Quality Policy for Prototype Suppliers

-QR02-

5th completely revised edition, Heiligenhaus, January 2022

Contents

1 Preamble

The requirements of our customers with respect to variant diversity, maturity development, development times as well as service quality have constantly increased in recent years. This development requires a stronger focus on prototyping by Kiekert and its partners in order to be able to map the required maturity levels in these shortened development times.

Thanks to customer proximity and customer satisfaction, Kiekert has increased its market share year by year and faces international challenges by building additional production sites worldwide. Our industrial experience in the field of latch systems, the technical knowledge, the quality and reliability of our products and the potential for development are the guarantors for Kiekert. These factors codetermine the technology of cars in the future.

The requirements for our prototype suppliers are therefore at the highest level.

The global Kiekert Quality Guideline QR-02 Supplier Requirements for Prototypes uniformly establishes the quality system requirements for our prototypes.

With the efficiency of our prototype suppliers and their capacity for innovation in the implementation of the requirements, we will jointly meet the high quality requirements of all our customers.

We ask of you, our prototype suppliers, to comply with the requirements of our quality guideline, the Supplier Requirements for Prototype Delivery QR-02. With this guideline, we can jointly develop and successfully produce our products for the highest demands.

Heiligenhaus, January, 2022

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2. Scope of Application

This supplier requirement applies to suppliers who have been commissioned by Kiekert to produce prototypes and provide them to Kiekert Prototyping, as well as to series suppliers who deliver to Kiekert Prototyping .

3. Requirements on the Development and Prototype Suppliers

For the effective and targeted cooperation between Kiekert and its suppliers, who deliver to the prototype construction and based on the QR01 (supplier requirement for series suppliers), the following basic requirements are defined for our suppliers.

The **quality responsibility** for the planning and execution of work contents at production, assembly and test stations **lies exclusively with the supplier**. The supplier is always and continuously responsible for the quality of the product manufactured or supplied by him, including the services and deliveries of subcontractors under consideration of the drawing regulations, timing, project planning, technical delivery conditions, standards, requirements of the vehicle manufacturers and legal and official regulations towards Kiekert.

The supplier shall be responsible for procuring and updating Kiekert and customer requirements as cited in the product specification documents, provided that the procurement, i.e. updating, is possible with proportionate means. If the supplier is unable to procure the corresponding regulations, he shall inform Kiekert independently. Quality responsibility also includes the appropriate packaging of the goods to be delivered. The following list describes selectively the cooperation between the prototype quality and the supplier:

- Kiekert quality representatives are entitled **to stipulate the measures required for the quality capability with the supplier** and to check the fulfillment of the agreements on an ongoing basis.
- Kiekert employees and Kiekert customers are granted a spontaneous **right of access**. The supplier ensures that Kiekert and its customers receive free support from specialist staff, including from their subcontractors.
- The supplier undertakes to record the data required by the Kiekert Quality Officer for **quality documentation**, to evaluate it and make it available with the respective delivery or on special request. For the period of safe-keeping that data, it must be kept accessible at all times.
- If additional checks or rework is required due to an error detection, e.g. incomplete information on the delivery documents, wrong deliveries or missing / incomplete proofs of quality, the resulting error costs will be charged to the supplier. These can exceed the costs of the complained parts many times over.
- **The supplier obligates himself to grant Kiekert its rights under warranty even if Kiekert only identifies defects that could have been detected in a technical incoming goods inspection during or after processing.** The supplier will be informed and requested to limit the damage**.** The supplier will be informed and requested to limit the damage. The supplier is expressly advised that he is required to clarify the above arrangements with his liability insurer to ensure that the extended product liability insurance is effective.
- The supplier complies with the requirements of the Kiekert '**Supplier Code of Conduct**', which regulates the minimum standards in the areas of environment, labor and ethics.

- The supplier actively and regularly uses the **Kiekert Supplier Portal** for information about innovations, for checking the supplier's assessment status and for updating his master data independently (inter alia, contact data, certification status). Further activities in the supplier portal (e.g. call-offs or sampling stands) are used by the supplier depending on the Kiekert requirements.

If there are deviations from the requirements specified in this quality guideline, written confirmation from the person in charge of the prototype construction department is required.

Furthermore, the supplier must have suitable project management.

For each project, a project manager must be named who coordinates all planning activities. The respective specialist project managers are to be named to Kiekert as the contact person throughout the project.

