



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0069** Product Size: **NPS 20 STD** Production Date: **2011 Oct 24**

Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASTM/ASME A/SA106-2010 Grade B, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 20 STD ASTM/ASME A/SA106 GR B A/SA53 GR B HEAT BSM-0069 (PIPE # LENGTH MASS) NDE 800PSI NACE MR0175 2011/10 MADE IN CANADA.**

| Product Details | | | | | | Non-Destructive Testing | | | | | | | | | |
|-----------------|-----------|-----|-----|--------|--------|-------------------------|-----------------|--------------------|-----------------|------|----------|-----------------|-----------------|-------------------------|------------------|
| Heat | Test Type | NPS | SCH | Pieces | Length | Mass | Geiger µR/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT ASTM E213 | ET ASTM E309 | HydroTest 800 psi/5s | End Condition |
| BSM-0069 | Heat | 20 | STD | 4 | DRL | 12,481 LB | <5 | <20 | Pass | Pass | Pass | --- | Pass | Pass | 37.5° Bevel |


| | | Chemical Analysis (wt%) | | | | | | | | | | | | | | | | |
|----------|-----------|---------------------------|-------------------------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|-------------|-------------|
| Heat | Test Type | Steelmaking Method | | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE (IIW) | CE (CSA) |
| | | Blast Furnace; EAF; Ladle | Refining; Vacuum Degass | 0.20 | 0.86 | 0.019 | 0.007 | 0.22 | 0.03 | 0.13 | 0.02 | 0.04 | 0.003 | 0.001 | 0.001 | 0.0002 | 0.36 | 0.37 |
| BSM-0069 | Heat | | | | | | | | | | | | | | | | | |

| Mechanical Properties | | | | | | | | | | |
|-----------------------|-----------|----------------|------------------|-----------------|--------------------|----|----------------------|----------------------|---------------------|---------------------|
| Heat | Test Type | Microstructure | Hardness HRBW | Flattening Test | Tension Test | | Yield (Rt0.5) psi | Yield (Rp0.2) psi | Tensile (Rm) psi | Elongation (A) % |
| | | | | | Ferrite & Pearlite | 75 | | | | |
| BSM-0069 | Heat | | | | | | | | | |

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected in accordance with ASTM/ASME A/SA106-2010, A/SA53-2010 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meet 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.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:


 2011 Nov 2
 Kenton Dechant, P. Eng.
 Manager of Quality and R&D