Supplier Manual
ETO GRUPPE

Content

1 Objective

This guideline describes procedures of common processes. The objective is to optimize processes and to avoid unnecessary costs and quality losses. These processes are binding for both parties.

The quality of purchased parts has a decisive impact on ETO products. In order to maintain high quality standards, ETO expects its suppliers to deliver high quality products on time.

The main goal is to promote a partnership-based cooperation throughout the entire supply chain in order to achieve the zero-defect target.

2 Scope

The Supplier Manual of ETO GRUPPE applies to the procurement of production material, production-related operating resources and services of the supplier by the affiliated companies of ETO GRUPPE.

The Supplier Manual of ETO GRUPPE is binding for all suppliers who deliver production material and production-related operating resources to the production locations of ETO GRUPPE.

At the time of publication of the Supplier Manual, the following companies belonged to ETO GRUPPE:

ETO MAGNETIC GmbH	Stockach	GERMANY
ETO GRUPPE TECHNOLOGIES GmbH	Stockach	GERMANY
EKS Elektromagnetik GmbH	Vaihingen/Enz	GERMANY
ETO SENSORIC GmbH	Nuremberg	GERMANY
ETO MAGNETIC Sp. z o.o.	Wrocław	POLAND
ETO MAGNETIC CORP.	Grand Rapids	USA
ETO MAGNETIC TECHNOLOGIES (Kunshan) Co., Ltd.	Kunshan	P.R. CHINA
ETO MAGNETIC India Pvt. Ltd.	Bangalore	INDIA
ETO MAGNETIC Mexico, S. de R.L. de C.V.	San Luis Potosi	MEXICO
ETO MOTION TECHNOLOGIES India Pvt. Ltd.	Doddaballapur	INDIA
ETO MAGNETIC GmbH	Torino	ITALY
ETO DYNAMIC App Services GmbH	Stockach	GERMANY
ETO DYNAMIC Connect GmbH	Stockach	GERMANY
ETO DYNAMIC Digital GmbH	Friedrichshafen	GERMANY
farmunited GmbH	Friedrichshafen	GERMANY
ETO MAGNETIC TECHNOLOGIES (LuAn) Co., Ltd.	LuAn city	P.R. CHINA
ecoTech Umwelt-Messsysteme GmbH	Bonn	GERMANY

3 Applicable Documents

Documents:	Chapter:
LP-060-Global Logistic Standards (GLS)	15 Logistics, Labeling, Packaging
Q-009-Request Product Process Change Supplier_Antrag Produkt-, Prozessänderung Lieferant	13.2 Request for Process, Product Change
Q-010-PPAP-Supplier Documents_PPF-Lieferantendokumente	10.1 ETO Risk Assessment 10.2.1 General Phase 10.2.6 Release Strategies for Products and Processes 10.3.7 Mandatory Sampling Results 10.3.10 Results of Product Insepection
Q-011-Deviation Request Supplier_Antrag auf Sonderfreigabe Lieferant	10.2.4 Sampling – Phase 4 10.2.5 Expectations of ETO 13.1 Self-Indications, Request for Special Release
Q-036- Risk Assessment in Case of Re-Use of Tools and Process_Risikobewertung bei Wiederbenutzung von Werkzeugen und Prozessen	10.3.5 Re-use of Tools and Processes after twelve Months or more

4 Definition of Terms

AIAG	Automotive Industry Action Group
EPP/SQP	ETO Problem Solving Process/ Supplier Quality Problem Solving
DIS number	Document Info Record Number
FMEA	Failure Modes and Effects Analysis
IATF	International Automotive Task Force
MSA	Measurement System Analysis
PPAP	Production Part Approval Process
PPA / PPF	Production Process and product Approval (PPF)
RASIC	Responsible, Approving, Supporting, Informed and Consulted
VDA	Verband der Automobilindustrie e.V.

5 Supplier Management of ETO GRUPPE

We maintain long-term and cooperative relationships with proven suppliers. They are assessed, evaluated and promoted in thorough selection and qualification processes.

Suppliers are usually 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 on and laid down in quality management agreements and technical documents. The release and acceptance criteria are defined on a product-specific basis.

5.1 General Requirements (QM System, Personnel, …)

The ETO GRUPPE is a worldwide successfully operating group of companies that develops and produces innovative actuators and sensors of the highest quality for state-of-the-art vehicles and systems.

In order to continue to guarantee quality and innovation at the highest level, it is necessary that the suppliers of the ETO GRUPPE also operate at the same high level, as the quality of an ETO product depends decisively on the quality of the supplies.

It is important to apply a QM system in the sense of IAFT 16949 or to develop the existing system towards this standard, in order to guarantee the highest quality and delivery reliability. This requires in particular the consideration of the MAQMSR (Minimal Automotive Quality Management System Requirements for Sub-Tier Suppliers).

For this reason, this manual represents a guideline for the cooperation between the companies of ETO GRUPPE and their suppliers.

5.2 Applicable Legal Basis

The supplier is obliged to observe all legal and official regulations applicable to the product and must ensure that these are taken into account to an appropriate extent and checked for up-to-dateness. This also includes country-specific regulations and, if applicable, deviations from the standards described here.

5.3 Social Responsibility

The actions of ETO GRUPPE are based on the UN principles of the UN Global Compact. The ten principles of the UN Global Compact represent the minimum principles and requirements that we have set for ourselves and whose compliance we also expect from our suppliers. Launched in 2000, the UN Global Compact is a guideline for companies in order to align their strategies and actions with the ten principles, which are divided into four areas: Human rights, labor standards, environmental protection and anti-corruption. ETO will audit the implementation of the UN principles as part of the initial supplier assessment and monitor further compliance during the ongoing business relationship.

Our suppliers commit themselves to comply with the principles of the United Nations Global Compact. Written confirmation is the basic requirement for release as an ETO supplier. Further information on the Global Compact is available at “www.unglobalcompact.org”.

5.4 Conflict Raw Materials

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

According to BICC, conflict commodities are “natural resources whose systematic exploitation and trade in the context of a conflict can lead to serious human rights violations, violations of international humanitarian law or the realization of international criminal law.”

5.5 REACH

The EC regulation No. 1907/2006 (REACH regulation; REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals) is binding for all suppliers and sub-suppliers supplying a European location of ETO GRUPPE.

5.6 RoHS

The EC regulation 2011/65/EU (RoHS 2: Restriction of Hazardous Substances) is binding for all suppliers and subcontractors supplying a European location of ETO GRUPPE.

5.7 Environmental Protection and Safety

5.7.1 Environmental Responsibility

Suppliers must follow the precautionary principle with regard to environmental issues, take initiatives to promote greater environmental responsibility, and encourage the development and diffusion of environmentally friendly technologies.

5.7.2 Environmentally Friendly Production

Optimal environmental protection must be ensured in all phases of production. This includes a proactive approach to avoid or minimize the consequences of accidents that can have a negative impact on the environment. Particular importance is attached to the application and further development of energy and water-saving technologies, characterized by the use of emission reduction, reuse and recycling strategies.

5.7.3 Environmentally Friendly Products

All products manufactured along the supply chain must meet the environmental standards of their market segment. This includes the complete product life cycle and all materials used. Chemicals and other substances that may pose a hazard if released into the environment must be identified.

Hazardous substance management must be established for them so that they can be safely handled, transported, stored, recycled or reused and disposed of through appropriate procedures.

5.7.4 Product Safety and Quality

All products and services must meet the contractually specified criteria for quality and active and passive safety upon delivery and must be used safely for their intended purpose.

5.8 Information Security

ETO suppliers are required to comply with the following information security regulations:

- Technical security
  - Use of appropriate hardware and software, which is also regularly updated
  - Use of recognized, industry standard, security software such as firewall and virus scanner to keep out malicious software
  - Use of secure connections for file transfer (HTTPS / TLS transmission for e-mails)

- Organizational security regulations
  - Use of rights concept to make available information accessible only to responsible employees
  - Reporting of detected security gaps to the client
  - Use of secure passwords to protect own IT system
  - Operation of an access control concept for premises
  - Implementation of further security actions, if requested
- Access to information
  - The relevant provisions of our non-disclosure agreement apply

If the contractual relationship ends, all data or information and access provided shall be returned immediately or destroyed securely after consultation.

Security incidents, as well as suspicious events in own systems, have to be reported immediately as soon as ETO data could be affected. ETO may be consulted in the analysis of security incidents.

ETO suppliers are required to conduct regular security trainings in affected work areas. The ETO information security officer (ISB) can be consulted in this regard in an advisory capacity.

- The supplier shall provide information upon ETO´s request, on the level of information security, such as the number of security incidents, configuration of IT systems, or a listing of self-outsourced activities that may affect information security.

6 General Requirements

6.1 Structure of the ETO Supplier Quality Organization

The supplier-related quality support of ETO is a group-wide organization. Procedures and processes are standardized throughout the group. The area is divided according to commodities, which are based on the manufacturing process, as well as the structure of the ETO purchasing organization.

According to the grouping, a Supplier Quality Engineer (SQE) is available to the supplier at each ETO location. This decentralized SQE is the central contact for the supplier for all quality-related topics at the corresponding location.

Therefore, he is also the contact person for processes triggered by other areas of the ETO location, such as incoming goods inspection or SQA (Supplier Quality Assurance). In addition, these material groups are defined by the Commoditiy Manager Quality (CMQ), who performs a cross-site role in the corresponding material group.

6.2 Structure of the ETO Purchasing Organization

ETO purchasing procures production and overhead materials, investments and services.

The purchasing of production materials is structured according to commodities and is carried out decentrally by the independently operating ETO locations.

The task of the decentralized purchasing organization is to ensure the timely flow of materials through quality and cost-optimized procurement from approved sources.

Within the global purchasing organization, the tasks and responsibilities of the locations are coordinated via strategic commodity management.

At the ETO development locations, the supplier is supported by a project buyer who acts as a central point of contact during the development phase and accompanies the supplier through the start of series production.

6.3 ETO Forms and Standard Documents

As part of the standardization of workflows and processes, ETO will continuously develop these, as well as the associated forms and documents, revise them in line with the customer and standard requirements and standardize them across the group.

The objective is to make all processes stable, transparent and comprehensible at all times with optimum integration of customers, partners and suppliers.

For this purpose, we expect our suppliers to apply the specified ETO forms and the corresponding standards in valid and current versions.

To this end, we strive to make form specifications available online in various languages and the latest versions. Access is available via the download areas of the ETO internet portal (see Appendix 1).

6.4 ETO Values and Corporate Policy

The actions and thinking of ETO are guided by the ETO values of competence, passion and trust.

The foundation of the ETO house of values is the ETO TEAM SPIRIT, which holds the values together and ensures that our house – together with our partners and suppliers – inspires our customers with the highest quality, innovations, customer, orientation, professionalism and sustainability.

In addition to the technical knowhow, **COMPETENCE** for us also includes a social aspect, i.e. catering 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**".

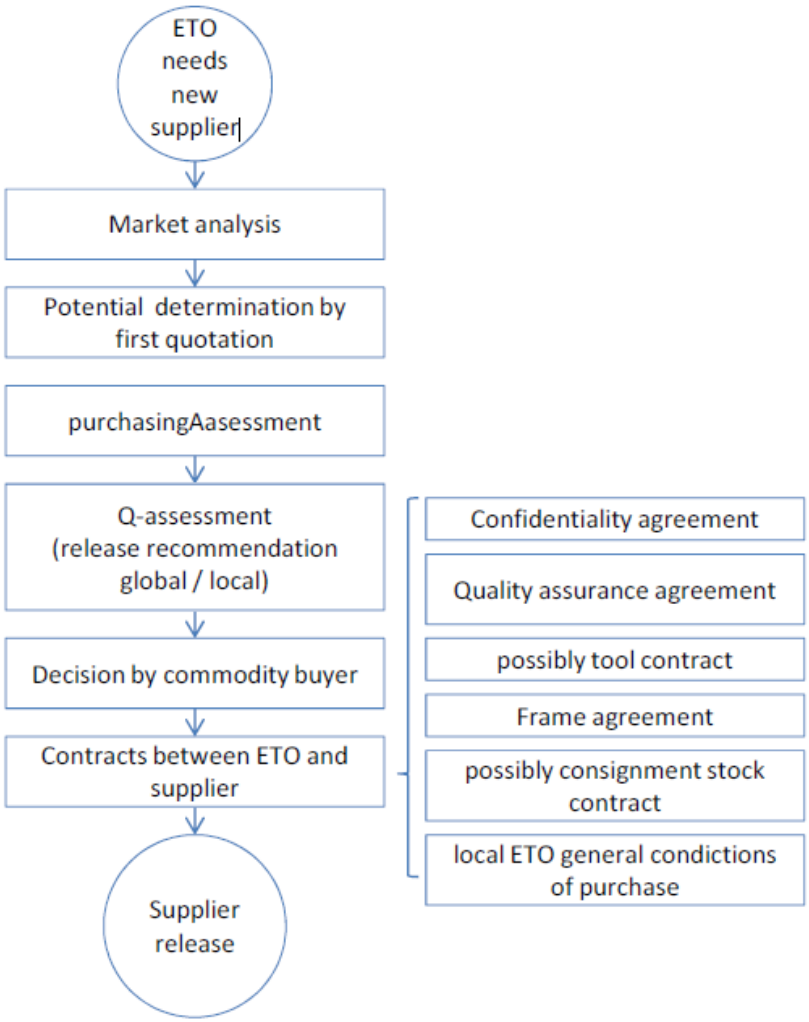
According to our company policy, the partnership-based cooperation with our selected suppliers and their commitment to “quality”, as well as our assistance in the further development of their quality capability, but also a close and early involvement in our information flow is an essential quality factor.

As a manufacturer of electromagnetic actuators and sensors of the highest quality, ETO is committed to focus on the 0 defect target and continuously optimize the company processes towards it.

We also expect this attitude from our suppliers and the awareness that this objective can only be achieved through necessary commitment of resources.

7 Supplier Selection

Simplified, chronological, schematic representation of ETO processes and relationships for selecting and approving new suppliers:



7.1 Requirements for Suppliers of Production Material

With regard to the quality management of our suppliers, we expect a standard in accordance with IATF 1649 which has been proven by an accredited certifier and that is extensively practiced. The minimum requirement is ISO 9001, with a commitment to the further development of the system in accordance with IATF 16949, the application of regulations, procedures and methods described therein, as well as the general standards of the automotive industry. Standards and regulations are always to be applied in the valid versions. The status and state, as well as information on the implementation of the management systems of the supplier, are determined and documented in the ETO Q assessment. Manufacturing-specific requirements results from the ETO specifications, the applicable ETO standards, this manual and the agreed contract.

