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Preface

The Krah-Group is committed to the progress in quality and development all over the world. We contribute to the optimization of security, reliability, efficiency, the protection of the environment and comfort of modern vehicles.

A strict customer orientation as well as a global presence with technology and production has great importance to us. Innovation, comprehensive know-how in the development and production of resistors qualify the Krah-Group as a competent and reliable partner of the automotive industry. The ability of system integration and system responsibility as well as trendsetting concepts of quality, environment and logistics are accepted competitive advantages of the Krah-Group.

We are available to vehicle producers and system suppliers all over the world and support them on site in close cooperation. It is our declared target to have a leading position within our business area.

The most important aspects are:

- Quality
- Environmental and job protection
- Price
- Innovation
- Logistics
- Service
- Continuous improvement

Our target can only be realistic if efficient suppliers are integrated in the overall concept. With these guidelines, the Krah-Group wants to offer a joint support to the suppliers.

These guidelines present our requirements to the suppliers and explain our internal processes.

The joint business relation between supplier and customer is of decisive importance for the development of business in the automotive industry. The mutual information and the systematic processing are the basis of the customer satisfaction. We work on the basis of the zero-failure strategy as a target within the quality management system IATF 16949; and furthermore with ISO 14001 for the environment management system. So, an international orientation to the requirements of our customers all over the world is guaranteed.

The application of modern quality management methods and logistic methods is a clear commitment for us. Our suppliers also commit themselves to use these methods. The processes of cooperation for new parts and series parts explained in these guidelines are no new methods or processes; they make the procedures which are the basis of our cooperation more transparent.

Within the cooperation of with our suppliers environmental and job protection as well as safety is of great importance to us. To us, these areas are as important as quality (and other services that suppliers have to provide) when selecting and cooperating with our suppliers.

The KRAH-Group expects its suppliers to conduct their business according to the ethics principles based on the international human rights designations, especially the abandonment of child labor.

Environment:

Krah's Code of Conduct defines our responsibility to society and the environment. The burden on society and the environment when producing, storing, transporting, using and disposing our products has got to be kept at a minimum. Active environmental protection is an integral part of our entrepreneurial thinking and doing and therefore affects all our business processes.

These are the reasons why we favor suppliers that have actively implemented environment protection processes. The selection of natural resources, environmentally friendly production methods and use of hazardous materials have to be accounted for during the product planning stage.

Each supplier is required to thoroughly asses the origin of their goods, as well as to ensure compliance with all statutory requirements of our customers worldwide.

This applies particularly for so-called conflict minerals, which are listed in the "Dodd-Frank Wall Street Reform and Consumer Protection Act".

Safety and job protection:

Health and safety at work are characteristics of a competitive and human company. Safety means particularly the prevention of occupational accidents, occupational diseases and work-related proceedings.

Health and safety at work also helps to motivate employees, to avoid work accidents and maintain the economic position of the company.

Export Control and Customs:

Supplier is obliged to inform us in its business documents with respect to any possible licensing requirements or restrictions for the (re-) export of its goods pursuant to German, European and US export- and customs regulations as well as with respect to the export- and customs regulations of the country of origin of its goods and to send the following information for the goods subject to licensing in due time before the first delivery to the address compliance@krah-gruppe.de:

- Krah material no.,
- Description of goods,
- All applicable export list numbers, including Export Control Classification Number pursuant to the U.S. Commerce Control List (ECCN),
- Origin of goods under commercial policy,
- Statistical no. of goods (HS-Code),
- A contact in its company for the clarification of any possible queries.

Supplier is obliged to immediately inform us about any possible changes of the licensing requirements of its goods supplied to us due to technical, statutory changes or regulatory sanctions.

1. Quality- and Environment Management System (QM / UM-System)

Our suppliers' quality/environmental management system should be structured and certified according to IATF 16949 or ISO 14001.

Should new suppliers not have such certification, then they will be requested by KRAH to improve their QM system with the objective of gaining automotive industry QMS standard certification. We will determine a permissible and acceptable minimum development level for our suppliers based on a risk assessment. The target may be achieved step by step. In this context, special note must be taken of Section 8.4.2.3 "Development of suppliers' QM systems" of IATF 16949. The valid stipulations a – d provide details regarding the sequence of developments. It is assumed that suppliers are fundamentally prepared to carry out further development work. The approval of non-certified suppliers may only take place with the customer's consent.

The QS/UM-System must include all the business areas of the supplier and be monitored regardless of the areas. The following aspects have to be ensured:

- Systematic quality planning
- Monitoring of deliveries regarding quantities and dates of delivery
- General acceptance criteria for "zero failures"
- Inclusion of all employees
- Failure avoidance instead of failure detection
- Sufficient knowledge of
  - Product liability / proof of evidence (D-feature)
  - Legal requirements
  - Handling of special features
- Permanent striving for improvement
- Submission and reduction of costs for quality
- Submission of quality performance of the company with measurable features
- Proof of conformity for the QS/UM-System by internal and external checks and the according improvements of system
- Team orientated ways to solutions and decisions
- Management of emergence and risk in case of unforeseen incidents
- Observance of all legal and security regulations for monitored, toxic and dangerous substances which are used in the products and processes of the supplier.
- Protection of environment resources
- Avoidance of environment pollution.

