



Bri-Steel Manufacturing
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Mill Test Certificate

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2833 Product Size: NPS 24 TRUE 40 Production Date: Jul 11, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002902

Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015

Product Markings
 NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/07 NDE 1200PSI
 HEAT BSM-2833 (PIPE # LENGTH MASS) 171.2lb/ft-ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C 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 Pass	ET ASTM E309	HydroTest 1200PSI/ 5s	End Condition
BSM-2833	Heat	NPS 24 TRUE 40 0.688in. WT	8	DRL	171.2	<5	<20	Pass	Pass	N12.5	Pass	-	Pass	Plain End

Chemical Analysis (wt%)																		
Heat	Test Type	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2833	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	0.18	1.09	0.011	0.006	0.30	0.04	0.02	0.00	0.01	0.058	0.003	0.001	0.0002	0.38	-	0.39
	Product		0.17	1.13	0.018	0.005	0.31	0.04	0.02	0.01	0.01	0.065	0.002	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	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2833	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	52 000	76 000	0.68	41
				Pass	Longitudinal; 1.5 in. x WT	50 500	74 500	0.68	42

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2833	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(92/88/98) 93	(40/40/40) 40	(1.50/1.46/1.56) 1.51

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 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/ISO 17495:2015 Section 13.1
 ✓ 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