



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2548 Product Size: NPS 20 XS Production Date: Oct 07, 2015
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001972
 Product Standards: ASME B36.10-2004, API 5L-45th Ed. GradeB/X42 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 GRB/X42 PSL1 SMLS 2015/10 NDE 1890PSI
 HEAT BSM-2548 (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	Gelger	Res. Mag.	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1890PSI/ 5 s	End Condition	
BSM-2548	Heat	NPS 20 XS 0.500in. WT	8	DRL	104.1	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	31° Bevel	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
BSM-2548	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.15	1.16	0.010	0.002	0.25	0.01	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.36	0.34
		Product	0.17	1.13	0.011	0.003	0.28	0.03	0.01	0.01	0.01	0.02	0.054	0.001	0.001	0.0002	0.38	0.38
			0.17	1.15	0.011	0.002	0.28	0.04	0.01	0.01	0.02	0.055	0.002	0.001	0.0002	0.38	0.38	

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					2 in. GL	Longitudinal; 1.5 in. x WT				
BSM-2548	Heat	Ferrite & Pearlite	79 HRBW	Pass			48,300	75,000	0.64	43

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion			
				J	J	J	%	%	%	mm	mm	mm	AVG
BSM-2548	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API 5L-45th Ed., 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 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, and 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: Tony Lam Tonya Lam, C.E.T.
 Assistant QA Manager

T. Lam Oct 13/2015