VDA

2

Quality Management in the Automotive Industry

Quality Assurance of Supplies

Supplier Selection
Quality Assurance Agreements
Production Process and Product Approval
Quality Performance in the Series

Table of contents

3rd completely revised Edition 1998

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Foreword

The internationalization of purchasing activities and production locations in the automotive industry demands equal quality management standards worldwide.

An always closer cooperation between the customer and supplier is therefore a necessary precondition for global competitiveness.

This close cooperation between customer and supplier is to be organized through agreements. This publication gives appropriate comments and recommendations on this subject.

With the first edition of the VDA Volume 2 from the series „Quality Management in the Automotive Industry“ in the year 1975, framework guidelines for the evaluation of the quality capability of suppliers, first sample testing and the evaluation of the quality of serial parts upon material receipt were established.

In the second edition of the VDA Volume 2 in 1995 methods to assess the quality performance of serial supplies and first sample testing were described in basic form.

The present third edition became necessary in order to achieve the assimilation to international quality management standards in the Automotive Industry.

Another aim existed in wanting to condense this volume. Therefore some contents which are already been illustrated in detail in other VDA publications were no longer included.

In this edition the selection of suppliers, the production process and product approval (first sample testing) and quality assurance agreements are fundamentally newly described. Procedures to assess quality performance in the series were removed in favor of the up-to-date PPM-evaluation. During the preparation, requirements and comments from e.g. QS-9000, PPAP (Production Part Approval Process) and EAQF were taken into consideration.

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1 Introduction

Intensive and early cooperation between customer and supplier in the Automotive Industry is becoming increasingly important in view of later serial quality.

1.1 Purpose

This publication is to be understood as an aid to organize the cooperation between customer and supplier in the Automotive Industry. The procedures described in the following chapters:

- Supplier selection,
- Quality assurance agreement,
- Production process and product approval,
- Quality performance in the series,

shall provide the evidence that the supplier is able to deliver quality products corresponding to the requirements. Furthermore, the possibilities of avoiding, identifying and resolving nonconformities and improving the quality of supplies are demonstrated.

1.2 Phases of Cooperation

In all phases of cooperation, one should proceed with mutual honesty, whereby at the same time, safeguarding strict confidentiality is an essential requirement (Know-how-protection, patents, etc.).

The type of cooperation and the application of the procedures should be properly coordinated by the customer to the basic conditions regarding:

- Complexity of the products (Product/Process technology),
- Type of supplier (e.g.: Engineering supplier, manufacturer, service provider, trade),
- Scope of delivery (e.g.: Raw materials, parts, modules, systems),
- Procurement (e.g.: Global, single source, monopoly products, catalog goods).

1.2.1 Concept Phase

Requests to tender for a product should be carried out under the same conditions for all involved (same information status, at thesame time, with the same evaluation criteria).

The supplier should be informed by the customer about the foreseen application conditions of the supplied part and the customer product. Through this, the supplier is put in the position of being able to bestadvise the customer in view of the correct application or use of the supplied part, so that errors during the customer's product development can be avoided.

Thereby, the customer's requirements listed in the documentation should be comprehensive, clear and appropriate. The supplier is obliged to check the customer's requirements for completeness and feasibility before submitting his offer.

Ascertaining the completeness of the documentation, above all regarding the economical, technical, logistical and organizational requirements, quality management methods and quality objectives, requires joint agreement. Here, e.g. purchasing contracts, delivery plans, performance specifications and quality assurance agreements, serve to assist.

Supplier selection is carried out based on technical, economical, logistical and qualitative criteria.

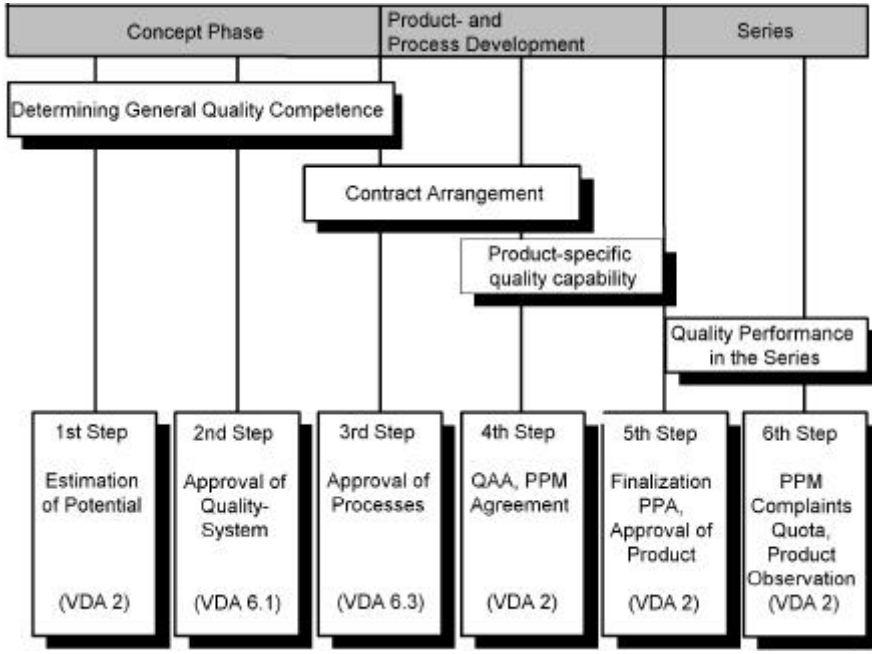

Fig. 1-1: Phases of Cooperation

1.2.2 Product and Process Development Phase

A project plan is to be raised which illustrates the milestones from the concept phase through to series start (see VDA Volume 4.3 Project Planning and Implementation for Products and their Production Processes).

This project plan, orientated to the milestones, is to be established jointly by the customer and supplier. It can only be changed in agreement.

Successful product and production process development is proven through the production process and product approval (first sample testing).

1.2.3 Series Phase

Prior to the first serial delivery, a production process and product approval must be available.

It is completely valid for the serial delivery that only faultless products may be delivered by the supplier to the customer.

Customer and supplier have to jointly establish responsibilities and processes (joint quality control processes) about how to proceed when disturbances occur and how to deal with nonconforming products.

Quality performance in the series must be assessed. Corresponding data, information and experiences are to be used for continual product improvement, as well as for production optimization.

2 Supplier Selection

The customer selects suppliers dependent on the product and/or service that has to be purchased. Normally, the selection of suppliers is carried out interdisciplinarily, e.g. through the purchasing department of the customer under inclusion of development, production, quality management and logistics.

Here it is to be considered that the selection of suppliers should take place as early as possible, so that cooperation can begin at a very early stage of the development. Supplier selection is to be carried out much more carefully and in more detail, the higher the complexity and technical requirements of a product.

The quality capability of the supplier is the most essential selection criteria, beside the technical, economical and logistical aspects.

2.1 Quality Capability

After a general estimation of the potential (e.g. according to technical, economical and logistical aspects), the **overall quality capability** of a supplier must be proven through the approval of the quality system and the processes relevant for the product (see Fig. 2-1).

The evidence can be in the form of records about:

- system and process audits from the customer's side (second party),
- system and process audit results from other customers of the supplier,
- certification through accredited certification bodies (third party).

In justified exceptional cases, the customer decides about a different form of evidence about general quality capability.

The supplier's quality system is assessed through a system audit (according to VDA Volume 6.1) or certification. The assessment of the quality system gives information about the technical and organizational conditions at the supplier.

The process audit (e.g. according to VDA Volume 6.3) assesses the production process of products. Here, questions on the assurance of the production processes build a focal point.

General quality capability is a precondition for order allocation.

The **product-specific quality capability** is proven with production process and product approval (see Chapter 4). This is the precondition for series approval.

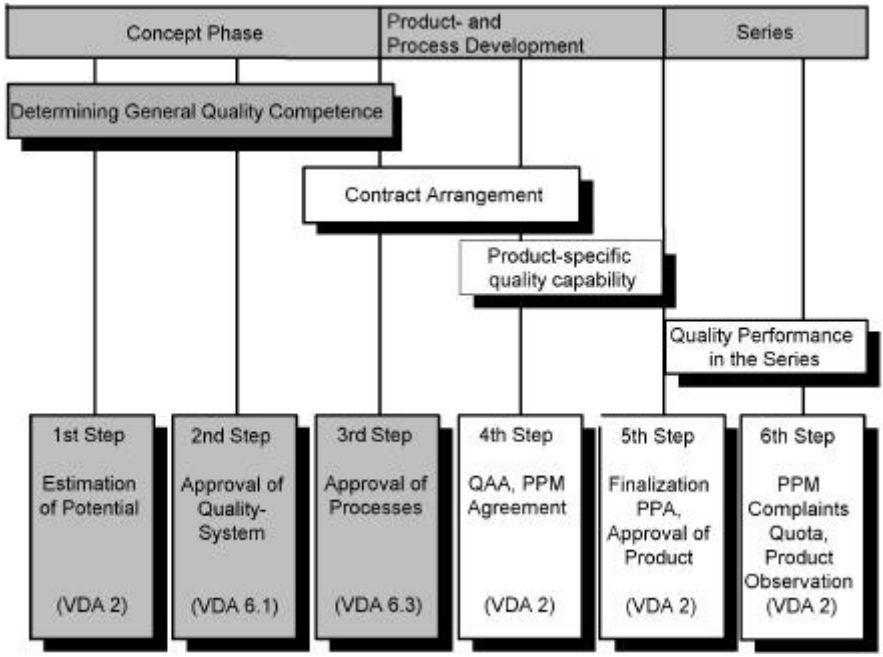

Fig. 2-1: The Process of Supplier Selection

2.2 Further Selection Criteria

Audit results provide a comparable survey of the conditions at suppliers and thereby, represent a basis for selection of suppliers. The purpose, above all, is to minimize the risks when selecting suppliers but also to review the requirements and to create incentives which further competitiveness.

