KERN-LIEBERS

FIRMENGRUPPE

# Quality Assurance Guidelines for Suppliers

## The KERN-LIEBERS Group of Companies

## Version QSL-3.2 (Revised 01/2012 )

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# 1 Preamble

Supplier products and services have an important influence on the quality of our products.

The demands and expectations of our customers with respect to quality, flexibility, reliability of delivery and costs therefore necessitate intensive co-operation in partnership with our suppliers as an essential component of our QM system.

As a supplier, consistent adherence to legal, normative and customer requirements is the basis of our business relationship with both our customers and suppliers.

To remain competitive in an international market, a high standard of product quality is an indispensable requirement.

**Customer satisfaction is our priority objective**

These guidelines define our requirements of suppliers with regard to:

- Product and process planning as the basis for serial production release
- Process control and monitoring during serial production
- Supplier approval, assessment and qualification

The objectives of the guidelines are to:

- Ensure the capability, reproducibility and traceability of processes
- Minimise product risks
- Prevent delivery of nonconforming products

The guidelines do not affect the suppliers unlimited liability for their products and services.

The guidelines are a ***component of our conditions for purchasing***.

Supplier liability for defects and claims for damages remain unaffected.

Schramberg, February 2012

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## 2 Scope

The quality assurance guidelines

– ***QAG*** in the following –

apply to all procurement processes within the KERN-LIEBERS group of companies

– ***client*** in the following –

because they always affect the quality, capability and safety of our products and processes. This applies particularly in the procurement of:

- Raw materials and semi-finished products
- Buy-parts
- External processing of series products

## 3 General requirements

### 3.1 QM system and supplier objectives

Suppliers to the client must implement and maintain a customer and process oriented QM system that, at a minimum, meets the normative requirements of ***ISO 9001*** in the applicable or current edition.

In addition, the client applies more specific industry and customer requirements for:

- Products and services for use in the automotive sector in **accordance with *ISO/TS 16949***
  (e.g. AIAG manuals and/or VDA volumes)
- Products and services for use in the medical products sector in accordance with ISO 13485 and ISO 14971 in the current edition.

At minimum, the supplier's QM system must include the following commitments:

- ***Zero-defect objectives*** and a commitment to ***continuous improvement*** of performance
- Implementation of a ***preventive quality planning*** system based on the principle of ***prevention rather than detection of nonconformance***
- A commitment to and strategy for ***100% reliability of delivery***
- A commitment to ***adherence to legal and official requirements***, including requirements covering environmental impact

## 3.2 Supplier environmental management

Environmental protection is an integral component of our company philosophy and a precondition for working with suppliers.

We therefore expect an active environmental management system from our suppliers that meets the legal and official requirements at the supplier's location and is run in accordance with ISO 14001 or an equivalent environmental standard. Suppliers should be seeking ISO 14001 certification.
Amongst other requirements, the supplier undertakes to:

- Use materials, energy and natural resources economically
- Identify products and control safety data sheets in accordance with applicable law
- Declare hazardous substances in products as a component of the product and process release procedure (IMDS application = International Material Data System)

## 3.3 Management system of subcontractors of the contractor

The supplier will oblige subcontractors to implement and maintain a QM system in accordance with ISO 9001, including a commitment to zero-defect objectives and continuous improvement of performance.
Additional requirements will be agreed by the client and supplier on a case-by-case basis.

## 2.4 Supplier and subcontractor audits

The supplier will allow the client to conduct process and product audits to examine and determine established quality assurance measures in order to meet customer requirements.

Where required, the supplier will include subcontractors in audit scheduling.
Process audits must be carried and documented in accordance with VDA 6.3 in the current version.

The supplier will grant the client access - by prior agreement where necessary to assure conformity - to all production plants, inspection centres, stockrooms and support centres, as well as to documents relevant to quality.

Reasonable restrictions on the part of the supplier to protect company secrets will be accepted.

The supplier will receive an audit report. Where corrective or remedial action is required in the view of the client, the supplier undertakes to produce an action plan and to implement it on schedule.

The supplier must ensure that critical processes such as heat treatment, electroplating, coating and welding are audited and documented in accordance with the requirements of AIAG CQI-9, CQI 11, CQI-12 and CQI15 for special processes.

#### 3.4.1 Requalification inspection

Unless agreed otherwise, a requalification inspection that satisfies the requirements of ISO/TS 16949 is required for all delivered parts.
All suppliers must be able, upon request, to subject the deliveries affected to a full annual inspection as defined in the production control plans, and to make the result available within 48 hours.

