



Mill Test Certificate

Bri-Steel Manufacturing
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Product: **Seamless Alloy Steel Pipe** Product Heat Number: **BSM-2941** 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: **003031**

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 0.929 inchWT**
HEAT BSM-2941 (PIPE # LENGTH MASS) 268.8lb/ft NDE(UT) 2600 PSI SMLS NACE MR0175/MR0103 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-2941	Heat	NPS 28 X 0.929 in. WT	1	DRL	268.80	µR/hr	Gauss	Insp.	Pass	Pass	Pass	ASTM E213	ASTM E309	2600 psi/5s	Condition				
						Chemical Analysis (wt%)													
Steelmaking Method			Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	N	Al	Zr
Blast Furnace; EAF; Ladle Refining;			Heat	0.10	0.43	0.013	0.005	0.25	8.65	0.05	0.94	0.12	0.210	0.005	0.07	-	0.040	0.007	0.001
Vacuum Degas; Fully Killed			Product	0.08	0.41	0.009	0.001	0.26	8.63	0.04	0.94	0.15	0.194	0.002	0.09	0.0004	*	*	*
Mechanical Properties																			
Microstructure				Hardness		Flattening Test		Tension Test		Yield (Rt0.5)		Tensile (Rm)		Y/T		Elongation (A)			
Tempered Martensite & Fine Carbides				HBW		Pass		50mm GL		psi		psi		(Rt0.5/Rm)		%			
				210		Pass		Longitudinal, 12.7mm Round Bar		87,600		102,100		0.86		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:

Kenton Dechant
 2016 Nov 15

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

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