



Mill Test Certificate

Bri-Steel Manufacturing
 2125-64 Avenue NW, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Product: **Seamless Alloy Steel Pipe** Product Heat Number: **BSM-3074** Product Size: **NPS 28 STD** Production Date: **March 3, 2017**
 Production Method: **Hot Expansion** Product Heat Treatment: **Full Annealed (920°C)** Certificate No: **MTR: 003236**
 Product Standards: **ASME B36.10M-2015, ASTM A335-2015a/ASME SA335-2015 GRADE P22**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA335 GR P22 NPS 28 STD (0.375 inchWT) SMLS**
HEAT BSM-3074 (PIPE # LENGTH MASS) 110.6 LB/FT NDE(UT) 500 PSI 2017/03 MADE IN CANADA.

Product Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	UT	UT	ET	HydroTest	End	
BSM-3074	Heat	NPS 28 STD 0.375 In. WT	4	DRL	110.60	µR/hr	Gauss	Insp.	OD	WT	ASTM E213	ASTM E309	900 psi/5s	Condition
						<5	<20	Pass	Pass	Pass	Pass	-	Pass	35° Bevel

Heat	Steelmaking Method	Chemical Analysis (wt%)																
		Analysis		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
		Heat	Product	0.11	0.40	0.013	0.008	0.25	2.16	0.05	0.93	0.06	0.010	-	-	-	-	-
BSM-3074	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Product	0.11	0.51	0.016	0.008	0.21	2.11	0.03	0.90	0.01	0.003	0.003	0.003	0.0005	-	-	
		Product	0.12	0.49	0.016	0.006	0.26	2.28	0.02	0.94	0.02	0.010	0.003	0.003	0.0004	-	-	

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
					HRBW	Pass				
BSM-3074	Heat	Ferrite & Bainite	84	Pass	Pass	Longitudinal; 38.1mm x WT	50,100	73,500	0.682	45
				Pass	Pass	Longitudinal; 38.1mm x WT	57,500	81,100	0.709	46

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM A335-2015a/ASME SA335-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008, API Q1 and PED 2014/68/EU.

Mill Test Certificate approved by:

- ✓ 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.
- ✓ No weld repairs have been performed on this product.

T. Lam **MAR 15/2017**
 Tonya Lam, P. Tech. (Eng.)
 Assistant QA Manager



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Product: **Seamless Alloy Steel Pipe** Product Heat Number: **BSM-3072** Product Size: **NPS 30 X 1.053** Production Date: **2016 March 1**

Production Method: **Hot Finished** Product Heat Treatment: **Normalized (920°C) and Tempered (700°C)** MTR Certificate No. **003235**

Product Standards: **ASME B36.10M-2015, ASTM A335-2015a/ASME SA335-2015 GR P11**

Product Markings: **BRI-STEEL MFG NPS 30 X 1.053 INCHWT(0.922 INCH MW) SMILS 2017/03 NDE(UT) 1300PSI HEAT BSM-3772 (PIPE# LENGTH MASS) 325.61lb/ft ASTM A335/ASME SA335 GR. P11 MADE IN CANADA.**

Product Details				Non-Destructive Testing										
Heat	Heat	Product Size*	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res.Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	Hydro Test 600 psi/5s	End Condition
BSM-3072	BSM-3072	NPS 30 X 1.053 in.WT	5	*	325.61	<5	<20	Pass	Pass	Pass	Pass	-	Pass	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-3072			0.12	0.49	0.007	0.001	0.65	1.16	0.01	0.46	0.02	0.007	0.004	0.002	0.0004	0.53	0.45
			0.11	0.49	0.007	0.001	0.68	1.21	0.01	0.48	0.01	0.007	0.004	0.002	0.0004	0.54	0.46
Mechanical Properties																	
Heat	Heat	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %							
					50mm GL	Longitudinal; 12.7mm Round Bar											
BSM-3072	BSM-3072	Tempered Martensite & Fine Carbides	76.7	Pass	41,800	75,200	41,700	72,000	0.56	42							
									0.58	43							

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM A335-2015a/ASME SA335-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO 9001:2008, API Q1 and PED 97/23/EC.
- ✓ 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.
- ✓ No weld repairs have been performed on this product.
- * Custom lengths supplied: 2 pc of 11 ft 3 in, 1 pc of 1 ft 0in.

Mill Test Certificate approved by:

T. Lam MAR 15 2017

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