

SUPPLIER MANUAL

FRAUENTHAL GNOTEC

and its subsidiaries

INTRODUCTION

The Automotive industry is a demanding and variable branch and it is our responsibility to adapt promptly in the most sufficient way possible. We all play an important role in the supply chain and we have to improve and be innovative to manage these changes.



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1. USING THIS DOCUMENT

a. ORGANIZATION

This document defines the expectations and working procedures as a foundation to and maintaining a successful business relationship with Gnotec. This document is organized in chapters which follows our main processes.



b. KEY ELEMENT PROCEDURES

In addition to this supplier manual, Gnotec maintains a set of Key Element Procedures that defines specific requirements and expectations in certain key areas. These elements cover Gnotec requirements related to environment, logistics, corporate social responsibility and cost management. The supplier shall consider these Key element procedures as part of this document. These key element procedures are available at Gnotec Web page www.gnotec.com/download.

c. ACCESS OF SUPPLIER DOCUMENTS

Public documents and manuals such as supplier General terms and conditions, supplier manual, logistic guidelines are published at Gnotec's web page www.gnotec.com/download and it is the supplier's responsibility to keep up to date with changes and how changes impact them and act accordingly.

2. BASIC REQUIREMENT

The fundamental attitude within our supply chain should be to continuously improve predictability with nothing happening by chance. We shall always be determined to find the key to flawless supply and zero defect.

a. PERFORMANCE EXPECTATIONS

Below table shows the expected level of performance for Gnotec suppliers, and suppliers shall always try to exceed these levels. The zero defects and flawless supply chain shall be the mindset of all suppliers and in all areas.

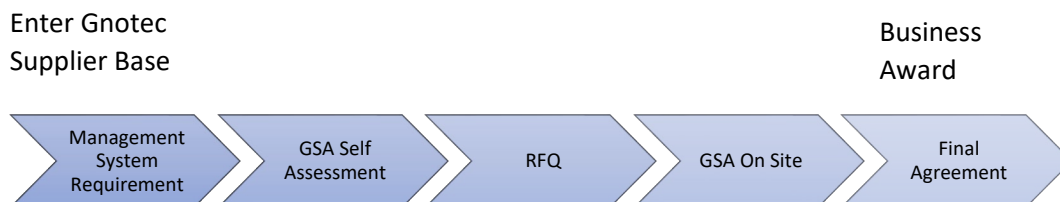
MEASUREMENT	TARGET
DELIVERY PRECISION On time in full	98% as minimum requirement* 100% Vision to aim for
QUALITY NON CONFORMING REPORTS	According to separate agreement
PPM	Expected Zero Defect*
PPAP Complete and on time	100%
8D response On time and accepted	100%
EDI On time and without errors	98%
EDI Communication standard	DELFOR/DESADV/INVOIC

**Actual target is set in contract reviews which can differ due to product criticality, technology and/or function.*

b. MANAGEMENT SYSTEM REQUIREMENTS

AREA	REQUIRED LEVEL
Quality system	ISO 9001 Automotive suppliers shall have a third party IATF 16949 certificate.
Environmental system	ISO 14001 or similar
Gnotec Supplier Audit Tool	According to agreement with Gnotec Purchasing Organisation
GNOTEC Customer specific requirements	Confirmation
EDI	DELFOR, DESADV and INVOIC as per agreed implementation plan.
Ethics	Confirmation of Gnotec Code of Conduct.

SOURCING



This section explains the important steps of how to become a supplier to Gnotec. It is important that suppliers before submitting a quote to any Gnotec company have read and understood the received prerequisite to become a supplier. Supplier shall before addressing Gnotec have understood that these prerequisites are one of the most critical conditions and any business in the future will be awarded under nothing less than these given terms.

c. MANAGEMENT SYSTEM REQUIREMENTS

Any potential supplier to Gnotec shall have a quality system e.g. ISO 9001 third party approval, and have a committed plan to certification of environmental management system e.g. ISO 14001 or similar. Automotive suppliers shall have a third party IATF 16949 certificate.

d. GNOTEC SUPPLIER AUDIT SELF ASSESSMENT

Potential suppliers have to submit the Gnotec Supplier Audit (GSA) form addressed to the purchasing commodity buyer.

