



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-2192 Product Size: NPS 20 SCH 160 Production Date: Dec 11, 2014
Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001930
Product Standards: ASME B36.10-2004, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
Product Markings
 NPS 20 SCH 160 1.969 INCHWT SMLS 2014/12 NDE 2800PSI
HEAT BSM-2192 (PIPE # LENGTH MASS) 379lb/ft ASTM/ASME 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 2800 PSI/ 5 s	End Condition
BSM-2192	Heat	NPS 20 SCH 160 1.969in. WT	1	DRL	379	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Steelmaking Method		Chemical Analysis (wt%)													
Heat	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)
		0.20	0.94	0.012	0.002	0.30	0.03	0.05	0.01	0.02	0.004	0.003	0.001	-	0.37
		Product	0.20	0.91	0.011	0.004	0.30	0.04	0.05	0.01	0.02	0.004	0.001	0.0004	0.37
BSM-2192	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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-2192	Heat	Ferrite & Pearlite	74 HRBW	Pass	Longitudinal; 0.5 in. x WT	36,600	68,000	0.54	37

Heat	Test	Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
					J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

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

 Sept 109/2015