# General Quality Requirements for Suppliers

## Table of Contents

# 1 Amendments

New installation of the English version 06:
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| Version | Date | Amendments: |
|---|---|---|
| 06 | 14.03.2018 | Translation |

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|---|---|---|
| Hr. Lemberger, D. | Hr. Victor, S. | Hr. Victor, S. |

# 2 Informationsverzeichnis

| Nummer | Dokumentierte Information |
|---|---|
| DIN EN ISO 9001 | Quality Management Systems - Requirements |
| DIN EN 9100 | Quality Management Systems - Requirements for Aviation, Defense and Space organizations |
| AA21_508 (IBO) | Filling Instructions FAIR (First Article Inspection Report) |
| AA23_100 (IBO) | Code of Conduct |

The above-mentioned documented information of the IBO GmbH can be made available on request or is available for download from our website www.ibo-tec.de.

# 3 Purpose

The quality of the products decisively determines the success of IBO GmbH in the marketplace and among competitors. Reliable, flawless product quality saves time and money and increases customer satisfaction in the long term.

Quality is only created when all parties involved, in every step of the process, from planning to delivery, strive for process-reliable, flawless product and service quality. The suppliers involved in the value creation process have a direct influence on the quality of the products and services of IBO - hereafter referred to as "customer".

This document defines the minimum requirements of the supplier's quality management system in order to guarantee the products fully and reliably comply with the customer's requirements. These binding quality requirements determine the conditions of the technical and organizational framework on which the customer bases the individual orders to the suppliers. They define a zero-defect strategy as the target.

If you have any questions or uncertainties regarding this document, please contact your responsible contact in the purchasing department.

# 4 Scope

These Quality Assurance Requirements apply to all goods and services purchased by the customer.

If required, specific quality assurance requirements (QAR) per product or service are specified in separate agreements and/or in the order.

The implementation of and compliance with the general quality assurance requirements referred to in this document are the basis for acceptance of the delivered goods by the customer.

# 5 Definitions and Abbreviations

## 5.1 Definitions

For the application of this quality specification, the definitions in DIN EN ISO 9000 Quality Management Systems – Basics and Terminology apply.

## 5.2 Abbrevations

FAI Inspection of Initial Samples

FOD Foreign Object Damage

# 6 Rule of Precedence

If conflicting or ambiguous definitions of one particular requirement arise from the documents referred to in an order or contract, the following order of precedence shall apply:

1. Specific contract/order between supplier and customer
2. Bill of Material (BOM)
3. Technical drawing, including additional specifications in the drawing set
4. Product-specific Quality Assurance Requirements (QAR)
5. Quality specifications for special product classes
6. Project- or order-specific quality specifications
7. Quality Assurance Agreement
8. General Quality Requirements for Suppliers (this document)
9. General Terms and Conditions of Purchase

If deviations from the requirements are necessary to process the order, the supplier must obtain prior approval for the purchase in writing by the customer.

This Quality Assurance Agreement applies, in the version valid at the time of the order, to the fulfilment of the contracted performance and service.

# 7 Quality Management System

## 7.1 General Requirements for the Quality Management System

The supplier operates a Quality Management System (QMS) according to ISO 9001 (or comparable) that ensures the compliance with all requirements as agreed in the contract, the order, the specification sheets.

As an exception, individual agreements can be made with suppliers that cannot present a valid certification document issued by an accredited certification body.

As a minimum requirement, the supplier has to document his QMS in a management manual. This management manual is provided by the supplier to the customer upon request. An alternative – e.g. an electronic – documentation is accepted if it can be made available to the customer upon request.

Depending of the application of the product, the compliance with additional national and international industry-specific quality standards can be agreed upon in individual cases – e.g. aviation and space.

## 7.2 Proof of Certifications / Approvals

The supplier is responsible for submitting the respective certificates that clearly state the scope of application to the following email address: qm@e-ibo.de. This also applies to updates of the certificates. These are to be submitted immediately after expiry of the validity period.

The confiscation of a certificate must be reported immediately.

The certificates must include proof that they have been issued by an accredited certification body.