The Gnotec Supplier Audit will be assessed by sourcing board where decision will be taken.

e. REQUEST FOR QUOTATION (RFQ)

To be considered for new business the Supplier have to answer to all addressed demands and topics within the RFQ.

f. QUOTATION

All RFQ's have to be replied to on a formal QUOTATION where all criteria's has been answered fully.

The Customer expects that all Quotations are made under the Gnotec General Terms & Conditions, this supplier manual and our logistic guidelines.

Any restraints of capacity, tooling life time etc. has to be clearly noted within the quotation.

The supplier shall always make a product review within the quotation.

Prices and Lead time shall always be stated for following order and index level.

**LEAD TIME
SPLIT UP AT QUOTE**



- Prototypes from order to supply
- First of tooling samples (FOT) from tool order to first parts out of tooling supplied.
- PPAP, from order to PPAP documents and samples approved.
- Serial delivery, from PPAP approval to first shipment supplied.

g. GNOTEC SUPPLIER AUDIT

The Gnotec Supplier Audit is the primary tool for supplier approval and an on-site audit where business critical elements are assessed. The idea is to get a broad overview of the Suppliers organization and processes.

h. FINAL AGREEMENT

Once a supplier is approved the supplier have to sign the formal agreement prior to any nomination and purchase orders.

3. ADVANCED PRODUCT QUALITY PLANNING

Gnotec organize all new product realization into projects with cross functional teams and clear responsibilities and firm gates. Suppliers are required to have an effective project organization with cross functional teams and firm gates to support the Gnotec time plan given from nomination to first serial supply. All Gnotec suppliers shall have a detailed Advanced Product Quality Plan (APQP) to be followed for Gnotec projects when requested.

The following chapters describes the expectations throughout the complete APQP process.

a. SCOPE

We firmly believe that planning is critical key component for a successful project realization and product lifecycle. Gnotec expect the supplier to make an APQP for all projects prior to order process using the control plan as a reference and taking in consideration all the customer specific requirements

b. APQP plan shall be made for all

- New products
- Change of products
- Change of process flow
- Change of manufacturing process

c. APQP-PLANNING

- i. The APQP's purpose is to support a project being realized in time at the right cost and to the optimal quality level.
- ii. A basic general APQP shall be a part of the RFQ response as a part of the suppliers Quotation. This Basic APQP plan shall have identified tasks in the critical path and responsibility to meet the expected timing.

d. RESPONSIBILITIES IN APQP

- i. To have a successful implementation of a project, cooperation and team work between the customer and the supplier is a recognized success factor. It is also crucial to have clear expectations and clear division of labor in order to know the parties' expectations during the project life time. Below are a few typical key areas of responsibilities.

Customer	Supplier
Identify project team members	Assign project manager
Assign SQA to support the APQP activities	Identify cross functional APQP project team members.
Identify Key milestones and project parameters	Develop and execute an APQP plan to support a successful project realization.

e. KEY COMPONENT DEFINITIONS

- i. All products are equally important and forms part of the final complete unit and thus affect customer satisfaction. There are however some parts that demands some additional attention. At the start of the project one task for the cross functional team is to identify and address parts which will be a subject to closer control and monitoring. Following criteria's can decide if the part need closer monitoring during the project life time.
- ii. Key component selection criteria's
 - Safety Critical components
 - Function critical components
 - Hard to access components
 - High value parts
 - Long lead time for tooling or material
 - Parts with known quality concern
 - Extensive verification or validation testing

f. APQP REVIEWS

- i. The APQP review meeting purpose is to monitor critical dates to reach the Trial, PPAP and SOP toll gates for the project.
- ii. APQP reviews shall be held throughout the project time plan to follow up the predefined tollgates from the supplier and customers side. The critical tollgates will be set and planned with dates and intervals at the APQP kick-off meeting.
- iii. APQP Kick-off meeting shall be held within latest 2 weeks after nomination of the business.
- iv. APQP review shall be documented in a time plan and action plan.

4. PRODUCTION PART APPROVAL PROCESS

The PPAP procedures main purpose is to secure that all technical specifications and design records are understood and met and that the process has a capability under serial manufacturing conditions to produce conforming parts. The PPAP procedure shall also secure that capacity is available in the planning phase for given lifecycle.

