



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3141 Production Date: May 16, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003343
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 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 20 TRUE 40 0.594 INCHWT GRB/X42 PSL1 SMLS 2017/05 NDE 2250PSI
 HEAT BSM-3141 (PIPE # LENGTH MASS) 123.24lb/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	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition	
BSM-3141	Heat	NPS 20 TRUE 40 0.594in. WT	6	DRL	123.24	<5	<10	Pass	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	2250PSI/ 5 s	Plain End

Heat	Test Type	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
				C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
				Heat	0.16	0.012	0.004	0.31	0.04	0.02	0.01	0.01	0.041	0.003	0.005	0.0006	0.39	-	0.39
BSM-3141	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TPCCO China)	Heat	Product	0.16	1.26	0.017	0.004	0.32	0.07	0.02	0.01	0.01	0.040	0.002	0.001	0.0003	0.40	-	0.39
				0.17	1.28	0.017	0.005	0.31	0.06	0.02	0.01	0.01	0.042	0.002	0.001	0.0004	0.41	-	0.41

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-3141	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT	49 900	75 500	0.66	50		

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3141	-	-	-	-	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG

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 9001:2015 (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:

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