In order to achieve the project objectives from a technical, schedule, financial and qualitative point of view, an overall project plan must be drawn up which is valid across all divisions and clearly identifies all planned goals.

Risks and critical project points should be identified from the overall project plan at an early stage in order to initiate corrective measures if necessary.

The entire scope of project planning (project management) depends on the complexity of the product and is coordinated within the framework of the applicable Kiekert processes.

4. Selection and Release of Prototype Suppliers

A prototype supplier must prove a QM system according to the automotive-specific requirements. This proof can be obtained by qualification according to IATF 16949. A deviating certification can be recognized only in exceptional cases (for example DIN EN ISO 9001). If no certification is available, proof of a consistent and functioning quality management system must be provided to Kiekert in an approval audit (system and / or process audit).

Required points for the supplier approval as prototype supplier:

- Supplier information via supplier self-assessment (annual update required)
- Acceptance of the confidentiality agreement
- Conclusion of any required quality assurance agreements (QAA)
- Acceptance of the QR02
- Acceptance of the Kiekert Supplier Code of Conduct

Passing an audit alone is not enough to be listed as a prototype supplier at Kiekert. All the above points must be met for this.

5 Kinds of Prototypes and Manufacturing Processes

5.1 Prototypes

Prototypes are construction stages of the product to be developed that contain some or all of the features of the final version. Therefore, the physical prototypes are subdivided according to their level of detail as follows:

- **PMA Sample**: Dimensionally accurate model for first attempts at assembly and use and for specifying the (material) requirement profile. For initial presentation to the customer as well as to concretize requirement profiles.
  Possible manufacturing processes include: 3D printed models, laser, sintering or vacuum casting.

  Responsibility*: Prototyping Department

- **PMB Sample:** Are functional prototypes that are identical to the final product, but are manufactured by a prototype supplier and not under series conditions. The material may differ from the series material. PMB models can be used to validate design and functions, taking into account the prototyping process and the deviating material.
  Possible manufacturing processes include: EDM, machining, suitable 3D printing processes or injection molding of small series tools, without sliders, sensors or hot runner.

  Responsibility*: Prototyping Department

- **PMC Sample:** Functional prototypes, which are identical to the final product, are produced by the series supplier; the manufacturing process does not correspond to the series conditions (yet).
  The material and the supplier already correspond to the series production status. Design verification is fully possible with PMC models.
  Possible production processes include: Injection molding of small series molds without sliders, sensor technology or hot runner.

  Responsibility*: Purchasing / Supplier Quality

- **PMD Sample**: are pre- series prototypes that fully correspond to the series product. The manufacturer, the material and the main production tools correspond to the series production status. Design and process verification is fully possible with PMD models. PMD models can be released under series conditions (ISIR).
  Possible production processes include: Injection molding of small series molds with slider, sensor technology and/or hot runner.

  Responsibility*: Purchasing / Supplier Quality

*at Kiekert

Based on a prototype drawing, **prototype suppliers** supply Kiekert with geometric prototypes, function prototypes, technical prototypes or pre-series parts. Prototype suppliers are in this respect always able to produce all functionally relevant properties of a product, according to its level of development, with the necessary accuracy and to maintain the necessary documentation.

The degree of maturity of prototypes from the PMB-Pattern stand is characterized by the fact that Kiekert can use the supplied prototypes to verify the design of individual assemblies as well as the ZSB and carry out functional tests. **If the prototype supplier is not in a position to do so, he has the obligation to immediately and fully demonstrate this to Kiekert Prototyping.**

The supplier must ensure the quality control of its subcontractors and continuously assess, monitor and integrate them into the quality pre-planning process. Furthermore, the supplier is obliged to introduce subcontractors to Kiekert.

5.2 Documentation of the Manufacturing Process

The documentation about the manufacturing process is to be prepared and submitted by the supplier. The documentation has to be presented for every change and process change.

Proposals for contents / requirements:

Plastic Injection Process

- Tool data sheet with cold runner / hot runner, injection points, ventilation points, gating nozzle diameter, number of cavities, mold release, injection temperature, tool temperature, safety measures for molded components (e.g., against steel parts that are not inserted)

Mounting Process of Component Groups

- Photo documentation for every mounting process, especially grease, soldering, grouting procedures, fusion processes incl. holding force, hot stamping with temp. / controls, welding parameter, screw-in torque, riveting process, surface process (e.g., for subsequent adhesive processes)

6. Scope of Sampling for Prototypes

The supplier is responsible for carrying out the test and preparing the test documentation for the prototypes to be delivered. The test documentation must be provided electronically to the QE (Quality Engineer) prior to delivery. The test documentation always includes the cover sheet. Further components are the test documentation and the positioned drawing. 5 Sampling parts are part of every order.

