

Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4

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Seamless Carbon Steel Pipe Product Heat Number: BSM-1229 Product Size: 20 XS Production Date:

Production Method: Hot Expansion Product Heat Treatment:

Product:

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

As-rolled

Certificate No.: MTR- 000439

Sep 10, 2013

Product Markings | API> 5L-0898 API SPEC 5L NPS 20 XS 0.500 INCHWT GR B PSL1 SMLS 2013/09 NDE 1200PSI

IRIGIII HEAT BSM-1229 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

	BSM-1229		Heat	
	Heat		Test Type	
	NPS 20 XS 0.500in. WT		Product Size	Product: Details
	6		Pieces	
	DRL	8	Length	
	104.1	lb/ft	Mass	
	<5	μR/hr	Geiger	
	<10	Gauss	Res. Mag.	
	Pass	Insp.	Visual	
	Pass		OD	N
20.00	1	TW	TU	Non-Destructive Testing
	Pass	ASTM E213	TU	tive Testing
	1	ASTM	ET	
	Pass	ASTM E213 ASTM 1200PSI/ 5 s Condition	HydroTest	
	Plain End	s Condition	End	

Product 0.23 0.94 0.022 0.019 0.25	; Ladle Refining; Vacuum Heat 0.19 0.82 0.022 0.010	Heat Steelmaking Method Test Type C Mn P S	Chemical Ar
_	0.010 0.22	S Si	Chemical Analysis (wt%)
0.08	0.07	Cr	:%)
0.01 (0.01	Cu	
0.01		Мо	
 0.04	0.04	N:	
0.003		<	
0.003		T	
0.001		Νb	
0.001 0.0003		В	
0.41	-	CE(IIW)	
0.41	ā	CE(CSA)	

BSM-1229		Heat	
Heat		Test Type	
Ferrite & Pearlite		Microstructure	
77 HRBW		Hardness	
Pass		Flattening Test	188 Oc.
Longitudinal; 38.1 mm x WT	50mm GL	Tension Test	Mechanical Properties
43,600	psi	Yield (Rt0.5)	
72,000	psi	Tensile (Rm)	
0.61	(Rt0.5/Rm)	Υ/Τ	
45	%	Elongation (A)	

	BSN		-
	BSM-1229		Heat
	1	Standard	Test
	J	Sample Details	Impact Test
		°C	Temp
	,	J	
	•	J	Impact
		J	Energy
	ı	AVG	
	ı	%	
	ı	%	% Shear
	t	%	ear
		AVG	
	•	mm	
		mm	Lateral Ex
	•	mm	d Expansion
		AVG	

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 A/SA106-2011 Grade B/C 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.
- \checkmark This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

2013 Sept 17

Kenton Dechant, P.Eng.
Manager of Quality and R&D