ETO GRUPPE Supplier Manual

ETO GRUPPE
JOINTLY INNOVATIVE

Actuators and Sensors

Content

1 Introduction

This manual defines the procedures of common processes. The intention is to optimize procedures and to avoid unnecessary costs and loss of quality. These procedures are mandatory for both parties.

The quality of supplied parts is crucial to ETO products. In order to maintain the high quality standard, ETO expects their suppliers to deliver high-quality products on time.

The aim is to promote a cooperation based on partnership across the entire supply chain in order to achieve the zero-defect-goal.

1.1 ETO Supplier Management

We cultivate long-lasting and cooperative relationships with dependable suppliers. These are examined, assessed and supported during thorough selection and qualification procedures.

Generally, our suppliers are involved in the development process at an early stage in order to be able to realize innovative and high-quality products.

Common quality standards are agreed upon and defined in Quality Management Agreements and technical documents. Approval and acceptance criteria are defined on a product-specific basis.

1.2 General Requirements (QM System, Personnel, ...)

ETO GRUPPE is an internationally successful business group developing and producing innovative actuators and sensors of the highest quality for modern vehicles and systems.

In order to be able to continuously ensure the highest level of quality and innovation, it is necessary the suppliers of ETO GRUPPE have the same high standards, since the quality of the supplied products is crucial to the nature of a final ETO product.

For this, it is important to apply a QM system in the sense of IATF 16949, or to further develop an existing system towards this standard in order to ensure highest quality and delivery reliability.

For this reason, this manual is intended as a guide for the collaboration between the ETO GRUPPE companies and their suppliers.

1.3 Scope

The ETO GRUPPE supplier manual applies to any procurement by the affiliated companies of ETO GRUPPE, be it of production material, production-related equipment or services rendered by the supplier.

This ETO GRUPPE supplier manual shall be mandatory for all suppliers who deliver production material or production-related equipment to the ETO GRUPPE production sites.

At the time of publishing this supplier manual, the following companies were part of ETO GRUPPE.

ETO MAGNETIC GmbH	78333 Stockach	GERMANY
ETO SENSORIC GmbH	90441 Nürnberg	GERMANY
EKS Elektromagnetik GmbH	71665 Vaihingen	GERMANY
ETO MAGNETIC Sp. z o.o.	52 - 407 Wrocław	POLAND
ETO MAGNETIC TECHNOLOGIES (Kunshan) Co., Ltd.	215334 Kunshan	P. R. CHINA
ETO MAGNETIC CORP.	Grand Rapids, MI 49512	USA
ETO MAGNETIC India Pvt. Ltd.	Bangalore 560092	INDIA
ETO MAGNETIC Mexiko, S. de R.L. de C. V.	78395 San Lui Potosí	MEXICO

Hereinafter called ETO.

1.4 Applicable Legal Principles

The supplier is obliged to observe all legal and regulatory principles which apply to the product and must ensure that these are adequately followed and verified for up-to-dateness.

This includes country-specific regulations and possibly deviations from the standards described herein.

1.5 Social Responsibility

All actions by the ETO GRUPPE are guided by the UN Basic Principles of the UN Global Compact. The ten principles of the UN Global Compact represent the minimum principles and requirements we committed ourselves to and the observance of which we also expect from our suppliers. The UN Global Compact which was established in 2000 is a guideline for companies to adjust their strategies and actions according to the ten principles in the areas of human rights, labor, the environment and anti-corruption. ETO will audit the implementation of the UN principles on the occasion of the first supplier assessment and also monitor further conformity during the ongoing business relationship.

Our suppliers commit themselves to observing the principles of the United Nations Global Compact. A written confirmation is the prerequisite for being approved as an ETO supplier.

For additional information on the UN Global Compact, please refer to "www.unglobalcompact.org".

1.6 Conflict Resources

The use of conflict commodities / conflict minerals or conflict resources as defined by the Bonn International Center for Conversion (BICC), is strictly prohibited and will result in the termination of all business relationships.

According to the definition by BICC, conflict commodities are "natural resources whose systematic exploitation and trade in a context of conflict contribute to or result in the commission of serious violations of human rights, violations of international humanitarian law or violations amounting to crimes under international law."

1.7 REACH

The EU Regulation No. 1907/2006 (REACH Regulation; REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals) is obligatory for all suppliers and sub-suppliers delivering to any of the European ETO GRUPPE locations.

1.8 RoHS

The EU Directive 2011/65/EU (RoHS 2: Restriction of Hazardous Substances) is obligatory for all suppliers and sub-suppliers delivering to any of the European ETO GRUPPE locations.

2 General Requirements

2.1 Structure of the ETO Supplier Quality Organization

The quality-related supervision of suppliers is an organization extending across the entire ETO GRUPPE.

Procedures and processes are standardized across the entire group.

The division is divided into the commodity groups, which are based on the manufacturing processes as well as the structure of the ETO purchasing organization.

Based on the group, a Supplier Quality Engineer (SQE) is available for the supplier at each ETO location.

This decentralized SQE is the supplier´s central contact person for all quality-related issues regarding the relevant location.

Thus, this person is also the contact person for processes which have been triggered by other divisions of the ETO location in question, such as e.g. Incoming Goods Inspection or SQA (Supplier Quality Assurance).

Furthermore, lead SQEs are defined for these commodity groups which have a cross-locational role in the relevant commodity group.

2.2 Structure of the ETO Purchasing Organization

ETO Purchasing procures production and indirect materials, investments and services.

The purchase of production materials is structured according to commodity groups and is carried out, decentralized, by the independently operating ETO locations.

The task of the decentralized purchasing organization is to ensure a constant material flow with the help of quality compliant and cost-optimized procurement from approved sources.

The tasks and responsibilities of the decentralized purchasers are coordinated by the commodity and lead buyer concept within the group structure.

At the ETO development locations, a project purchaser who accompanies the supplier during the development phase up to series start-up is available to assist suppliers as a central contact.

2.3 ETO Forms and Specifications

Within the scope of standardizing procedures and processes, ETO will continue to further develop them, including the corresponding forms and documents, and revise them to meet customer and standard requirements and harmonize them across the group.

The aim is to design robust, transparent and always traceable processes - while at the same time involving customers, partners and suppliers in an optimal manner.

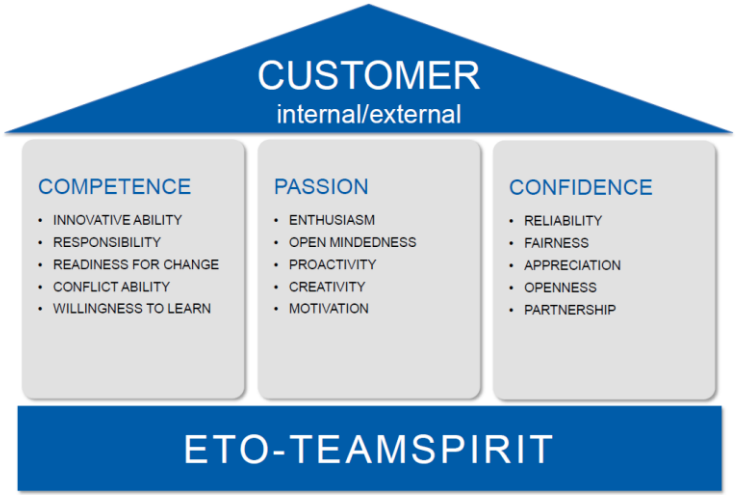
Therefore, we expect our suppliers to use the ETO forms as well as the standards currently in effect.

For this purpose, we aim at providing forms online in different languages and the latest versions.

The forms can be accessed via the download section on the ETO website (see Appendix 1).

2.4 ETO Values and Company Policies

Actions and thoughts at ETO are based on ETO´s values of competency, passion and confidence.



The foundation of the ETO values is the ETO TEAM SPIRIT which holds the values together and ensures that we - together with our partners and suppliers - excite our customers through highest quality, innovation, customer orientation, professionalism and sustainability.

In addition to the technical knowhow, **COMPETENCY** for us also includes a social aspect, i.e. responding to the needs of our employees and colleagues.

Competency means "we **CAN**“.

We want to stimulate our work, create unique products and excite our customers with **PASSION**.

Passion also means "we **WANT**“!

CONFIDENCE in each other also means we can rely on each other and we have enough freedom to make quick and targeted decisions.

Confidence therefore means "we **MAY**“.

According to our company policy, an essential factor for quality is the collaboration with our selected suppliers as equal partners and their obligation to "quality", as well as our support in further developing their quality capability, but also a close and early involvement into our information flow aiming at a long-lasting collaboration.

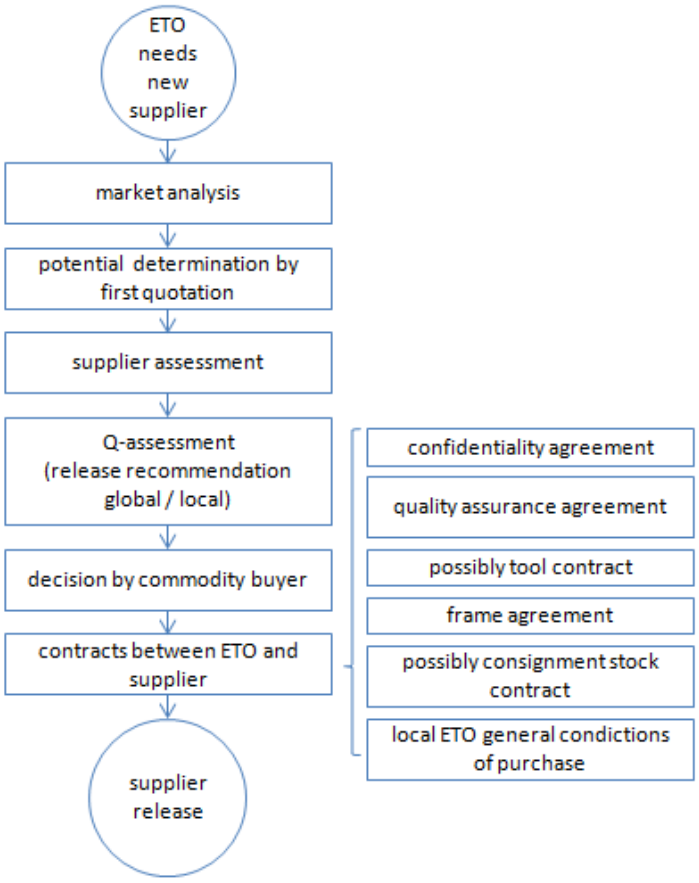
We aim at the zero-defect goal.

As a manufacturer of high-quality electromagnetic actuators and sensors, ETO is committed to focusing on the zero-defect goal and to continuously optimizing the company procedures accordingly.

From our suppliers, too, we expect this attitude and the awareness that only by the necessary use of resources, this goal can be achieved.

3 Selection of Suppliers

Simplified, chronological, schematic illustration of the ETO procedures and contexts for selecting and approving new suppliers.



3.1 Requirements for Production Material Suppliers

As regards the quality management of our suppliers, we expect a standard according to IATF 16949 which has been verified by an accredited certification body and is comprehensively internalized. The minimum requirement is the ISO 9001, however, the commitment for further developing the system in the sense of the IATF 16949, the application of regulations, processes and methods described therein as well as in automotive standards in general, is expected.

Only the latest issues in effect of standards and regulations shall be used.

Status and issue date, as well as information regarding the implementation of the management systems of the supplier are determined and documented in an ETO Q-assessment.

Manufacturing-specific requirements are derived from ETO specifications, the applicable ETO standards, this manual as well as the contractual agreements.

3.2 Purchase Assessment

In order to be approved as a new ETO supplier, in a first step, the supplier must achieve a positive result in the purchase assessment. The purchase assessment is always performed by the purchase manager at the production site of the supplier. The aim of the purchase assessment is to find out, at an early stage, whether the supplier complies with the requirements in key areas important to ETO. The level of compliance shall be reflected in the final audit assessment which, in addition to the classic supplier classification, differentiates between local and global supplier approval in the various procurement regions.

3.3 Q Assessment

ETO Q assessment aims at evaluating potential production material suppliers as regards their quality capability and their knowhow for solving the stated delivery task (goods or services).

The aim is to test whether the supplier can be integrated in a reasonable manner into the value-added chain of ETO GRUPPE and which topics regarding this interface should be of special interest.

The Q assessment is based on the requirements of ISO 9001, ISO 14001 and IATF 16949. Furthermore, it takes into account all requirements of VDA 6.3 P1 (Supplier Potential Analysis), as well as ETO-specific requirements and customer-specific amendments (e.g. VW Formel Q Capability Process Audit, GM requirements and more).

The Q assessment also takes into account country-specific requirements.

