




# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-3026      Product Size: NPS 24 STD      Production Date: Jan 24, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003125

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BN/X42N/X46N PSL2, CSA Z245.1-2014 Grade 241/290 CAT 1, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015

Product Markings:  <API & L/C No > API SPEC 5L NPS 24 STD 0.375 INCHWT GR BN/X42N/X46N PSL2 SMLS 2017/01 NDE 1470PSI  
 HEAT BSM-3026 (PIPE # LENGTH MASS) 94.76lb/ft CSA Z245.1 GR 241/290 CAT 1 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	Geliger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3026	Heat	NPS 24 STD 0.375in. WT	7	DRL	94.76	<5	<10	Pass	Pass	Pass	Pass	-	Pass	35° Bevel

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)													
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	
			0.15	1.06	0.014	0.003	0.25	0.06	0.01	0.01	0.01	0.01	0.038	0.002	0.0005	0.35
BSM-3026	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCCO China)	Heat	0.16	1.07	0.011	0.003	0.26	0.06	0.02	0.01	0.01	0.040	0.002	0.0004	0.36	
			Product	0.16	1.07	0.010	0.003	0.26	0.06	0.02	0.01	0.01	0.040	0.002	0.0004	0.36

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-3026	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 1.5 in. x WT	51 500	73 000	0.71	42
				Pass	Longitudinal; 1.5 in. x WT	51 000	73 500	0.69	45

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(3 Tests) AVG		
BSM-3026	ASTM A333	Pass	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(138/145/160) 148	(100/100/100) 100	(1.83/2.01/2.22) 2.02
BSM-3026	API 5L PSL2	Pass	CVN Trans 10 x 7.5 mm	0	(15/15/15) 20	(168/144/140) 151	(100/100/100) 100	(2.27/2.06/2.03) 2.12

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., N CSA Z245.1-2014 Grade 241/290 CAT 1, ASTM/ASME A333-2016/SA333-2015, A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU.  
 ✓ 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/ISO 17495:2015 Section 13.1  
 ✓ 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:  
  
 Tonya Lam, P. Tech (Eng.)  
 Assistant QA Manager