



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2623 Product Size: NPS 24 TRUE 80 Production Date: Jan 13, 2016
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 002053
 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
 Product Markings: MR0103-2012
 NPS 24 TRUE 80 1.219 INCHWT SMLS 2016/01 NDE 2100PSI
 HEAT BSM-2623 (PIPE # LENGTH MASS) 296.4lb/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 ASTM E213	ET ASTM E309	HydroTest 2100 PSI/ 5 s	End Condition	
BSM-2623	Heat	NPS 24 TRUE 80 1.219in. WT	4	DRL	296.4	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End	

Heat	Test Type	Steelmaking Method	C	Mn	P	Chemical Analysis (wt%)												
						S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
BSM-2623	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed		Heat	0.16	1.18	0.010	0.002	0.26	0.02	0.01	0.01	0.01	0.01	0.050	0.001	0.001	0.37	0.37
			Product	0.16	1.17	0.014	0.004	0.28	0.05	0.01	0.01	0.02	0.061	0.002	0.001	0.0003	0.38	0.37

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) %
					Longitudinal; 0.5 in. Round Bar	Longitudinal; 0.5 in. Round Bar				
BSM-2623	Heat	Ferrite & Pearlite	78 HRBW	Pass	Pass	49,800	72,500	0.69	38	
				Pass		50,000	72,500	0.69	40	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion					
				J	J	J	%	%	%	mm	mm	mm	AVG		
BSM-2623	ASTM A333	CVN Long 10 x 10 mm	-45	70.0	45.0	75.0	63.3	20	10	20	17	1.04	0.85	1.07	0.99

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2013/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, 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:

Tony Lam / 20/2016

Tonya Lam, C.E.T.
 Assistant QA Manager