PPAP has to be approved by the customer by return of signed PSW prior to any serial delivery can take place.

a. PPAP REFERENCE

- i. The supplier shall ensure that the PPAP documentation and samples are in accordance with the AIAG PPAP manual and requested PPAP level.

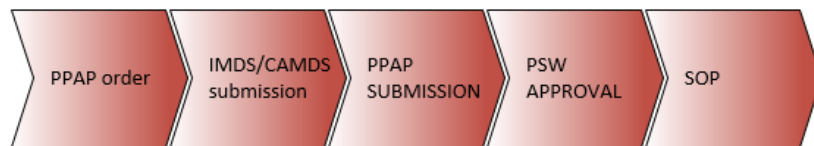
- ii. Gnotec requires that all suppliers follow the customer notification and submission responsibility for changes that have a direct or indirect impact on quality, capability, safety, capacity, material flow, process steps as example.

This includes but are not limited to:

- Introduction of new components.
- Changes of an existing part
- Drawing or specification changes
- Correction to prior discrepancies
- Supplier process changes
- Material changes or substitutions
- Changes of sub-suppliers

b. PPAP PROCESS

Gnotec use a simplified one step PPAP process as described in below flow description.



c. PPAP ORDER

- The Purchaser will issue a PPAP order specifying following expected submission dates.
 - a. IMDS/ (CAMDS for China) normally submitted two (2) weeks prior to PPAP submission date.
 - b. PPAP / PSW submission date
 - c. Samples normally five (5) measured parts with protocol to be submitted together with PPAP documentation.
- PSW approval or correction should be promptly communicated but not later than two (2) weeks after submission of complete PPAP.

d. DELAYS or NONCONFORMITY

- Any risk of delays shall promptly be communicated to the buyer and SQE. Failure to deliver in time or missing parts of PPAP documentation can and will be seen as nonconformity or missed delivery and will be handled as a late delivery.

e. SUBMISSION DOCUMENTATION LEVEL

- Suppliers shall always submit PPAP level 3 without any exceptions. After proven flawless submission over time and after formal audit at site, the Supplier can get approval to submit PPAP level 4.

f. PPAP DOCUMENTATION LEVELS

	Requirement	LEVEL 3	LEVEL 4
1	Design records	S	According to PPAP-order
2	Engineering change documents, if any	S	
3	Gnotec Engineering approval, if required	S	
4	Design FMEA	S	
5	Process flow diagram	S	
6	Process FMEA	S	
7	Control Plan	S	
8	Measurement system analysis studies	S	
9	Dimensional results	S	
10	Material, performance test results	S	
11	Initial process studies	S	
12	Qualified laboratory documentation	S	
13	Appearance approval report, if applicable	S	
14	Sample product	S	
15	Master sample	R	
16	Checking aids	R	
17	Records of compliance with Gnotec specific requirements.	S	
18	Part submission warrant PSW Bulk material Checklist	S S	
19	IMDS registration / CAMDS registration	S	

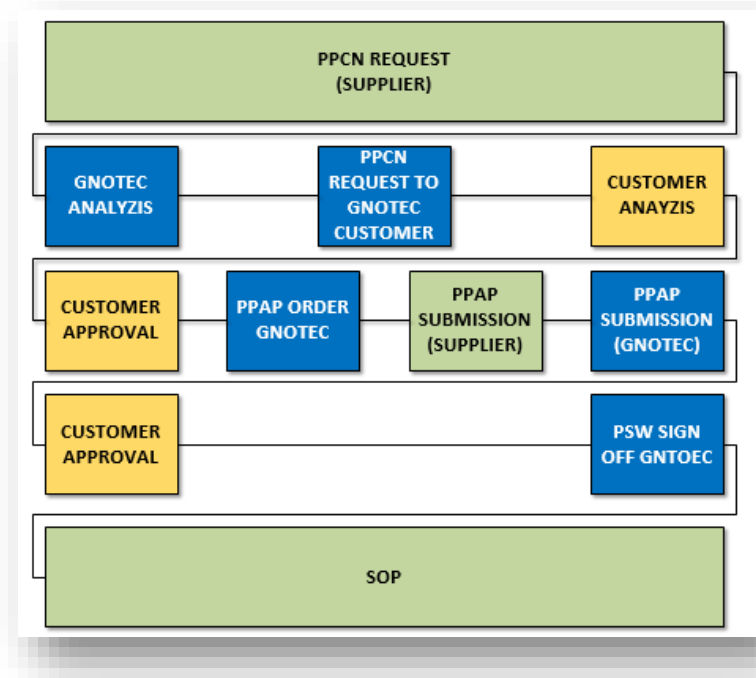
S= Supplier shall submit a copy of the records or documentation and retain a copy at appropriate locations.

