



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2869 Production Date: Aug 23, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002944
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 20 XS 0.500 INCHWT SMLS 2016/08 NDE
 HEAT BSM-2869 (PIPE # LENGTH MASS) 104.1lb/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	Galiger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-2869	Heat	NPS 20 XS 0.500in. WT	40	DRL	104.1	<5	<10	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	-	30° Bevel

Heat	BSM-2869	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Chemical Analysis (wt%)																	
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	Product	0.16	1.18	0.010	0.002	0.25	0.03	0.01	0.01	0.02	0.050	0.003	0.001	0.0001	0.38	-	0.37
			Product	0.15	1.15	0.016	0.004	0.26	0.01	0.01	0.03	0.061	0.001	0.001	0.0003	0.36	-	0.35		

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-2869	Heat	Ferrite & Pearlite	84 HRBW	Pass	Longitudinal; 1.5 in. x WT	55 000	80 000	0.69	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-2869	-	-	-	-	-	-	-	-

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 sept/01/2016

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