Supplier Manual

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Preamble

To permanently meet the increasing requests of our customers for quality and flexibility in the future, we need outstanding suppliers facing future challenges together with us in a dedicated way beyond basic demands.
Together with partners, able and willing to bring in their product and process specific know-how for a mutual profit, ambitious quality aims can be reached. This manual represents a guide for a cooperation in partnership between our suppliers and PREH, including all affiliates and associated companies.

Based on the purchasing and quality policy, the demands of PREH for warranty and assurance of a perfect product quality are herein described.

The supplier manual is a mandatory document. It is part of the contractual agreement between PREH and the supplier and is already valid in the pre-contractual inquiry phase. The German version is binding.

1.0 Purchasing and quality policy

We aim for long term relations with our suppliers in a partnership. Continuous improvement of cooperation in processes and systems at the suppliers accounts for profitability, delivery reliability and improvement of quality.

Rapidly changing and increasing customer requirements to PREH also require highest flexibility and the desire from our suppliers to support a creative and fast problem solving. So the suppliers' deliveries and services have to fully meet all stipulated and legal demands. A strict quality planning and effective production control is indispensable to achieve zero defects. The focus in this has to be on defect avoidance.

The suppliers commit themselves, to deliver only products without failures.

Together we intend to achieve following aims:

- Reaching a long term partnership
- Assure a joint competitiveness
- Clear and fast communication
- Minimization of storage and shipping costs for a mutual profit
- Establish guidelines for the supplier,
  to account for quality responsibility in the best manner
- Assure quality before series delivery
- Assurance and continuous improvement of quality in production

2.0 Requirements for the supplier management system

The suppliers commit to install and certify a quality management system, which at minimum meets the requirements of **DIN ISO EN 9001**.
The suppliers' aim must be to arrange and verify the QM system to the latest version of **ISO/TS 16949**. If there are requirements for other management systems from PREH-customers, they have to be defined in the quality assurance agreement (**QAA**).
Environmentally compatible and sustainable production and products are demands we all have to meet. For this we request our suppliers to establish an environmental management system according to **DIN EN ISO 14001**.

We demand the compliance to effective laws and guidelines at the suppliers as well as for customer sites they deliver to.

3.0 Process for supplier selection

„Pre(h)mium"quality at a fair price is the principle of PREH supplier selection.

3.1 Supplier capability survey (SCS)

The supplier self assessment collects all basic information for the first general rating of the supplier. The SCS will be sent as first contact prior to inquiry. It has to be sent back to the responsible purchaser.

PREH has to be informed about major changes immediately and in written form.

3.2 Supplier auditing

PREH reserves the right to perform an audit on VDA 6.1/6.3 or using PREH "supplier onsite questionnaire" at the supplier. The suppliers will support PREH in this audit at their best. Motivations for an audit especially can be:

- Selection / assessment of new suppliers
- Requests from our customers
- PREH internal requests

The suppliers obligate themselves to work on and solve the deviations listed in the audit report in a timely manner.

PREH reserves the right to perform a value analysis on the processes and procedures. (See 3.7 continuous improvement (CIP)

3.3 Supplier nomination

The nomination decision is made within the project team by the purchasing, development, quality management and if necessary tool engineering departments. Basis for the business relationships are the contracts concluded to with the strategic purchasing department.

3.4 Approved supplier list

With completion of the supply contract, the suppliers are registered in the approved supplier list. Preconditions are positive visit and audit results. Reasons for a complete or partial vendor suspension can be:

- Extensive aim exceedance
- Insufficient implementation of the system requirements
- Deficient reaction time
- Extensive decline of part quality
- Non-compliance with PREH requirements

3.5 Product specific quality requirements

The product specific quality requirements define the demands for initial sampling, delivery, special quality requirements or customer specifications for the relevant material / part.
They are found on every PREH drawing in the upper right corner as well as on every CTS and TDS.
This procedure shall assure that all product relevant requirements are known to the supplier with acceptance of order.

3.6 Warranty

The details for warranty are defined in the terms and conditions of PREH purchasing.
PREH points out that the suppliers will be debited for the associated costs determined by our common customer in case of a field claim, according to their responsibility. For this the suppliers will be informed directly about their assigned charges.
The accounting follows the customer billing procedure.
Damage pictures or samples – as far as it is made available to PREH – are available for inspection at PREH quality and will be provided to the supplier for analysis, if required.

