



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2710 Production Date: Apr 06, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002162
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B NDE, AS3-2012/SA53-2013 Grade B Type S, NACE MR0175-2009
 MR0103-2012
 Product Markings: NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/04 NDE 1200PSI
 HEAT BSM-2710 (PIPE # LENGTH MASS) 171.2lb/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 μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1200PSI/ 5 s	End Condition
BSM-2710	Heat	NPS 24 TRUE 40 0.688in. WT	1	DRL	171.2	<5	<20	Pass	Pass	-	N12.5 Pass	-	Pass	30° Bevel

Heat	BSM-2710	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; 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	1.17	0.014	0.001	0.27	0.05	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.38	-
						0.17	1.13	0.013	0.002	0.25	0.05	0.01	0.01	0.03	0.057	0.001	0.001	0.0002	0.38	0.38

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-2710	Heat	Ferrite & Pearlite	82 HRBW	Pass	Longitudinal; 1.5 in. x WT	53 000	77 000	0.69	45

Heat	BSM-2710	Test Standard	ASTM A333	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Shear (%)	Lateral Expansion (mm)
						(3 Tests) AVG	(14/14/14) 18		
				CVN Long 10 x 10 mm	-45	(3 Tests) AVG	(58/80/66) 68	(3 Tests) AVG	(3 Tests) AVG
						(14/14/14) 18	(10/20/15) 15	(0.80/1.12/1.01) 0.98	

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, AS3-2012/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 April 11/2/2016

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