Mill Test Certificate

Bri-Steel Manufacturing
2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
Tel: 001 (780) 469-6603
Fax: 001 (780) 469-6986
www.bri-steel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2916 Product Size: NPS 24 STD Production Date: Oct 13, 2016

Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003004

Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015

Product Markings

NPS 24 STD 0.375 INCHWT SMLS 2016/10 NDE 750PSI
HEAT BSM-2916 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME 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	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 750PSI/ 5 s	End Condition
BSM-2916	Heat	NPS 24 STD 0.375in. WT	7	DRL	94.62	<5	~18	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° 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(IIW)Max	CE(CSA)
BSM-2916	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.20	0.92	0.011	0.007	0.23	0.04	0.01	0.01	0.01	0.003	0.001	0.001	0.0001	0.37	-	0.37
		Product	0.23	0.91	0.013	0.009	0.23	0.04	0.01	0.01	0.01	0.004	0.001	0.001	0.0002	0.39	-	0.40
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2916	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	42 500	73 000	0.58	48

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2916	-	-	-	-	-	-	-	-

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU .

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103/ISO 17495:2015 Section 13.1

✓ 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:

T. Lam Oct 18/2016

Tonya Lam, P. Tech (Eng.)
Assistant QA Manager