

McWILLIAMS FORGE COMPANY, INC.
ROCKAWAY, NEW JERSEY

QUALITY CONTROL PROCEDURE .122

TITLE: Raw Material - Control of Pre-Cut Multiples

PURPOSE: This procedure outlines the necessary traceability and control for procuring pre-cut raw material from mills and service centers. Records of cutting shall be established, maintained and resurrected in the event a failure occurs which requires investigation with respect to melting practice.

INSTRUCTIONS:

A. Cutting methods:

1. The following materials **are not** to be cut by abrasive methods:
 - a. D6AC
 - b. Custom 450 & 455
 - c. Precipitation Hardening Steels
 - d. 300M
2. Abrasive or other suitable methods may be used for all other materials.
3. Cracks in the mults cut face are not acceptable.
4. Unless otherwise specified, one of the following methods of surface conditioning shall be performed on each cut multiple as specified on the purchase order.
 - a. As-cut
 - b. De-burr
 - c. Grind approximately ¼" radius, both ends

B. Dimensional tolerance:

1. Length and diameter tolerance shall be as specified on McWilliams Forge purchase order.
2. Each mult shall be cut perpendicular $\pm 1^\circ$.

C. Identification:

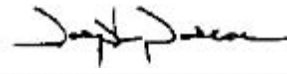
1. Each cut mult end face as it is removed from the billet shall be permanently identified by impression stamping, dot matrix or other methods approved by McWilliams Forge.
2. Marking information shall be defined by the applicable level of traceability specified on McWilliams Forge purchase order as outlined below.

D. Levels of Traceability

1. The level of traceability required shall be as specified on the McWilliams Forge purchase order. Unless otherwise specified one of the following levels of traceability shall be maintained.
 - a. Level I – Traceability to the master heat lot.
 1. Cutting shall commence from the billet end, opposite the original mill heat identification number. This shall be performed to provide positive identification to any remaining billet portion returned to stock.
 2. Each cut mult shall be identified with the mill heat number, as specified in paragraph C above.
 - b. Level II – Traceability of billet location within the master heat lot.
 1. Cutting shall commence from the bottom of each billet (opposite the original mill heat/billet identification) for traceability of billet location within the master heat lot.
 2. Each cut mult shall be identified with the mill heat **and** billet identification number, as specified in paragraph C above.
 - c. Level III – Traceability to cut mult within each billet, within master heat lot.
 1. In addition to traceability practices specified in paragraph D.1 a & b above, each mult, as it is removed from the billet, shall be given sequential serial number to provide traceability of the location of each mult within the billet.
 2. Cutting shall commence from the bottom of the billet (opposite the mill heat number/billet identification number) for traceability of mult position within the billet to location within the master heat lot.
 3. Each cut mult shall be identified with the mill heat number, billet identification **and** sequential serial number as it is removed from the bar, as specified in paragraph C above.

E. Reporting

1. Cutting reports shall accompany each shipment and contain the following information at a minimum.
 - a. Quantity
 1. Total number of pieces shipped for traceability Level I.
 2. Total number of pieces shipped and number of pieces yielded per billet for traceability Level's I & II.
 - b. Size (diameter and length or weight as specified on purchase order)
 - c. Identification
 1. Level I – Master heat number(s) shipped.
 2. Level II – Master heat and billet number(s) shipped.
 3. Level III – Master heat, billet and serial number(s) shipped.

Approved: 

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