7.2 Purchasing Assessment

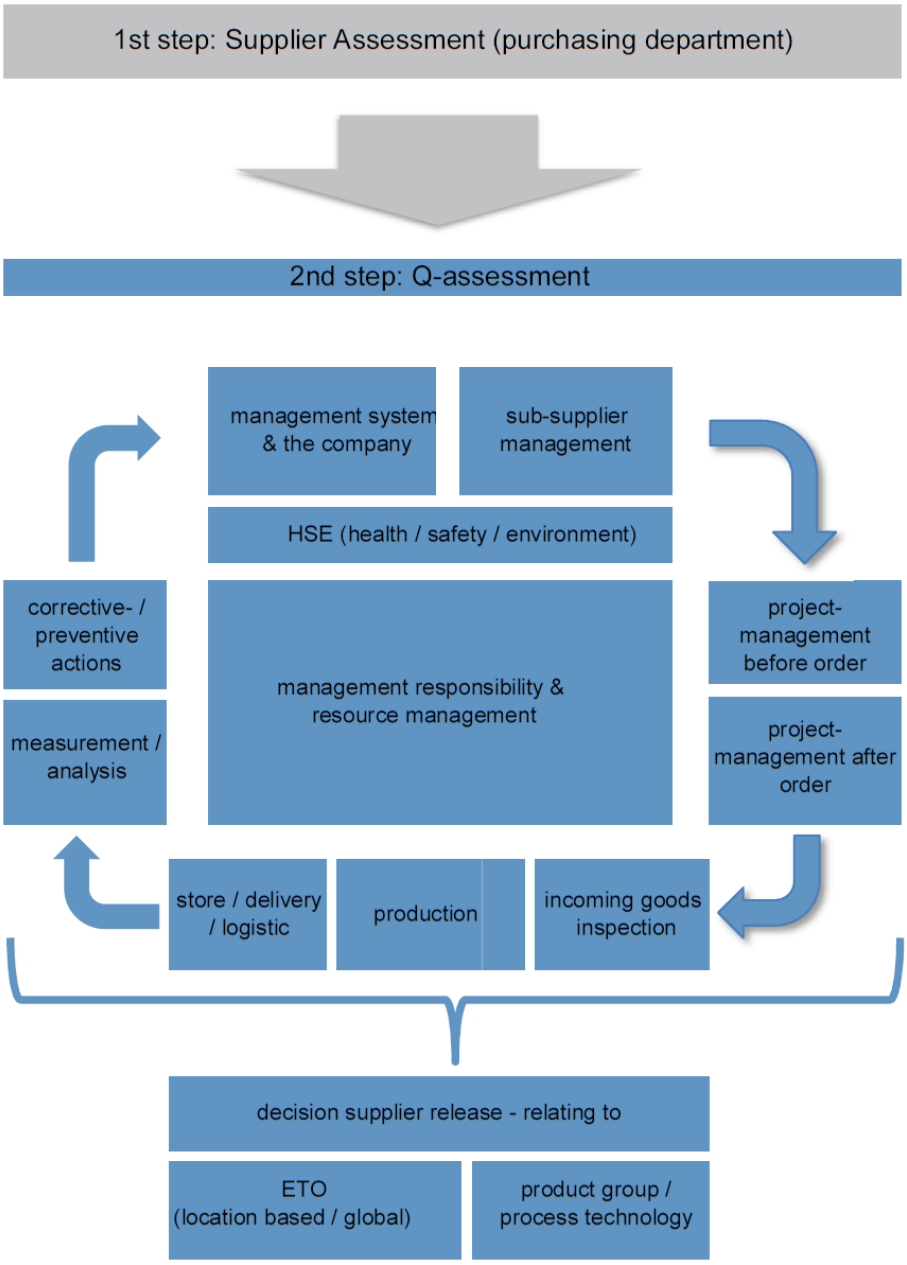
In order to be approved as a new supplier at ETO, the supplier must first achieve a positive result in the purchasing assessment. The purchasing assessment is always carried out by the purchaser at the production location of the supplier. The objective of the purchasing assessment is to identify, at an early stage, whether the supplier meets the requirements in the focal areas that are important for ETO. The intensity of target fulfillment is reflected in the final audit assessment, which, in addition to the classic supplier rating, differentiates further detail in local and global supplier release in the procurement regions.

7.3 Q Assessment

The purpose of the ETO Q assessment is to evaluate possible future suppliers for production material with regard to their quality capability and their know-how for solving the given delivery taks (goods or services). The goal is to check, whether the supplier can be meaningfully integrated into the value chain of the ETO GRUPPE and which topics have to be considered, in particular with regard to this interface.

The Q assessment is based on the requirements of ISO 9001, ISO 14001 and IATF 16949 as well as ISO 50001. Furthermore, it takes into account all requirements of VDA 6.3 P1 (potential analysis supplier) as well as ETO specific requirements and customer specific supplements (for example VW Formula Q Capability Process Audit, GM requirements and others). The Q assessment also takes country-specific requirements into account. The Q assessment is conducted worldwide in the same form based on the same question catalog. A German template or an English template with the same content is used. The Q assessment is a living document that is updated, detailed and adapted to change circumstances as required.

In addition, manufacturing or commodity-specific requirements are included to enable a standardized assessment of suppliers and reflect the knowledge of the Commodity Manager Quality/specialist.



The Q assessment is performed by auditors, according to the ETO auditor matrix. The ETO Q assessment fulfills two functions. It has the purpose of assessing possible future suppliers of production material, with regard to their quality capability and their know-how for solving the set delivery task (goods or services) and to highlight subject areas that require special attention in a cooperation.

In addition, the Q assessment represents a living document that accompanies the supplier throughout the entire duration of the collaboration. Changes are taken into account and re-evaluated as required or for a given reason.

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

7.4 Customer-Specific Requirements

ETO has made a commitment to several customers in the automotive industry to pass on specific requirements to the supply chain and to consider compliance with these requirements as part of the supplier selection.

The customer-specific requirements are queried as part of the assessments or on an as needed basis by the Purchasing and Supplier Quality departments. As an example, the requirements of the VW Group regarding the Product Safety Officer are mentioned here (see Appendix 2).

8 Supplier Release

Purchasing and Q assessment form a set of documents that are required for the release of new suppliers. The prerequisite for release as an ETO supplier for production material is a positive result of the two equivalent assessments. This is followed by the contractual reconciliations.

Specifically:

Basic condition 1: Successfully completed purchasing assessment (result ≥ 80 %)

Basic condition 2: Successfully completed quality assessment (result ≥ 80 %)

- With a result between 70 % and 80 % in the quality assessment, a conditional release for corresponding manufacturing technologies or processes can be granted – by the responsible SQE
- In order to approve a supplier, the release of the SQE responsible for the commodity group and the Global Supplier Quality Manager is also required

Evaluation / overall estimation
In the standard, evidence of fulfillment of requirements is not explicitly noted in the Q-Assessment. In the case of deviations or deficits, specific information can be helpful. (Documentation of evidence is analogous to VDA 6.3:2016)
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% Before the nomination, an assessment of the identified deficits must be carried out and documented in the bid comparison.
• decision: no approval The supplier is classified as red (= no approval) if the following criteria are met:	or	Total score <70% no actions defined for criteria <50%
(exceptions have to be substantiated and adjusted by the purchasing	or	there are no-go criteria

The release of the supplier via the Q-assessment can include regional or manufacturing technological restrictions. The goal should always be a global release. Restrictions generally lead to a strong devaluation in the rating, which often leads to an exclusion. On the other hand, individual local releases (for example, for suppliers from customer specifications or small quantities, etc.) can be useful.

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 ### delete or add comment regarding no-go ###

supplier acceptable for	global	Europe	Asia Pacific	US / NAFTA
		-	-	-

☐ in global for the process technologies: ### delete or add comment ###
☐ restricted for the process technologies: ### delete or add comment ###

customer specific criteria
☐ *VAG-Group (VW, Audi, etc.)* ☐ *GM* ☐ *Knorr Bremse*
☐ *DAIMLER* ☐ *BMW* ☐ *ZF*
☐ *Volvo*

comments ### comments regarding restrictions or issues related to the decission for release or non release ###

date / lead SQE date / Group Supplier Quality Manager

In addition, no-go criteria lead to restrictions or suspensions (for example, a non-certified management system).

These criteria take into account normative and ETO specific requirements.

9 Specifications

ETO requirements for purchased parts and services in the context of subcontracting and third-parts machining are clearly defined by ETO specifications. Process-safe compliance with all characteristics defined in this process is of elementary importance for the function and safety of our products. For illustration purposes and to support tool development, ETO can provide 3D models. However, the 2D drawing is always binding. If necessary, ETO drawings refer to further specifications and ETO standards.

The feasibility of the ETO specification is checked and confirmed by the supplier before the drawing is released and during sampling. ETO subsequently expects comprehensive compliance with the specified requirements as well as with the sampled and presented delivery conditions (for example, with regard to technical cleanliness, surface finishes, etc.).

9.1 Transmission of the ETO Specification to the Supplier

During product development, specification concepts (ETO drawing marked “in work”) are exchanged and coordinated between the responsible designer and the supplier. As soon as the feasibility of the component is confirmed by the supplier, the specification can be released.

The sending of released specifications (new or modified drawings) takes place after appropriate nomination and exclusively through ETO purchasing and via a material-specific purchase order.

Depending on the product and scope of services this purchase order may include the following items:

- Order for sampling
- Measured initial samples
- Unmeasured samples
- Tool order
- Ordering of testing and assembly devices/automations and has as an appendix the following documents
- Specification
- PPF check list and prepared sampling documents

9.2 ETO Standards with Reference to ETO Specifications

- ETO standards relevant for suppliers are made available in current and valid versions on the ETO portal (see Appendix 1)
- Within the scope of a new order or within the scope of change samples, the supplier has to inform himself independently about corresponding updates and extended requirements

9.3 Parts Life Cycle

The supplier shall keep a parts history in a suitable system and present it on request, in which at least the following requirements are shown:

- ETO material number/DIS number
- Description of the change considering the relevance for FMEA and production control plan
- Release date (internal/customer)
- Date of first delivery to the customer

10 Supplier Project Management (SPM)

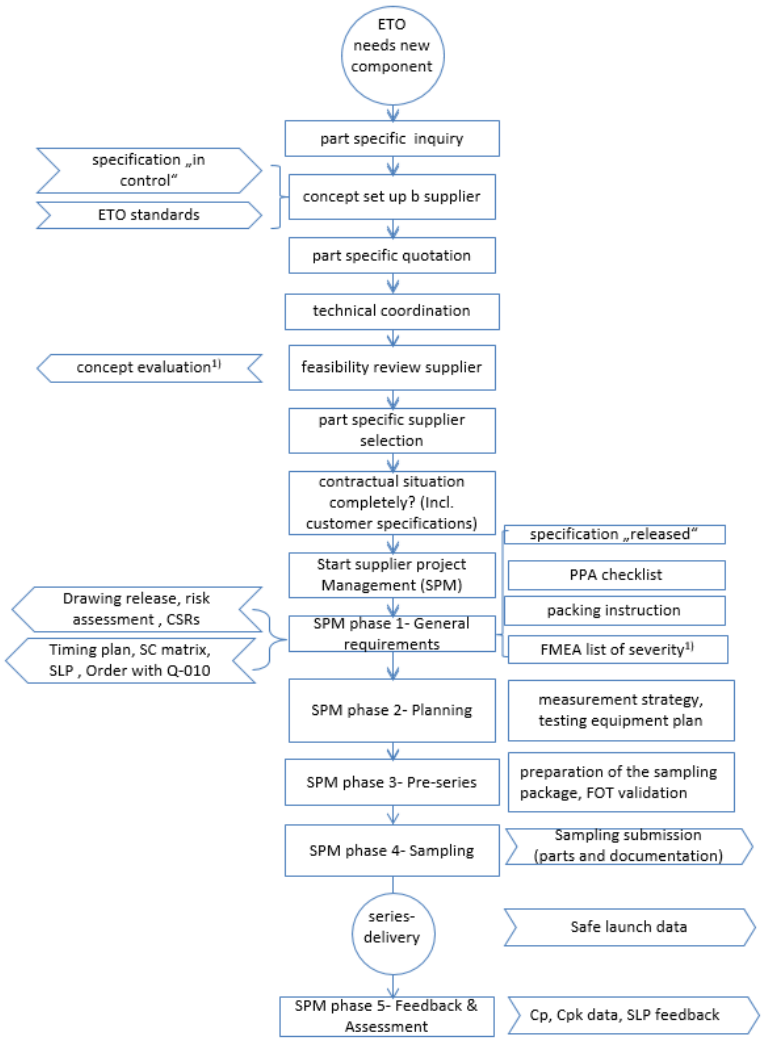
Based on APQP (AIAG methodology) and VDA product development (maturity assurance for new parts), SPM is an ETO proprietary methodology structured in 5 phases and has the goal of successfully validating new products and processes and driving continuous improvement.

In the development phase of a product, ETO agrees on the scope of SPM, the degree of collaboration with the supplier, and appropriate quality planning and control methods, depending on the part specific risk classification.

Through the application of appropriate quality planning and quality methods, ETO seeks to:

- Meet quality management standards, customer needs, requirements and expectations
- Ensure that quality and design obstacles are identified at the earliest stages of the production process
- Simplify communication and cooperation between the departments involved within ETO (development, production, purchasing) and suppliers
- Anticipate errors and avoid them in series production
- Improve the sampling release process through effective communication between parties

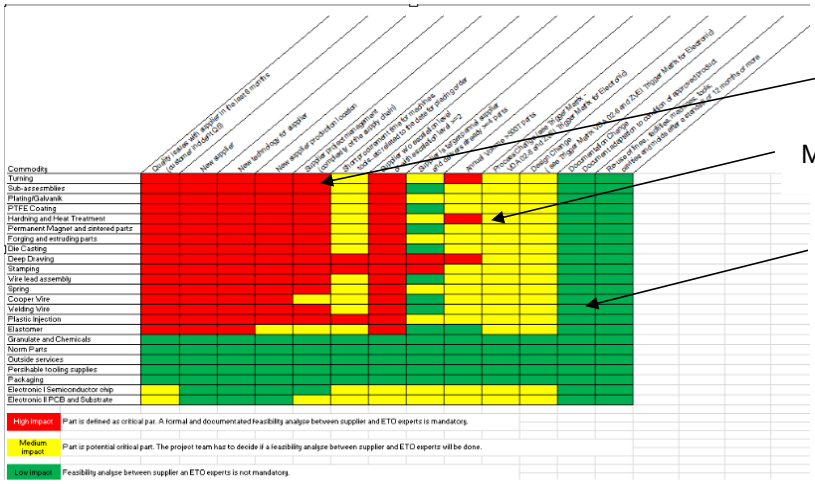
- Avoid common problems such as wasted time and resources, rejected sampling, SOP delays and so on



10.1 ETO Risk Assessment

At the beginning of a project, all products to be delivered are classified into impact levels, depending on the complexity of the part, similarity with other parts, type of drawing characteristics, and assessment of the supplier. This classification determines the level of cooperation between ETO and its supplier. The overall risk of the part (supplier and product risk) shall be considered in determining the SPM scope in terms of deliverables and the frequency of periodic project reviews with the supplier.

For parts rated impact level 1 or 2, a high volume of SPM deliverables is required. This rating must be made known to the supplier through the Q-010-PPAP-Supplier Documents_PPF-Lieferantendokumente included in the purchase order.



High volume of SPM services

Medium volume of SPM services

SPM minimum requirements to be met

SPM minimum requirements			
SPM deliverables	**Part Assessment**		
	Impact level 1	**Impact level 2**	**Impact level 3**
Drawing release	X	X	X
Technical Discussion	X	X	
Feasibility Commitment	X	X	X
RASIC internal responsibility matrix	X	X	*
SPM communication and escalation matrix	X	X	*
Master project plan	X	X	*
Product data sheet (E-035)	X	X	*
Supplier status	X	*	*
Bid comparison	X	X	na
Packaging instruction	X	*	*
Measurement Strategy	X	*	*
Request severities for SCs	X	X	na
SCs Matrix and SLP	X	X	*
Sampling requirements agreement (Q-010)	X	X	X
Software requirements agreement (PPA-CL 6.5)	X	X	X
Sub-supplier management (Q-087)	X	*	*
Purchase order	X	*	*
Supplier project plan	X	X	X
Project or change number	X	X	X
Offer- ETO counter measurements	X	X	X
Tool design	X	*	*
Automation design	X	*	*
Prototyping control plan and flowchart	X	*	*
Corrections loop (1..3)	X	X	X
Packaging instruction (Where applicable?)	X	X	X
SPM Sampling due date	X	X	X
PFMEA Review	X	X	*
Pre-series CP und Flowchart	X	*	*
Request Cm, Cmk	X	X	*
Request Pp,Ppk	X	X	X
FOT Parts Validation	X	X	*
Production line layout	X	*	*
Corrections loop - reviews	X	X	*
Sampling	X	X	X
Software sampling	X	X	X
Project Team Feedback	X	X	*
Long-term process capabilities	X	*	*
Layout Inspection (Requalification)	X	X	X
Quality issues	X	X	X
Customer requirements, requalification	X	X	*
Safe Launch Plan (SLP)	X	*	*
Master Sample (where applicable)	X	X	*
Closing SPM	X	X	*
X= task to be executed, documentation to be submitted to ETO *= retain at manufacturing location and make available to the customer if requested na = not applicable			

10.2 SPM Phases

The ETO Supplier Project Management System consists of 5 Phases; “General”, “Planning“, “Pre-series“ and “Feedback and Assessment“. The SPM deliverables area is assigned to either the ETO or the supplier, as specified in the RASIC.

10.2.1 General Phase

In the general phase, ETO decides product planning results and customer specific requirements based on the impact level of the part. Drawing release, feasibility commitment, measurement strategy, special characteristics matrix and so on are important requirements of the first phase of SPM. In this phase, supply chain responsibilites are defined and issues, such as document format, project language, communication channel and facilitation are agreed upon, to facilitate collaboration between ETO and supplier.

A key requirement of the SPM phase is the Feasibility Commitment. The supplier will promptly review the product requirements of ETO (in the form of design drawings, specifications, data sheets, or other specifications) for clarity, completeness, and feasibility. By providing a positive feasibility commitment, the supplier will confirm that all requiremets are understood and will be implemented in accordance with the drawings and specifications.

If this is not possible, before the order is placed the supplier shall inform ETO to reach an agreement.

Supplier Project Management Matrix
RASIC Internal Matrix

RASIC" is an acrongm which stands for "Responsible", "Approving", "Supporting", "Informed" and "Consulted".

