



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2908 Product Size: NPS 20 STD Production Date: Oct 05, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002994
 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 20 STD 0.375 INCHWT SMLS 2016/10 NDE 900PSI
 HEAT BSM-2908 (PIPE # LENGTH MASS) 78.6lb/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	ET (WT)	UT	ET	HydroTest	End Condition					
BSM-2908	Heat	NPS 20 STD 0.375in. WT	3	DRL	78.6	<5	<10	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	900PSI/ 5s	30° Bevel					

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)																
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)	
BSM-2908	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.21	0.93	0.009	0.004	0.23	0.04	0.01	0.01	0.01	0.01	0.003	0.001	0.001	0.0001	0.38	-	0.38
		Product	0.23	0.93	0.014	0.008	0.24	0.05	0.01	0.01	0.01	0.003	0.002	0.001	0.0002	0.40	-	-	0.41

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-2908	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	42 600	75 000	0.57	42

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-2908	-	-	-	-	-	-	-	-

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:

Tony Lam Oct 10 6/2016

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