




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-3271 Product Size: NPS 20 XS Production Date: Oct 03, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003538
 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 15156-2:2015 MR0103/ISO 17495:2015

Product Markings  NPS 20 XS 0.500 INCHWT SMLS 2017/10 NDE 1200PSI
 HEAT BSM-3271 (PIPE # LENGTH MASS) 104.23lb/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 μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 1200PSI/ 5s	End Condition
BSM-3271	Heat	NPS 20 XS 0.500in. WT	7	DRL	104.23	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	35° Bevel

Chemical Analysis (wt%)																			
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	Mn/C	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3271	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.15	1.26	0.013	0.003	0.30	0.04	0.04	0.01	0.01	0.039	0.003	0.001	0.0006	8.40	0.38	-	0.37
		Product	0.18	1.29	0.013	0.011	0.32	0.05	0.04	0.01	0.01	0.039	0.002	0.001	0.0004	7.17	0.42	0.43	0.42
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43	-

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-3271	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	55 500	79 500	0.70	46

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG
BSM-3271	-	-	-	-	-	-	-	-

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, A/SA53 GR B and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO 9001:2015 (APIQR-1584), API Q1, and PED 2014/68/EU. Mill Test Certificate approved by:
 ✓ This pipe product meets the **SOUR SERVICE** requirements of ANSI/NACE MR0175/ISO 15156-2A:2015 (Annex A2 for Region 3 Sour Service), and ANSI/NACE MR0103/ISO 17495:2015 Section 13.1

T. Lam Oct/05/2017
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager

✓ 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.