



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2513 Product Size: NPS 20 XS Production Date: Sep 02, 2015
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001936
 Product Standards: ASME B36.10-2004, API SL-45th Ed. GradeB/X42 PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, AS3-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: <API & L/C No.> API SPEC 5L NPS 20 XS 0.500 INCHWT GRB/X42 PSL1 SMLS 2015/09 NDE 1890PSI
 HEAT BSM-2513 (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 | ET | HydroTest | End Condition | |
| BSM-2513 | Heat | NPS 20 XS 0.500in. WT | 2 | DRL | 104.1 | <5 | <20 | Pass | Pass | Pass | Pass | Pass | Pass | 31° Bevel | |

| Heat | Steelmaking Method | Test Type | Chemical Analysis (wt%) | | | | | | | | | | | | | | | | |
|----------|---|-----------|-------------------------|------|-------|-------|-------|------|------|------|------|------|-------|-------|-------|---------|---------|------|------|
| | | | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE(IIW) | CE(CSA) | | |
| | | | Heat | 0.15 | 1.16 | 0.010 | 0.002 | 0.25 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.050 | 0.001 | 0.001 | 0.0001 | 0.36 | 0.34 |
| BSM-2513 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.15 | 1.16 | 0.010 | 0.002 | 0.25 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.050 | 0.001 | 0.001 | 0.0001 | 0.36 | 0.34 |
| | | Product | 0.17 | 1.15 | 0.012 | 0.003 | 0.28 | 0.04 | 0.01 | 0.01 | 0.01 | 0.02 | 0.054 | 0.002 | 0.002 | 0.001 | 0.0003 | 0.38 | 0.38 |
| | | | 0.18 | 1.14 | 0.012 | 0.003 | 0.29 | 0.04 | 0.01 | 0.01 | 0.01 | 0.02 | 0.054 | 0.002 | 0.001 | 0.0003 | 0.39 | 0.40 | |

| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test | | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
|----------|-----------|--------------------|----------|-----------------|--------------|----------------------------|-------------------|------------------|----------------|------------------|
| | | | | | 2 in. GL | Longitudinal; 1.5 in. x WT | | | | |
| BSM-2513 | Heat | Ferrite & Pearlite | 80 HRBW | Pass | Pass | 48,700 | 75,000 | 0.65 | 45 | |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | | % Shear | | | | Lateral Expansion | | | | | |
|----------|---------------|----------------------------|---------|---------------|---|---|-----|---------|---|---|-----|-------------------|----|----|----|-----|---|
| | | | | J | J | J | AVG | % | % | % | AVG | mm | mm | mm | mm | AVG | |
| BSM-2513 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API SL-45th Ed., ASTM/ASME A106-2014/SA106-2013, AS3-2012/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, and NACE MR0103-2012 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
 Sept 110/2015