



Bri-Steel Manufacturing
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Mill Test Certificate

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2974 Product Size: NPS 24 STD Production Date: Dec 05, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003076

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B PSL1, 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 GRB PSL1 SMLS 2016/12 NDE 750PSI
 HEAT BSM-2974 (PIPE # LENGTH MASS) 94.76lb/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) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 750PSI/ 5s	End Condition
BSM-2974	Heat	NPS 24 STD 0.375in. WT	8	DRL	94.76	<5	~19	Pass	Pass	N12.5 Pass	-	-	Pass	30° Bevel

Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (IIW)Max	CE (CSA)
BSM-2974	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCO China)	Heat	0.17	1.11	0.014	0.006	0.30	0.05	0.03	0.01	0.01	0.056	0.003	0.003	0.0004	0.38	-	0.38
		Product	0.18	1.14	0.013	0.009	0.32	0.06	0.03	0.01	0.01	0.059	0.002	0.002	0.0004	0.40	-	0.40
			0.17	1.13	0.013	0.005	0.32	0.06	0.03	0.01	0.01	0.059	0.002	0.001	0.0004	0.39	-	0.39

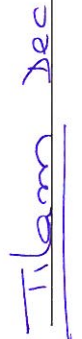
Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2974	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT	51 000	79 000	0.65	42
				Pass	Longitudinal; 1.5 in. x WT	51 000	78 000	0.65	41

Heat	Test Standard	Result	Impact Test Sample Details	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2974	ASTM A333	Pass	CVN Long 10 x 7.5 mm	(11/11/11) 14	(48/52/52) 51	(20/20/20) 20	(1.06/1.08/1.11) 1.08

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 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