## 7.3 Verification of the Effectiveness of the Quality Management System

The supplier must carry out internal process and product audits at regular and planned intervals.

The customer reserves the right to assure himself that the facilities are in compliance with the contractual requirements - especially in the case of frequent quality defects caused by the supplier. Depending on the circumstances, the effectiveness verification can be carried out in the form of a technical discussion, a quality discussion or as a product, process or system audit. The customer agrees the agenda and procedures with the supplier – prior to the day when the discussion or audit will be carried out.

In the event of repeatedly necessary checks, the additional expenses incurred to the customer must be borne by the supplier.

The customer's representative, who carries out the review, has access to the supplier's production facilities. Upon request, he will be given complete insight into the process and system documentation relevant to the customer as well as all quality-relevant records and evidence. The supplier guarantees that the customer, together with the supplier, will be granted the same opportunity with any subcontractors.

Furthermore, the supplier agrees to the same extent that the quality assurance measures may be verified and checked as well, if necessary, by a representative of the final customer or of a public authority, after prior appointment and based on a prior planning of how the verification will be carried out. The resulting travel expenses and personnel cost cannot be charged to the supplier.

The customer documents the results of the audit in an audit report. Any deviations must be processed and completed within commonly agreed deadlines by means of the agreed correcting measures. The completion of the defined measures must be reported to the customer unsolicitedly.

# 8 Customer Requirements

## 8.1 Customer Requirements in the Context of the Requirements of ISO 9001

The basic quality management requirements of the customer do not replace the requirements of ISO 9001. They are to be understood as a supplement in the sense of industry- and company-specific minimum standards.

## 8.2 Quality-relevant Documents of the Customer

The quality characteristics to be adhered to are specified in the technical specification documents which the customer refers to in the order, e.g. specifications, drawings, parts lists, CAD data, factory standards, instructions and procedures.

The supplier receives these technical documents along with the order at the latest.

Upon receipt of the documents, the supplier agrees to check them for validity, completeness and consistency, in general and in relation to the fulfillment of the subject matter of the contract. The customer is to be informed about defects, gaps or ambiguities immediately and in writing. This also applies to missing documents.

Furthermore, it is the supplier's responsibility that cited national and international standards and guidelines, e.g. on drawings and in factory standards, are available to him in the currently valid version, and that they will be consistently applied.

## 8.3 Quality Responsibility of the Supplier

The supplier is responsible for the faultless execution of its products and services in accordance with the technical documents agreed in writing. He must be familiar with the customer requirements and contact the customer in case of any uncertainties.

The supplier ensures the fulfillment of the contract by establishing appropriate contingency plans, taking into account potential risks or weaknesses.

The supplier regularly analyzes and evaluates his processes on the basis of defined efficiency scores and limits.

From an economic point of view and with the aim of minimizing errors, the customer expects the supplier to continuously improve the production and other processes.

## 8.4 Advanced Quality Planning (AQP)

An effective, systematic quality planning is essential for the development and the manufacturing of a new product, in order to ensure that it meets the customer's requirements. The supplier is entirely responsible for timely planning, implementation and documentation of all tasks and measures in the context of quality planning. Monitoring the progress of the project is in the responsibility of the supplier.

A thorough advanced quality planning is always a prerequisite if a new product is to be produced under the

responsibility of the supplier, or if the production of a released product is changed.

The Advanced Product Quality Planning (APQP) accompanies the development of the product in the customer's product development process and aims to ensure that the supplier meets all customer requirements in a timely manner. It is the supplier's task as well to actively participate already during the product development phase in order to create mechanisms that contribute to ensure the later product safety and to prevent the origination of counterfeit products.

Depending on the risk assessment of the product, there are graduated requirements for quality planning and project work between customer and supplier.

## 8.5 Quality Records

The results of quality assurance measures (quality records) must be documented in a transparent and complete manner - including maintenance and repair measures.

In order to ensure the traceability in the event of quality defects occurring, the supplier is required to keep the quality records that are completed during the production process, e.g. control charts, measuring records and test reports as well as proofs documenting the process efficiency, and archive them safely for at least twelve years after their issue date. In the case of parts or features that are liable to documentation, however, the retention period for relevant quality records is at least 15 years.

