VOLKSWAGEN
GROUP

Formel Q
konkret

Quality management agreement between the Volkswagen Group companies and their suppliers.

2nd revised edition – February 1994
3rd revised edition – September 1998
4th revised edition – September 2008
5th revised edition – April 2015
6th revised edition – October 2021
7th update version – March 2025

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Published by: Volkswagen AG
Group Quality Assurance
Post box 1468/0, 38446 Wolfsburg

Preface

Dear Sir or Madam,

This document is the revised edition of Formel Q Konkret, which contains the quality requirements that we place on you as a supplying company. The terms of Formel Q Konkret and the additional applicable documents are part of the request and must therefore be observed unconditionally by you when submitting an offer.

New challenges from the markets, such as digitalization, data security and sustainability, are taken into account.

For successful cooperation within the supply chain, it is necessary to comply with the requirements specifically described in Formel Q, whilst maintaining open communication, quality requirements, and cost- and deadline-discipline.

Wolfsburg, March 2025

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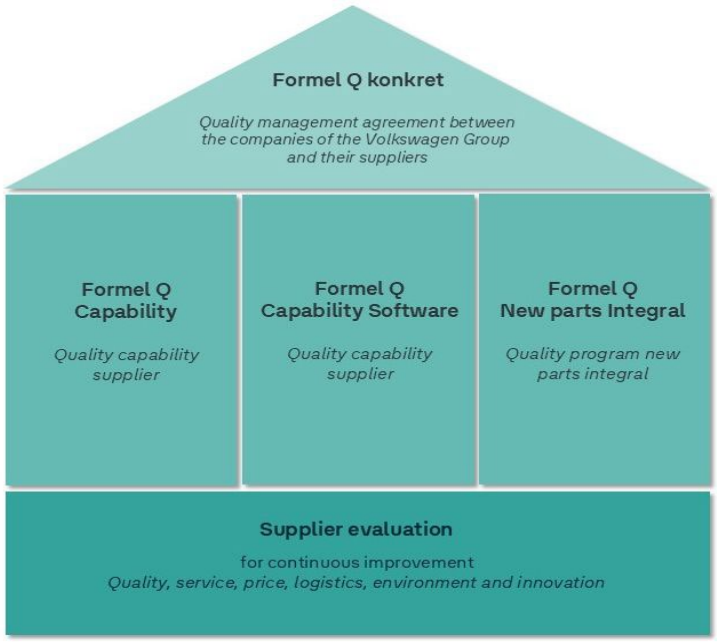
0 General provisions

For purposes of simplification, the term "Customer" is used (depending on context) to refer to the Volkswagen Group plant that takes delivery of and installs purchased parts, or to the department in charge at a particular Volkswagen Group company.

The Formel Q publication series is stored in the currently valid version on the ONE.Konzern Business Platform (KBP) under www.vwgroupsupply.com in the "Information\Divisions\Quality Assurance\Formel Q" directory.



The Formel Q publication series is a valid document for the contracts that the suppliers conclude with the Volkswagen Group and its companies.
It consists of the present Formel Q konkret as an interdisciplinary agreement as well as the supplementary volumes Formel Q Capability, Formel Q Capability Software and the Formel Q New Parts Integral inclusive the attachment "brand specific supplements". The supplementary documents serve to evaluate and support suppliers to achieve and maintain a high-quality and sustained delivery capability.

Volkswagen Group ensures that the supplier receives access to the required customer criteria and requirements by means of activation on the ONE.KBP. These must be taken into account in calculating the offer. If the supplier is enabled on the Group Business Platform, the DUNS numbers for the contract, development (for hardware and/or software), the logistics and production site must be entered in the supplier database and kept up-to-date.

Legal and regulatory rules and regulations apply throughout the entire delivery period.

In addition, valid versions :

- of the technical supply specifications and standards (e. g. VW 99000[1]) of the customer,

[1] Note: VW 99000 is not used by all companies of the Volkswagen Group

- of the KGAS – the Group basic software requirements in the current valid version,
- of the rules and references listed in the "brand-specific supplements annex"

apply with the conclusion of the contract.

In addition, the following apply in each case in the currently valid version:

- the VDA publication series "Qualitätsmanagement in der Automobilindustrie" [Quality Management in the Automotive Industry] and "Das gemeinsame Qualitätsmanagement in der Lieferkette" [Joint Quality Management in the Supply Chain] (www.vda-qmc.de) in their latest versions ,
- ISO 9001,
- ISO 21434 for cybersecurity relevant scope,
- IATF 16949 (as an alternative to VDA volume 6.1),
- TISAX (Trusted Information Security Assessment).

The supplier must take all aforementioned documents into account when preparing his offer, and assures by submitting the offer that he is aware of them, acknowledges them, complies with them and is responsible for the implementation of the requirements in his supply chain, including outsourced value creation (e.g. subcontractors, plant suppliers, outsourced manufacturing processes, process steps through outsourcing, partial production at secondary locations, extended workbenches, contract order manufacturing).

The warranty provisions in accordance with the contract, or the respective customer's terms and conditions of purchase for production material, as well as any existing separately concluded warranty contracts, remain unaffected and take precedence in the event of contradictions.

Information may be passed on to other companies within the Volkswagen Group that arise in the course of the business relationship. The disclosure of confidential information by the supplier to external third parties may only take place with the written consent of the customer. The external third parties are to be bound to secrecy.

1 Request, offer preparation and general requirements

1.1 Offer prerequisites

Before the offer is created, the complete supplier specifications for the production and development-related sites must be entered by the supplier on the ONE.KBP and then registered in the supplier database (LDB) with their DUNS number. This includes the following:

- the name of the product safety and conformity officer (PSCR),
- the name of the QA contact person,
- the name of the Cybersecurity contact person and
- Information on the quality management, environmental, TISAX and Cybersecurity certificates issued[2].

The supplier must also cascade these requirements to its supply chain. All entries in the supplier database must be kept up-to-date. If any information is missing, the supplier will be omitted from the group of bidders.

1.1.1 Documentation

The customer is entitled to request that the supplier issue copies of documents that are necessary for checking or verifying the correct implementation of quality assurance (e.g. parts history, test plan, test reports, individual part drawings, safety chemical datasheets, production layout). If the senior management of the supplier decide that it is not possible to issue copies for reasons of confidentiality, it must be possible to at least view the documents. All documents must be available in German or in the language agreed with the customer. In the latter case, a translation into English must also be provided.

1.1.2 Correspondence and contact person

Over the course of the project and until the end of service (EOS), the supplier will ensure that the customer is provided with a contact person authorized to make decisions.

If necessary, a permanent representation by a resident must be decided upon in coordination between the supplier and the customer.

A prescribed language for contact persons and residents must be agreed with the customer on a project-specific basis for the project and series production phases. If no specific agreements have been made, it must be ensured that there is a German-speaking contact person and correspondence with the customer is possible in German at all times up until EOS.

[2] Details see Chapter 1.1.7.

1.1.3 IT systems

For cooperation between the supplier and the customer, the use of applications (particularly SDB, KPM, KVS, LION, BeOn) in the secure area of the ONE.KBP is required (payment for this may be necessary). This accordingly requires the supplier to register for the secure area (login) and accept the individual applications before the award of contract. The use of the systems is an essential prerequisite for component classification and approval, the fault rectification process, and the transfer of digital measurement data.

1.1.4. Compliance with environmental, material, statutory and regulatory regulations

During the contract period, the supplier is obliged to ensure that its products comply with all applicable laws and regulations worldwide, as well as statutory or official requirements. The supplier will continue to monitor and ensure compliance even after the products have been handed over to the customer.

