



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2581 Product Size: NPS 20 XS Production Date: Nov 16, 2015
 Production Method: Hot Expansion ThermoMechanical Formed
 Certificate No.: MTR- 002009
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009

Product Markings
 NPS 20 XS 0.500 INCHWT SMLS 2015/11 NDE 1890PSI
 HEAT BSM-2581 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175 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 Pass	ET ASTM E213	ET Pass	HydroTest 1890PSI/ 5 s	End Condition
BSM-2581	Heat	NPS 20 XS 0.500in. WT	1	DRL	104.1	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	34° Bevel

Chemical Analysis (wt%)

Heat	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-2581	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	0.16	1.17	0.012	0.002	0.26	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.37	0.36
	Product	0.17	1.13	0.012	0.003	0.28	0.04	0.01	0.01	0.02	0.054	0.002	0.001	0.0003	0.38	0.38
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2581	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT	50,000	76,000	0.66	45

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion						
				J	J	J	%	%	%	mm	mm	mm	mm	mm	AVG	
BSM-2581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2013, 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, API Q1, and PED 97/23/EC.

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

✓ 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 *Nov 18/2015*

Tonya Lam, C.E.T.
 Assistant QA Manager