



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1215 Product Size: 18 TRUE 40 Production Date: Sep 05, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000047
 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 TRUE 40 0.562 INCHWT GR B PSL1 SMLS 2013/09 NDE 1330PSI
 HEAT BSM-1215 (PIPE # LENGTH MASS) 104.8lb/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 lb/ft	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 1330 PSI/ 5 s	End Condition
BSM-1215	Heat	NPS 18 TRUE 40 0.562in. WT	2	DRL	104.8	<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	CE(IIW)	CE(CSA)
BSM-1215	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.19	0.89	0.009	0.012	0.21	0.03	0.07	0.01	0.03				0.0003	-
		Product	0.21	0.86	0.011	0.017	0.28	0.05	0.11	0.01	0.06	0.002	0.001	0.001	0.0004	0.38

Mechanical Properties						
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Elongation (A) %
BSM-1215	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 38.1 mm x WT	46
					Yield (Rt0.5) psi	Y/T (Rt0.5/Rm) %
					44,300	0.61
					Tensile (Rm) psi	
					72,500	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion			
				J	J	J	%	%	%	mm	mm	mm	
BSM-1215	-	-	-	-	-	-	-	-	-	-	-	-	-
				AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG

Additional Details: Mill Test Certificate approved by:

- ✓ 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.


 Tonya Lam, C.E.T.