The retention periods mentioned above do not apply if the law prescribes longer periods or if separate agreements have been made for this issue.

At the request of the customer, the supplier shall disclose all process and product records that are relevant for the quality.

## 8.6 Subcontractors

The supplier is responsible for passing on this Quality Assurance Agreement to his subcontractors, to the extent to which the are relevant to the order, and to ensure the introduction and compliance with the requirements by the subcontractor.

The supplier obliges his subcontractors to establish and maintain a Quality Management System appropriate to the scope of delivery, and to carry out corresponding quality inspection planning and documentation in accordance with the purchase requisitions.

The customer may demand proof from the supplier as to how he has verified the effectiveness of the Quality Management System of his subcontractors. The customer also reserves the right to directly access the documentation of the subcontractor in the case of frequent or repeating problems.

Furthermore, the supplier has to implement procedures for preventing counterfeit components.

## 8.7 Inspection Documents (Inspection Instruction and Plan)

Depending on the requirements of the product and based on his own analyses, the supplier will set up inspection instructions / inspection plans that contain the following:

- Test criteria,

- Tolerances,
- Scope of inspection,
- Inpsection methods,
- Test environment and
- Test conditions.

The customer may request the inspection documents for inspection. Furthermore, it may be required in the order that these are aligned with or have to be approved by the customer.

## 8.8 Prototypes / Preliminary Samples

Prototypes or preliminary samples are components that have not yet been manufactured in a series production or under conditions similar to a series production.

Unless required otherwise in the customer's order, the following minimum requirements apply for prototype sampling:

- Inspection report containing the results of a 100% test of all relevant characteristics. Relevant characteristics can defined for instance by being directly entered in the technical drawing. The relevant features must be agreed with the customer..
- Explicit confirmation of use of the prescribed material.
- The verified prototypes / preliminary samples must be clearly marked as such, as well as according to their assignment in the inspection protocol.

## 8.9 Initial Samples

Initial samples are products or services that have been completely manufactured, using standard equipment and under series production-like conditions. They are to be taken from a batch size that is representative of the production process.

The supplier is obliged to produce initial samples, to examine them, and, if requested in the order, to submit them to the customer for inspection.

In the event of an initial sample inspection (FAI – First Article Inspection) the supplier has to document the inspection results of all features / test criteria, that are defined in the drawing or specified in the order, in an initial sample inspection report. This includes for example measures, technological features and characteristics, surfaces, functional criteria. If required in the order, the initial sample inspection has to apply and follow particular standards (e.g. AS9102, AA21_508).

For standard parts or industrial standard parts, the manufacturer may apply his own set of rules for initial sampling, provided they comply with the recognized rules. The customer has the right to request all first sample inspection reports.

## 8.10 Series

The quality of the parts should be ensured on the one hand by a high process reliability and capability and on the other hand by regular inspections during production.

If random checks are carried out, the supplier must ensure that the sample size is based on recognized statistical principles (DIN EN 2859-1).

For the "Key Characteristics" indicated in the documents, statistical evaluations are to be supplied accordingly. The type and scope of the evaluations are agreed product-specifically.

## 8.11 Detection of Errors by the Supplier

### 8.11.1 Adequate Error Management

The supplier is responsible to implement an adequate error management towards the customer. This also applies to his subcontractors.

If the supplier identifies during the manufacturing process defects in a particular part or in a service to be provided, the supplier must stop the production process immediately and carry out suitable corrective measures.

All parts that have been manufactured since the last random sample test with positive results (last approved part) must be checked 100%. Defective parts identified during the inspection must be collected immediately and kept in a safe area ("restricted storage"), to ensure that they cannot get into further factory traffic.

If defective parts can be reworked, all specified production tests must be carried out. It must be ensured that all customer specifications are adhered to.

Introduced corrective measures must be documented comprehensively, their effectiveness needs to be verified.

### 8.11.2 Request for Exceptional Approval in Case of Deviations

In the event of deviations from the product or service specification (drawing, technical delivery conditions, material properties, etc.) or from the approved process, the supplier must request a special release from the customer ahead of the delivery of the affected parts with a detailed description of the deviation.