Task	ETO	ETO
Drawing release and risk assessment		I
Creation of R2 notification		I
Overall risk assessment (product and supplier risk)		I
SPM position - creation and handling		S
Sampling position - creation and handling	I	S
Technical discussion	S	I
Feasibility commitment	A	I
RASIC- internal responsibility matrix	I	R
SPM communications and escalation matrix	I	R
Master project plan	I	I
Product Data Sheet (E-035)	I	
Supplier status		I
Bid comparison		I
Packaging instruction		I
Measurement strategy	A	I
Request severities for SCs		I
SCs Matrix and SLP	R	A
Sampling requirements agreement (Q-010)	S	I
Software requir. agreement (PPA-CL 6.5)	S	I
Responsibility-Matrix Supplier (Q-007)	A	I
Purchase order	I	I
Supplier project plan	R	I
Project or change number	I	I

A prerequisite for nomination as a supplier for a specific product is the submission of a binding feasibility commitment in accordance with the form that can be downloaded from the ETO Internet portal www.etogruppe.com .

(For information on the download area on the ETO Internet portal, see Appendix 1).

If the supplier assesses a product as not feasible, according to the requirements of ETO, the supplier will inform ETO as soon as possible and reach an agreement on what actions are to be taken in order to be able to submit a positive feasibility commitment.

Any restrictions and/or change requests regarding the specification require prior consultation with the responsible ETO GRUPPE contact person.

- **SC's Matrix and Safe Launch Plan** represent an agreement between the suppliers and ETO regarding control and inspection activities during the pre-production phase and after the SOP phase. The Safe Launch Plan includes additional activities and additional measurements for special characteristics, process parameters, and possible defects that may occur in the process and are different from the serial inspection of the part. Additional activities could be: increased number of inspection steps; 100 % inspection (for special/critical characteristics), more precise measurement instruments, tightend sampling plans, limits, tightened inspection criteria, and so on. For components classified by ETO as parts with impact level 1 and 2, a Safe Launch Plan must be implemented for a specific time period or number of shipments. The Safe Launch data should include inspection dates, shipment lot numbers, production dates, and so on, and the results shall be submitted to ETO in consultation with the responsible CMQ/SQE.

- **Q-010 Agreement on sampling requirements** –

  An agreement on the scope, extent and schedule of the PPA procedure has to be made between ETO and the supplier. Q-010-PPAP-Supplier Documents PPF-Lieferantendokumente is part of the first SPM phase and defines the sampling requirements based on VDA Volume 2, Issue 6 or AIAG PPAP Manuel (see chapter 7.8). This document is part of Phase 4 Sampling and serves as the confirmation of the supplier that the ETO requirements/specifications have been understood. Various forms required for additional agreements, such as the SC Matrix, Safe Launch Plan and measurement strategy, are included in Q-010-PPAP-Supplier Documents PPF-Lieferantendokumente and must be used for the sampling submission unless otherwise agreed upon with the responsible CMQ.

- **Project plan of the supplier:**

  The supplier must prepare a schedule and documents should be submitted in electronic form (for example, PDF). Each document of the SPM should be submitted as a single file so that, for example, subsequent samples, follow-on tools, or adjustments to the drawings are available in an inheritable form. The project schedule should be based on ETO project milestones, and ETO should be notified of any deviations from the original schedule. An escalation process must be initiated if the project goal is compromised.

An action plan with a clear schedule and responsibilities must be submitted by the supplier.

- **Measurement strategy and assessment:** The measurement strategy and assessment represent an agreement between ETO and the supplier regarding the measurement of the drawing characteristics, the use of a suitable measurement instrument and the correct measurement and assessment method. The agreement is for serial production and the supplier is not allowed to use a different measurement instrument, strategy or assessment from the one specified in the original agreement. This agreement must be made during SPM phase 1 of the project and must be included in the sampling package.

10.2.2 Design Phase 2

Based on its SPM deliveries, the supplier confirms that they can meet all design requirements and specifications of the customer.

Supplier Project Management
RASIC - SPM responsibility matrix

RASIC" is an acronym which stands for "Responsible", "Approving", "Supporting", "Informed" and "Consulted".

Task	Supplier	ETO
Offer - ETO counter measurements		R
Tool design review	S	R
Automation design review	S	R
Prototyping control plan and flowchart	R	I
Corrections loop (1..3)	R	I
Packaging instruction (for pre-series deliveries)	R	I
PFMEA review	C	R

- **Prototyping control plan and flowchart:** Upon request of the Commodity Manager Quality, documents applicable to the development phase of the product shall be submitted to ETO.
- **Correction loops:** The supplier is responsible for making corrections at the agreed time and informing ETO, if there are any delays from the original project schedule. Dimensional reports will be submitted to the responsible CMQ/SQE and discussed during regular reviews. Further actions and corrections to the tools will be agreed with the responsible CMQ.
- **Packing instruction:** For pre-series deliveries, the supplier may deliver the parts in packaging other than the series packaging agreed in advance with the responsible CMQ. For series production, the supplier must use the packaging agreed in the PPAP stage and not the one from the pre-series stage.

10.2.3 Pre-series Phase 3

This phase represents the pre-sampling phase. The supplier prepares the process and documents for customer validation. ETO checks important points like PFMEA, sampling parts and readiness for documentation, capabilities of the machines and processes together with the supplier.

Supplier Project Management
RASIC - SPM responsibility matrix

RASIC" is an acronym which stands for "Responsible", "Approving", "Supporting", "Informed" and "Consulted".

Task	Supplier	ETO
Pre-series CP und Flowchart	R	I
Request Cm, Cmk	R	I
Request Pp,Ppk	R	I
FOT parts validation	R	I
Production line layout	R	I
Corrections loop - review	I	R
Submittal of sampling documentation and parts (VDA or AIAG)	R	C

6.6 SPM Phase 3 Ergebnisse und RASIC

- **Pre-series CP and flow chart:** If deliveries are required prior to SOP, the supplier shall provide a process flow chart (depicting the operations of the pre-series production process) and a control plan (CP) for the pre-series phase of production, which shall outline the controls and checks along the pre-series production process. In this phase, the supplier may use different tools and machines from those used in serial production.
- **Machine and process capabilities:** For special characteristics, the supplier shall perform a process and machine capability survey and continuously ensure, document and verify the machine and process capabilites. If the supplier is unable to demonstrate process and machine capability, 100 % verification of these dimensions is required.
- **Validation of BAV parts:** Suppliers who have design responsibility for their parts with included functions must perform the validation on their part and submit the results to ETO.
- **Layout of the production line:** Upon request, the supplier will provide the layout of the production line.
- **Submission of sampling documents and parts (VDA or AIAG): T**he supplier is responsible for the submission of parts and documents based on the agreement reached with the responsible CMQ.

10.2.4 Sampling – Phase 4

Based on the agreement with the SQE, the supplier shall provide all documents certifying that the manufactured product conforms to the drawings, specifications and capacity requirements. Delays shall be communicated and justified to ETO Purchasing in writing and in a timely manner. Deviations of any kind shall require a completed request for deviation by the supplier (ETO Form Q-011-Deviation Request Supplier_Antrag auf Sonderfreigabe Lieferant). A separate sampling set shall be prepared for each ETO location. Reference may be made to permits issued by other ETO locations. The trigger matrix according to VDA:2020 (Appendix 2) shall be carefully considered by the supplier. For example in case of reuse of tools, change of subcontractors and so on.

10.2.5 Expectations of ETO

The sampling requirements are not intended to discuss deviations. Measurement strategy and dimensional deviations are to be coordinated in advance with the respective ETO GRUPPE location. Delays are to be communicated and justified to ETO Purchasing in writing and at an early stage. Deviations of any kind require a completed request for deviation by the supplier (ETO Form Q-011-Deviation Request Supplier Antrag auf Sonderfreigabe Lieferant).

A separate sampling set shall be prepared for each ETO location. Reference may be made to permits issued by other ETO locations. The trigger matrix according to VDA:2020 (Appendix 2) shall be carefully considered by the supplier. For example, in case of reuse of tools, change of subcontractors and so on.

10.2.6 Release Strategies for Products and Processes

An agreement shall be reached between ETO and the supplier on the scope, content and schedule of the PPA process. This agreement shall be made during the SPM phase and shall include details regarding:

- Deadlines and schedules
- Product requirements, customer specific requirements
- Type of products, product scope
- Handling of direct parts
- Measurement methods, tests and instruments
- Special characteristics and process capabilities

- Process validation
- Implementation of the PPA process
- Handling of deviations
- Layout inspection and functional testing
- Claim management

The result of the agreement on the PPA procedure between ETO and supplier must be documented in form Q-010-PPAP-Supplier Documents_PPF-Lieferantendokumente.

10.2.7 General Considerations

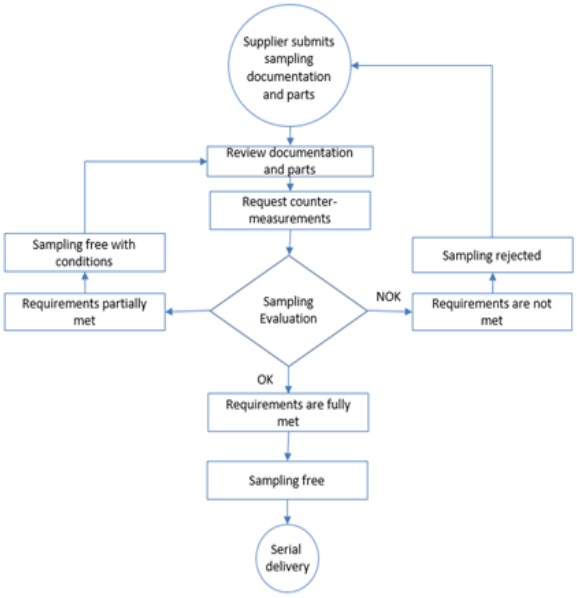
The trigger matrix according to VDA: 2020 (Appendix 2) is the basis for the supplier-related presentation of test reports. Sampling is used to prove that the specified requirements for product and process are completely fulfilled. Only a positive conclusion of the initial sampling leads to a release for series production. A presentation deadline is included in the PPAP checklist. The sampling sets must always be presented to the responsible quality assurance body. Unless otherwise agreed, a sampling set from ETO consists of:

- Complete documentation of sampling
- Six fully calibrated components per cavity
- 300 samples not to be calibrated (for qualification and release tests, reserve samples and cross-checks)

No initial delivery may be made before obtaining written release of the sample. If a series delivery is to be made prior to release, a deviation release approved by the responsible quality representative must be available in good time before the goods are shipped.

Goods that do not have PPAP release in the ETO system upon delivery will be rejected and returned immediately. It is not sufficient to include sampling documents with the first shipment of goods. Incomplete sampling documents and/or sampling documents containing non-conformities will be rejected immediately, unless an agreement on the procedure has been made in advance and/or a written deviation release is available.

As a result, sampling documents must be resubmitted. Permanent specification deviations agreed upon with ETO will result in an adjustment to the ETO drawing and therefore a re-sampling of the change. ETO reserves the right to charge any modification costs to the supplier.



10.2.8 Release of the Production Process

For process release, the supplier provides results on process quality and performance. The aim of process release is to perform a capability study of the entire manufacturing process and thus ensure process capability. Process validation is performed at an appropriate time and agreed upon with the responsible Commodity Manager Quality. For parts internally evaluated by ETO with impact level 1 and 2, the inspection of the production process is performed by the responsible Commodity Manager Quality.

10.2.9 Product Release

Product release is based on the PPA samples and the results of product development and verification (see 6.2.4.2 and 6.2.4.5). PPA samples are taken from the production process under serial conditions and submitted to ETO by the supplier. ETO performs cross-checks of the parts if required and informs the supplier of the results.

10.2.10 Basic Understanding of VDA and AIAG in Relation to the Presentation of Test Reports

The presentation of an inspection report (PPA form - cover sheet of VDA:2020, or part submission authorization - PSW in PPAP 4th Edition) is the confirmation of a successful and on-time completion of the project.

Thus, the est-report is the summary of the confirmations and documents of a sample inspection.

According to both methods, submission of this report means explicit confirmation that all requirements of the relevant standard and/or sampling scope agreed with the customer have been met.

Excerpt from the PSW form on 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 sheet of VDA 2:2020:

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.

Release of sampling does not imply release or legitimacy of any deviations.

10.3 Partial Sampling

10.3.1 Technical Release/Delivery Release of the Separation

As a rule, the sample releases for the suppliers are approved by ETO before the release process is completed at the ETO customer.

In the context of, for example, downstream tools, process duplications, et cetera, it is possible that the supplier already has orders for the corresponding material.

To avoid unwanted mixing of components, there is a separation between a technical release (release of sampling) and the delivery release. This is indicated on the sampling cover sheet.

The delivery release for components from the released process or tool must be explicitly considered and must be coordinated with the responsible Material Planner.

10.3.2 Delivery of Sampling Documents

Sampling documents and samples shall be delivered to the ordering ETO location in suitable packaging. Mixed deliveries with other orders shall be categorically avoided.

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

10.3.3 Process Sampling for Subcontractors

All subcontractor processes and/or individual parts must be approved by the supplier through an appropriate sampling procedure. A copy of the approved documents (PPA or PPF) shall be attached to the sampling record for ETO in current, traceable and approved form.

The generating facility and the permit reference must be clearly identifiable.

ETO requirements shall be communicated and adhered to throughout the supply chain, as applicable.

Subcontractor / purchased parts processes shall be identified in the flow chart. Incoming goods inspection must be evident from the production control plan.

10.3.4 Costs of Resampling

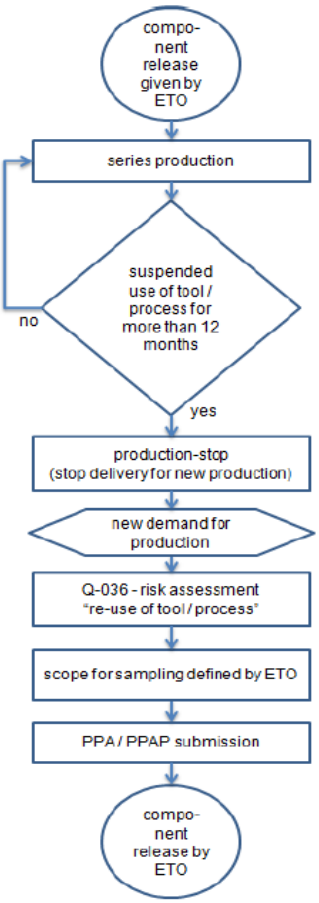
ETO reserves the right to pass on any costs arising from supplier-related resampling to the supplier.

10.3.5 Re-use of Tools and Processes after twelve Months or more

It is the responsibility of the supplier to monitor the downtime in his production. After twelve months or more of production downtime, tools and/or processes are to be blocked (requirement according to VDA Volume 2, Trigger Matrix, respectively PPAP 4 / 3.1 Section 6).

The procedure is based on the following flow chart.

The ETO form Q-036- Risk Assessment in Case of Re-Use of Tools and Process_Risikobewertung bei Wiederbenutzung von Werkzeugen und Prozessen is to be used for the notification of the issue. This form can be accessed via the download section of the ETO website (see Appendix 1).



6.2.4.2 Re-use of tools and processes after twelve months or more

10.3.6 Continuous Improvement Process (CIP)

The supplier shall define a continuous improvement process in terms of IATF 16949, chapter 10.3.1, the objective of which is to reduce the scrap and rework rate.

10.3.7 Mandatory Sampling Results

- **Cover sheet for PPA report/PPA assessment:** This document summarizes the entire sampling documentation. By signing the cover sheet, the supplier confirms that he is able to manufacture the part according to all customer requirements. A cover sheet contains all important information about the part and the process:
  - Reason for submission (design change, process change, relocation and so on)
  - The scope of documents submitted to the customer (depending on the sampling method VDA/AIAG)
  - Declaration of conformity of parts with customer requirements
  - Contact information for suppliers
  - An area for customer decision

  After a thorough review of the sampling documents, ETO notifies the supplier of the decision. A cover sheet approved by ETO indicates that the supplier may start serial production of the part.
- **Self-assessment for product, production process and, if applicable, software:** The supplier confirms the degree of compliance with the product and process requirements. The forms can be found in the Q-010-PPAP-Supplier Documents PPF-Lieferantendokumente and are sent to the supplier when the order is placed
- **ETO PPA Checklist:** The PPA Checklist is part of the sampling documents and documents the agreement on the scope of sampling activities and is to be considered by the supplier when submitting the package. Included in Q-010-PPAP-Supplier Documents PPF-Lieferantendokumente are various forms to be used for exchanging component and process information and confirming compliance with ETO requirements, unless otherwise agreed with the responsible CMQ

10.3.8 Product Development Results

- **Technical specification:** This includes, for example, customer requirements and drawings to be included in the sampling package. Sampling is prepared based on the last condition of the part.
- **Approved design changes:** If the sampling submission is required due to a partial product change, additional documents, such as ETO approval, must be included in the sampling package.

- **Design and construction approvals:** Additional documents for design and construction approvals not covered by 1.1. This requirement applies to parts where the supplier is responsible for the design of the part.
- **Material data via IMDS:** Within the scope of sampling, taking into account ETN015 (information on the download area of the ETO Internet portal - see Appendix 1), the supplier shall provide a valid and approved IMDS data (International Material Data System) record. For components that are also supplied to ETO locations in China, an entry in the CAMDS database (Chinese Automotive Material Data System) is required in addition to the entry in the IMDS material database. The required account and login file are provided by ETO.
- **Design FMEA:** FMEA (Failure Mode and Effects Analysis) is a reliability analysis tool to detect and eliminate potential failures in the system, design and production processes. Suppliers who are responsible for the design of their part must prepare a product (design) FMEA. Based on the AIAG & VDA FMEA manual, the FMEA tool is used for defect prevention and should therefore be performed preventively. The FMEA must consider all product phases, from development to delivery. Internal logistics must be examined separately.

10.3.9 Results of the Development of the Production Process

- **Process flow diagram:** The supplier must provide a flow diagram that outlines the manufacturing process of the part and includes information about the receiving area, production steps, rework, shipping, and so on. The process steps identified in the process flow must match the steps in the control plan and provide a basis for assessing process defects.
- **Process FMEA:** A process FMEA (PFMEA) is to be created for all process steps. Special characteristics and results from the product FMEA (design FMEA) shall be taken into account and transferred to the supplier via the special characteristics´ matrix. Characteristics with a high degree of severity require special care when assessing the process´s risk. For parts assessed with impact level 1 and 2, ETO shall perform an appropriate internal review.
- **Control plan:** The control plan is an important result in the PFMEA.

  This lists:

  - All products special characteristics
  - Test methods and measuring instruments
  - Frequency of measurements and sample size
  - Inspection methods and response plans
  - Layout inspection and...
  - Et cetera

10.3.10 Results of Product Inspection

- **Geometric dimensions**: Measurement reports shall be referenced to the samples submitted. The test reports shall clearly indicate the reference to the identified samples. The procedure for discrepancies identified during the preparation of the sampling documents shall be coordinated with ETO prior to submission of the sample set. The supplier shall be responsible for all verification testing required for submission of the sample set. Reference to ETO measurements or verification testing by ETO laboratories is not acceptable.
- **Material (strength, physical properties, and so forth):** Material certificates shall be attached to the sample sets. For all raw materials and semi-finished products used in serial production, material certificates shall be archived by the supplier and submitted to ETO upon request within 24 hours, as specified in EN10204:2005, Section 3.1. Material certificates should not be older than 1 year. Exclusively for the requirements from the technical specifications agreed with the customer, the supplier has to provide evidence in the sampling documentation, if applicable:
  - Function
  - Haptics
  - Acoustics
  - Odor
- **Exterior appearance:** Applies only to components that influence appearance - see VDA Volume 16 “Decorative Surfaces of Accessory and Functional Parts in the Exterior and Interior of Motor Vehicles”. An AAR (Appearance Approval Report) is to be used in this area. Appearance requirements may include information on color, textures and so on.
- **Surface Requirements Technical surfaces:** For surface-coated components, complete systems consisting of substrate (if required) and surface coating are approved according to customer requirements (for example, ensuring adhesion, resistance, roughness, freedom from grease, etc. according to customer drawings).
- **AIAG CQIs - Special Process Assessments**: According to AIAG APQP and PPAP requirements, suppliers or subcontractors must perform a self-assessment for their special processes to meet the expectations of their customers and reduce scrap, deviations and claims in the production phase of the product. Customers require the application of best practices for different types of processes, as shown below:
  - CQI-7 Guide to the implementation of ISO/TS 16949
  - CQI-8 Multi-stage process audit
  - CQI-9 Special process: Assessment of the heat treatment system
  - CQI-11 Special process: Assessment of the coating system
  - CQI-12 Special process: Assessment of the coating system

- CQI-15 Special process: Assessment of the welding system
- CQI-17 Special process: Assessment of the brazing system
- CQI-19 Sub-level supplier management process guide
- CQI-23 Special process: Casting system assessment
- CQI-27 Special process: Casting system assessment
- CQI-14 Guide for Warranty Management in the Automotive Industry
- CQI-20 Guide for practitioners of effective problem solving
- CQI-21 Guide to effective problem solving
- CQI-22 Guide to the cost of defective quality
- CQI-26 Short-term supplement

If indicated on form Q-010-PPAP-Supplier Documents PPF-Lieferantendokumente, suppliers must complete and perform a self-assessment. The self-assessment cover sheet must be submitted with the sampling package.

- **Technical cleanliness:** This test specification is to be used for determining the technical cleanliness of products, assemblies and parts if the cleanliness is specified in the drawings and order documents. Technical cleanliness shall be demonstrated no later than the time the part is sampled. Proof of this specification is also a criteria for granting approval.

  Throughout the process, it is the supplier's responsibility to monitor and, if necessary, verify compliance with this specification by using the appropriate documents:

  - ETN005-Testing of technical cleanliness
  - VDA 19: Testing of technical cleanliness - Particulate contamination on functionally relevant automotive components
  - ISO 16232 1-10: Road vehicles - Cleanliness of fluid circuit components - Parts 1 to 10.

- **Reliability:** Reliability indicators, for example service life, overload, et cetera, see VDA Volume 3 Part 02 “Reliability assurance of automotive manufacturers and suppliers”
- **Resistance to electrostatic discharge (ESD)**
- **Electrical safety / high voltage safety**
- **Electromagnetic compatibility (EMC)**

10.3.11 Results of the Validation of the Production Process

- **Assurance of special characteristics:** A special characteristic is a product characteristic or manufacturing process parameter that may affect the safety or regulatory compliance, fit, function, performance or further processing of a product. Particular attention is paid to critical characteristics that affect product safety or have safety-related consequences, the failure or defect of which may pose an immediate risk to life and limb. For these types of characteristics, the supplier must conduct a machine and process capability survey and continuously ensure that they are controlled. If the supplier is unable to demonstrate the capability of their machines and processes, a 100% inspection of these parts must be performed.

  Applicable documents:

  - ETN002 - Special and Critical Characteristics
  - ETN012 - Machine and process capability
  - ETN021 - Analysis of measuring systems
  - VDA - Volume 4

- **Laboratory qualification:** Suppliers who outsource their measurement procedures must ensure that the external, commercial or independent testing laboratories are accredited to either ISO/IEC 17025 or A2LA. The accreditation certificate must be included with the sampling package.

- **Samples including identification** (e.g. identification of the series, production lot, etc.): Allows conclusions to be drawn about the documentation accompanying the production. After consultation with the responsible Commodity Manager Quality, the suppliers submit samples and documentation to ETO for assessment. The number of samples required is determined by the responsible CMQ (see QAA).

- **Master sample**: This part is to be agreed between the two parties and used as a reference in case of quality problems or claims.

- **Production capacity:** For components rated impact level 1 and 2 in an ETO internal assessment, process approval by ETO in the form of a comprehensive VDA 6.3 audit and/or an ETO-specific rate run is a prerequisite for PPA approval.

- **Tools**: The sampling must contain information on how many tools (molds, forming tools), fixtures (for example welding and assembly fixtures) are used to manufacture the respective product or how many cavities a multi-cavity mold (for example injection molding) contains. The relationship between the molds and the production line must be shown. Pictures with the mold labels of the customer must be part of the sampling package.

10.3.12 General Services

- **Evidence of compliance with legal requirements:** For example, environmental, safety, recycling, country-specific certificates, RoHS-2/3, China-RoHS, REACH, UN Global Compact).
- **Supply chain PPA status:** The supplier shall provide ETO with the number, names of subcomponents and their PPA status.
- **Test equipment list for product and production process:** The list of test equipment for the characteristics according to the customer drawing is part of the sampling documents, if required by ETO.
- **Measuring equipment analysis examines product and production process:** The supplier shall perform a measuring system analysis for all test and measuring equipment and be able to provide the results upon request.

  Applicable documents:

  - VDA 5
  - MSA (AIAG)
  - GUM (Guide to the Expression of Uncertainty in Measurement)
  - ETN021 - Measurement System Analysis (These documents can be accessed via the ETO internet portal - see Appendix 1).
- **Parts History:** The supplier must maintain a parts history according to a suitable system and be able to provide it upon request. At a minimum, the parts history should include the following information:

  - ETO material number/DIS-number
  - Description of the change, taking into account its relevance to FMEA and production control plan
  - Release date (internal / customer**)**
  - Date of first delivery to customer
- **Evidence of the suitability of load carriers used including storage:** Sampling documentation must include agreements between supplier and ETO regarding packaging and suitability of means of transport
- **Documentation of agreements for layout testing and functional testing:** Product and/or process requalification as defined by IATF 16949 shall be agreed in advance with ETO as part of the advance quality planning. It shall be described and documented in the applicable quality assurance documents
- Other

10.3.13 Deliverables for Software

- Software (SW) (for example, Appendix 5 "Cover sheet PPA software")
- Definition of the scope of the SW product
- Reference to contractually defined quality requirements
- Documentation of the technical SW specifications (functional and non-functional)
- Implementation of the requirements from 6.3 and 6.4, especially the special requirements
- Documentation of FOSS (free and open source software)
- List of known bugs
- Documentation of development tools
- Documentation of testing tools
- Documentation of the version management
- Documentation of a process assessment (for example Automotive SPICE)

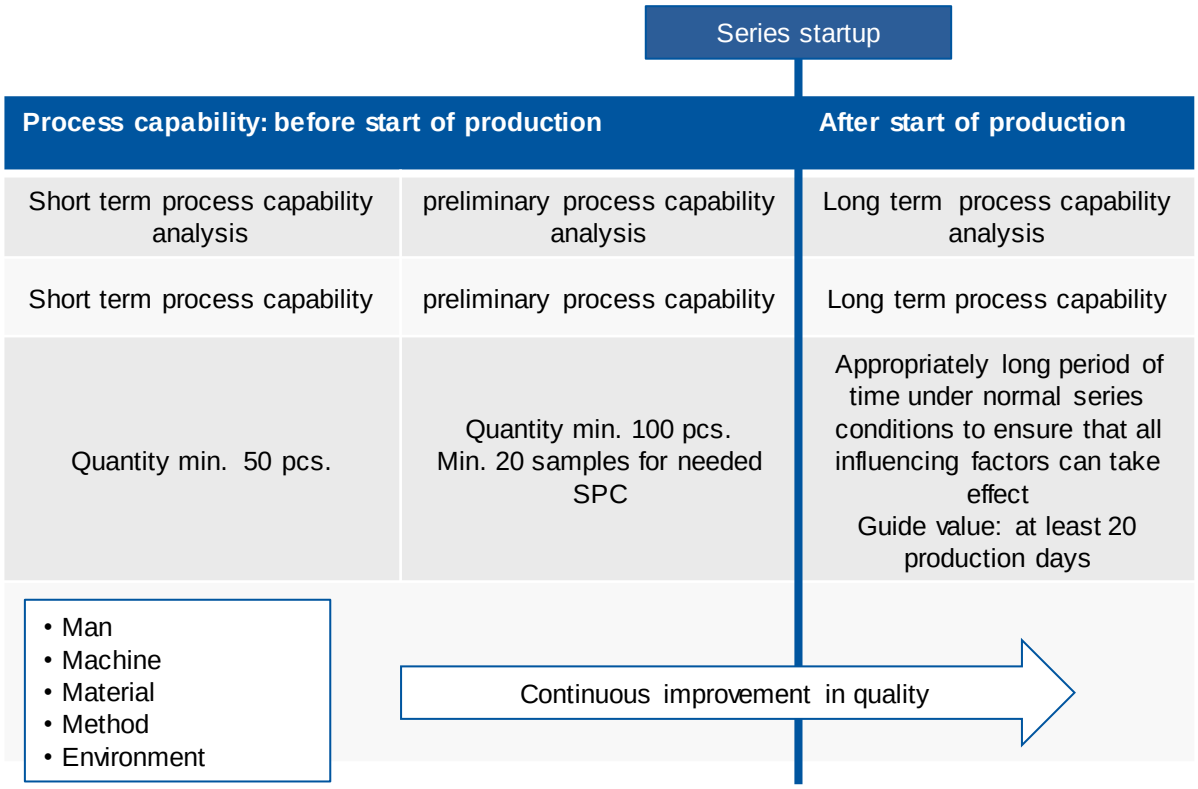
10.3.14 ETO-Specific Requirements

- Feasibility commitment
- Assembly test at ETO
- Validation in ETO system
- Approval of coating systems
- Production location (name and address)
- Parts list
- **Requested audit reports in the supply chain:** For example, product audit, AIAG CQI assessment [Continuous Quality Improvement].... Required CQI standards are mentioned in the customer note.
- **Risk assessment:** If products are affected by deviations, agreements must be made with ETO prior to submission of sampling documents. A joint risk assessment is mandatory if ETO requirements cannot be met.
- **Safe Launch Plan:** Components assessed at impact level 1 and 2 require a safe launch plan. The supplier must submit the safe launch plan, which will be implemented for a specific time period or number of shipments.

10.3.15 Feedback and Assessment Phase 5

This phase is about analyzing the effectiveness of the sampling phase (phase 4 of the SPM). If there are any open issues, they need to be reviewed and acted upon accordingly. In order to complete the SPM and successfully move the product into mass production, the following issues will be considered:

- Project team feedback
- Long-term process capability. The supplier is obliged to provide evidence of the long-term process capability test - according to the specifications (using VDA 4, ETN012 or further customer-specific regulations, if applicable) - and to hand over the sampling documents at a suitable time agreed with ETO in advance.



10.3.16 Requirements for Process Capability

- Layout inspection (requalification)
- Quality issues
- Customer requirements
- Safe Launch Plan (SLP). The safe launch plan exit criteria shall be considered to complete the safe launch plan
- Main sample (if applicable)

10.4 SPM Status

The Commodity Manager Quality will provide assistance to suppliers throughout the SPM process which applies to new parts and various changes such as relocations, supplier changes, alternate suppliers and so on. Suppliers are required to meet all ETO requirements in the specified time and report the activities as required by ETO during the agreed reviews.

Each component and milestone of the SPM process is scored with a traffic light color (RED, YELLOW, GREEN). Status will be provided based on risk to the overall project schedule. The measurement criteria are based on VDA Product.

Creation - Maturity level assurance for new parts and evaluated as shown below:

Status	Description
Green	The measurement criterion is answered YES and no additional activities are required.
Yellow	Measurement criterion is answered with NO and an action is necessary and agreed upon and all project objectives are achieved with the specified actions.
Red	Measurement criterion is answered with NO and at least one project objective cannot be achieved and the action includes an adjustment of the objective.