The supplier agrees after consultation that the authorized representatives of the Krah-Group as well as their customers may visit the sites of production of the supplier. If required, he will provide the according QM-documents and UM-documents. Business secrets and know-how will be respected and treated confidentially.

Fundamentally, the updated VDA-documents have to be used for development and production processes. If our customers have further requirements (e.g. submission of samples and documents according to PPAP of the QS 9000 regulation, etc.), the supplier has to satisfy these requirements. Our purchasing department will inform the supplier about these requirements.

2. Quality- and Logistic planning

The quality and costs of the products and processes are to a great extent defined during the planning and design phase.

Therefore, we expect that our suppliers are in a position to use the following quality and logistic tools (if applicable):

- Design-FMEA (system suppliers)
- Process-FMEA
- Plans of process (flow charts)
- Quality Management plans
- Calculation of capacity regarding increase of requirement
- Check of producibility regarding technical, qualitative and logistic feasibility
- Capability studies of measuring devices and special features
- Planning of packaging
- Logistic concept including transparency of costs
- Management of empties, if applicable
- R&R studies

You will find further explanations in the information about the other applicable literature at the end of this document.

3. Costs

The Krah-Group has a high proportion of its turnover in the automotive industry. In this context, we expect that our suppliers make cost-optimized offers. Additionally to annual price reductions, the suppliers have to be internationally competitive in the following segments:

- material
- production
- packaging
- transport
- wages and unit price
- internationally competitive.

The competitiveness has to be documented with a cost breakdown when submitting the offer.

The supplier is obliged to notify to KRAH unsolicited the number of deliveries, for which additional transport costs have been incurred, namely to the end of each year.
This also applies for cases or costs, respectively, incurred with subcontractors. If this will not happen, we will proceed on the assumption that no such incidents occurred.

4. Legal basis

The general conditions of purchasing of the Krah-Group are an inalienable constituent of the deliveries to the Krah-Group.

5. Contract review

All documents and information with the authorship of the Krah-Group are and remain our property. These documents are confidential and are not allowed to be given to third parties without our written agreement.

As a minimum requirement, the following items have to be checked before acceptance of the agreement:

- The (technical, business, logistic) requirements are clearly defined, documented and understood
- The differences between the agreement (or requirements in order) and the offer have to be cleared up
- The capability to meet the requirements of the agreement has to be ensured
- Special requirements of customer (e.g. paragraph II of QS 9000)
- Requirements in connection with valid regulations and design approval have to be ensured by the supplier.

The supplier must realize all the items contained in the documents completely if he has not opposed in writing and if the Krah-Group has not accepted the opposition.

The supplier has to procure the required customer specifications, standards and regulations (DIN; ISO; VDA, etc.) which are mentioned in the documents of the Krah-Group. The supplier commits himself to ensure that his documents are updated and with the valid status.

If there are some items, which are unclear, the supplier has to discuss the matter with his contact person in the purchasing department.

The following basic documents can be part of an inquiry of the Krah-Group:

- General terms of purchasing
- Drawings or CAD-data sets
- Material requirements
- Special quality requirements (QSVP for suppliers)
- Test specification
- Packaging instructions

6. Product development

6.1 In general

The supplier works together with the project teams of the Krah-Group already during the early phase and ensures that the products are developed according to the requirements of the customer. The results of the development have to be documented and regularly compared with the requirements.

Technical modifications during the developmental stage have to be approved by the project leader of the Krah-Group. Problems in processing (techniques, schedule, and costs) organizational and technical interfaces have to be clarified with the responsible contact person of the purchasing department at the soonest.

6.2 Suppliers with responsibility of development

Suppliers who develop a product and deliver it to the Krah Group have to proceed according to the processes defined in VDA, volume 4, part 1 and part 3 as well as VDA, volume 6, part 1, and satisfy the requirements specific to the product. When taking over the responsibility of the system, the supplier has to ensure the customer requirements in the global area of the product to deliver and to consider the results of the analysis for the Design Review. The criteria “quality, dates of delivery and quantities to deliver” have to be satisfied by the supplier – also during the product development phase – and have to be always on market level.

The realization of the customer requirement in the product has to consider the following aspects:

- legal regulations
- standards, drawings, specifications, performance requirements, standards of the Krah Group

- quality agreements
- logistic concepts
- plans for waste disposal / protection of environment (IMDS)

For the development and the evaluation of the product, the following processes and methods have to be used continuously, to be documented and submitted to the Krah Group if required:

- Quality Function Deployment (QFD)
- D-FMEA or P-FMEA (see VDA, volume 4, part 2)
- Design of experiments (DoE)
- Design Reviews
- Simultaneous Engineering

The development phase has to be closed with a Review and a reliability test.

Projects and products have to be planned and executed inter-divisional. A project team has to be formed and a project leader has to be named. The relevant divisions are to be involved accordingly. The supplier is also involved in the project team. Design discussions are held jointly with the divisions: QA, construction and procurement.

