



Mill Test Certificate

Bri-Steel Manufacturing
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2899 Production Date: Sep 27, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002975
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S,
 Product Markings: NPS 24 STD 0.375 INCHWT SMLS 2016/09 NDE 660PSI
 HEAT BSM-2899 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B MADE IN CANADA



| Product: Details | | | | Non-Destructive Testing | | | | | | | | | | |
|------------------|-----------|------------------------|--------|-------------------------|------------|--------------|-----------------|--------------|------|---------|------------|----|-----------|---------------|
| Heat | Test Type | Product Size | Pieces | Length | Mass lb/ft | Gelger μR/hr | Res. Mag. Gauss | Visual Insp. | OD | UT (WT) | UT | ET | HydroTest | End Condition |
| BSM-2899 | Heat | NPS 24 STD 0.375in. WT | 10 | DRL | 94.62 | <5 | <50 | Pass | Pass | Pass | N12.5 Pass | - | Pass | 30° Bevel |

| Heat | Steelmaking Method | Test Type | Chemical Analysis (wt%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|---|-----------|-------------------------|---------|-------|-------|-------|-------|------|------|------|-------|-------|-------|--------|-------|-------|--------|------|---|---|------|----|--|----|--|---|--|---------|--|------------|--|---------|--|
| | | | C | | Mn | | P | | S | | Si | | Cr | | Cu | | Mo | | Ni | | V | | Ti | | Nb | | B | | CE(IIW) | | CE(IIW)Max | | CE(CSA) | |
| | | | Heat | Product | 0.21 | 0.91 | 0.010 | 0.004 | 0.24 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.001 | 0.002 | 0.001 | 0.0002 | 0.37 | - | - | 0.38 | | | | | | | | | | | | |
| BSM-2899 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.21 | 0.91 | 0.010 | 0.004 | 0.24 | 0.03 | 0.01 | 0.01 | 0.01 | 0.001 | 0.002 | 0.001 | 0.0002 | 0.37 | - | - | 0.38 | | | | | | | | | | | | | | | |
| | | Product | 0.22 | 0.92 | 0.007 | 0.007 | 0.27 | 0.03 | 0.01 | 0.01 | 0.01 | 0.002 | 0.001 | 0.001 | 0.0003 | 0.38 | - | - | 0.39 | | | | | | | | | | | | | | | |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 2 in. GL | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-2899 | Heat | Ferrite & Pearlite | 0 | Pass | Longitudinal; 1.5 in. x WT | 40 800 | 73 000 | 0.56 | 43 |

| Heat | Test | Test Standard | Result | Impact Test Sample Details | Temp °C | Impact Energy Min. (J) (3 Tests) AVG | Impact Energy Results (J) (3 Tests) AVG | Shear (%) (3 Tests) AVG | Lateral Expansion (mm) (3 Tests) AVG |
|----------|------|---------------|--------|----------------------------|---------|--------------------------------------|---|-------------------------|--------------------------------------|
| BSM-2899 | - | - | - | - | - | - | - | - | - |

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU.
- ✓ This pipe product meets the sour service requirements of

Mill Test Certificate approved by:

T. Lam Sept 128 / 2016

Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager

- ✓ 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.