

## Guideline for initial sampling

EKR-0003-EN

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The present purchase guideline is available in the Purchasing section of [www.auma.com](http://www.auma.com) for download.

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Guideline for initial sampling

## 1 Purpose

This guideline for initial sampling specifies AUMA's the minimum requirements towards supplier for initial sample process. It is applicable for the entire AUMA Group.

## 2 Definition

Initial samples are the products which are completely produced using the resources and under conditions as in the standard series production (equipment, processes, inspections, materials).

## 3 Motives and reasons for initial sampling

The following motives or reasons require an initial sampling:

AUMA:

- New part
- Change (specification, drawing, etc.)
- New supplier / relocation
- Quality problems
- Subsequent sampling

Supplier:

- Modification of production process (process, equipment, tool/model AQL etc.)
- Change of production site
- Change of material
- Change of a sub-supplier
- Discontinuation (e.g. electronic parts)

The grounds mentioned above must be indicated by the originator. In principle, the supplier is obliged to notify AUMA of any planned changes in the above-mentioned cases. The notification must be given well in advance, so that AUMA can assess possible effects in detail and if necessary, determine the scope of a re-qualification. In addition, the provisions of the Master Supply Agreement apply, if one has been concluded.

## 4 Scope of initial sampling

The provided drawings, test specifications, order specifications and AUMA specifications are decisive for the scope of the sampling.

Initial samples are requested by AUMA via an order including a target date.

If the specified delivery date cannot be respected, this must be notified in due time and a new delivery date agreed.

## 5 Execution of initial sampling and release

The evaluation of the initial sampling is carried out by AUMA. After examination of the initial samples and documents and, if necessary, after cross-checking or further investigations, AUMA will submit following decision to the supplier:

- **Release**  
The supplied products/samples, including the documentation submitted for the initial sampling, fully comply with the specifications.
- **Rejection**

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The supplied products/samples and the documentation submitted for sampling deviate from the AUMA specifications. A release could not be granted. The products shall not be supplied and will not be processed by AUMA logistics.

The initial samples are rejected and the initial sampling must be repeated after correcting the deviations.

The supplier shall send the series deliveries only after the approval of initial samples. If the initial sampling is not complete or rejected, a special release by AUMA is required for a series delivery.

## **6 Requirements on the contents of initial sampling**

The exact scope of the sampling in particular the content of the initial sample inspection report (ISIR) is notified to the supplier upon order placement. The level of details depends on the complexity of the products and processes to be sampled.

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Requirement	Detailed description
ISIR cover sheet	<ul style="list-style-type: none"> <li>○ AUMA template or own cover sheet, provided the content is identical</li> <li>○ Clear identification of the sampled item (article number, drawing number, drawing revision, article description)</li> <li>○ Responsible contact person at the supplier's for the release</li> <li>○ Date of manufacture and identification characteristics of the test samples</li> </ul>
Test report	<ul style="list-style-type: none"> <li>○ AUMA template or similar</li> <li>○ Drawing with position numbers</li> <li>○ Measurement report with reference to the sample parts and original measured values from each measured part</li> <li>○ Measured values must be provided for all dimensions (a qualitative evaluation, e.g. "OK", is not sufficient). If a measurement is not possible, the respective reasons and the risks for a deviation in the corresponding dimensions must be agreed with AUMA in advance.</li> <li>○ Evidence of the fulfilment of all requirements of: Supply specifications, order specifications, parts lists, assembly specifications, etc.</li> <li>○ Mention of the test equipment or test conditions used for every dimension in the measurement report. The test equipment must be capable of accuracy and reproducibility. Proof of suitability must be provided on request. As a guideline, the following applies: The measurement and test equipment uncertainty should not exceed 10 % of the smallest permissible tolerance of the measurement and test criteria.</li> <li>○ Marking of those dimensions/attributes or characteristics in the report that do not meet the AUMA requirements.</li> </ul> <p>Definitions regarding the checking and evaluation of certain characteristics can be found in Appendix 1.</p>
Further information in ISIR	<ul style="list-style-type: none"> <li>○ Specification of the production site, production machine or production line.</li> <li>○ When using a sub-supplier, the process step(s) and the sub-supplier must be mentioned.</li> <li>○ If relevant for the measurement: Specification of the measuring points on the sample parts or on a sketch of the measuring points.</li> </ul>
Process flowchart	<ul style="list-style-type: none"> <li>○ Description of the process steps incl. test steps, which are necessary for the production of the part.</li> </ul>
Production control plan and inspection plan	<ul style="list-style-type: none"> <li>○ Test characteristics with tolerances</li> <li>○ Measuring/testing equipment used and random samples</li> <li>○ Production machine or production line used for series production</li> </ul>
Work instructions and, if necessary rework instructions	<ul style="list-style-type: none"> <li>○ For complex assembly and inspection processes</li> </ul>
Inspection certificate 3.1 according to EN 10204	<ul style="list-style-type: none"> <li>○ Proof of the specified materials (e.g. basic materials, alloys, granulates, confirmation of coatings, etc.)</li> </ul>
Certificate of conformity acc. to DIN EN 17050-1	<ul style="list-style-type: none"> <li>○ If requested in the purchase specification</li> </ul>

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## 7 Requirements for the test scope

Unless agreed otherwise, the following requirements apply to the test scope:

- The test must be carried out on at least 5 components.
- For moulds, casting dies and patterns with several cavities, the total number of cavities must be mentioned in the initial sample test report. At least one part from each cavity must be sampled. AUMA can define a different scope of sampling and coordinate it with the supplier.
- The characteristics for which machine capability (short-term capability) must be proven can be defined between the supplier and AUMA. These defined characteristics must be measured on at least 50 parts per cavity in order to prove the machine capability index cmk of  $\geq 1.67$ . If the cmk value is not achieved, suitable measures must be taken to ensure this value. It must be possible to prove this accordingly.

## 8 Delivery/marketing of initial samples

The initial samples shall be identified using AUMA initial sample tags or comparable labels with article number, index, drawing number, order no. and shall be marked with a unique identification number.

The assignability between the initial samples and the entire initial sampling documentation including the test reports is important, so that a 100 % traceability and consistency of the results and procedures is possible.

In case of mould parts with several cavities (e.g. rotation-symmetric parts) and if these cannot be clearly assigned via the stamp marking, these parts must be marked accordingly on the test samples and indicated in the measurement report.

The initial samples must be packed separately and marked clearly on the packaging. A clear distinction must be possible should these samples be delivered in parallel with a series shipment.

The initial sample parts must be packed properly with sufficient packaging material to avoid any transport damage.


The initial sample test report must be written in English or German, the cover sheet must be signed and the complete report must be made available electronically. The required documentation can be made available as an attachment to the ISIR or as individual documents.

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## Appendix 1

### Inspection of the Ex-relevant characteristics

All Ex-relevant dimensions can be identified by a border on the drawing ( = Ex-relevant dimension). These test dimensions describe the measurements that must be monitored by the supplier in the manufacturing process or during the final inspection or by AUMA during the receiving inspection. A comparable measurement method is therefore required and the test equipment or test conditions used must be specified in the measurement report for each dimension.

The dimensions are to be measured as follows:

#### Diameter

e.g.: 

Ex-relevant diameters are to be evaluated as two-point dimensions. The minimum and maximum dimensions are to be measured. Ex-characteristics are to be measured and may additionally be checked with a gauge only as a supplement. The measurement has to be carried out over several measuring heights (min. 3 heights).

#### Threads

e.g.: 

Threads must be checked either with thread gauges or by measuring the pitch diameter. Additionally, the outer diameter of the external thread or the core diameter of the internal thread must be checked. This diameter check can be carried out by measuring (two-point or three-point measurement) or by means of limit gauges.

### Inspection with thread gauges

The dimensional check of the threads has to be performed as follows:

**External threads:** Go/No-go ring gauge and  
Checking the outer diameter “d”, must not be too small  
**Internal threads:** Go/No-go plug gauge and  
Checking the core diameter “D”, must not be too large

All three criteria must be met (Go gauge can be turned, No-go gauge cannot be turned and the outside or core diameter is within the tolerance).

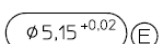
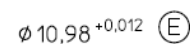
### Inspection by measuring the pitch diameter

The dimensional check of the threads has to be performed as follows:

**External threads:** Measuring the pitch diameter and  
Checking the outer diameter “d”, must not be too small  
**Internal threads:** Measuring the pitch diameter and  
Checking the core diameter “D”, must not be too large

Both criteria must be met (pitch diameter and the outside or core diameter are within the tolerance).

### Characteristics with envelope requirement

  $\phi 5,15^{+0,02}$  (E)   $\phi 10,98^{+0,012}$  (E)

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e.g.

If characteristics are marked with the symbol E, the envelope requirement according to ISO 14405-1 must be observed and the results evaluated accordingly.

The envelope requirement is a combination of the two-point size applied for the minimum material limit of the size and either the minimum circumscribed size (envelope cylinder) with an outer size element (e.g., shaft) or the maximum inscribed size (pen cylinder) with an inner size element (e.g., hole) applied for the maximum material limit of the size.