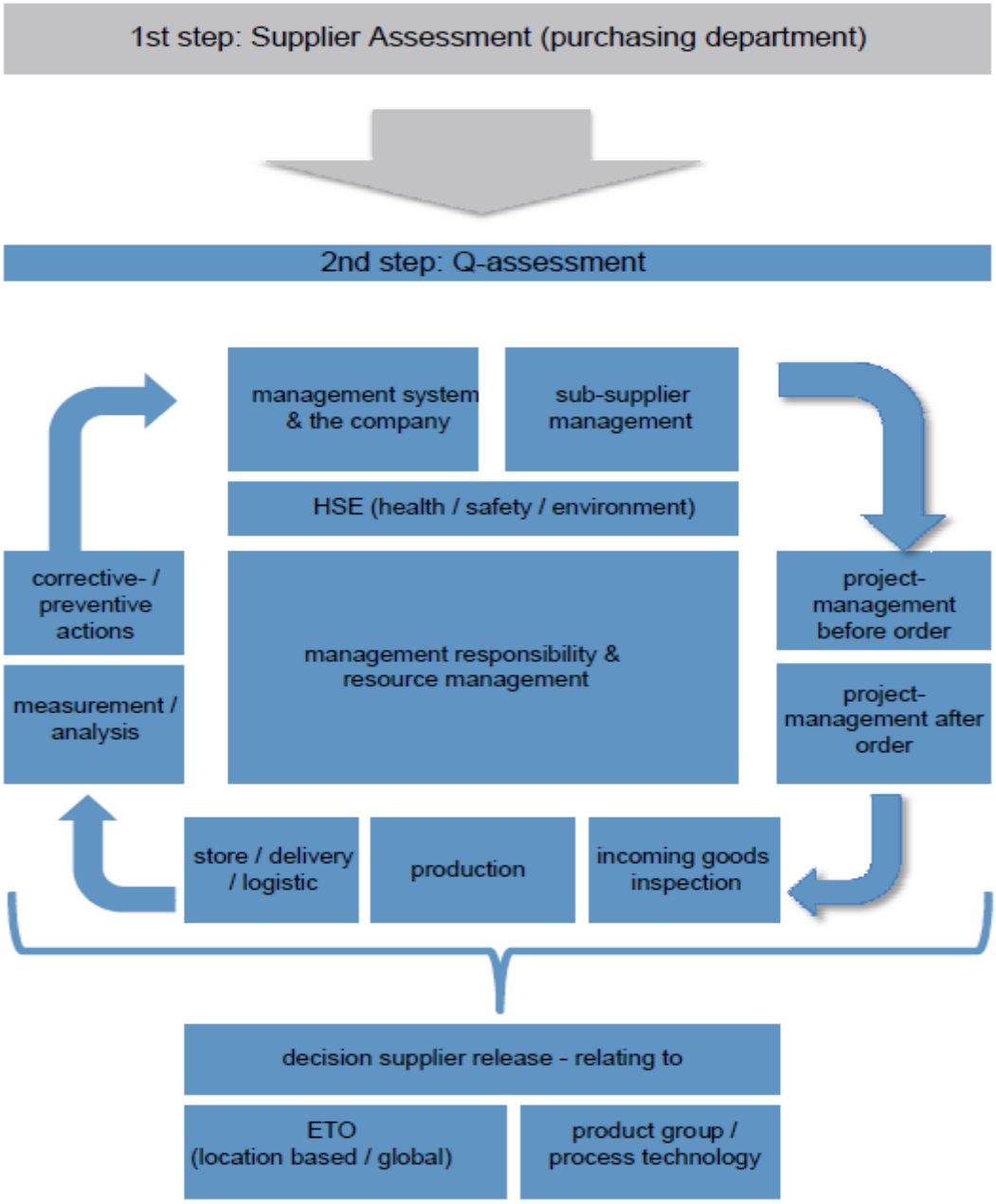
An extension regarding ISO 14001, 50001, OHSAS 18001 and UN conventions is in the making, as well as the implementation of customer-specific requirements (e.g. product safety audit, etc.)

The Q assessment is performed in the same manner worldwide, based on the same questionnaire.

A German or identical English version of the questionnaire is used.

The Q assessment is a living document which is updated, specified and adapted to changed situations as required.

Furthermore, it includes manufacturing (commodity) specific requirements which allow for a standardized assessment of the suppliers and which reflect the knowledge of the lead SQE / specialists.



Q assessments are performed by auditors according to the ETO Auditor Matrix.

The ETO Q assessment fulfills two functions.

The intention is to evaluate potential production material suppliers as regards their quality capability and their knowhow for solving the stated delivery task (goods or services) and to highlight topics which should be of special interest in case of a collaboration.

Furthermore, the Q assessment is a living document which accompanies the supplier throughout the entire collaboration. Changes are taken into account and re-assessed as required or due to given circumstances.

The supplier is notified of the result of the assessment in the form of an updated copy of the summary of results.

3.4 Customer-Specific Requirements

ETO has committed to several automotive customers to pass specific requirements down the supply chain and to take into account the compliance with these requirements when selecting the suppliers.

These customer-specific requirements are evaluated by our Purchasing and Supplier Quality departments on the occasion of assessments, or as required.

The requirements of VW regarding the product safety representative is given as an example (see Appendix 2).

4 Supplier Approval

Purchase and Q assessment form a set of documents necessary for approving new suppliers.

The prerequisite for approval as an ETO production material supplier is a positive result in both equally important assessments. The contractual agreements follow up on this.

The details:

Prerequisite no. 1: Successfully completed purchase assessment (result 80 % and more)

Prerequisite no. 2: Successfully completed quality assessment (result 80 % and more)

- In case of a result between 70% and 80% in the quality assessment, a probational approval may be granted by the responsible SQE for certain manufacturing technologies or processes.
- A suitable action plan must then be monitored by the responsible SQE.
- For approving a supplier, the consent of the lead SQE and/or Group Supplier Quality Manager is required, if thus specified.

Evaluation / overall estimation

If the compliance / implementation of positions is not fully given, a point deduction may be made for these - independent of default rating.
The deduction must be justified in writing.
Depending on the importance there can be deducted 1 or 0.5 points.

Example:
> Locking storage in production ok, but in incoming area only open (mixed) storing (-1)
> Laboratory for technical cleanliness, but does not correspond to standard procedures (-0,5)
Deductions should not exceed the limit of 15% of the possible points per area.

no-go "no-go"-Criteria lead to a blockage in the Q-assessment, independent of the further evaluation. In the report these criteria are color-coded.

For non-applicable questions the reason must be indicated in the comments section and the passing score must be set to "0".

• decision: supplier approved The supplier is classified as green (= approval) when the following criteria are met:	+	Total score ≥ 80% At least 50% in each of the 9(10) areas
• decision: conditionally approved The supplier is classified as yellow (= conditional approval) if the following criteria are met: (the overall assessment is the averaged degree of performance of all areas. There is no weighting.	+	Total score <80%, but ≥70% for all of the criteria below 50% an assessment and an action plan to protect the customer is available
• decision: no approval The supplier is classified as red (= no approval) if the following criteria are met: (exceptions have to be substantiated and adjusted by the purchasing	or or	Total score <70% no actions defined for criteria <50% there are no-go criteria

Approval of a supplier through the Q assessment may include regional or manufacturing technological restrictions.

The aim is always a global approval. Restrictions generally cause a strong degradation in the rating which often even leads to elimination.

On the other hand, individual local approvals (e.g. in case of suppliers based on customer requirements or smaller production rates, etc.) may make sense.

decision Lead SQE and Senior Manager Supplier Management	☐ Supplier - as a potential supplier ETO / detailed supplier selection - for below services suitable ☐ Qualified supplier for below services and release given by ETO Supplier Quality ☐ not suitable Number unfulfilled "no-go" criteria 0				
	supplier acceptable for	global ☐	Europe ☐	Asia Pacific ☐	US / NAFTA ☐
	☐ in global for the process technologies: xxxxxxxxxxxxx ☐ restricted for the process technologies: xxxxxxxx				
customer specific criteria	☐ *VW Formel Q-Capability* ☐ *DB Special Terms*	☐ *GM* ☐ *BMW*	☐ *Knorr Bremse* (PSA_Y027651_1_DE_003) ☐ *ZF*		
comments	(e.g. fancy no-go criteria)				

date / lead SQE

date / Group Supplier Quality Manager

No-go criteria will also lead to restrictions or embargoes (e.g. a management system that is not certified).

These criteria take into account normative and ETO specific requirements.

5 Specification

ETO requirements for purchased parts and services as regards subcontracting and external processing are clearly defined in ETO specifications. Process reliable compliance with all defined characteristics is crucial for the function and safety of our products.

For illustration purposes and support during the tool development ETO may provide 3D models. However, the 2D drawing is the binding document.

Where necessary, ETO drawings refer to further specifications and ETO standards.

Feasibility of the ETO specifications is evaluated prior to the design approval and on the occasion of the sampling, and is confirmed by the supplier.

ETO subsequently expects full compliance with the specified requirements and the sampled and presented as-delivered condition (e.g. as regards technical cleanliness, surface finishes, etc.).

5.1 Communicating ETO Specifications to the Supplier

Within the scope of product development, the responsible design engineer and the supplier will exchange and synchronize specification concepts (ETO drawing containing the note "in work").

As soon as the feasibility of the component is confirmed by the supplier, the specification can be released.

After the nomination, released specifications (of new or modified drawings) are sent exclusively by ETO Purchasing and through a material-specific order.

This order may include the following items - depending on product and scope of services:

- Order for sampling
- Initial samples - measured
- Samples – not measured
- Tool order
- Test and assembly fixtures / automation

and includes the following documents as an attachment

- Specification
- PPC checklist and prepared sampling documentation

5.2 Special Characteristics

Dimensions of special importance to the function of the product are indicated as special characteristics.

For these characteristics the supplier must perform a process and/or machine capability test and continuously ensure, document and verify machine and/or process capability.

If the supplier is not able to verify the process and/or machine capability, a 100% inspection of these dimensions is required.

Applicable documents:

- ETN002 - Special and critical characteristic
- ETN012 - Machine and Process Capability
- ETN021 - Measurement System Analysis
- VDA – Volume 4

5.3 Technical Cleanliness

This test specification shall be used for determining the technical cleanliness of products, assemblies and parts, if cleanliness is specified in the drawings and order documents.

Technical cleanliness shall be verified on the occasion of the sampling of a part, at the latest. Proof of this specification is also a criteria for obtaining approval.

Throughout the process, it is the supplier's responsibility to monitor compliance with this specification and possibly verify it, using the applicable documents:

- ETN005 – Testing Technical Cleanliness
- VDA 19: Inspection of Technical Cleanliness - Particulate Contamination of Functionally Relevant Automotive Components
- ISO 16232 1-10: Road vehicles – Cleanliness of components of fluid circuits – Parts 1 to 10.

5.4 ETO Standards Relating to ETO Specifications

- Updated and currently in effect ETO standards which are relevant for the suppliers are provided on the ETO portal (see Appendix 1).
- In case of a new order or sampling following a modification, the suppliers shall familiarize themselves independently with updated versions and extended requirements.

5.5 Part History

The supplier shall maintain a part history according to a suitable system and be able to present it upon request. The part history should contain at least the following information:

- ETO material number / DIS number
- Description of modifications in consideration of relevance to FMEA and production control plan
- Release date (internal / customer)
- Date of initial delivery to customer

6 Project Management of ETO Suppliers

The management standards call for a documented and internalized project management.

However, in reality, scope and importance of a project (new project, product/process modification, etc.) have an impact on its management.

Irrespective of the kind and scope of a project / part-specific activities, the minimum requirements in the project management of our suppliers are as follows:

- Detailed project-specific milestone plan for planning, development, process development, product and process validation, series production.
- Detailed, internalized project timeline.
- Preceding, documented risk assessment (FMEA).
- Preceding, documented QM plan.
- Nomination of all project team members and their active involvement.
- Regular information update and review.
- Maintaining and monitoring a written action plan regarding open tasks and problems, including competencies and deadlines.
- Unrequested, continuous communication to ETO Engineering, Purchasing and Supplier Quality. This communication to cover above topics, relevant modifications and problems that have occurred, if these put a timely completion of the project at risk.

6.1 Risk Management / FMEA

The failure mode and effect analysis, FMEA, is a method for systematically determining risks as well as assessing these risks regarding their likelihood of occurrence and possibility of detection.

The analysis is based on VDA Volume 4 and/or AIAG.

The detected risks shall be reduced by means of suitable measures.

FMEA is a tool for avoiding mistakes and should therefore be performed preventively.

The FMEA shall take into account all product stages, starting from design through delivery. Internal logistics shall be examined separately.

Suppliers having design responsibility for their part shall prepare a product (design) FMEA.

A process FMEA (PFMEA) shall be prepared for all process steps. Special characteristics and results from the product (design) FMEA shall be taken into account. The required information will be provided by ETO through the specification and severity table.

Depending on the part-specific risk classification, ETO will agree upon suitable FMEA reviews with the supplier.

Applicable Documents

- ETN023 – FMEA Guideline

6.2 Feasibility Commitment

The supplier will promptly examine the product requirements by ETO (in the form of design drawings, specifications sheets, data sheets or other specifications) for clarity, completeness and practicality.

By means of a positive feasibility commitment, the supplier will confirm that the requirements are understood and will be implemented according to the drawings and specifications.

If this is not possible, the supplier will immediately inform ETO - prior to the order being placed - and reach an agreement with ETO.

A prerequisite for being nominated as a supplier for a certain product is presenting ETO with a binding feasibility commitment according to the form which may be downloaded from the ETO internet portal at www.etogruppe.com.

(For information on the download section on the ETO internet portal, see Appendix 1)

If the supplier evaluates a product as not feasible according to the requirements by ETO, the supplier will inform ETO of this fact as soon as possible and reach an agreement on what measures to be taken in order to be able to present a positive feasibility commitment.

Any restriction and/or change request regarding the specification require an advance consultation with the responsible ETO GRUPPE contact person.

6.3 APQP Review

Depending on the part-specific risk classification, ETO will agree upon suitable APQP (Advanced Product Quality Planning) reviews with the supplier.

Depending on the part, manufacturing process and order size, the following reviews may be agreed upon:

- Tool / automation concept discussion
- Measuring concept / strategy alignment

- FMEA review
- Auditing of outsourced processes / subcontractors
- Process approval audit (based on VDA 6.3 and customer-specific amendments)
- run@rate

6.4 Measuring and Test Equipment Alignment

Prior to preparing the initial sample documents, it must be ensured that all dimensions will be within the tolerances and all other requirements can be met.

For this purpose it is advisable to agree on the measuring strategy (measuring equipment, type of analysis, removal of the specimen, possible and/or required fixtures, ...) with ETO in advance.

6.5 Start-of-Production Management

Start of production with its run-up time is a critical phase in the production cycle. Hence this period between product development and serial production, with stable processes and reliable results, requires close attention until perfection of products as well as stability and long-term capability of processes may be demonstrated.

However, experience shows that it is during this transition from development to production that major problems are likely to occur.

Therefore, ETO expects its suppliers to manage start of production systematically:

- Planning
  - Analysis of the start-up processes and influencing factors
  - Plan to ensure the zero-defect strategy, tailored to the product
  - Team, environment analysis, description of nature and extent of the start-of-production management
- Realisation
  - Systematic realisation, taking into account the lessons learnt in this process
  - Exchange of information / communication (in-house / external) at short intervals
- Monitoring
  - Keep up monitoring production start-up until the planning and the measures defined on the basis of new insights have been fully implemented
  - Lessons learnt
  - Transferring these insights to the information and knowledge management of the company (basic FMEA, tool concepts, feasibility assessments, design guidelines, specifications, etc.)