Deadlines, tasks and responsibilities are to be defined in a project plan. All project relevant activities, measures and resources are to be planned. This planning is to be understood as an inter-divisional task and should explain how customer requirements for a product should be met during all product phases. The results of this planning are to be documented.

Quality management plans (QM-plans) are to be implemented to detail specific and quality related processes as well as the process-flow of production. These QM-plans are to be agreed upon by the KRAH QA department. The product/process phases, as outlined below, require, according to VDA volume 4, part 1, documentation regarding the compliance with the given quality requirements.

- conceptual design
- design phase
- production preparation
- serial production

The presentation of the initial samples is to be carried out according to VDA volume 2 (see chapter 8).

6.3 Suppliers without responsibility of development

Suppliers who deliver their parts according to the drawings or specifications of the Krah Group have to describe the systematics of the product realization to the Krah-Group. An agreement will be reached jointly. The minimum requirements are:

- Definition of a global schedule
- Planning of production / planning of monitoring / planning of test devices
- Submission of Initial Samples according to VDA, volume 2 (see chapter 8)
- Definition of a claim management.

7. Process development

Parallel to the product development, an adequate development of process has to be carried out by the supplier. For that purpose, he has to plan the schedules, the capacities and the resources (of machines, material, subcontractors, staff).

A Quality Management Plan according to VDA, volume 4, part 3, has to be issued and monitored: this Plan will be the basis of QSVP. The Quality Management Plan has to be agreed with the Quality Assurance Department of the Krah-Group. In the Quality Management Plan, the different production and testing processes are defined, including the processing equipment and test devices.

A process-FMEA has to be issued and updated during the different phases of the process development.

The supplier has to define the test procedures and methods in time and in detail, particularly in case of critical features and functions of the process. In case of special features, capability studies have to be carried out. The training and qualification of staff has to be ensured in time.

In agreement with the Krah-Group, a pre-production under series conditions has to be carried out for the series release (representative production batch). When the development and the process planning are closed, the product has to be submitted as an Initial Sample according to VDA, volume 2 (regarding the procedure for product and process release: PPF).

The supplier has to define the internal material flow and the internal transport means and boxes. The external boxes have to be defined together with the supplier.

8. Product- and Process approval (initial samples), modifications / marking

The joint target of the supplier and the Krah-Group is to develop a reliable production and to ensure a trouble free series start. This target can be achieved with systematic planning and a concerted application of the adequate measures. The supplier has to prove to the Krah-Group that the parts were produced with stable and capable processes. This proof is designated under directive VDA Band 2 as Product and Process Release and has to be submitted with the initial samples.

Fundamentally, the following procedure has to be used:

- in case of new products
- in case of design, specification or material modifications
- in case of the manufacturing and modification of tools
- in case of process or methods modifications
- in case of production relocations
- in case of changes of subcontractors of products or services
- in case of production from tools after an interruption of 12 months or more
- after a delivery stop due to a quality problems

Additionally, the item “modification/marking” has to be considered. The supplier has to issue applicable QSVP-documentation with the following contents, along with five product samples (in case of multiple tools: 5 parts from each cavity), or more after consultation with the Krah-Group. The submission of initial samples comprises the following documents and methods:

- a drawing of the product according to the measuring report
- a measuring report for all dimensions and features of the product drawing
- In case of multiple tools: for each cavity.
- If reports differ from the VDA-standard, they have to be agreed between the supplier and the Krah Group.
- The actual dimensions have to be indicated more exactly (one digit more) than the global tolerance.
- Diverging dimensions and features have to be marked.
- An inspection test certificate according to DIN EN 10204

- A temporary process capability (Ppk > 1,67; determined with 25 samples / 5 pieces) for special features which are marked in the drawing of the Krah-Group or which were agreed with the supplier
- A list of the product specific measuring devices and the proof of capability of these measuring devices
- A document about the life of parts with the list of all product and process specific modifications
- R&R analysis

Furthermore, specific requirements – e.g. Production Part Approval Process (PPAP) according to IATF 16949 – can be agreed between the Krah-Group and the supplier.

The whole procedure has to be planned so that the Krah-Group can release the products on time, i.e. before the first series delivery.

After checking the submitted initial samples and documents, the Krah Group will:

- Release the samples for the series production; or
- Release the samples with conditions; or
- Refuse the samples.

The packaging of the initial samples must be provided with a label “Initial Samples”. The following indications have to be on this label: PN, index of modification, dispatching date and contact person at the Krah-Group.

In a R @ R - study documented the supplier's process capability.

8.1 Diverging process for electronic components (e.g. transistors, diodes, carbon film resistors, metal film resistors)

The supplier has to provide the Krah-Group with 5 free samples and a measuring report with the following contents no later than three months before the serial production start:

- A specification of the Krah-Group (including all standards and instructions mentioned in it) confirmed by the supplier
- A detailed manufacturer data sheet
- A detailed description of the technology and of the design of the part with drawings, photos, etc.
- Indication of all production sites concerning the part – also for partial processes
- A flow process of production and checking (flow chart)
- Results of the quality and reliability checks

The packaging of the initial samples must be provided with a label “Initial Samples”. The following indications have to be on this label: PN, index of modification, dispatching date and contact person at the Krah-Group.