Depending on the part-specific risk classification, the supplier must report its progress on project development as follows:

Supplier status report based on part-specific risk classification			
Regular Assessment	Impact level 1	Impact level 2	Impact level 3
	Once a week	Every 2 weeks	Once a month

11 Production Process and Product Approval (PPF Procedure/PPAP)

11.1 Scope of Application

This chapter applies to:

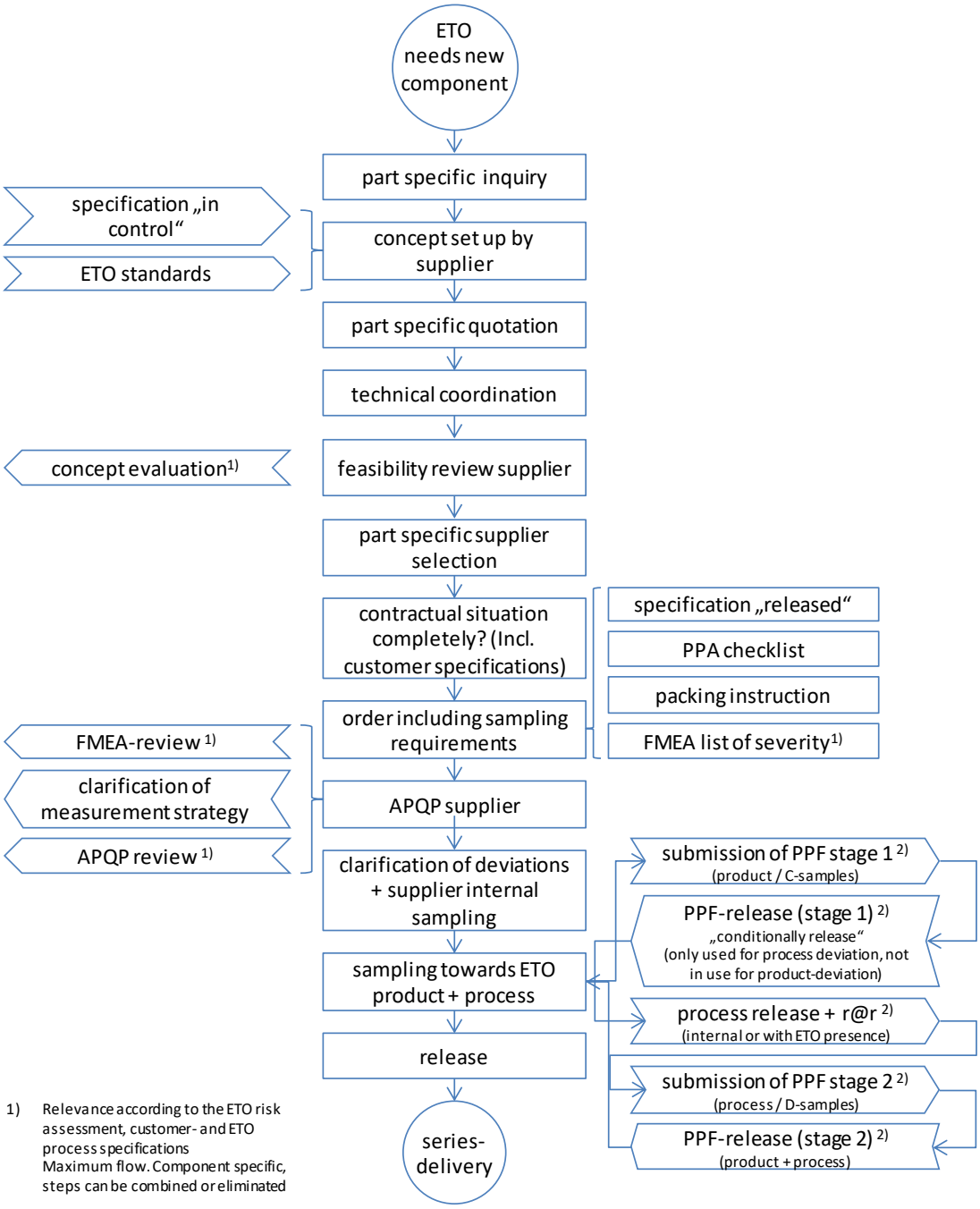
- Series material
- Operating equipment with direct influence on the product, such as flanging bells, forming/welding electrodes, caulking tools, et cetera
- Product-specific packaging, such as blisters with specified cavities

The product and process release documentation in accordance with VDA 2 2020-04 (PPF procedure), or PPAP 4th edition (AIAG) represents the basis for series delivery to the customer.

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

11.2 Release Strategies for Product and Process

Simplified, chronological, schematic representation of ETO processes and interrelationships for product and process release.



11.3 CQI Continuous Quality Improvement

The supplier undertakes to apply the CQI standards of the AIAG in their current form and to review the conformity of its processes with these standards annually, as well as to continuously improve them in the event of deviations. If special processes in the sense of CQI are applied, their implementation in the entire value chain of the supplier is to be ensured by the supplier. The cover sheets of the self-assessments of the supplier are to be sent by the supplier to ETO once a year (this also applies to the cover sheets of the sub-suppliers upon request). For initial sampling, the applicable CQI cover sheets shall be included with the sampling in accordance with the sampling requirements checklist. Guidance or training on CQI is available directly from AIAG at https://www.aiag.org/.

12 Series Process

12.1 Delivery and Incoming Goods Inspection

Within the scope of the legal obligation, ETO inspects incoming deliveries on a random basis and makes a release decision on the basis of this inspection. The supplier is responsible for compliance with all specifications (dimensional, packaging, deadline).
A delayed determination of a dimensional deviation due to time-consuming inspections will be treated like an immediately determined deviation in incoming goods and a claim will be made to the supplier.
Deviations detected by the supplier must be reported in good time and in the event of a special release, the goods must be marked accordingly with the required documents.
If certain values, for example, hardness can no longer be measured on a component (O-ring), proof must be provided with a certificate for the corresponding batch.

12.2 Marking of the Material

12.2.1 General Information

Within the scope of offers, initial order, sampling, in case of changes or due to given reasons, ETO shall be informed about special shipping and storage conditions, e.g. refrigerated transport/storage, frost protection, minimum shelf life et cetera.

Within the scope of the initial order, sampling, in case of changes or due to a given reason, the supplier shall send ETO updated safety data sheets in the respective national language.

12.2.2 Marking of Deliveries in Series Production

Outer packaging does not reach the ETO production process.

Product-related information therefore does not reach the ETO production process unless it is attached to or inserted in the load carrier/container.

All relevant markings must always be attached to each individual load carrier/container.

This concerns

- Batches
- Special releases
- Information on minimum shelf life/expiration dates
- Et cetera

12.3 Process Documentation

ETO expects the supplier to maintain in-process records that ensure traceability of products and the manufacturing process. These records shall be available for assessment at short notice.

The process documentation shall be analyzed during series production and serve as a basis for the review of quality assurance, risk assessment and for process optimization.

12.4 Traceability

12.4.1 Goods Receipt

12.4.2 Batches

Batch identifications of delivered components are used by ETO for the:

- Containment of specific inventories,
- Control of incoming goods inspection,
- Internal production release.

Due to a batch change, it must be possible to clearly distinguish:

- Changes of raw material,
- Processing batches,
- Components of different machines, tools, processes

In the case of deliveries containing several batches, this must be clearly indicated in the delivery documents.

Different batches must be marked accordingly and kept separate.

The use of a container for different batches is only permitted with a corresponding and clear marking of the individual load carriers.

Product load carriers must not contain different batches.

12.5 Maintenance and Servicing

Ensuring the ability to deliver is of essential importance. For this reason, the supplier shall, with regard to preventive and predictive maintenance and servicing, draw up an effective defect prevention and troubleshooting system as well as effective maintenance and servicing plans for all tools, machines and other production-relevant equipment to be used for the manufacturing process of ETO components and provide evidence thereof upon request.

Furthermore, an emergency plan shall be drawn up and documented that ensures the supply of parts in the event of a failure of one or more production facilities.

In the event of production failures, ETO shall be informed immediately.

12.5.1 ETO Property

ETO property shall be clearly identified as such. The inventory marking shall be provided to the supplier by ETO Purchasing. The marking shall be affixed permanently to the ETO property accordingly.

The supplier is obliged to include these goods in his maintenance system to ensure the preservation of the function and serviceability over the entire product life.

12.5.2 Storage of Temporarily Shut Down ETO specific Production Equipment and Tools

ETO property and other production aids, tools, et cetera located at the premises of the supplier shall be stored in such a way, even in phases of production interruption, that restarting is possible at any time or that the operational capability is ensured.

A relocation or scrapping of ETO property is, as with basically all process changes, only permitted with the consent of ETO.

13 Deviation Management

13.1 Self-Indications, Request for Special Release

All characteristics entered by ETO in the specification of a product fulfill a function and are therefore of central importance. Comprehensive compliance with these specifications is therefore important - the ability to fulfill them is confirmed by the supplier in the course of sampling.

Deviations from these product characteristics which have been determined in the course of product and process approval with regard to dimensions, surface quality, optical appearance, et cetera must be avoided by effective quality planning. On the other hand, deviations detected at ETO are consistently objected to.

In exceptional cases (e.g. in the event of an imminent loss of production), the supplier can apply for a special release for deviations detected by himself. The current version of the corresponding form (Q-011-Deviation Request Supplier Antrag auf Sonderfreigabe Lieferant) is available to suppliers in the download area (see Appendix 1).

The condition for this is that the safety, function, durability and load-bearing capacity of the product are not impaired and that the supplier makes his efforts clear to improve the situation. Special releases shall be applied for in writing only. Approvals will be communicated exclusively by the responsible SQE or Q management in written form. These are only approved for a specific part quantity and/or time period.

Verbal or telephone agreements, as well as agreements by other offices have no validity. The separate and marked delivery of the affected products may only take place after the special release has been granted. ETO reserves the right to charge for the expenses incurred in checking the release and for expenses incurred in connection with the specification deviation (such as increased scrap, special trips due to reduced output quantities, etc.). Self-notifications are not incident, respectively PPM relevant.

13.2 Request for Process, Product Change

The basis for notifiable changes is the trigger matrix of VDA 2 6th edition 2020-04, or specific requirements of the ETO customers, provided that these have been communicated to the supplier on a project-specific basis (see also §5 of the ETO Quality Assurance Agreement (QAA)).

The corresponding form (Q-009-Request Product Process Change Supplier Antrag Produkt-, Prozessänderung Lieferant) is available to suppliers in the download area in the current version (see Appendix 1).

Note:

In the next step, this process will be extended by the requirement to submit a statement of the change in the form of a before/after comparison.

13.3 Claim Management

In the context of problem solving, it is important for ETO, together with the supplier, to determine the cause and eliminate it in a sustainable way.

Systematic processing and transparent exchange of information between ETO and its supplier are necessary to identify the problem more quickly and to ensure quality.

The SQP EPP “ETO Problem solving Process” (EPP) provides a guideline for better transparency and processing of quality notifications.

- Bundled information flow from basic data to closure (including transparent cost recording)
- Transparency in terms of report quality
- The processing quality of the EPP is part of the ETO supplier assessment

13.3.1 Initial Information and ETO Expectation

ETO endeavors to inform the supplier immediately of any anomalies and problems. In case of anomalies in the incoming goods inspection (SAP X2 notification), the supplier is informed immediately - parallel to the internal verification and coordination of the further procedure. This initial information (e.g. SAP X2 notification) does not yet represent an incident / parts per million (PPM) relevant claim.

The ETO expectation based on this immediate information is:

- Verification of the anomaly/deviation by the supplier
- On the basis of the underlying specification
- Taking into account the intended use (analogous to ISO 9001:2015 8.2.3.1 b)
- Assessment of stock levels and goods in transit
- Provision of communication channels and contact persons

  Deviations from ETO production or by ETO customers are communicated via an EPP/SQP, if possible in advance by phone or mail.

Based on initial information provided by ETO on:

- Material number
- Supplier
- Batch
- Contact person
- Defect description
- Problem description (5 Why Method)

We expect - regardless of defect - an immediate coordination between the supplier's materials management and ETO on the topics:

- Stocks and ranges in both houses
- Coordination of requirements
- Development of an effective firewall
- Written communication of the results and the further procedure to the ETO Quality Manager within 24 hours

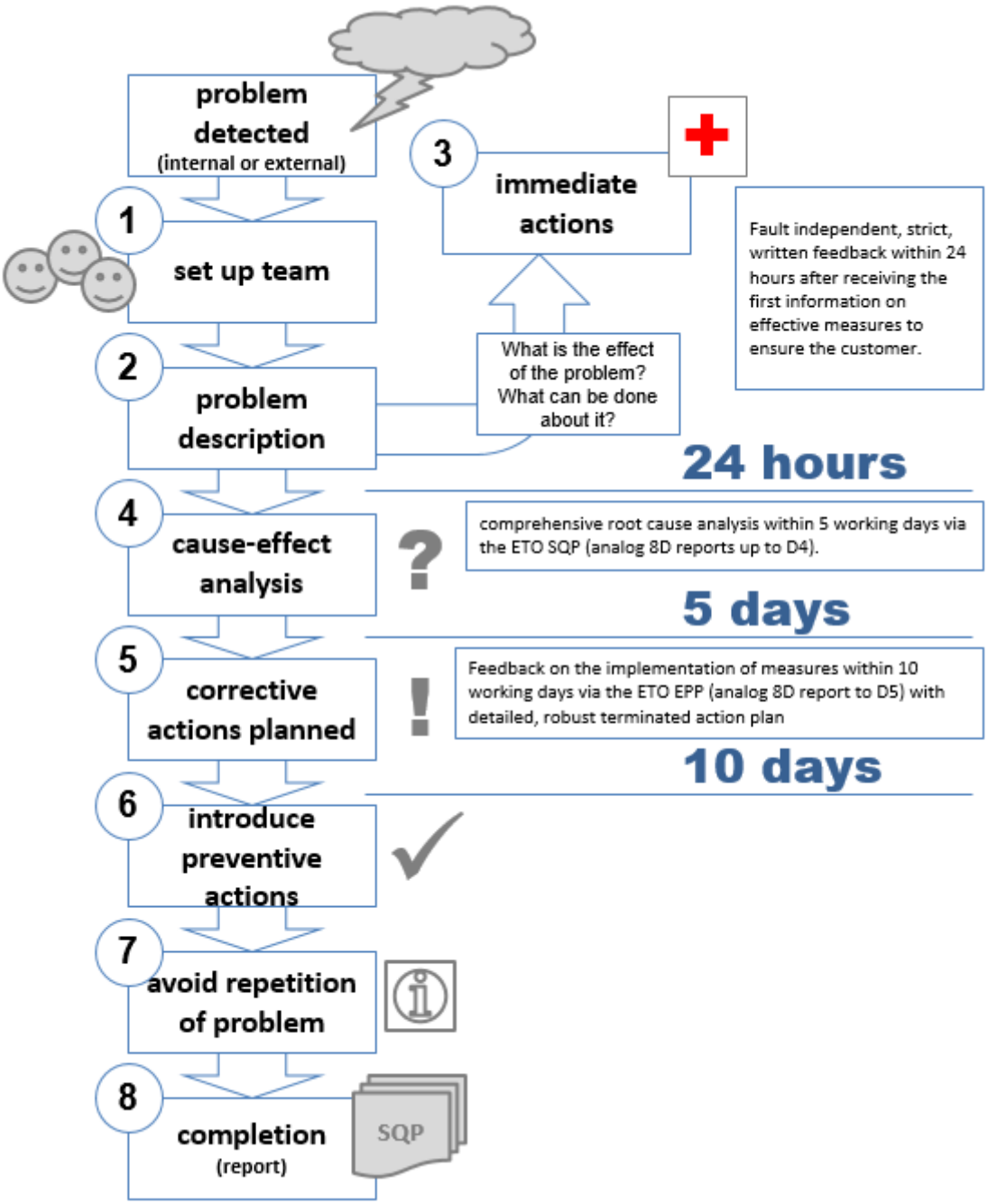
13.3.2 EPP Process (ETO Problem Solving Process)

Comprehensive and fast information transfer, clarity and fact-based decisions are basic elements of the problem-solving process. Through the EPP process and the associated (Microsoft EXCEL based) form, all parties are provided with comprehensive transparency in this regard.

The EPP represents the standardized communication medium for comprehensive information transfer based on deviations to ETO and further to ETO customers.

Based on the 8D method, the EPP/SQP represents the summary of results from advanced quality tools and methods (such as 5W, Ishikawa, etc.) as well as internal and external activities, such as logistical containment and batch assessment.

13.3.2.1 Procedure of the Problem Solving Process and Deadlines for Feedback to the Customer



13.3.3 Activities in the First 24 hours

A problem has occurred at ETO or ETO customers that jeopardize the on-time delivery of goods that meet specifications.

In order to minimize risks and maintain the supply chain, temporary actions are required in the short term to limit damage. For this purpose, the processing sheet 24h is shown in the EPP.The coordination and initiation of immediate actions may be required at shorter notice in order to avoid higher consequential costs, such as production downtimes and special trips.

ETO reserves the right - within the scope of the obligation to minimize damages - and on the basis of internal risk assessments, to independently start necessary activities (for example to avert downtime costs, air freight costs, etc.) in case of non-availability or missing feedback from the supplier and to inform the supplier about this immediately. Immediate actions must be maintained until proof of the effectiveness of implemented remedial actions has been provided.

In particular, the following must be taken into account:

- Stock
- Production stock
- Goods in circulation (to ETO or subcontractors)

13.3.3.1 Definition/Team (EPP Chapter 1)

The EPP/SQP, like the 8D method, is a team-based problem-solving process.

The basic data is provided by ETO, more detailed information can be taken from the EPP/SQP.

The supplier has to name a claim team (specialists and contact persons involved in the process) and list them in the form.

The problem description is provided by ETO and communicated as part of the claim.

The problem description contains important points that should help narrow down or understand the problem faster and more effectively. The following information is provided by ETO under the problem description listed below:

13.3.3.2 Problem Description (EPP Chapter 2)

Clear ACTUAL/TARGET information on the specification (which specification violation is actually present).

