




Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2796 Product Size: NPS 24 X 0.438 Production Date: Jun 09, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002868
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade X52N PSL2, ASTM/ASME A106-2014/SA106-2015 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 X 0.438 0.438 INCHWT GR X52N PSL2 SMLS 2016/06 NDE 1710PSI
 HEAT BSM-2796 (PIPE # LENGTH MASS) 110.22lb/ft ASTM/ASME A/SA106 GR B NACE MR0175/MR0103 MADE IN CANADA


Product: Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Gelger HR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1710 PSI/ 5 s	End Condition
BSM-2796	Heat	NPS 24 X 0.438 0.438in. WT	1	DRL	110.22	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel

Heat	BSM-2796	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at PFCO China)	Chemical Analysis (wt%)																			
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)		
			Heat	Product	0.17	1.21	0.016	0.004	0.29	0.03	0.01	0.01	0.01	0.01	0.050	0.001	0.001	0.0005	0.39	-	0.39	
						0.18	1.23	0.012	0.005	0.27	0.03	0.01	0.01	0.01	0.053	0.003	0.001	0.0004	0.40	0.43	0.41	
						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43	-

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GI	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2796	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal, 1.5 in. x WT	55 500	76 500	0.73	41

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2796	API 5L PSL2	Pass	CVN Trans 10 x 10 mm	-5	(20/20/20) 27	(3 Tests) AVG (192/181/187) 187	(3 Tests) AVG	(3 Tests) AVG (100/100/100) 100
								(2.29/1.92/2.31) 2.17

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, 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:

 2016 June 20

Kerton Dechant, P. Eng.
 Manager of Quality and R&D