



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2175 Product Size: 20XS Production Date: Dec 09, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001501
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings



<API & L/C No.> API SPEC 5L NPS 20 XS 0.500 INCHWT GR B PSL1 SMIS 2014/12 NDE 1200PSI
HEAT BSM-2175 (PIPE # LENGTH MASS) 104.1lb/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 1200 PSi/ 5 s	End Condition
BSM-2175	Heat	NPS 20 XS 0.500in. WT	1	DRL	104.1	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Chemical Analysis (wt%)														
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb
BSM-2175	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.87	0.010	0.018	0.25	0.04	0.10	0.01	0.05			0.0003
		Product	0.22	0.85	0.010	0.020	0.29	0.05	0.11	0.01	0.06	0.002	0.001	0.001

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2175	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 38.1 mm x WT	49,500	71,500	0.69	44

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J			% Shear			Lateral Expansion mm		
BSM-2175	-	-	-	J	J	J	AVG	%	%	AVG	mm	mm

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 A106-2014/SA106-2013 Grade B/C A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 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:

T. Lam
Tonya Lam, C.E.T.
Assistant QA Manager
Dec 110/2014