

Mill Test Certificate

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

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www.brichemsteel.com

Production Date: November 8, 2013

Product Heat Treatment: As-rolled

Product Heat Number:

BSM-1382

Product Size:

NPS 20 STD

Production Method:

Hot Expansion

Product:

Seamless Carbon Steel Pipe

Product Standards: ASME B36.10-2004, A/SA333-2011 Grade 6, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

Product Markings:

NPS 20 STD 0.375INCH WT SMLS NDE ZU13/11 FAULSEN FIFE 1 OF AUGGE OF B/C A/SA53 GR B NACE MR0175/MR0103

MADE IN CANADA

BS			Γ
BSM-1382	Heat		
Heat	Test Type		
NPS 20 STD 0.375 in.WT	Product Size		Product Detail
15	Pieces		s
DRL	Length		
78.60	lb/ft	Mass	
~ 5	μR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	lnsp.	Visual	
Pass	OD		Non-E
Pass	WT	UT	Non-Destructive Te
Pass	ASTM E213	TU	ve Testing
Pass	ASTM E213 ASTM E309	ET	
1		HydroTest	
32.5° Bevel	Condition	End	

						Chemical Analysis (wt%)	Analysis	(wt%)									
																CE	Œ
Heat	Steelmaking Method	Analysis	С	Mn	Р	S	Si	Cr	Cu	Mo	Z.	٧	Ti	Nb	В	(WII)	(CSA)
BSM_1383	Blast Furnace; EAF; Ladle Refining;	Heat	0.15	1.15	0.011	0.005	0.23	0.07	0.12	0.02	0.05	0.060	•	1	t	1	1
7007	Vacuum Degas; Fully Killed	Product	0.17	1.18	1.18 0.015 0.007	0.007	0.24	0.06	0.11	0.02	0.06	0.056	0.001	0.001	0.0002	0.41	0.40

Heat Test Type Microstructure HRBW Flattening Test S0mm GL psi (Rt0.5) Tensile (Rm) Y/T Elongation (A) BSM-1382 Heat Ferrite & Pearlite 79 Pass Longitudinal; 38.1mm x WT 56,500 74,500 0.76 42
Hardness Hattening Test Comm GL psi (Rm) P/T Elonga 79 Pass Longitudinal; 38.1mm x WT 56,500 74,500 0.76 4
Necronnical Properties Tension Test Yield (Rt0.5) Tensile (Rm) Y/T Elonga
Mechanical Properties Vield (Rt0.5) Tensile (Rm) Y/T Elonga g Test 50mm GL psi (Rt0.5/Rm) psi s Longitudinal; 38.1mm x WT 56,500 74,500 0.76 4
n Test Yield (Rt0.5) Tensile (Rm) Y/T Elonga n GL psi psi (Rt0.5/Rm) 9 18.1mm x WT 56,500 74,500 0.76 4
7.5) Tensile (Rm) Y/T Elonga psi (Rt0.5/Rm) 1 74,500 0.76
sile (Rm) Y/T Elonga psi (Rt0.5/Rm) ' 4,500 0.76
Rm) Elonga
Elongation (A) %

	_B	_	
	BSM-1382	Heat	
	A/SA333	Standard	Test
	CVN Longitudinal (X-Y) 10x8	Sample Details	Impact Test
	-45ºC	C	Temp
	116	ľ	
	160	J	 Impact
2012102	116	_	Energy
OF SCHOOL STATE	131	AVG	
201 10000000000000000000000000000000000	60	%	
0.00	75	%	% Shea
COLOR SOUR STORY	55	%	ear
	63	AVG	
	-	mm	
	1	mm	Lateral Ex
	,	mm	(pansion
2000	,	AVG	

Additional Details:

- and that the results meet the corresponding requirements. Inc. in accordance with ASTM/ASME A/SA333-2011, A/SA106-2011, A/SA53-2012, and the purchase order requirements, We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing
- Service, and NACE MR0103-2010 Section 2.1. This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour
- 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:

Paul Sowden, T.T.

Assistant QA Manager