



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2715 Product Size: NPS 24 TRUE 40 Production Date: Apr 07, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002165
 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 40 0.688 INCHWT SMLS 2016/04 NDE 1200PSI
 HEAT BSM-2715 (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	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End	
BSM-2715	Heat	NPS 24 TRUE 40 0.688in. WT	3	DRL	171.2	<5	<20	Pass	Pass	Pass	ASTM E213	ASTM E309	1200PSI/ 5 S	31° Bevel	

Heat	BSM-2715	Steelmaking Method	Test Type	Chemical Analysis (wt%)																	
				C	Min	P	S	SI	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)		
				Heat	0.18	1.20	0.011	0.002	0.24	0.04	0.01	0.01	0.01	0.03	0.050	0.001	0.001	0.0001	0.40	-	0.40
			Degas; Fully Killed	Product	0.17	1.14	0.014	0.002	0.26	0.05	0.01	0.01	0.01	0.03	0.056	0.001	0.001	0.0002	0.39	-	0.38

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-2715	Heat	Ferrite & Pearlite	81 HRBW	Pass	2 in. GL Longitudinal; 1.5 in. x WT Longitudinal; 1.5 in. x WT	psi 51 500	psi 75 500	(Rt0.5/Rm) 0.68	% 41
				Pass		51 500	76 500	0.67	42

Heat	Test Standard	Impact Test	Temp °C	Impact Energy (J)		Shear (%)	Lateral Expansion (mm)
				(3 Tests) AVG	(3 Tests) AVG		
BSM-2715	ASTM A333	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(54/57/60) 57	(10/10/10) 10	(0.87/0.94/0.97) 0.93

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 (APIQR-1584), 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:

 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager
 April 13/2016