The test documentation for delivery to prototype construction based on the QR01 is described below in its area sections.

Positioned Drawing

The supplier provides Kiekert with a positioned-numbered version based on the prototype drawing, in which **all** component-specific characteristics are positioned. This includes all other dimensions as well as all component specifications, dimensions and theoretical dimensions shown on the drawing, next to functional, form and position tolerances. The supplier is furthermore required to check the numbered drawing upon change of index and to keep it current.

Section 1: **Deviation Report**

The supplier summarizes **all** identified deviations from the report sections 2 to 6 in the deviation report. The deviation report is always comprehensive, i.e., in the case of subsequent sampling, non-corrected deviations from previous sampling must be listed.

In the case of deviating form tolerances, the direction of the deviation must be indicated by the measures of the initial dimensions. Deviations from positional tolerances (line shape and surface shape) shall be graphically represented and attached to the deviation report. Furthermore, dimensional deviations must be clarified with the responsible designer prior to delivery to Kiekert.

Section 2: **List of Used Parts**

For assemblies, all used parts with part number and revision level must be maintained in a list and kept up to date.

Section 3: **Dimensions Report**

List of all dimensional function, shape and position tolerances that are assigned to the actual values by means of position numbers. The dimensions of the form and position tolerances must be specified in the dimension report. Additional dimensions can be declared as requiring verification in consultation with the design and the responsible QE. All unmeasured dimensions must be within the tolerance. Furthermore, the measurement orientation must be confirmed in the dimension report**. It is not permitted to change the measurement orientation independently and without the consent of Kiekert.**

Section 4/5: **Measuring Methods / Capability Proofs**

Details of measuring aids used, testing equipment, recording devices, hardware/test software, etc., as well as measurement alignment with Kiekert laboratory. In case of parts with a tendency to warp / bend or to sink marks, it is mandatory to align and indicate the points of contact for the measurement.

Furthermore, proof must be provided that the measuring instruments used are capable of their specific measuring task (MSA I).

Section 6: **PQP Report**

The PQP report is part of every sampling and must also be submitted. The detailed description of the PQP report is explained in chapter 7.

Section 7: **Control Plan**

Presentation of the realized production progress with all process and test steps and the parts and auxiliaries supplied to the process. In addition, it must be explained which properties are monitored / tested with which (measuring) means at which process step.

In principle, all area sections must be submitted by the prototype supplier, unless Kiekert explicitly requires a reduced scope of documentation in the corresponding sample request ("inspection lot") .

Scope of Sampling / Actions	Positioned Drawing	Deviation Report	List of Parts Used	Dimension Report	Material Report	Measuring Methods	PQP Report	Control Plan
Initial Sampling (New Part)	X	X	X	X	X	X	X	X
drawing Change / Index Change	X	X	X					X
Elimination of Deviations	X	X	X	X			X	X
New Tools / Production Setup	X	X	X					
Material Change	X	X	X	X	X			

6.2 Release of Prototypes:

The release of the initial samples takes place when:

- All features lie within the specification limits, or in case of deviation, the deviation report approved by Kiekert Development / Design and Quality Assurance is present.
- The entire documentation according to QR02 is present.
- A functional installation sample of the prototype in the ZSB was successfully completed.

The prototype supplier will be informed in writing about the result of the release process. An evaluation of the release process will include one of the following usage decisions (UD) per report section and as a total decision on the cover sheet:

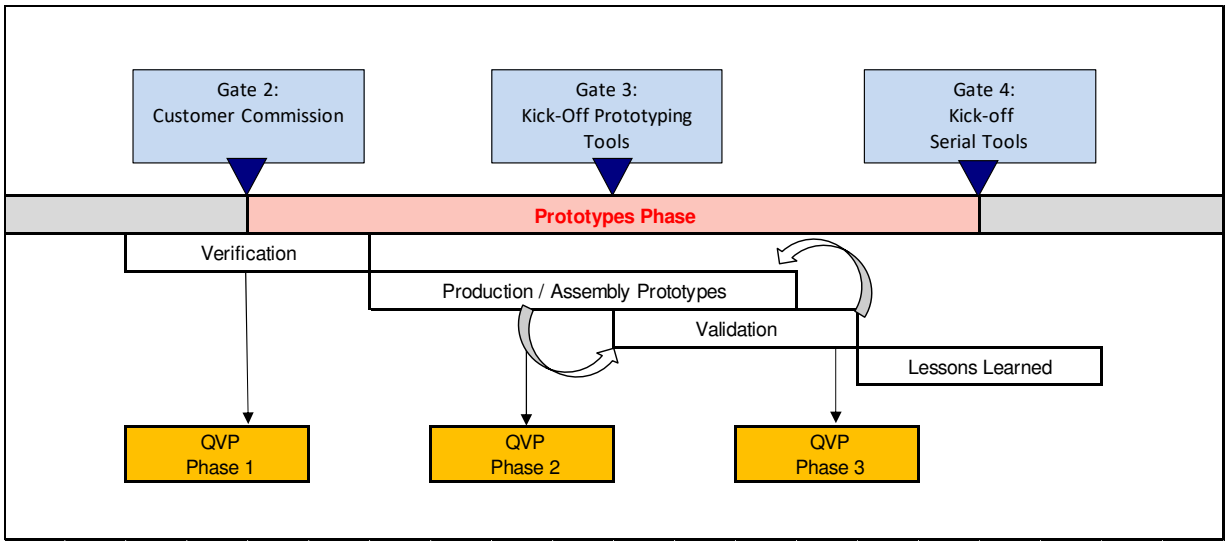
- **UD1:** The delivered prototypes correspond to the agreed specification. This is subsequently confirmed by Kiekert with the usage decision 1 (UD1).
- **UD3:** In case of deviations from the agreed specifications, the usage decision 3 (UD3) will be issued. Subsequently, it is to be clarified with the Prototype Quality Department Kiekert, how many parts may still be supplied with UD3 status before the necessary corrective action takes place. It must be shown in a detailed timetable how and by when the deviations are completely eliminated.
- **UD4:** If the deviations from the specifications are so serious that Kiekert cannot process the prototypes immediately, usage decision 4 (VE4) is issued. Prototypes with a UD4 status may not be delivered to Kiekert without a special release. Subsequently, the prototypes are to be reworked or, if necessary, scrapped at the supplier's expense. In any case, a detailed timetable must immediately be presented to show when a replacement delivery will be made, which will maintain the necessary specifications and security of supply.

Due to deadlines, we reserve the right to rework the individual parts at the supplier's expense.

7. Quality Planning in the Development Phase

The Kiekert internal design validation process of the entire system is based on the prototypes of the individual parts. To ensure that all the requirements of the OEMs have been met by the design, it is imperative that the necessary quality of the prototypes is ensured throughout. For this purpose, advance quality planning meetings are held with the QE and the supplier's project manager or quality manager during product development and prototype production; these meetings are binding as a part-specific quality agreement.

In order to meet the varying component complexity, the individual production techniques of the individual parts, the previous supplier assessments, the area of use in the assembly part, as well as individual validation steps, the QVP is divided into three stages during the development phase. Here, the Kiekert QE, parts and supplier specific, decides which of the three prototype QVP phases must be taken.



QVP Phase I: In the first phase, all activities for the assignment to a prototype supplier in terms of a quality and quantity are carried out.

On the supplier side, this includes in particular the drawing review, the analysis of the specification and the requirement profiles by OEM / Kiekert, the determination of critical characteristics, the planning of a capable prototype production process with respect to quality and quantity, including a traceability concept. The results are included in the QVP Phase I questionnaire and are evaluated by the respective QE

QVP Phase II: The supplier develops production and security procedures for all functional, form and position tolerances. The underlying principle is that potential errors are avoided directly in the process, e.g. by suitable tool design. In-process or subsequent tests may be required as a final safeguarding concept. Planning is carried out independently by the supplier using the **Matrix of Critical Characteristics for Prototype Parts** and has to be confirmed by Kiekert QE. In addition to dimensional and material-technical aspects, this planning also includes customer-specific requirements and procedural aspects. At least the stipulations made here are to be transferred to further documentation such as a control plan, a test plan and instructions. In addition to the added value at the supplier, outsourced processes and purchase parts must also be explicitly considered

QVP Phase III: The **Matrix of Critical Features for Prototype Parts** can be transferred into a pre-version of the **Matrix for Critical Features for Series Parts**, depending on the evaluation of the supplied parts, the validation of the assembly part, the project and tooling progress as well as the part complexity and classification of the part (e.g. safety part). For this purpose, a classification of the part-specific characteristics is specified by the Kiekert Quality Engineer. To this end, D-FMEA and P-FMEA elements complement the first risk assessment of the critical features of the individual part or assembly to be supplied.