R= The supplier shall retain at appropriate locations and make available to GNOTEC upon request.

*= The supplier shall retain at appropriate locations and submit to Gnotec upon request.

g. **PRODUCT PROCESS CHANGE NOTIFICATION**

All proposed product-, process-, material- or supply changes after PPAP approval has to be communicated and approved by the Gnotec PPCN process prior to the introduction of the proposed change as IATF 16949 and PPAP guidelines requires.



- i. The purpose of this requirement is to avoid any quality and delivery issues as a result of untested or validated changes.
- ii. This process applies but are not limited to the following changes
 - Transferring production line, partly or totally: to a new location within the facility, plant or building.
 - New production layout or changes within the production line.
 - Change of sub-tier supplier
 - Changes of a process at a contract supplier, (packaging, surface treatment, machining etc.).
 - Packaging changes or packaging operations.
 - Changes at sub-tier suppliers that affect fit, form or function of the product.
 - Renewal of current tooling.
 - Changes to the raw material.
 - Outsourcing all or part of production to sub-tier supplier.
 - Request for change to product design including dimensions, tolerances, function, appearance.

iii. PRODUCT AND PROCESS CHANGE NOTIFICATION (PPCN)

- The supplier initiates a proposed change by completing the PPCN document and submit it to the buyer.
- The PPCN shall be submitted at least 16 weeks prior to the change.
- After reviewing the PPCN the buyer will initiate the change process with a PPAP order and indicate if any cost is related to the change which will be invoiced to the supplier.

iv. CHANGES WITHOUT APPROVAL

- Any unauthorized changes without formal approval from the customer may result in cost to correcting the situation and will be charged back to the supplier.
- The suppliers 3rd party certifier will be formally notified that the supplier is not following the quality system or customer specific requirements.
- Changes without approval will lead to escalation and business on hold until corrective actions has been taken and routines implemented to avoid re-occurrence.

5. GNOTEC SPECIFIC REQUIREMENTS

a. MANAGEMENT RESPONSIBILITY

i. CUSTOMER DEPENDENCY

- The supplier's dependency towards Gnotec is recommended to not exceed 45%.

ii. BUSINESS PLAN

- Suppliers shall have a clear business plan, strategy and policy deployment to reach the stated objectives per business unit.

iii. KEY PERFORMANCE INDICATOR

- There shall be defined KPI's in line with the objectives in the business plan and strategy. These KPI's shall be monitored frequently and action plan shall be made upon deviation.

iv. RISK MANAGEMENT

• RISK POLICY

Suppliers shall have an up-to-date risk management policy. It shall promote effective identification, analysis, control, prevention and monitoring business risks. Management shall make sure it is fully implemented and communicated and reviewed on regular basis.

v. CONTINGENCY PLAN

- a. The supplier shall have a contingency plan to prevent possible risk of disruption in supply, manufacturing, sourcing etc.
- b. All planned upgrades of or changes to critical software systems (e.g. ERP, WMS etc) must be communicated to Gnotec in reasonable time before planned implementation.

vi. EMERGENCY PROCEDURES

- The supplier shall have appropriate emergency procedures including evacuation and rescue plans.

vii. SAFETY PRECAUTIONS

- The supplier shall have a process in place to manage health and safety at workplaces. Supplier shall implement safety precautions throughout the whole organization for dealing with hazardous substances, noise and equipment. Safety instructions and appropriate safety devices shall be in use.