## 3.5 Disclosure and release

#### 3.5.1 Of process modifications

To identify and assess risks, the supplier undertakes, as part of the change management procedure, to inform and gain the consent of the client before implementing planned modifications to the product or process.

#### 3.5.2 Of status reports

The supplier must inform the client (KL) immediately in writing of changes in status effected or implemented by OEM customers.

# 4 Quality assurance before serial delivery

## 4.1 Supplier quality planning

The supplier undertakes to apply the tools of preventive quality assurance for the fulfilment of industry and customer-specific requirements and to document results.

Additional requirements apply to products and services for use in the automotive sector, as described in the AIAG manuals or VDA volumes. The scope and documentation of quality planning may be agreed with the supplier for specific products.
Planning tools include:

- ***APQP*** (Advanced Product Quality Planning)
- ***Manufacturability analyses*** to analyse drawings, specifications and to assess process reliability,
- ***FMEA*** (Failure Modes and Effects Analysis) to systematically detect and assess process risks and apply appropriate measures to reduce them to an acceptable level
- ***Production control plans*** to control and monitor the production process

- ***Process and inspection equipment capability studies*** for relevant product characteristics to demonstrate reliable manufacturing and control

## 4.2 Supplier contract review

Before concluding contracts, the supplier undertakes to ensure that the client's requirements have been understood and can be met. Ambiguities must be clarified with the client.

## 4.3 Release process

### 4.3.1 Criteria for product and process release

Product and process release consists of the procedure for inspection and confirmation that:

- Order requirements as per product specifications have been adhered to
- The supplier's manufacturing process is suitable for meeting the client's quality requirements in a serial production environment

Unless otherwise agreed with the client, product and process release is *required* for:

- First samples (new product and changed prototype)
- Process modifications, e.g. change to production sequence, production and inspection procedures, new or modified equipment etc.
- Changes to subcontractors if client specifications or restrictions on selecting suppliers of semi-finished products are in place.
- Relocation of the manufacturing location or relocation of production to another manufacturing location

The type and scope of the product and process release are agreed by client, customer and supplier on a case-by-case basis, depending on product and project, for:

- Product modifications (design, materials)
- Tool replacement, reconditioning and relocation
- Extended breaks in manufacturing (> 12 months)
- After correcting any nonconformance that may occur

Additional industry and customer requirements apply to products used in the automotive sector, (e.g. the AIAG PPAP manual, VDA volume 2). Without product and process release, or a special release on the part of the client, serial deliveries not possible.

### 4.3.2 Samples

Samples are products not manufactured under serial production conditions, but can be part of the client's validation process. A decision to accept a sample does not imply release for serial production.

### 4.3.3 Prototype release and documentation

#### 4.3.3.1 First prototype release

The supplier will provide the client with the first sample manufactured under serial production conditions for release inspection, together with documentation in the agreed scope and on schedule. First samples must be identified on the delivery note and packaging (e.g. with adhesive labels).

If not agreed otherwise in the order documentation, the following minimum requirements apply:

| Product/service | Documentation | Comments |
|---|---|---|
| Raw materials and semi-finished products | • **Part submission warrant (*PSW cover)*** *with* reference to order specifications, client's delivery and inspection specifications and/or normative, legal customer specifications<br>• **Acceptance inspection certificate** (Material inspection certificate)<br>*e.g. in accordance with EN 10204, 3.1 including*<br>- chemical and physical inspection results with reference to order specifications<br>- ID number of smelt batch from semi-finished product supplier<br>• **First sample sections** *of supplier from the prototype release batch (depending on requirements)* | ***PSW cover*** can apply for material measurements with the same chemical/physical specification for a supplier |
| Products (Buy-parts) | • **Part submission warrant**<br>- ***PSW cover***<br>- ***PSW inspection results*** *(generally for 5 items per tool/cavity with reference to product drawing, variances and third-party measurements marked ).*<br>- ***PSW material data sheet*** *(Materials in products/product components*<br>• **Product drawing** *with numbered inspection characteristics*<br>• **First sample items**<br>• **Material certificate(s)** *of the material supplier (e.g. in accordance with EN 10204)*<br>• **Inspection plan and/or production control plan PLP** *( PLP is identical to control plan from APQP )*<br>• ***Proof of capability significant characteristics*** *(Machine or preliminary process capability cmk / ppk )* | Forms from<br>• *AIAG manual PPAP*<br>• *or VDA volume 2*<br>• *or customer-specific standards*<br><br>*5 items, identified by tool and cavity*<br><br>We accept group PLPs for similar products/processes<br><br>cmk / ppk >/= 1,67* where n = min 25* items<br><br>* If not otherwise required by the customer for specific products or projects. |
| External processing | • **Part submission warrant (*PSW cover*)**<br>• **Product drawing** *with numbered inspection characteristics*<br>• **Acceptance inspection certificate** (*e.g. in accordance with EN 10204, 3.1)* | e.g. galvanised, chip-removing or forming processing, heat treatment as third-party service order |

