



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2501 Product Size: NPS 24 STD Production Date: Aug 20, 2015
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001915

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) 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 24 STD 0.375 INCHWT GRB/X42 PSL1 SMLS 2015/08 NDE 1180PSI
 HEAT BSM-2501 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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 Pass	ET ASTM E213	ET Pass	HydroTest 1180PSI/ 5 s	End Condition
BSM-2501	Heat	NPS 24 STD 0.375in. WT	4	DRL	94.62	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	32° Bevel

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-2501	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.16	1.17	0.014	0.001	0.27	0.05	0.01	0.01	0.02	0.050	0.001	0.001	0.0001
		Product	0.16	1.15	0.017	0.003	0.29	0.06	0.01	0.01	0.02	0.054	0.001	0.001	0.0003
			0.17	1.16	0.016	0.002	0.28	0.06	0.01	0.01	0.03	0.055	0.002	0.001	0.0003

Mechanical Properties						
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Elongation (A) %
BSM-2501	Heat	Ferrite & Pearlite	83 HRBW	Pass	Yield (Rt0.5) psi 53,500 Tensile (Rm) psi 77,500	39
				Pass	53,000 78,000	41

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion				
				J	J	J	%	%	%	mm	mm	mm	mm	mm
BSM-2501	ASTM A333	CVN Long 10 x 7.5 mm	-48	42.0	40.0	17.0	30	20	5	18	1.04	0.96	0.58	0.86

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 A/SA333-2013, 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:

T. Lam Aug 125/2015

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