

Product:

Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4

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Seamless Carbon Steel Pipe Product Heat Number: BSM-2187 Product Size: 24S120 Production Date: Dec 10, 2014

Production Method: **Hot Expansion** Product Heat Treatment: As-rolled Certificate No.: MTR-

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings

brirteel

HEAT BSM-2187 (PIPE # LENGTH MASS) 429.4lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA <API & L/C No.> API SPEC 5L NPS 24 SCH 120 1.812 INCHWT GR B PSL1 SMLS 2014/12 NDE 2970PSI

| BSM-2187 | | Heat | | |
|----------------------------|--------------------------|--------------|-------------------------|--|
| Heat | | Test Type | - | |
| NPS 24 SCH 120 1.812in. WT | | Product Size | Product: Details | |
| 2 | | Pieces | | |
| DRL | | Length | | |
| 429.4 | lb/ft | Mass | | |
| -5 | μR/hr | Geiger | | |
| <10 | Gauss | Res. Mag. | | |
| Pass | Insp. | Visual | | |
| Pass | | OD | N | |
| Pass | WT | TU | Non-Destructive Testing | |
| Pass | ASTM E213 | TU | tive Testing | |
| Pass | ASTM | ET | | |
| Pass | 2970 PSI/ 5 | HydroTest | | |
| Plain End | 5 _S Condition | End | | |

| | | | | | | | | | | | | | | | Product | Company Times | |
|---------|---------|--------|-------|-------|-------|------|------|------|-------|-------------------------|----------|------------|------|------|-----------|--------------------------------------------|----------|
| 1 | r | 5000.0 | 0.001 | 0.001 | 0.004 | 0.02 | 0.02 | 0.05 | 0.07 | 0.29 | 0.002 | 0.88 0.014 | 0.88 | 0.20 | Heat | Blast Furnace; EAF; Ladle Refining; Vacuum | BSM-2187 |
| CE(CSA) | CE(IIW) | В | Nb | Ti | ٧ | N: | Mo | Cu | Cr | Si | S | P | Mn | С | Test Type | Steelmaking Method | Heat |
| | | | | | | 5286 | | | (wt%) | Chemical Analysis (wt%) | Chemical | | | | | | |

| | | 1 | <u></u> | _ | | _ |
|----------------|-------------------|---|-----------------------------|------------|-----------------|-----------------------|
| | Heat | | BSM-2187 | | Heat | |
| Standard | Test | | Heat | | Test Type | |
| | | | Ferrite & Pearlite | | Microstructure | |
| Sample Details | Impact Test | | 79 HRBW | | Hardness | |
| റ് | Temp | | Pass | | Flattening Test | |
| J J J AVG | Impact Energy | | Longitudinal; 19.05 mm x WT | 50mm GL | Tension Test | Mechanical Properties |
| % | % Shear | | 37,600 | psi | Yield (Rt0.5) | |
| % AVG | ar | | 72,000 | psi | Tensile (Rm) | |
| mm mm | Latera | | 0.52 | (Rt0.5/Rm) | Υ/Τ | |
| mm AVG | Lateral Expansion | | 42 | % | Elongation (A) | |
| | | | | | | _ |

Additional Details:

BSM-2187

✓ 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 A106-2014/SA106-2013 Grade B A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.

√ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2012 Section 2.1

✓ No weld repairs have been performed on this product.

 \checkmark 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:

Juan Feb/12/2015

Tonya Lam, C.E.T.

Assistant QA Manager