



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2060 Product Size: 14STD Production Date: Sep 30, 2014
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001383
Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2014 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



NPS 14 STD 0.375 INCH WT SMLS 2014/09 NDE 1140PSI
HEAT BSM-2060 (PIPE # LENGTH MASS) 54.57lb/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 µR/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT ASTM E213 | ET ASTM | HydroTest 1140 PSI/ 5 s | End Condition |
| BSM-2060 | Heat | NPS 14 STD 0.375in. WT | 1 | DRL | 54.57 | <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 |
| BSM-2060 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.20 | 0.89 | 0.013 | 0.004 | 0.24 | 0.04 | 0.05 | 0.01 | 0.03 | | | 0.0002 |
| | | Product | 0.20 | 0.91 | 0.009 | 0.003 | 0.25 | 0.04 | 0.06 | 0.01 | 0.03 | 0.004 | 0.001 | 0.001 |

| 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-2060 | Heat | Ferrite & Pearlite | 77 HRBW | Pass | Longitudinal; 38.1 mm x WT | 44,000 | 71,500 | 0.62 | 44 |

| Heat | Test | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | | % Shear | | | | Lateral Expansion | | | |
|----------|------|---------------|-------------------------------|------------|---------------|---|---|-----|---------|---|---|-----|-------------------|----|----|-----|
| BSM-2060 | | - | - | - | 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/SA106-2014 Grade B/C A/SA53-2012, 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 MR0103-2010 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:

Tonya Lam, C.E.T.
Assistant QA Manager

T. Lam Oct 10 2014