



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe

Product Heat Number: BSM-2450

Product Size: NPS 18 SCH 60

Production Date: Jun 25, 2015

Production Method: Hot Expansion

Product Heat Treatment: ThermoMechanical Formed

Certificate No.: MTR- 001854

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings



NPS 18 SCH 60 0.750 INCHWT SMLS 2015/06 NDE 2000PSI  
HEAT BSM-2450 (PIPE # LENGTH MASS) 138.2lb/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	Gelger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2000PSI/ 5 s	End Condition
BSM-2450	Heat	NPS 18 SCH 60 0.750in. WT	8	DRL	138.2	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
		Heat	0.16	1.24	0.011	0.002	0.28	0.04	0.01	0.01	0.01	0.056	0.002	0.001	0.0007	0.39	0.38
		Product	0.16	1.22	0.011	0.004	0.28	0.04	0.01	0.01	0.01	0.059	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-2450	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	51,500	73,500	0.70	40
				Pass	Longitudinal; 0.5 in. Round Bar	48,400	73,500	0.66	40

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J				% Shear				Lateral Expansion mm			
BSM-2450	ASTM A333	CVN Long 10 x 10 mm	-45	183.5	168.0	164.0	171.8	60	50	50	53	2.34	2.21	1.98	2.18

## Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A/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 and API Q1.

✓ 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, C.E.T.  
Assistant QA Manager

*T. Lam* *July 1/28/2015*