3.7 Continuous improvement (CIP)

Continuous improvement has to be a part of the quality strategy of any supplier. PREH expects the active cooperation of the suppliers on the continuous improvement of flows, processes and products, with the aim to permanently improve the system. The effects of CIP are to verify cost savings or quality improvements. CIP projects are supported by PREH supplier development, if necessary.

3.8 Quality standard purchased parts PQSP

PREH has fixed quality standards for PREH specific

- Mechanical parts
- Electro(mecha-)nical parts
- Packaging

which the suppliers have to abide to in the project phase as well as in production. They are generally valid for all parts and are supplemented by the product specific quality requirements if required. Not meeting the PQSP demands leads to special actions and can end in cancellation of the contractual relationship.
The relevant PQSP is defined in the appropriate product specific quality reqirements or specification.

4.0 Advanced quality assurance

4.1 General

Development projects are to be timely planned together with forward sourcing of PREH according to the particular requirement of the common customer with regard to deadlines. Suppliers have to provide qualified employees in sufficient numbers.

4.1.1 Feasibility study

PREH designed a blank form with the key items for planning and development of projects. This blank form shows the minimum requirements for the project realisation. It must be filled in by the supplier to his best knowledge and confirmed to PREH.

4.1.2 Specifications / drawings

The suppliers commit themselves to:

- Provide and follow lawful provisions, all specifications, contract documents and norms in updated versions
- Evaluate, attune to and follow the requirements in the contract documents
- Define and follow special characteristics, essential parameters for process capabilities (if necessary in coordination with advanced quality planning at PREH)
- Indicate missing information (such as specifications, norms ...)
- Indicate discrepancies in the documents to the responsible person of the purchasing department

Further requests, which exceed the requests on the drawing, are defined in a separate technical specification if required.

4.1.3 FMEA

A Design FMEA only has to be prepared if development responsibility exists. The need has to be agreed to with the responsible quality planner of PREH.

A Process FMEA must be created before product ramp up and be updated with changes or complaints.

The preparation is according to the guidelines of VDA Bd. 4 part 2. The FMEAs have to be shown to PREH on demand. If required, interface-FMEAs to the customer or sub-supplier have to be performed by the supplier.

4.1.4 Control Plan

The control plan is an overview of all quality requirements, their verification and the parts' test criterias. It must be prepared for prototypes, pre-series and production phase. Updates during project progress have to be agreed to with the responsible quality planner of PREH.

The control plan contents:
Control of incoming goods, production and final parts, product audit and requalification tests.

Characters, which are recognized and evaluated as quality relevant in the FMEA, have to be mentioned in the control plan.

4.1.5 Capability studies

Process capability studies provide the verification of quality ability of the processes. Suppliers have to provide capability verifications for all testing- and function characteristics on their own. Additional capability studies have to be agreed to with the quality planner at PREH. Calculation and execution of process capabilities have to follow VDA Band 4.1 / AIAG (QS 9000) guidelines, as long as there is no superior request existing from the customer.

Following limits are effective for verification of the process capability:

Machine capability	c_m/c_{mk}	≥ 1,67	(50 parts)
Preliminary process capability	p_p/p_{pk}	≥ 1,67	
Process capability	c_p/c_{pk}	≥ 1,33	(min. 30 x 5 parts)

Capabilities studies are free of charge for PREH, have to be handed out on demand and also have to be proved for the current production.
If the above mentioned capabilities are not reached, a 100% check of the concerned characters is mandatory and the results have to be documented until the process capability is reached or recovered. For the testing aids used a gauge capability (cg/cgk) has to be verified.

4.1.6 Process approval / Run@Rate before serial delivery

The product and process quality as well as the confirmation of reaching the series time cycle (capacity confirmation) is to be verified by the suppliers with a process series. PREH individually decides on behalf of an own process approval at the supplier.

