

KREIS TOOL & MANUFACTURING

FIRST ARTICLE / FIRST PIECE INSPECTION



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FIRST ARTICLE / FIRST PIECE INSPECTION PROCEDURE

In accordance with ISO 9001:2000 and AS 9100, AS9102 Rev. A, Kreis Tool & Manufacturing recognizes the importance of first article inspection and has implemented a first article inspection process containing the elements required by customer contract, government and regulatory authorities.

1.0 Purpose

To define the procedure used by Kreis Tool & Mfg. Co., Inc. to processes all first article inspections.

2.0 Scope

The provisions and requirements of this procedure apply to inspection and manufacturing departments. This shall include all manufactured product verification, new tooling or tooling revisions, and customer contract clauses.

3.0 Definitions

First Piece:

An inspection (dimensional layout & visual) performed on the first piece Manufactured Products as an effort to guarantee the integrity of the tooling involved and all parts that are produced with that tooling.

First Article:

A procedure used on first piece manufactured products as an effort to guarantee the integrity of the tooling involved and all parts that are produced with that tooling. All dimensions will be inspected and customer approval is required.

4.0 Reference Material

The following forms and procedures apply, in whole and/or part, to this procedure.

- Quality Manual
- Quality Records
- AS 9102 Rev. A First Article Inspection Forms
- First Article Inspection Report

5.0 Responsibility & Authority

It shall be the responsibility of the Quality Assurance Manager & the Director of Quality to administer this procedure and keep it current.

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6.0 Requirements:

First article inspection is required on all aerospace product manufactured for the following customers (customers added as required):

- The Boeing Company
- Northrop Grumman Corporation
- AAI Corporation

Note: **First article inspection is performed as specified by customer contract requirements.**

- 6.1 Once a production set-up is complete, manufacturing submits the first run part to Quality Assurance for first article inspection. These first run samples will be identified and tagged by the Quality Inspector using a "First Run Sample" tag. A random part from the first run will be selected for first article inspection and identified. Any non- production processing methods used to produce the first piece are noted.
- 6.2 All products that are submitted to the Quality Department for dimensional inspection will be of production quality (produced under stabilized operating parameters, trimmed, and cleaned). All cast components should be cleaned as necessary, for the required dimensional inspection.
- 6.3 Prior to inspecting first article the inspector will require verification and documentation of all specifications and requirements defined by, including, but not limited to:
 - Customer contract (Purchase Order)
 - Print Specification
 - Customer, Government and Regulatory Authority specifications
 - Parts Lists
 - Bills of Material
 - Work Orders
 - Change Orders
- 6.3.1 Log in the first article inspection log.
- 6.3.2 Obtain a copy of the first article inspection report (form-AS 9102 Rev. A) and complete as required. Acquire the applicable paperwork (drawings/blueprint).
- 6.3.3 Examine the drawing (blueprint).

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- 6.3.4 Assign a number to each of the drawing characteristics. The numbers should be in an inspection sequence starting with material, followed by the dimension, then the notes.

Note: This drawing is part of the first article report and must be attached to the report after the first article inspection is completed.

6.4 Inspect the Product

- 6.4.1 Inspect the product per provided documentation, customer requirements, and control plans, quality plans, etc.
- 6.4.2 Enter the product measurement next to the "Actual/Result" column adjacent to the corresponding drawing characteristic on the first article inspection report (form 3-AS 9102 Rev. A).
- 6.4.3 Compare the actual dimension with provided criteria.
- 6.4.4 Initial and date adjacent to dimension if the dimension is acceptable.
- 6.4.5 Enter the deficiency report number (Non-Conformance Number) if the dimension is not acceptable.

Note: First Piece inspection typically does not involve all dimensions on the applicable drawing. First Article Inspections will involve all dimensions on the drawing log in the first article inspection log. (form 3 – AS 9102 Rev. A).

