



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3097 Production Date: Apr 04, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003271
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 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
 Product Markings: <API & L/C No.> API SPEC 5L NPS 18 TRUE 80 0.938 INCHWT GRB/X42 PSL1 SMLS 2017/04 NDE 2970PSI
 HEAT BSM-3097 (PIPE # LENGTH MASS) 171.08lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C A/SA53 GR B NACE MR0175 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 2970PSI/ 5s	HydroTest	End Condition
BSM-3097	Heat	NPS 18 TRUE 80 0.938in. WT	12	DRL	171.08	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

Heat	BSM-3097	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCC China)	Chemical Analysis (wt%)																
			Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	0.18	1.17	0.020	0.004	0.27	0.02	0.04	0.01	0.01	0.049	0.002	0.002	0.0005	0.39	-	0.40
Product	0.18	1.22	0.013	0.004	0.30	0.03	0.04	0.01	0.01	0.061	0.020	0.001	0.0005	0.41	-	0.41			
			0.18	1.15	0.015	0.007	0.29	0.03	0.04	0.00	0.01	0.045	0.017	0.001	0.0004	0.39	-	0.40	

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-3097	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	51 500	76 500	0.67	38
				Pass	Longitudinal; 0.5 in. Round Bar	47 200	76 000	0.62	38

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3097	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(3 Tests) AVG (66/80/61) 69	(5/5/5) 5	(3 Tests) AVG (1.03/1.34/1.04) 1.14

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GRR42 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

✓ 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 APR 11/2017

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