



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3171 Product Size: NPS 30 STD Production Date: Jun 20, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR-003386

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 15156-2:2015 MR0103/ISO 17495:2015

Product Markings: <API & L/C No.> API SPEC 5L NPS 30 STD 0.375 INCHWT GRB PSL1 SMLS 2017/06 NDE 600PSI
 HEAT BSM-3171 (PIPE # LENGTH MASS) 118.82lb/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	Hydro Test 600PSI/ 5 s	End Condition
BSM-3171	Heat	NPS 30 STD 0.375in. WT	20	DRL	118.82	<5	<10	Pass	Pass	N12.5 Pass	Pass	-	Pass	35° Bevel

Chemical Analysis (wt%)

Heat	Test Type	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3171	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at Hualian China)	0.16	1.09	0.010	0.003	0.25	0.15	0.10	0.01	0.05	0.060	0.001	0.001	0.0001	0.40	-	0.39
	Product		0.15	1.09	0.006	0.004	0.27	0.16	0.14	0.01	0.05	0.063	0.027	0.001	0.0003	0.39	-	0.37
			0.16	1.11	0.009	0.002	0.26	0.16	0.01	0.01	0.05	0.062	0.034	0.002	0.0004	0.40	-	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-3171	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 1.5 in. x WT	48 300	71 500	0.68	36
				Pass	Longitudinal; 1.5 in. x WT	48 700	70 000	0.70	36

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-3171	ASTM A333	Pass	CVN Long 85TR 10x7.5mm	(11/11/11) 14	(30/64/34) 43	(10/20/10) 13	(0.71/1.60/0.87) 1.06

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 9001:2015 (APIQR-1584), API Q1, and PED 2014/68/EU.

✓ This pipe product meets the **SOUR SERVICE** requirements of ANSI/NACE MR0175/ISO 15156-2A:2015 (Annex A2 for Region 3 Sour Service), and ANSI/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:

T. Lam June 22/2017

Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager