



Guideline

First article inspection

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1 Purpose of first article inspection

First article inspection is performed prior to beginning series production and entering into a delivery contract in order to provide objective evidence that stipulated quality specifications have been reliably met.

The purpose of this inspection is to ensure that the contractor correctly understands the product requirements and that the supplier is reliably capable of consistently meeting these requirements during actual series production at the quoted production rate.

2 Definitions

2.1 First articles (initial samples)

First articles (or initial samples) are products that have been manufactured under series production conditions using series production equipment, subjected to series production inspection procedures and determined to be of acceptable quality by the supplier. Testing of initial samples is referred to as first article inspection. Testing performed during the approval process for products and production processes must use initial samples. The approval or rejection of first articles is determined based on the results of the first article inspection and documented evaluation of these results by B&R.

2.2 Other samples

Other samples include products and materials that were not manufactured under series production conditions. These samples must meet the specifications. Other samples are not subjected to an approval process.

3 Sample testing procedure

The supplier is responsible for performing the first article inspection, ensuring the correctness of all measurements and results as well as generating the necessary documentation. B&R reserves the right to perform its own testing to confirm results.

The supplier may consult the B&R First Article Inspection Guidelines to view the basic requirements for initial samples (see B&R website). Specific requirements for first articles, quantities and contact information for returns are supplied by B&R along with the order.

Determining the specific first article conditions for mechanical drawings of items is the responsibility of the mCAD department in cooperation with the respective business unit. If the production conditions deviate from the actual series production conditions, this must be clarified with the responsible contact person at B&R.

The supplier shall perform all tasks involved in the first article inspection based on the stipulated characteristics and criteria, and shall generate the necessary documentation.

The supplier shall ensure that all required tasks are completed satisfactorily, and shall create and sign the first article inspection report. The supplier shall send the first articles along with the necessary documentation – noting the order number – to the specified contact person at B&R by the stipulated date. If any deviations occur in the course of the first article inspection that prevent requirements from being fully satisfied, the supplier shall determine the cause and take appropriate corrective measures. The supplier shall fully document these corrective measures and inform the B&R contact person.

B&R will evaluate all received documents and samples and enter the approval status on the cover sheet of the initial sample testing report. The approval status (Approved, Conditionally approved, Rejected) is indicated to the supplier on the cover sheet.

4 When are first articles required?

B&R generally requires first articles for:

- New items and new components
- Modified products (e.g. changes to construction, specifications or materials)
- New suppliers

The supplier is obligated to notify the responsible Quality Assurance representative of any changes/deviations prior to delivery/implementation.

- Relocation of production
- Changes to production process
- Changes to subcontractors of products and services
- Use of new, modified or substitute equipment/tools
- Following modification or extensive maintenance of equipment/tools
- Changes to purchased parts
- Errors corrected on previously approved items
- Any type of changes (geometrical, material, chemical, physical, functional)

The written notification shall contain a detailed description of the deviations and any estimated potential effects on functionality, service life, appearance, etc. B&R will evaluate the situation and inform the supplier in writing of any necessary measures.

5 Archiving

The supplier shall archive all testing and measurement data so that it can be requested by B&R when necessary. Measurement data shall be obtained for the defined characteristics and based on statistical values such as maximum, minimum, mean and standard deviation.

6 First article documentation

The B&R template (available on the B&R website) shall be used for the first article inspection report.

A diagram of measurement points shall be created for each article, where each point is labeled with a number. The measurement data sheet shall then list the actual measurement values for each of these specified points.

7 Testing equipment

The following standards apply for performing measurement systems analysis:
QS 9000 – Measurement Systems Analysis – MSA and VDA 5.

Testing and measurement precision of testing equipment

The required level of precision depends on the particular application and/or the parts specifications. All measurement points and inspection characteristics must be capable of being measured with reasonable precision, taking into consideration all outside influences (non device-specific / device-specific). As a general rule of thumb:

- The measurement / testing uncertainty should not exceed 10% of the smallest permitted tolerance for the measurement and testing criteria.
- Measurement systems must be monitored during development and production in order to establish confidence in the correctness and precision of the measurement results and in the decisions based upon them.

- Upon request from B&R, the supplier shall provide proof of sufficient measurement precision and routine monitoring of measurement systems.

8 B&R first article approval process

B&R's approval of first articles does not absolve the supplier of their obligation to ensure the quality of their product. Nor does it represent a supply contract.

Incomplete inspection documentation or failure to satisfy additional requirements (specific customer/supplier agreements) will automatically result in a "Conditionally approved" status. Results of first article inspections will be considered in the supplier assessment process.

Any additional costs incurred by B&R in the course of first article inspections will be billed to the supplier.

B&R approval levels

Approval level	Details
Approved /Accepted	This means that the item or material satisfies all of the client's specifications and requirements. The supplier is authorized to deliver production quantities for existing orders as approved by B&R's Dispatching department.
Conditional approval	<p>This status authorizes the supplier to deliver items for a limited time or in limited quantities. The batch is accepted on the condition that there are no problems during further processing. A conditional approval is only granted if the supplier:</p> <ol style="list-style-type: none"> 1.) has clearly identified the cause of the deviations preventing full approval and 2.) has agreed to a plan for corrective measures with B&R. <p>Items that have received conditional approval and fail to adhere to the plan for corrective measures with respect to deadlines or quantities will be rejected. Further deliveries are not permitted unless an extension of the conditional approval has been granted.</p> <ol style="list-style-type: none"> 3.) The supplier is authorized to deliver production quantities for existing orders as approved by B&R's Dispatching department in accordance with specified scheduling and quantity limits.
Not approved / Rejected	A "Rejected" status means that the first articles displayed unacceptable deviations from the order specifications and requirements. The contractor shall immediately implement corrective measures and provide new first article samples. Adhering to the deadline for resubmission provided by B&R is mandatory. If the subsequent attempt fails, B&R is authorized to refuse further first article samples and/or cancel related orders or obligations free of charge.

9 First article packaging

All first articles contained in a package must have the same item number and must be packaged separately, which means they must not be delivered in a container along with series products. The delivery note must be applied to the outside of the package.

10 Labeling first articles

In addition to the usual data, the delivery note must also clearly indicate that the package contains first articles and list the responsible B&R contact person.

The first article inspection report should be placed inside the package along with the first articles. It must be absolutely clear which documentation, including measurement protocols, corresponds to which first articles.