



# 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-2572      Product Size: NPS 20 XS  
 Production Method: Hot Expansion      Product Heat Treatment: ThermoMechanical Formed      Production Date: Nov 04, 2015  
 Certificate No.: MTR- 002000  
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, AS3-2012/SA53-2013 Grade B Type S, NACE MR0175-2009  
 Product Markings: NPS 20 XS 0.500 INCHWT SMLS 2015/11 NDE 1890PSI  
 HEAT BSM-2572 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175 MADE IN CANADA

Product Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Gelger HR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1890PSI/ 5 s	End Condition
BSM-2572	Heat	NPS 20 XS 0.500in. WT	8	DRL	104.1	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	31° 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(CSA)	
BSM-2572	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.15	1.16	0.010	0.002	0.25	0.01	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.36	0.34
		Product	0.15	1.14	0.012	0.002	0.27	0.04	0.01	0.01	0.02	0.053	0.002	0.001	0.0003	0.36	0.35	-

Heat	Test Type	Microstructure	Hardness	Mechanical Properties					
				Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2572	Heat	Ferrite & Pearlite	82 HRBW	Pass	Longitudinal; 1.5 in. x WT	56,000	75,500	0.74	46

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion				
				J	J	J	%	%	%	mm	mm	mm	AVG	
BSM-2572	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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/SA106-2013, AS3-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008, API Q1, and PED 97/23/EC.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service

- ✓ 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* NOV 10 2015

Tonya Lam, C.E.T.  
 Assistant QA Manager



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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2572      Product Size: NPS 20 X5  
 Production Method: Hot Expansion      Product Heat Treatment: As Rolled      Certificate No.: MTR- 002071      Production Date: Nov 04, 2015

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings: <API & L/C No.> API SPEC 5L NPS 20 X5 0.500 INCHWT GRB/X42 PSL1 SMLS 2015/11 NDE 1890PSI  
 HEAT BSM-2572 (PIPE # LENGTH MASS) 104.1lb/ft/ASTM/ASME A5A106 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 $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1890 PSI/ 5 s	End Condition
BSM-2572	Heat	NPS 20 X5 0.500in. WT	8	DRL	104.1	<5	<20	Pass	Pass	Pass	Pass	-	Pass	31° 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(CSA)	
BSM-2572	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.15	1.16	0.010	0.002	0.25	0.01	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.36	0.34
		Product	0.15	1.14	0.012	0.002	0.27	0.04	0.01	0.01	0.02	0.053	0.002	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-2572	Heat	Ferrite & Pearlite	82 HRBW	Pass	Longitudinal; 1.5 in. x WT	56,000	75,500	0.74	46

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion				
				J	J	J	%	%	%	mm	mm	mm	AVG	
BSM-2572	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Additional Details:**

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GR42 ASTM/ASME A106-2014/SA106-2013, A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008, API Q1, and PED 97/23/EC.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 Section 2.1

- ✓ 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.

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*T. Lam* Feb 10/09/2016

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 Assistant QA Manager