8.2 Modifications / marking

The supplier has to inform the Krah-Group in time about all modifications he caused so that we can check them regarding their significance and – already before the realization of the modifications – approve or refuse them. In each case, the following aspects have to be considered:

- The first three deliveries after a modification have to be marked accordingly (PN, index of modification, contact person). This marking has to be carried out for each box separately and for the outside box. Also the delivery documents have to be marked with “modification”.
- After the first delivery with the new index (product modification), no delivery will be allowed with the old index.

8.3 Submission of documents for release

The documents indicated in the QSVP have to be submitted for the production and product release.

If not agreed otherwise, the documents and the samples have to be submitted to the Krah-Group according to the agreement of the QSVP.

If the supplier works with electronic data, an additional drawing is necessary for the initial sample release.

8.4 Conflict Materials

If the product concerned contains any conflict materials, particularly tin, the supplier has to document and confirm the origin using the current Conflict Material Questionnaire.

Current Version: http://www.eicc.info/Extractives.shtml

9. Regulations regarding the submission of documents for the release

9.1 Drawings

If the sample release does not take place based on the drawing of the Krah-Group, the alternative drawing has to at least contain the following elements:

- PN of the Krah-Group
- Present index of modification
- Indication of dimensions, tolerances and specifications according to the usual standards or the standards of the Krah-Group.

9.2 Measuring results

The measuring results have to be presented in a useful numerical order which has to be traceable on the product drawing. The divergences between required and actual values have to be marked usefully. If measuring results are used by third parties, this has to be clearly indicated in the test report.

If production parts are to be tested from more than one cavity or, as the case may be, from more than one tool, then there must be a complete test consisting of at least 5 parts per cavity/tool.

All drawing features in the report are to be carried out in accordance with the VDA format or in accordance with the AIAG = PPAP requirements.
The results of capability tests are to be presented for special characteristics (safety characteristics and functional dimensions).
The presentation of a drawing is always necessary for the sampling.

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9.2.1 Dimensional report on plastic parts

The dimensional report on plastic parts is always prepared by Krah and made available to the supplier.

9.3 Material tests

The materials specified in the production drawing have to be confirmed with a data sheet and an acceptance test certificate according to DIN EN 10204. Furthermore, the materials have to be entered into the IMDS-system. In

case of products which comprise material specification developed by our customers as well as a list of sources of supply authorized by the customer, the suppliers have to order the materials and/or the services from the suppliers indicated in this list.

If material tests or performance tests are carried out by an external lab, an accreditation of the lab is necessary (e.g. according to ISO/IEC 17025 or according to a comparable standard).

9.4 Performance- und function tests

If the performance and function tests are specified, these tests have to be verified by the suppliers. The supplier is responsible that all the affected specifications are fullfilled.

In case of divergences from the specification, no submission of initial samples is necessary and the supplier has to do his best to satisfy the requirements. The respective contact person of Krah has to be informed about the initiated actions.

9.5 Design release

For all parts, which require a special design (e.g. color, grain, brightness, etc.) according to the drawing instructions, the test report has to give an adequate assessment.

9.6 Assessment of the process performance

For all features which were identified, by the Krah-Group and/or by the supplier, as a special feature (function dimension or safety feature), an assumed value has to be defined for the process performance. In this case, also capability certificates are necessary for the submission of the initial samples.

For the identified features, a Ppk-value of ≥ 1.67 or a Cpk-value of ≥ 1.67 (long-term consideration) has to be reached when using production tools and production parameters.

If the required process performance cannot be proved til the submission of the initial samples, the supplier must develop an action plan which has to be approved by the Krah Group.

9.7 Initial sample report

If not otherwise agreed with our contact partner, a separate report has to be submited for each PN according to the defined level of submission. Therefore, it is necessary that the supplier ensure that the initial sample was manufactured under the same conditions as the later series product. If there are divergences from the confirmed and released product features during the series delivery, the following measures can be required – after agreement with the supplier:

- Immediate replacement delivery for defective and suspect parts
- 100% sorting of parts in stock by the supplier
- Rework by the supplier in our factory
- Charge of the according costs for the whole value added chain up to the end customer if it is absolutely clear that the delivered product caused the failure.

9.8 Lab tests

All the tests in labs have to be carried out in an organization unit, which is certified according to IATF 16949 or by an accredited lab. The supplier has to give Krah this certificate and a present overview of the lab scope together with the initial sample submission. In this case, a lab scope means an overview of the tests, which can be carried out in a lab.

9.9 IMDS

The supplier uploads the data on the composition of his products to the International Material Data System (IMDS) https://public.mdsystem.com. The supplier is also responsible for the data on the products of his suppliers / subcontractors which data is uploaded to the IMDS.
The data transmitted by the supplier must be in conformity with all the instructions/regulations of the motor vehicle manufacturer and the legal directives in respect of the "Restrictions on the use of environmentally-relevant substances".