- 6.4.5 The inspector is to sign and date the form.
- 6.4.6 If all drawing characteristics were met, the inspector will enter a zero in the rejection number space and present the report to the manager or the QA Manager for review.
- 6.4.7 If there was a rejected characteristic then the inspector must:
- Initiate an MRB for customer's disposition.
 - First Article inspection reports are submitted to the customer for approval when required.

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6.5 First Article Retention and Distribution

6.5.1 Quality Assurance will file a copy of each first article by the customer name and part number. These files will be kept in the QA indefinitely.

6.5.2 If the first article is accepted, the "First Article Sample" tag is initialed and dated by the inspector. The first article part may be returned along with the first article report or it may be scrapped. Manufacturing is to be notified of the first article results.

Note: If the customer requests a copy of first article inspection report along with the inspected part the inspected part may be sent to the customer.

6.5.3 If the first article is rejected, the sample part will be identified and all sample parts dispositioned accordingly.

7.0 Quality Records

Records of process control are kept in accordance with Quality Policy.

8.0 Approval & Concurrence

At the completion of first article inspection a decision will be made based on product conformance to specification.

Accept: process is authorized to manufacture customer product

Reject: product does not conform to specification, and process must be modified to correct errors before a new first article part is submitted for approval.

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First Article Inspection for Purchased Parts

It is the responsibility of the Purchasing Department to indicate on the purchase order that a first article inspection report is required.

It is the responsibility of the Quality Department to verify that the first article was completed properly.

9.0 Supplier requirements

- 9.1 First article inspections shall be performed on specified parts that are first production runs, design that affect form, fit or function, change in the manufacturing process (this includes inspection methods, location, tooling etc.) that could affect form, fit or function or when a lapse in production of two or more years has occurred.
- 9.2 The supplier, when specified by the purchase order shall perform the first article inspection report.
- 9.3 All measurable requirements shall be measured and recorded and recorded on the first article inspection report.
- 9.4 Attribute drawing notes shall be listed on the first article inspection report or the certificate of conformance.
- 9.5 The serial number of the first article piece shall be recorded, or the unit used for the first article inspection shall be identified.
- 9.6 The first article inspection report shall include the following: part number, serial number (when applicable), revision level, supplier name, date of inspection, dimensional characteristics, drawing zone, tools identification, results of actual measurements, indication of inspection status, purchase order number, overall approval status and approving persons signature, title and date.

Verification of First Article Inspection at Receipt

- 9.7 Receiving inspection shall verify that the requirements on the purchase order have been met, correct part number, revision level, etc.
- 9.8 Receiving inspection shall verify that required information is available and accurate on the first article inspection report.
- 9.9 Receiving inspection shall verify that all dimensions are recorded on the first article inspection report.

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- 9.10 Receiving inspection verify a sample of the dimensions from the actual first article piece to ensure supplier accuracy and document the dimensions on the first article inspection report.
- 9.11 Receiving inspection will verify that all notes addressed on the first article inspection report or on a certificate of conformance.
- 9.12 Accepted material is to be transferred into the stock room and the first article inspection report maintained in QA.
- 9.13 Material that is found to be nonconforming shall have an NR written and the material is transferred to MRB for disposition.

NR: Not Received

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First Article Inspection Forms

Required Per AS 9102 Rev. A

- Form 1: Part Number Accountability
- Form 2: Product Accountability –
Raw Material, Special Process(es),
Functional Testing
- Form 3: Characteristic Accountability,
Verification & Compatibility Evaluation

**AS/EN/SJAC 9102 Rev A First Article Inspection
Form 1: Part Number Accountability**

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AS/EN/SJAC9102 Rev A First Article Inspection Sheet 1 of 1
Form 2: Product Accountability – Raw Material, Specifications and Special Process(s),
Functional Testing

Form 2, 9102 Rev A, Date: Oct 31, 2003

AS/EN/SJAC9102 Rev A First Article Inspection
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

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