



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3121 Product Size: NPS 16 STD Production Date: Apr 27, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003326
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB PSL1, ASTM/ASME A106-2014/SA106-2015 Grade B 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 16 STD 0.375 INCHWT GRB PSL1 SMLS 2017/04 NDE 1150PSI
 HEAT BSM-3121 (PIPE # LENGTH MASS) 62.67lb/ft ASTM/ASME A/SA106 GR B 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	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 1150PSI/ 5s	End Condition	
BSM-3121	Heat	NPS 16 STD 0.375in. WT	6	DRL	62.67	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	35° Bevel	

Heat	Test Type	Steelmaking Method	Chemical Analysis (wt%)																															
			C		Mn		P		S		Si		Cr		Cu		Mo		Ni		V		Ti		Nb		B		CE(IIW)		CE(IIW)Max		CE(CSA)	
			Heat	Product	0.22	0.20	0.56	0.54	0.016	0.023	0.006	0.001	0.20	0.23	0.03	0.01	0.01	0.01	0.01	0.01	0.002	0.003	0.001	0.001	0.001	0.001	0.0003	0.32	-	-	0.33			
BSM-3121	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCO China)	0.20	0.21	0.54	0.55	0.023	0.025	0.001	0.23	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.002	0.002	0.001	0.001	0.001	0.001	0.0002	0.31	-	-	0.32						

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-3121	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 1.5 in. x WT	44 500	71 500	0.62	36

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	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-3121	-	-	-	-	-	-	-	-

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 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:

T. Lam MAY 10 2017

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