



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-2936** Product Size: **NPS 18 STD** Production Date: **November 2, 2016**

Production Method: **Hot Expansion** Product Heat Treatment: **Full Annealed (920°C)** Certificate No: **MTR: 3027**

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 18 STD (0.375 inchWT) SMLS
 HEAT BSM-2936 (PIPE # LENGTH MASS) 70.59 LB/FT NDE(UT) 750 PSI 2016/11 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	WT	ET	HydroTest	End Condition
BSM-2936	Heat	NPS 18 STD 0.375inWT	4	DRL	70.59	<5	<20	Pass	Pass	Pass	Pass	Pass	35° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIV)	CE (CSA)
BSM-2936	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.11	0.45	0.013	0.003	0.29	2.19	0.04	0.96	0.03	0.010	-	0.003	-	-	-
		Product	0.11	0.45	0.013	0.008	0.22	2.14	0.04	0.97	0.03	0.013	0.001	0.003	0.0005	-	-
		Product	0.10	0.44	0.014	0.008	0.22	2.14	0.04	0.96	0.03	0.012	0.001	0.003	0.0004	-	-

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness HRBW	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
				Flattening Test	50mm GL				
BSM-2936	Heat	Ferrite & Bainite	87	Pass	Pass	43,457	86,832	0.50	34
				Pass	Pass	44,691	88,592	0.50	34

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.

Tonya Lam, C.E.T.
 Assistant QA Manager

T. Lam *Nov 14/2016*