



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2656 Product Size: NPS 20 STD Production Date: Feb 29, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002102
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: NPS 20 STD 0.375 INCHWT SMLS 2016/02 NDE 800PSI
 HEAT BSM-2656 (PIPE # LENGTH MASS) 78.6lb/ft ASTM/ASME 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	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 800 PSI/ 5 s	End Condition
BSM-2656	Heat	NPS 20 STD 0.375in. WT	10	DRL	78.6	<5	<20	Pass	Pass	Pass	Pass	-	Pass	30° Bevel

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-2656	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.16	1.13	0.012	0.001	0.24	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.059	0.002	0.001	0.0001	0.37	0.36
		Product	0.16	1.13	0.008	0.002	0.28	0.05	0.01	0.01	0.01	0.02	0.02	0.01	0.059	0.002	0.001	0.0003	0.37	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) %
					81 HRBW	Pass				
BSM-2656	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT	51,500	76,500	0.67	44	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy					% Shear					Lateral Expansion					
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	mm	mm	AVG		
BSM-2656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mechanical Properties

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME 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 *March 10/3/2016*

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