7 Production Process and Product Approval (PPA Process / PPAP)

7.1 Scope

This chapter shall be applicable to

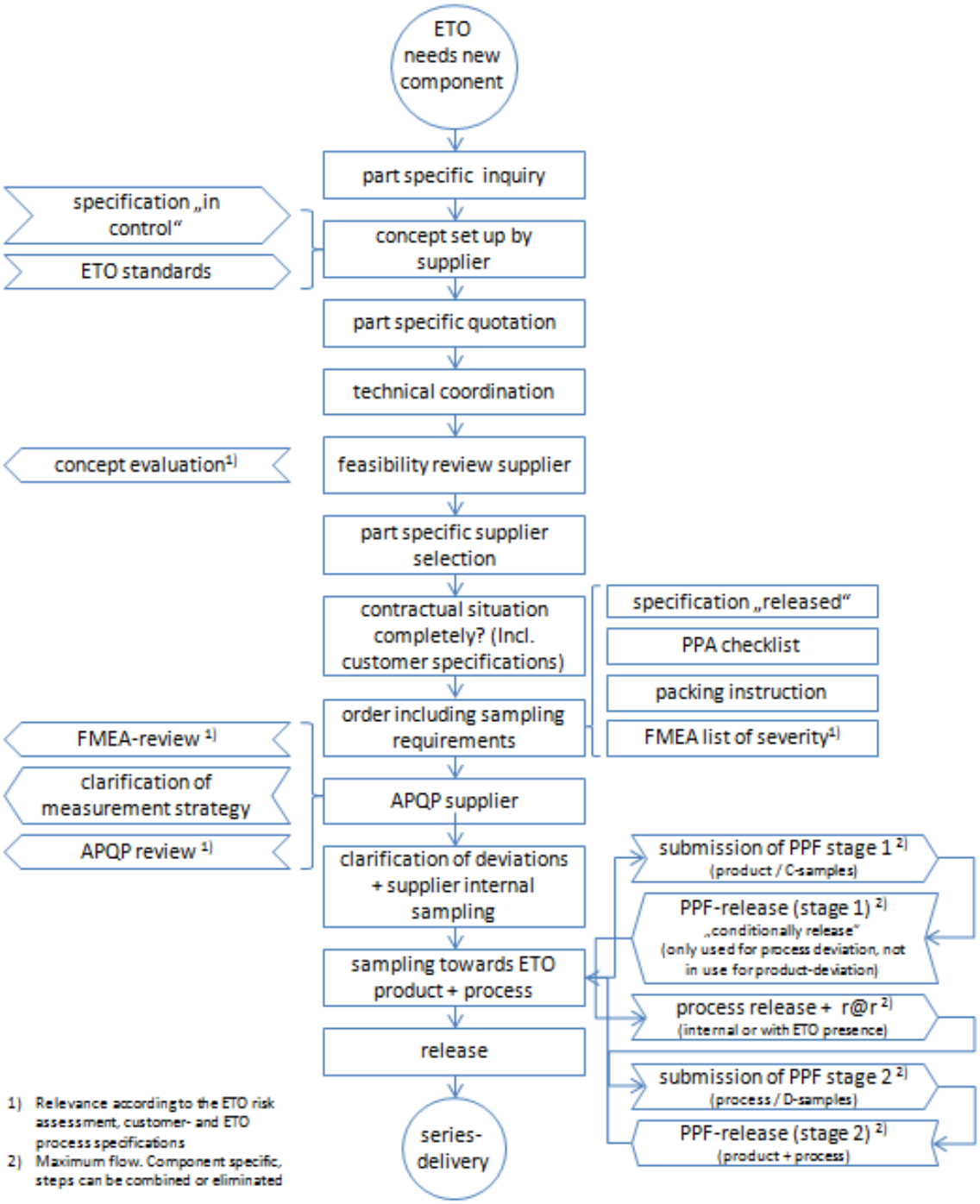
- Series material,
- Equipment having a direct effect on the product, e.g. flanging tools, welding electrodes, caulking tools, etc.
- Product-specific packaging, such as e.g. blisters with predefined cavities.

The product and process approval documentation according to VDA 2:2012 (PPA process), and/or PPAP Volume 4 (AIAG) is the basis for series delivery to the customer.

The entire approved sampling documentation describes - in connection with the intended use - the specified and assured properties of a product.

7.2 Approval Strategies for Products and Processes

Simplified, chronological, schematic illustration of the ETO procedures and contexts regarding product and process approvals.



7.3 General Considerations

The trigger matrix according to VDA2:2012 (Appendix 2) is the basis for supplier-related presentation of test reports.

The sampling process demonstrates that the specified requirements regarding product and process are fully complied with.

Only a positive completion of the initial sampling results in a release for series production.

A presentation deadline is included in the PPAP checklist.

The sampling sets shall always be presented to the responsible quality supervisor.

Unless agreed otherwise, a sampling set for ETO consists of:

- Complete PPAP documentation
- six completely calibrated components per cavity
- 300 samples not to be calibrated (for qualification and release tests, retention samples, counterchecks)

Prior to obtaining the written approval of the sampling, no initial delivery must be performed.

If series delivery is to be performed before the approval is completed, a deviation permit, approved by the quality supervisor responsible, must be available in due time before the goods are delivered.

Goods which do not have a PPAP approval in the ETO system when they are delivered, are rejected and returned promptly.

It is not sufficient to enclose the sampling documentation with the first delivery of goods.

Incomplete sampling documents and/or sampling documents containing non-conformances shall be rejected immediately, unless an agreement regarding the proceedings has been reached in advance and/or a written deviation permit is available.

This entails that the sampling documents must be presented again.

Permanent specification deviations agreed upon with ETO result in an adjustment of the ETO drawing and therefore a re-sampling of the modification. ETO reserves the right to charge possible modification costs to the supplier.

7.4 Process Capabilities

ETO has been indicating customer-specific requirements for special characteristics on the specification since 2015. This concerns acceptance criteria and methods for determining process parameters and suitability of measuring systems.

For characteristics not explicitly identified, the version of ETN002 (Special and critical characteristics) applies that was in effect at the time when processing started. (This document may be retrieved from the ETO Internet portal - see Appendix 1).

7.5 Measurement System Analysis

The supplier shall perform measurement system analyses for all testing and measuring devices and be able to present the results upon request.

Applicable Documents:

- VDA 5
- MSA (AIAG)
- GUM
- ETN021 – Measuring System Analysis (These documents can be retrieved from the ETO Internet portal - see Appendix 1)

7.6 PPA Documentation

With every order, ETO provides the supplier with a set of forms.

This set contains all necessary forms in German and English according to VDA 2:2012 and to PPAP as defined by AIAG (4th Edition).

Supplier-specific documentation is acceptable as long as it complies with the current standards and has been agreed upon with ETO.

With each order, ETO provides the supplier with its PPA checklist. This checklist defines the sampling procedure requirements, the scope of the documentation to be handed in and its latest submission date.

The content of the checklist covers both standard methods (VDA 2 and PPAP) and takes into account the requirements of the ETO GRUPPE.

Extent and submission level of the PPA checklist are based on the ETO internal risk assessment of the component to be sampled, as well as the assessment of the feasibility commitment.

7.7 Basic Understanding of VDA and AIAG as Regards Presentation of Test Reports

The presentation of a test report (PPA form – cover page of VDA2:2012, and/or part submission warrant – PSW in PPAP 4th Edition) is the confirmation of a successful and timely completion of a project.

Thus, the test report is the summary of confirmations and documents of a sampling inspection.

According to both methods, presenting this report means explicitly confirming that all requirements of the relevant standard and/or scope of sampling agreed upon with the customer have been met.

Excerpt from the PSW form of PPAP (4th Edition)

I hereby affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of _____/_____ hours. I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from the declaration below.

Excerpt from the PPAP cover page of VDA 2:2012-11

Confirmation by supplier - It is hereby confirmed that the sample submission has been carried out in accordance with the agreed submission level to VDA volume 2.

Approval of a sampling inspection does not mean approval or legitimation of any possible deviations.

7.8 ETO Expectations

The sampling process does not serve the purpose of discussing deviations.

Measurement strategy and dimensional deviations shall be agreed upon in advance with the respective ETO GRUPPE site.

ETO Purchasing shall be informed of any delays in writing and at an early time and reasons shall be given.

Deviations of any kind require a fully completed supplier deviation request (ETO Form Q-011).

A separate sampling set shall be prepared for each ETO site. Reference may be made to permits granted by other ETO locations.

The trigger matrix according to VDA2:2012 (Appendix 2) shall be fully observed by the supplier.

E.g. in case of re-using tools, change of subcontractors, etc.

7.9 Part Sampling

7.9.1 Date for Presenting the Sampling Documents

In order to ensure verification of presented documents, calculation of risks resulting from deviations and, last but not least, approval prior to the scheduled first date of series delivery, a date for presenting the sampling set is specified on the PPA checklist.

7.9.2 Delivery of Sampling Documents

Sampling documents and samples shall be delivered to the ordering ETO site in a suitable packaging. A mixed delivery with other orders shall be categorically avoided.

An orange label shall be attached and the recipient (responsible SQE) shall be indicated (a template is included in the ETO PPA documentation).

7.9.3 Samples and Verification Tests (Dimensional Check, etc.)

Measurement reports shall refer to the presented samples.

The test reports shall clearly indicate the reference to the identified samples.

The proceedings in case of deviations which have been detected during preparation of the sampling documents, shall be agreed upon with ETO prior to presenting the sampling set.

The supplier shall be responsible for all verification tests required for the presentation of the sampling set. Making reference to ETO measurements or follow-up tests by ETO laboratories is not acceptable.

7.9.4 Subcontractor Process Sampling

All processes and/or individual parts from subcontractors shall be approved by a suitable sampling method by the supplier. A copy of the approval documents (PPA or PPAP) shall be enclosed in the sampling set for ETO - as up-to-date version, in a traceable and approved form.

The producing plant and the approval referring to it shall be clearly identifiable.

ETO requirements shall be communicated and observed in the entire supply chain - as applicable.

Processes of subcontractors / purchased parts shall be earmarked in the flow chart. The incoming goods inspection shall be clear from the production control plan.

7.9.5 Re-Sampling Costs

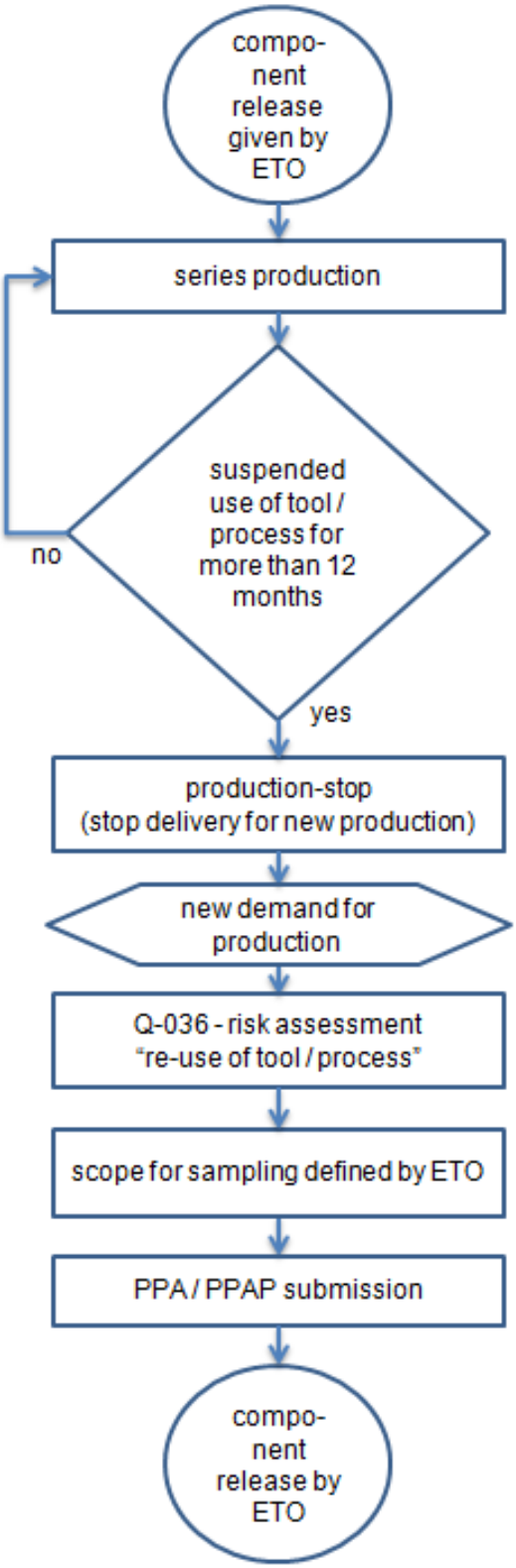
ETO reserves the right to charge costs incurred due to supplier-caused re-sampling to the supplier.

7.9.6 Re-Use of Tools and Processes after Twelve Months or More

It is the supplier's responsibility to monitor downtimes in its production. After twelve months or more of production downtime, tools and/or processes are to be suspended (requirement in accordance with VDA Volume 2, Trigger Matrix, or PPAP 4 / 3.1 Para. 6).

The procedure is based on the following flow-chart.

In order to communicate the subject, ETO form Q-036 "Risk Assessment in Case of Re-Use of Tools and Processes" is to be used. This form may be accessed via the download section on the ETO website (see Appendix 1).


compo-
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given by
ETO
series production
suspended
use of tool /
process for
more than 12
months
no
yes
production-stop
(stop delivery for new production)
new demand for
production
Q-036 - risk assessment
"re-use of tool / process"
scope for sampling defined by ETO
PPA / PPAP submission
compo-
nent
release by
ETO

7.10 IMDS / CAMDS

Within the scope of the sampling, the supplier will provide a valid and approved IMDS data set.

For components which are also to the ETO location in China, too, an entry in the CAMDS database (Chinese Automotive Material Data System) is required in addition to the entry in the IMDS material data base.

The required account and login file are provided by ETO.

7.11 Process Approval

The aim of the process validation is performing a capability test of the entire manufacturing process and thus ensuring the capability of the process.

The regulations according to VDA Volume 2 apply.

The supplier shall perform a process validation at a suitable point in time, agreed upon with ETO, and present ETO with the results.

7.11.1 Process Approval Audit According to VDA6.3 and/or ETO run@rate

For components which are identified as A parts in an ETO-internal assessment, a process approval by ETO in the form of a comprehensive VDA6.3 audit and/or an ETO-specific run@rate is the prerequisite for the PPA approval.