The goal of all three phases is to uncover all the weaknesses and risks of the design, the tools as well as the production and assembly processes and to transfer and eliminate them in design changes, series tools and series production concepts.

8. Marking and Documentation Requirement / Safety Parts

The supplier must ensure proper handling and identification of the prototypes at all times. For this, the following subchapters are to be considered:

8.1 Parts Marking

Each individual item delivered to Kiekert Prototyping must be clearly marked so that traceability is maintained throughout. This requires a marking with regard to the revision level of the drawing status, production date, left / right variant and cavities. In special cases, this marking of the individual parts must be dispensed (for example, springs, and screws). In these cases, the marking on the packaging unit or as a "leaflet" must be provided with the delivery.

The five sampling parts that are part of each delivery must be marked as such, i.e. separated.

8.2 Packaging Marking

When delivered to the prototype construction, the individual packaging units must be clearly marked, so that it can be seen:

- that it is a delivery to the prototype construction
- how many individual packages are part of the delivery
- how many items a packaging unit contains
- which parts and part status are involved (part name and number incl. revision level)
- which test documentation belongs to it
- if so, that it is a safety part
- which usage decision has been made by Kiekert

It must be clearly marked if no usage decision is made upon the first delivery.
Furthermore, the delivery note number, supplier address and order number must be visible.

8.3 Marking of Documentation-Required Safety Parts

Documentation-Required Safety Parts are determined by Kiekert and are marked with a heads down delta sign in a circle or the marking ‘DS Part’.

The supplier must ensure that safety parts subject to mandatory documentation are clearly identified at all stages of the material flow in order to avoid mixing of products.

All quality-relevant documents must be clearly marked as requiring documentation.

The Supplier warrants that the test results and documentation of the relevant process parameters of its own manufacturing process as well as the manufacturing process of its subcontractors specified in the three QVP phases (and / or QSVs) for all characteristics subject to verification are documented and archived.

For **safety parts subject to derivation**, additional regulations apply, which are to be taken from the corresponding quality assurance agreements (QAA).

9. Tool Management

9.1 Marking

If the supplier is commissioned with the production of a prototype tool from Kiekert and Kiekert or a third party (usually the Kiekert customer) is the owner, these tools shall be marked as the property of Kiekert or the third party.

The tool must be clearly marked as the property of Kiekert / the third party and must contain the following information:

- Property marks of Kiekert and / or the third party
- Tool number of Kiekert and / or the third party
- Parts name as listed in the drawing
- Drawing number i.e. article number
- Index status
- Manufacturing date (day/month/year)
- Measurements and weight
- If necessary additional markings as required by Kiekert end customers

9.2 Tool Maintenance and Documentation

- The supplier undertakes to create a tool manual which must contain the following scope:
  - List of all individual parts and spare parts (tool piece list, electrodes, wear parts, etc.)
  - Maintenance and repair instructions and the corresponding documentation (maintenance intervals, first main repair, provision of certain spare parts, etc.)
  - **Proof of the performed maintenance and repairs** over the entire period (lifetime) in which the tool is used. **The works are to be specifically documented**, i.e., with date, # shots / strokes, cavity and location / geometry. A generic indication, such as "Stamp changed" is not sufficient.
  - All related **2D / 3D drawings / data** (possibly picture documentation)
  - Progress of the **manufactured piece numbers over the lifetime**
  - The **devices or equipment required** for use of the tool (e.g. hot runners, tapping devices, cooling devices, sensors, etc.) shall be included, documented and verified in the maintenance plan.
- The supplier undertakes to **store and use the tool correctly and professionally** and to **regularly maintain and maintain it preventively**. In doing so, manufacturer information must be taken into account and adhered to.

By commissioning the tool production, the supplier undertakes to fulfill all the points listed above and to demonstrate and maintain the process capability by means of preventive maintenance and repair, proving the corresponding process key figures.

The points listed above are checked and approved by the responsible Quality Engineer for completeness and compliance with all specifications.