Failure sequence:

- The failure consequences for which the deviating characteristic has led or may lead are conveyed
- The defect sequence is intended to better represent the understanding of the problem and support risk assessment (including FMEA)

- How and where was the defect discovered:
- Based on this information, it should be possible to determine which measurement method / measurement device was used to detect the deviation
- The information “Where was the defect pattern detected?” also helps to create improved transparency in the root cause analysis
- If characteristic differences are visually recognizable, ACTUAL/TARGET images are provided if possible

  Unless quantifiable, ETO can describe deviations only on the basis of the symptoms encountered. The plausibility check must be carried out by the supplier on the basis of his process knowledge and experience

  This must be taken into account, especially with regard to the initiation of immediate actions

13.3.3.3 Immediate Actions (EPP Chapter 3)

A written documented risk assessment as well as a containment of affected batches will be performed by the supplier and provided to ETO in writing within 24 hours with the 3D report (page 1 and 2 of the EPP/SQP).

Containment of delivered NOK parts

- When a claim is triggered, ETO will inform the supplier of the batch(es) or delivery note number(s) concerned.
- This information does not release the supplier from also checking and evaluating the previous or later delivered production batches/deliveries. It must also be taken into account whether the FIFO (first in - first out) has been disturbed.
- As part of the 3D processing, the supplier must make an initial delimitation of the potentially affected quantities.
- It must be stated from when these components were produced and from when they were delivered to ETO.
- The individual deliveries - with delivery bill no. - are to be indicated here.

Form of supplementary performance

Within the scope of the 3D activity, the form of subsequent performance shall be chosen.

This shall be done in order to avert major consequential costs that may arise, among other things, due to belt stops, special trips, et cetera.

Within the scope of the obligation to minimize damages and on the basis of internal risk assessments - ETO reserves the right to determine the form of supplementary performance itself (for example to avert belt standstill costs, air freight costs et cetera in case of non-availability or missing feedback from the supplier) and to inform the supplier about this immediately.

Firewall activities

- For a standardization of the reports and safeguarding of minimum requirements for immediate actions, corresponding specifications were made by ETO in the form, which have to be processed within the 3D activities.
- Items that do not apply can be marked accordingly.
- Further supplier specific activities can be listed in the given fields.
- In the first approach, the supplier is responsible for setting up the firewall.
- If a deviation occurs and after the supplier has been informed by ETO, irrespective of the form in which this information was provided and the confirmation of the deviation by the suppliers own analyses, the supplier must immediately initiate actions to maintain the ability to deliver to the end customer or coordinate these with ETO.
- This feedback must be given within 24 hours after receipt of the information.
- Should a changed situation subsequently become apparent, it may be necessary to reconsider the costs of the relevant actions.

Quantities and dates

- In principle, the objective is to meet the agreed delivery dates or windows with the agreed quality.
- Coordination of deviating quantities and requirements, as well as new deliveries as a result of blockages or claims, shall be carried out independently by the supplier in coordination with ETO Logistics.

13.3.4 Activities in the First 5 Working Days

13.3.4.1 Root Cause Analysis and Tool (EPP chapter 4)

The objective here is to systematically search for all possible causes that could explain the occurrence of the problem, as well as to present the probable cause(s) and compare them with the problem description.

ETO attaches great importance to the clear separation into the two aspects:

- Why has the problem occured?
- Why has the deviation not been detected?

ETO requires proof of system by sending the 5W as part of the EPP/SQP. Each stated “Why” position must be shown with evidence in this regard. For example, in connection with the indication “tool wear” for the “Why” position, we expect proof in the form of a picture, documentation proof or measurement report.

Each “Why” statement must be questioned and verified. Insufficient evidence can lead to a rejection and negative assessment of your report.

The supporting use of the Ishikawa method or Factor Tree Analysis should be used for complex problems (numbers/data/facts).

- The use of these tools is recommended for every claim in order to sustainably and with a certain systematic based on numbers, data, facts provide the corresponding evidence and to show which factors were evaluated and how.
- If the root cause presentation in the standard EPP with 5 Why is presented insufficiently, ETO will demand a detailed analysis with the application of these tools.
- The root cause analysis is to be presented in a form that also allows third parties to understand the process. If necessary, presentations can be made in addition to the EPP/SQP.

13.3.4.2 NTF – No Trouble Found Process

A claim results from a malfunction of the function, the installability or the properties of the component in question. If no deviation from the specified characteristics is found during verification of the deviation by the supplier, the claim is usually rejected (“no deviation from the specification found” or similar wording). However, this formal act does not solve the original problem.

According to the requirements of IATF 16949:2016 (10.2.5 Warranty Management System), ETO expects the establishment of a “no-trouble found” process in the management system of the supplier whenever the supplier or its subcontractor has a development responsibility, or characteristics of the product (such as material properties) are within its area of responsibility.

In addition, we refer here to the standards:

- VDA: Marketing and Customer Service / Defective Parts Analysis Field
- VDA: Standardized claim process

13.3.4.3 Longterm Actions (EPP chapter 5)

Presentation of the planned actions through the creation of an action plan for further root cause analysis and planning of corrective actions in relation to the identified deviations.

In the context of the 5 Why analysis, a differentiation was made between “Why” and “How” and the corresponding causes were identified for both aspects.

Under planned actions, ETO thus expects a consideration (assessment and corresponding verifiable actions) with regard to the occurrence and with regard to the non-detection of the deviation. Both aspects have to be presented in the context of the 5D presentation.

The status of the actions can be “under review” or “in implementation”.

13.3.5 Activities in the first 10 working Days

13.3.5.1 Performance Review (EPP chapter 6)

Within the scope of the 10-day feedback, ETO expects a completed action status. If this feedback cannot be implemented within the specified timeframe, ETO shall be informed immediately in writing in advance.

By providing justified information in a timely manner, the 8D timeliness of the EPP/SQP assessment will not be negatively impacted.

At a completed action level, ETO expects the following activities to monitor success.

- Assessment of the defect collection cards
- Here, the key figures at the production plant are evaluated
- Has this defect pattern occurred again after the implementation of the action?
- Assessment of output inspection
- The key figures of the initial inspection (EOL / visual inspection, etc.) are evaluated.
- A sub-process audit of the affected area
- After successful completion of the claim, the implemented actions and documentation are audited and recorded by the quality department.

ETO reserves the right to check these points and the effectiveness of the actions on site in the course of audits, visits, inspections.

13.3.5.2 Avoidance of Repeat Defects (EPP chapter 7)

FMEA creation and maintenance

- In the EPP/SQP, under point 7, the risk priority number (RPN) is entered before the occurrence of the rejection and after the processing of the notification.
- If the supplier does not have a corresponding product-related FMEA, a reclamation FMEA must be created within this framework.

Document adjustments

- All document adjustments made will be provided to the customer ETO with the presentation of the EPP/SQP (except FMEA).

Lessons learned

- Consider whether lessons learned from the claim can be applied to other ETO products for improved process assurance.
- Production control plans, flowcharts, parts lifecycles and other product specific documents shall be updated.

13.3.5.3 Comment (EPP chapter 8)

For a standardization of the reports and mapping of minimum requirements for the effectiveness review, corresponding specifications have been defined that have to be processed.

Here, the document changes are listed and queried before the completion of the claim

- Completion of the report on the part of the supplier
- It is to be indicated whether the message is led as recognized or rejected
- The PPM relevant quantity is calculated automatically in the form in the Excel tab “Sorting result”
- Only the ETO and end customer stocks are evaluated as PPM relevant

13.3.6 PPF, Triggered by Claim

If, due to the defined actions, changes are made to the tool/process or product, a product and process release in the form of a sampling free of charge for ETO shall be carried out and released by ETO.

13.3.7 Cost Collector

The costs incurred within the scope of the claim shall be kept in a cost collector by ETO. ETO thus also enables full transparency in the cost compilation. These items will be shown at the conclusion of the EPP/SQP and invoiced to the supplier.

13.3.8 Assessment of the Problem Solving Process of the Supplier

The report is not considered complete until the supplier receives the assessment for the defect report (the EPP). After submission of the final EPP, the supplier receives an assessment from ETO regarding the timeliness and technical presentation of the presented report.

The results of this assessment are communicated as feedback to the defect report and in condensed form within the supplier assessment.

The objective is to initiate a process for optimizing the problem-solving process of the supplier via direct feedback and assessment. This is done in order to align expectations, increase efficiency, minimize queries, and use capacities on both sides more efficiently. The assessment criteria are:

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	0
				maximal possible points	100

13.3.9 Indication Claim: Definition and Handling

An indication claim is triggered by ETO, if there is no violation of the specification requirements but there are anomalies in the product that, from the point of view of ETO, could cause a medium-term impairment of the product or process quality of ETO if not remedied.

This includes situations in which a potential customer risk could arise in the event of non-observance or further negative change in terms of intended use (analogous to ISO 9001:2015 chapter 8.2.3.1 b).

For example:

- Detected deviations in statistical assessments of test results,
- Slight color deviations from the previously delivered components.

  Handling of information claims:

  The supplier is notified of information claims, but there is no further tracking of the process at ETO.
- No external 8D request
- No reminder system for missing statements.

However, internal processing at the supplier is expected and will be followed up on during visits et cetera.

Information claims are not included in the supplier assessment.

- No incident
- Returned quantities are not PPM relevant

13.3.10 Definition of Repeat Defects

A repeat defect represents a critical situation that requires the highest attention and priority from all parties involved, as this defect directly indicates one or more of the following:

A repeat defect implies a clearly identical cause for multiple defect notices.

That is:

- identical defect pattern
- Clear traceability to the same cause (process or product related)
- Identical combination of causes
- A recurrence of the defect after the introduction and verification of the corrective actions defined for this defect pattern.
- The occurrence of the defect due to secondary causes (such as incomplete stockpiling) thus represents a new defect pattern (a new cause of occurrence at the customer). This leads to a claim with a new claim basis and thus not to a repeat claim.
- On the other hand, an assessment as a repeat defect can be made as long as the true cause of the defect is not yet known.
- If a defect pattern occurs that based on the available information is considered as a repeat defect by ETO, the claim is marked as such.
- If it turns out in the course of the root cause analysis (5W) that the above criteria are not met, the status of a repeat claim can be reset.

On the other hand, in the course of processing a claim, it may turn out that a repeat claim exists, in that, for example, the same cause of defect can be assumed for different products.

Causes for repeat defects are:

- The implemented firewall is not effective
- Therefore, supplementary activities must be initiated immediately
- The containment of the defect occurrence (batch, period, etc.) is insufficient
- Therefore, a short-term re-assessment must take place
- The root cause analysis was insufficient and as a consequence, the introduced remedial actions were ineffective

- Therefore, the root cause analysis must be started again
- There are internal and/or external communication and coordination problems
- Therefore, all available information must be collected and re-evaluated together
- The available documentation (for example 8D, FMEA, etc.) does not describe the true/comprehensive situation and problem
- Therefore, the documentation must be revised promptly and comprehensively.

For assessment:

- If a defect pattern occurs that based on the available information is considered as a repeat defect by ETO, the claim is marked as such.
- If it turns out in the course of the root cause analysis (5W) that the above criteria are not met, the status of a repeat claim can be reset by ETO.
- On the other hand, it may turn out in the course of processing a claim that a repeat defect exists, for example, the same cause of defect can be taken as a basis for different products.

13.3.11 PPM Relevant Quantities

Purpose of this regulation

In order to enable a uniform assessment and to achieve a common understanding, the PPM relevant quantities from notices of defects are defined according to the following criteria.

- In the case of returns, the entire returned quantity is classified as PPM relevant.
- PPM relevant quantities will not be corrected in the ETO system from the tenth working day after receipt by the supplier - unless written feedback is received in the course of claim processin.

  PPM relevant quantities are classified by ETO according to the following rules:

- Function-impairing deviations, non-compliance with specified properties, foreign bodies
  - The complete volume of returned goods is PPM relevant
  - In case of sorting at ETO, the determined defective quantity is considered PPM relevant
- Delivery without approved sampling
  - The total delivery quantity is PPM relevant
  - Depending on the situation, a subsequent correction can be made by the responsible SQE

- In case of acceptance of goods not conforming to specifications by ETO (for example special release)
  - The scope of the deviating sample of the release inspection becomes PPM relevant
  - A subsequent correction of the PPM relevant quantity, measured against the real scrap, can be made
- In the ETO goods receipt conspicuous wrong deliveries, wrongly packed goods, transport damages and otherwise damaged deliveries if the supplier is responsible
  - The number of defecty containers is PPM relevant
  - Contamination
- If specified (for example technical cleanliness)
  - Analogous dimensional deviation respectively special release
  - The complete volume of returned goods is PPM relevant
  - In case of supplier feedback on the real defect percentage within 10 days after receipt of delivery, the PPM relevant quantities will be corrected by ETO
- Unless specified
  - If the goods are processed or cleaned by special release at ETO, a symbolic value of 10 % of the delivery quantity concerned is considered as PPM relevant.
  - If the goods are returned, the total returned quantity is PPM relevant
- Non-specified technical characteristics are not PPM relevant
  - This does not apply to impurities, foreign parts and properties of the products presupposed beyond the intended use

Exceptions to the regulations set out here are only made in consultation with the responsible SQE and in agreement with the Supplier Quality Management.

If a claim is based on a self-indication, the process is considered an incident and PPM.

13.3.12 Sorting at the Location of ETO GRUPPE

In connection with specification deviations to sortable characteristics, the choice of subsequent performance, as well as the organization of the necessary actions, is incumbent on the supplier.

In this context, the use of several parallel options may be necessary in order to fulfill the delivery obligation, for economic and production-related reasons, to reduce the response time and to minimize the logistical effort.

- Return for new delivery of defectless goods
- Sorting at the plant of an ETO location
- By the supplier himself

- By an external service provider
- By ETO on behalf of the supplier
- Sorting at an external service provider
- Scrapping of the goods at ETO on behalf of the supplier and new delivery
- Request for special release by the supplier to ETO (in exceptional cases)

13.3.13 ETO Expectations in Relation to Sorting

Immediate actions, firewall

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

If a deviation occurs after ETO has informed the supplier, irrespective of the form in which this information was provided and the confirmation of the deviation by its own analyses, the supplier must immediately initiate actions to maintain the ability to deliver to the end customer or coordinate these with ETO.

This feedback must be given within 24 hours after receipt of the information.

Should the situation subsequently change, it must be determined who is responsible for the costs of these actions and who must bear the costs.

Risk assessment and identification of affected batches

A risk assessment documented in writing as well as a containment of affected batches is carried out by the supplier and is made available to ETO with the 3D report within 24 hours.

Quantities and deadlines

In principle, the objective is to meet the agreed delivery dates or windows with the agreed quality.

Any deviating quantities and requirements shall be coordinated independently by the supplier with ETO Logistics.

13.3.14 Sorting Affected Goods

In the following, the option of sorting the affected goods is explicitly discussed.

The supplier shall organize the sorting.

If in case of non-compliance with agreed deadlines ETO has to initiate the organization of actions itself, the incurred expenses and costs shall be charged to the supplier via the claim process.

- The supplier shall coordinate with ETO in this respect
- The supplier shall provide the necessary means
- Defect visualizations
- Test instructions

- Test equipment
  - If necessary, ETO can provide supporting defect images and test equipment. However, this must be agreed upon in advance
  - General condition for sorting
  - It is necessary to agree on the scope of sorting and the required output of OK goods from sorting.
  - Expected defect proportions are to be determined on the basis of the ETO information and the internal risk assessment by the supplier.
  - As a result, the capacity for sorting is to be planned and commissioned.
- On the basis of the feedback and reports, the sequence and dynamics of the sorting are to be coordinated with the sorting party. ETO has no cooperation or fixed collaboration with sorting service managers at the site. Internal sorting is carried out with ETO personnel and if necessary, reinforced by employees from personnel leasing. This organization can provide coordinating support for external sorting, but can only cooperate to a limited extent. Final products and processed goods are not sent off-site for inspection or rework. Inspection stations can only be made available to a limited extent. These are preferably used for the inspection of processed goods and end products.

Supervision of sorting

- After prior agreement, ETO can take over the instruction and supervision of sorting personnel on behalf of the supplier.
- This does not constitute an assumption of overall responsibility.
- The necessary documents and information must be provided by the supplier.
- Expenses for this will be charged by ETO.

Test instructions

- External service providers and ETO-supervised sorting must be provided with meaningful specifications for testing
- Test methods and test equipment must be coordinated in advance with the responsible SQE

Test equipment

- ETO may - after prior coordination, to a limited extent - provide testing equipment for visual, teaching and measuring testing
- Tests on the X-ray equipment may only be performed by instructed ETO personnel

In summary:

The supplier is the client of a sorting and takes full responsibility for the commissioning, execution, organization and assessment of the sorting, as well as all necessary documents and tools.