7.12 Re-Qualification

A product and/or process re-qualification in the sense of IATF 16949 shall be agreed with ETO in advance, within the scope of the advanced quality planning. It shall be described and documented in the valid quality assurance documents.

7.13 Continual Improvement Process (CIP)

The supplier shall define a continual improvement process in the sense of IATF 16949, Chapter 10.3.1, the aim of which is the reduction of the rate of rejection and/or rework.

8 Processes in Series Production

8.1 Delivery and Incoming Goods Inspection

According to legal requirements, ETO randomly tests incoming deliveries and makes a decision as regards approval based on this test. The supplier is responsible for observing all specifications (dimensions, packaging, date).

A dimensional non-conformance detected later due to time-consuming tests is treated as a non-conformance detected immediately during incoming goods inspection and a complaint is submitted to the supplier.

Non-conformances detected by the supplier shall be reported in due time and in case of a deviation permit, the goods shall be identified with the required documents.

If certain values, e.g. hardness, can no longer be measured on a part (O-ring), evidence shall be provided with a certificate of the corresponding lot.

8.2 Material Certificates

Material certificates shall be enclosed with the sampling sets.

For all raw materials and semi-finished goods used in series production, material certificates shall be archived by the supplier and presented to ETO upon request within 24 hours, as laid down in EN10204:2005, para. 3.1.

8.3 Material Identification

8.3.1 General Information

Upon every quote, initial order or sampling, in case of modifications or due to certain circumstances, ETO shall be informed on special shipping and storage conditions, such as cooled transport or storage, anti-freeze, minimum shelf life, etc.

Upon every initial order, sampling, in case of modifications or due to certain circumstances, ETO shall be provided with updated material safety data sheets in the relevant national language.

8.3.2 Identification of Deliveries in Series Production

Secondary packaging does not reach the ETO production process.

Product-related information will therefore not reach the ETO production process, unless they are attached to or included in the load carrier / container.

All relevant identifications shall always be enclosed with each individual load carrier/ container.

This applies to:

- Lots
- Deviation permits
- Information regarding minimum shelf life / expiry dates
- etc.

8.4 Process Documents

ETO expects the supplier to maintain records throughout the process which ensure traceability of the products and the manufacturing process. These records shall be available on short notice for assessment.

Process documents shall be analyzed throughout the series production process and serve as the basis for verifying quality assurance, risk assessment and process optimization.

8.5 Traceability

8.5.1 Part Identification Tags

8.5.2 Lots

Lot identification of delivered components helps ETO to

- localize specific stocks;
- control the incoming goods inspection;
- internally release production.

In case of lot changes, the following must be clearly distinguishable

- change of raw material
- processing lots
- components of different machines, tools, processes

In case of deliveries which contain several lots, this fact must be clear from the shipping documents.

Different lots shall be marked accordingly and kept separately.

The use of one container for different lots is only permissible if the individual containers are marked accordingly and clearly.

Product containers must not contain different lots.

8.6 Maintenance and Repair

Ensuring the ability to deliver is of essential significance.

For this reason, the supplier shall establish and be able to present on request an effective debug system as regards preventive and prognostic maintenance, as well as effective maintenance and repair schedules for all tools, machines and other production-relevant equipment which are used for manufacturing ETO components.

Furthermore, an emergency plan shall be developed and documented which in case of failure of one or more production facilities will ensure part supply.

ETO shall be immediately informed of any unscheduled production downtimes.

8.6.1 ETO Property

ETO property shall be clearly labeled as such. Inventory labeling will be provided to the supplier by ETO Purchasing. The labels shall be permanently attached to the ETO property.

The supplier is obliged to include these goods in the company's own maintenance system in order to ensure the goods' function and usability over the entire product life.

8.6.2 Storage of ETO-Specific Manufacturing Equipment and Tools Temporarily Taken Out of Service

ETO property and other production equipment, tools, etc. located at the suppliers premises shall be stored during production downtimes in such a manner that they may be brought back into service at any time, and usability is ensured.

Just as any process changes, relocation or scrapping of ETO property is only permissible upon approval by ETO.

9 Non-Conformance Management

9.1 Advance Notification / Deviation Request

All characteristics as defined by ETO in the product specification fulfill a certain function and are therefore of central importance. Hence, full compliance with these requirements is important, and the supplier shall confirm feasibility during sampling.

Deviations from these product characteristics - which have been determined during the product and process approval - as regards dimensions, surface quality, optical appearance, etc. shall be avoided by means of an effective quality planning. Deviations detected by ETO shall always be rejected.

Exceptionally (for example in case of an imminent production downtime), the supplier may hand in a deviation request for deviations detected by the supplier.

A current version of the required form (Q-011-Deviation Request Supplier) may be accessed via the download section (see Appendix 1).

Deviation permits may be granted on the condition that safety, function, product life and durability of the product will not be affected, and that the supplier expresses its commitment to improve the situation.

Deviation requests shall be made in writing only. Deviation permits, too, shall be communicated in writing by the responsible SQE or the Q Management. Approvals shall only be granted for a certain number of parts and/or time period.

Oral agreements, agreements reached by phone or by parties other than the SQE or Q Management, are invalid.

A separate and specially marked delivery of the affected products shall only be performed after the deviation permit has been granted.

ETO reserves the right to charge the supplier with any expenses for the verification of the permit as well as cost incurred in connection with the specification non-conformance (such as increased number of rejects, extra tours caused by reduced output quantities, etc.).

9.2 Request for Process or Product Changes

The basis for reportable changes is the trigger matrix according to VDA2:2012-11 (Appendix 2), and/or specific requirements by ETO customers, provided these have been communicated to the supplier for the specific project (see also para. 5 of the ETO Quality Assurance Agreement (QAA)).

A current version of the required form (Q-009-Request Product Process Change Supplier) may be accessed via the download section (see Appendix 1).

Note:

The next step is to extend this process by the requirement for presenting an explanation of the change in the form of a before-and-after comparison.

9.3 Processing of Complaints

If problems arise, it is important to ETO to identify and eliminate the root cause in cooperation with their suppliers.

Proceeding systematically and exchanging information between ETO and their suppliers in an open manner is necessary to identify a problem quickly and thus ensure quality.

The "supplier quality problem solving process" (SQP) is a guideline, based on the ETO tool "**E**TO **P**roblem solving **P**rocess" (EPP). This guideline aims to improve transparency and processing of quality notifications.

- Concentrated information flow, from basic data to completion (including transparent cost recording).
- Transparency as regards report quality.
- The quality of the supplier's performance at the EPP/SQP shall be part of the supplier assessment.

9.3.1 Initial Information and ETO Expectations

ETO commits to inform their suppliers immediately on any anomalies and problems.

If, for instance, incoming inspections detects some anomalies, these shall be reported immediately (SAP notification X2). At the same time, the anomalies shall be verified and further proceeding agreed upon. This initial information (e.g. SAP notification X2) does not yet constitute an incident or a complaint pertinent to parts per million (ppm).

By providing this initial information, ETO expects the following:

- the supplier to verify the anomaly / deviation
  - based on the specification and
  - taking into account the intended use (see ISO 9001:2015 8.2.3.1 b).
- the assessment of inventory and goods in transit;
- the provision of communication channels and contact persons.

Deviations detected during production at ETO or one of its customers shall be communicated via EPP/SQP, first via telephone or e-mail, if possible.

Based on the following initial information provided by ETO

- material number,
- supplier,
- lot,
- contact persons,
- description of defect,
- problem description (5 Why-Method),

irrespective of whose fault it was, we expect an immediate coordination between the logistics departments of the supplier and ETO regarding the following topics

- stocks and range of coverage in both companies,
- coordination of demands,

as well as

- preparation of an effective firewall,
- written communication of the results and further proceeding to the ETO Quality Supervisor within 24 h.

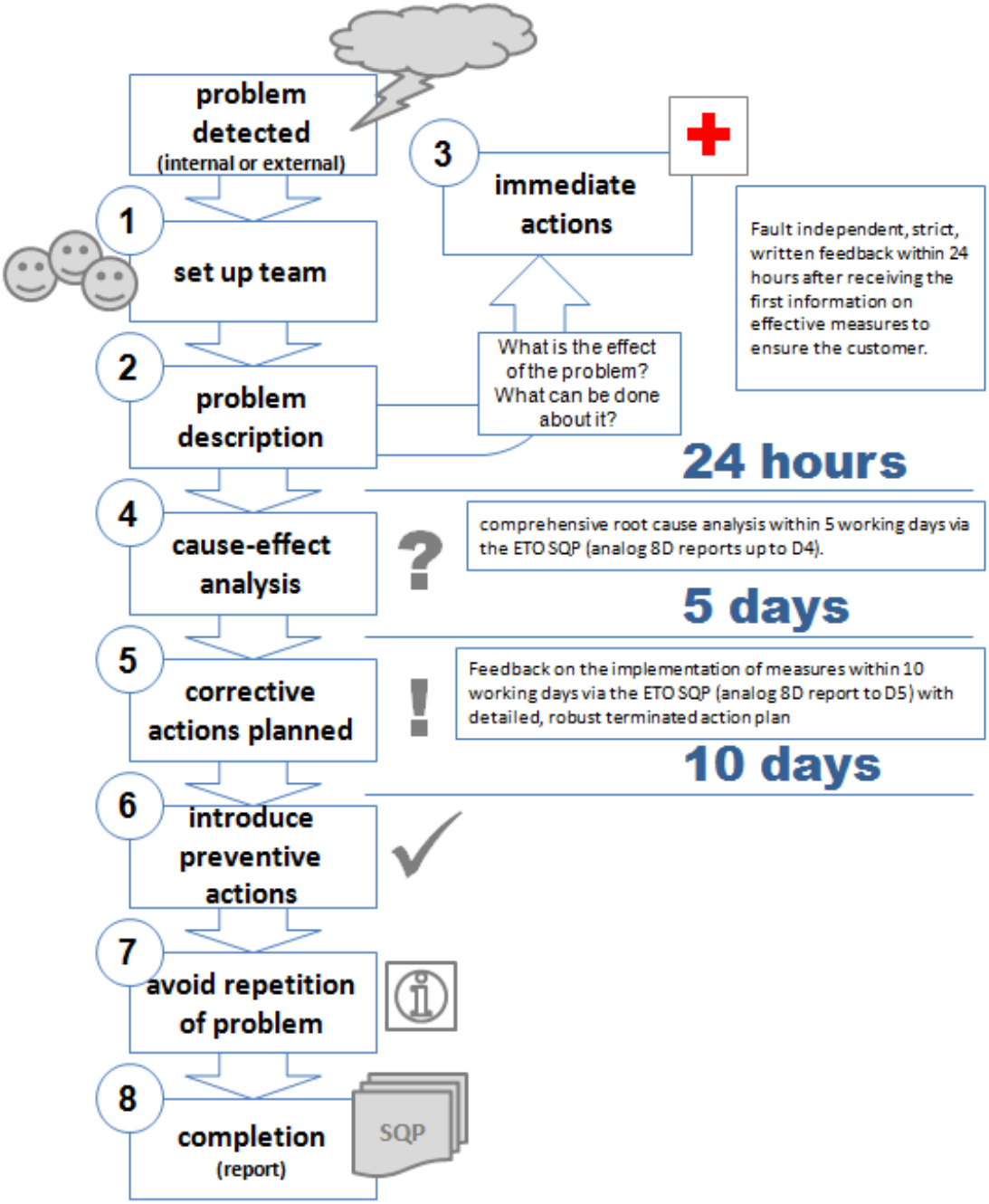
9.3.2 EPP/SQP Process (ETO Problem Solving Process)

Comprehensive and fast information transfer, clarity and fact-focused decisions are basic elements of the problem solving process. By means of the EPP/SQP procedure and the corresponding template (Microsoft EXCEL based), in this respect all parties are provided with comprehensive transparency.

The EPP/SQP represents the standardized communication medium for comprehensively transferring information related to non-conformances to ETO and after that to ETO customers.

Based on the 8D method, the EPP/SQP represents the summary of the results from other quality tools and methods (such as 5W, Ishikawa, etc.), and internal and external activities, e.g. logistical separation and lot-related assessment.

9.3.2.1 Problem Solving Process Procedure and Deadlines for Replying to the Customer



9.3.3 Activities within the First 24 Hours

At ETO or ETO customers a problem has occurred which puts at risk timely delivery of goods conforming with the specification.

In order to minimize risks and to maintain the supply chain, temporary actions are required which limit the damage.

In the EPP/SQP reference is made to the 24 h worksheet.

Agreement on and initiation of immediate actions may be required at short notice - in order to avoid higher consequential costs such as loss of production and extra tours.

If a supplier cannot be reached or fails to answer, ETO reserves the right to initiate necessary containment measures (e.g. to prevent production downtimes, air freight expenses etc.), informing the supplier immediately. These measures shall be based on internal risk assessments and help ETO fulfill its duty to mitigate damages.

These containment measures have to be maintained until the effectiveness of the corrective actions implemented has been proven.

Special attention should be paid to:

- inventory
- floor stock
- goods in transit (to ETO or subcontractors)

9.3.3.1 Definition / Team (EPP/SQP Chapter 1)

Just like the 8D method, the EPP/SQP is a team oriented problem solving process.

The basic data are provided by ETO, for detailed information please refer to the EPP/SQP.

A complaint team shall be nominated by the supplier (specialists and contact persons involved in the process) and indicated in the form.

The description of the problem shall be provided by ETO and communicated to our partners (suppliers) on the occasion of the complaint.

The description of the problem contains important topics which aim at helping our partners to be able to faster narrow down / comprehend the problem.

The following information as regards the problem description will be provided by ETO:

9.3.3.2 Description of the Defect (EPP/SQP Chapter 2)

Clear ACTUAL vs. TARGET information regarding the specification (which requirements have actually not been met?)

Consequences of the defect:

- Our partners shall be notified of the actual or possible effects of the deviation.
- This is to clearly illustrate the problem and to support our partners with their risk assessment (including FMEA).

How and Where was the defect detected:

- Based on this information, our partners are given the opportunity to explain which measuring method / measuring device detected the non-conformance.
- The information on "Where" the defect was detected is aimed at increasing transparency in the cause analysis.