When selecting suppliers, further criteria may be taken into account, such as for example:

- Engineering performance and potential, reliability, as well as personnel and technological equipment,

- Scheduling, cost discipline and pricing quality with regard to the transparency of internal scheduling, pricing and cost structuring, systematic implementation of rationalization opportunities,

- First sample results with reference to the frequency of first sampling, completeness of the first sample test report (FSTR) and the sample parts, communication, problem solving competence and reaction to complaints,

- Delivery reliability and flexibility when assessing the materials received (Schedule/Quantities), delivery call-off procedure and control,

- Product quality and quality awareness with reference to cleanliness and tidiness, production safety precautions; qualification of the employees, level of training and further education,

- Communication and cooperation during order administration, production planning and control system, the communication technology (internal/external),

- The quality of problem handling, communication conduct when problems or complaints occur, the availability of contact persons, an emergency plan,

- Legal regulations regarding the environment and health and safety at work,

- Environmental awareness, the environmentally correct handling of raw materials, products, packaging and waste,

- Traceability.

These criteria should be incorporated into a supplier evaluation system (see Chapter 5).

The selection of suppliers can be simplified with the help of checklists and/or with the support of data processing.

3 Quality Assurance Agreements (QAA)

After supplier selection has taken place, the customer should, if appropriate, enter into a QAA. The QAA has the objective of ensuring the quality required by the customer is achieved – from product planning onwards – especially by defining interfaces and furthering intensive and smooth cooperation.

This also has the side effect that the joint competitiveness of the contract partners is normally strengthened.

Quality assurance agreements are aimed at raising common rules for comprehensive manufacturer quality assurance measures normally indispensable due to modern development, production and product techniques and should not lead to the disadvantage of one contract partner. One-sided shifting of costs, obligations or responsibilities would thereby contradict the essentialbasic idea of a QAA.

Leading idea: The contents or wording of quality assurance agreements should be able to be accepted by both the customer and supplier – even in reversed roles.

The drawing up of quality assurance agreements commends itself for serial products.

QAA contents should in principle be quality-related. Product characteristics and technical requirements of the product are to be documented, e.g. in engineering contracts, performance specifications, drawings or other specifications. Commercial contents are to be dealt with, e.g. in purchasing and supply contracts.

If not already controlled or more closely specified in other contracts - as given in example in the previous paragraph – the contents of quality assurance agreements can, amongst others, be:

- Requirements of the supplier quality system,
- Definition of the quality related responsibilities,
- Definition of the interfaces between customer and supplier,
- Definition of mutual information obligation,

- Right of the customer to certain audits
- Documentation of the quality data, retention periods, reporting
- Definition of the production process and product approval procedure (PPA),
- Clarification of the product modification procedure (see PPA),
- Measures for the prevention, identification, elimination of nonconformities,
- Definition of joint quality control processes,
- Participation of the supplier in the production process of the customer in order to assess problems,
- Definition of the requirements placed upon the subcontractors of the supplier,
- Agreements about the delivery quality (PPM) and product reliability,
- Coordination of inspection and testing or inspection and testing procedures,
- Adaptation of material receiving inspections (e.g. with JIT deliveries),
- Technical and logistical warranty transactions,
- Product identification and traceability,
- Product durability,
- Requirements of the supplier's environmental management system,
- Agreements about confidentiality rulings,
- Contract duration,

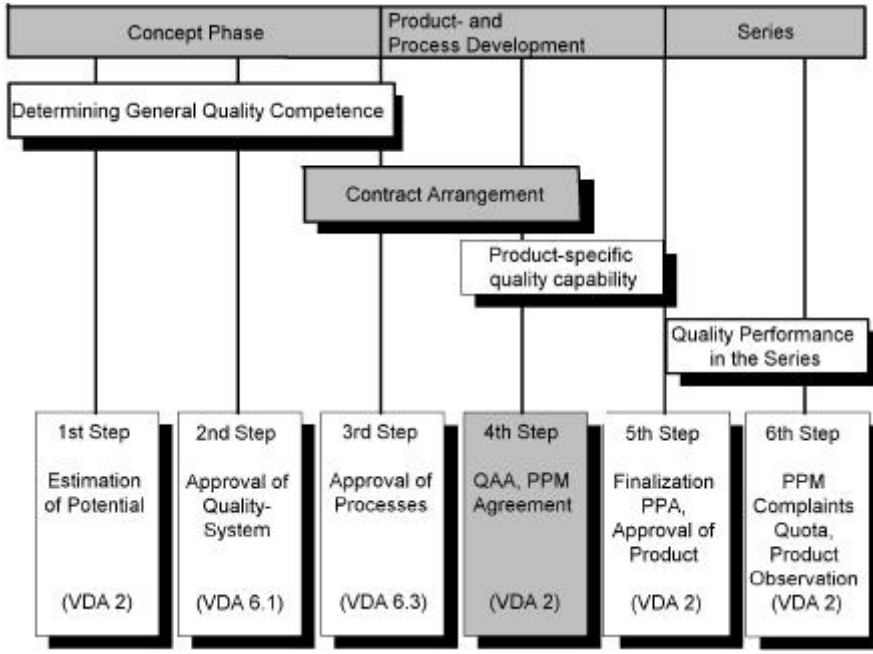

Fig. 3-1: Contract Organization

Comments: QAA contents can also be drawn up independently (e.g. PPM agreement) or be part of other agreements (e.g. supply contracts).

Different wording in quality assurance agreements can have an effect on product liability and, for example, on insurance cover. It is therefore recommended, especially for products where mistakes would lead to liability insurance claims, to consult the liability insurer and/or to take legal advice.

If wording contravenes against current laws (e.g. German general terms and conditions of trade law – in German AGB Gesetze), then the wording or the entire QAA can be legally invalid.

Further comments to the subject of liability are included in VDA Volume 1 (Quality Evidence)

4 Production Process and Product Approval (PPA)

The PPA procedure ensures that material products comply with the customer's requirements.

Hitherto, product approval was always in the foreground where **sampling** was concerned. (VDA Volume 2, 2nd. Edition)

The new **production process and product approval** takes the production processes into special consideration. The approval therefore encompasses:

- Processes (product-specific processes) through process capability analysis and/or process audit

- Products through first sample testing.

It is thus guaranteed that those products which have been manufactured with controlled and competent processes, comply with the specified requirements.

The basic idea of this procedure is to place the supplier in the position of being able to give the customer a binding declaration that the PPA procedure was successfully completed.

4.1 Purpose

The PPA procedure shall provide evidence, prior to serial start, that the quality requirements agreed in the drawings and specifications will be fulfilled.

The finalized PPA substantiates that the customer requirements, specifications and other requirements (e.g. laws, standards, etc.) have been correctly understood and implemented. This is also valid for the production process.

The PPA procedure is consequently the final verification of the product and production planning process and when a positive result is obtained, leads to series approval (see VDA Volume 4.3).

The procedure describes the basic conditions, which allow the customer and supplier to design the PPA appropriately.

4.2 Scope of Application

The PPA procedure is applied for new parts or when technical modifications to products and changes to production processes occur.

The procedure is used for material products (systems, modules, parts, components, starting materials), e.g. for:

- production parts,
- maintenance or spare parts,
- indirect materials, such as tools, lubricants, etc.,
- raw materials.

Comment: Non-material products (services, software, etc.) should be taken into consideration within the framework of the qualification testing of the supply part.

4.3 Principles of Production Process and Product Approval

- The PPA procedure must be carried out in correspondence with the respective agreements between the customer and supplier.

- The supplier clarifies which requirements exist in respect of the PPA during the review of the customer requirements (contract review).

- General agreements can be made between the customer and the supplier, in which the existing regulations for the PPA are included, supplemented or limited.

- The agreements about the PPA are documented and subsequently archived, e.g. in a requirements specifications or in a quality assurance agreement (see VDA Volume 1).

- The customer, as well as the supplier can initiate the PPA procedure. Possible initiators of the procedure are illustrated in Chapter 4.4. Thereby, the supplier generally has the obligation of clarifying with the customer if, and to what extent, the PPA procedure is necessary.

- If the customer waives the PPA procedure, this does not release the supplier from the obligation of an internal approval (see Chapter 4.6).

- The overall responsibility for the implementation of the PPA lies with the supplier.

- The supplier is responsible for the approval of all components, part systems and services of his suppliers, in order to fulfill the customer product requirements.

- The PPA procedure must be scheduled in agreement with the customer, so that the PPA can take place prior to the first serial production.

- The customer only receives sample parts if these are appropriately requested with an order and a scheduled delivery date.

- The approval is carried out according to the agreement between the customer and supplier, e.g. by the return of the signed first sample test report to the supplier.

- If agreed between the customer and supplier, a first sample test report can be raised and approved for a defined product scope (e.g. product family).

- An approval by the customer does not relieve the supplier of his responsibility for the quality of his products.

- Separate agreements should be made for supply call-offs by the customer without PPA,

The PPA does not itself represent a supply contract/or call-off.

4.4 Possible Initiators of the PPA Procedure

The contract partners must inform each other, at the appropriate time, about product modifications and product-relevant process changes.

The following circumstances are potential reasons for the PPA procedure to be carried out:

- when using new parts,
- when design, specification or material changes take place,
- when using alternative materials or constructions,
- when introducing new, modified or replacement tools,
- after conversion or maintenance of tolls, when appropriate,
- if manufacturing methods or production processes are changed,
- after production transferal or introduction of new production equipment,
- when suppliers of products or services are changed,
- after a hold on delivery caused by a quality problem,
- if production equipment has lain idle for 12 months or longer (products for the spare parts market may be excluded from this).

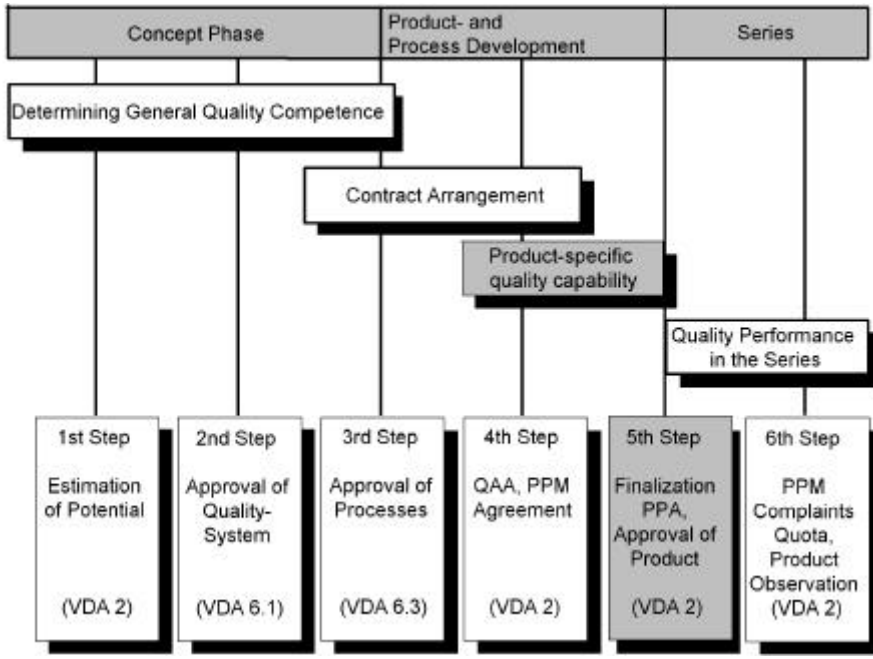

Fig. 4-1: Series Approval

4.5 PPA Procedure

The evaluation of the production processes and sample testing are the basis for the production process and product approval.

