Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2912 Product Size: NPS 24 STD Production Date: Oct 11, 2016

Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003000

Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S,

Product Markings NPS 24 STD 0.375 INCHWT SMLS 2016/10 NDE 660PSI
HEAT BSM-2912 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B A/SA53 GR B 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 660PSI/ 5 s	End Condition
BSM-2912	Heat	NPS 24 STD 0.375in. WT	6	DRL	94.62	<5	~28	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-2912	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.17	1.11	0.014	0.006	0.30	0.05	0.03	0.01	0.01	0.056	0.003	0.003	0.0004	0.38	-	0.38
		Product	0.17	1.14	0.014	0.008	0.33	0.06	0.03	0.01	0.01	0.060	0.002	0.001	0.0004	0.39	-	0.39
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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-2912	Heat	Ferrite & Pearlite	0	Pass	Longitudinal; 1.5 in. x WT	53 000	80 000	0.66	47
				Pass	Longitudinal; 1.5 in. x WT	52 500	77 000	0.68	46

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-2912	ASTM A333	Pass	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(32/26/52) 37	(5/5/10) 7	(0.64/0.58/1.00) 0.74

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2016/SA333-2015, 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

✓ 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/13/2016

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