



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-1802 Product Size: 20S140 Production Date: Apr 30, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001070
Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



NPS 20 SCH 140 1.750 INCH WT SMLS 2014/04 NDE 2800PSI
HEAT BSM-1802 (PIPE # LENGTH MASS) 341.1lb/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	Geiger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 2800 PSI/ 5 s	End Condition
BSM-1802	Heat	NPS 20 SCH 140 1.750in. WT	5	DRL	341.1	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)														
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb
BSM-1802	Blast Furnace, EAF, Ladle Refining, Vacuum Degass, Fully Killed	Heat	0.20	0.87	0.007	0.003	0.20	0.06	0.08	0.03	0.04			0.0005
		Product	0.19	0.86	0.006	0.006	0.22	0.06	0.07	0.03	0.03	0.002	0.001	0.001

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-1802	Heat	Ferrite & Pearlite	71 HRBW	Pass	Longitudinal, 19.05 mm x WT	36,500	69,000	0.53	48

Heat	Test	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion		
BSM-1802	Standard	-	-	J	J	J	AVG	%	%	AVG	mm	mm
				-	-	-	-	-	-	-	-	-

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2013 Grade B A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2010 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.

OD Tolerances as per API 5L

Mill Test Certificate approved by:

Paul Sowden
2014 MAY 15
Paul Sowden, T.I.
Assistant QA Manager



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Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-1802

Product Size: 20S120

Production Date: Apr 30, 2014

Production Method: Hot Expansion

Product Heat Treatment: As-rolled

Certificate No.: MTR- 001072

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



NPS 20 SCH 120 1.500 INCHWT SMLS 2014/04 NDE
HEAT BSM-1802 (PIPE # LENGTH MASS) 296.4lb/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	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest	End Condition
BSM-1802	Heat	NPS 20 SCH 120 1.500in. WT	5	DRL	296.4	<5	<10	Pass	Pass	Pass	Pass	Pass	*	Plain End

Chemical Analysis (wt%)														
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb
BSM-1802	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.20	0.87	0.007	0.003	0.20	0.06	0.08	0.03	0.04			
		Product	0.19	0.86	0.006	0.006	0.22	0.06	0.07	0.03	0.03	0.002	0.001	0.001

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-1802	Heat	Ferrite & Pearlite	71 HRBW	Pass	Longitudinal; 19.05 mm x WT	36,500	69,000	0.53	48

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J				% Shear				Lateral Expansion mm			
BSM-1802	-	-	-	J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
				-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

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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 MR0103-2010 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.

* Note that this product was hydrotested to 1100 psi for 5 seconds.

OD Tolerances as per API 5L

Mill Test Certificate approved by:

2014 MAY 15

Paul Sowden, T.T.
Assistant QA Manager