In addition, the supplier will ensure that the products covered by the contract fully meet with the requirements defined in VW 91100, VW 91101, VW 91102 and VW 50156.

The supplier must ensure that components, operating materials and process materials which remain on the vehicle or are intended for the spare parts supply can be used worldwide in accordance with the respective statutory requirements for substances and materials (e.g. chemicals, heavy metals, persistent organic pollutants and biocides). The same applies to "off-board" systems, e.g. charging infrastructure, which are used in conjunction with the vehicle. The intended uses and legal deadlines must be taken into account in each case.

In accordance with the requirements and deadlines specified in VW 91101 and VW 50156, the supplier must inform the customer about the material composition or chemical safety data, for example the safety data sheet or the chemical composition in the delivered condition. Furthermore, the supplier must obtain the customer's consent before making significant changes in the material composition that are relevant to drawings. He must inform the customer about inquiries from government agencies as well as doubts about the contractually regulated usability of the products in the planned markets of the products and initiate measures in coordination with the customer.

1.1.5 Use of recycled material

The use of recycled material (including recycled pellets) is only permitted by the customer's technical documentation (e.g. drawing, component specifications). The applicable framework conditions, in particular in accordance with the standards VW 50026 (plastics) and VW 91107 (metals and all materials except plastics), must be observed. In addition, further specifications are anchored in component-specific requirement documents (e.g. TL).

1.1.6 Requirements for supplier compliance with ESD regulations

The requirements of the component specifications, the technical drawing, DIN EN 61340 and the VW standard 80132 “ESD Guidelines for Automotive Manufacturers” must be complied

with in assembly, packaging and logistics for ESD-relevant components, assemblies and purchased parts. All relevant employees at each job level must be trained accordingly.

1.1.7 Cybersecurity management

In the case of cybersecurity-relevant software and hardware, including modules, a prerequisite for a contract at the respective development site must be provided in addition to the requirements from Formel Q Capability Software as well as successful audit evidence in accordance with ISO PAS 5112.

In these case, the supplier is obliged to prove by means of a valid certification from an accredited certification authority that his cybersecurity management system is compliant with the requirements of ISO 21434 (audit according to ISO PAS 5112) in addition to specific customer requirements.

1.2 Request documents

The supplier must check all requirements of the request documents with regard to completeness, consistency, feasibility and the current state of the art, and report anomalies to the customer in writing.

If any amendments/additions are required, for example with regard to software, paint quality, residual dirt, safety equipment, (airbags, etc.), they must be clarified with the respective technical departments of the customer before the offer is created (e.g. product development, production process and product requirements) and documented in writing.

1.2.1 Supplier's duty to obtain information

The supplier is responsible for obtaining the documents referenced in the request documents. Customer-specific documents are provided on the ONE.KBP[3].

1.2.2 Test equipment and gauges

An appropriate gauge and test equipment concept must be part of the scope of the offer.

Suitable test equipment for product qualification and accompanying inspections at the production site must be available for individual parts as well as assemblies. The test equipment must be procured so that all relevant characteristics can be checked. If a test by measurement is not possible, contour gauges or reference parts agreed with the customer shall be provided as test equipment.

The test equipment capability of all test equipment used must be verified by examination by the latest by the parts provision deadline for the VFF and by EOS in accordance with VDA volume 5, in particular "Certificate of Measurement System Capability".

[3] The forms for the safety chemical data sets are provided directly by the customer.

For components that are assembled by the supplier (e.g. assemblies/modules), additional suitable assembly test equipment (e.g. partial master jigs, installation or supplementary cubing) must be created with suitable measuring systems for independent assessment and coordination.

If modifications are made to components, the test equipment and gauges affected must be adapted without delay, in coordination with the customer.

1.3 Supplier concept development

After consultation with the customer, the supplier will prepare an offer, the content of which will vary depending on the scope of development, which must comprise at least the following items:

- Description of the design concept (e.g. geometry, materials, functions, software).
- In case of cybersecurity relevance, presentation of the cybersecurity management system in the supply chain.
- In the case of software relevance, take into account the requirements for software suppliers mentioned in Chapter 3.4.
- Planned project organization with responsible contact partners for the development and production sites.
- Explanation of planned development and production processes, factory layout and supply chains.
- Presentation of a timing plan and part approval target forecast.
- Details of testing and approval planning (manufacturing chain, including recipient).
- Description of sub-supplier management and change management, as well as the requalification process.
- Explanation of measures for achieving quality targets.
- Plausibility analysis and agreement of targets (0 km and field).
- Commitments regarding target costs, deadlines, capacities.
- Risk assessment regarding deadlines, costs, and quality.
- Stipulation as to who bears the costs incurred for special measures.
- Binding feasibility statement based on specifications.
- Logistics and packaging concept.

For project-critical scopes of supply, a plausibility check is carried out as part of the Quality Technical Requirement (QTR). Any deviations from the requirements must be reported in writing to the customer's QTR contact person and a clarification must be brought about.

1.3.1 Selecting sub-suppliers

There may be additional customer specifications with regard to the selection of sub-suppliers. Compliance with the requirements of Formel Q konkret (e.g. Chapter 1.1.4) must also be

ensured by the supplier within the supply chain, and this obligation must be imposed on subcontractors accordingly.

Only the companies approved by the customer are to be used as subcontractors for painted or chrome-plated components with customer-relevant surfaces on plastic substrates, chrome plating of metal surfaces as well as high-strength fasteners and seals. They are to be obtained via the responsible procurement department, if they are not available at the ONE.KBP.

If necessary, the Procurement and Quality divisions of the customer conclude appropriate interface agreements with the 1st-level supplier.

1.3.2 Logistics and packaging concept

In order to avoid transport damage, the supplier must store and deliver the goods in suitable customer-approved transport containers, and observe any agreed conditions (time, temperature, light, shielding gas, ESD requirements etc.).

Unless otherwise agreed, packaging planning is the responsibility of the supplier. The supplier must provide evidence of the suitability of the transport protection concept and the packaging in pre-production (installed for PPD pilot production, verified for PPD pre-production).

The supplier is responsible for the cleanliness of the transportation containers as well as for compliance with cleanliness criteria during delivery (transfer of risk).

1.4 Quality framework agreement

The customer stipulates a zero defect strategy. In addition to the supply contract regulations on defects and other liability claims, in the case of any defects, the supplier must agree a quality improvement program in writing with the customer. If no written agreement exists, the supplier is obliged to achieve an annual halving of the error quota.

The supplier undertakes to take the Formel Q into account as part of its quality management system and to meet the requirements of IATF 16949, as far as it applies to the specific project, and to ensure the corresponding requirements for external resources (services and value creations) commissioned for it. The first step for the verification of this are internal self-assessments, demonstrating the implementation and fulfilment of the requirements of the Formel Q documents and Automotive SPICE® (for software implementation or components and systems running software) and the Automotive SPICE® for Cybersecurity (for software implementations or software-operating components or systems that are relevant to cybersecurity), including remote sites used (remote functions) and external resources (services and added value) commissioned by the supplier.

For assessment of the supplier as part of the offer evaluation, valid recognized certification according to IATF 16949 or declarations of conformity from recognized certification bodies must be provided to the customer (see Chapter 2), along with corresponding self-evaluations, at the customer's request, in accordance with Formel Q capability or (where applicable) Formel Q capability software.

The supplier is responsible for the quality of the products and documentation supplied to the customer. The supplier will manage and coordinate the sub-suppliers in the production and supply chain. The supplier will ensure, using relevant contractual obligations, that documentation valid for the relationship between the customer and the supplier is also observed in dealings with sub-suppliers in the production and supply chain.