4.5.1 Evaluation of the Production Processes

The planning, development and introduction of controlled and capable processes is an essential part of the activities for the start of new or modified products and /or processes.

The performance of these activities is substantiated through documents and records during PPA. This includes, e.g. Process FMEA, process flow charts, production and inspection and test plans and results from process capability analyses.

The records are transmitted/submitted to the customer in accordance with the requirements for PPA (see Chapter 4.6).

The customer can additionally perform a process audit (see VDA Volume 6.3). This audit can take place at the supplier in connection with the PPA submittal.

4.5.2 Sample Testing

Samples are product samples upon which the compliance with the stipulated requirements can be tested. One differentiates between **"first samples"** and **"other samples"**.

Sample testing, also called sampling, is hereby understood to be the verification of samples. The samples are reviewed against the agreed and defined requirements, evaluated and the results documented.

First samples are products and materials completely manufactured using serial production resources and under serial conditions. The sampling for production process and product approval must be carried out using first samples. A sampling with first samples is called „first sample testing".

First samples that are foreseen for examinations, tests and dispatch to the customer should be taken as random samples from a production run under serial conditions. The lot size must be agreed between the customer and supplier considering the type of product. This is also applicable for the number of parts to be sampled.

Other samples (DIN 55350, Part 15) are products and materials not completely manufactured under serial conditions**. Other samples must not be used for production process and product approval**. These samples may, however, be used for products suitable for the customer if they meet the specifications.

An approval of other samples, such as, e.g. for trial or fitting samples through the customer's engineering or development department does not simultaneously mean series approval and is not a reason to waive the PPA procedure.

If the customer specifically requires a sampling with „other samples“ then the purpose of the sampling, as well as the scope of sampling and submittal is to be agreed and documented. In this case, corresponding comments are necessary on the VDA form.

All product characteristics contained in drawings and specifications are to be sampled, as far as practicable, useful and when not agreed otherwise:

- Dimensions,
- Materials,
- Function,
- Reliability,
- Optics,
- Weight,
- Haptics,
- Acoustics,
- Odors.

Comment: Details about the reference points, test sections and test surfaces are required for CAD drawings.

The samples are to be clearly identified (e.g. with object number) to enable relation to the individual values measured. If necessary, the origin from single or multiple impression moulds is to be included in the identification.

All characteristics are to be clearly identified and individually recorded with nominal values, limit values and actual values. The actual values are to be related to the individual samples.

4.5.3 Fundamental PPA Process

The fundamental PPA process is represented in Figure 4-2. Thereby, the following points are to be considered:

- The PPA procedure is planned in agreement with the customer so that an approval can take place prior to the start of series.

- The supplier raises a complete PPA documentation package with drawings (including CAD data) and specifications necessary to be able to carry out the examinations, measurements and tests on the product.

- The supplier determines the capability of the measuring systems and documents the results. All necessary product-specific inspection, test and measuring equipment is provided (related to the relevant modification status of the product).

- The customer together with the supplier should define or should have defined product characteristics which are called upon for the capability analyses.

- The supplier defines the process characteristics necessary for the fulfillment of the requirements.

- The process capabilities of the above mentioned characteristics are to be determined and documented (see VDA Volume 4, Part 1). The type of examination and capability characteristic values should be agreed between customer and supplier. If no other definitions available, then the following values are to be maintained:

Type of examination	**Description**	**Capability**
short-term process capability	MFU	$Cm_k \geq 1{,}67$
preliminary process capability	PFU	$Pp_k \geq 1{,}67$
long-term process capability	PFU	$Cp_k \geq 1{,}33$

- The dimensional check is carried out and documented, per nest for multiple press tools. Test results from approved external institutes are recognized. The test results are to be compared with the requirements.

- The material is tested and results documented. Test results from approved external institutes are recognized. The test results are to be compared with the requirements.

- The functional tests, as well as other tests agreed between the customer and supplier, are carried out and documented. The test results are to be compared with the requirements.

- The cover sheet of the first sample test report must be fully completed. The supplier’s authorized representative must evaluate the results sheets and sign the cover sheet.

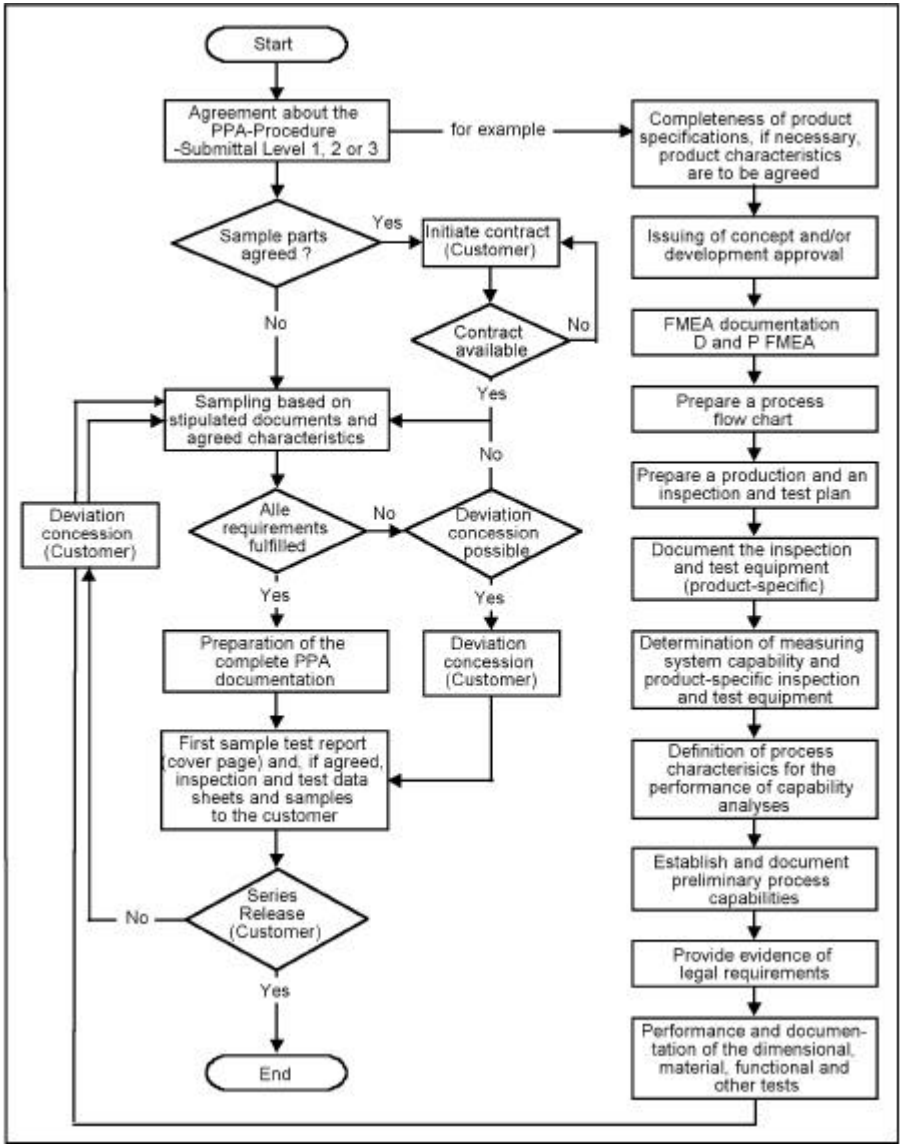

Fig. 4-2: PPA Process

4.6 Production Process and Product Approval Requirements

The submittal level determines which documents, records and, if applicable, samples must be transmitted to the customer for the production process and product approval. This submittal can also take place at the supplier's works.

If not otherwise agreed, the documents and samples according to submittal level 2 are sent to the client.

Pt.	Requirements	Submittal Level		
		1	2	3
1	Cover sheet First Sample Test Report (FSTR)	X	X	X
2	Test results (e.g. dimensions, material properties, function, optics, weight, reliability, haptics, acoustics, odors, process capability data, etc.)		V	V
3	Samples (Number or quantity delivered as per agreement)	A	A	A
4	Documents (e.g. customer drawings, CAD data, specifications, approved design changes, etc.)		V	V
5	Design and development approval		X	X
6	FMEA			E
7	Process flow chart (production and test steps)		X	X
8	Production and inspection and test plan			E
9	Inspection, test and measuring equipment list (product-specific)			X
10	Inspection and test equipment capability analysis, where useful (result)			V
11	Evidence of the compliance with legal requirements, as far as agreed with the customer (e.g. environment, safety, recycling)		X	X

X	Requirement for the respective submittal level
V	In individual cases, the scope is to be agreed with the customer
A	Number of samples (≥ 0) is to be agreed with the customer
E	Only for inspection

Irrespective of the submittal level, the supplier must perform his own internal approval and document the results. He must, in doing so, make a statement to the points 1 to 11 of the above mentioned table.

If sample submittals have been agreed, then the customer, at the appropriate time, requests the samples separately with an order giving a scheduled delivery date.

The submittal of the documents, records and samples may only take place, if all specifications have been met. For deviations, the supplier must obtain a written approval (deviation concession) from the customer and attach it to the submittal.

4.7 Selection of the Submittal Levels

Possible selection criteria for Submittal Level 1:

- Supplier is known, no problems encountered during first sampling and series processing,
- Easily produced products or a simple modification,
- Product family: one subject number is sampled according to submittal level 2 or 3, the remaining subject numbers according to level 1.