For this, a written approval from the customer must be obtained from the person specified on the order, using the customer-specific application form (provided on request).

If the customer grants a special release, the approval applies exclusively to the deviation and number of units or timeframes formulated in the request for special release. The granting of the special release does not entitle to the tacit delivery of defective parts in case of recurrence.

Upon issue, one copy of the special release form must be attached to the appropriate shipping documents and one copy must be visibly attached to the packaging of the affected parts.

### 8.11.3 Request for Approval of Amendments

In the event of planned amendments to the product, process, material, tool or production site (relocation) - even with subcontractors - the supplier must request approval for the amendments from the customer as early as possible.

For this, a written approval from the customer must be obtained from the person specified on the order, using the customer-specific application form (provided on request).

8.11.4 The Supplier's Obligation to Notify

If the supplier cannot reliably rule out that defective parts have reached the customer, the supplier must inform the customer immediately in order to limit the affected exten and to coordinate further measures.

The supplier must provide written information to the customer within 48 hours. The supplier promptly provides the complete data required for traceability.

8.11.5 Scrapping

If finished and marked components will have to be scrapped, they must be conspicuously and permanently marked or appropriately steered until they are finally made physically unusable.

## 8.12 Detection of Errors at the Customer's - Complaint Handling

The customer informs the supplier, e.g. in the form of a complaint notice, that defects in the product or the service provided have been detected, which further actions have to be taken, and formally asks the supplier to investigate the root cause of the fault and to develop effective corrective measures.

The customer's decision on the further course of action may, in particular, include in the following measures:

- Immediate return of the entire delivery to the supplier, for analysis and replacement or reworking (after consultation with the customer). The supplier confirms the receipt of the returned parts immediately, latest within 10 working days after receipt, and confirms a binding date on which the claimed parts or an equivalent replacement will be returned
- Sorting at the customer and, if necessary, reworking by the supplier
- Reworking by the customer.

In the case of justified complaints, the costs incurred by the customer will be charged to the supplier. Furthermore, the supplier shall bear all other costs incurred in connection with the warranty claim.

In order to correct a technical or systematic error as quickly as possible, the supplier is obliged to use the 8D method (8 disciplines) for team-oriented problem solving. Depending on the risk classification by the customer, the supplier has to observe the submission deadlines listed in the following table. The deadlines define until when the supplier has to present the corresponding supplier's statement by means of an 8D report.

| Level | Immediate Actions (Discipline 1 to 3) | Planned Corrective Measures (Discipline 1 to 5) | 8D Process completed (Discipline 1 to 8) |
|---|---|---|---|
| Normal | < 1 calender week | < 3 calender weeks | < 2 month |
| Express | < 48 hours | < 5 days | < 4 weeks |

If the customer does not agree with the content of the 8D report, the supplier is obliged to revise it. Upon request by the customer, the supplier shall provide further information or intermediate status for complaint processing.

## 8.13 Escalation Process

In the event of increasing quality or delivery problems or repeated complaints, the customer will increase the requirements for the testing of the delivered products (as part of the escalation process) and initiate appropriate corrective measures.

## 8.14 Transportation, Conservation, Packaging and Delivery Identification

The supplier is responsible for the protection of the products delivered by him. For this purpose, the supplier shall use suitable means of conservation, packaging and transportation during manufacturing, storage and delivery to the customer. The customer reserves the right to coordinate means of transportation and packaging with the supplier.

To ensure clear identification of the products delivered to the customer, the products and the packaging must be labeled according to the requirements that have been agreed with the customer.

If different items are shipped in the same shipping container, appropriate packaging must be chosen so that the products cannot be lost or overlooked (especially small products).

Electronic goods with electrostatically sensitive parts have to be protected against electrostatic charging respectively damages caused by electrostatic unloading. This requires the use of appropriate, conspicuously labelled packaging with specific anti-static packaging materials or electrostatically dissipative containers.

