



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2824 Product Size: NPS 24 STD Production Date: Jun 30, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002892
 Product Standards: ASME B36.10M-2015, API SL-45th Ed. GradeB/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 24 STD 0.375 INCHWT GRB/X42 PSL1 SMLS 2016/06 NDE 1180PSI
 HEAT BSM-2824 (PIPE # LENGTH MASS) 94.62lb/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	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End				
BSM-2824	Heat	NPS 24 STD 0.375in. WT	5	DRL	94.62 lb/ft	<5 µR/hr	<50 Gauss	Insp.	Pass	Pass	Pass	ASTM E213	ASTM E309	1180PSI/ 5s	Condition			
Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(I/W)	CE(I/W)Max	CE(CSA)
BSM-2824	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TPCCO China)	Heat	0.21	0.93	0.012	0.005	0.25	0.02	0.01	0.01	0.01	0.001	0.002	0.001	0.0002	0.37	-	0.38
		Product	0.22	0.92	0.009	0.004	0.26	0.03	0.01	0.01	0.01	0.003	0.001	0.001	0.0003	0.38	-	0.39
			0.23	0.92	0.012	0.005	0.26	0.03	0.01	0.01	0.01	0.003	0.001	0.001	0.0002	0.39	-	0.40

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-2824	Heat	Ferrite & Pearlite	81 HRBW	Pass	2 in. GL Longitudinal; 1.5 in. x WT	psi	psi	(Rt0.5/Rm)	%
						52 500	76 000	0.69	41

Heat	Test Standard	Result	Impact Test	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2824	-	-	Sample Details	-	(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-9001:2008 (APIQR-1584), API Q1, and PED 97/23/EC.
 ✓ 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 July 107/2016

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