10. Procurement at subcontractors

If the supplier procures his products from subcontractors, the supplier is responsible that each subcontractor is informed about the contents of these guidelines and that the subcontractor applies them. The supplier is also responsible that his subcontractor satisfies the quality requirements (QSVP) agreed with the Krah-Group.

The supplier is also responsible for the subcontractors (and their products) which were stipulated by the Krah-Group.

The condition for the procurement of products at the subcontractor is a system of assessment and release of subcontractors – including a release of product and process according to VDA, volume 2.

Fundamentally, the following procedure has to be applied with subcontractors:

- In case of design, specification or material modifications
- In case of the manufacturing and modification of tools
- In case of modification of processing methods or processes of production
- In case of production relocations
- In case of changes of subcontractors, of products or services
- In case of new production with tools after an interruption of 12 months (or more)
- After a delivery stop due to quality problems

A representative of the Krah-Group (possibly with our customer, too) is allowed to audit the subcontractor at any time after an adequate announcement. The Krah-Group requires that the quality assurance measures, the test features, the run of the incoming test as well as the initial sample procedure and the release procedure are defined in writing.

Additional requirements which that are passed to the supplier have to be passed on to the subcontractor by the supplier.

The supplier has to submit a certificate of origin according to EWG-VO 3351/83 so that a correct indication of the origin and the issue of the certificate by the Krah Group is possible.

11. Series testing

To manage and monitor the quality during the production, tests have to be carried out in all the production areas according to a Quality Management plan or according to test instructions. The instructions for the series tests can be defined by the Krah-Group in fundamental quality requirements and in specific quality requirements, or by the supplier himself. If the supplier defines the instructions for each series test (new release of series production, measures of process management, monitoring of production, end test, periodical tests), a release has to be carried out by the Quality Department of the Krah-Group.

Fundamentally, the following items have to be documented:

- Scope of tests (number of products or features tested)
- Test result (actually measured values, quantities of scrap, kind of failures)
- Test decision (release, derogation, rework, scrap, return delivery)
- Results of repeated tests (e.g. rework)
- Divergence from indicated process parameters with actions started
- Results of 100% tests

11.1 Re-release of series production (first-parts release)

The re-release of the production start is required for both, product and processes. This re-release has to be carried out by an authorized and qualified employee. If a direct release cannot take place, the parts have to be marked clearly in each case and to be blocked until a definitive test is carried out.

11.2 Measures of process management / monitoring of production

Tests have to be carried out so that divergences can be detected in time. They have to be documented so that trends can be identified and applicable corrective actions can be started.

Automotive Customer expects in part a serial tests supervision of the SPC parameters. Should series accompanying monitoring of the SPC parameters be requested, an appropriate agreement (within the QSVP) with the supplier will be done. Unless agreed otherwise, the monitoring of each batch will be done according to the SPC parameters as per the drawing.

11.3 Final Testing

The scope of the final testing depends on the results and the extent of the tests carried out before the final test, the capability, the processes and the product types.

11.4 Periodical tests

Periodical tests have to prove that all quality requirements regarding the product are satisfied. The tests are carried out by the supplier and are to be made available to the applicable Krah plant. Periodical tests are for example:

- Product audits
- Long-term tests
- Repeated initial sample submission

12. Logistic Requirements of the supplier

The target of the Krah-Group is to ensure customer service under consideration of economic efficiency.

Therefore, the exact logistic definition of the company on the market is required.

The logistic system of the Krah-Group is based on the principle of continuous contact between the customer and the supplier. Therefore, the supplier has to achieve the following main target:

- To ensure the 100%-procurement of the Krah-Group as well as the logistic quality
- The Krah-Group grants a production release of 4 weeks and a pre-material release of 8 weeks.

This means for the supplier:

12.1 Rapid receipt of requirements and immediate requirement processing

At the Krah Group, the customer requirement is the basis of a daily calculation of the net requirement in order to define the quantity of parts to be bought. So, the supplier can receive an updated information (per Data Teletransfer, fax, Kanban, etc.) about quantities and dates of delivery every day. The supplier has to react to modifications of requirements rapidly and flexibly. He must be in a position to process these data within a short time.

12.2 Preventive and rapid actions in case of delivery problems

The Krah-Group implies that the supplier checks the requirements received regarding the quantities to deliver and the dates of delivery immediately.

In case of delivery problems or other unplanned events, the supplier has to inform the Krah-Group immediately.

A written confirmation of order is required in every case. The actions to take to ensure the procurement in critical situations have to be agreed in advance and to be documented.

12.3 Defined flexibility in case of fluctuations of requirements

The capacity planning and a frame for the fluctuations of requirement is agreed and defined together with the supplier. We expect that the supplier ensure a 100% procurement within the defined frame of requirement fluctuations. In case of more substantial modifications of requirement, an adjustment of capacity will be agreed with the supplier in time.