Possible selection criteria for Submittal Level 2:

- new supplier,
- quality problems at a known supplier,
- problems with similar manufactured products,
- new production processes (new products).

Possible selection criteria for Submittal Level 3:

- no suitable measuring equipment available at the customer,
- new production processes (evaluation of the quality capability),
- complex, difficult to manufacture products, production processes difficult to control (clarify problems at site with experts),
- documents (parts) with special archiving (DwSpA), see VDA Volume 1.

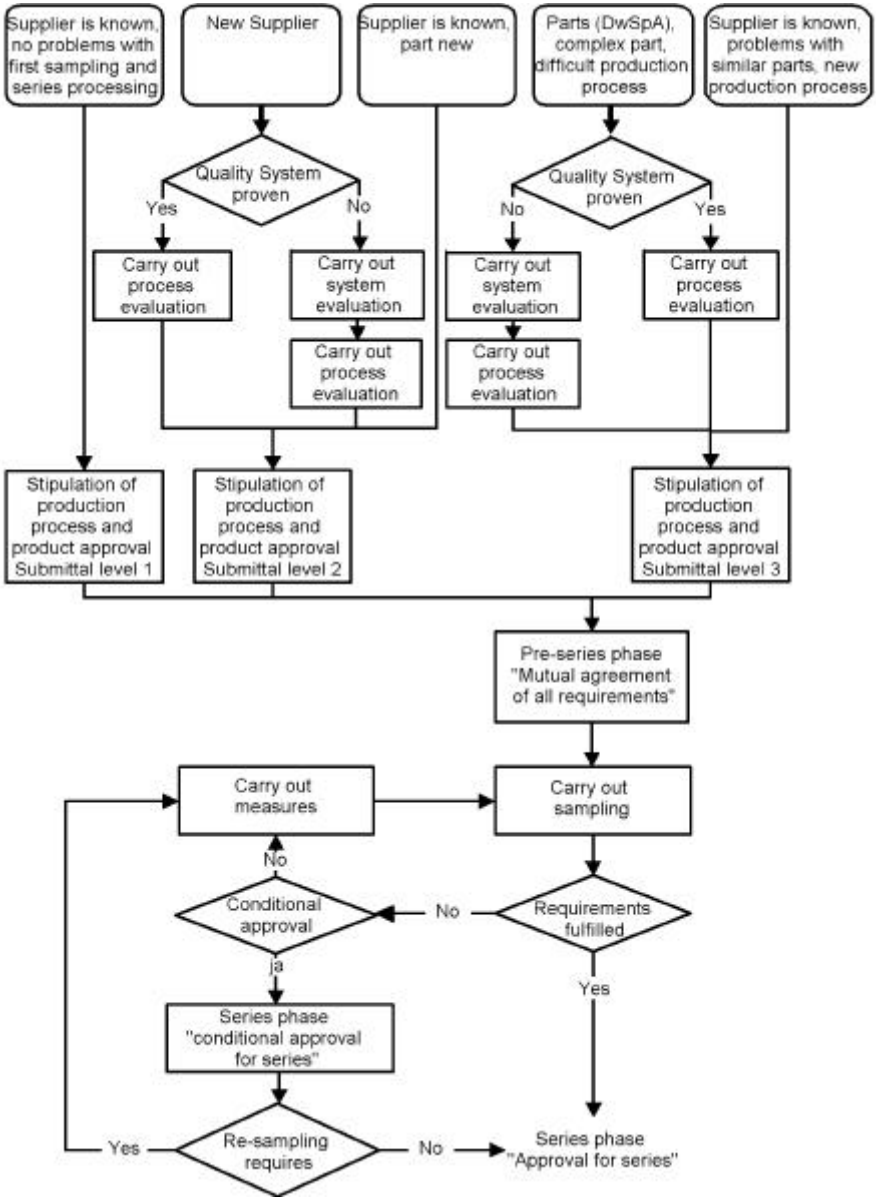

Fig. 4-3: Selection of the Submittal Level

4.8 Retention Periods

In respect of the PPA procedure, product- and process-relevant documents, records and data which form part of the production process and product approval must be retained at least for the period in which supply contracts for the product exist (series and/or spare parts), plus 1 year or according tospecial agreements.

The currently valid reference and/or limit pattern is to be retained for the same time period by the supplier. Thereby, a sensible agreement between customer and supplier should be made regarding products with special properties (e.g. voluminous products, shelf life).

Comments: If documents with special archiving (DwSpA) are necessary for a product, longer retention periods may be required. If it is known that legal proceedings are pending, the relevant documentation may neither allowed be removed nor destroyed.

4.9 Approval Status

The customer will evaluate the submitted documentation and, if applicable, the samples, complete the cover sheet of the first sample test report with the individual and overall approval status and, if not otherwise agreed, transmit this to the supplier.

The approval status can be:

- **approved**
  This means that deliveries of products corresponding to the delivery call-off are approved.
- **conditionally approved**
  This means that the dispatch of products is only approved for a certain limited time period or a certain number of pieces (deviation concession). The conditions are to be agreed individually between the customer and supplier. Re-sampling may become necessary.
- **rejected, re-sampling necessary**
  This means that the dispatch of products is not allowed. Re-sampling is necessary.

4.10 Self Certification

It may be agreed between the customer and supplier that self certification by the supplier takes places. This means that the supplier presents the submittal documentation to the customer but the response from the customer is not necessary.

These agreements are to be documented (e.g. in a QAA).

If self certification has been agreed, the supplier can assume that automatically with the presentation of the submittal documents, he simultaneously holds the approval status „approved" for the product.

This procedure is chosen when the formal expenditure and processing times are to be reduced. The customer chooses this procedure when he has assured himself of the reliability of the supplier and this procedure is appropriate based on the product or circumstances. This process can be applied, e.g. in connection with the submittal level 1 or for minor product modifications.

The supplier thereby has to ensure that the transmission (and the time) of the submittal documents can be proven or substantiated.

4.11 Reporting/Forms

The first sample test report (FSTR) shown in Chapter 8 should be used as standard for all necessary information between the supplier and customer (purchaser). When interchanging data (electronic transfer of data) VDA Volume 7 applies.

The first sample test report consists of a cover sheet and the test result data sheets agreed between customer and supplier in line with the submittal level, as well as other documents as required according to Volume 4.6.

The FSTR cover sheet contains all necessary identification data for sampling and the summarized decisions.

The test result data sheet contains the essential identification data for the purpose of relating this to the FSTR cover sheet, such as e.g.:

- Supplier no.,
- Test report no.,
- Identification data of the samples,

as well as the detailed test results of all agreed characteristics.

Only one type of test e.g. material testing, functional testing etc. is allowed to be shown per test result data sheet.

Materials and their constituents, under consideration of the given declaration rulings, are to be shown in an attachment to the first sample test report.

The number of copies is to be agreed between the customer and supplier.

The complete and entire first sample test report (cover sheet and if applicable data sheets and/or other documents) is forwarded by the supplier, if applicable with samples, to the customer.

The customer confirms on the FSTR or his own test report (with reference to the FSTR) that the sampling was carried out in accordance with VDA Volume 2, Chapter 4.

5 Quality Performance in the Series

5.1 Supplier Evaluation

The supplier evaluation system must allow an evaluation of the quality capability and performance across the entire spectrum of business processes which directly or indirectly have an effect on product quality.

Targets are in particular:

- a clear and comparable illustration of quality capability and quality performance as a basis for order allocation and establishing the supply quota,
- to highlight weak spots in order to encourage good suppliers and to qualify or exclude weak performers,
- the evaluation of the capability to cope long-term with constantly increasing quality demands.

The evaluation of quality capability was already illustrated in Chapter 2 under the framework of supplier selection.

The evaluation of quality performance can be carried out on the basis of the complaint quota in accordance with Chapter 5.7.

The evaluation of quality performance or the quality of serial parts is carried out:

- in order to be informed about quality niveau and quality progress
- in order to avert consequential damages,
- in order to satisfy the obligations of care and attention due to the customer (end user),
- to support continual improvement processes in the direction of „zero-defects“.

The assessment of quality is thereby carried out according to agreed technical documents and specifications.

The evaluation of the supplier's quality performance (see Fig. 5-1) should be carried out at set intervals and recorded in a list. A quality history should be maintained here, consisting of, e.g.:

- results of the material receiving inspections,
- complaints (rejection results, zero-kilometer failures),
- field (warranty cases).
- delivery reliability (schedule/quantity).

The supplier should be regularly informed about his quality performance.

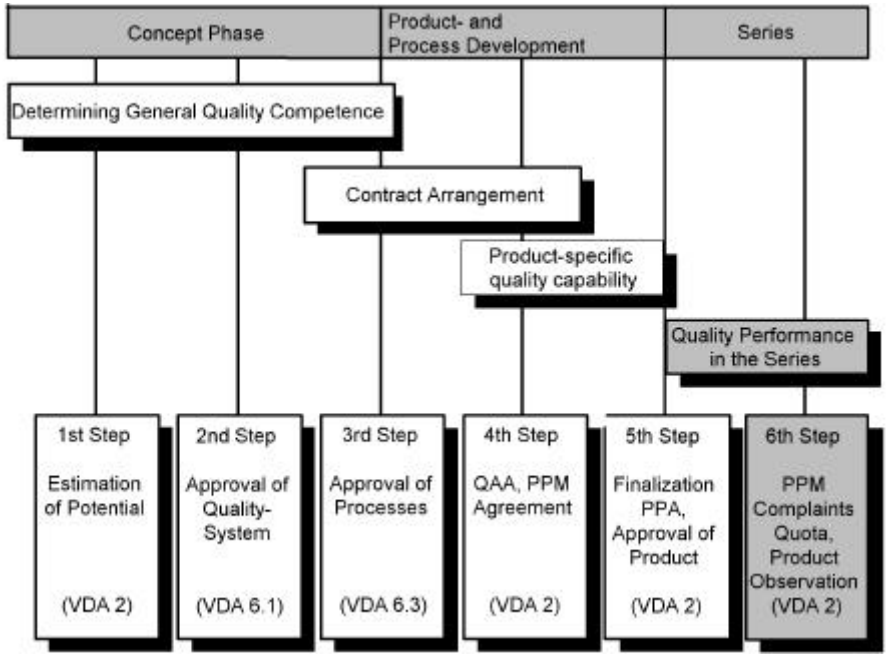

Fig. 5-1: Quality Performance in the Series

5.2 Evaluation of the Quality of Serial Parts at Delivery

All materials received must, as a minimum, be documented with the supplier's delivery identification data, the customer's receiving data and the supplied quantity.

