



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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-2249 Product Size: 18STD Production Date: Feb 19, 2015
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001720
Product Standards: ASME B36.10-2004, 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 18 STD 0.375 INCH WT GR B/X42 PSL1 SMLS 2015/02 NDE 1490PS1
HEAT BSM-2249 (PIPE # LENGTH MASS) 70.59lb/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	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End			
					lb/ft	µR/hr	Gauss	Insp.		WT	ASTM E213	ASTM	1490 PSI/ 5 s	Condition			
BSM-2249	Heat	NPS 18 STD 0.375in. WT	53	DRL	70.59	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5° 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(CSA)
BSM-2249	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.20	0.86	0.020	0.015	0.27	0.06	0.01	0.01	0.03	0.002	-	-	-	-	-
		Product	0.23	0.90	0.024	0.019	0.29	0.07	0.01	0.01	0.03	0.004	0.003	0.001	0.0003	0.40	0.40
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GI	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2249	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 38.1 mm x WT	45,400	75,000	0.61	41

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-45th Ed., ASTM/ASME A106-2014/SA106-2013 Grade B/C 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 and API Q1.

Mill Test Certificate approved by:

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

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

T. Lam April 13/2015



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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2249 Product Size: 18STD Production Date: Feb 19, 2015
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001589
Product Standards: ASME B36.10-2004, 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 18 STD 0.375 INCH WT GR B/X42 PSL1 SMLS 2015/02 NDE 1640PSI
HEAT BSM-2249 (PIPE # LENGTH MASS) 70.59lb/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	UT	ET	HydroTest	End Condition
BSM-2249	Heat	NPS 18 STD 0.375in. WT	65	DRL	70.59	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

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BSM-2249	Blast Furnace: EAF; Ladle Refining: Vacuum Degass: Fully Killed	Heat	0.20	0.86	0.020	0.015	0.27	0.06	0.01	0.01	0.03	0.002	-	-	-	-	-
		Product	0.23	0.90	0.024	0.019	0.29	0.07	0.01	0.00	0.03	0.004	0.003	0.001	0.0003	0.40	0.40

Mechanical Properties																
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL			Yield (RT0.5) psi	Tensile (Rm) psi	Y/T (RT0.5/Rm)	Elongation (A) %					
BSM-2249	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal, 38.1 mm x WT			45,400	75,000	0.61	41					
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BSM-2249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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- ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 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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Feb 19 / 2015