12.4 Compliance with the agreed packaging and marking

On the basis of a clear and systematic marking of products, transport units and tools, the identification of parts as well as their statuses has to be clearly visible. The definition of packaging is based on the requirements of the packaging system, the stock and the transport system of the Krah-Group. The choice of the packaging is part of the offer and is defined before placing the order together with the Purchase Department under consideration of the technical and logistic requirements as well as of the economic efficiency.

Fundamentally, the different packaging units have to be marked with standardized barcode-able goods labels according to the VDA-standard 4902, version 4.

Divergences from the agreed packaging and marking have to be agreed with the Krah-Group.

A traceability system of batches must make the traceability of potential reasons for failure as well as fault localization possible.

The goods labels have to contain the following information:

- PN of the Krah Group
- Designation of parts
- Status or part index
- Name of supplier
- Supplier number (barcode)
- Quantity (barcode)
- Continuous delivery note number (barcode)
- Date of dispatch (date of delivery note)
- Number of batch or of purchase order
- Weight per each packaging unit (single box and complete pallet)
- Continuous number for each packing piece.

- Code  or  or 

A goods label has to be fixed on each box. The transport units have to be packed so that the different types are separated from one another.

The following documents have to be included in the delivery:

- Fivefold transport order according to VDA 4922 (roll card)
- Delivery note
- Invoice twofold in case of border-crossing deliveries
- In case of imports, all documents required for a cost-effective payment of duty
- Other documents only according to the express agreement with the Logistic Department of the Krah-Group.

The current packaging regulations of the KRAH Group apply (KHN12).
These regulations can be found on our website under www.krah-gruppe.de/downloads.

Please note chapter 14 regarding parts that are subject to documentation.

12.5 Issuing of delivery notes and invoices

The delivery note and the invoices have to be issued as a collective document, i.e. only one delivery note and invoice number per delivery. A delivery includes all goods delivered by one vehicle. Only an adequately marked copy of the original invoice, rather than a separate invoice, can be used as a customs invoice.

12.6 Certificate of delivery

The handing over of the certificate of delivery according to regulation (EU) No. 2015/2447 the commission of 24. November 2015 is part of the General Terms of Purchase. The certificates of delivery according to regulation have to be sent for the following calendar year, for the next calendar year as well as during the year for new products, to the Purchase Department of the Krah-Group.

In case of a wrong certificate of delivery according to regulation, the supplier is liable for all consequences.

12.7 Joint planning and agreement about the logistic process

The supplier and the Krah Group plan and agree the logistic procurement process (e.g. Kanban, time of delivery) together. The result is documented – together with the supplier – in a delivery agreement. The concluded delivery agreement is the basis for the assessment of the logistic performance and the logistic quality of the supplier.

13. Claims

If defective parts are detected in the deliveries of the supplier, the supplier will be informed immediately. The detection and documentation of the faults are carried out in writing in form of a failure report. To define further actions, particularly in urgent cases, a quality discussion will take place directly between the supplier and the quality depart-

ment of the corresponding Krah plant. If there is a risk of aproduction stop at the Krah-Group or at one of his customers due to a shortage of finished parts, the supplier has to sort and/or rework the parts at the Krah-Group immediately.

If the supplier does not – or cannot – comply with his commitments immediately, the Krah-Group has the right to rework the parts themselves and charge the supplier with the corresponding costs.

If the supplier assignes subcontractors for the rework, the supplier is responsible for the instruction of the subcontractors.

Internally, the supplier has to sort, to rework or to scrap the parts in order to avoid the delivery of further defective products. Each rework which modifies the features of the product or causes divergences from the specification has to be released by the Quality Department of the Krah-Group (including the planned rework process).

For audit trail purposes, the sorted and/or reworked parts are to be marked as well as the individual packaging. The marking on the packaging is to be done on an orange label (of which there is a sample attached to every claim). The marking on the parts themselves has to be agreed with the QA department of the receiving KRAH Group Site.

To avoid that a failure occurs again, the supplier commits himself to take the adequate corrective and preventive measures after the analysis. These measures have to be transmitted in writing to the Quality Department of the Krah-Group, together with the PDCA-form or preferably with a 8D-Report – including the three times 5W-analysis – with deadlines and responsible persons. The efficiency of the measures has to be checked and documented by the supplier. If required, the FMEA, the test process plans, the checking plans as well as further QM-documents have to be revised accordingly. Please note that a claim is always the consequence of a failure which was not detected; so, it has something to do with a system failure. Therefore, the reasons why a failure occurred, why it was not detected and which failures of system allowed that the failure was not detected, all these reasons have to be analyzed. Furthermore, the adequate measures have to be taken to reach the required improvement. The efficiency of the measures has to be proven.

If one of our customers (usually the automotive producer) finds any failures when processing the parts, and if the failures are due to the fault of the supplier or to divergences which were not released, the above mentioned regulations are also valid after agreement with our company.

As soon as the supplier is informed about failures, he has to ensure that only O.K.-parts leave his factory. The supplier has to report on the batches which were already sent but not yet received by the Krah-Group.

Statistical checks regarding the success of measures taken have to be carried out during 30 working days at least. The parts and packaging have to be marked accordingly after introducing the measures. The type of marking has to be transmitted to Krah together with the claim report.

