



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1712 Product Size: 16STD Production Date: Mar 19, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000962
Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



NPS 16 STD 0.375 INCHWT SMLS 2014/03 NDE
HEAT BSM-1712 (PIPE # LENGTH MASS) 62.58lb/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 $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest	End Condition
BSM-1712	Heat	NPS 16 STD 0.375in. WT	9	DRL	62.58	<5	<10	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
BSM-1712	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.86	0.020	0.010	0.23	0.08	0.01		0.05			
		Product	0.23	0.86	0.025	0.010	0.24	0.10	0.01	0.01	0.05	0.003	0.003	0.001

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-1712	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 38.1 mm x WT	43,800	72,500	0.60	40

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J				% Shear			Lateral Expansion mm			
BSM-1712	-	-	-	J	J	J	AVG	%	%	%	mm	mm	mm	AVG

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2013 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:

Paul Sowden
2014 MAR 24

Paul Sowden, T.T.
Assistant QA Manager