



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-2564 Product Size: NPS 20 TRUE 40 Production Date: Oct 27, 2015
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 001991
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BR PSL2, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: <API & L/C No.> API SPEC 5L NPS 20 TRUE 40 0.594 INCHWT GR BR PSL2 SMLS 2015/10 NDE 2250PSI
 HEAT BSM-2564 (PIPE # LENGTH MASS) 122.9lb/ft ASTM/ASME 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 ASTM E213	ET ASTM E309	HydroTest 2250PSI/ 5 s	End Condition																					
															Pass	Pass	Pass	Pass	Pass																
BSM-2564	Heat	NPS 20 TRUE 40 0.594in. WT	4	DRL	122.9	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End																					
Chemical Analysis (wt%)																																			
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)																	
																			Heat	0.19	1.12	0.014	0.005	0.32	0.03	0.02	0.00	0.01	0.058	0.002	0.001	0.0003	0.40	-	0.41
																			Product	0.18	1.12	0.015	0.010	0.34	0.03	0.01	0.01	0.01	0.060	0.002	0.001	0.0004	0.39	0.43	0.39
			0.18	1.12	0.015	0.010	0.34	0.03	0.01	0.01	0.01	0.060	0.002	0.001	0.0003	0.39	0.43	0.39																	

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-2564	Heat	Ferrite & Pearlite	83 HRBW	Pass					

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2564	API 5L PSL2	CVN Trans 10 x 10 mm	0				

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API 5L-45th Ed., R 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, 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:

[Signature]
 2016 Feb 25.

Kenton Dechant, P.Eng.
 Manager of Quality and R&D