Should the customer require the 1st tier supplier of a product in the production and supply chain to use specific (sub-) suppliers, directed part suppliers, the two parties must conclude a quality assurance agreement with each other. In this situation, the 1st tier supplier bears full responsibility for the quality of the goods supplied to the customer.

1.4.1 Responsibility in the supply chain

The supplier (e.g. an assembly supplier conducting assembly operations and with responsibility for individual parts/sub-assemblies) is responsible for ensuring that its sub-suppliers (and also directed part suppliers, service providers etc.) comply with the quality requirements. This includes the following points:

- The production process and product approval (PPA) is carried out by the assembly/system/module supplier. Deviations and exceptions must be contractually agreed in coordination between the supplier and the customer (e.g. interface agreement).
- Ensuring and verifying quality capability and performance in the supply chain.
- Defining quality assurance agreements. The customer's requirements must be taken into account accordingly.
- Ensuring all component-specific requirements.
- Consideration and assurance of functions and special characteristics of products and production processes, including the application and verification of required preventive methods (e.g. risk analyses, FMEA).
- Ensuring the flow of information between the contractual partners
- Specifications for handling D/TLD parts and other legal or official requirements (e.g. CCC, CoP) and the necessary documentation (e.g. IMDS or CDX).
- For suppliers of chemical products or suppliers whose scope of supply contains chemical products which are relevant to customer service, proof of the supplier's capability to conform with the VW 50156 standard is required.
- Specifications for warranty and traceability of components within the supply chain.
- Successfully implementing the qualification program for new parts integral (QPNI) according to Formel Q – New Parts Integral.
- Ensuring change management in the supply chain.
- Ensuring cybersecurity management in the supply chain.
- The contractor must provide the client with information about all software elements used in the delivered software (FOSS, 3rd party, in-house development).
- If, according to the customer's risk assessment, containment actions are required for the scope of supply which lie outside the supplier's value chain or its direct sub-suppliers, the supplier must hand over the requirement to subsequent delivery stages and support appropriate discussions between all affected partners.

- Ensuring qualitative and quantitative component supply throughout the product life cycle.

1.4.2 Transparency in the supply chain

On request and where there is a legitimate interest, PPA documents (PPA report, process approvals), quality management plans, production steering plans, test plans and work instructions as well as results and assessments from sub-suppliers must be handed over to the customer, or be made available by the supplier for inspection.

Appropriate customer forms must be used to present the supply chain upon request.

1.4.3 Access to business and plant premises of sub-suppliers

The supplier will ensure that access for the customer to the business premises of the sub-suppliers is appropriately guaranteed. The required joint access must be agreed in advance between the customer and the supplier.

1.5 External service providers

External service providers on behalf of the supplier may only be used after consultation on site at the customer's site.

In relation to the use of external service providers, the following regulations must be complied with:

- If the supplier buys in external resources in the form of processes, products and services, the customer's guidelines and requirements and IATF 16949 must be implemented and guaranteed. In particular, the provisions of ISO/IEC 17025 with regard to the accreditation of laboratories must be applied or these service providers must be approved by the customer accordingly. The supplier is responsible for documenting this for the customer.
- If, due to legal requirements regarding tests, the execution by specifically accredited laboratories or external service providers is required, the contractor must have these tests carried out in the accredited laboratories or with external service providers.
- If the supplier uses their own personnel or externally commissioned service providers to process complaints (e.g. for production or field incidents) at the customer's site(s), this must be approved by the customer. As part of such activities, the supplier must ensure especially that:
  - No danger to personnel occurs due to necessary rework and sorting actions on site during customer operations
  - Applicable accident prevention, safety regulations and departmental safety regulations are observed
  - Production processes are not additionally disrupted and

    - The information and communication channels required during operation are adhered to.
- The customer reserves the right to use external service providers for its own purposes. The supplier is obliged to cooperate in partnership in a manner compatible with its legitimate interests (e.g. for production process and product approval or complaint processing).

The customer's contact with the service providers of the supplier will take place exclusively via the respective contact persons on the supplier's side. Suppliers ensure that contact with the service provider and access by the customer to its business premises are managed in a suitable manner.

2 Quality criteria for award of contract

Before a contract is awarded, each supplier is assessed based on preventative evaluation of quality capability and proven quality performance. If no quality rating is available, a process evaluation of the respective production/development sites will be carried out before the contract can be awarded. The customer also reserves the right to subject the offer to a technical plausibility review (QTR), which can result in a project-specific rejection.

Contract award is not possible in the event of a C-rating in one of the evaluation criteria (Q capability, Q performance, QTR).

Manufacturers of customer-visible surfaces are evaluated and approved for award decisions according to a brand-specific procedure (see Formel Q capability).

Should one of the chosen manufacturing sites be set to "new business on hold" ("C" rating for Q performance / Q capability) after contract award, the supplier's management or corporate headquarters will take immediate action to upgrade it, with outside assistance if necessary.

2.1 Elements of assessment criteria

- Quality capability:
  Refers to the assessment of process suitability according to Formula Q capability and Formula Q software capability.
- Quality performance:
  Refers to the performance assessment of the supplier in the project and series production phases, based on criteria such as delivery quality, production process and product approval, adherence to schedule, and field and 0 km complaints. The supplier's performance is also assessed for the provision of spare parts (After Sales). The results are included in the supplier's overall assessment. Failure to meet quality requirements in the project, series production and After Sales can also result in escalation into the Critical Supplier programme (PKL) and could lead to a "C" rating.
- Quality Technical Requirement (QTR):
  Refers to the project-specific review of technical plausibility of the offer prior to contract award. The assessment by the customer, if necessary, takes place in a discussion between the supplier and the customer (see Formel Q – New Parts Integral). If no QTR documents are transmitted after a request, this also leads to a project-specific C rating and thus to exclusion from the award.

2.2 Safeguarding measures in conjunction with award of contract

For awards that come into effect according to a set schedule and/or various production sites, the supplier must present a corresponding action plan/deployment concept (e.g. safeguarding of greenfield/brownfield sites) at the time of the award.

2.3 Concept Responsibility Agreement

The Concept Responsibility Agreement (KVV) is agreed between the customer and its suppliers as part of the award process and is a prerequisite for nomination. It serves the early, binding delimitation of responsibilities for the development of products and services (e.g. software) between the customer and the supplier.

As part of the request, the supplier is given a component-related concept responsibility quota of the customer.

In the event that the supplier delivers defective goods, where the analysis of the defective products and services reveals a concept or development-related defect, the agreed concept responsibility quota (KVV) applies.

The concept responsibility quota agreement does not apply if responsibility cannot be determined on the basis of the analysis of the defective products and services. In this case ("No trouble found" kFf/NTF), the costs will be split equally between the supplier and the customer until the cause is conclusively identified.

Further information can be found on the ONE.KBP in the "Information\Divisions\Quality Assurance\Basic Requirements\Regulations (QA)" directory and in the KVV framework contract.

3 Cooperation with suppliers during the product emergence process

3.1 New parts integral qualification program

The qualification program for new parts integral (QPN Integral) comprises the Maturity Level Assurance for new parts (in accordance with VDA MLA), the QTR, the PPA process (VDA volume 2) and the Production Capability Analysis (PCA).

QPN Integral is based on the milestones of the Volkswagen Group Product Emergence Process (PEP) and is used by the customer.

The Maturity Level Assurance of delivery scopes as a project management method is based on a maturity level milestone philosophy. The customer's Quality Assurance department plans a schedule for these maturity levels and agrees this schedule with the supplier after contract award. This means that suppliers (and also sub-suppliers in some circumstances) of critical delivery scopes and the customer are integrated in the product emergence process at an early stage (see Formel Q New Parts Integral and VDA MLA).