| | | |
|---|---|---|
| | • ***Proof of capability significant characteristics*** *(if agreed for machine or preliminary process capability cmk / ppk )* | |
| Tools/ equipment | • **Acceptance inspection certificate** (*e.g. in accordance with EN 10204, 3.1)* | |

Additional first sample documentation may be necessary, depending on industry and customer requirements.
Specific requirements for special characteristics will be agreed on a product-by-product basis between client and supplier.

#### 4.3.3.2 First sample release

In the absence of a special release granted for scheduling reasons by the client after prior consultation, all first samples must fulfil the product specification and process capability requirements.
When requirements are met, the client will issue a written release, accompanied by any other documentation required (PSW cover, supplier notification etc.)

If the first sample is rejected, the supplier undertakes, in consultation with the client, to define without delay a date for the changed prototype and provision of the modified first sample.

#### 4.3.3.3 Prototype release after modification and deviation

The first sample and release documentation will be re-submitted if the original first sample is rejected or after product and process modifications.
Type and scope of the release documentation depend on the decision of the client or on the reason for prototype release as defined in section 7.4.1.
The minimum requirements for prototype release documentation are:

- Part submission warrant in accordance with the AIAG PPAP manual or VDA volume 2,
- First sample and inspection results

## 5 Serial production and deliveries

The supplier must define, implement, maintain and document procedures to continuously assure product quality and reliability of delivery.

## 5.1 Process control and monitoring

To assess the process capability of serial deliveries, the client and supplier will agree special characteristics for verification - depending on product safety and customer requirements - and define them in the order documentation or a quality assurance agreement.
We expect our suppliers to establish appropriate procedures for monitoring processes. For statistical process control (SPC), the index

***Capability index cpk > 1.67***

is required in the absence of any other agreement.
If the supplier cannot meet the required capability, the supplier will inform the client, initiate corrective action and, where applicable, agree options for a special release.

The process control system must identify and block nonconforming products and include a systematic cause analysis for the prevention of repeat defects.
If nonconforming parts have been shipped, or there is reason the believe they may have been shipped, the client will be informed without delay.

## 5.2 Identification and traceability of deliveries

The supplier undertakes to identify products and packaging in accordance with the client's requirements. The procedure must exclude the possibility of confusion and/or mixing of products in the production process.

Delivery note and labelling must include the following information:

| Product | Information |
|---|---|
| Raw materials and semi-finished products | - Material description (e.g. in accordance with steel key)<br>- Name of supplier<br>- Dimensions and weight (of each delivery unit)<br>- Client's order no.<br>- Batch no. smelt batch (subcontractor) and production order (supplier)<br>- Delivery note no. |
| Products (purchase items) | - Product description<br>- Name of supplier<br>- Product/item no. and client's order no.<br>- Drawing no. and modification index<br>- Number of items in delivery<br>- Delivery note no. |
| Products (Buy-parts) | - Product description<br>- Name of supplier<br>- Product/item no. and client's order no.<br>- Drawing no. and modification index<br>- Number of items in delivery<br>- Delivery note no. |

Additional requirements for some products may be defined with the supplier.
The supplier undertakes to guarantee the traceability of the products delivered. The supplier will define suitable traceability data, record retention periods and the type of documentation.

### 5.3 Inspection certificate for serial production

Inspection certificates and proof of capability in the series for the supplier and any subcontractors will be included in delivery if required in the client's order documentation.

### 5.4 Delivery and goods receipt inspection by the client

The supplier undertakes to ship goods by a suitable means of transport and in appropriate packaging to prevent damage to or a reduction in product quality through soiling, corrosion and chemical reactions.
Reduced goods receipt inspections (e.g. identity, quality and integrity of packaging) will be agreed with the supplier in the planning stage and defined in the order documentation or separate quality assurance agreements.
In such cases, the supplier must adjust quality measures to the reduction.