14. Dokumentation

The supplier is obliged, as defined by the product liability / product insurance, to document and to archive all quality related documents and reports, e.g. product life reports, product specifications, test instructions.

The quality related documents and reports have to be insured against fire and water, etc., i.e. to be saved on memory media (files, microfilms, EDP-memory). If necessary, additional security files have to be created. The supplier has to grant an insight into these documents to the Krah-Group.

The supplier has to maintain a well functioning system for the maintenance, distribution, modification and destruction of documents and reports.

For the products which require a special proof of quality for significant features, e.g. parts which are subject to documentation (D-parts), a special marking will be agreed (e.g. “D”) for specifications, production and working plans,

checking plans control plans, flow charts, initial samples, test instructions, Quality reports, packaging instructions, labels on inner and outer packaging, etc.

The documents are to sign with  or  or  .

The documentation of the test results, training of operators, etc. and the archiving of documents have to be carried out according to VDA, volume 1. The required time of safekeeping (which has to be proved) for parts with special documentation is at least 20 years after the last product delivery.

15. Supplier evaluation

The Krah Group requires a QM-system on the basis of ISO 9001. Furthermore, we expect the further development of the QM-system according to IATF 16949. If the supplier has no certified QM-system, the QS-department of the Krah-Group will carry out an audit.

15.1 Supplier visits for evaluation

In case of a new supplier, an employee of the QS-department may visit the supplier for valuation. During this visit, the applied methods and the efficiency will be assessed according to the following elements:

- Production process
- Quality
- Logistics
- Purchase
- Development
- Environment

If the supplier is considered as qualified and if the according certificates have been submitted (or a system audit has been carried out), the supplier can be taken into consideration for future projects.

15.2 Quality audits

In spite of the certificates of the supplier, the Krah Group reserves the right to carry out own system audits, process audits or product audits. When planning the audits, the quality performance (ppm rate, etc.) and the delivery performance of the supplier are decisive.

The system audits carried out by other customers may be recognized after checking of the entire audit report. In case of new production processes and in case of new projects, the Krah Group generally carries out a process audit according to VDA, volume 6, part 3.

15.3 Periodical evaluation

The complete assessment and support of a supplier is carried out according to a standardized procedure of the Krah-Group. The assessment of the different elements is carried out by the procurement department of the applicable production site of the Group.

Such an assessment shows the potentials of improvement and allows a systematic comparison of the capabilities of the different suppliers.

Suppliers with a strategic importance are highly capable suppliers that are appointed to be integrated early into developmental projects. To be admitted as a strategic supplier, the supplier has to be an A-supplier regarding the ppm rates and the annual supplier assessment.

15.4 Emergency plan

In accordance with IATF 16949 (Section 6.1.2.3) the supplier must identify and assess internal and external risks for all production processes and production facilities in order to maintain production output and ensure that supplier requirements are met. This includes:

- Implementation of a system of notifications to the customer for the event that one of the situations (see 15.6) occurs.
- Checking that emergency plans are effective.
- Using a team to check at least once a year that emergency plans are up to date.
- Providing emergency plans and their revisions to suppliers in documentary form.

In line with these requirements suppliers should include an overview of emergency situations/plans as a supplement in their management system.

15.5 Identification and traceability of all production batches and material lots

In accordance with IATF 16949 (Section 8.5.2.1) we draw attention to the following:

Para. 1 + 2: The process for identification and traceability must be documented.

Para. 2: Risk analyses must be carried out in order to be able to draw conclusions from the findings regarding the type and extent of traceability.

Para. 2 a – f: Lists of reasons /situations which make at least one traceability identification label necessary.

It must be ensured that products can be traced across the entire supply chain (at minimum, per production batch).

15.6 Customer notifications

In accordance with IATF 16949 (Section 8.7.1.6) the supplier must provide immediate notification if defective products are dispatched. The initial contact must be followed by detailed documentation of the event.

This obligation to provide information also applies in cases of force majeure (acts of God):

This includes the following events, among others:

War, riots, explosions, fire, lightning strikes, floods, earthquakes, typhoons, epidemics, labour disputes, acts or omissions by the authorities and shortages of raw materials or energy.

This also applies if an event of force majeure affects a third party whose services are required by one of the parties to fulfil their own obligations.

16. Continuous improvement

There is a hard competition for markets and market shares within the automotive industry.

In order to maintain successful in the future, the production processes and the organizing procedures have to be systematically improved at the Krah Group and at our suppliers.

Furthermore, the specific standards of customers and sectors (see VDA, volume 6.1; QS-9000; IATF 16949), make the continuous improvement process more and more important.

The continuous improvement is based on the improvement of the processes in small steps due to team work. The requirements of the internal and external customers, as well as the reduction of each kind of waste, are the core of the activities of the team.

The process goes from the managing direction (top down); the employees have to be qualified and motivated for this improvement process and the teams have to take sufficient responsibilities.

On the basis of the identified weakest points, the objectives which can be quantified are defined – result and process orientated – and explained with charts. These charts show further information, e.g. the present situation compared with the objectives, the customer claims, the members of a team, the representative of a team as well as further items like quality, costs and delivery safety.