The evaluation of quality of serial parts at delivery, through a material receiving inspection, is generally carried out based on special product requirements, customer wishes, risk analyses (e.g. FMEA) and in accordance with inspection and test planning.

The minimum requirements of a material receiving inspection result from a legal point of view, e.g. from § 377 German Commercial Code (in German HGB) (Warranty of Quality), Product Liability Law (in German-ProdHaftG), § 823 German Civil Code (in German - BGB) (Tort Liability) and from contractual provisos.

Nevertheless, random sample testing at material receipt has lost significance. It is often only carried out within the framework of identification tests or problem-orientated, e.g. to recheck agreed corrections to nonconforming parts.

Reasons for this are the raised status of quality, the complexity of the supplied parts, cost pressures, as well as modern logistical concepts, such as e.g. Just-in-Time (JIT) deliveries:

- Nonconformities in the PPM range are hardly able to be detected through a traditional material receiving inspection on a random sample basis.
- Complex supply parts cannot be tested by the customer, as the corresponding expert knowledge is not available or the costs for the special inspection, testing and measuring equipment and expert testing personnel are economically not justifiable.
- JIT material deliveries go direct to the installation location.

To account for these conditions, new methods must also be found in line with the philosophy of lean processes at the supplier and customer.

The occurrence of nonconformities must be prevented at an early stage. Therefore, the focus is to be placed on the process capability in the production process. This includes the determination of the present process capability, the control of the production process, as well as the continual improvement of the process.

The reduction nonconformity sources and the raising of process safety, are connected with reductions in rework or rejections and therewith, sometimes significant increases in production at the supplier.

5.3 Identification of Nonconformities

In line with the zero-defect-strategy for the benefit of the end user, all opportunities for the identification and prevention of nonconformities must be used, both at the supplier, as well as at the customer and after product delivery in the field.

It is necessary, with a view to customer satisfaction and quality costs, to identify and eliminate possibly present nonconformities as early as possible.

The process audit, amongst others, proves itself to be an effective tool for the identification of possibly present nonconformities in the internal production process (see VDA Volume 6, Part 3).

In individual cases, additional final or dispatch inspections at the supplier should be agreed and carried out.

The customer must look out for visible defects, including damage, during the fitting of the parts which would prevent or not justify their application. Such parts must be handled as described in Chapter 5.4.

Generally all nonconformities, including those which cause immediate fitting or functional problems, are to be recorded as zero-kilometer-defects, notified to the supplier and analyzed there.

After delivery of the products, product observations are carried out in the field by the customer but, also partially, through authorities and institutes (e.g. ADAC (automotive club), technical monitoring organizations, vehicle and traffic authorities). Within this framework, complaints, as well as results are analyzed and related to their own products.

Suppliers hereby have the obligation not only to get actively involved in problem analyses for parts but also, in agreement with the customers, to carry out field observations.

Thereby, the opportunity is created for suppliers to evaluate their parts in their fitted state, in order to make it possible to gain further knowledge for the effective elimination of the nonconformities raised by the customer.

5.4 Handling of Nonconforming Products

Nonconformities appear in different areas:

- at the supplier (during processing, product audits, final inspections, ...),
- at the customer (during material receiving inspection, further processing, testing, ...),
- in the field (at delivery, in operation, at servicing, ...).

Irrespective of where nonconformitiesoccur or where nonconforming parts are found in the system, measures must be decided appropriate to the consequences of the problem.

It must be ensured that all nonconforming parts, where ever they occur in the production cycle, be identified, collected, marked and excluded from further processing.

Customer and supplier are obliged to inform each other, without delay, about **deviations from the required status**.

All operating and failure conditions of the supplied part and the customer product must be made known to the supplier, so that he can correctly interpret complaints and implement effective corrective actions.

After securing a 100% listing of the nonconforming parts, as well as the decision about t

he subsequent proceedings, an immediate problem analysis must be initiated.

Suitable methods for the systematic resolving of problems are to be used. Notes to this are contained in VDA Volume 6, Part 1, Element 18. Special significance is thereby given to the verification of the corrective actions (preventionof repeat nonconformities).

5.5 Information Systems

The documentation and evaluation of service or warranty data is necessary for quick handling of problems which occur in the field, i.e. at the end user. Various information sources are available for this.

5.5.1 Information Sources

In most cases, car manufacturers have access to very detailed information and data regarding failure frequencies and failure causes of certain components or subassemblies due to the recording of warranty claims

All necessary information is generally to be made available to the suppliers, in order to make the processing time for product improvements as short as possible. It is desirable for the supplier to have direct access to already existing data processing systems at the customer.

Numerous external quality data exists, apart from the customer's quality data systems which should be drawn upon, at least within the framework of long-term observations.

Thus, e.g. regular publications by the TÜV (technical monitoring association), ADAC, as well as other organizations are issued which go far beyond the normal assessment period of the car manufacturers.

5.5.2 Early Warning Systems

With new products or respectively when using new and complex systems, it is important, as far as possible, to receive information directly from the field. In this case, the above mentioned systems are not sufficient, as they are aimed more towards long-term observation periods, i.e. they are based on 1, 3 or 12 months in service and can, therefore, only mainly be made available after several months.

In these cases, the supplier must endeavor to obtain information promptly. Therefore, the car manufacturer should make the following sources available to him:

- **Hotline-Systems:** In many cases certain dealers are selected by the car manufacturer, who report complaints directly (by telephone /hotline or fax). This data should be evaluated together with the manufacturer and used for product improvements.

- **Regular drivers or service vehicles (Fleet vehicles):** Here,also the opportunities exist to obtain data and information from the field at a very early stage.

- **Visits to dealers:** Direct contact with the customer naturally provides the best information. Therefore, suppliers should endeavor, after agreement with the car manufacturer, to seek direct contact with the repair workshop.

- **Parts Recall:** In support of the „hotline“ information, parts which have been disassembled and returned to the car manufacturer are available for detailed problem analysis.

5.5.3 Customer Surveys

Car manufacturers, amongst others, carry out surveys about customer satisfaction together with market research companies.

Above all, the results are used for the development of new products, however, customer complaints, parallel to the above information, flow back into development and production and are drawn on for product improvement, as well as for manufacturing optimization. The supplier should also become involved here and help evaluate the data relevant for him.

5.6 Classifying Nonconforming Parts

As always fewer nonconforming parts are found during the material receiving inspection, it is becoming increasingly important that nonconforming parts identified during further processing (e.g. zero-kilometer-failures) or in the field, be considered in the quality evaluation.

Customer and supplier should – as far as technically feasible – endeavor to identify each part with the corresponding production date, production time and production material and/or to establish corresponding administrative traceability systems in order to ensure relation to the delivery and production locations.

Apart from simplifying the failure cause analysis at the supplier, such identified parts afford additional evaluation opportunities, e.g. a more objective assessmentof the actually produced nonconforming parts related to a defined production period and the corresponding supply quantity.

The following procedures, amongst others, recommend themselves especially for nonconforming parts which are not identified and which cannot be related to a specific delivery:

Nonconforming parts rejected within the framework of further processing are

- related to the last delivery, or

- related to the quantity delivered in the evaluation period (e.g. the last delivery month). A recommendation for determining the complaint quota is described in Chapter 5.7.

Parts rejected in the field are

- related to the quantity delivered in the evaluation period, or

- related to the quantity delivered to which the nonconforming parts can be related: e.g. related to the quantity delivered in that month in which the rejected parts were also delivered. Here, it is to be taken into account that the complaint quota is dependent, amongst other things, upon the warranty time. Notes to this are contained in VDA Volume 3 (Ensuring Reliability of Car Manufacturers and Suppliers).

5.7 Investigating the PPM Complaints quota

In order to enable comparability of rejection data and to achieve uniform handling of e.g. zero-kilometer-complaints, the following procedures and definitions are recommended.

The determination of the complaints quota is carried out

- in order to be informed about quality status and progress,
- to assess the supplier's quality performance within the framework of supplier evaluation and selection,
- to support continual improvement processes in the direction of „zero-defect-target".

5.7.1 Calculation Formula

Definition of the complaints quota „C“ :

$$C = \frac{\text{evaluated, nonconforming units}}{\text{delivered units}} \times 1\,000\,000\ [\text{ppm}]$$

for the assessment period per subject number.

5.7.2 Counting Method

Complaints quotas are based on subject numbers of serial parts and can be compressed down to supplier level. Sample parts of all types are not included.

The number of units complained about by the customer are corrected, through a fault analysis, to the quantity of „evaluated, nonconforming units“ .

„Evaluated, nonconforming units“ are counted irrespective of their complexity. Thereby, the number of nonconforming units is decisive for the evaluation of the quality of serial parts and not the number of nonconformities: If several nonconformities appear on one part at the same time, only one nonconformity is included in the evaluation.

Nonconformities which are noted and announced by the supplier and have not yet lead to a disruption of the production process are not considered.

Logistical nonconformities should be analyzed independently.

5.7.3 Agreements about Targets

Customer and supplier can make PPM agreements. Until achievement of the zero-defect-target, intermediate PPM targets are defined.

Target agreements serve the purpose of continual improvement and are not drawn upon for the determination of potential nonconformity costs.

The target agreements continue to be valid without change, even when the zero-defect-target is achieved.

The agreements are valid from start of series.

5.7.4 Special Cases

Special cases, such as e.g.:

- continuous demand (serial discontinued parts, spare parts),
- actions (work station actions, storage actions),
- strongly fluctuating delivery quantities,
- low delivery quantities,
- nonconformities where no specifications are available,

must be separately agreed between the supplier and the customer.

6 Term Definitions

Complaint: Here: Complaint by the customer to the supplier about delivered products which have been evaluated as nonconforming.

Assessment period: The quantities relate to the same period (e.g. a month, quarter, half a year, a year, a model year or an accounting year). The assessment period is to be individually and purposefully agreed and recorded.