13.3.15 Working Hours and Access

- ETO MAGNETIC GmbH
  - Working days in standard are from 06:00 am - 10:00 pm
  - Night shift support for sorting cannot be provided as a rule
  - Saturday - by appointment from 06:00 am - 02:00 am
- EKS Elektromagnetik GmbH

  At this point, location-specific information will be incorporated at a later date
- ETO MAGNETIC Sp. z o.o.

  At this point, location-specific information will be incorporated at a later date
- ETO MAGNETIC CORP.

  At this point, location-specific information will be incorporated at a later date
- ETO MAGNETIC TECHNOLOGIES (Kunshan) Co., Ltd.

  At this point, location-specific information will be incorporated at a later date
- ETO MAGNETIC India Pvt. Ltd.

  At this point, location-specific information will be incorporated at a later date
- ETO MAGNETIC Mexico, S. de R.L. de C.V.

  At this point, location-specific information will be incorporated at a later date

13.3.16 Contacts for Sorting at the Corresponding ETO Locations

As a matter of principle, ETO does not prescribe any service provider. We have had good experiences in our own company with the following providers:

redi-Group GmbH, Friedrich-List-Straße 42, 70771 Leinfelden-Echterdingen

Telephone: +49 711 78781731
Fax: +49 711 78781740
E-Mail: quality-control@redi-group.com
Internet: www.redi-control.de

Formel D GmbH, Herrenberger Straße 120, 71034 Böblingen

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

13.3.17 Contacts for Sorting at the Service Provider as an Alternative to Return Delivery

If a return delivery takes too much time and a sorting at ETO is not feasible, there is the possibility of contacting the company Kaum+Benz.

Kaum+Benz, a certified company in our vicinity, has the possibility to pick up goods - on behalf of the supplier - at ETO, to carry out sorting and rework and deliver the goods back to ETO after processing. The coordination and organization take place directly between the supplier and Kaum+Benz.

Kaum + Benz Bauteilekonfektion, Gewerbestraße 15, 78359 Orsingen-Nenzingen
Telephone: + 49 7774 93868-14
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
Central line: +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
(free of charge from Germany)

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

Location Slowakei
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 company for suppliers to the automotive industry, aerospace, medical technology, electrical engineering, plastics or metal industry. As a fully integrated quality service provider, quality defects can be eliminated or parts can be further processed by appropriate actions such as sorting, testing, non-destructive X-ray testing (also during series production), reworking, cleaning, et cetera.

XRAY-LAB – Services:

- 2D/2.5D X-ray analysis
- Computed Tomography (CT)
- 3D metrology and 3D object detection
- Initial sample inspection and release processes for tools
- Failure part and damage analysis
- NDT like UT, ET, VT, PT & MT
- Resident engineering & 8D reporting
- RampUps and PPAPs
- Q-Gate and Firewall
- Quality management for logistics processes
- Redesign and Relocation
- Quality management methods
- Process support regarding quality issues during the transition from pre-series to series production
- Visual inspection and rework with own taskforce
- Fast as well as careful and accurate work execution
- Professional handling
- On-site defect rectification (production stock, stock on hand, intermediate stock)
- Holistic management
- Flexible and fast response times
- Professionally trained staff
- Quality coordination

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

13.3.18 Hourly Rates and Cost Lump Sum

- ETO MAGNETIC GmbH

  Notices of defects, sorting and services of ETO MAGNETIC GmbH at the location in Stockach

  - Flat fees based on averaged expenses (valid as of 2017-07-11).
  - Return deliveries of sample parts via ETO, Management Services Head Department
  - EUR 10,00 (valid from 2012-04-16)
  - Hourly rates for services
  - ETO internal sorting activities (by ETO personnel) 35,00 EUR/h
  - Rework / activities with the use of machines 50,00 EUR/h
  - If test stands are used, higher costs may be incurred under certain circumstances. This will be communicated in advance
  - X-ray services 80,00 EUR/h

- EKS Elektromagnetik GmbH

  At this point, location-specific information will be incorporated at a later date.

- ETO SENSORIC GmbH

  At this point, location-specific information will be incorporated at a later date.

- ETO MAGNETIC Sp. Z o.o.

  At this point, location-specific information will be incorporated at a later date.

- ETO MAGNETIC CORP.

  At this point, location-specific information will be incorporated at a later date.

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

  At this point, location-specific information will be incorporated at a later date.

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

  At this point, location-specific information will be incorporated at a later date.

- ETO MAGNETIC India Pvt. Ltd.

  At this point, location-specific information will be incorporated at a later date.

13.3.19 Return Delivery and Settlement of Rejected Goods

Return shipments are usually made at the expense of the supplier. Time-saving and traceable shipping methods are used according to urgency and to enable short-term sorting, cause analysis or reworking.

In principle, there is the possibility of the collection of rejected goods by the supplier or a service provider commissioned by him.

Returned goods are charged back directly via the ETO system. A credit note by the supplier is not required. A direct exchange of goods can only take place via a correspondingly declared new delivery.

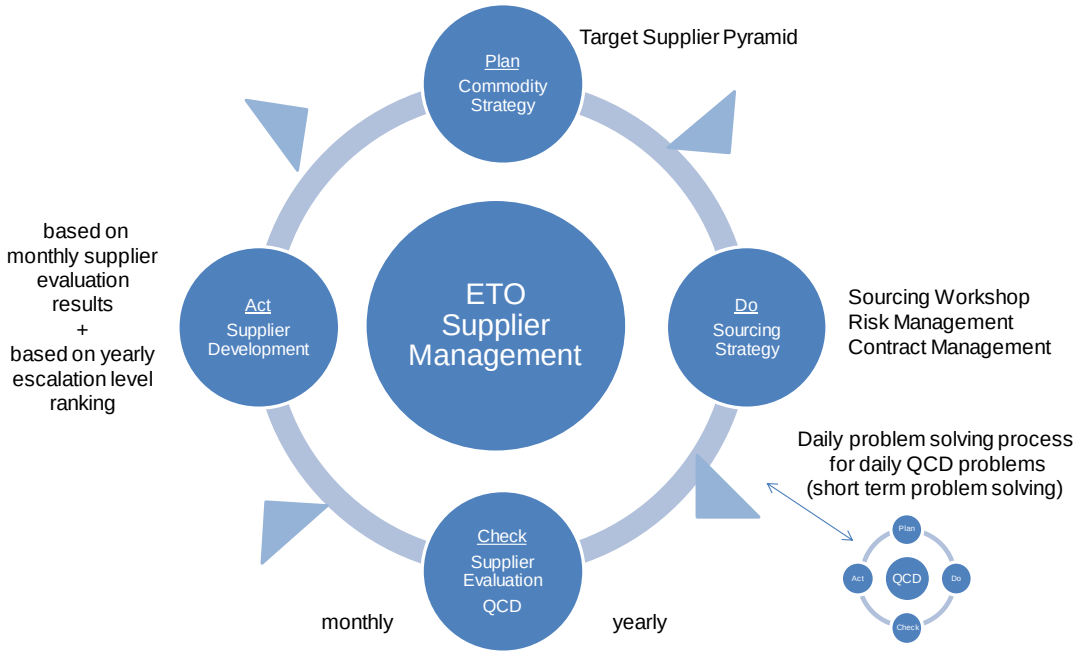
14 Supplier Management

ETO strives to further develop standards, methods and tools in close coordination with the requirements of our customers.

When selecting suppliers, we emphasize that they are willing to work with ETO to further develop their standards.

ETO strives for a long-term relationship with its suppliers. This is done under consideration of the QCD criteria.

- Q = quality, i.e. 0-defect strategy, as well as the achievement of agreed targets
- C = cost, i.e. best price and cost reduction in series production
- D = delivery, i.e. optimization of quantities and delivery reliability



14.1 Plan: Commodity Strategy

Supplier selection is based on commodity panels for the regions of

- Europe
- USMCA (United States Mexico Canada Agreement)
- Asia

Selection criteria include pricing, contractual situation, technical standards, payment terms, and development opportunities.

14.2 Do: Purchasing Strategy

Nominations and assignments are made on the basis of an interdisciplinary team decision. Basis for this are among others:

- Material group strategy and supplier pyramid
- Manufacturing feasibility statement
- Comparison of offers
- The ETO sourcing workshop

14.3 Check: Supplier Assessment

ETO assesses all suppliers of production material, production-related material, production-related equipment and other related services on a monthly and annual basis.

The annual assessment refers to the period January - December and results in a classification of the supplier.

Each ETO location supplied is rated separately, with the rating being based on the worst rating of an ETO location.

The rating of the previous year is done at the close of the first quarter of the following year.

In parallel, ETO produces a monthly status assessment (current ETO system view).

This status assessment is used to track the effectiveness of the actions. Furthermore, it is intended to enable comparison with the system of the supplier. Therefore, this status assessment does not include a rating.

All ratings are sent by default by mail.

The monthly assessments take place in the middle of the following month.

14.3.1 Criteria for Supplier Assessment

The criteria are evaluated in a point system (worst evaluation is 1 point - maximum score is 100) with different weightings.

The weighting of the individual key figures and the assessment specifications can be seen in Appendix 4. The main criteria are listed below with the corresponding sub-criteria.

14.3.1.1 Quality Key Figures

- Incident
- ETO differentiates between claims from the incoming goods inspection (Q2), ETO production (Q4) and pass-through problems, i.e. supplier-related deviations that were not detected in the ETO process (Q5).
- Each defect report is counted as an incident. Related messages for the same process are, within a reasonable time frame, created as message items by ETO and are therefore not counted as incidents.
- PPM level
- PPM relevant quantities are calculated from the quantity invoiced by ETO and the defect quantity related to notices of defects.
- Confirmations from sorting actions, respectively recognized defective quantities have to be reported in due time, a later correction will not be made (see SQP process).
- SQP assessment
- Degree of fulfillment of all registered quality notifications recognized as partial or comprehensive in percent corresponds to the assessment-relevant score.
- Quality assessment
- Degree of fulfillment in percent corresponds to the assessment-relevant score
- Supplier assessment
- Degree of fulfillment in percent corresponds to the score relevant to the assessment.

14.3.1.2 Costs

Currently not yet implemented.

14.3.1.3 Delivery Performance

- On-time delivery
- The goods receipt date is evaluated against the set delivery date.
- Quantity reliability
- The percentage deviation from the scheduled quantity (partial delivery) leads to a devaluation. Here, goods receipts at ETO are averaged in the respective valuation period. A deviation of the quantity fidelity is evaluated at the same time as a trigger of a special trip.

14.3.2 Classification in the Escalation Level Model

The overall score of the annual assessment results in a classification of the suppliers in the ETO escalation model. This classification is done only once a year. The monthly assessment has no influence on the classification.

This escalation level model is divided into 5 levels and shown in the graphic below. The 5 levels result in different actions at ETO and the suppliers.

14.3.3 Status Monitoring of the Certified Management System

ETO attaches great importance to the development of the management systems of suppliers of production materials with regard to the requirements of IATF 16949, ISO 14001 and ISO 50001.

The system status of the suppliers is maintained in the ETO system and copies of the certificates are also filed as proof.

In this context, ETO expects the independent provision of new certificates by the supplier.

14.3.4 Feedback on special Runs (Chapter in Deviation Management)

Special trips are an indicator of process disturbances and according to the IATF 16949 certification ETO is obliged to assessevaluate them.

The costs for special trips are to be borne by the supplier if he has caused them.

Deviations in the quantity reliability are evaluated by ETO as a trigger for a special run.

Information on the assessment of quantity reliability can be found in Appendix 4. Appropriate actions will be determined as part of the supplier development program.

14.4 Act: Supplier Development Programs

On the basis of the annual rating, suppliers are requested to take the necessary actions or coordinate them with ETO in order to reach escalation level 0. The development program mainly includes target suppliers as focus suppliers, which are selected via a multi-stage selection process.

Improvement programs are coordinated and agreed with these suppliers.

Different tools are used for this purpose, which are continuously developed in parallel. Examples are listed here:

- Process audit according to VDA 6.3 (taking into account the additional requirements of our customers)
- Run@rate (aim is to check the capacity (quantity) of the process steps of a product during an early stage in the product development process against the customer specifications)
- Reassessment (reassessment of the supplier or Q-assessment)
- System audit according to DIN EN ISO 19011 based on IATF 16949
- Cross-site action plans

14.4.1 Target – Determination

The basic objective of ETO is that suppliers for production material are classified in escalation level 0.

Therefore, ETO expects the suppliers to analyze the deviations presented and to initiate actions to achieve this goal.

15 Logistics, Labeling, Packaging

At this point we refer to the LP-060-Global Logistic Standards (GLS), which is available as a location-specific download in the supplier portal (see Appendix 1).

16 Imprint

16.1 Status Supplier Manual

The manual is published in German and English versions.

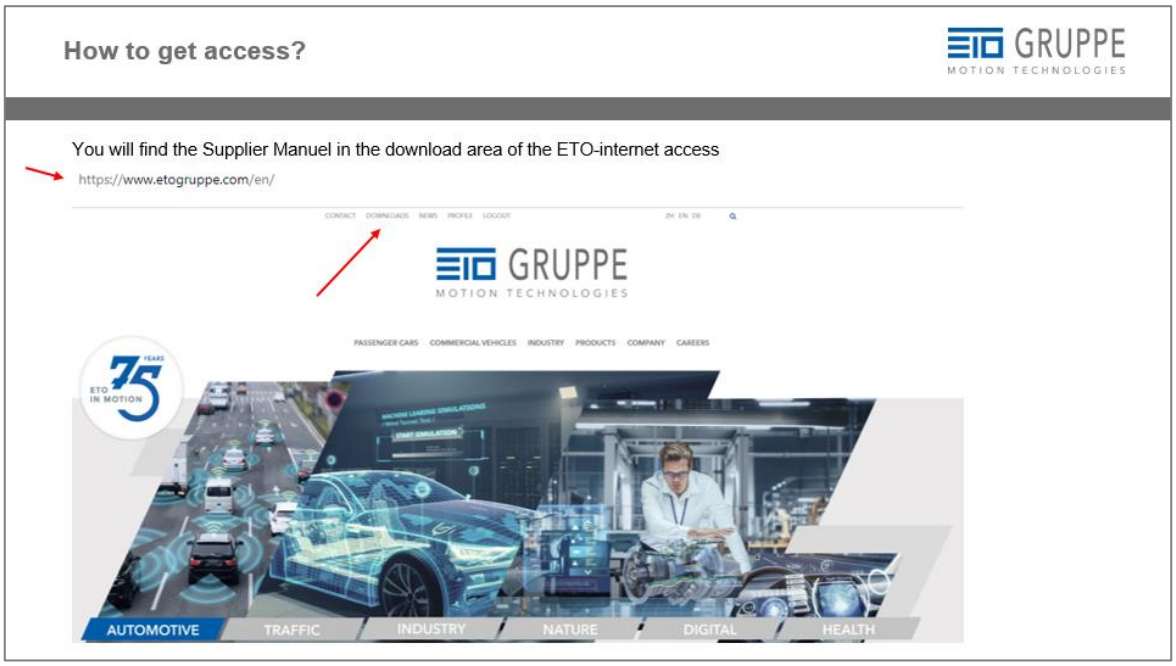
The latest German version is binding.