- If the differences are visible, we shall provide our partners with ACTUAL vs. TARGET pictures whenever possible.

Unless quantifiable, ETO can only describe non-conformances based on the symptoms that have occurred. Validation shall be performed by the supplier based on their knowledge of the process and experience.

This shall be particularly taken into account when implementing interim measures.

9.3.3.3 Immediate Actions (EPP/SQP Chapter 3)

Within 24 hours, the supplier shall provide ETO with a risk assessment documented in writing, a specification of the lots in question and a 3D report (see pages 1 and 2 of EPP/SQP).

Logistics for Identifying Parts Delivered with Deviation

- When a complaint notification is triggered, ETO will notify the supplier of the respective lot/s or delivery note number/s.
- This information will not release the supplier from inspecting and evaluating production lots/deliveries that have been delivered before or after that. Furthermore, the supplier shall establish, if the first-in-first-out principle (FIFO) has been observed.
- Within the framework of the 3D processing, the supplier shall specify the quantity possibly affected.
- The supplier shall state from when to when these components were produced and from when to when these components were delivered to ETO.
- The individual deliveries - including the delivery note number - shall be indicated.

Define the Type of Subsequent Performance

Within the framework of the 3D activities, the type of subsequent performance shall be selected.

When selecting a type of subsequent performance, the supplier shall aim at avoiding high consequential costs which may be caused by production downtime, extra tours etc.

If a supplier cannot be reached or fails to answer, ETO reserves the right to define the type of subsequent performance (e.g. to prevent production downtimes, air freight expenses etc.), informing the supplier immediately. This shall be based on internal risk assessments and helps ETO fulfill its duty to mitigate damages.

Firewall activities

- In order to standardize the reports and ensure minimum requirements for interim measures, ETO has made specifications in the form which have to be worked on during the 3D activities.
- Non-applicable items may be marked accordingly.
- Additional supplier-specific activities may be listed in the boxes provided.

- Initially, the supplier is responsible for setting up the firewall.
- In case of a non-conformance and after the supplier has been informed by ETO - irrespective of how this information was provided and whether the non-conformance was confirmed by company-own analyses - the supplier shall immediately take action for maintaining the delivery capability to the end customer, and/or agree on these measures with ETO.
- This feedback shall be provided within 24 hours after the information has been received.
- Should the facts turn out to be different later, it may be necessary to reconsider expenses related to these measures.

Quantities and Deadlines

- The aim is always to meet the promised delivery deadlines and delivery windows and to deliver the agreed quality.
- It is the supplier's responsibility to agree with ETO Logistics on differing quantities and demands as well as new deliveries as a result of blockages or complaints.

9.3.4 Activities Within the First Five Work Days

9.3.4.1 Root Cause Analysis and Tools (EPP/SQP Chapter 4)

Root cause analysis aims to systematically search for possible causes which could explain the occurrence of the problem; to explain the probable cause(s) and to align them with the problem description.

ETO sets great store by the clear separation into the two following aspects:

- Why did the problem occur?
- Why was the non-conformance not detected?

ETO exacts the supplier to prove the system by providing the 5W as part of the EPP/SQP.

Each "Why" item shall be furnished with proof. For example, if the answer to "Why" is "wear of tool", we expect proof in the form of a picture, a documentational proof or a measurement report.

Each “Why" answer shall be scrutinized and proof shall be provided. Insufficient proof may cause rejection and a negative assessment of your report.

Supportive use of the Ishikawa method or Fault Tree Analysis in case of complex problems (numbers/data/facts).

- The use of these tools is recommended in case of every complaint in order to sustainably and systematically - based on numbers, data, facts - provide suitable proof and indicate which factors have been assessed and how.

- If, in the standard EPP/SQP, the root cause explanation with 5 Whys should be insufficient, ETO shall request a detailed analysis using above tools.
- The root cause analysis shall be presented in such a way that a third party would be able to comprehend the process. If applicable, a presentation including illustrations may be added to the SQP.

9.3.4.2 NTF – No-Trouble-Found Process

A complaint is based on a component's malfunction, its inability to be mounted or the non-conformance of its characteristics.

If, upon verification of the deviation, the supplier cannot find a deviation from the specifiied characteristics, the supplier will usually reject the complaint ("no deviation from the specification found", or similar wordings).

Yet, this formal approach will not solve the problem.

In accordance with the requirements laid down in IATF 16949:2016 (10.2.5 Warranty Management Systems), ETO expects:

- the supplier to establish a "no-trouble-found" process in its management system;
- the supplier to systematically analyse its internal processes and inventory, taking into account
  - changes and
  - their potential consequences.
- the supplier to consult and agree its further activities with ETO

The NTF process aims to detect the root cause by any means. Hence it does not follow many strict rules, and its nature is more that of a project than of a procedure.

Please also see the following standards:

- VDA: Marketing and Customer Service / Defective Parts Field Analysis
- VDA: Standardised Complaint Process

9.3.4.3 Corrective Actions (EPP/SQP Chapter 5)

Explanation of the planned actions by preparing an action plan for the root cause analysis and planning corrective actions concerning the detected non-conformances.

Within the 5 Why analysis, a differentiation was made between "why did the non-conformance occur" and "why was the non-conformance not detected" and for both aspects the corresponding answers have been established.

ETO expects the supplier to include in its planned actions an examination of the deviation (assessment and corresponding, verifiable measures), cosidering its occurrence and the reason why it was not detected.

Both aspects shall be explained within the scope of the 5D report. The status of the actions may be "under examination" or "under implementation"

9.3.5 Activities Within the First Ten Work Days

9.3.5.1 Performance Review (EPP/SQP Chapter 6)

ETO expects the actions to be complete within the 10 day feedback deadline. If this feedback cannot be given within the specified deadline, ETO shall be informed in writing immediately.

If reasonable and timely information is provided, the 8D adherence to delivery deadlines of the EPP/SQP assessment is not affected in a negative way.

When the actions are completed, ETO expects the following activities for reviewing performance.

- Evaluation of the defect collection cards
  - Here, the operating figures of the production equipment are evaluated.
  - Has the non-conformance occurred again after the action had been implemented?
- Evaluation of outgoing inspection
  - Here, the operating figures of the outgoing inspection (EOL/visual inspection etc.) are evaluated.
- Sub-process audit of the affected area
  - After the complaint has been completed successfully, the implemented actions and documentation are audited and recorded by the Quality department.

ETO reserveds the right to evaluate these subjects and the effectiveness of the actions on the occasion of audits, visits and site inspections.

9.3.5.2 Preventing Repetitive Defects (EPP/SQP Chapter 7)

FMEA preparation and maintenance

- In the EPP/SQP, Chapter 7, the Risk Priority Numbers (RPN) shall be included, both prior to the complaint and after the notification has been processed.
- If the supplier does not have a suitable product-related FMEA, a complaint FMEA shall be prepared on this occasion.

Changes to documents

The supplier shall provide ETO with all documents which have been changed, when presenting the EPP/SQP (except for FMEA).

Lessons learned

- It is to verify whether the insights gained in the course of this complaint may be used to improve process reliability with other ETO products.
- Production control plans, flowcharts, parts histories and other product-specific docuements are to be updated.

9.3.5.3 Annotation (EPP/SQP Chapter 8)

In order to standardise the reports and illustrations of minimum requirements of the effectiveness evaluation, specifications have been made which have to be worked on.

Here, the document changes prior to completion of the complaint are indicated and inquired.

- Supplier has completed the notification processing.
  - It shall be indicated whether the notification is being managed as acknowledged or rejected.
- The quantity pertinent to ppm will be calculated automatically in the Excel table form "sorting results".
  - Here, only ETO and end customer stocks are considered for the quantity pertinent to ppm.

9.3.6 PPA Triggered by a Complaint

If changes for tools, processes or product should result from the specified actions, a product and process approval in the form of sampling shall be performed and approved by ETO. The cost of this sampling shall be borne by the supplier.

9.3.7 Cost Collector

The costs incurred for the complaint shall be managed by ETO in a cost collector.

Thus ETO provides for complete transparency when a cost report is prepared.

These items shall be shown when the EPP/SQP is completed, and charged to the supplier.

9.3.8 Assessment of the Supplier´s Problem Solving Process

The notification is only considered completely processed as soon as the assessment of the complaint (of the EPP/SQP) is available to the supplier.

After the supplier has handed in the final SQP, it shall receive an assessment by ETO concerning adherence to the deadlines and technical presentation of the report.

The results of this assessment shall be communicated as the feedback regarding the complaint and - in a compact form - on the occasion of the supplier assessment.

The aim is to use the direct feedback and the assessment to initiate a process for optimizing the complaint processing with the supplier.

This is done in order to harmonize expectations, increase efficiency, minimize inquiry calls and make more efficient use of the capacities on both sides.

The assessment criteria are as follows:

SQP-8D position	max. points				Amount of points
1	5	0-1 team members named 0	2-3 team members named 0	4-x team members named 0	0
3	15	0-3 actions implemented 0	4-6 actions implemented without any form of supplementary 0	7-x actions impemented with form of supplementary stated 0	0
4	15	5 Why not used or cause undetermined 0	5 Why partially unsed 0	5 Why used and reproduced mistake 0	0
5	15	no statisfactory action implemented 0	action only partially defined 0	statisfactory action for final coverage and occurance implemented 0	0
6	10	success control not applied or only partially applied 0	success control applied without prove 0	success control applied with prove 0	0
7	10	0-1 points implemented 0	2-4 points implemented 0	5-x points implemented 0	0
8	5	Point 8 not applied 0	Point 8 partially used 0	Point 8 applied 0	0
additional point 10 5 5 5		SQP-formula used 24 hours information received on time 5 days information received on time 10 days information received on time		points reached maximal possible points	0 100

9.3.9 Informational Complaint: Definition and Processing

ETO shall trigger an informational complaint if, althogh the specification requirements are met, there are anomalies of the product which may - in ETO´s opinion - in the medium term affect ETO´s product or process quality, should these anomalies not be remedied.

This includes circumstances which might constitute a potential risk to the customer with respect to the intended use (cp. ISO 9001:2015 Chapter 8.2.3.1 b), if these circumstances were ignored or other negative changes arose.

For example:

- non-conformances detected during test result evaluations,
- slight non-conformances in terms of color compared to the parts delivered before.

Processing of informational complaints:

Informational complaints are communicated to the supplier, however, ETO will not pursue the process any further.

- No external 8D requirement,
- no reminders for missing feedback.

However, internal processing of the informational complaint is expected from the supplier and shall be followed-up on the occasion of visits etc.

Informational complaints do not affect the supplier assessment.

- No incident,
- returned quantities shall not be considered pertinent to ppm.

9.3.10 Definition of Repeat Defects

A repeat defect presents a critical situation which requires the utmost attention and priority of everyone involved. The reason for this is because this defect directly points to one or more of the following issues:

We talk of repeat defects if there is clearly one single root cause for several complaints. This means:

- The same symptom,
- clearly one single root cause for several complaints (process or product related),
- and/or an identical combination of root causes,
- and/or identical combination of causes.
- Repeat occurrence of the defect after the corrective actions specified for this symptom have been implemented and verified.
- The occurrence of the defect due to secondary causes (such as incomplete collection of stocks) therefore presents a new symptom (a new root cause for the occurrence at the customer). This leads to a complaint with a new basis for the complaint and therefore not to a repeat complaint.
- However, it may be considered a repeat defect as long as the true defect cause is still unknown.
- If a symptom occurs which ETO considers a repeat defect - based on available information - the complaint is marked as such.
- If during the root cause analysis (5W) it turns out that the above mentioned criteria are not fulfilled, the status of a repeat complaint may be reset by ETO.

On the other hand, it may turn out during the processing of a complaint that there is a repeat complaint, if e.g. the same defect cause may be attributed with different products.

Causes for Repeat Defects are:

- The implemented firewall is not effective!
  - Therefore supplementary activities shall be initiated immediately.
- Localization of the defect occurrence (lot, time period, etc.) is insufficient!
  - Therefore a short-term re-assessment shall be performed.

- The root cause analysis was insufficient and therefore the implemented corrective actions were ineffective!
  - Therefore a new root cause analysis shall be performed.
- There are internal and/or external communication and coordination problems!
  - Therefore all available information shall be collected and re-assessed together.
- The available documentation (e.g. 8D, FMEA, etc.) does not describe the true / complete situation and problem!
  - Therefore the documentation shall be revised promptly and comprehensively.

Assessment:

- If a symptom occurs which ETO considers a repeat defect - based on available information - the complaint is marked as such.
- If during the root cause analysis (5W) it turns out that the above mentioned criteria are not fulfilled, the status of a repeat complaint can be reset by ETO.
- On the other hand, it may turn out during the processing of a complaint that there is a repeat complaint, if e.g. the same defect cause may be attributed with different products.

9.3.11 Quantities Pertinent to ppm

Purpose of This Rule

In order to allow a standardized assessment and achieve common understanding, the quantities pertinent to ppm stemming from complaints are specified according to the following criteria.

- In case of returns the entire returned quantity is classified pertinent to ppm.
- Unless there is a written feedback within the scope of the complaint processing, quantities pertinent to ppm shall not be corrected in the ETO system, starting from work day 10 after the supplier received the complaint

Classification rules for quantities pertinent to ppm are as follows:

- Non-conformances affecting the function, non-compliance with specified properties, contaminants
  - the entire quantity of returned goods is pertinent to ppm
  - when sorted at ETO, the determined non-conforming quantity is considered pertinent to ppm.
- Delivery without approved sampling set
  - the entire delivery quantity is pertinent to ppm
  - depending on the situation, a correction may be made by the responsible SQE later.

- In case of goods accepted by ETO which do not comply with the specification (e.g. deviation permit)
  - the quantity of non-conforming samples of the approval test becomes pertinent to ppm.
  - a retroactive correction of the quantity pertinent to ppm, based on the actual number of rejects, may be performed.
- Wrong deliveries detected during ETO incoming goods inspection, wrongly packaged goods, transport damages and deliveries damaged otherwise, if caused by the supplier.
  - the number of defective containers is pertinent to ppm.
- Contamination
  - if specified (e.g. technical cleanliness)
    - dimensional non-conformance, and/or deviation permit accordingly
    - the entire quantity of returned goods is pertinent to ppm
    - if the supplier gives feedback regarding the actual defect percentage within five days after the delivery has been received, the quantities pertinent to ppm shall be corrected by ETO.
  - if not specified
    - if, based on a deviation permit, the goods are processed or cleaned at ETO, a symbolic value of 10% of the affected delivery quantity is considered pertinent to ppm.
    - if goods are returned, the entire returned quantity is considered pertinent to ppm
- Technical characteristics which were not specified are not pertinent to ppm.
  - this does not apply to contamination, foreign parts and product properties which are expected beyond the product's intended use.

