



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2636 Product Size: NPS 24 TRUE 80 Production Date: Feb 02, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002082
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015/SA333-2013 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 2016/02 NDE 2100PSI
 HEAT BSM-2636 (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-2636	Heat	NPS 24 TRUE 80 1.219in. WT	1	DRL	296.4	<5	<10	Pass	Pass	Pass	Pass	-	Pass	Plain End

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)																	
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)			
BSM-2636	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	0.01	0.02	0.061	0.002	0.001	0.0001	0.37	0.37
		Product	0.16	1.15	0.013	0.003	0.28	0.04	0.01	0.01	0.01	0.02	0.061	0.002	0.001	0.0003	0.38	0.37		

Mechanical Properties									
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) %
BSM-2636	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	52,000	76,000	0.68	36

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion					
				J	J	J	%	%	%	mm	mm	mm	mm	AVG	
BSM-2636	ASTM A333	CVN Long 10 x 10 mm	-45	86.0	56.0	80.0	74.0	30	20	25	25	1.21	0.67	1.20	1.03

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, 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* Feb 10 / 2015
 Tonya Lam, C.E.T.
 Assistant QA Manager