### 5.5 Complaints, error management and measures

If the client discovers defects or nonconforming products in goods receipt, the production process or at the customer, they will be reported to the supplier without delay in the normal course of business.
The supplier waives any objection to deferred notification of defects.

The supplier undertakes to implement a systematic error analysis and to notify the client ***within 2 working days*** of receipt of the complaint and the immediate measures implemented in an ***8-D report***.

The supplier undertakes to inform the client on completion of the process of the measures taken and their effectiveness in the form of a fully completed ***8-D report***. Only corrective measures following the guidelines on prevention of repeat defects and zero-error objectives will be accepted.

The client will also assess the effectiveness of the measures as part of subsequent deliveries and in some cases through supplier audits.

As a rule, nonconforming products will be returned to the supplier.

If the client cannot fulfil delivery obligations due to nonconforming products, immediate measures at the expense of the supplier will be agreed with the supplier (e. g. immediate replacement delivery, rework, sort, special transport, special shifts etc.)

Nonconforming products differing from the order specifications may not be shipped without a ***written special release*** from the client. The application for a special release must include information on the nonconforming specification, the quantity and, where applicable, the delivery period for which the release is to be approved.

## 5.6 Documents, records, special characteristics

The supplier undertakes to maintain document and record control in accordance with ISO 9001 principles.

The retention period for ***documents and records with information relevant to quality*** is ***15 years***, if no other agreement with the supplier has been reached.
Special archiving applies to products and materials that significantly impact product safety and personal hazard and/or are subject to legal regulation.

## 5.7 Contingency planning

The supplier undertakes to implement a contingency plan to deal with failure to deliver due to force majeure, natural disasters, strikes or other production equipment and resource failures, and to submit it to the client on request.

## 5.8 Warranty, product safety and liability

The supplier undertakes to

- Apply a procedure for determining and assessing product risks and insure sufficiently against risks
- Inform and educate employees about product liability risks
- Define a contingency plan for damage limitation in the event of a product recall and inability to deliver

The client reserves the right to define such requirements in a specific quality assurance agreement with the client.

## 5.9 Continuous improvement process

The supplier undertakes to implement and maintain a continuous improvement process. The client will support this process through close co-operation with the supplier.

## 5.10 Supplier assessment

The client will monitor adherence to product quality and reliability of delivery in the series, and may initiate qualification measures.

In the event of repeat complaints, the client will conduct supplier audits to determine corrective measures, their implementation and effectiveness.

At least once per year, strategically important suppliers will receive a supplier assessment with the following criteria:

- *Product quality*
- *Reliability of delivery (adherence to due dates and quantities) including special transports*

Other criteria may also be used for evaluation depending on location.

Suppliers triggering a Kern-Liebers special status message with a proven bad delivery will be classified as C.

*Measures*
Suppliers with the classification B in one of the evaluation criteria are expected to implement measures designed to achieve the target A classification.

Suppliers with the classification C in one of the evaluation criteria will be asked to provide Kern-Liebers with a statement within 20 working days with an action plan including cause, measures and planned review of effectiveness.

The client reserves the right to conclude ***target agreements*** for assessment figures with suppliers.

## 6 Other applicable documents

| | |
|---|---|
| ISO 9001<br>(current edition) | Quality management systems – requirements |
| ISO /TS 16949<br>(current edition) | Quality management systems - special requirements for the application of ISO 9001:2000 for serial and spare parts production |
| EN 10204<br>(current edition) | Metallic products – types of inspection certificates |

The following AIAG manual, each in the current edition:

- APQP Advanced Product Quality Planning
- PPAP Production Part Approval Process
- FMEA Failure Modes and Effects Analysis
- MSA Measurement System Analysis
- SPC Statistical Process Control
- CQI-9; CQI-11; CQI-12; CQI-15 "Special Processes"

***The applicability of other AIAG manuals depends on customer specific requirements***

The following VDA publications, each in the current edition:

- Volume 1 Documentation and archiving
- Volume 2 Assurance of quality of delivery
- Volume 4
  - Assurance of quality in the process landscape
  - FTA fault tree analysis
  - FMEA
  - DFMA
- Volume 4.3 Quality assurance
- Volume 6.3 Process audit

***The applicability of other VDA volumes depends on customer specific requirements***