Process approvals by PREH on account of complaints are associated with costs and all effective costs will be charged to the supplier. (see 5.4)

4.1.7 Submissions / samples

4.1.7.1 Initial samples with PSW

Initial submissions from suppliers to PREH are judged on VDA Band 2 (PPF) respectively PPAP. Standard request is level 3. Deviations to this are indicated in the part specification or in the product specific quality requirements.
The production of initial samples has to be with serial tooling and under series production conditions. If several different tools or moulds were used or the parts come from different cavities, then at least 1 part of each tool, mould or cavity has to be measured and sampled separately. The compliance with 2/3-tolerance is valid. Measures outside 2/3-tolerance and within tolerance have to be measured on 4 further samples. It then is a PREH decision to accept these.
The initial sampling also includes the verification of the outlined test requests and specifications on the drawing. The raw materials used have to be verified in the raw material test report and in IMDS. (see 4.1.7.4 IMDS Data).
Resamplings have to be handled as initial samplings.
After serial approval a written acceptance by PREH is obligatory in advance to any product, tool or process change.

The PPF / PPAP has to be presented according to the order from purchasing of PREH.
Initial sample parts and PPF / PPAP documentation have to be prepared and shipped to the according department free of charge, labeled as “initial sample”. Additional documents can be demanded later on at any time by SQA PREH. The process capability study is part of the initial sampling (see control plan).
The PPF / PPAP documents have to be presented in English language and as hardcopy. Enclosed copys have to be readable in size and contrast. The measurement report has to include the self evaluation of the supplier and to allow a customer evaluation.

Examples for rejection of initial sampling:

- Missing or incomplete documents and verification
- Value deviation without approval
- Submitted parts do not meet valid design
- Missing or wrong IMDS data

Attention: PREH has to be compensated for the real costs of resubmission (hourly rate x working hours) for any failed initial sampling in the responsibility of the supplier. Other samples shall not to be labeled as initial samples.

4.1.7.2 Sampling of prototypes and pre-series parts / other samples

Contact person for the sampling quantity, date for prototypes and pre-series parts/ other samples is the responsible part developer or the quality planner. Suppliers commit to compile, assess and document a measurement report of prototype and pre-series part samples, according to the current drawing specifications. During prototype and pre-series phase preliminary process capability studies have to be generated.

The samples, together with the measurement report, have to be sent, accordingly labelled and free of charge, to the requesting department.

4.1.7.3 Reference and border samples

reference sample sample, which epitomizes the allowable variation and value of characters.

border sample sample, which typifies the limit of a quality character.

Reference and border samples have to be agreed with the PREH quality planners, correctly labelled, protected from environmental stress and stored during the complete production time. They have to be provided to PREH on request.
“Master samples” for chrome, painting, color, grains etc, which are indicated in the technical documents, have to be organized by the supplier himself for ramp up and series production. They are binding as reference.

4.1.7.4 IMDS data

Only data achieving the following basic conditions is accepted:

- Compliance with current IMDS guidelines
- Assembly parts have to placed inclusive the single parts
- The drawing number has to be typed in without spacing but with the special signs “/” and “-“ (xxxxxxyyy/zzzz).
- If a drawing number has to be sent again, it has to be done as new version

4.1.8 Labeling of prototypes and pre-series parts (bundle)

Prototype and pre-series parts have to be clearly labelled on the packing unit with an additional label. The label has to be supplied with part number, part name, drawing index, production date, lot number, and a note for an approval report. The first three deliveries after changes or with special approval, have to be labeled clearly as such on the packing.

4.1.9 Part history

A part history has to be conducted for all products by the suppliers. In this, all product and process changes, need to be documented. Content of the part history:

- Drawing number
- Material name
- PREH drawing index and the corresponding supplier index
- Reason of change
- First delivery date
- Manual sample, pre-series tool or production tool

If needed, the machine setting data sheets will be requested.
(The machine settings have to be documented in the part history for all design versions according to drawing number and the respective optimization actions of the supplier. The updated part history has to be promptly sent to the product developer and has to be enclosed in each delivery with this part status as long as there is no full PPAP approval.)

4.1.10 Commodity accompanying documents in pre-series

Product specific inspection reports have to be added to each delivery according to the requirements in the control plan. Additionally the updated part history has to be within each delivery. (see 4.1.9)

Parts used for non-destructive tests have to be enclosed to the delivery labeled separately.