Exceptions for the rules explained herein may only be granted in agreement with the responsible SQE and after consultation of the supplier quality manager.

9.3.11.1 Sorting at ETO GRUPPE Locations

In case of specification non-conformances related to sortable characteristics, the supplier is responsible for choosing the type of subsequent performance as well as for the organization of the required actions.

The use of several parallel options might be required in order to meet the delivery commitment, for economical and production-related reasons, to reduce the reaction time and to minimise the logistic effort.

- Return shipment for new delivery of conforming goods
- sorting on the premises of one of the ETO locations
  - by the supplier
  - by an external service provider
  - by ETO by order of the supplier

- sorting on the premises of an external service provider
- scrapping of the goods at ETO by order of the supplier and new delivery
- (in exceptional cases), deviation request by the supplier submitted to ETO

9.3.11.2 Expectations of the Supplier by ETO

Immediate Actions / Firewall

In the first instance, the supplier is responsible for setting up a firewall.

In case of a non-conformance and after the supplier has been informed by ETO - irrespective of how this information was provided and whether the non-conformance was confirmed by company-own analyses - the supplier shall immediately take action for maintaining the delivery capability to the end customer, and/or agree on these measures with ETO.

This feedback shall be provided within 24 hours after the information has been received.

Should facts turn out to be different later, it is to establish who is responsible for the expenses of these measures and who shall bear the cost.

Risk Assessment and Specification of Affected Lots

- The supplier shall provide ETO with a risk assessment documented in writing, as well as a specification of the affected lots together with the 3D report within 24 hours.

Quantities and Deadlines

- The aim is always to meet the promised delivery deadlines and delivery windows and to deliver the agreed quality.
- It is the supplier's responsibility to agree with ETO Logistics on differing quantities and demands as well as new deliveries as a result of blockages or complaints.

9.3.11.3 Sorting of Affected Goods

The option of sorting affected goods is explicitly described below.

The supplier to organise the sorting process

If ETO is forced to initiate the organisation of the measures because promised deadlines are not met, the expenses and costs incurred will be charged to the supplier via the complaint process.

- The supplier shall agree this with ETO.
- The supplier shall provide the required means
  - defect visualization
  - inspection instruction
  - test equipment

If required, ETO may support by providing symptoms and test equipment. However, this has to be agreed upon in advance.

General Requirements for Sorting

It is necessary to agree on the scope of the sorting and the required output of goods without deviation.

Expected defect percentages shall be determined by the supplier, based on the information provided by ETO and an internal risk assessment.

The capacities for sorting shall be planned and commissioned accordingly.

- Based on the feedback and reports, the procedure and dynamic sampling of the sorting shall be agreed upon with the sorting party.

ETO does not have any agreements or maintains permanent collaborations with any sorting service providers.

Internal sorting is performed by ETO personnel and, if required, reinforcement is provided by staff from placement services.

This organization may provide some coordination support in case of external sorting, however, they are only able to contribute their services to a limited degree.

Final products and processed goods shall not leave the ETO premises for testing or rework.

Test stations may only be provided to a limited degree. These are preferably used for testing processed goods and final products.

Support of Sorting Processes

- After prior consultation, ETO may take over briefing and support of sorting personnel by order of the supplier.
- However, overall responsibility is not accepted.
- The supplier to provide the required documents and information.
- ETO shall charge expenses incurred to the supplier.

Test Instructions

- External service providers and ETO - if sorting processes are supported by ETO - shall be provided with meaningful instructions for the testing.
- Test methods and test equipment shall be agreed upon in advance with the responsible SQE.

Test Equipment

- If agreed upon, ETO may, to a limited degree, provide test equipment for visual, gauge and measurement tests.
- Tests with the X-ray machine may only be performed by trained ETO personnel.

In summary, the following applies

- The supplier is the purchaser of a sorting process and accepts full responsibility for the commissioning, performance, organisation and evaluation of the sorting as well as for all required documents and auxiliary means.

9.3.11.3.1 Working Hours and Access

- ETO MAGNETIC GmbH
  - Work days usually from 6 a.m. to 10 p.m.
  - As a rule, ETO may not provide sorting support during night shift
  - Saturdays – upon consultation – from 6 a.m. to 2 p.m.
- EKS Elektromagnetik GmbH
  - Site-specific information shall be provided here at a later date.
- ETO MAGNETIC Sp. z o.o.
  - Site-specific information shall be provided here at a later date.
- ETO MAGNETIC CORP.
  - Site-specific information shall be provided here at a later date.
- ETO MAGNETIC TECHNOLOGIES (Kunshan) Co., Ltd.
  - Site-specific information shall be provided here at a later date.
- ETO MAGNETIC India Pvt. Ltd.
  - Site-specific information shall be provided here at a later date.
- ETO MAGNETIC Mexico, S. de R.L. de C.V.
  - Site-specific information shall be provided here at a later date.

9.3.11.4 Contact Information for Sorting Processes at the Various ETO Locations

In principle, ETO does not specify any service providers. However, our experiences with the following providers have been good:

redi-Control Deutschland Süd-West, Max-Eyth-Straße 38, 71088 Holzgerlingen

Phone: +49 7031 285036
Fax: +49 7031 2850380
E-Mail: quality-control@redi-group.com
Internet: www.redi-control.de

Formel D GmbH, Herrenberger Straße 120, 71034 Böblingen

Phone: +49 7031 7640-0 (switchboard)
Fax: +49 7031 7640-100
E-Mail: info@formeld.com
Internet: www.formeld.com

9.3.11.5 Contact Information for Sortings by Service Providers, as an Alternative to Return Shipments

If a return shipment should take too much time and sorting were not feasible on the ETO premises, you may contact the company Kaum+Benz.

As an approved company situated close to us, Kaum+Benz can - if commissioned by the supplier - pick up goods from ETO, perform sorting and rework and deliver the goods to ETO when the work is done.

The supplier and Kaum+Benz shall take care of coordination and organization.

Kaum + Benz Bauteilekonfektion, Gewerbestrasse 15, 78359 Orsingen

Phone: +49 7774 93868-0
Fax: +49 7774 93868-14
E-Mail: info@kaum-benz.de
Internet: www.kaum-benz.de

XRAY-LAB GmbH & Co. KG
Schloßberg 9 | 74374 Zaberfeld
Phone: +49 7046 / 8808-0
Fax: +49 7046 / 8808-20
info@xray-lab.com

Central Laboratory
Sternenfelser Straße 37/1
74343 Sachsenheim
24h Hotline: 0800 / 9729522
(aus Deutschland gebühren-frei)

Wolfsburg Laboratory
Heinenkamp 24b | 38444 Wolfsburg
+49 5308 48600-0
wob@xray-lab.com

Slovak Subsidiary
Cementárska 15 | 90031 Stupova
+ 421 918 286 458

Laboratory USA, Canada and Mexico
2255 Pontiac Rd | MI-48326 Auburn Hills
24h: +1 800-270-1350
contact@xray-lab.com

XRAY-LAB is a service provider for suppliers to the automotive industry, aerospace, medical technology, electrical engineering, plastics or metal industry. Being a fully integrated service provider, we are able to rectify rejected quality deficiencies by appropriate measures, such as sorting, sampling, non-destructive X-ray inspections (also during serial production), rework, cleaning etc.

XRAY-LAB - Services:

- 2D/2,5D X-ray analysis
- computer tomography (CT)
- 3D measuring equipment and 3D feature data collection
- First Article Inspection and approval process of tools
- defective part and failure analysis
- NDT such as UT, ET, VT, PT and MT
- liaison engineering and 8D reporting
- ramp-ups and PPAPs
- Q-Gate and Firewall
- quality management for logistical processes
- redesign und relocation
- quality management methods
- process support with respect to quality aspects of the transition from pilot to serial production
- visual testing and rework with our own task force
- quick, diligent and exact work execution of work
- professional handling
- on-site rectification of defects (production stock, inventory, interim warehouse)
- holistic management
- flexible and short response times
- qualified personnel
- quality coordination

All services offered are based on a **certified management system**.

9.3.12 Hourly Rates and Lump Sum Charges

9.3.12.1 ETO MAGNETIC, Stockach

Complaints, sorting procedures and services provided by ETO MAGNETIC GmbH at the Stockach location

Lump sum charges (this information is subject to changes over the year):

- Lump sum charges are calculated based on average expenses (effective from July 11, 2017)
  - Returns of samples through ETO, department Central Services 10,-- € (effective from April 16, 2012)
- Hourly rates for services
  - ETO internal sorting services (performed by ETO personnel) 35,-- €/h
  - Rework / activities involving machines 50,-- €/h
    - If test rigs are used, higher expenses may be incurred. This shall be communicated in advance.
- X-ray services 80,-- €/h

9.3.12.2 EKS Elektromagnetic GmbH

At a later time, location-related information will be provided here.

9.3.12.3 ETO SENSORIC GmbH

At a later time, location-related information will be provided here.

9.3.12.4 ETO MAGNETIC Sp. z o.o.

At a later time, location-related information will be provided here.

9.3.12.5 ETO MAGNETIC CORP.

At a later time, location-related information will be provided here.

9.3.12.6 ETO MAGNETIC TECHNOLOGIES (Kunshan) Co., Ltd.

At a later time, location-related information will be provided here.

9.3.12.7 ETO MAGNETIC Mexico, S. de R.L. de C.V.

At a later time, location-related information will be provided here.

9.3.12.8 ETO MAGNETIC India Pvt. Ltd.

At a later time, location-related information will be provided here.

9.3.13 Returns and Accounting of Rejected Goods

Returns are charged to the supplier as a standard. Depending on the urgency and to allow for short-term sorting, root cause analysis or rework, time-saving and traceable shipping methods are used.

Generally, rejected goods may be picked up by the supplier or a service provider commissioned by the supplier.

The cost of returned goods is directly charged back through the ETO system. The supplier does not have to issue a credit note. Direct goods replacement may only be performed if a new delivery is identified accordingly.

10 Supplier Management

ETO commits to further develop standards, methods and tools, in close cooperation with our customers.

When selecting suppliers, we set great store by their willingness to further develop their standards in cooperation with us.

ETO strives to establish a long-term relationship with our suppliers, always bearing in mind the QCD criteria:

- Q = quality, i.e. zero-defect strategy and fulfilment of agreed objectives
- C = cost, i.e. best price and cost reduction in serial production
- D = delivery, i.e. optimisation of the faithfulness in delivering the right quantities on time

ETO supplier management is described in below PDCA circle.

10.1 Plan: Commodity Strategy

We use regional commodity panels for the selection of suppliers.

- Europa
- NAFTA
- Asia

Among others, we apply the following selection criteria: pricing, contractual situation, technology standards, payment terms and development potential.

10.2 Do: Procurement Strategy

Nomination and commissioning is based on the decision taken by an interdisciplinary team. Among others, this decision is based on the following:

- Commodity strategy and supplier pyramid;
- feasibility study;
- comparison of offers;
- the ETO Sourcing Workshop.

10.3 Check: Supplier Evaluation

ETO evaluates all suppliers on a monthly and annual basis. These are suppliers for production material, production-related material, production-related equipment and/or other services pertinent to production.

The annual evaluation covers the period from January to December and results in the classification of the supplier.

Every ETO site to make its own evaluation. Yet, the classification will be aligned with the worst evaluation by an ETO site.

The evaluation pertinent to the previous year shall be completed by the end of the first quarter of the subsequent year. In parallel, ETO shall write a monthly status assessment (the current ETO system overview). This status assessment is used to monitor the effectiveness of measures taken.

Furthermore, it is to enable the alignment with the supplier's system. Hence, the status assessment does not constitute a classification.

In general, ETO sends all its assessments by e-mail. The monthly assessments are written in the middle of the subsequent month.

10.3.1 Supplier Evaluation Criteria

The criteria are rated with the help of a point system (worst rating: 1 point best rating: 100 points), but with different weightings.

See appendix 4 for the weighting of the different key figures and the rating criteria.

The main criteria with the respective sub-criteria are listed below.

10.3.1.1 Quality Indicators

- Incident
  - Here ETO differentiates between complaints from incoming inspection (Q2) or ETO production (Q4) and pass-through problems, i.e. deviations caused by the supplier which have not been detected in the ETO process (Q5).
  - Every complaint shall be considered an incident. Related notifications concerning the same process occurring within a reasonable time shall be recorded as a notification item by ETO, and thus not considered an incident.
  - ppm level:
    The quantities pertinent to ppm are calculated by the quantities invoiced by ETO and the quantities with deviations which caused complaints.
  - Feedback from sorting processes or approved quantities of defective products have to be reported within the deadlines. There shall be no corrections later on (see SQP process).
- SQP Assessment
  - The degree of fulfilment, given in percentage, of all quality notifications which have been registered as partially or wholly acknowledged, corresponds with the score pertinent to the rating.
- Quality Assessment
  - The degree of fulfilment, given in percentage, corresponds with the score pertinent to the rating.
- Supplier-Assessment
  - The degree of fulfilment, given in percentage, corresponds with the score pertinent to the rating.

