

# Material Test Report

Heat Code: WPW

An Ameri-Forge Group Company  
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ISO 9001:2008 Certified

|   |                                 |                        |                 |
|---|---------------------------------|------------------------|-----------------|
| PLESA STEEL INC.<br>12700 NORTHBOROUGH DR<br>STE 646<br>Houston, TX 77067 | PO: 170                         | Sales Order: 132866    | Line: 2         |
|   | Item Code: 0603300100-0021F     |                        | Qty Shipped: 10 |
|   | Item Desc: FLG 03.00 0600 BL RF |                        |                 |
|   | Supplier: CMC                   | Supplier Heat: 3041585 |                 |

Spec: ASTM A105/A105N-(12)/ASME SA 105/SA 105N-(13) Section II Part A - Normalized

| Element | (%wt)       | Ladle | Product | EPCRA | CAS#      | Element | (%wt)      | Ladle | Product | EPCRA | CAS#      |
|---------|-------------|-------|---------|-------|-----------|---------|------------|-------|---------|-------|-----------|
| C       | Carbon      | 0.19  |         |       |           | Ni      | Nickel     | 0.08  |         |       |           |
| Mn      | Manganese   | 1.00  |         | ✓     | 7439-96-5 | Cr      | Chromium   | 0.11  |         | ✓     | 7440-02-0 |
| P       | Phosphorous | 0.009 |         |       |           | Mo      | Molybdenum | 0.025 |         |       |           |
| S       | Sulphur     | 0.019 |         |       |           | V       | Vanadium   | 0.002 |         |       |           |
| Si      | Silicon     | 0.23  |         |       |           | Cb      | Columbium  | 0.003 |         |       |           |
| Cu      | Copper      | 0.24  |         | ✓     | 7440-50-8 | C.E.    |            | 0.41  |         |       |           |

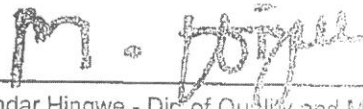
| Mechanical Testing         |                   |  |  | Heat Treat         |          |  |  |
|----------------------------|-------------------|--|--|--------------------|----------|--|--|
| Test Lab                   | AFG               |  |  | Norm. Temp. (F)    | 1675     |  |  |
| Test Bar Size              | Sacrificial Piece |  |  | Norm. (Hrs)        | 4        |  |  |
| HSW                        | 163 - 163         |  |  | Norm. Cooling Type | AIR      |  |  |
| Elg (%)                    | 32.0              |  |  | Norm. Location     | AFG      |  |  |
| RA (%)                     | 62.0              |  |  | Other              |          |  |  |
| Tensile Specimen Size (in) | .496              |  |  | MILL               | CMC      |  |  |
| Tensile (ksi)              | 79.4              |  |  | MHC                | 3041585  |  |  |
| Yield (ksi)                | 48.3              |  |  | Country of Origin  | USA (US) |  |  |
| Gauge Length               | 2                 |  |  | EF                 | Y        |  |  |

Product compliant with NACE MR0175 / ISO 15156 and NACE MR0103 latest edition and dimensions to ASME B16.5 - 2013.  
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. Yield strength was determined using the .2% offset method. 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. Made in USA.  
AmeriForge manufactures materials according to a certified Quality Management System conforming to ISO 9001:2008 and in compliance to PED 97/23/EC, Section 4.3  
Tensile Testing Per ASTM E8; Brinell Hardness Per ASTM E10

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 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.: 291962

Certification Date: 2/18/2014



Mandar Hingwe - Dir. of Quality and Metallurgy