4.1.11 Labelling of prototypes, series and pre-series parts

Generally each part has to be labelled. The indication must be as a sticker or a marking in the tool. Following details have to be incorporated.

- Drawing number or name
- PREH drawing index and the appropriate supplier index
- Production date
- Material

If dimension, function and / or geometry do not allow a labelling, it has to be labelled on the bundle in agreement with the responsible PREH quality planner.

4.1.12 Special approval

Deviations from delivery specifications are not allowed. Exception: After consulting the product developer, exceptional temporarily or quantitatively limited approvals can be given in writing from the developer and the SQA of PREH.

4.1.13 Requalification tests

Within an at least yearly requalification test of all assembly parts and components supplied to PREH, the requalification relevant characteristics (special function, material and geometry) have to be verified.
The amount of requalification equates the ISIR unless there is no other agreement defined with the PREH quality planner and fixed in the control plan.

The verifications have to be supplied free of charge to PREH on request.

4.2 Tool management

The valid stipulations between PREH and the supplier are also valid for tool purchasing. The suppliers commit to label the tools with the PREH part number and to store, insure and maintain them properly.

4.2.1 Tool design and manufacturing

The suppliers have to use adequate technical means for design, production and dimensional inspection of tools and gauges. When subcontracting, these requirements have to be fulfilled in responsibility of the supplier. Tools in property of PREH customers or of PREH have to be labelled clearly visible with type plates.

4.2.2 Tool check and approval

The technical tool approval is done on place by the tool department and is part of the overall approval. The final tool release is given after a successful finished initial sampling to SQA PREH.

4.2.3 Tool administration

The suppliers have to arrange and establish a process for tool administration. This should basically involve the following criterias:

- Tool history
- Proper storage system
- Verification for preventive tool maintenance
- Storage of the production’s last part on the tool until next production’s start

4.2.4 Testing gauges / testing equipment

Testing gauges and test equipment have to be incorporated in the supplier´s inspection equipment control. They have to be correctly labelled and related to the product. Capabilities of the testing gauges have to be verified within the initial sampling. The design of gauges and measurement equipment has to be agreed to with the responsible quality planner at PREH.
Their layout has to cover the whole product development and production time. Costs for gauges, testing equipment and measurement equipment are paid by the suppliers. For all CC, R and SC characteristics, the gauge capability studies have to be generated by suppliers on their own.

5.0 Quality assurance in production

5.1 Key characteristics and aims

PREH commits itself to zero-failure-target and expects the same from its suppliers. For this, no ppm target values will be fixed. Accordingly PREH is tracking its suppliers' performance via quality and logistic characteristics and informs them quarterly.

With an enduring poor delivery performance an escalation procedure (see 8.0) will become active.
A substantial supplier rating follows once a year (see 6.0).

5.2 Incoming goods inspections

Independent from out going goods control performed by the supplier, PREH performs following tests:

- Identity check
- visual check for directly visible transport damages
- Quantity check
- Characteristics test (spot check)

PREH will advise the supplier in writing about visible defects.
Defects, which were not recognizable or recognized during incoming goods inspection, will be indicated to the supplier after becoming known or with accumulated scrap.
PREH is not obligated to do more advanced incoming tests and for this PREH is extricated from the remaining incoming inspection duties and reproof tasks.

5.3 Traceability

The supplier has to assure a traceability of deliveries to PREH to enable, e.g. a fast locating of a lot with scrap parts. He particularly has to be able to provide following information to PREH:

- Production date
- Raw material lot and certificate
- ReaCh-Registration (within EU)

5.4 Sorting activities

If there are confirmed defective parts in the delivery of pre-series or series, the suppliers have the opportunity to promptly sort all suspicious parts upon request at their own cost. If the supplier does not comply with this request, PREH employees or external service providers will be sorting the minimum parts to secure delivery ability, after informing the supplier. Occurring costs must be paid by the supplier (see 5.6).

5.5 Complaint procedure

In case of complaints, PREH will inform the suppliers in form of a complaint report. The suppliers are requested to analyse the failure and to define, to execute and to monitor adequate containment actions.

