



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-3035 Product Size: NPS 24 STD Production Date: Jan 30, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003138
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BN/X42N/X46N PSL2, CSA Z245.1-2014 Grade 241/290 CAT 1, ASTM/ASME A333-2016/SA333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: <API & L/C No.> API SPEC 5L NPS 24 STD 0.375 INCHWT GR BN/X42N/X46N PSL2 SM1S 2017/01 NDE 1300PSI
 HEAT BSM-3035 (PIPE # LENGTH MASS) 94.76lb/ft CSA Z245.1 GR 241/290 CAT 1 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) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 1300PSI/ 10s	End Condition	
BSM-3035	Heat	NPS 24 STD 0.375in. WT	9	DRL	94.76	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	35° Bevel

Heat	BSM-3035	Steelmaking Method Blast Furnace; FA-F; Ladle Refining; Vacuum Degass; Fully Killed (at PGO China)	Chemical Analysis (wt%)																		
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(I/W)	CE(I/W)Max	CE(CSA)	
			Heat	Product	0.15	1.06	0.016	0.002	0.26	0.05	0.01	0.01	0.01	0.01	0.02	0.038	0.002	0.001	0.0004	0.35	-
						0.15	1.07	0.012	0.002	0.26 <td>0.05</td> <td>0.02</td> <td>0.01</td> <td>0.02</td> <td>0.038</td> <td>0.002 <td>0.001 <td>0.0004</td> <td>0.35</td> <td>0.34</td> </td></td>	0.05	0.02	0.01	0.02	0.038	0.002 <td>0.001 <td>0.0004</td> <td>0.35</td> <td>0.34</td> </td>	0.001 <td>0.0004</td> <td>0.35</td> <td>0.34</td>	0.0004	0.35	0.34	
						0.16	1.06	0.014	0.001	0.26 <td>0.06</td> <td>0.01</td> <td>0.01</td> <td>0.01</td> <td>0.039</td> <td>0.002 <td>0.001 <td>0.0004</td> <td>0.36</td> <td>0.43</td> <td>0.35</td> </td></td>	0.06	0.01	0.01	0.01	0.039	0.002 <td>0.001 <td>0.0004</td> <td>0.36</td> <td>0.43</td> <td>0.35</td> </td>	0.001 <td>0.0004</td> <td>0.36</td> <td>0.43</td> <td>0.35</td>	0.0004	0.36	0.43	0.35

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-3035	Heat	Ferrite & Pearlite	79 HRBW	Pass	Longitudinal; 1.5 in. x WT	51 500	72 000	0.72	44
				Pass	Longitudinal; 1.5 in. x WT	51 500	72 000	0.72	40

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)			Impact Energy Results (J)			Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(11/11/11) 14	(15/15/15) 20	(3 Tests) AVG	(181/189/199) 190	(204/207/208) 206		
BSM-3035	ASTM A333	Pass	CVN Long 10 x 7.5 mm	-48	(11/11/11) 14	(181/189/199) 190	(204/207/208) 206	(100/100/100) 100	(UNB/UNB/UNB) UNB			
BSM-3035	API 5L PSL2	Pass	CVN Trans 10 x 7.5 mm	0	(15/15/15) 20	(204/207/208) 206	(100/100/100) 100	(UNB/UNB/UNB) UNB				

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, N CSA Z245.1-2014 Grade 241/290 CAT 1, ASTM/ASME A333-2016/SA333-2015, A106-2014/SA106-2015, A53-2012/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 2014/68/EU.
- ✓ 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:

T. Lam Feb 06 / 2017

Tomya Lam, P. Tech (Eng.)
 Assistant QA Manager