All suppliers are obliged to implement the Maturity Level Assurance process and associated modules.

3.2 Quality planning

The supplier must ensure that the maturity levels specified in Formel Q – New Parts Integral are reached on time. The supplier must complete and keep the quality framework schedule up to date in such a way that all product and Q-relevant key deadlines as well as the project deadlines specified by the customer are covered.

The supplier is responsible for the implementation and presentation of suitable analyses, feasibility studies, design and process FMEAs, and quality assurance and measurement concepts derived from this (e.g. statistical tolerance chain analysis incl. influences of add-on parts and assembly variance), process flow charts as well as equipment and maintenance planning.

In all cases, the supplier shall ensure that the current state of the art is applied.

The supplier must create inspection plans and must coordinate them with the customer on request. The inspection plans must take account of all previously defined inspection characteristics (in particular for D/TLD scopes) (with regard to test equipment, see also 1.2.2).

The supplier must independently develop a Conformity of Production (CoP) test plan for the CoP-relevant scopes (Conformity of Production legislation valid worldwide) and make these available to the customer on request. The supplier will coordinate the components, bodies and body parts necessary to perform the CoP inspections as well as their procurement with the customer prior to the conclusion of the contract.

The supplier must coordinate with the customer the characteristics for which a 100% end-of-line inspection is necessary.

The functionality of the scope of supply must be 100% assured by the implementation of suitable testing equipment, independent of the production operator. Any deviations must be agreed with the customer in writing.

For products for which an expiry date must be taken into account, the latest use-by date must be specified together with the customer before the contract is awarded.

At the request of the customer, the supplier will demonstrate the manufacturing feasibility of all nominated components in detail. The supplier will ensure the personal participation of authorised and qualified representatives of its company, sub-suppliers and service providers.

The components are to be 100% measured with regard to relevant characteristics until process capability has been proven. The test characteristics must be coordinated with the customer as part of quality planning. The measured values must be recorded and evaluated statistically. Individual verifications can be requested by the customer if necessary.

During quality planning, the damaged parts analysis process for field-damaged parts must also be taken into account (considering the VDA volume "Schadteilanalyse Feld" – analysing damaged parts in the field) and all necessary prerequisites for this must be implemented before SOP. Trigger criteria for the NTF process (no trouble found) must be agreed with the customer. Furthermore, all requirements and tests required for product safety must be included in the quality planning.

If the safety function of safety-relevant scopes (e.g. airbag module, seats) is yet to be implemented (e.g. with sample deliveries), this property must be clearly and permanently marked. The labels (also electronic labels) must be recognisable or readable in an installed condition and must be coordinated beforehand with the customer.

3.3 Production process and product approval (PPA)

The PPA process is valid until the end of service (EOS) and is conducted on the basis of VDA volume 2 or another acceptance procedure agreed with the customer. Further detailed requirements of the customer regarding the PPF procedure can be found in Formel Q New Parts Integral.

At the customer's request, additional samples or information on semi-finished products or subcomponents must be provided as part of the PPA process. In addition, separate PPA processes can be requested for sub-components or semi-finished products.

The respective valid version of a reference sample (sample for PPA) and the inspection reports must be kept by the supplier in accordance with the legal and regulatory requirements, but at least for a period of five (5) years after termination of the contract (even in After Sales) if no other agreements have been made with the customer.

For software-based systems, the supplier must be able to implement all error corrections in the software that the customer deems necessary up to 15 years after the end of production (EOP - component). The supplier must ensure that the delivered software is kept available and that all necessary conditions for modification and delivery of the software are met in compliance with the requirements of KGAS.

If there are several receiving plants, agreements must be made with the first plant to use the parts, generally this is also the type leader plant, or project specific.

The following customer-specific regulations apply to the handling of directed parts for PPA certification:

- The 1st tier supplier is responsible for implementing the PPA process of directed parts which are used in higher-level assemblies. In addition, all results for self-procured components and directed parts must be presented to the customer.
- Details of the PPA procedure for the directed parts must be defined in the PPA coordination discussions between the customer and supplier. This applies especially where a PPA procedure of variant-rich assemblies is necessary, for assemblies with diverse customer-selected options (such as seats and door trim panels).
- Assemblies such as the front end module, cockpit, axles, seats, fuel tank, roof modules, complex welded assemblies, etc. may also contain directed parts that, for technical reasons, are delivered as individual parts directly to the customer in the Volkswagen Group company for PPA release. In such cases, the customer and the 1st tier supplier will define the scope of services and responsibility of the supplier in an interface agreement.

3.3.1 Components requiring certification

Certificates of components are a mandatory requirement for type approval and approval of the customer's products. Country-specific approvals must be carried out in good time so that the results are available on the specified date.

If there is an obligation to obtain a certificate (officially/legally binding) or if the customer requires proof, the associated valid documents (e.g. component certificates, factory inspection report, result of self-audit D/TLD) must be uploaded to the customer's systems or made available in due time (e.g. LiOn at ONE.KBP).

The supplier must ensure that all required certificates – during the project, production phase, and in the delivery of spare parts – are valid and available at all times. The certificate (e.g. CCC, radio certificate and Factory Inspection Reports) must be valid

for at least two more months at the time the production process and product approval is submitted.

The supplier will independently and in good time arrange for a new request for and/or extension of certificates if statutory requirements change or the validity of certificates expires.

Changes to certificates must be agreed with the customer in advance. The loss of certificates must be reported immediately in writing in order not to jeopardize the type approval and approval of the customer's products.

3.4 Software

The supplier commissioned with the creation of the software must create a complete functional and release documentation for this product in accordance with VDA volume 2 and Automotive-SPICE® process reference model and deliver it to the customer along with the software.

The software must be state of the art. The commissioned supplier must meet at least the following requirements:

- applying the Formel Q capability software,
- use of the Group base requirements for software (KGAS),
- applying of the cybersecurity base requirements (CSGA),
- the development of software-based systems compliant at least with Automotive SPICE® capability level 2,
- establishment and evidence of a cybersecurity management system in accordance with ISO/PAS 5112.

Automotive SPICE® assessments and cybersecurity management audits are to be included as part of the audit planning of the software development supplier.

4 Quality measures during series production

All of the following provisions apply for the entire period of the supply relationship up until EOS.

4.1 Ongoing assurance of process capability

The supplier must provide for tests during series production in order to safeguard its manufacturing process. The type and scope of tests during series production must be coordinated with the customer, e.g. in the context of concept and test planning. The agreed tests during series production must be performed in accordance with the approved testing plans and presented upon request.

If the capacities to be produced change significantly, inspection frequencies must be re-evaluated and coordinated with the responsible person at the customer.

For the defined product/process characteristics, the process capabilities must be determined and verified continuously over the entire production time.

The supplier must identify and record critical attributes (for example, from the process FMEA, the design FMEA or cybersecurity risk analysis) and must document this. A quality assurance concept must be presented and coordinated with the customer for these characteristics, as well as for special characteristics and function-relevant characteristics specified by the customer (e.g. functional dimensions).

The determination and assurance of continued process capability (using PFU, see IATF 16949) is to be implemented in accordance with VDA volume 4.1 and VDA volume 5. Valid customer standards must be observed.

The minimum scope of the special characteristics that are measured to determine the Cp and Cpk values will be defined in the design and process FMEAs. These documents can be viewed at any time by the customer.

The customer aligns its processes with a process capability Cpk of 1.33. If the supplier cannot comply with the process capability Cpk >= 1.33 or if SPC cannot be used, an employee-independent 100% inspection for the defined product/process characteristics of the scope of supply must be implemented.