10.3.1.2 Cost

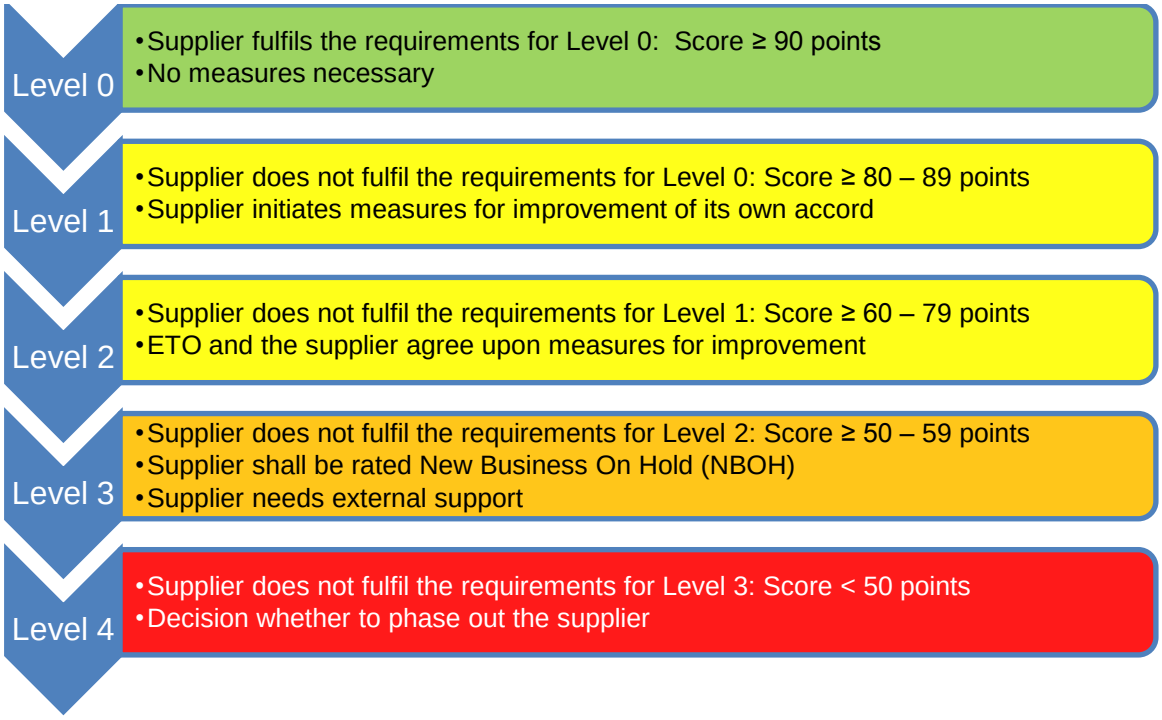
- not yet implemented

10.3.1.3 Delivery Performance

- Adherence to Deadlines
  - The date of the arrival of goods shall be compared to the agreed delivery date.
- Adherence to Quantity Stipulations
  - The percentage difference to the stipulated quantity (partial delivery) shall entail demotion. Here ETO shall take the mean of the quantity of the incoming goods within the respective assessment period. Deviations from the stipulated quantities shall be considered a cause for extra tours.

10.3.2 Rating in the Escalation Level Model

Corresponding to the total score achieved in the annual assessment, the supplier shall be rated in the ETO escalation level model. This model consists of five levels and is depicted in below chart. Each of the five levels entails different measures at ETO and the supplier.



10.3.3 Monitoring the Status of the Certified Management System

It is very important to ETO that its suppliers of production material develop their management systems in accordance with the requirements laid down in IATF 16949, ISO 14001 and ISO 50001.

The status of the suppliers' systems shall be entered in the ETO system, with copies of the respective certificates as proof.

In this respect, ETO expects their suppliers to provide the latest certificates of their own accord.

10.3.4 Feedback on Extra Tours (a Chapter from Non-Confromance)

Extra tours hint at process failures. In accordance with its IATF 16949 certification, ETO is obliged to evaluate their numbers.

Cost incurred by extra tours shall be charged to the supplier, if the supplier caused them.

Deviations from the stipulated quantities shall be considered a cause for extra tours.

See appendix 4 for the assessment of adherence to stipulated quantities. Appropriate measures shall be defined within the scope of the supplier development programme.

10.4 Act: Supplier Development Programmes

Based on the annual rating, the suppliers are asked to take measures, in agreement with ETO, which are necessary for them to reach escalation level 0. Moreover, target suppliers shall be selected whose escalation level is ≥ 2. They shall be the focus of the development programme. With these target suppliers, ETO shall discuss and agree programmes for improvement.

Here various tools shall be used in parallel, which will be continually developped, such as:

- process audit in accordance with VDA 6.3 (as well as additional requirements by our customers);
- run@rate;
- re-assessment (re-assessment of the supplier or the Q-assessments);
- system audit in accordance with DIN EN ISO 19011, based on IATF 16949;
- multi-site action plans.

10.4.1 Definition of Objective

In principle, ETO pursues the objective that its suppliers for production material be rated escalation level 0.

Therefore, ETO expects its suppliers to analyse the deviations and to initiate measures to achieve this objective.

11 Logistics / Identification / Packaging

Please refer to the "Logistics Guideline for Production Material and Services" provided for download on the supplier portal (see Appendix 1).

12 Imprint

12.1 Issue Status of the Manual

The manual is published in German and English.

The latest German version is binding.

12.2 Contact Persons for the Supplier Manual

Peter Sommerfeld
Group Supplier Quality Manager
E-Mail: p.sommerfeld@etogruppe.com
Phone: +49 7771 809-1601
Mobile: +49 1522 264 00 65

Michael Seyer
Group Director Purchasing
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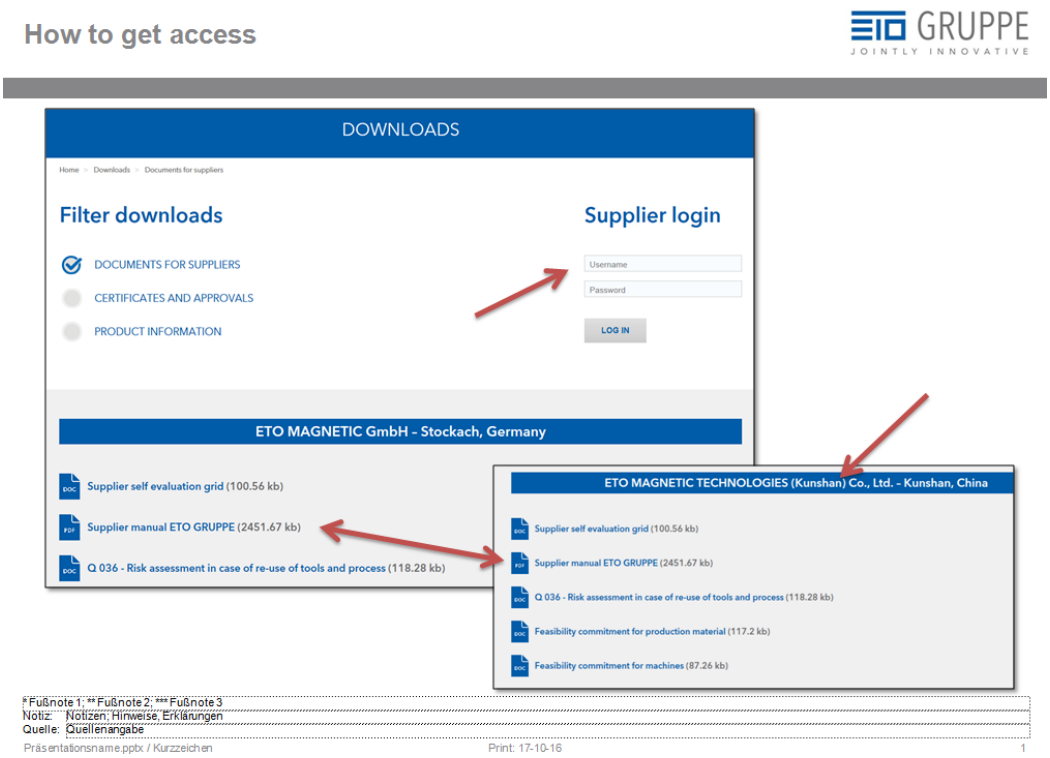
Mobile: +49 162 284 84 12

This document is valid without a signature and by the release in IMS. The signed original is stored in the department GAZ.

13 Appendix 1 – Instructions for the ETO Supplier Portal



Login and password are provided by the responsible Commodity Buyer or your SQE.

14 Appendix 2 – Production Safety Representative (PSB)

VOLKSWAGEN
AKTIENGESELLSCHAFT

VOLKSWAGEN AKTIENGESELLSCHAFT · 38436 WOLFSBURG · DEUTSCHLAND

IHRE ZEICHEN
IHRE NACHRICHT
UNSERE ZEICHEN
DURCHWAHL
TELEFAX
E-MAIL

DATUM

Aufgaben des Produktsicherheitsbeauftragten (PSB)

Sehr geehrte Damen und Herren,

anbei erhalten Sie das Dokument „**Aufgaben des Produktsicherheitsbeauftragten (PSB)**", welches die spezifischen Anforderungen und Aufgaben des VOLKSWAGEN Konzerns an die Produktsicherheitsbeauftragten des Lieferanten beschreibt.

Dieses Dokument wird dem Lieferanten in der jeweils gültigen Fassung nur noch elektronisch in der B2B-Plattfrom des VOLKSWAGEN Konzerns unter www.vwgroupsupply.com zur Verfügung gestellt.

Das vorliegende Dokument ist vertraglich ab dem Tag der Veröffentlichung bindend und muss bis spätestens 3. Quartal 2013 umgesetzt werden.

Wolfsburg, 16 Oktober 2012

U. Harnack
Konzern-Qualitätssicherung Kaufteile
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FRANCISCO J. GARCIA SANZ
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MICHAEL MACHT
HORST NEUMANN
HANS DIETER PÖTSCH
RUPERT STADLER

VOLKSWAGEN AKTIENGESELLSCHAFT
SITZ: WOLFSBURG
AMTSGERICHT BRAUNSCHWEIG
HRB 100484

1. Tasks of the supplier-based product safety representative (PSB)

Als mitgeltendes Dokument zu Formel Q-konkret sowie Formel-Q-Fähigkeit beschreibt die Qualitätssicherung des Volkswagen Konzerns hier die Stelle des PSB beim Lieferanten.

1. Kenntnisse

1.1 zum hergestellten Produkt: Funktionsweise, Fertigung im Detail am eigenen Standort und bestimmungsgemäßer Verwendungszweck beim Kunden

1.2 zum Produktsicherheitsgesetz und zum Produkthaftungsgesetz

1.3 Methodenkenntnisse zu Risikobewertungen

2. Aufgaben

2.1 Mitwirken, Erarbeiten und Setzen von Prioritäten zur Beseitigung bzw. Vermeidung produktsicherheitsrelevanter Mängel in der Produktentstehungsphase (Fehlerprävention)

2.2 Mitarbeit bzw. Initiieren und Verifizieren von Konstruktions-/Prozess-FMEAs zu sicherheitsrelevanten Umfängen

2.3 Mitarbeit im Rahmen von „lessons learned" bei Produktneuanläufen zur Vermeidung produktsicherheitsrelevanter Fehler im Bereich der Fertigungs-, Montage- und Prüfprozesse

2.4 Erstellung von „lessons learned"-Checklisten zur qualifizierten Überprüfung von Konstruktionen und Prozessen unter produktsicherheitsrelevanten Gesichtspunkten

2.5 Selbständiges Durchführen bzw. Veranlassen von regelmäßigen Fertigungs- und Produktchecks der laufenden Serie zur Bestätigung der Produktsicherheit für den Gebrauch (inkl. vorhersehbarem Fehlgebrauch) und Einleitung sowie Nachverfolgung von (Sofort-) Maßnahmen bei relevanten Abweichungen

2.6 Bewertung von Ausfallwahrscheinlichkeit und -häufigkeit des betroffenen Produkts im Fehlerfall

2.7 Im Beanstandungsfall sind die geplanten Abstellmaßnahmen, deren schnelle Umsetzung und nachhaltige Wirksamkeit zu verifizieren. Die Maßnahmenwirksamkeit muss durch den Lieferanten-PSB schriftlich bestätigt werden

2.8 Die Kommunikation (inkl. Selbstanzeige) läuft über den QS-Bauteilverantwortlichen beim Kunden (QS-Kaufteilorganisation oder QS-Produkttechnik) inkl. Übermittlung aller Details.

Der PSB stellt hierbei die Qualität der Informationen (Eindeutige Angaben zu Fehlerbild, Eingrenzung, Ausfallwahrscheinlichkeit, etc.) sowie die Vertraulichkeit der Kommunikation sicher

3. Kompetenzen

3.1 Der PSB berichtet direkt an die Geschäftsführung, den Werkleiter bzw. den Leiter der Qualitätssicherung

3.2 Einleitung von Bauteilsperrungen der laufenden Serie u.a. bei sicherheits- und imagerelevanten Beanstandungen (auch wenn diese aus Sicherheitsgründen den Serieneinsatz gefährden) inkl. Ressourcenhoheit bzgl. Prüfstandtests, Validierung, etc..

3.3 Für jede Stufe in der Lieferkette ist ein PSB je Fertigungsstätte zu benennen. Der PSB des 1st Tier ist analog Formel Q konkret 4.2 in der Lieferantendatenbank (LDB) einzutragen.

2. Job specification

- In addition to the technical qualification:
  - officially nominated
  - has worked in the company for several years
  - familiar with production and products
  - familiar with product liability and the German Equipment and Product Safety Act (GPSG).
  - basic knowledge of risk assessment analyses
    - analytic skills

15 Appendix 3 – Formel Q Capability

VOLKSWAGEN
AKTIENGESELLSCHAFT

1. Edition January 2011

2. Revised edition June 2015

This part of the contract will only be available to suppliers in the current version electronically through the Volkswagen Group Business Platform under www.vwgroupsupply.com.

Up to date valid and binding documents are generally available on the aforementioned Group Business Platform.

The German language edition of the Formel Q Capability is binding.

Issued: Volkswagen AG
Group Supplier Quality Assurance
Group Quality Supplier Audit
Letterbox 1467/0, 38436 Wolfsburg
Germany

Contents

1 Process Audit

1.1 General

The Process Audit is used to evaluate the Quality Capability of Suppliers. The Process Audit is conducted according to VDA 6.3 and uses the questions of the Process Elements P5 – P7.

Additionally there are further requirements listed in the section of this document "Additional Formel Q Capability Requirements that exceed VDA 6.3 Requirements".

The Process Audit focuses on the requirements of the Customer for Products or Product Groups and related manufacturing Processes. This also applies for Bought-In Parts and Outsourced Processes.

Insufficient compliance could put an existing certification of the QM-System into question and could lead to a Customer "new business on hold" status. (See Formel Q Konkret).

1.2 Evaluation of the Process Audit Results

The Evaluation for "EP" is described in VDA 6.3 for each Product Group. Additional results from the Product Audit conducted at the same time will be taken into account. The Grading rules must be applied to determine the overall result (EP per Product Group) for quality capability.

