



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-2940** Product Size: **NPS 28 X 0.929** Production Date: **November 7, 2016**

Production Method: **Hot Expansion** Product Heat Treatment: **Normalized (1060°C/20min) and Tempered (770°C/90min)** MTR Certificate: **003035**

Product Standards: **ASME B36.10-2004, ASTM A335/ASME SA335-2015 GRADE P91**

Product Markings: **BRI-STEEL MFG ASTM/ASME A/SA335 GR P91 NPS 28 X 1.010 inchWT
 HEAT BSM-2940 (PIPE # LENGTH MASS) 268.6lb/ft NDE(UT) 2600 PSI SMLS 2016/11 MADE IN CANADA.**

Product Details				Non-Destructive Testing															
Heat	Test Type	Product Size*	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End					
BSM-2940	Heat	NPS 28 X 0.929 in. WT	6	DRL	268.60	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	PE					
Chemical Analysis (wt%)																			
Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	N	Al	Zr		
		Heat	0.10	0.43	0.010	0.002	0.27	8.52	0.03	0.98	0.16	0.190	0.001	0.07	0.0005	0.038	0.003	0.002	
		Product	0.08	0.42	0.009	0.001	0.28	8.52	0.04	0.99	0.16	0.192	0.002	0.09	0.0004	*	*	*	
Vacuum Degass: Fully Killed		Product	0.08	0.42	0.009	0.001	0.27	8.57	0.04	1.00	0.16	0.192	0.002	0.09	0.0004	*	*		
Mechanical Properties																			
Microstructure				Hardness		Tension Test				Yield (Rt0.5)		Tensile (Rm)		Y/T		Elongation (A)			
				HBW		50mm GL		psi		psi		(Rt0.5/Rm)		%					
Tempered Martensite & Fine Carbides				216		Flattening Test		Pass		Longitudinal: 12.7mm Round Bar		79,400		99,800		0.80		27	
						Pass		Longitudinal: 12.7mm Round Bar		84,600		100,200		0.84		26			

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA335-2015, and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ 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.
- ✓ Bri-Steel Manufacturing is registered and certified to ISO-9001:2008, API Q1 and PED 97/23/EC.

Mill Test Certificate approved by:

2016 Nov 15

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

* The product analysis instrument was not capable of measuring this element.