



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2632 Production Date: Jan 25, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002953
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 36 XS 0.500 INCHWT SMLS 2016/01 NDE
 HEAT BSM-2632 (PIPE # LENGTH MASS) 189.6lb/ft ASTM/ASME A/SA106 GR B 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 | ET | HydroTest | End Condition | |
| BSM-2632 | Heat | NPS 36 XS 0.500in. WT | 2 | DRL | 189.6 | <5 | <10 | Pass | Pass | Pass | N12.5 Pass | - | - | Plain End | |

| Heat | Test Type | Steelmaking Method | Chemical Analysis (wt%) | | | | | | | | | | | | | | | | | |
|----------|-----------|--------------------|-------------------------|---------|-------|-------|-------|-------|------|------|------|-------|-------|-------|--------|-------|-------|---------|------------|---------|
| | | | Test Type | | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE(IIW) | CE(IIW)Max | CE(CSA) |
| | | | Heat | Product | 0.20 | 0.88 | 0.012 | 0.005 | 0.25 | 0.05 | 0.05 | 0.05 | 0.01 | 0.04 | 0.001 | 0.001 | 0.001 | 0.0003 | 0.36 | - |
| BSM-2632 | / | | 0.19 | 0.92 | 0.009 | 0.004 | 0.26 | 0.06 | 0.06 | 0.01 | 0.04 | 0.003 | 0.001 | 0.001 | 0.0003 | 0.36 | - | 0.37 | | |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 2 in. GL | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-2632 | Heat | Ferrite & Pearlite | 77 HRBW | Pass | Longitudinal; 1.5 in. x WT | 45 900 | 72 000 | 0.64 | 43 |

| Heat | Test Standard | Result | Impact Test Sample Details | Temp °C | Impact Energy Min. (J) | | Impact Energy Results (J) | | Shear (%) | Lateral Expansion (mm) |
|----------|---------------|--------|----------------------------|---------|------------------------|---------------|---------------------------|---------------|-----------|------------------------|
| | | | | | (3 Tests) AVG | (3 Tests) AVG | (3 Tests) AVG | (3 Tests) AVG | | |
| BSM-2632 | - | - | - | - | - | - | - | - | - | - |

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU.
- ✓ 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/ISO 17495:2015 Section 13.1
- ✓ 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:

T. Lam Sept 14 / 2016

Tomya Lam, P. Tech (Eng.)
 Assistant QA Manager