The supplier is required to monitor and manage all defined reportable functional dimensions, which are to be set out in the inspection plan. The control of functional dimensions is an important element in assuring process capability. The supplier will provide its measurement data for defined functional dimensions to the customer on request.

The periodic calibration of all test equipment used must be documented. This also applies to process-integrated test equipment that is installed on machinery and used for process control.

In the event of equipment malfunctions, the parts in the tool must be excluded from further use. This must be implemented primarily through technical measures.

4.1.1 Tool management

The supplier is obliged to provide evidence of a tool management system as well as scheduled and preventive service / maintenance for machinery and tools. Tool maintenance and modifications must be documented. Any loss of or damage to tools must be reported to the customer immediately (see VDA volume 6.3).

4.2 Product safety and product liability

The customer has responsibility for the final assembly as well as overall responsibility for the finished product, the vehicle. This includes all purchased parts.
The primary responsibility for the components used in the finished product lies with the supplier. The supplier must therefore implement all organizationally and technically feasible measures to ensure the product safety of its parts and those of its sub-suppliers and to minimize product liability risks.
Furthermore, the supplier must have documented processes for the management of safety-relevant products and production processes that also include its upstream supply chain.

In the event of claims and/or if requested by the customer, the supplier must be able to demonstrate that it has discharged its entrepreneurial duty of care in order to prevent faults with the product.

The supplier must implement measures in its organization and oblige its employees and sub-suppliers to ensure that:

- a highly-developed appreciation of quality exists throughout the company,
- the required product safety is guaranteed when components are developed,
- that the product delivers the required functional safety and cybersecurity,
- a product safety and conformity officer (PSCR) as per VDA volume Product Integrity is nominated and available at the supplier and for the next level of the supply chain, and is known to the PSCR of the respective contract partner,
- the Product Safety and Conformity Representative, as well as his or her representation by a suitable institution, is qualified in accordance with the VDA volume Product Integrity and the state of the art is maintained,
- the product safety and conformity officer (and a qualified representative) of the 1st tier supplier is entered in the supplier database (SDB) and kept up-to-date,
- all relevant personnel receive detailed information and training on product safety and product liability issues (amongst others: functional security and cybersecurity basing on the VDA volume Product integrity),
- the quality capability of the production processes is guaranteed and proven,
- the likelihood of defective products is minimized using appropriate quality assurance measures during series production,

- defective products are identified as early as possible in the production workflow using appropriate measures (to minimize costs/waste of added value),
- quality data as well as compliance checks required by law and by regulatory authorities are documented in sufficient and transparent detail in order to prove that the products have been manufactured in accordance with all relevant laws and safety standards,
- a material tracking system can be used to pinpoint the effects of any faults that occur if required,
- all sub-suppliers use comparable systems analogous to the Formel Q documents that meet the customer's requirements,
- components with a expiration date meet special labelling requirements, particularly in accordance with the manual for original parts suppliers.

4.3 Products requiring documentation and special verification

For Conformity of Production (CoP) relevant scopes, the supplier must define the related checks and evidence in the production control plan.
The supplier shall continuously provide evidence in accordance with its CoP inspection planning and make it available to the customer on request.

4.3.1 D/TLD verification

In addition to the general requirements of the quality management system, product-specific quality verification for products subject to mandatory documentation is to be conducted by the supplier and archived for at least 15 years after the end of production (see VDA volume 1). This includes technical documentation marked with “D”, “TLD” or “A” such as drawings, tables, manufacturing approvals, technical terms of delivery, inspection specifications, sample reports and other quality records that may be required as evidence and used for the purposes of exoneration. This also includes evidence of planning activities, selection and qualification of personnel, suitability of test equipment, process capability analyses, and correspondence.

Suppliers are required to use this approach for every product to be supplied which is subject to a mandatory documentation requirement.

The systematic and consistent procedure for verification is checked and evaluated on a spot-check basis by the supplier with a D/TLD self-audit and by the customer as part of process audits, technical audits or other supplier visits.

On request, the evidence must be made available to the customer.

4.3.1.1 Labelling of technical documentation

The customer has three labelling variants of equal importance (the older “D”, “TLD” and “A”).

If the supplier uses labelling other than that listed above for its documents and records, the supplier must provide a key that shows the correlation to the labelling listed above (e.g. an overview matrix with the labels for all customers and internal labelling) as a controlled document.

4.3.1.2 Self-audit – products subject to mandatory documentation (D/TLD self-audit)

To check the implementation of the requirements for products subject to mandatory documentation, the supplier must independently perform and document a site-specific D/TLD self-audit every 12 months (with a validity period of 12 months) in accordance with the current requirements catalogue for components requiring documentation (Form – TLD Quality Audit; see ONE.KBP). The supplier is obliged to use this procedure in the same way for its supply chain, purchased parts and outsourced process steps. The date of the last passed D/TLD self-audit must be documented in the BeOn IT System at the time of the PPA procedure. The obligation to hold a currently valid D/TLD self-audit begins with the first PPA procedure of the commissioned product.

If defects are detected during the audit, it is expected that the supplier will immediately implement the necessary improvement measures independently.

The supplier will check the implementation of the improvement measures and their effectiveness in a new D/TLD self-audit carried out independently. Corresponding documentation of this must be maintained.

The results of D/TLD self-audits must be archived for at least 15 years and kept available for verification by the customer at all times. Evidence of the supplier's activities to ensure compliance with the quality requirements must be guaranteed at all times. All specifications as per VDA volumes 1 and IATF 16949 and customer-specific requirements must be taken into account during the verification process.

On request, the results of the D/TLD self-audits must be made available to the customer.

4.3.1.3 Product group specification / product selection

The supplier must ensure that all products requiring documentation or all specified characteristics requiring verification are considered as important parts/characteristics. During auditing, for each characteristic requiring documentation of all D/TLD scopes to be supplied, sample products must be selected for which compliance with specified requirements must be verified by the process and product audit. The reference parts are selected from a delivery list of parts requiring documentation for the customer that is permanently kept up-to-date by the supplier. The random sample size of the product audit must be defined appropriately for the product and the characteristic to be checked, i.e. a sample product selection is made from the delivery list in which all characteristics requiring verification occur. Furthermore, the supplier is required to name characteristics for its product and manufacturing process other

than those already named by the customer and to categorize them as function- and safety-relevant.

4.3.1.4 Assessment of individual questions / audit results

Each question is assessed with regard to consistent fulfilment, including in process assurance, as follows:

Circumstances	Assessment
Requirements completely fulfilled	Yes
Requirements not or not fully fulfilled	No

Table: Assessments

All relevant requirements must be fulfilled, and deviations must be corrected with an improvement program by the supplier. If the supplier detects deviations that can directly influence the product quality (e.g. missing test equipment), the supplier must define measures (e.g. external testing) to ensure immediate safeguarding of the product. Should these deviations be determined as part of a PPF procedure, they must be taken into account in the supplier's risk assessment.

If the supplier is still unable to meet the requirements, it must notify the receiving plants and its contact person in the customer's Procurement division without delay.

4.3.1.5 Audit report / action plan

The TLD self-audit form at ONE.KBP includes all relevant issues and information on parts volumes that require documentation.

For products in the pre-series phase, the supplier must ensure that all questions have been answered with "Yes" no later than the 0-series Stock-in-Plant date (date of PPA process completion).

For products in series production, the supplier must immediately define further measures in the event of detected deviations and inform the quality assurance of the all receiving plants in writing.

The weaknesses reported must be eliminated by the stated end date.

If the above points are not fulfilled, the quality capability is downgraded to "C" (new business on hold) and, if necessary, the supplier is added to the Critical Supplier program.

