



Mill Test Certificate

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

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1675 Product Size: 14XS Production Date: Feb 27, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000924
Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2013 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



NPS 14 XS 0.500 INCHWT SMLS 2014/02 NDE
HEAT BSM-1675 (PIPE # LENGTH MASS) 72.09lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

| Product: Details | | | | | | Non-Destructive Testing | | | | | | | | |
|------------------|-----------|-----------------------|--------|--------|---------------|-------------------------|--------------------|-----------------|------|----------|-----------------|------------|-----------|------------------|
| Heat | Test Type | Product Size | Pieces | Length | Mass lb/ft | Geiger μR/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT ASTM E213 | ET ASTM | HydroTest | End Condition |
| BSM-1675 | Heat | NPS 14 XS 0.500in. WT | 5 | DRL | 72.09 | <5 | <10 | Pass | Pass | Pass | Pass | Pass | - | 32.5° Bevel |

| Chemical Analysis (wt%) | | | | | | | | | | | | | | | | | |
|-------------------------|---|-----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|---------|---------|
| Heat | Steelmaking Method | Test Type | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE(IIW) | CE(CSA) |
| BSM-1675 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.19 | 0.86 | 0.010 | 0.005 | 0.24 | 0.04 | 0.06 | 0.01 | 0.04 | | | | 0.0004 | - | - |
| | | Product | 0.21 | 0.87 | 0.010 | 0.004 | 0.25 | 0.04 | 0.08 | 0.01 | 0.04 | 0.004 | 0.001 | 0.001 | 0.0003 | 0.37 | 0.37 |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 50mm GL | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-1675 | Heat | Ferrite & Pearlite | 76 HRBW | Pass | Longitudinal; 38.1 mm x WT | 38,700 | 69,500 | 0.56 | 45 |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy J | | | | % Shear | | | | Lateral Expansion mm | | | |
|----------|---------------|----------------------------|---------|-----------------|---|---|-----|---------|---|---|-----|----------------------|----|----|-----|
| BSM-1675 | - | - | - | J | J | J | AVG | % | % | % | AVG | mm | mm | mm | AVG |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - |

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/SA106-2013 Grade B A/SA53-2012, 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-2009 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.

Mill Test Certificate approved by:

Paul Sowden
2014 MAR 4

Paul Sowden, T.T.
Assistant QA Manager