



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2744 Product Size: NPS 24 STD Production Date: Apr 28, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002803
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: NPS 24 STD 0.375 INCHWT SMLS 2016/04 NDE 660PSI
 HEAT BSM-2744 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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 μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition
BSM-2744	Heat	NPS 24 STD 0.375in. WT	9	DRL	94.62	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	31° Bevel

Heat	BSM-2744	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	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	0.16	0.17	1.12	1.17	0.010	0.009	0.002	0.003	0.23	0.28	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.02	0.061	0.002	0.002	0.001	0.0001	0.36	0.39	-	0.35					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GI	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2744	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT Longitudinal; 1.5 in. x WT	55 000	76 000	0.72	43
				Pass		51 500	75 000	0.69	45

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2744	ASTM A333	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(3 Tests) AVG (78/77/68) 74	(3 Tests) AVG 30	(3 Tests) AVG (1.60/1.49/1.33) 1.47

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/SA333-2013, A106-2014/SA106-2013, A53-2012/SA53-2013, 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 MR0103-2012 Section 2.1
 ✓ 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 *May 10 2016*

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