



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-1256 Product Size: 20 XS Production Date: Sep 18, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000641
 Product Standards: ASME B36.10-2004, API SL-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010
 Product Markings: <API> 5L-0898 API SPEC 5L NPS 20 XS 0.500 INCHWT GR B PSL1 SM1S 2013/09 NDE 1400PSI
 HEAT BSM-1256 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C 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 μ R/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT ASTM E213 | ET ASTM | HydroTest 1400 PSI/ 5 s | End Condition | |
| BSM-1256 | Heat | NPS 20 XS 0.500in. WT | 8 | DRL | 104.1 | <5 | <10 | Pass | 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-1256 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.20 | 0.92 | 0.014 | 0.007 | 0.25 | 0.05 | 0.08 | 0.01 | 0.04 | | | | 0.0004 | - | - |
| | | Product | 0.20 | 0.91 | 0.010 | 0.004 | 0.25 | 0.04 | 0.10 | 0.01 | 0.04 | 0.003 | 0.001 | 0.001 | 0.0002 | 0.37 | 0.37 |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 50mm GL | Yield (Rt0.5) psi | Tensile (Rm) psi | V/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-1256 | Heat | Ferrite & Pearlite | 77 HRBW | Pass | Longitudinal; 38.1 mm x WT | 48,800 | 73,000 | 0.67 | 44 |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | | | | Lateral Expansion | | | | |
|----------|---------------|----------------------------|---------|---------------|---|---|-----|---|---|-------------------|-----|----|----|-----|
| | | | | J | J | J | AVG | % | % | % | AVG | mm | mm | AVG |
| BSM-1256 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API SL-45th Ed., ASTM/ASME A/SA106-2011 Grade B/C 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:

 2013 Nov 29

Paul Sowden, T.T.
 Assistant QA Manager