The corresponding statement (**8D-Report**) has to be sent to the complaining department within following periods of time:

D1 – D3	**within 24 h**
D4 – D6	**within 5 working days**
D7 – D8	**within 10 working days**

If the analysis of the issue takes a longer time, or a quick statement of the supplier caused by an urgent situation is necessary, the complaining department has to be informed directly. In case of complex failures the intention is to do a common analysis.

5.5 Claim for defects

In case of poor quality performance caused by suppliers, PREH is entitled to claim for agreed warranties. All costs caused from those defects will be determined by PREH and debited to the supplier. Depending on incidental expenses (local hourly rates, extent, duration) especially following cost types are charged by PREH SQA with dedicated hourly rates:

- Sorting and rework
- Laboratory analysis
- Complaint related process audit
- Production annoyances, blocked storage area
- Resubmissions because of supplier's fault
- …

A handling fee will be debited to the supplier for every complaint. The height is depending on the affected PREH plant.

5.6 Supplier visits

PREH reserves the right to visit the suppliers' production sites, as well as those of the sub-suppliers, anytime during common working hours. Motivation can be:

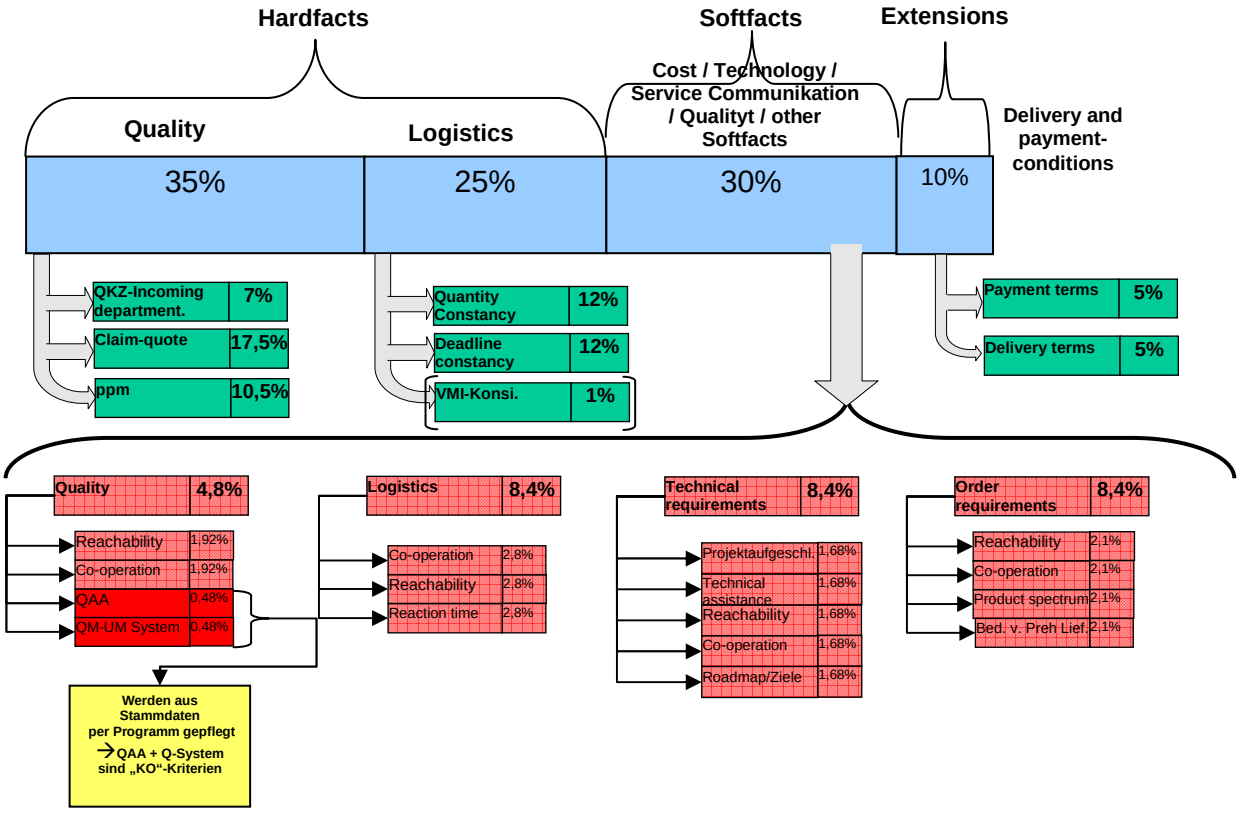
- Performance of process audits
- Performance of process capability studies
- Quality complaints

These visits can also be accompanied by PREH's customer.
The notification of such visits will be given with adequate forecast.

