Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1678 Product Size: 14XS Production Date: Feb 27, 2014

Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000930

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings BRI-STEEL MANUFACTURING INC. NPS 14 XS 0.500 INCHWT SMLS 2014/02 NDE
HEAT BSM-1678 (PIPE # LENGTH MASS) 72.09lb/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 µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest	End Condition
BSM-1678	Heat	NPS 14 XS 0.500in. WT	12	DRL	72.09	<5	<10	Pass	Pass	Pass	Pass	Pass	-	34° Bevel

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)
BSM-1678	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.18	0.91	0.011	0.003	0.24	0.03	0.07	0.01	0.04				0.0003	-	-
		Product	0.21	0.92	0.010	0.004	0.26	0.05	0.09	0.01	0.04	0.003	0.001	0.001	0.0003	0.38	0.38

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-1678	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	40,200	69,000	0.58	42

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-1678	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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/SA106-2013 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.

Mill Test Certificate approved by:

P Sowden

2014 MAR 6

Paul Sowden, T.T.
Assistant QA Manager