9.3 Tool Maintenance and Process Innovation

- In the case of unplanned maintenance, due to tool breakage or similar occurrences, the supplier undertakes to inform Kiekert of the extraordinary maintenance expenditure ("tool revision"). For this purpose, the repair costs must be offset to the costs of a new tool or the actual value of the tool. At the same time, this information must be sent to the responsible purchaser (PU) and Quality Engineer.

- Suppliers are encouraged to continuously improve. If fundamental change concepts of tools or processes arise from these activities, they must be simultaneously addressed to the responsible purchaser (PU) and the QE in order to be able to assess the effects for Kiekert.

10. Claims

If deviations are detected at Kiekert due to installation problems, laboratory tests, customer complaints or other investigations, the supplier shall be informed immediately.

The supplier is obligated to initiate the necessary measures for the rapid clarification and elimination of the claim's cause directly after the first information on the telephone.

If a delivery is blocked, the supplier is solely responsible for the delimitation of the outstanding stock.

The supplier immediately initiates emergency measures, such as replacement deliveries or improvements. Until the verification of the initiated corrective permanent measures, all products must be checked 100% for the error that has occurred. The labeling is carried out according to the test report.

If this is not possible due to scheduling reasons, an agreement will be taken between Kiekert and the supplier to initiate short-term special measures to maintain prototyping. Ensuring production always takes priority in the common interest of mitigation. **In this respect, Kiekert reserves the right to initiate special measures to ensure production and delivery quality even if the supplier has not agreed. Costs incurred in connection with the processing of complaints will generally be charged to the supplier (see Kiekert calculation table for rework).**

The chargeback process for the complaints is started in the Kiekert system via a quality notification and transmitted to the supplier.

The quality notification contains the following points:

- Affected part
- Problem Description
- Number of affected parts
- Costs incurred (estimated)

In addition, Kiekert reserves the right to restrict the service of companies (for example, for sorting) to goods that have already been handed over to Kiekert. This is necessary to ensure labor, quality and transparency standards and to control access to the Kiekert factory premises.

The number of complaints is included in the supplier evaluation and can influence future orders.

11. 8D Reports / Fault Analyses

Kiekert reserves the right to demand an 8-D report in case of complaints. The Kiekert form (see Kiekert Supplier Portal) or an equivalent form must be used .

Kiekert expects a first reaction within 24 hours .

This first 8D report includes at least points 1-3 with the details of the solution team, the error description and the immediate measures. In addition**, a schedule to complete the 8D report** must be provided. Kiekert is then regularly to be informed about the progress.

An 8-D report must always be completed and sent to Kiekert; a 3-D report does not release from this obligation. In addition to stating the basic technical cause, the reason for the failure of the test method as well as the failure of the Q system must always be stated in the 8D report.

For Kiekert, the use of 8D reports is a decisive means for sustainable quality assurance and the derivation of lessons learned. Kiekert prototype suppliers are therefore obliged to prepare 8D reports carefully and in relation to the concrete error case and to inform Kiekert. **The findings from 8D preparations must be incorporated by the supplier into the matrix of critical product characteristics, the company's own FMEA as well as test plans and, if necessary, into work and test instructions (Lessons Learned).**

12. Severability Clause

If any provision of this agreement should be or become ineffective, the validity of the remaining provisions of this agreement shall not be affected. Both parties are in this case obliged to ensure that the ineffective provision is replaced by an effective one that comes as close as possible to the economic purpose of the invalid provision within a reasonable period of time.

13. List of Abbreviations

AIAG	Automotive Industry Action Group
DS	Safety part requiring Documentation
FMEA	Fault, Possibility and Impact Analysis
IMDS	International Material Data System
OEM	Original Equipment Manufacturer (BMW, Daimler, etc.)
PC	Product Creation Department / Kiekert Construction Department
PFMEA	Process FMEA
QSV	Quality Assurance Agreement
SQ	Supplier Quality
QE	Quality Engineer
QVP	Quality Pre-Planning
UD	Usage Decision

14. Further Applicable Documents

VDA Band 2:	see www.VDA-QMC.de
AIAG PPAP Guideline:	see www.AIAG.org
Kiekert Logistics Guideline:	see Kiekert Supplier Partner Portal
Kiekert General Purchase Requirements:	see Kiekert Supplier Partner Portal
Kiekert calculation table for rework	see Kiekert Supplier Partner Portal