Evaluated, nonconforming units: The quantity of units within the assessment period recognized by the customer and supplier as not conforming with the specified requirements

Unit: Material or non-material subject of the assessment; individual product. That which can be individually described and assessed.

Nonconformity: Noncompliance with a defined requirement.

Comment 1: The definition encompasses the noncompliance with defined requirements of one or more quality characteristic, including reliability characteristics, or through elements of a quality system or their absence.

Comment 2: The definition explicitly does not correspond to §3 of German Product Liability Law (in German ProdHaftG) : „A product has a defect, if it does not offer the safety…." and also not the defect/fault term according to German purchasing laws. The terms „nonconformity", „nonconforming", etc., are to be purely understood as quality-related terms.

Delivered units: The quantity used in the assessment period, per quantity unit.

Defect: Noncompliance with a requirement or an appropriate expectation regarding the intended use, including those regarding safety.

Comment: The expectations under the existing circumstances must be appropriate.

Quantity: Number of units.

PPM: Parts Per Million

Product liability: The manufacturer's or another person's obligation to compensation due to a personal injury, property or other damage caused by a product.

Comment: The legal and financial implications of product liability may vary from one jurisdiction to another.

Quality Audit: Systematic and independent examination to determine if the quality-related activities and connected results correspond with the planned instructions, and if these instructions are actually implemented and suitable to achieve the objectives.

Comment: The quality audit is typically applied to a quality system or an element thereof, to processes or products, including services but is, however, not restricted to this. Such quality audits are often called „System audit", „Procedure audit", „Product audit" or „Services audit".

Quality capability: The suitability of an organization or it's elements to produce a unit which meets the expected quality requirements.

Comment: Elements of an organization are e.g. people, procedures, processes, machines.

Subject number: Classifying number for a product, such as e.g. a subassembly, a scope of supply, an individual or unmachined part, materials, etc.

Verification: Confirmation through an examination and provision of evidence that the defined requirements have been fulfilled.

7 Appendix 1 – Checklist of a Quality Assurance Agreement (QAA)

Preliminary remark: The following checklist for a QAA is not binding and is merely an example to show the elements which may be included in a QAA. Sometimes, alternative formulations are given. The clauses are to be adjusted in each individual case to the specific customer and supplier needs.

Quality Assurance Agreement

between

- referred to as customer in the following -

and

- referred to as supplier in the following -

regarding the implementation of a joint quality system with the aim of ensuring the quality of product development and products.

Preamble (Description of the Agreement Purpose)

This quality assurance agreement is the contractual definition of the technical and organizational basic conditions and processes between customer and supplier necessary to achieve the desired quality objectives.

It describes the minimum management system requirements of the contract partners in respect of quality assurance.

In particular, special requirements of the production process and product approval procedure are defined in the quality assurance agreement.

I. General Agreements

1. Scope of Application, Subject of the Agreement

- This agreement regulates the quality requirements for all engineering services and/or products which are specially provided and/or supplied for the contract partner during it's validity, in as far as the scope of application according to Appendix 1 is not limited to certain services and/or supplies.

- Individual clauses of this agreement are not applicable in so far as they stand in contradiction to priority contracts, e.g. engineering or purchasing contracts.

- This agreement, as well as amendments and supplements to it, has to be made in writing. Specific amendments of this quality assurance agreement are laid down in Appendix 2.

2. Quality System of the Supplier

- The supplier undertakes to permanently use a quality system according to DIN EN ISO 9000 or a system which fulfills all requirements of the standard as a minimum. Other ruling standards, especially

  • VDA publication, Volume 1 and following
  • QS-9000 (US)
  • EAQF (D'EVALUATION D'APTITUDE QUALITE FOURNISSEURS)
  • AVSQ (ANFIA VALUATIONE SISTEMI QUALITA)

  only become part of the agreement if they are agreed in writing.

- The supplier is committed to achieving the zero-defect target and has to continually optimize his performance to this effect.

- So far as the customer provides production and inspection, measuring and test equipment, especially resources and equipment in respect of supplies to the supplier, these must be included by the supplier in his quality management system as if it was his own production and inspection, measuring and test equipment, if nothing else has been agreed.

3. Quality System of the Subcontractor

- The supplier will place an obligation on his subcontractors to comply with the accepted provisions of this agreement.

  Or

  The supplier will try to place an obligation on his subcontractors to comply with the accepted provisions of this agreement. If the supplier is unable to enforce the acceptance of the provisions at his subcontractor, he will inform the clientand the contract partners will try to find a mutually acceptable solution.

- The customer can request documented evidence from the supplier, showing that the supplier has convinced himself of the effectiveness of the quality management system at his subcontractors and/or has ensured the quality of his purchased parts using other suitable measures.

4. Audit (at the Supplier)

- The customer is entitled to establish, through an audit, if the supplier's quality assurance measures guarantee the customer requirements. The audit may be carried out in the form of a system, process or product audit and is to be agreed prior to it's scheduled performance. Audits by authorized certification bodies are thereby to be considered. Appropriate restrictions by the supplier to protect his trade secrets are accepted. The audit systems to be applied are shown in point I,2.

- Should quality problems arise, caused by the services and/or supplies of subcontractors,

  ....then the supplier has to clarify upon the customer's request the possibility of a joint audit at the subcontractor; or

  .....the supplier is obliged to enable an audit at the respective subcontractor to be carried out.

5. Documentation, Information

- The obligation to retain the requirements documentation and evidence documents with special archiving amounts to 15 years (see VDA Volume 1„Quality Evidence"). The supplier has to allow the customer to view these documents upon request.

- Should it become apparent, that agreements made (e.g. regarding quality characteristics, schedules, supply quantities) cannot be complied with, then the supplier is duty bound to inform the customer of this and the detailed circumstances. In the interests of a quick solution, the supplier is obliged to disclose such data and facts.

- Should the supplier notice an increased deviation of the actual state of the products from the specified state (quality decline), then he will immediately notify the purchaser of this and about planned corrective actions.

- Prior to changes to production procedures, materials or supplied parts, transferal of production sites, as well as changes to procedures or equipment for testing of products or other quality assurance measures, the supplier will notify the customer in time for him to be able to check whether such changes may have a negative effect. The obligation of notification is governed in the sampling instructions.

- All changes to the product and product-relevant modifications in the product chain are to be documented in a product history and handled in accordance with VDA Volume 2 „Quality Assurance of Supplies“.

II. Agreements on the Product History

1. Development, Planning

- If the order to the supplier includes engineering work, the requirements are to be defined in writing by the contract partners, e.g. in the form of a requirements specification. The supplier undertakes to use project management in the planning phase of products, processes and other tasks across all departments and to allow the customer to view the project plan upon request.

- All technical documents necessary to support development of the series such as specifications, drawings, parts lists and CAD data, have to be checked by the supplier after receipt for completeness and overall freedom from contradiction with regard to their foreseen application purpose. The customer must be informed of any deficiencies identified. The customer, for his part, has to make sure that he provides the relevant specifications, drawings, parts lists and CAD data at the appropriate time and free from ambiguity to the supplier.

- During the development phase, the contract partners must apply suitable preventive quality planning methods such as, e.g. producibility analysis, fault tree analysis, reliability calculation, FMEA etc. The experiences (processes, process data, capability assessments etc.) from similar projects are to be considered. Characteristics with special documentation and archiving requirements are to be defined.

- The production and inspection and test conditions for prototypes and pilot production parts are to be agreed and documented between the customer and supplier. The aim is to produce the parts under almost series conditions.

- The supplier has to carry out and document analyses about the suitability of the used production plants for the known, regulated or agreed characteristics relevant to function. If stipulated capability characteristics are not fulfilled, the supplier either has to optimize his plant or carry out suitable inspections and tests on the manufactured products in order to rule out faulty supplies.

- Prior to the start of series production, the supplier has to carry out production process and product approval according to VDA Volume 2. Should the customer demand a design approval, then this has to be carried out prior (or if necessary, supplementary) to the production process and product approval.

  The customer has to test the product to the required scope, prior to the end of series production, and to issue the approval – if necessary, as conditional.

- When issuing the production process and product approval, the machine capability index and/or process capability index for agreed characteristics are to be stated.

2. Serial Production, Traceability, Identification, Reporting Defects

- When process disruptions and quality deviations occur, the causes must be analyzed, corrective actions introduced and their effectiveness reviewed. If, as an exception, products not in accordance with specifications have to be supplied, prior special approval hasto be obtained from the customer. The customer shall also be immediately notified of any deviations later identified.

- The supplier undertakes to ensure the traceability of the products supplied by him in accordance with a risk assessment. In the case ofan identified nonconformity, traceability shall be possible in such a way that limitation of the quantity of nonconforming parts/products can be carried out. The customer will advise the supplier of the data necessary for traceability.

- The supplier ensures that the goods are delivered in suitable, customer-approved means of transport in order to prevent damage and quality impairments (e.g. pollution, chemical reactions).

- Requirements agreed with the customer are to be complied with regarding the identification of products, parts and packaging. It is be ensured that the identification of the packed products is also recognizable during transport and storage. Deviations from existing identification requirements need written agreement between supplier and customer.

3. Inspections and Tests, Complaints, Measures

- The supplier defines an inspection and test concept under his own responsibility, to satisfy the agreed targets and specifications. Both contract partners are under obligation to strive for the „zero-defect“ target.

  During the running series, the supplier has to prove the process capability, for all characteristics relevant to function, over the entire production time using suitable procedures (e.g. statistical process control or manual control chart technology).

- If the required process capability is not reached, the quality is to be ensured using suitable inspection and test measures; the production process is to be optimized to achieve the required capability accordingly.

  After receipt, the customer checks the products purchased from the supplier with respect to quantity and identity, as well as for externally identifiable damage (if necessary, in supplement).

  In other respects, the customer is relieved of his duty to examine and make a complaint in respect of a defect immediately on receipt of the goods (per §377 HGB -German Commercial Code) (if necessary, in supplement).

  The customer shall notify the supplier of any defects in a delivery as soon as they have been detected within the normal course of business. In so far as this, the supplier waives the right of objection to late notification of defects.

  As far as possible within the normal course of business, the customer will either inspect the subassemblies produced using the supplies before the start of the next production stage or subject the final product manufactured using the subassembly to an inspection.

