



Material Test Report

Heat Code: CKC

ISO 9001:2000 Certified

An Ameri-Forge Group Company
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| | | | |
|---|---------------------------------|--------------------|------------------------|
| PLESA ANAHUAC Y CIAS SA DE CV AV. VALLE DE LAS ALAMEDAS 66-0 54940 TULTITLAN, EDO, MEX | PO: 5647 | Sales Order: 68015 | Line: 20 |
| | Item Code: 0152920100-0020F | | Qty Shipped: 12 |
| | Item Desc: FLG 20.00 0150 SO RF | | |
| | Supplier: MACSTEEL | | Supplier Heat: 4M66396 |
| Spec: ASTM A 105/A 105M-(05)/ASME SA 105/SA 105M-(08a) Section II Part A | | | |

| Element | (%wt) | Ladle | Product | EPCRA | CAS# | Element | (%wt) | Ladle | Product | EPCRA | CAS# |
|---------|-------------|-------|---------|-------|-----------|----------|------------|---------|---------|-------|-----------|
| C | Carbon | 0.20 | | | | Cr | Chromium | 0.15 | | ✓ | 7440-47-3 |
| Mn | Manganese | 1.04 | | ✓ | 7439-96-5 | Mo | Molybdenum | 0.02 | | | |
| P | Phosphorous | 0.018 | | | | V | Vanadium | 0.003 | | | |
| S | Sulphur | 0.014 | | | | Cb | Columbium | 0.002 | | | |
| Si | Silicon | 0.17 | | | | C.E. | | 0.42727 | | | |
| Cu | Copper | 0.21 | | ✓ | 7440-50-8 | CuNiCrMo | | 0.46 | | | |
| Ni | Nickel | 0.08 | | ✓ | 7440-02-0 | CrMo | | 0.17 | | | |

| Mechanical Testing | | | | Other | | | |
|----------------------------|--|-------------------|--|-------|--|----------|--|
| Test Lab | | AFG | | MILL | | MACSTEEL | |
| Test Bar Size | | SACRIFICIAL PIECE | | MHC | | 4M66396 | |
| HBW | | 156 - 156 | | | | | |
| Elg (%) | | 33 | | | | | |
| RA (%) | | 68 | | | | | |
| Tensile Specimen Size (in) | | .500 | | | | | |
| Tensile (ksi) | | 77.1 | | | | | |
| Yield (ksi) | | 44.9 | | | | | |
| Gauge Length | | 2 | | | | | |

Product compliant with NACE MR0175 / ISO 15156, latest edition and dimensions to ANSI B16.5
 Product compliant with and meets all requirements of ASTM A105/ASME SA105, latest edition.
 No Weld repair performed. Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Yield strength was determined using the 0.2% offset method.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 160443
 Certification Date: 1/16/2009