



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3008 Product Size: NPS 18 STD Production Date: Jan 09, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003108

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME 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 18 STD 0.375 INCHWT GRB/X42 PSL1 SMLS 2017/01 NDE 1490PSI
 HEAT BSM-3008 (PIPE # LENGTH MASS) 70.69lb/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) ASTM E114	UT	E/T	HydroTest	End Condition
BSM-3008	Heat	NPS 18 STD 0.375in. WT	3	DRL	70.69	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	35° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3008	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCO China)	Heat	0.19	0.95	0.010	0.002	0.19	0.08	0.03	0.01	0.02	0.001	0.005	0.001	0.0008	0.37	0.38
		Product	0.21	0.92	0.013	0.003	0.25	0.03	0.01	0.00	0.01	0.004	0.004	0.002	0.001	0.0003	0.37
			0.20	0.97	0.011	0.005	0.20	0.08	0.03	0.01	0.02	0.004	0.005	0.001	0.0007	0.38	0.39

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-3008	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 1.5 in. x WT	46 400	73 500	0.63	39

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-3008	-	-	-	-	-	-	-	-

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GRX42 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 / 16/2017
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager