

## 1 Purpose

This instruction specifies the first article inspection (FAI) requirements to verify that the product can be manufactured and tested in accordance with the prerequisite specifications and drawings in respect of production scheduling, job sheets, production resources and staff skills. The principles of AS/EN 9102 shall be followed.

Additional requirements for FAI process/procedure from RUAG Switzerland Ltd. customer are need to be fulfilled by suppliers as well. If such additional requirements are not known by supplier, supplier is responsible to take initiative to contact RUAG Switzerland Ltd procurement team for verification minimum *5 working days* prior to the starting of FAI activities.

## 2 Field of application

The document applies to RUAG Switzerland Ltd. suppliers, if such a requirement was agreed to in the purchase order.

The document applies to suppliers for manufacturing, assembly and inspection of initial production, as a basis for subsequent serial production. The first article inspection must be carried out for new products, new suppliers, relocation of production, significant modifications to the design or procedure and after lengthy interruptions of production.

Supplier shall flow down the FAI requirements to the sub-tiers who produce Design Characteristics

## 3 Terms and abbreviations

First article: Product from the pilot production run first produced with the facilities and processes and under the conditions anticipated for serial production.

## 4 Responsibility

A. The supplier is responsible for:

1. Manufacture and testing of the products in accordance with the technical specifications, contractual agreements, approved quality assurance scheduling, approved procedures and manufacture and test scheduling.
2. Notification of the main individual sections and sub-assemblies which are also to be recorded for work orders for assemblies, by means of first article inspection.

C H A N G E S						
Rev	Page	Chapter	Reason		Date	KRZ
D	1 - 4	1., 2., 5.1.,5.3., 5.5.	Update information to reflect customer requirements and AS9102 rev A.		14.04.09	Knp
E	1 - 4	1., 2., 5.1.,5.3., 5.5.	Adding remark concerning corrective action		20.10.09	Knp
F	all	all	Updates for new organisation of RUAG Switzerland Ltd.		14.02.13	Knp

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P. Kaufmann RAQMC	14.02.13, Knp	M. Bühlmann RAK	15.02.13, bunm	Source: <input checked="" type="checkbox"/> Intranet <input checked="" type="checkbox"/> SAP <input type="checkbox"/> Others
B. Lücke RCSQS	25.02.13, lucb	N. Johnen RCSQ	14.02.13, john	

3. Implementation of first article inspection and issue of the first article inspection report.
4. Notification of the first articles produced for verification by RUAG Switzerland Ltd., if requested.

B. RUAG Switzerland Ltd. is responsible for:

1. Verification of the first article
2. Acceptance testing of the pilot production run
3. Release of the pilot production run if requested, or release of serial production.

## **5 Procedure**

### **5.1 Inspection procedure**

- A. The first serial-produced products and supporting document must be fully inspected by the supplier. The requirements listed below must be guaranteed:
1. Accuracy and integrity of manufacture and test scheduling. The approval of the RUAG Quality Assurance must be appended.
  2. Configuration conformity.
  3. Use of the correct material and/or parts for production and/or assembly.  
Comment: The material may be verified by chemical and physical analyses, supply certificates or approved material markings of the material manufacturer.
  4. Correct quenching and tempering appropriate to the base material (heat treatment)
  5. Conformity of the dimensions of the features to the relevant drawings.
  6. Conformity of the surface treatment requested.
  7. Compliance of the non-destructive testing requirements.
  8. Implementation of the test requirements.
  9. Interchangeability/replaceability.
  10. Marking of parts in accordance with the requirements of the specifications.
  11. Conformity to the specifications in accordance with the drawings.
  12. Conformity to the procedural specifications and monitoring of procedures.
  13. Implementation of the procedures by approved personnel using approved facilities
  14. Compliance with all requirements in accordance with RUAG's purchasing document.
  15. Ability of the production gauges to produce acceptable parts.
  16. Serviceability and traceability of the test gauges and toolings which are specific for the part.
  17. Verification of the manufacturing and testing software used.
  18. Compliance with the acceptance inspection conditions.
  19. Review non-conformance documentation (if existing) for completeness.
- B. For procurement orders of assemblies, the supplier must describe the principal individual parts and sub-assembly groups which are to be listed separately.

## 5.2 Documentation

- A. The first article inspection (FAI) must be completely documented by the supplier in the first article inspection report (FAIR).
1. All applicable requirements under 5.1 must be confirmed.
  2. The production and test schedule documents, test specifications and procedural instructions which are subject to approval must be listed.
  3. All the main manufacturing and testing resources must be listed.
- N.B.: The manufacturing and testing resources are to be listed, divided into individual parts, sub-assemblies and assemblies.
4. All test figures must be recorded. Measurements must be recorded individually.
- B. Issue of the first article inspection report is described in the form instructions for suppliers, LQA-002, which contains the following forms:

<b>Form no.</b>	<b>Title</b>
FRM-7020-032_E, Page A	Part Number Accountability
FRM-7020-032_E, Page B	Product Accountability
FRM-7020-032_E, Page C	Characteristic Accountability

- C. The forms are available in the internet.
- D. One copy of the fully-completed first article inspection report is to be submitted to RUAG Switzerland Ltd with the first article. The first article must be identified, in order to enable a subsequent inspection to be carried out at RUAG.

## 5.3 Deviations

- A. If deviations are established during the first article inspection, preventing conformity to the technical specifications or the purchase requirements, corrective action must be taken immediately.
- B. All deviations established must be recorded in a Nonconformity Report. Corrective Action shall be defined before accepting the FAI.
- C. FAI is not complete until all deviation cases affecting the part are closed and Corrective Action is implemented. FAI must be re-done for those affected characteristics and the results must be recorded.

## 5.4 Customer representation

- A. A representative of the RUAG Quality Assurance, the licensor or RUAG's client may be present at the first article inspection and confirm the inspections. The supplier must inform the RUAG Quality Assurance at least five days in advance of the scheduled first article inspection.

## 5.5 Subsequent first article inspection requirements

- A. If features are modified or added, RUAG may request a partial first article inspection for the first product with the new configuration. The new first article inspection report only requires a record of the modification or additional features, and is added as an amendment to the original first article inspection report, together with the cover sheet.
- B. In the event of major modifications, the RUAG modification memo (AEM) must make reference to the first article inspection to be carried out.
- C. If a change in manufacturing capability of sufficient gravity is reported or established, RUAG may demand that the first article manufactured after said change be subjected to a full or partial first article inspection.
- D. The following details define in which cases the suppliers have to do a FAIR:
  - 1. *Change in facilities*: Change in processing equipment, machinery, tools, adjustment and testing gauges, testing resources or processing facilities.
  - 2. *Change in processes*: Change in the manufacturing and testing methods or process parameters.
  - 3. *Change in personnel*: change in staff who carries out the manufacturing, process, installation or testing operations with special monitoring, so that there is a major change in the group of persons carrying out the work, requiring prior training and teaching of skills courses.
  - 4. *Change in location*: Full or partial relocation of production. A change in location may, but need not, include a change in facilities, procedures or staff.
  - 5. *Change in supplier*: Such changes concern the shift of implementation of procedures from the supplier to a sub-contractor or from the sub-contractor to the supplier, or from one sub-contractor to another sub-contractor.
  - 6. *Change in Design (configuration)*: a change in design where form, fit, or function of the part is affected.
  - 7. *Lengthy interruptions of production*: a lapse in production for 2 year or specified by Ruag's Customer.
- E. Should significant problems be discovered at RUAG during assembly or inspection of the products supplied, causing a sudden, significant rise in the rate of rejections, RUAG may instruct a partial or full first article inspection to guarantee the quality of supply.

## 5.6 Product acceptance

Release and acceptance of the products (pilot production range, serial production batches) takes place on approval of the first article inspection report.

## 6 Reference documents

LQA-002          Form Instructions for suppliers