



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0574** Product Size: **NPS 16 STD** Production Date: **November 26, 2012**

Production Method: **Hot Expansion** Product Heat Treatment: **Normalized (925°C 20min), Tempered (780°C 2hr), Air Cooled, Hot Finished (800°C 20min), Air Cooled**

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA335-2010a Grade P5 NDE 850 PSI, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA335 GR P5 NPS 16 STD HEAT BSM-0574 (PIPE 001 LENGTH MASS) 62.58lb/ft NDE 850 PSI SMLS NACE MR0175 2012/11 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT*	ET*	HydroTest	End Condition
BSM-0574	Heat	16	STD	1	DRL	62.58	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Steelmaking Method		Chemical Analysis (wt%)												
Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B
BSM-0574		0.10	0.45	0.020	0.004	0.34	4.77	0.16	0.46	0.12	-	-	-	-
		Product	0.11	0.47	0.023	0.004	0.37	4.71	0.16	0.45	0.12	0.003	0.002	0.003

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.2)	Yield (Rp0.2)	Tensile (Rm)	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	Transverse; 38.1mm x WT					
BSM-0574	Heat	Tempered Martensite/Bainite	82	Pass			47,700	47,700	79,500	0.60	44
							48,600	47,600	78,000	0.62	43

**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/SA335-2010a and the purchase order requirements, and that the results meet the corresponding requirements.
  - ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2010 Section 2.1.
  - ✓ 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.
- \* NDT methods calibrated with drilled holes and longitudinal OD N12.5 notches.

Mill Test Certificate approved by:

  
 2013 July 22  
 Kenton Dechant, P. Eng.  
 Manager of Quality and R&D