



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.bri-steel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1581 Production Date: Jan 28, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000806
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A/SA106-2013 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/X42 PSL1 SMLS 2014/01 NDE 1890PSI
HEAT BSM-1581 (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 1890 PSI/ 5 s | End Condition |
| BSM-1581 | Heat | NPS 20 XS 0.500in. WT | 7 | 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 |
| | | | Heat | 0.19 | 0.83 | 0.015 | 0.010 | 0.22 | 0.05 | 0.01 | 0.04 | | | |
| BSM-1581 | Blast Furnace, EAF, Ladle Refining, Vacuum Degass, Fully Killed | Product | 0.21 | 0.88 | 0.015 | 0.013 | 0.32 | 0.06 | 0.01 | 0.00 | 0.04 | 0.003 | 0.003 | 0.001 |

| 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-1581 | Heat | Ferrite & Pearlite | 77 HRBW | Pass | Longitudinal; 38.1 mm x WT | 45,300 | 73,500 | 0.62 | 45 |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | | | Lateral Expansion | | | | |
|----------|---------------|----------------------------|---------|---------------|---|---|-----|---|-------------------|-----|----|----|-----|
| | | | | J | J | J | AVG | % | % | AVG | mm | mm | AVG |
| BSM-1581 | - | - | - | - | - | - | - | - | - | - | - | - | - |

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-45th Ed., ASTM/ASME A/SA106-2013 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:

Paul Sowden
2014 JAN 30

Paul Sowden, T.T.
Assistant QA Manager