viii. SECURITY

- The supplier shall implement security procedures covering buildings (e.g. perimeter protection), employees (e.g. GDPR), documents, IT systems and movement of products. It shall also include measures to prevent unauthorized access to its IT systems. Necessary precautions shall be implemented in form of fireproof cabinets, virus scans, up-to-date electronic back-ups etc.

ix. CONFIDENTIAL AGREEMENT

- The supplier shall have a confidentiality agreement with all its employees and temporary work force and resident subcontractors.

x. CODE OF CONDUCT

- The supplier shall have a documented code of conduct and code of ethics or accept Gnotec's as their own.
<https://www.gnotec.com/downloads/>
- Supplier shall respect the Ten principle of the UN Global Compact for Human rights, Labour, Environment, Anti-Corruption.
<https://www.unglobalcompact.org/what-is-gc/mission/principles>
- Supplier shall have a Policy for conflict free mineral sourcing.

b. QUALITY MANAGEMENT

- i. The suppliers shall conduct internal audits for processes, products, 8D reports and management systems. All records shall be stored, analyzed and deviations shall be handled with separate action plans.

c. ENVIRONMENTAL

- i. The supplier shall have a documented environmental management system and it shall be reviewed on a regular basis and promote continuous improvement
- ii. The supplier shall have a 3rd party approved ISO14001 or similar environmental management system.
- iii. All suppliers shall provide a documented compliance of National and international environmental legislations as well as specific European Union legislations. Suppliers have the responsibility to remain updated of changes of the individual legislation.

d. MATERIAL DATABASE (IMDS/CAMDS)

- i. The supplier shall be able to report MDS data globally and for local demands IMDS (EUROPE) and CAMDS (China) prior to take on any further business.

e. PRODUCTION

i. PLANNING

- Supplier shall have a firm capacity planning system for short, mid and long term.

ii. IMPROVEMENTS

- Supplier shall have a procedure for continuous improvement within the production.

iii. PRODUCTION RELEASE

- There shall be a process of production release for new projects, engineering changes, tooling repair, maintenance or rework orders.

iv. IDENTIFICATION

- The supplier shall have a documented procedure ensuring that all products are identified to indicate their conformance or nonconformance throughout all process steps.

v. TRACEABILITY

- Supplier shall implement a system for traceability throughout the whole supply chain and manufacturing process on parts classified as safety parts.

f. SUBCONTRACTORS ADDITIONAL REQUIREMENTS

Subcontractors are defined as a supplier who process any Gnotec owned material and the special requirements for these conditions are described under this headline.

i. MATERIAL RESPONSIBILITY

- Suppliers are responsible for any loss or damage to Gnotec owned material and shall store and handle the material to avoid damages or losses.
- Minimum requirement for Gnotec material is to check inventory on a regular basis to avoid discrepancies.
- If material have to be scrapped due to processing problems this shall be reported to the responsible planner without delay to avoid material shortages. Scrapping cost will be invoiced with the accumulated cost where detected.

ii. DIRECT DELIVERY TO GNOTEC CUSTOMERS

- In the event a SUBCONTRACTOR is due to deliver directly to Gnotec Customer the SUBCONTRACTOR automatically falls under the end Customer's agreement and specific requirements and take a part of the responsibility to fulfill these demands without any exception.

g. TRAINING

i. TRAINING OF PERSONNEL

- There shall be a firm introduction of new workers and temporary workers to maintain a stable quality output.
- There shall be a system identifying gaps of knowledge and training program for personnel development to continuously improve the level of competence within the company.
- Records of performed training shall be kept.

h. PURCHASING

- i. The supplier shall secure that the customers' demands are integrated with its suppliers.

i. LOGISTICS

- i. See Gnotec logistic guidelines at www.gnotec.com/downloads
- ii. Integrated planning system such as EDI shall be promoted and implemented to its sub suppliers.
- iii. Supplier shall always work to improve and shorten the lead time and lot sizes of its processes.

j. SPARE PARTS

- i. Suppliers shall be able to support with spare parts 15 years after the product have reached its end of life at the end customers production.

k. CUSTOMER OWNED TOOLING

- i. Tools and fixtures shall clearly be marked with signs that refers to the related part number.
- ii. List of all tools and fixtures within the company shall be stored and also clearly state the owner of each tool in writing **"Property of Gnotec"**
- iii. Tools shall be stored safe and maintained during its life time.

l. FACILITIES

- i. Suppliers facilities, equipment and tooling shall be clean, well-organized and in proper order.
- ii. Suppliers manufacturing, testing, packing, storing and shipping shall have clear layout to avoid bottlenecks and crossing flows should be avoided.

