



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1413 Production Date: Nov 14, 2013
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000623
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



NPS 24 TRUE 80 1.219 INCHWT SMLS 2013/11 NDE
HEAT BSM-1413 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details					Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest	End Condition
BSM-1413	Heat	NPS 24 TRUE 80 1.219in. WT	2	DRL	296.4	<5	<10	Pass	Pass	Pass	Pass	Pass	*	Plain End

Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
		Heat	0.19	0.82	0.008	0.008	0.21	0.05	0.06	0.02	0.03					0.0002	-	-
		Product	0.20	0.84	0.008	0.009	0.21	0.05	0.06	0.02	0.03	0.002	0.001	0.000	0.0003	0.36	0.36	
BSM-1413		Blast Furnace; EAF; Ladle Refining; Vacuum Degass, Fully Killed																

Mechanical Properties													
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %				
BSM-1413	Heat	Ferrite & Pearlite	72 HRBW	Pass	Longitudinal; 19.05 mm x WT	39,700	69,000	0.58	49				

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
BSM-1413	-	-	-	J	J	J	AVG	%	%	%	AVG	mm	mm	mm	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/SA106-2011 Grade B 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

✓ 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 hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

2013 NOV 20

Paul Sowden, T.T.
Assistant QA Manager