### 8.14.1 Marking of Delivery Notes and Packaging Units

Delivery notes, outer packaging and individual packaging are, if not stated otherwise in the order, to be labelled with the following contents:

a. Name of the article
b. Article number, including amendment index (standard or supplier designation for standard parts)
c. Drawing number, including amendment index (if determined)
d. Serial or batch number (if required)
e. Quantity
f. Order number and order position
g. Supplier's registration number with the customer and supplier's name
h. Expiry date (if applicable)
i. Special storage conditions (if applicable)
j. Legally prescribed markings (e.g. hazardous goods instructions)

### 8.14.2 Marking of the Article

Each article must be marked according to the specifications given in the order.

The standard designation or identification according to the manufacturer's designation and/or legally prescribed markings have to be applied to standard and catalog parts as well as industrial standard products. For small parts, the marking on the packaging unit is sufficient.

### 8.14.3 Labelling Method

If not specified in the specifications/drawings, the labelling methods, marking means and coating agents used must take into consideration and be adapted to the specifics of the respective item. They must not damage the article, adversely affect it, or affect its usability.

## 8.15 Delivery Documentation

The required delivery documentation must be sent to the customer along with the delivered item. The supplier must ensure that the delivery documentation relating to the delivered item and the order is clearly identified by means of suitable labelling. Requirements defined on the drawings are to be observed. If possible, the enclosed documents should be listed on the delivery note.

Deliveries subject to proof shall be considered as not delivered until receipt of the requested documents.

On the cover sheet of the delivery note or bill of lading, the number, type, and, if possible, weight and dimension of the packages must be indicated in order to identify the composition of the delivery.

The customer only confirms to have received the complete delivery upon receipt of the goods.

## 8.16 Certificates

The types of certificates to be applied are specified in the order, the stipulations according to DIN EN 10204, equivalent international or official requirements are to be considered.

Inspection certificates must contain the following information in addition to the requirements of DIN EN 10204:

a. Designation of the article
b. Article number incl. version (for standard and catalog parts, the standard designation or identification according to manufacturer)
c. Drawing number including amendment index, if specified
d. Serial or batch number, if specified
e. Material
f. Number of delivered parts
g. Order number and order item
h. Delivery receipt number
i. Number of the approved construction allowance
j. A declaration of conformity that the delivered products comply with all requirements of the order
k. For processes, the underlying process specifications
l. For maintenance, it must be confirmed that the commissioned maintenance has been carried out in accordance with the approved maintenance documents and that only spare and standard parts that are listed in the approved maintenance documents have been used.

## 8.17 Test Equipment

The supplier is obliged to maintain a suitable test equipment, so that all product features can be tested. If an external company is in charge of the inspection, the company must be respectively accredited and able to present the proof of it.

If necessary, suitable test equipment and test methods shall be coordinated between supplier and customer.

The supplier's test equipment shall be subject to controlled, adequate and verifiable monitoring. The process and measuring capability must be guaranteed.

## 8.18 Corporate Responsibility

The supplier agrees to comply with the relevant valid laws and regulations.

The materials and supplies used by the supplier, as well as their ingredients, must at least comply with the legal regulations concerning environmental protection, safety and recycling, and, if applicable, with customer standards and prescriptions on the drawings.

## 8.19 Delivery Reliability

The supplier is obliged to observe and monitor the agreed quantities, deadlines and delivery dates. If the supplier recognizes that the delivery of the ordered quantity at the agreed date is endangered, the person specified in the order shall be informed as soon as possible regarding the nature and effect of the delays.

## 8.20 Traceability

The supplier shall ensure the traceability of the products delivered by him as part of a risk assessment, to be carried out by him, or on the basis of contractual requirements. In the event of a complaint, the defective products must be able to be reliably identified, located and detected within the supply chain of the supplier and the customer, in order to effectively narrow down the scope of the affected parts. As far as possible and necessary, the customer provides the necessary date and information to the supplier..

The documentation for products that are liable to batch or serial numbers must display the batch number or serial number of this product.

## 8.21 Supplied Products, Customer Property

Within the scope of receipt or inspection of incoming goods, the supplier carries out a quantity check regarding the products provided by the customer. If the supplier detects differences in quantity or notices that a product supplied by the customer is not suitable for the intended use, the supplier shall inform the customer immediately and coordinate appropriate corrective measures with him.