4.3.2 Verification – Chemicals

In order to be able to use chemicals in vehicle construction, vehicle operation or After Sales, the supplier must ensure that all binding obligations, in particular national and international

laws and official requirements, as well as the requirements of the customer are met (e.g. VW 50156). Suppliers of chemical products must verify the conformity capability of the supplier in accordance with the VW 50156 standard. It is assessed on the basis of the Chemical Compliance Assessment (CCA).

4.3.2.1 Chemical Compliance Assessment (CCA)

A CCA is performed on the basis of a CCA self-evaluation conducted once a year (every 12 months) by the supplier. The CCA self-evaluation must be transmitted to the customer without prompting once completed. In addition, the customer decides whether an on-site CCA is required on the basis of the result of the CCA self-evaluation. Suppliers whose CCA self-evaluation was positive may be selected at random for an on-site CCA. For aspiring suppliers, an onsite CCA is conducted on the basis of the CCA question catalogue after the CCA self-evaluation. The CCA self-evaluation and/or on-site CCA are carried out at the supplier's headquarters.

In the event of a non-conformity, the responsible department of the customer can escalate the supplier into the Critical Supplier program.

The on-site CCA is carried out by trained employees of the Volkswagen Group. Suppliers are classified as “compliant” or “non-compliant” with regard to the assessment of the questions and the overall assessment.

The CCA documents are available on the ONE.KBP.

4.4 Identification and management of problems

4.4.1 Complaints management

In the course of handling complaints, the customer and its suppliers acquire important early warning information on new and previously unknown product problems.

The supplier is obliged to immediately and systematically rectify any defects that occur or that are reported by the customer within the framework of existing regulations, and to demonstrate the sustainability of its measures.

In the event of non-conformities or suspicions of defects in the product and/or production process, the supplier must immediately report this to the customer[4], the corresponding logistics centers of the Volkswagen Group companies who have received the same scope of delivery and, where applicable, other partners in the supply chains.
If, due to time constraints, the supplier initially only gives a verbal notification, a written confirmation must be submitted within 24 hours or by the next regular business day.

At the request of the customer, the supplier must take immediate action to ensure rectification. This includes:

- Immediate sorting/reworking of stock at the receiving plants

[4] The contact details can be found in the complaint procedure.

- Implementation of a 100% inspection of the goods (the so called "Warenfilter") to prevent delivery of more faulty parts
- Sending a representative with the authorization to take decisions to the customer's Quality Assurance department to coordinate fault rectification on site.

If these actions cannot be implemented by its own personnel, the supplier must commission a service provider approved by the customer to implement the actions, in coordination with the customer. The supplier will use the systems provided by the customer for all complaint processing and handling.

Inspection reports, delivery quality evaluations and rejected products will be made available to the supplier in accordance with the contractual agreements, in order to address faults immediately and shorten the analysis process, and must immediately be analysed by the supplier. For all errors, root causes must be determined in a methodical process, and remedial measures must be defined, scheduled and implemented, and their effectiveness must be proven. This also includes the necessary measures at sub-suppliers, up to and including on-site assessment/audit by the supplier and, if necessary, by the customer. In the event of any deviations from the specifications, the supplier must conduct a qualified risk assessment and communicate this to the relevant divisions of the customer. It must be ensured that the customer is supplied with OK products approved by the customer.

The customer reserves the right to perform or demand additional inspections (e.g. goods receipt inspections) if there are repeated quality problems.

If fault patterns occur repeatedly, regardless of the agreed ppm quotas, corrective measures and improvement programmes must be developed, presented to the customer, and implemented sustainably.

Key figures defined in target agreements, e.g. ppm quotas, A/B faults, and vehicle audit target values are binding and are used for supplier assessment. If the agreed target values are not reached for deliveries of parts for series production, the supplier may be escalated to the Critical Supplier programme.

For repeated faults, vehicle breakdowns, or complaints about safety-relevant scopes of supply, if they reach the customer, then suitable methods for risk analysis and minimisation according to Formula Q capability must be independently implemented by the supplier and submitted to the customer on request. To avoid repeated faults, the supplier must revise the process FMEA after every complaint and submit it to the customer on request.

During the service life of the product (until end of service – EoS), the supplier will actively participate in the customer's fault rectification process. Product analysis on the supplier side must also be ensured after the contractually agreed warranty period. This applies in particular to components for which analyses are requested for market-specific and legally relevant reasons (e.g. defect reporting) or to demonstrate compliance with specifications.

4.4.1.1 0 km complaints

The customer reserves the right to determine and evaluate the quality of products that cannot be assessed upon delivery (especially raw parts and primary material) only in the subsequent process (e.g. ppm rates, value added losses per part). In the context of continual quality improvement, the supplier must reduce the amount of rework required in addition to the reject rate.

As soon as the supplier has been informed of the occurrence of complaints or after receiving the defective part – if this is essential for the analysis – the customer must be informed in writing in an 8D report, at the latest on the next regular working day, about the measures that have been taken. Initial analysis results must be presented to the customer within three (3) working days and a usage decision regarding parts blocked by the customer must be issued. If there is no usage decision from the supplier within this time frame, the blocked parts can be scrapped at the supplier's expense. The 8D report must be updated with the long-term measures within the time window specified by the customer, but within a maximum of 10 working days. If this time frame cannot be complied with, the supplier must submit an interim report within this period.

When the complaint is reported, the supplier must immediately consult with the customer to agree on the amount of time required for the analysis (date of completion) if the stipulated completion dates cannot be met. If the work on addressing complaints regarding products (8D report) results in the completion dates being exceeded without any prior consultation with the customer, the complaint will be closed out after four (4) weeks at the supplier's expense regardless of the question of responsibility. The supplier remains obliged to send the completed 8D report.

Unless otherwise requested by the customer, the 8D report must be completed at the latest within 20 working days. Where necessary, evidence of the delivered generation statuses and corresponding delivery notes must be presented.

4.4.1.2 Reworking and sorting activities

The customer is producing on up to seven (7) days per week on a three-shift basis, and therefore also outside normal business hours on a regular basis. If on-site service or a permanent contact person cannot be guaranteed by the supplier, this means for the customer that coordination with the supplier is not possible at short notice.

In the event of complaints outside of normal business hours, the customer is therefore entitled to implement measures that cause the least possible damage and to pass on the associated costs if the supplier is informed at the start of normal business hours.

This provision also applies if the supplier does not fulfil its obligation to rectify the damage to the extent required.

The supplier must ensure that the personnel employed for sorting and reworking activities are sufficiently qualified for the planned scope of work, and that the workplace equipment, infrastructure and personal equipment used by the personnel assigned or commissioned by the supplier are state of the art. The necessary documentation for qualified performance of

the work will be created in full by the supplier. The supplier shall provide evidence of the effectiveness of the rework.

Rework and deviations in important features must be coordinated with the customer.

4.4.1.3 Field complaints

During the service life of the product (until EOS), the supplier will actively participate in the customer's fault rectification process.

Rejected products from the field that are recorded in the corresponding systems must be processed by the supplier within a maximum of 20 working days after receipt of the complaint or return delivery of the damaged part.

The necessary sustainable measures must be initiated and their effectiveness checked. This also includes the necessary measures with sub-suppliers. The customer's contact person must be informed in writing of the measures taken, in the form of an 8D report.

In derogation from the feedback deadline mentioned above, reduced processing times apply to prioritised damaged parts (e.g. breakdowns, customer quality and security focuses of the customer). Within three (3) working days of receipt of the complaint or damaged part, the available analysis results and planned corrective measures must be communicated by means of an 8D report. In these cases, the 8D report must be completed within 10 working days.