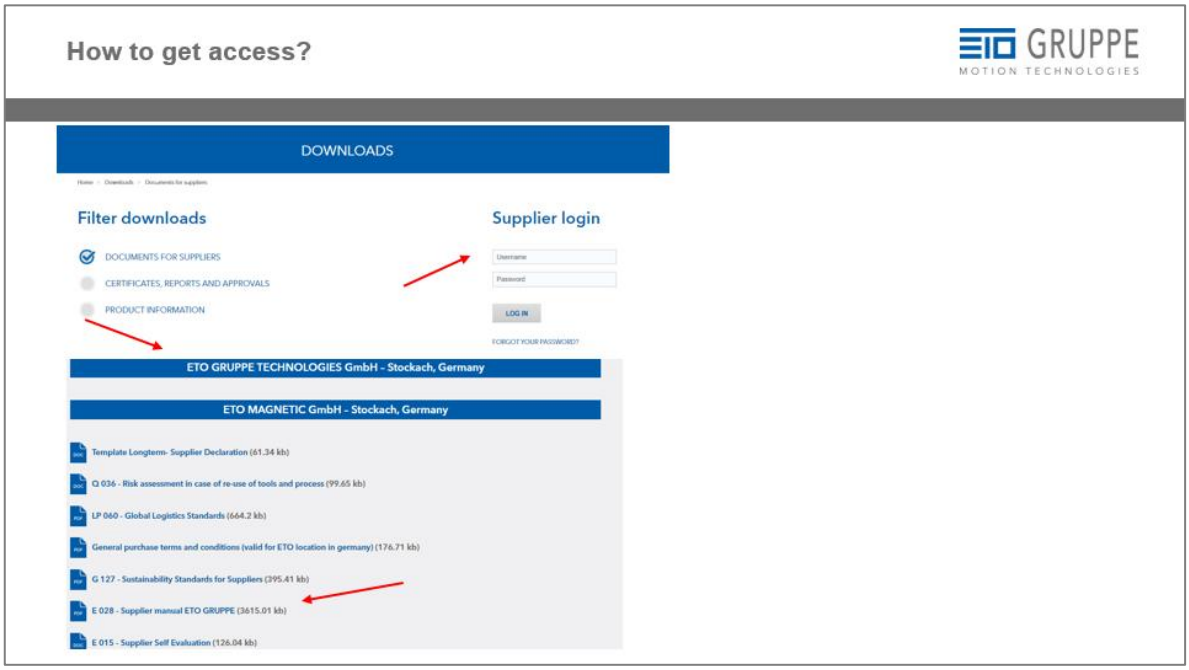
16.2 Contact Persons Supplier Manual

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

Michael Seyer
Vice President Purchasing
E-Mail: m.seyer@etogruppe.com
Telephone: +49 7771 809-1197
Mobil: +49 162 284 84 12

17 Appendix 1 - Instructions ETO Supplier Portal





18 Appendix 2 - Production Safety Officer (PSO)

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
VOLKSWAGEN AG

VOLKSWAGEN AKTIENGESELLSCHAFT
38436 WOLFSBURG
DEUTSCHLAND
TELEFON +49-53 61-9-0
TELEFAX +49-53 61-9-2 82 82
VW@VOLKSWAGEN.DE

EHRENVORSITZENDER DES AUFSICHTSRATS:
KLAUS LIESEN

VORSITZENDER DES AUFSICHTSRATS:
FERDINAND K. PIËCH

VORSTAND:
MARTIN WINTERKORN – VORSITZENDER

FRANCISCO J. GARCIA SANZ
JOCHEM HEIZMANN
CHRISTIAN KLINGLER
MICHAEL MACHT
HORST NEUMANN
HANS DIETER PÖTSCH
RUPERT STADLER

VOLKSWAGEN AKTIENGESELLSCHAFT
SITZ: WOLFSBURG
AMTSGERICHT BRAUNSCHWEIG
HRB 100484

Tasks of the Production Safety Officer (PSO) at the Supplier

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.

Requirements profile

In addition to professional qualifications:

- Officially appointed
- Several years in the company
- Good production and product knowledge
- Knowledge of product liability and the Equipment Product Safety Act (EPSA).
- Basic knowledge of assessments for risk assessments
- Analysis skills

19 Appendix 3 - Formula Q Capability Process Audit

Editions:

1st Edition – January 2012
2nd Edition, revised edition – June 2015
3rd Edition, revised edition – January 2018
4th Edition, revised edition – December 2022

The German-language edition of Formel Q Capability Appendix is binding. The companies affiliated with Volkswagen AG pursuant to §§ 15 et seq. of the German Stock Corporation Act (AktG) may define a different language version as binding for their contracts with the respective suppliers.

Published by: Volkswagen AG
Group Supply Chain
P.O. Box 1610/0
38440 Wolfsburg
Germany

© Volkswagen AG 4. Auflage, December 2022 K-MBS-LZ | Original: CSD 2.3 – 15 Years from the contract | Copy: CSD 0.2 – 2 Years | Internal

Contents

1 Supplier Audit – Process Audit (VA) and Potential Analysis (POT)

1.1 General

The Process Audit (VA) or Potential Analysis (POT) is conducted according to VDA 6.3. For the each question it is defined in point 2 "Additional requirements of "Formel Q Capability" which go beyond the requirement of VDA 6.3" are to be taken into account.

1.2 Evaluation of the Process Audit Results

The Evaluation 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 (per Product Group) for quality capability.

1.3 Overall Rating of Process Audit

1.3.1 Reasons for downgrading from A to B even though the compliance level is E_G>=90%

According to VDA 6.3:

- At least one process element P2-P7 or process step E_1-E_n is evaluated as having a compliance level with less than <80%.
- Compliance level for at least one sub-element of P6 (E_{U1}-E_{U7}): Process-Input, Operations content, Work Content, Personnel Resources, Material Resources, Efficiency, Process-Output, Transport and Parts Handling is < 80%.
- At least one of the * - questions is evaluated with 4 points or less.
- At least one of the questions from the Process Audit is evaluated with 0 points.

Additional guidelines according to Formel Q Capability version 9 for downgrading from A to B even though the compliance level is E_G>= 90%:

- A System Certification acc. to IATF 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 1st tier supplier to Volkswagen were identified. This will lead to a downgrading of the 1st tier supplier (direct supplier).

1.3.2 Reasons for downgrading to C even though the compliance level is E_G>=80%

According to VDA 6.3:

- At least one process element P5-P7 or process step E_1-E_n is evaluated as having a compliance level with less than <70%.
- At least one *-question evaluated with 0 points.

Additional downgrading guidelines according to Formel Q Capability version 9 even though the compliance level is E_G >=80%:

- A-class faults or systematic B-class faults were identified during Product Audit.
- Identified Risks within the Supply Chain which will directly impact on the quality of products from the 1st tier supplier delivered to Volkswagen. This will lead to a downgrading of the 1st tier supplier (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 Application Review.
- The certification of the QM system (at least according to DIN EN ISO 9001) is not available or has been withdrawn. The certification body must be accredited by an IATF member organization (for example DAkkS).

1.3.3 Reasons for post-audit downgrading to C

- Implementation of the action plan refused or not realized.
- Confirmation of the implementation of the measures of the supplier audit is refused or not realized.
- Quality targets of the Customers not achieved within agreed deadlines ("A"-Rating).
- Supplier Self Audit (SL) with C rating.
- A Supplier Self Audit (SL) is denied or not provided.
- Risks within the Supply Chain identified which will directly impact the Quality of Products from the 1st tier supplier delivered to Volkswagen. This will lead to a downgrading of the 1st tier 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 particular risk of compliance with the law or fulfilment of the required component function is determined by a Volkswagen Group auditor on site at the supplier's premises as part of a method described in Formel Q.
- Access to the factories and all manufacturing steps for the performance of VW supplier audits (e.g., VA, TRL, AR) is denied.

- The certification of the QM system (at least according to DIN EN ISO 9001) is not available or is withdrawn.
- The performing of a scheduled supplier audit is requested to be postponed by the supplier more than 2 times, or 1 time over a period of more than 2 months without any comprehensible reason.

The supplier is informed in writing by the customer's responsible audit department about the rating result.

1.4 Upgrading Criteria

An upgrading can only take place through a Customer Process Audit at the production site of the supplier after the successful and sustainable implementation of the action plan.

An upgrading from C to B will only be established once a "robust B" rating during a Customer Process Audit is reached. (i.e. compliance level is greater than or equal 85% (see VDA 6.3)).

A subsequent upgrade from B to A is possible if a Formel Q Capability Audit has been graded due to a lack of certification of the QM system according to IATF 16949 or VDA 6.1. If the supplier verifies a corresponding certification of the QM system within a period of 9 months, a further upgrade without a new audit can be carried out, provided that the Q performance is positive. The evidence must be proactively submitted to the customer's responsible audit department.

2 Additional Formel Q Capability Requirements that go beyond VDA 6.3 Requirements

In the process audit, the component and process-specific requirements of Volkswagen AG must be taken into account (including technical drawing, TL, PV, TLD, Q-Specifications). These requirements are additional to the questions of VDA 6.3 and must be taken into account for the assessment.

For more information on assigning individual points, see this table:

Reference Question in VDA 6.3	Evaluation Relevant Requirements
5.1	• In the selection of suppliers and the assessment of the quality capability during the project and the series, process audits must be planned and implemented according to Formel Q Capability (VDA 6.3) (depending on the risk classification of the component and, if applicable, quality framework agreements, see "Formel Q konkret").
5.2	• A Product Safety & Conformity Representative (PSCR) for each individual step in the supply chain must be designated.
5.7	• The audits in the supply chain must by conducted by certified VDA 6.3 auditors. The proof of the "certified VDA 6.3 process auditor" is provided by proof of auditor training according to VDA 6.3 by a VDA approved partner according to DIN EN ISO 17024, with inclusion of the auditor in the VDA-QMC database. • Alternatively, the regulation for "Formel Q Capability" applies to the qualification requirements for auditors for the Supplier Self Audit.

6.2.3	• The supplier is required to include all special features (e.g. TLD characteristics) specified by the customer in his approach for monitoring special features. Comment: If the supplier uses a different identification for his documents and records, he is required to define 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. • Including Sub-Suppliers. • Tracking list for all "D/TLD parts of the Customers." • Perform a D/TLD self-assessment at least once a year. The self-assessment must not be longer than 12 months apart. • 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.
6.4.1	• Controllers for process-influencing parameters must be protected against unauthorized interference.
6.4.3	• Suitability of Inspection Processes according VDA Volume 5, unless otherwise agreed with the customer.
6.5.2	• Process Capability review for measurable characteristics (VW10131).
6.5.4	• Product audits according to VDA 6.5, at least annually. Consideration of essential features, main, connection and functional dimensions, marking and packaging. • Compliance of labelling of Products with National and International conformity requirements.(e.g. ABG-requiring components CCC, ECE, DOT...). Proof of valid certificates.
6.6.1	• Outsourced process steps (additional product risks in the transport chain, e.g. through parts handling, transport routes, etc.). • First-In First-Out (FiFo).

7.1	• QM-System Certification IATF 16949 alternatively VDA 6.1, but at least DIN EN ISO 9001 certification by an accredited certification company. • 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 Departments of Volkswagen Group and involved companies. • The self-audit, including product audits, must be carried out using the self-audit report form (available on ONE.KBP). • The current quality performance shall be evaluated in Formel Q Capability Self-Audit report (including Q-performance, customer ratings, "Critical Supplier" program – Level 0...3).
7.2	• Maintaining the supplier database (ONE.KPB - LDB): among others Production Location, Contact data, Performance Range / DUNS No. / Local supplier numbers. Quality Management Certificate (e.g. IATF 16949, DIN ISO 14001, ...). • The manufacturing plant must strictly only have one DUNS no. with respect to Volkswagen AG. • According to the drawing, the components must be labelled with the location-specific 3-digit Herstellercode (HCD) (Manufacturer code). • 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	• The process of Failure Analysis is implemented. Mandatory requirement: VDA Volume "Failure Analysis".
7.5	• External Qualification of at least one Senior Management member for the basics of Product Safety and Product Liability law. • A Product Safety & Conformity Representative (PSCR, see VDA Volume Product Integrity) must be designated for each production site in the LDB and its qualification must be proven in accordance with this VDA Volume. • Knowledge of the function and purpose of use of the product in the vehicle. • Qualification of auditors who carry out Supplier Self Audits.

20 Appendix 4 - Criteria for Supplier Assessment

Calculation of the grade

- The criteria are graded according to the calculation below.
- Monthly assessments are prepared in the middle of the following month.
- The annual assessment is prepared in the first quarter of the following year.
- The annual assessment does not represent the average of the previous months, but the view of the entire year, according to the calculation below.
- The target values of the individual criteria can be adjusted over time.

Scope

All suppliers for production materials, production-related materials and services are evaluated.

- Quality (main criterion Q)
- PPM (Hard Fact) weighted with 20 %
- Incidents (Hard Fact) weighted 20 %
- SQP result (Soft Fact) weighted 20 %
- Quality Assessment Result (Soft Fact) weighted with 20 %
- Supplier Assessment Result (Soft Fact) weighted with 20 %

In case there are no values for a criterion, this criterion is not weighted and the weighting is distributed equally among the other criteria.

The main criterion quality is weighted at 80 % in the overall assessment.

PPM Assessment and Reference Values of the Commodity

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

PPM guide values product groups	PPM
Sintering/Forging/Subcontracting	50
Die Casting/Cabling/Electrics/Electronics	100
Coating/Heat Treatment	30
Standard Parts	40
Turning	100
Raw Materials	100
Elastomers	15
Springs	20
Wires	50
Plating/Undefined Materials	40
Stamping/Deep Drawing	50
Plastic Injection Molding	150

Weight within quality criterion = 20

The PPM target value is 0

The above values are guideline values within the framework of supplier assessment.

Incident Assessment in Relation to the Number of Incoming Goods

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

Weighting within quality criterion = 20 %

Assessment SQP Result

SQP-Rating	1 - 100
= SQP Result in %	1 - 100

Weighting within quality criterion = 20 %
If no SQP result is available = no assessment (0)

Assessment – Q Assessment

SQP-Rating	1 - 100
= SQP Result in %	1 - 100

Weighting within quality criterion = 20 %
If no SQP result is available = no assessment (0)

Assessment – Supplier Assessment

SQP-Rating	1 - 100
= SQP Result in %	1 - 100

Weighting within quality criteria = 20 %
If no SQP result is available = no assessment (0)

Costs (Main criterion C)

At the start of the project in 2017, no criteria regarding cost development will be considered, as these are not yet available on the system side (SAP).

The main criterion of cost is therefore not weighted in the overall assessment.

Delivery (main criterion D)

- Delivery reliability (hard fact) weighted at 60 %.
- Quantity reliability (hard fact) weighted at 40 %

The main criterion for delivery is weighted at 20 % in the overall assessment.

Assessment of delivery reliability (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

Weighting within delivery criterion = 60 %.

Important:
An inbound delivery with less than 20 % of the schedule line quantity is set to 0 (unweighted) in the on-time delivery criterion.
The following are the currently valid time slots:

ETO-Location	Location of Supplier	Negative time window	Positive time window
1100 (ESD)	Asia	-30	0
1100 (ESD)	America	-30	0
1100 (ESD)	Germany	-3	0
1100 (ESD)	Rest of Europe	-5	0
1200 (EVD)	Asia	-30	0
1200 (EVD)	America	-30	0
1200 (EVD)	Germany	-3	0
1200 (EVD)	Rest of Europe	-5	0
1300 (END)	Asia	-30	0
1300 (END)	America	-30	0
1300 (END)	Germany	-3	0
1300 (END)	Rest of Europe	-5	0
4000 (EWP)	Asia	-30	0
4000 (EWP)	America	-30	0
4000 (EWP)	Poland	-3	0
4000 (EWP)	Rest of Europe	-5	0
5000 (EGU)	Asia	-21	0
5000 (EGU)	Europe	-21	0
5000 (EGU)	USA	-2	0
5000 (EGU)	Rest of America	-5	0
7000 (ESM)	Asia	-21	0
7000 (ESM)	Europe	-21	0
7000 (ESM)	Mexico	-2	0
7000 (ESM)	Rest of America	-5	0

ETO-Location	Location of Supplier	Negative time window	Positive time window
8000 (EKC)	Europe	-30	0
8000 (EKC)	America	-30	0
8000 (EKC)	China	-5	0
8000 (EKC)	Rest of Asia	-14	0
8100 (ELC)	Europe	-30	0
8100 (ELC)	America	-30	0
8100 (ELC)	China	-5	0
8100 (ELC)	Rest of Asia	-14	0
6000 (EBI)	Europe	-30	0
6000 (EBI)	America	-30	0
6000 (EBI)	India	-5	0
6000 (EBI)	Rest of Asia	-14	0
All (Non-production material)	-	-2	0

Quantity reliability assessment

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 %

Information on the annual supplier assessment

Plant 5000 : ETO MAGNETIC CORP. , Grand Rapids													
Month	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Year*
Total	90	92	93	75	86	84	0	88	87	89	87	85	88
Quality	93	93	93	68	93	93	97	93	93	93	93	93	92
- Incident Rate	100	100	100	1	100	100	100	100	100	100	100	100	90
- PPM	100	100	100	100	100	100	100	100	100	100	100	100	100
- SQP	0	0	0	0	0	0	0	0	0	0	0	0	100
- Q-Assessment (SF)	91	91	91	91	91	91	91	91	91	91	91	91	91
- S-Assessment (SF)	81	81	81	81	81	81	0	81	81	81	81	81	81
Delivery	79	87	91	100	56	46	74	66	64	74	62	54	70
- On-time delivery	88	88	100	100	60	43	77	70	64	89	74	51	75
- Quantity reliability	65	85	77	100	45	36	60	60	63	52	45	58	62
Escalation Level: 1													

The annual result is not the arithmetic mean of the monthly values. It is recalculated using all the individual data for the year.

The overall annual score leads exclusively to the escalation level model (see chapter 14.3.2).