- Nonconforming parts are returned to the supplier for analysis, if not otherwise agreed. In the case of a dispute, a joint investigation by the customer and supplier has to take place.

If nonconforming supplies occur, the supplier must immediately remedy the situation these (replacement supplies, sorting or rework).

III. Liability

The agreement of quality objectives and measures does not affect the liability of the supplier for warranty and damages claims by the customer due to defects in deliveries.

Or

The agreement of quality objectives and measures, as well as intervention limits (abnormal occurrences, PPM targets in the sense of a statistical figure) does not relieve the supplier of his liability for warranty and damages claims by the customer due to defects in deliveries.

IV. Validity Period of the Agreement

This quality assurance agreement has unlimited validity. However, a written cancellation may be given by any of the contract partners with a three month notice period. The termination of this agreement does not affect the continuation in force of the current individual supply contracts until their full completion.

Further customer-/product-specific requirements

< Appendix >

Customer .....
Place, Date Signature

Supplier .....
Place, Date Signature

8 Appendix 2 – First Sample Test Report Forms

- Cover Sheet -

Sender
Country
Works Designation
Works Code
Name, Supplier, Street or Post Box, ZIP Code, City

Address
Name, Customer
Works Designation
Works Code
Street, ZIP Code
Country, PO Box, City

☐ **First Sample Test Report VDA**
☐ First sampling
☐ Re-sampling
☐ New part
☐ Product modification
☐ Production transfer
☐ Change in the production procedures
☐ Long production pause
☐ New subcontractor
☐ Product with DwSpA
☐ **Production/Inspection and Test Plan prepared**
☐ FMEA carried out
☐ **Test Report other samples**

Appendices		
01 Functional Test	07 Evidence for Inspection and Test Equipment Capability	13 Appearance
02 Dimensional Check	08 Inspection and Test Equipment List	14 Certificate
03 Material Testing	09 EU-Data Safety Sheet	15 Design Approval
04 Reliability Test	10 Haptics	16 Constituents of Purchased Parts
05 Process Capability Evidence	11 Acoustics	17 Other
06 Process Flow Chart	12 Odors	

Identification Number, Supplier:	**Identification Number, Customer:**
Test Report No.: **Revision:**	**Test Report No.:** **Revision:**
Subject Number: Drawing Number: Status/Date: Revision Number: Designation: Order Call-off No./Date:	Subject Number: Drawing Number: Status/Date: Revision Number: Designation:
Delivery Note No./Date:	**Incoming Goods No./Date:**
Quantity delivered: Charge Number: Sample Weight:	Delivery Destination:

Supplier Confirmation:
It is hereby confirmed, that the sampling has been carried out according to VDA Volume 2 Chapter 4.

Name: Department: Telephone/Fax/E-Mail::	Comment:
Date Signature	

Customer Decision	**Overall**	**According to Appendix:**															
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Approved																		
Conditionally approved																		
Rejected, re-sampling necessary																		

Deviation Concession No.:
When returning, Delivery Note No./Date:

Name : Department: Telephone/Fax/E-Mail::	Comment:
Date Signature	

Distribution:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**

- Test Results -

Attachments:

- ☐ 01 Functional Test
- ☐ 02 Dimensional Check
- ☐ 03 Material Testing
- ☐ 04 Reliability Test
- ☐ 05 Process Capability Evidence
- ☐ 06 Process Flow Chart
- ☐ 07 Evidence for Inspection and Test Equipment Capability
- ☐ 08 Inspection and Test Equipment List
- ☐ 09 EU-Data Safety Sheet
- ☐ 10 Haptics
- ☐ 11 Acoustics
- ☐ 12 Odors
- ☐ 13 Appearance
- ☐ 14 Certificate
- ☐ 15 Design Approval
- ☐ 16 Constituents of Purchased Parts
- ☐ 17 Other

- ☐ **First Sample Test Report VDA**
- ☐ First sampling
- ☐ Re-sampling
- ☐ New part
- ☐ Product modification
- ☐ Production transfer
- ☐ Changes in the production procedures
- ☐ Long production pause
- ☐ New subcontractor
- ☐ Product with DwSpA
- ☐ Production/Inspection and Test Plan prepared
- ☐ FMEA carried out
- ☐ **Test Report other samples**

Identification Number, Supplier:	**Identification Number, Customer:**
Test Report No.: **Revision:**	**Test Report No.:** **Revision:**
Subject/Drawing/Revision No./Status/ Date: Designation:	Subject/Drawing/Revision No./Status/ Date: Designation:

Ref.-No.	Requirements	Actual-Value Supplier	Evaluation.. Satis-factory	not satisfactory

Supplier Confirmation:	**Customer Decision:**	
Comment:	**Approved**	☐
	Conditionally approved	☐
	Rejected, re-sampling required	☐
Name : Department: Telephone/Fax/E-Mail: Date Signature	Name : Department: Telephone/Fax/E-Mail: Date Signature	

First Sample Report VDA

Constituents of Purchased Parts (Material Data Sheets)

1. Company and Product Description

1.1 Details on the Manufacturer/Supplier	1.2 Product Details
Name: Street/PO Box: Nat. Ident. Symbol/ZIP Code/City: Supplier Number: Contact Person with Phone/Fax:	Component: Sample Report No.: SA-No.: Order No.: Article No. Delivery Note No.: Revision Status: Date:
Representative Signatures	

2. Safety and the Environment

Materials which are subject to legal prohibition shall not be included!
Note: See VDA list of substances which have to be declared

Please mark as appropriate

- Does the component contain materials with a criticality characteristic according to Toxic Substances Control Act/Dangerous (or Toxic) Chemicals Ordinance?
  - ☐ No
  - ☐ Yes (Markings according to Dangerous (or Toxic) Chemicals Ordinance and concentrations are to be stated under „Constituents")
- Can dangerous substances develop or be released when handling the component properly?
  (Note: See VDA list of substances which have to be declared)
  - ☐ No
  - ☐ Yes (Point 10 of the EU Safety Data Sheet is to be completed)
- Is the component „hazardous goods" as defined by Traffic Law (Transport Law)?
  - ☐ No
  - ☐ Yes (Point 14 of the EU Safety Data Sheet is to be completed)
- Does the component contain water-endangering substances according to law relating to water?
  - ☐ No
  - ☐ Yes (Classification of water endangerment and quantity is to be dvised) ……
- Is the component equipped with biocides?
  - ☐ No
  - ☐ Yes (Constituents > 0,1 % are to be stated) ……
- Can the component result in a waste product to which a code number (EAK Code) can be allocated after use or application has ceased?
  - ☐ No
  - ☐ Yes .....

The table overleaf is to be fully completed.

First Sample Test Report VDA

Constituents of Purchased Parts

Substances which are subject to legal prohibition must not included!
Hazardous substances which may be created or released upon use must also be declared.
Noe: See VDA list of substances which have to be declared!

3. Parts description: SA No.: Sample Report No.:
Designation:

Parts No./ Material No.	Parts description	SA Component	Weight [g]	Material/ producer-related product description	Constituents CAS No.	Constituents Material description	Content Level [%]

Continuation: Material Data Sheet Table (Constituents of Purchased Parts)

Comment:

The sheet is be completed fully[a] and, if possible, in machine type face (e.g. Arial, Font size 10).

Attention is drawn to the mentioned legal regulations. (For example,

- Dangerous(or Toxic) Chemicals Ordinance/(in German GefStoffV) §§4, 4a, 4b, as well as Appendix I and II, No. 1 each.
- Dangerous Goods Ordinance for Roads/(in German GGVS), Dangerous Goods Ordinance for Railways/(in German GGVE), etc.
- Catalogue of water-endangering substances /LTwS. No. 12 of the Environmental Agency Berlin.)

For every parts number (also subassemblies SA) or material number, especially for those of a car manufacturer, details must be given regarding the used materials/substances[b] and the constituents[c] which have to be declared. The materials[d] are to be stated when above a concentration of 0,1 %[e]; equal materials of different parts of a SA may be summarized together. The constituents are to be stated up to their concentration limit[f]. For a transitional period, materials with unknown composition can be declared as „cannot be answered at the moment".

If a SA part consists of several SA components, then the individual SA components are to be stated and the above mentioned details regarding materials and constituents are to be provided for them.

---

a The CAS Number, if known, should be provided.

b Materials are base materials such as steel, basic plastics (ABS, PVC) and base elastomeres (NBR, EPDM).

c The VDA list for substances which have to be declared applies (VDA Material Sheet 232-101). Constituents are further parts in materials. This includes substances which are added on purpose, as well as those which are contained as impurities or which may otherwise develop. These are, for example, alloy components in steel, additives in plastics and elastomeres (filling materials, stabilizers, accelerators, residual monomers etc.) and impurities in the form of companion elements/foreign substances.

d If a material of which the composition is clearly defined in a DIN Standard or in a manufacturer standard of a raw material producer accessible to the car manufacturer is used, then it is sufficient to state this standard in the column „Materials„ (e.g. 9SPb23 according to DIN 1651; AlSiMg0,3 according to DIN 1725; Polycarbonate MACROLON No. 9410 Company Bayer, brake lining JURID No. 395 Company Jurid). The statement of the CAS Number, if known, is welcome. A presentation of the formular is not necessary.

e ??? Übersetzung fehlt ???

f Compare VDA list of substances which have to be declared (VDA Material Sheet 232-101); the constituents are to be declared according to the given limits (above 0,1%, if not stated otherwise), if necessary, by order of size (see sample for comparison).

If the parts of a SA component weigh less than 100 grams then no further material details need to be given. Only the constituents given in the VDA list of substances which have to be declared (VDA Material Sheet 232-101) are to be stated. This makes a further breakdown (e.g. electronic components on a board) superfluous.

Example

of a sample test report completed by the supplier

- Cover sheet
- Test results
- Constituents of purchased parts (Material Data Sheet)

- Cover Sheet -

Sender
Company Sample Supplier
Works 00
Dept. xyz; Mr. Maier
P.O. Box 4711, 60325 Frankfurt/M.

