



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2722 Production Date: Apr 12, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002950
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 24 X 0.650 0.650 INCHWT SMLS 2016/04 NDE 1200PSI
 HEAT BSM-2722 (PIPE # LENGTH MASS) 162.1lb/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	Geiger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition						
BSM-2722	Heat	NPS 24 X 0.650 0.650in. WT	19	DRL	162.1	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel						
Chemical Analysis (wt%)																				
BSM-2722	Heat	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(IIW)	CE(IIW)Max	CE(CSA)	
																				0.16
			Product	0.16	1.20	0.014	0.003	0.26	0.06	0.01	0.01	0.01	0.053	0.002	0.001	0.0004	0.39	-	-	0.38

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-2722	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	47 300	72 000	0.66	53
				Pass	Longitudinal; 1.5 in. x WT	46 400	70 500	0.66	53

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2722	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(3 Tests) AVG (86/102/101) 96	(20/40/35) 32	(3 Tests) AVG (1.32/1.98/1.62) 1.64

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2016/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 2014/68/EU.

✓ 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

Mill Test Certificate approved by:

T. Lam Sept 13/2016

- ✓ 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.

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