There are different possibilities to carry out an analysis and to find solutions (risk analysis, capability analysis, studies of ergonomics, benchmarking). There are also methods at disposal for the systematic application (PDCA: plan, do, check, act). Additionally to the improvement of the processes and to the minimization of the costs, the awareness of the operators for quality is increased due to the systematic inclusion of the groups.

The successful introduction of these methods is an important requirement for a company as it assumes the intensive training of managers, moderators and operators.

The continuous improvement will only have a future if a continuous support of the groups is ensured by the management of a company. This is only possible if the philosophy of improvement is considered as a most important target by the management.

17. Environmental protection

The Krah Group has committed itself to be among the leading companies also regarding the protection of environment. Therefore, we have introduced an environment management system according to DIN EN ISO 14001. If we did not include our suppliers into our efforts, our success would be jeopardized. Therefore, we await from our partners that they act in compatibility with the environment and that they consider the following items:

- Careful handling with resources in the production processes used
- Development of environmentally compatible products
- Avoidance or reduction of environmentally harmful production processes
- Qualification and motivation of all employees in order to carry out measures for the protection of the environment
- Observance of the according environmental regulations
- Observance of the regulations and guidelines of VDA (e.g. procedure for initial samples) and of decrees for taking back the old vehicles
- Sending the EU safety data sheets for raw materials, additional substances and fuels in case of first delivery and further at least once a year as well as in case of modifications of the safety data sheets.

18. General regulations

18.1 Drawing and modification statuses

The supplier has to ensure that the index of parts delivered corresponds to the according index released: this index is indicated in the order documents. If the index of those parts presently produced has not yet been released – or if

the present drawing index is not yet available to the supplier –the responsible buyer of the Krah-Group will clarify the further proceedings. This also applies to the further use of parts with a previous index.

The suppliers receive the current index of drawings from the procurement department of the Krah-Group. In case of technical modifications, the supplier has to carry out a submission of initial samples at the soonest.

The first 3 deliveries of parts with a new technical index have to be marked clearly on the packaging units and on the delivery note.

18.2 Marking of parts

The marking of parts has to contain the following features (if technically possible):

- PN of the Krah Group
- Indication of cavity
- Material
- Date of production / period of production
- Index of modification

The marking of tools has to contain the following features:

- Proprietor
- Tool number / inventory number

18.3 Control of test equipment

To ensure the quality of products, the supplier has to document the control of test equipment; this documentation must include the planning, monitoring and maintenance of the test equipment.

For special features, capability controls of test devices are necessary.

The test devices have to correspond to international standards. In case of an external control, the service company has to be certified accordingly or to be accredited.

18.4 Limit samples

To define the acceptable state of parts depending on design, the Quality department of the Krah Group can define so called O.K. samples. It has to be indicated if delivery quantities or delivery periods are to be limited.

18.5 Product liability

The supplier has to ensure that in his company all liabilities, which result from a liability without fault, are known, and he has to systematically secure against product risks according to the usual requirements in the trade. Therefore, it is in the supplier's interest to take out a third party liability insurance with a covering sum of at least 5 million EUR. He has to put a current copy of this insurance policy at the disposal of Krah each year.

18.6 Contingency planning

The supplier commits himself to take adequate precautions in order to minimize the product risks at the initially existing capacity of production as well as for continuing quality deliveries.

All actions which endanger the development and delivery programs as well as the production authorizations of the Krah Group are considered a risk.

18.7 Documentation

Documentation has to be kept in archives for at least 15 years. If required, the supplier has to put the documents at the disposal of Krah at any time on short notice.

19. Other applicable documentsn

The following documents are also valid (if applicable):

- General purchase conditions of the Krah Group
- Agreements of guarantee
- Agreements of logistic
- General quality requirements of the Krah Group for product groups
- Special quality requirements of the Krah Group for single products
- Packaging instructions

Norms

- DIN EN ISO 9001
- ISO 14001

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VDA-documents

- VDA, volume 1, management of evidence
- VDA, volume 2, securing of supplier quality
- VDA, volume 3, securing of reliability at automotive manufacturers and suppliers
- VDA, volume 4, part 1, securing of quality before using in series
- VDA, volume 4, part 2, system-FMEA
- VDA, volume 4, part 3, project planning
- VDA, volume 6, part 1, QM-system audit
- VDA, volume 6, part 2, system audit of services
- VDA, volume 6, part 3, process audit
- VDA, volume 6, part 4, system audit of means of production
- VDA, volume 6, part 5, product audit
- VDA, volume 7, processing of quality data
- VDA, volume 17, assessment of logistics
- IATF 16949 Guide
- QSA procedure of assessment
- PPAP procedure of product release
- APQP product quality planning and control plan
- SPC statistical management of process
- MSA analysis of measuring systems
- FMEA failures possibilities and analysis of influence

Other Documents

- Current Version: http://www.eicc.info/Extractives.shtml

ONLY THE UPDATED VERSION OF EACH DOCUMENT IS VALID.