



Mill Test Certificate

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

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2793 Product Size: NPS 24 TRUE 40 Production Date: Jun 08, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002861
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B NDE, AS3-2012/SA53-2015 Grade B Type 5, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/06 NDE 1400PSI
 HEAT BSM-2793 (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



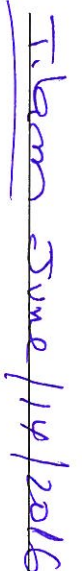
Product: Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 1400PSI/ 5 s	End Condition	
BSM-2793	Heat	NPS 24 TRUE 40 0.688in. WT	5	DRL	171.2	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-2793	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.16	1.17	0.019	0.005	0.27	0.04	0.09	0.01	0.04	0.040	0.001	0.001	0.0005	0.38	-	0.38
			Product	0.16	1.14	0.013	0.004	0.26	0.04	0.09	0.01	0.03	0.052	0.001	0.001	0.0003	0.38	-

Heat	Test Type	Microstructure	Hardness	Mechanical Properties					
				Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-2793	Heat	Ferrite & Pearlite	82 HRBW	Pass	Longitudinal; 1.5 in. x WT	54 500	75 500	0.72	43
				Pass	Longitudinal; 1.5 in. x WT	56 000	76 000	0.74	43

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy (J)		Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(3 Tests) AVG		
BSM-2793	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(14/14/14) 18	(78/81/94) 84	(20/20/25) 22	(1.16/1.28/1.47) 1.30

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, AS3-2012/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