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 meet 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 no mercury contamination
- 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. 2012 July 26

Manager of Quality and R&D