Address
Company Sample Customer
Mr. Müller
Dept. Purchased Parts
P.O. Box 1234
56789 Neustadt
Germany

☒ **First Sample Test Report VDA**
☒ First sampling
☐ Re-sampling
☒ New part
☐ Product modification
☐ Production transfer
☐ Change in the production procedures
☐ Long production pause
☐ New subcontractor
☐ Product with DwSpA
☐ **Production/Inspection and Test Plan prepared**
☒ FMEA carried out
☐ **Test Report other samples**

Appendices

☒ 01 Functional Test	☐ 07 Evidence for Inspection and Test Equipment Capability	☐ 13 Appearance
☒ 02 Dimensional Check	☐ 08 Inspection and Test Equipment List	☐ 14 Certificate
☒ 03 Material Testing	☐ 09 EU-Data Safety Sheet	☐ 15 Design Approval
☐ 04 Reliability Test	☐ 10 Haptics	☒ 16 Constituents of Purchased Parts
☐ 05 Process Capability Evidence	☐ 11 Acoustics	☐ 17 Other
☐ 06 Process Flow Chart	☐ 12 Odors	

Identification Number, Supplier: 10213510		**Identification Number, Customer:**	
Test Report No.: 281/93	**Revision: 01**	**Test Report No.:**	**Revision:**
Subject Number:	0120463369	Subject Number:	1730752
Drawing Number:	0120463369	Drawing Number:	1730752
Status/Date:	12.12.97	Status/Date:	
Revision Number:	13	Revision Number:	E6475.C
Designation:	Generator 14V 34/90A Poly	Designation:	LU Generator 14V 34/90A
Order Call-off No./Date:	8285797 of 12.04.98		
Delivery Note No./Date: 6509278 of 01.06.98		**Incoming Goods No./Date:**	
Quantity delivered:	5 pieces	Delivery Destination:	018
Charge Number:			
Sample Weight:	6kg		

Supplier Confirmation:
It is hereby confirmed, that the sampling has been carried out according to VDA Volume 2 Chapter 4.

Name:	Maier	Comment:
Department:	LW/MUB	
Telephone/Fax/E-Mail::	01234/2345 (Tel. + Fax) Maier@samplesupplier.de	
Date	Signature	

Customer Decision	**Overall**	**According to Appendix:**																
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Approved																		
Conditionally approved																		
Rejected, re-sampling necessary																		

Deviation Concession No.:
When returning, Delivery Note No./Date:

Name : Department: Telephone/Fax/E-Mail::	Comment:
Date Signature	

Distribution:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**

- Test Results -

Attachments:

- ☐ 01 Functional Test
- ☒ 02 Dimensional Check
- ☐ 03 Material Testing
- ☐ 04 Reliability Test
- ☐ 05 Process Capability Evidence
- ☐ 06 Process Flow Chart
- ☐ 07 Evidence for Inspection and Test Equipment Capability
- ☐ 08 Inspection and Test Equipment List
- ☐ 09 EU-Data Safety Sheet
- ☐ 10 Haptics
- ☐ 11 Acoustics
- ☐ 12 Odors
- ☐ 13 Appearance
- ☐ 14 Certificate
- ☐ 15 Design Approval
- ☐ 16 Constituents of Purchased Parts
- ☐ 17 Other

- ☒ **First Sample Test Report VDA**
- ☒ First sampling
- ☐ Re-sampling
- ☒ New part
- ☐ Product modification
- ☐ Production transfer
- ☐ Changes in the production procedures
- ☐ Long production pause
- ☐ New subcontractor
- ☐ Product with DwSpA
- ☐ Production/Inspection and Test Plan prepared
- ☒ FMEA carried out
- ☐ **Test Report other samples**

Identification Number, Supplier:	**Identification Number, Customer:**
Test Report No.: **Revision:**	**Test Report No.:** **Revision:**
Subject/Drawing/Revision No./Status/ Date:	Subject/Drawing/Revision No./Status/ Date:
Designation:	Designation:

Ref.-No.	Requirements	Actual-Value Supplier	Evaluation.. Satis-factory	not satisfactory
1	Diameter 10.2mm + 0.18/-0.0mm			
	Object Number			
	1	10.31	X	
	2	10.31	X	
	3	10.31	X	
	Length 123.6mm + 0.0/-0.4mm			
	Object Number			
	1	123.38	X	
	2	123.43	X	
	3	123.46	X	
	Angle 15°30' +1°/-1°			
	Object Number			
	1	14°35'	X	
	2	14°55'	X	
	3	14°46'	X	

Supplier Confirmation:	**Customer Decision:**	
Comment:	**Approved**	☐
	Conditionally approved	☐
	Rejected, re-sampling required	☐
Name : Müller	Name :	
Department: Test laboratory	Department:	
Telephone/Fax/E-Mail: 01234/2345 (Tel. + Fax) Mueller@samplesupplier.de	Telephone/Fax/E-Mail:	
Date Signature	Date Signature	

First Sample Report VDA

Constituents of Purchased Parts (Material Data Sheets)

1. Company and Product Description

1.1 Details on the Manufacturer/Supplier		1.2 Product Details	
Name:	Gebr. Happich GmbH	Component:	foam-filled arm rest
Street/PO Box:	Clausenbrücke	Sample Report No.:	xyz
Nat. Ident. Symbol/ZIP Code/City:	D-42097 Wuppertal	SA-No.:	4711
Supplier Number:	Xyz	Order No.:	xyz
Contact Person with Phone/Fax:	Müller 020234-0/ 0202341679	Article No.	xyz
		Delivery Note No.:	xyz
		Revision Status:	03.05.96
		Date:	04.05.96

ppa. Müller ppa. Maier
Representatives Signatures

2. Safety and the Environment

Materials which are subject to legal prohibition shall not be included!
Note: See VDA list of substances which have to be declared

Please mark as appropriate

- Does the component contain materials with a criticality characteristic according to Toxic Substances Control Act/Dangerous (or Toxic) Chemicals Ordinance?
  - ☒ No
  - ☐ Yes (Markings according to Dangerous (or Toxic) Chemicals Ordinance and concentrations are to be stated under „Constituents")
- Can dangerous substances develop or be released when handling the component properly?
  (Note: See VDA list of substances which have to be declared)
  - ☒ No
  - ☐ Yes (Point 10 of the EU Safety Data Sheet is to be completed)
- Is the component „hazardous goods" as defined by Traffic Law (Transport Law)?
  - ☒ No
  - ☐ Yes (Point 14 of the EU Safety Data Sheet is to be completed)
- Does the component contain water-endangering substances according to law relating to water?
  - ☒ No
  - ☐ Yes (Classification of water endangerment and quantity is to be dvised) ……
- Is the component equipped with biocides?
  - ☒ No
  - ☐ Yes (Constituents > 0,1 % are to be stated) ……
- Can the component result in a waste product to which a code number (EAK Code) can be allocated after use or application has ceased?
  - ☐ No
  - ☒ Yes .....

The table overleaf is to be fully completed.

First Sample Test Report VDA

Constituents of Purchased Parts

Substances which are subject to legal prohibition must not included!
Hazardous substances which may be created or released upon use must also be declared.
Noe: See VDA list of substances which have to be declared!

3. Parts description: SA No.: 4711 Sample Report No.: VDA 001
Designation: Hinterschäumte Armlehne

Parts No./ Material No.	Parts description	SA Component	Weight [g]	Material/ producer-related product description	Constituents CAS No.	Constituents Material description	Content Level [%]
4711	Foam-filled arm rest	PVC skin	100	Plastisol 1001 Company BASF		DOP (Color batch) (VDA List)	0,5
		Carrier	50	POM T 20Hostaform 3001 Company Hoechst			
		PU Foam	60	A-Component Typ B1 B-Component Typ B2 Fa. Beyer		(Cannot be answered at the moment)	

First Sample Test Report VDA

Constituents of Purchased Parts

Substances which are subject to legal prohibition must not included!
Hazardous substances which may be created or released upon use must also be declared.
Noe: See VDA list of substances which have to be declared!

3. Parts description: ZSB-Nr.: ZSB-Nr.: 801 136.H75 CA.J22K Sample Report No.: VDA 002
Designation: Angular ball bearing

Parts No./ Material No.	Parts description	SA Component	Weight [g]	Material/ producer-related product description	Constituents CAS No.	Constituents Material description	Content Level [%]
801 136.H75CA.J 22K	Angular ball bearing	1 Outer ring	266,6	Rolling bearing steel ISO 683-17			
		1 Inner ring	177,7	dto.			
		28 Ball bearings	156,5	dto.			
		2 Retainer cages	6,7	PA 66 – GF 25			
		2 Gaskets	11,2	Acrylnitrite-Butadine-Rubber St. 3			
		2 Centrifugal disk	9,8	dto.			
		Lubricant	12,2	Shell Alvania R3	7632-00-0	Sodium nitrite	1 – 5

First Sample Test Report VDA

Constituents of Purchased Parts

Substances which are subject to legal prohibition must not included!
Hazardous substances which may be created or released upon use must also be declared.
Noe: See VDA list of substances which have to be declared!

3. Parts description: ZSB-Nr.: 1 H 21 59412 Sample Report No.: VDA 003
Designation: Air conditioning switch

Parts No./ Material No.	Parts description	SA Component	Weight [g]	Material/ producer-related product description	Constituents CAS No.	Constituents Material description	Content Level [%]
1 H 21 59412	Air conditioning switch	Housing	9	PA 6,6 43 W G8 (BASF)			
		4 plug connections	5,3	Cu/Zn alloy Basis Cu Zn 30			
		Board	4,5	Epoxy resin Herrta xyz		FR 2 Flame retardant	3
				4 Capacitors		(Cannot be answered at hte moment)	

Constituents of Purchased Parts

Substances which are subject to legal prohibition must not included!
Hazardous substances which may be created or released upon use must also be declared.
Noe: See VDA list of substances which have to be declared!

3. Parts description: ZSB-Nr.: 0815 Sample Report No.: VDA 004
Designation: Disc brake pads

Parts No./ Material No.	Parts description	SA Component	Weight [g]	Material/ producer-related product description	Constituents CAS No.	Constituents Material description	Content Level [%]
0815	Disc brake pads	Carrier plate	200	Steel DIN ST 52			
		Springs	10	Steel DIN ST XY chromized			
		Absorbing plate	20	Steel DIN EP 09/16			
		Friction lining	120	JURID 666 of Jurid	26125...	Aramid fibers	1 – 5
					131..	Lead sulphide	1 – 5
					7440-020	Nickel	5 – 10

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