



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2804 Product Size: NPS 24 STD Production Date: Jun 14, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002870
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495-2:2015
 Product Markings: NPS 24 STD 0.375 INCHWT SMLS 2016/06 NDE 750PSI
 HEAT BSM-2804 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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	Geliger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	UT ASTM E309	ET	HydroTest 750PSI/ 5s	End Condition				
BSM-2804	Heat	NPS 24 STD 0.375in. WT	9	DRL	94.62	<5	<60	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel					
Chemical Analysis (wt%)																			
BSM-2804	Steelmaking Method Blast Furnace; EAF; ladle Refining; Vacuum Degas; Fully Killed	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(I/W)	CE(II/W)/Max	CE(CSA)	
																Heat	0.17	1.11	0.013
		Product	0.19	1.13	0.012	0.007	0.36	0.04	0.01	0.01	0.01	0.068	0.002	0.002	0.0002	0.40	-	0.41	

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-2804	Heat	Ferrite & Pearlite	83 HRBW	Pass	Longitudinal; 1.5 in. x WT	54 500	78 500	0.69	41
				Pass	Longitudinal; 1.5 in. x WT	55 000	78 500	0.70	41

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2804	ASTM A333	Pass	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(3 Tests) AVG (70/60/62) 64	(3 Tests) AVG (40/20/30) 30	(3 Tests) AVG (1.50/1.20/1.30) 1.33

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2015/SA333-2015, 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 June 12/2016

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