Loss, damage or destruction of provided products must be reported to the customer in writing within 48 hours of being detected.

## 8.22 Specified Sources of Supply

Insofar as contractually agreed with the customer, the supplier is obliged to procure products (components, semi-finished products and materials) and services from sources approved by the customer.

The use of these sources of supply does not release the supplier from the responsibility to ensure the quality of the procured products and services.

## 8.23 Management of Obsolescenses

If the supplier is informed that products / material have been discontinued, the supplier is obliged to inform the customer as soon as possible in writing.

## 8.24 Statutory Evidence

The EU directives set basic requirements for the safety of products. For products that fall at least under one EU directive demanding CE marking, the supplier must provide the customer with an EC Conformity Declaration and corresponding technical documentation.

The supplier agrees, at the customer's request, to provide the records underlying the EC Declaration of Conformity, such as hazard analysis or calculations.

If the devices fall under several EU directives demanding CE marking, the supplier must take this into account in the documentation.

## 8.25 Products with Specific Requirements

### 8.25.1 Expiry Date and Storage Conditions

The supplier must - if applicable – clearly state the expiry date and the required storage conditions directly on the product and/or the packaging.

When specifying the date of manufacture, the total shelf life is to be indicated. For coded data, a corresponding key must be provided. At the time of delivery, at least 75% of the total shelf life must be guaranteed.

Deliveries without corresponding information will be rejected by the customer.

Dates must be in German notation, unless otherwise specified:
DD.MM.JJJJ or MM.JJJJ or XQ / JJ.

### 8.25.2 Safety Data Sheet

For products delivered to the customer, the compliance with the requirements of the REACH Regulation 1907/2006/EC (http://echa.europa.eu/legislation/reach_legislation_en.asp) is compulsory.

The current safety data sheet according to REACH regulation 1907/2006/EC must be enclosed with the delivery of the relevant product.

Only safety data sheets in the original version of the manufacturer are to be passed on. The customer must be provided with the latest version of the safety data sheet.

If necessary, an accident data sheet should be attached. The delivery must be made in accordance with the legal requirements.

### 8.25.3 Prohibited and Declarable Ingredients

The customer may not be supplied with items that contain substances according to:

- Appendices 1 to 9 of the REACH Regulation 1907/2006/EC, as amended
- The Global Automotive Declarable Substance List (GADSL) (www.gdsl.org), as amended
- RoHS Directive 2011/65/EU for products acc. its scope (Http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011L0065:DE:NOT).

The REACH Regulation (EC) No 1907/206 stipulates information requirements for substances of very high concern, which are listed in the SVHC (Substances of Very High Concern) Candidate List. The supplier is obliged to inform the customer as soon as there is more recent information than already submitted to the customer about substances of the SVHC Candidate List, with concentrations above 0.1% w/w in delivered products. If no information about the substances in delivered products is available within 45 days after updating the SVHC Candidate List, it is assumed that the suppliers themselves have no other information and therefore none of the relevant substances above 0.1% w/w are included.

### 8.25.4 4 Conflict Minerals - Query According to Dodd-Frank Act, Section 1502

Suppliers must adhere to the requirements of the UN Global Compact. This includes, amongst other things, that commercially reasonable efforts are taken to only source raw materials from environmentally and socially responsible sources.

By an initiative of the US Securities and Exchange Commission (SEC), the supplier is required to inform his customers within the supply chain regarding the use of certain minerals, known as "conflict materials"

This concerns minerals such as gold, tin, tantalum and tungsten, in connection with their origin from the Democratic Republic of the Congo or its neighboring states. If the supplier uses these minerals in products for the customer, he is obliged to answer an appropriate customer inquiry every year.

### 8.26 Employee-related aspects

Suppliers must ensure that all employees are aware of the following:

- Their contribution to product and service compliance
- Their contribution to product safety
- Importance of ethical behavior – in this context the supplier has to ensure that his employees behave in line with the Code of Conduct issued by the customer (AA23_100)
- Their impact on preventing foreign body destruction (FOD)

# 9 Communication

The supplier must create all documents and records required in this specification in German or English and hand them over to the customer upon request, unless otherwise agreed beforehand.