If the specified time frame cannot be complied with, the supplier must immediately consult with the customer to agree on the amount of time required for the analysis (date of completion). If the work on addressing complaints regarding products results in the completion dates being exceeded without any prior consultation with the customer, the complaint can be closed out at the supplier's expense regardless of the question of responsibility. The supplier remains obliged to send the completed 8D report.

Until the effectiveness of the corrective measures has been verified by the supplier, the customer can demand special measures (e.g. outgoing goods inspections at the supplier, additional product tests). To avoid repeated faults, the supplier must revise the process FMEA after every complaint and present it to the customer on request.

4.4.1.4 Analysis parts with export or transport restrictions

The supplier must also ensure an analysis of components that are omitted in a market with export restrictions for analysis parts unless otherwise agreed with the customer. To this end, a contact person and a delivery address must be designated by the supplier in the respective market. For the analysis, the products are provided by the customer in the respective market.

If there are transport restrictions for parts (e.g. hazardous goods), the aforementioned procedure can also be agreed for individual markets in the name of economic efficiency.

4.4.2 Early warning system

The supplier must play an active role in early warning systems (hotline, retail task force Product Security Incident Response Team (PSIRT), etc.), for example with resident experts on site,

to assist with the early detection of field faults. With new product launches or with 100% obligation to report damaged parts in the market under observation, the supplier is obliged to attend the defect rectification process on site.

Where purchased parts give rise to field complaints, the supplier will promptly transmit its analysis results and corrective measures to the customer through the relevant IT systems. The content and procedures of these analyses shall at a minimum satisfy the requirements of the VDA publication “Field Failure Analysis”. The customer may require that other analyses be carried out either instead of or in addition to those stated in the VDA publication.

4.4.3 Obligation to conduct own field observation

As part of its product monitoring obligation, the supplier is responsible for conducting its own market observation for its products and notifying the customer of any relevant results obtained. The supplier will notify the customer immediately of any delivery call-off anomalies anywhere in the world (e.g. increased demand for parts / spares, purchased part write-up list).

The supplier is obliged to establish a monitoring system and effective cybersecurity incident management with regard to possible hazard potentials.

In order to fulfil its obligation to conduct its own field observation, the supplier must have suitable processes and resources available.

4.5 Continuous improvement process (KVP)

The supplier is obliged to have and provide evidence of a documented process for continuous improvement (KVP). The supplier will reduce its internal and customer-relevant reject and rework rates by taking the relevant measures. Evidence of the process must be presented to the customer on request.

4.6 Change management

Changes to the production site, production process, product including software versions, or the supply chain can lead to the loss of market approval of the vehicles and/or products and must therefore be communicated in good time so that the common goal of a corresponding development/quality release (location release, production process and product release) can be achieved.

The supplier will notify the customer in advance of all changes in its process chain (site, product, process, supply chain) and obtain written consent from the customer before such changes are implemented. Changes to DUNS no., e.g. due to a change of company name, changes to the ownership of the production site (mergers, sales etc.), expansions of delivery quantities and changes in the target plants must also be reported to the customer in advance and delivery capability must be ensured.

Further approval and information obligations in the event of changes are regulated by the trigger matrix of VDA Volume 2 "Production Process and Product Approval".

In the event of any relocation (including within a given production site), a project plan and continuity concept must be drawn up in consultation with the customer before implementation.

In the event of relocations of the production site to another postal address, the supplier must ensure that this production site is entered in the supplier database (LDB) with its own DUNS number, that there is a verified positive assessment of the quality capability according to Formula Q capability and that all required permits/certificates are in place.

Material changes to products, operating supplies and process material as well as the expiry or loss of approvals must be actively communicated to the customer by the supplier immediately in writing and require the transmission of an updated material data sheet via IMDS or CDX.

A new PPA procedure must be carried out by the supplier in consultation with the customer. Approval by the customer is required before delivery from the new production site can take place.

Failure to observe these regulations will result in a "C" rating (new business on hold).

4.7 Requalification

The supplier must assure quality by carrying out a requalitication of its scope of supply in accordance with IATF 16949 and in accordance with VDA volume Robust Production Processes. The customer requires a complete requalification at least every three years. The requalification starts with the completion of the PPA process[5]. Requalification cycles may be defined by other legislation, government agencies or component-specific requirements (e.g. in the specifications), and must be implemented.

Unless agreed otherwise with the customer, the scope of the requalification to be presented will correspond to that of the PPA product process and product approval. The results must be documented internally, stored securely and presented to the customer on request.

A requalification of the products must also take place in the last year of delivery.

Products with specific and/or authorisation-relevant characteristics (e.g. D/TLD markings) must be subjected to a requalification every 12 months.

The scope of these tests (including dimensional accuracy, laboratory checks, endurance tests) in the annual product audits as part of the requalification must be coordinated with the customer's quality departments during the project phase and adjusted accordingly in the event of changes/complaints.

4.8 Lessons learned

The supplier will take the information resulting from experience with both previous and ongoing projects (e.g. from field failures, 0 km complaints, project performance, product safety,

[5] Resp. with the release of the BMG for process materials.

functional security and cybersecurity), and apply it as lessons learned to new projects and development work as well as to its ongoing production operations and in the supply chain. Measurable improvement with reference to previous key performance indicators must be documented for new models.

The lessons learned results relating to the product or process must be assessed with the FMEA and included if necessary. They must be presented to the customer on request.

4.9 Handling of warranty claims and special cases

The contractual customer-specific regulations of the companies apply to the transfer of supplier-caused additional costs (e.g. in the case of field, 0km and CKD complaints). The supplier's responsibility for field failures during the warranty period will be determined using a spot-check procedure in accordance with the VDA publication "Field Failure Analysis" based on Technical Factors (TF) or the Claims Acceptance Rate (AQ).

The supplier's responsibility for field failures during the warranty period may be determined by other means if the defect is corrected without parts replacement (e.g. software).

The technical and commercial handling of defective goods supplies will take place independently via the customers that use the product, regardless of which customer placed the order.

The customer reserves the right to decide independently whether to implement quality-related measures (special cases). The term special cases refers, for example, to goodwill payments or recall, service, or workshop measures.

Suppliers will bear a portion of the customer's costs that is proportionate to their share of responsibility. The share of responsibility will be determined to reflect causation (principle of causation). The share of responsibility determines the percentage of total costs incurred that the supplier must bear.

Volkswagen Group will coordinate the handling of special cases affecting more than one customer.

Starting from an NTF percentage of 30%, the supplier is obliged to initiate an NTF (no trouble found) process in accordance with the VDA volume "Field Failure Analysis". The number of underlying damaged parts per year can be found in the following table.

Brand	Number of parts for determination NTF
Audi AG, Porsche AG, Bentley, Skoda, SEAT	10
VW Passenger Cars, VW Commercial Vehicles	20
TRATON, Lamborghini	To be agreed on a customer-specific basis

Table: Defective parts per year for NTF process

4.10 Technical Supplier Reviews

Technical Supplier Reviews (TRLs) are not a substitute for process or product audits. They are a quality assurance measure for product quality. Further details can be found in Formula Q capability.

4.11 Critical Supplier program

In the event of deviations from quality requirements within project and series (for example, delivery quality, production process and product approval, deviations in the project, incorrect data in the IMDS entry or CDX material data sheet, complaints from the field, non-conforming CCA, or red TRL evaluation), the customer can add the supplier to the Critical Supplier program. The program has four escalation levels:

Level 0	Supplier has problems
Level 1	Supplier is unsuccessful in solving these problems
Level 2	Supplier requires outside help
Level 3	Supplier is unsuitable for VW Group (new business on hold)

Level ratings from 0 to 2 are assigned by the customer's Quality Assurance department.

A Level 3 rating (“C” – new business on hold) may only be issued in a Top Q discussion by Group Procurement Supplier Management.