6.0 Supplier evaluation

Characteristics of logistics department, purchasing, development and quality management will be identified to evaluate the suppliers. Each department evaluates its own characteristics which end up with different weight in an overall score.

Purchasing will distribute this evaluation once a year and it includes following criterias:



7.0 General requirements to suppliers

7.1 Environment

The suppliers have to ensure, that all materials and raw materials, which are applied in the production chain, comply with all legal requests and the demands of PREH customers, particularly for restricted danger and banned substances. **(e.g. EU end-of-life vehicle directive (2000/53/EG, 2002/525/EG, 2005/63/EG, 2008/33/EG), chemicals ban directive (EU76/769/EWG), electronic directive (2002/95/EG), ReaCh (2006/1907/EG), GADSL)**

The suppliers commit to put material data into **IMDS** with intial sampling and they are liable for the accuracy and detailing of their declarations.
The valid environmental guidelines of the production country, customer's country and the Republic of Germany as well as the guidelines of IMDS have to be adhered to.

7.2 Packaging

The packaging for prototypes, pre-series and series parts, as well as the product specific packaging and its labelling, inclusive the used materials, have to be defined with PREH production engineering, tested and controlled. The suppliers always must refer to the valid PREH packaging standard. The labelling of packaging has to meet VDA 4902.

8.0 Escalation procedure at PREH

The aim of PREH is to reach a steady optimization of quality and delivery performance. For this, all suppliers are permanently evaluated in aspect of quality (ppm, complaints) and logistics (adherence to quantity and time). A corresponding summary will be distributed quarterly to all portfolio suppliers. All other suppliers get the summary on request.

Suppliers who are not meeting PREH's expectation to quality and/or logistics can be subjected to an escalation procedure.

Escalation level 1 – quality and/or logistics performance insufficient in one quarter

Letter to supplier's head of quality with demand to create an action plan for optimization of quality and/or delivery performance, signed by head of quality of concerned PREH plant.

Escalation level 2 – quality and/or logistics performance insufficient for two quarters in sequence and/or actionplan is not effective.

Invitation for supplier meeting at PREH by Head of quality and/or logistics of concerned PREH plant.
Copy of this invitation to Head of quality PREH and purchasing.

Escalation level 3 – quality and/or logistics performance insufficient for three quarters in sequence and/or actionplan of level 2 is not effective.

Invitation for supplier meeting at PREH by Head of Quality and Head of Logistics.
Supplier can be set to NBOH (new business on hold).
Optionally: execution of a supplier audit.

In case of shortly appearing severe problems, PREH reserves the right to overleap single escalation levels.

Other rights, which apply to PREH per the contractual agreements or the agreed law, obtain additionally apply to the escalation procedure and stay unaffected.

9.0 Declaration of agreement of the supplier

This supplier manual is part of the contractual relationship between PREH and the supplier without the need of a signature of this manual. The receipt of this supplier manual and the agreement of the contents result in the acceptance of the contractual relationships with PREH. It is effective as of inquiry stage.

10.0 Abbrevations

AIAG	(Automotive Industry Action Group)
APQP	(Advanced Product Quality Planning)
PPAP	(Production Part Approval Process)
PPF	(Produktionsprozess- und Produktfreigabe = PPAP of VDA)
MSA	(Measurement System Analysis)
FMEA	(Failure Mode and Effect Analysis)
R	(Characteristic with Regulatory Requirement)
CC	(Critical Characteristics)
SC	(Significant Characteristics)
CIP	(Continuous Improvement Process)
IMDS	(International Material Data System, see www.imdsystem.com)
PSW	(Part Submission Warrant)
SCS	(Supplier Capability Survey)
SQA	(Supplier Quality Assurance)

11.0 Forms

Overview of applicable forms

PREH measurement report
PQSP's
PPAP form
VDA PPF form
8D-Report

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