




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-3076 Product Size: NPS 24 SCH 100 Production Date: Mar 07, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003211
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB PSL1, 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 SCH 100 1.531 INCHWT GRB PSL1 SMLS 2017/03 NDE 2800PSI
 HEAT BSM-3076 (PIPE # LENGTH MASS) 367.76lb/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	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 2800PSI/ 5 s	End Condition	
BSM-3076	Heat	NPS 24 SCH 100 1.531in. WT	5	DRL	367.76	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End	

Heat	BSM-3076	Test Type	Steelmaking Method	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	0.15	1.10	0.012	0.002	0.28	0.06	0.06	0.01	0.02	0.052	0.002	0.001	0.0001	0.36	-	0.35
			Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at HYSR Valin China)			0.15	1.06	0.012 <td>0.003</td> <td>0.27 <td>0.06 <td>0.06 <td>0.01 <td>0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td></td></td></td></td></td>	0.003	0.27 <td>0.06 <td>0.06 <td>0.01 <td>0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td></td></td></td></td>	0.06 <td>0.06 <td>0.01 <td>0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td></td></td></td>	0.06 <td>0.01 <td>0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td></td></td>	0.01 <td>0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td></td>	0.02 <td>0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td></td>	0.053 <td>0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td></td>	0.002 <td>0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td></td>	0.001 <td>0.0004 <td>0.36</td> <td>-</td> <td>0.35</td> </td>	0.0004 <td>0.36</td> <td>-</td> <td>0.35</td>	0.36	-	0.35

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-3076	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	47 400	73 000	0.65	40
				Pass	Longitudinal; 0.5 in. Round Bar	48 300	70 500	0.69	41

Heat	Test	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3076	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(3 Tests) AVG (14/14/14) 18	(3 Tests) AVG (22/110/140) 91	(3 Tests) AVG (0/30/40) 23	(3 Tests) AVG (0.41/1.88/2.10) 1.46	

Additional Details:

Mill Test Certificate approved by:


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


 2017 Mar 10

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