1.2.1 Overall Rating of Process Audit

Grading guidelines for Quality Capability with Product Groups E_{PN} are according to VDA 6.3.

Reasons for Grading from A to B, despite grade of fulfilment E_{PN}>=90%:

- At least one Process Element P5-P7 or Process Step E1-En is rated with less than <80%.
- Grade of fulfilment for at least one Sub-element of P6 (E_{U1}-E_{U7}): Process input, Operations content, Process support, Material resources, Grade of effectiveness, Process result, Transport and Parts Handling is < 80%.
- At least one of the * - questions is rated with 4 points or less.
- At least one of the questions from the Process Audit is rated with 0 points.
- Evaluation according to the generic approach for Process responsibility, Target orientation, Communication and Risk Orientation is < 70%.

Additional guidelines according to Formel Q Capability version 8 for downgrading from A to B, despite grade of fulfilment E_{PN}>= 90%.

- A System Certification acc. to either ISO/TS 16949 or VDA 6.1 is not available.
- During the Product Audit a B-class fault or a systematic C class fault was identified.
- Yellow classification of an Applications Review.
- Risks within the supply chain which will have an impact on the quality of products of the direct supplier to Volkswagen were identified. This will lead to a downgrading of the direct Supplier. An indicator for such risks could be "amber" ratings of the Sub-supplier, e.g. during a Sub-Supplier Audit.

Reasons for Grading to C, despite grade of fulfilment E_{PN}>=80%

- At least one Process Element P5-P7 or Process Step E1-En are rated with a grade of fulfilment <70%.
- Grade of fulfilment of the Sub-Elements of P6 as e.g. Process Inputs, Operations Content, Process Support, Material Resources, Grade of Effectiveness, Process Results, Transport and Parts Handling rated with < 70%.
- At least one *-question rated with 0 points.

Additional downgrading guidelines according to Formel Q Capability version 8 despite grade of fulfilment E_{PN}>=80%:

- Target dates for Project Investment / Improvement programmes are not due to be fixed by the Supplier before SOP.
- A-class faults or systematic B-class faults identified during Product Audit.
- More than 2 questions for the verification of D/TLD parts are evaluated with “No” (if no risk for complying with law requirements or meeting the parts functional requirements exist).
- A question in D/TLD documentation is answered “No“ if a risk for complying with law requirements or meeting the parts functional requirements exist.
- Identified Risks within the Supply Chain which will directly impact on the Quality of Products from the Direct Supplier delivered to Volkswagen. This will lead to a downgrading of the Direct Supplier. An indicator for such a risk could be a “red” rating of the Sub-Supplier, e.g. during a Sub-Supplier Audit.
- Red classification of an Applications Review.

Reasons for post-audit Grading to C

- Implementation of the Improvement Programme refused or not realised.
- Self Audit < 80%.
- Quality targets of the Customers not achieved within agreed deadlines ("A"-Rating).
- Risks within the Supply Chain identified which will directly impact the Quality of Products from the Direct Supplier delivered to Volkswagen. This will lead to a downgrading of the Direct Supplier. An indicator for such a risk could be a "red" rating of the Sub-Supplier, e.g. during a Sub-Supplier Audit.
- A Supplier can also be rated as "C"-rated after any Audit, if there is a negative rating, or a Special Product Risk identified during a TRL, D/TLD, Problem Analysis, or a visit by a VW-Auditor.

Effect of the Q-Performance on the Q-Capability

An existing C rating for Quality Performance (Level 3 in the program "Critical Supplier") may result in justified cases to a re-grading in the quality capability. A reasonable case can be: The deficit in the Q Performance can be clearly linked to issues in the Q Capability.

The Supplier is informed in writing by the Customer Audit Department about the rating result.

1.3 Upgrading Criteria

Generally an upgrading can only be achieved through a Customer Audit at the manufacturing site of the Supplier when the required grade of fulfilment as specified above, is reached.

An upgrading from C to B will only be established once a "robust B" rating during a Customer Audit is achieved (i.e. > or = 85%).

2 Additional Formel Q Capability Requirements that exceed VDA 6.3 Requirements

These requirements are additions to questions of VDA 6.3 and must be considered during evaluation of Potential Analysis, Process Audits and for the Sub-Supplier Audits(UL).

Reference question in VDA 6.3	Evaluation Relevant Requirements
5.1	▪ Outsourced processes (e.g. external suppliers, other owned manufacturing sites etc.) and extended external work benches are also to be considered.
5.2	▪ A product safety responsible representative (PSB) for each individual step in the supply chain must be nominated.
5.4	▪ Documentation of Materials and Masses (weights).
5.7	▪ The audits in the supply chain must by conducted by certified VDA 6.3 auditors. (see auditor qualification in Section 3.2 of FQF 8.0).
6.1.4	▪ Labelling according to Customer Regulations (material card VDA 4902), plausibility (Bar Code content)
6.2.3	▪ Controls for Process Influencing Parameters must be protected from unauthorised access.
6.2.4	▪ Technical documentation for D /TLD parts available acc. to valid change level, identified as D/TLD and specific D/TLD features outlined. Comment*: If the supplier uses a different identification for his documents and records, he is required to utilise a correlation matrix for the obligatory identification symbols (e.g. overview matrix with identity symbols for each individual customer and their internal identity symbols); the document shall be kept as a controlled document. ▪ Full completion of the Catalogue of Requirements o Audit Plan. o For D/TLD acc. Formel Q Capability or equivalent. o For D/TLD at least 15 years archiving. ▪ Defining and monitoring of the Improvement Programme. ▪ Including Sub-Suppliers. ▪ Formal written confirmation of legal conformity parts, assemblies etc. ▪ Data on IMDS complete and up-to date. ▪ Volkswagen Specifications, especially VW 91101, Material List see IMDS. (www.mdsystem.com) ▪ Tracking list for all "D/TLD parts of the Customers." ▪ Conducting a D/TLD-Self Audit at least every 12 months. ▪ Input the date of the last D/TLD Self Audit in BeOn. ▪ Specifications, Sampling Documents for Customers. ▪ Considering the ABG-requiring components as special features. ▪ Compliance of labelling of Products with National and International conformity requirements. (e.g. ABG-requiring components CCC, ECE, DOT…) ▪ Controlling the functional relevant dimensions according to the catalogue for functional dimensions.
6.2.6	▪ Identification according to Customer Standards. ▪ (Material identity card acc. to VDA 4902), plausibility (barcode contents).

Reference question in VDA 6.3	Evaluation Relevant Requirements
6.4.2	▪ Suitability of Inspection Processes – consideration of Measuring accuracy in the Inspection Processes (VW10119). ▪ VDA Volume 5.
6.5.2	▪ Process Capability review for Measurable characteristics (VW 10131)
6.5.4	▪ Compliance of labelling of Products with National and International conformity requirements. (e.g. ABG-requiring components CCC, ECE, DOT…)
6.6.1	▪ The Quality Performance in series needs to be continuously assessed and documented. Corresponding data Information and experiences are to be used for product improvement, production optimization and supplier evaluation.
6.6.2	▪ Outsourced Process Steps (additional Product risks within the Transport chain e.g. caused by Parts Handling, Transport Routes, etc.) ▪ First-In, First Out. (FIFO)
6.6.3	▪ Label position (card folder, holder). Removal of out of date Labels.
7.1	▪ QM-System Certification ISO TS 16949 alternatively VDA 6.1 ▪ Agreement to target Zero Failures according to Formel Q Capability ▪ Implementation of requirements of Formel Q-New Parts Integral (QPN) incl. approval of the 2 Day-Production Run. ▪ Data transfer (e.g. VDA Data Transfer Standard 4927) according to EDI Implementation Guidelines Volkswagen AG. ▪ Certificates supporting conformity with National and International regulations (e.g. ABG requiring component CCC, ECE, DOT, etc.). Withdrawal of Certificates / Releases must be immediately reported to Customers plants and the responsible people at Purchase and Quality Assurance Departments of Volkswagen Group and involved companies. ▪ The current quality performance shall be evaluated in FQF Self-Audit report (including Q-performance, customer ratings).
7.2	▪ Maintaining the supplier database (LDB-B2B): among others Production Location, Contact data, Performance Range / DUNS No. / KRIAS No. ▪ Access approval for the VOLKSWAGEN Group Communication Platform and other brand-specific portals. ▪ Initial / Follow-up sampling for each individual location with DUNS No. of the producing manufacturing site. ▪ Obligation to keep the parts history up to date (see VW01155 / VDA Volume 2)
7.4	▪ In House essential analysis / testing capabilities. (Laboratory, Testing Facilities, Personnel)
7.5	▪ The process of Failure Analysis is implemented. Mandatory requirement: VDA Volume "Failure Analysis".
7.6	▪ External Qualification of at least one Senior Management member for the basics of Product Safety and Product Liability law. ▪ Nominated Product Safety Responsible Associate to be entered into the Supplier Database (Group Business Platform - LDB) for each site specific name. ▪ Knowledge of the function and purpose of use of the product in the vehicle. ▪ Self Audits must be conducted by VDA 6.3 certified Auditors (see auditor qualification in Section 3.2 of FQF 8.0).

16 Appendix 4 – Criteria for supplier evaluation

Criteria for supplier evaluation

Status 2017-11-07

Content

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Brief description

Q- Criteria for quality

C- Criteria for costs

D- Criteria for delivery

Overall result of supplier evaluation

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Criteria for supplier evaluation

Brief description

Calculation of rating:

- **The criteria are evaluated according to the calculation explained on following sheets**
- **The monthly evaluation will be provided by mid of the following month**
- **The annual evaluation will be provided by first quarter of the following year**
- **The annual evaluation is not the calculated average of the monthly results, but the overall evaluation on the total year according to the calculation explained on following sheets**
- **The target values of the individual criteria might be adjusted over the course of time**

Scope:

- **All suppliers of direct and production related material as well as all subcontractors will be evaluated**

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Criteria for supplier evaluation

Criteria for quality

Quality (main criterion Q):

- **Ppm (hard fact)** weighted 20%
- **Incidents (hard fact)** weighted 20%
- **SQP result (soft fact)** weighted 20%
- **Quality assessment result (soft fact)** weighted 20%
- **Supplier assessment result (soft fact)** weighted 20%

If there is no value for a criterion available, it will not be rated. Its weighting will be split equally on the remaining criteria.

The main criterion quality will be weighted with 80% within the total evaluation.

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Criteria for supplier evaluation

Criteria for quality

Evaluation of ppm and targets for commodities:

Ppm rating	1-100
≤ target value	100
target value + 10%	90
target value + 20%	80
target value + 40%	60
target value + 60%	40
target value + > 60%	1

Weighting within quality criterion = 20%

Ppm- commodity targets	Ppm
sintering/ forging/ subcontracting	20
die casting/ cabling/ electrics/ electronics	50
coating/ heat treatment	100
standard parts	450
turning	550
raw materials	600
elastomers	1000
springs	1200
wires	2000
plating and undefined materials	2250
stamping/ deep drawing/ plastic parts	2500

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Criteria for supplier evaluation

Criteria for quality

Evaluation of incidents in relation to number of deliveries:

Incident rating	1-100
0 %	100
≤ 1 %	90
≤ 2 %	80
≤ 3 %	70
≤ 4 %	60
≤ 5 %	50
> 5 %	1

Weighting within quality criterion = 20%

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Criteria for supplier evaluation

Criteria for quality

Evaluation of SQP result:

SQP rating	1-100
= SQP result in %	1 -100

Weighting within quality criterion = 20%

No SQP result available = no evaluation (0)

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Criteria for supplier evaluation

Criteria for quality

Evaluation of quality assessment:

Quality assessment rating	1-100
= Q- assessment result in %	1 -100

Weighting within quality criterion = 20%

No quality assessment done so far = no evaluation (0)

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Criteria for supplier evaluation

Criteria for quality

Evaluation of supplier assessment:

Supplier assessment rating	1-100
= S- assessment result in %	1 -100

Weighting within quality criterion = 20%

No supplier assessment done so far = no evaluation (0)

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Criteria for supplier evaluation

Criteria for costs

Costs (main criterion C):

For project start in 2017 no cost criteria will be considered as data is not yet available in the ERP-system (SAP).

Therefore main criterion costs will not be considered in the evaluation at the moment.

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Criteria for supplier evaluation

Criteria for delivery

Delivery (main criterion D):

- **On time delivery (hard fact)** weighted 60%
- **Quantity reliability (hard fact)** weighted 40%

The main criterion delivery will be weighted with 20% within the total evaluation.

Criteria for supplier evaluation

Criteria for delivery

Evaluation of on-time-delivery (OTD):

OTD rating	1-100
Within time frame	100
Time frame + 1 day	80
Time frame + 2 days	60
Time frame + 3 days	40
Time frame + > 3 days	1
Time frame - 1 day	80
Time frame - 2 days	60
Time frame - 3 days	40
Time frame - > 3 days	1

The current time frame for deliveries is -2/+0 days. It is also specified in the routing order of the respective ETO site

Weighting within delivery criterion = 60%

Criteria for supplier evaluation

Criteria for delivery

Evaluation of quantity reliability:

Quantity reliability rating	1-100
Overdelivery + 10%	100
Overdelivery + 20%	80
Overdelivery + 40%	60
Overdelivery + 60%	40
Overdelivery + > 60%	1
Underdelivery - 10 %	100
Underdelivery - 20 %	80
Underdelivery - 40 %	60
Underdelivery - 60 %	40
Underdelivery > - 60 %	1

Weighting within delivery criterion = 40%

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Criteria for supplier evaluation

Overall result of the supplier evaluation

Example of an annual supplier evaluation result:

Vendor evaluation: Simulation

Pu.org. 1100 | 01.2016 - 12.2016

Description of Criterion	Final month closing	01.2016 - 12.2016	Wei
Total score	92	87	
Quality	97	90	80
-Incident Rate	100	80	20
-PPM	100	100	20
-SQP	0	81	20
-Q-Assessment (SF)	92	92	20
-S-Assessment (SF)	95	95	20
Delivery	85	83	20
-On-time delivery	85	86	60
-Quantity reliabili	85	78	40

The overall result of the evaluated criteria leads into the escalation level model of the supplier development.

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