



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1484 Product Size: 16 XS Production Date: Dec 18, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000685
 Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings  <API> 5L-0898 API SPEC 5L NPS 16 XS 0.500 INCHWT GR B PSL1 SMLS 2013/12 NDE 1500PSI
 HEAT BSM-1484 (PIPE # LENGTH MASS) 82.77lb/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 1500 PSI/ 5 s	End Condition
BSM-1484	Heat	NPS 16 XS 0.500in. WT	25	DRL	82.77	<5	<10	Pass	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-1484	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Product	0.20	0.91	0.006	0.003	0.24	0.03	0.07	0.01	0.03	0.003	0.001	0.001	0.0004	0.37	0.37
		Heat	0.19	0.91	0.009	0.005	0.23	0.03	0.07	0.01	0.04				0.0004	-	-

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-1484	Heat	Ferrite & Pearlite	74 HRBW	Pass	Longitudinal; 38.1 mm x WT	54,500	69,500	0.78	46

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion					
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	mm	AVG	
BSM-1484	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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 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:

Paul Sowden
 2013 DEC 20

Paul Sowden, T.T.
 Assistant QA Manager