



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3161 Product Size: NPS 24 STD Production Date: Jun 08, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003375
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X46 PSL1, ASTM/ASME 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 24 STD 0.375 INCHWT GRB/X46 PSL1 SMLS 2017/06 NDE 1300PSI
 HEAT: BSM-3161 (PIPE # LENGTH MASS) 94.76lb/ft ASTM/ASME 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)	UT	ET	HydroTest	End Condition	
BSM-3161	Heat	NPS 24 STD 0.375in. WT	23	DRL	94.76	<5	<10	Pass	Pass	Pass	N12.5 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	CE(IW)	CE(IW)Max	CE(CSA)
			0.15	1.09	0.013	0.005	0.25	0.19	0.10	0.02	0.05	0.060	0.001	0.001	0.0001	0.40	-	0.38
BSM-3161	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at Huanan China)	Heat	0.17	1.11	0.013	0.004	0.26	0.20	0.11	0.02	0.05	0.062	0.036	0.001	0.0005	0.42		
		Product	0.17	1.07	0.007	0.002	0.25	0.18	0.12	0.02	0.05	0.062	0.032	0.001	0.0004	0.41	0.41	

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-3161	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 1.5 in. x WT	47 600	71 500	0.67	44

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-3161	-	-	-	-	-	-	-	-

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GRX46 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 9001:2015 (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:
Tony Lam 1/13/2017
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager