




# 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-2605      Product Size: NPS 18 TRUE 40      Production Date: Dec 15, 2015  
 Production Method: Hot Expansion      Product Heat Treatment: As Rolled      Certificate No.: MTR- 002033  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BR PSL2, ASTM/ASME A106-2014/SA106-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012  
 Product Markings  
   
 <API & L/C No.> API SPEC 5L NPS 18 TRUE 40 0.562 INCHWT GR BR PSL2 SMLS 2015/12 NDE 1330PSI  
 HEAT BSM-2605 (PIPE # LENGTH MASS) 104.8lb/ft ASTM/ASME A/SA106 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 1330PSI/ 5 s	End Condition	
BSM-2605	Heat	NPS 18 TRUE 40 0.562in. WT	12	DRL	104.8	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End	

Heat	BSM-2605	Steelmaking Method Blast Furnace: EAF, Ladle Refining, Vacuum Degass; Fully Killed (at TPCO China)	Chemical Analysis (wt%)																		
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)	
			Heat	Product	0.20	0.56	0.011	0.004	0.23	0.03	0.01	0.01	0.01	0.03	0.002	0.002	0.001	0.0001	0.30	-	0.31
						0.20	0.56	0.020	0.010	0.26	0.07	0.01	0.01	0.03	0.005	0.001 <td>0.001 <td>0.0003 <td>0.31 <td>0.43 <td>0.32</td> </td></td></td></td>	0.001 <td>0.0003 <td>0.31 <td>0.43 <td>0.32</td> </td></td></td>	0.0003 <td>0.31 <td>0.43 <td>0.32</td> </td></td>	0.31 <td>0.43 <td>0.32</td> </td>	0.43 <td>0.32</td>	0.32
						0.21	0.56	0.016	0.011	0.27	0.06	0.01	0.01	0.03	0.004	0.002 <td>0.001 <td>0.0003 <td>0.32</td> <td>0.43 <td>0.33</td> </td></td></td>	0.001 <td>0.0003 <td>0.32</td> <td>0.43 <td>0.33</td> </td></td>	0.0003 <td>0.32</td> <td>0.43 <td>0.33</td> </td>	0.32	0.43 <td>0.33</td>	0.33


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-2605	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	46 200	69 000	0.67	45

Heat	BSM-2605	Test Standard	API 5L PSL2	Impact Test Sample Details CVN Trans 10 x 10 mm	Temp °C	Impact Energy Min. (J)	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG

**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, 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:  
  
 2016 Feb 25.

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