In its problem-solving process in preparation for the Top Q meeting, the supplier must apply quality management tools, including Pareto analysis and the Ishikawa method as a minimum. The resulting measures and deadlines must be presented as a step-down diagram. Here it is absolutely necessary to use suitable key performance indicators (KPIs). Corresponding guidelines will be included with the invitation.

Group Procurement Supplier Management reserves the right to directly assign a Level 3 rating where the circumstances warrant this.

A “C” rating may be repealed only by Group Procurement Supplier Management, and only after an appropriate period of time. Improvement measures that have been proven to be effective, performance indicators, and agreements reached in the Top Q meeting are the basis for any such decision.

A classification in the program "Critical Suppliers" ("Special Status" of the customer) must be displayed to the certification company by the supplier on its own responsibility.

The customer must be informed about the further procedure between the certification company and the supplier.

5 Terms and abbreviations

0 km faults	Faults detected when the part is delivered to the customer, or on the assembly line in the customer's assembly plant.
1st tier supplier	Direct supplier of the customer.
A, B, C faults	Faults are classified according to severity using the following categories: A1 Safety risk, breakdown A Unacceptable, will definitely result in a complaint B1 Severe impediment, obstacle, significantly outside specified standards B Unpleasant, disruptive, complaints anticipated, likely disruption of customer operations C1 Noteworthy complaint C Requires improvement, complaints and disruption of customer operations possible if frequency increases.
AIAG	**A**utomotive **I**ndustry **A**ction **G**roup – worldwide organization to exchange information to promote the automotive industry.
BeOn	Online sample approval system (German: **Be**musterung **On**line) supports paperless processing of the PPA procedure (previously: initial sample testing) for purchased parts and in-house parts. See ONE.KBP for instructions on activating and using BeOn, (Information\Divisions\Quality Assurance).
Brownfield	Auditable process that is not present in an existing production facility.
CCC	**C**hina **C**ompulsory **C**ertification.
CDX	**C**ompliance **D**ata **E**xchange**.** In the same way as for material data recording in the IMDS system, the CDX system is available for non-vehicle-specific products. CDX information (www.cdxsystem.com) is also transferred to the MISS system via download and checked there.
Critical Supplier programme	(German: Programm Kritische Lieferanten) Escalation process for suppliers exhibiting inadequate performance in the production hall (0km) or field. The process can lead to the supplier being temporarily blocked for new contracts (business on hold).
CoP	**C**onformity **o**f **P**roduction**.** Includes the verification to ensure that the manufactured vehicle from series production continues to match the approved type.
Cp	**C**apability **P**rocess – Ratio of the specified tolerance to the process dispersion (Cpk).
Cpk	**C**ritical **P**rocess **C**apability index – process capability index that in addition to manufacturing process variance, also takes account of the position of the median value in the frequency distribution compared with the specification tolerances.
Cybersecurity Incident	Individual or a series of undesirable or unexpected cyber security events that document the exploitation of a vulnerability and could have a significant influence on the security of a component/function (e.g. cause damage to the asset).

Cybersecurity Incident (Response) Management	Process and responsibilities for dealing with cybersecurity vulnerabilities (weaknesses), cybersecurity vulnerabilities or cybersecurity incidents (incidents), for determining the cause (and affected products) and remedying them by appropriate means as well as communication with the client.
Directed parts	(German: Setzteile) Where an organization manufactures assemblies using parts that the customer requires it to purchase from specific suppliers, such parts are referred to as directed parts (see VDA vol. 2).
D/TLD	Documentation obligation/technical guideline for documentation (D-TLD) – Documentation is mandatory for all objects and products subject to safety laws and/or internal Volkswagen provisions which could endanger the life of the user of the product in the event of failure.
EoS	**E**nd **o**f **S**ervice. From then on, spare parts will no longer be made available, as set out in the contract details, typically 15 years after EOP.
ESD	**E**lectro **S**tatic **D**ischarge – electrostatic discharge between two charged bodies. Unprotected contact with electrostatic components can result in their destruction.
FMEA	**F**ailure **M**odes and **E**ffects **A**nalysis – analysis of potential failure modes and their consequences.
Formel Q – New Parts Integral (QPNI)	The "Formel Q – New Parts Integral" brochure describes the modular and cross-departmental method of component qualification.
FOSS	**F**ree and **O**pen **S**ource **S**oftware is any software distributed under terms of use and license, the essential nature of which typically includes the distribution or disclosure of the source code of the software when it is distributed.
Greenfield	Production facility that does not yet exist and therefore cannot be audited.
IATF	**I**nternational **A**utomotive **T**ask **F**orce
IMDS	**I**nternational **M**aterial **D**ata **S**ystem. The IMDS is the international material database for the automotive industry in which all automotive suppliers enter the material data of their components (www.mdsystem.com). All material data from the IMDS is transferred to the internal Volkswagen MISS system via download and is checked there.
kFf	No Fault Found – complaint parts for which the cause(s) of the complaint could not yet be determined (see also NTF).
KGAS	(German: **K**onzern **G**rund**a**nforderungen **S**oftware) basic specification with requirements for software development.
KPI	**K**ey **P**erformance **I**ndicator – measurement variable
KVV	Concept Responsibility Agreement (German: **K**onzept**V**erantwortungs**V**ereinbarung), consisting of the single master concept responsibility agreement concluded with the supplier for each newly awarded contract, and the concept responsibility quota.
KV quota	Concept responsibility quota – fixes in legally binding form and at an early stage the parties' respective responsibilities for the development of components/modules/systems.
New business on hold	A supplier production site is blocked from further orders in the event of a "C" rating.
NTF	**N**o **T**rouble **F**ound – complaint parts for which the cause(s) of the complaint could not yet be determined (see also kFf).

Poka-yoke	System for preventing unintentional mistakes.
PPA	Production process and product approval; specification of VDA (volume 2) for a phased approval of products throughout the supply chain.
ppm	**p**arts **p**er **m**illion
Product capability analysis	(German: Serienfähigkeitsnachweis) The Product Capability Analysis (PCA) is the Volkswagen Group's instrument to avoid new parts quality and capacity problems. A certificate of series capability, must be performed, documented by the supplier and the result must be presented to the customer on request. The customer reserves the right to be present on site after consulting with the supplier.
PSCR	Product Safety and Conformity Representative; person responsible for product safety and compliance.
QPNI-MLA	New parts qualification programme – maturity level assurance
QTR	**Q**uality **T**echnical **R**equirement – technical plausibility check of the offer of a supplier after offer submission.
SBD	**S**upplier **d**ata **b**ase – in German the LDB (Lieferantendatenbank).
Special characteristics	(German: Attributive Merkmale) Critical product, process, and test characteristics with functional relevance must be defined in cross-departmental teams using "System FMEA Product". Other special characteristics can emerge, e.g. from the "System FMEA Process" that follows. Besides statutory, safety-relevant, design and process-oriented aspects, these also include key customer-oriented aspects.
TISAX	Trusted Information Security Assessment Exchange; standardized information security assessment procedure for the automotive industry, administered by the ENX Association. "High Availability" is expected for production and delivery sites, while "Strictly Confidential" is required for development sites.
Type leader plant	Type leadership responsibility is generally model-based and assigned to a factory where the vehicle is manufactured – the type leader plant. The type leader plant supports the product development process and the product-related preparation for the start-up / ramp-up process. The type leader plant also tracks "its" vehicle model in all product-specific respects until the end of production.
VDA	**V**erband **d**er **A**utomobilindustrie e.V. (Association of the Automotive Industry, Germany)
VW standard	The customer's technical standards (e.g. VW 10540: manufacturer code for vehicle parts).