6. PRODUCTION REQUIREMENTS

a. REQUESTING DEVIATION APPROVAL

- i. In the case that suppliers request to deliver parts that not fully comply with the stated characteristics or dimensions, supplier has to make a formal request TPD (temporary part deviation) and get it approved prior to any shipment. The TPD form will be retrieved from the local purchasing department.

b. RECORD RETENTION

DOCUMENT TYPE	EXAMPLES	MAINTANANCE INTERVAL
PPAP DOCUMENTATION	Drawings, Process flow charts, Control plans, FMEAs, PSWs, Manufacturing instructions, etc.	Duration of production and service activity plus one year.
QUALITY RECORDS	Inspection records, Functional test results, Material certifications, Torque Records, Other test results.	3 years from date of production
QUALITY SYSTEM DOCUMENTS	Internal quality system audits, Product audits, Management Reviews.	3 years from date of creations
PRODUCT SAFETY RELATED RECORDS	Inspection records, Test results, Material Certifications, Torque records, Traceability Records.	15 years from date of product manufacture.

These requirements do not supersede regulatory requirements.

7. PERFORMANCE MEASUREMENT AND CORRECTIVE ACTION

a. MANAGING NONCONFORMING PARTS

i. INSPECTION REPORTS

- It is in all interest to identify and address non-conforming parts as quickly as possible.
- See also Gnotec general terms & conditions section 8
- In a normal situation, suppliers are expected to respond immediately to any nonconformance and ensure that all receiving plants are protected within 24 hours. Suppliers are required to notify Gnotec immediately if it is suspected that non-conforming material has been shipped to a Gnotec plant.
- Depending on the situation and need and time the supplied parts may be sorted without approval. Suppliers approval is necessary prior to any modifications or rework of products.
- The supplier shall be prepared to take any or all of the following actions after nonconforming materials are identified at Gnotec facility. Main rule is to return material to supplier to be sorted.
 - a. Replacement of nonconforming material
 - b. Provide resources to perform required sorting or rework.
 - c. Provide third party sorting resources.
 - d. Authorize Gnotec to begin third party activities on the supplier's behalf.
 - e. Provide instructions and acceptance criteria required to support inspection, sorting or rework.
- Gnotec has agreements with third party sorting companies who are capable of provide sorting close to the production on the behalf of the supplier. All costs associated with work and materials associated to a claim will be on the Suppliers responsibility.

ii. REPORTING

- Suppliers shall follow the 8D report discipline and common analysis tools to identify the root cause and prevent reoccurrence.
- All claims shall result in an up-dated FMEA which is due to be submitted for the long term solution.

iii. RESPONSE TIME

- IMMEDIATELY acknowledge receipt of NCR
- 24 hours D1-D2, Problem identified and containment initiated
- 48 hours D3, Containment completed
- 10 days D4-D5, Root cause analysis and actions completed
- 20 days D6-D7, Effectiveness Verified.

These time frames have to be respected at all times! If the suppliers resolving time is expected to last longer the supplier has to get acceptance from Gnotec SQ.

Supplier shall always investigate if similar fault could occur in product family, process family or similar parts and implement lessons learned to all related products and processes.

iv. PENALTIES

- If a supplier fails to deliver within agreed time frame a penalty fee will be invoiced.

v. DEVIATION RELATED COSTS

- For each actual and confirmed claim report the supplier will be charged with the actual cost with which it affected Gnotec. This includes for example: end customer claim costs, sorting costs, premium transports and administration fee's (according to agreement)

b. ESCALATION PROCEDURE

- Suppliers can be a subject for escalation due to repeating poor performance of 8D reporting, Delay of PPAP deliveries, Poor service etc. This will be initiated from the local purchasing department.
- The escalation procedure is described in below scheme.

