



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2390 Product Size: 30XS Production Date: May 12, 2015
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001777

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings NPS 30 XS 0.500 INCHWT 157.5LB/FT SMLS 2015/05 NDE 800PSI



HEAT BSM-2390 (PIPE # LENGTH MASS) 157.5lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C 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	Geliger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 800 PSI/ 5 s	End Condition
BSM-2390	Heat	NPS 30 XS 0.500in. WT	6	DRL	157.5	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Steelmaking Method		Chemical Analysis (wt%)													
Heat	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)
BSM-2390	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.18	1.24	0.020	0.007	0.28	0.06	0.01	0.01	0.04	0.060	0.001	0.001	0.0005
	Product	0.19	1.23	0.020	0.009	0.29	0.06	0.01	0.01	0.04	0.066	0.002	0.001	0.0004	0.43

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2390	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	51,500	74,000	0.70	48
				Pass	Longitudinal; 1.5 in. x WT	54,500	74,500	0.73	44

Heat	Test	Impact Test Sample Details	Temp °C	Impact Energy				% Shear			Lateral Expansion			
	Standard			J	J	J	AVG	%	%	%	mm	mm	mm	AVG
BSM-2390	ASTM A333	CVN Long 10 x 10 mm	-45	86.0	72.0	76.0	78.0	40	40	35	38	1.39	1.21	1.23

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 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:

Tonya Lam, C.E.T.
Assistant QA Manager

T. Lam May 12/2015