



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1359 Product Size: 18 XS Production Date: Oct 29, 2013  
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000568  
 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

Product Markings <API> 5L-0898 API SPEC 5L NPS 18 XS 0.500 INCHWT GR B PSL1 SMIS 2013/10 NDE 1300PSI  
 HEAT BSM-1359 (PIPE # LENGTH MASS) 93.45lb/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
BSM-1359	Heat	NPS 18 XS 0.500in. WT	11	DRL	93.45	<5	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	34° 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-1359	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.20	0.85	0.020	0.006	0.29	0.07	0.01		0.04						-
		Product	0.22	0.96	0.012	0.009	0.28	0.05	0.01	0.01	0.01	0.04	0.003	0.003	0.001	0.0002	0.40

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-1359	Heat	Ferrite & Pearlite	77 HRBW	Pass	50mm GL Longitudinal; 38.1 mm x WT	psi 49,400	psi 73,000	(Rt0.5/Rm) 0.68	% 45

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion				
				J	J	J	%	%	%	mm	mm	mm	AVG	
BSM-1359	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.  
 ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:  
  
 2013 OCT 31

Paul Sowden, T.T.  
 Assistant QA Manager