General Quality Requirements for Suppliers

TABLE OF CONTENTS

RECORD OF REVISIONS

Ausgabe/ Issue	Datum/ *Date*	Beschreibung/ *Description*
001	27. July 2018	Raised
1.1	07. Jan. 2019	Confidentiality note removed from cover sheet
002	30. Sep. 2020	Corrections and specification of requirements, addition of EN 9145 requirements
003	23. Aug. 2021	Color marking of the changes to versions 1.1 and 002, further specifications in English issue

1 VALIDITY

This document is valid for all locations of Diehl Aviation and Diehl Aerospace, which both companies hereafter will be referred to as the "Purchaser".
This document is divided into five parts. The first part describes the basic quality assurance requirements for suppliers. The requirements defined there apply to all suppliers, regardless of the type of assignment.
The other four sections contain, in addition to the basic requirements, the specific requirements, depending on the type of the assignment.

The structure of the document(s) is as follows:

GQRS	→	Basic Requirements
GQRS, Annex D	→	Distributors
GQRS, Annex E	→	Extended Workbench
GQRS, Annex P	→	Built to Print
GQRS, Annex S	→	Built to Specification

2 PURPOSE/ SCOPE

2.1 Purpose

These General Quality Requirements for Suppliers (GQRS) emphasize the minimum standards required by the Purchaser, intended to ensure the quality capability of the Supplier and its sub-suppliers. The GQRS applies in addition to the conditions of purchase of the Purchaser. It is valid without signature and, until further notice, applies to all products and services supplied. The applicable version is available from the Purchaser´s webpage https://www.diehl.com/aviation/de/presse-und-medien/downloadcenter/. Alterations and amendments are to indicate in a compliance matrix and require the Purchaser´s approval. Based on the compliance matrix a Quality Assurance Agreement is developed which is valid with signature along with this GQRS. The Supplier shall oblige its sub-suppliers in due manner to comply with the applicable requirements of this document and supervise proper compliance.

2.2 Scope

In case of contradictory requirements between this document and other documents, the following order of precedence applies:

1. Specific product-related documents, e.g. purchase order, delivery specifications, product specifications
2. General product and material specifications
3. Quality Assurance Agreement (QSV)
4. Quality Requirements for Suppliers (GQRS)

3 APPLICABLE DOCUMENTS, TERMS, ABBREVIATIONS

AS 13004	Process Failure Mode and Effects Analysis (PFMEA) and Control Plans
ASTM E2782	Standard Guide for Measurement Systems Analysis (MSA)
DIN EN 9100	Aerospace series – Quality Management System - Requirements
DIN EN 9102	Aerospace series – Quality Management Systems – First Article Inspection
DIN EN 9103	Aerospace series – Quality Management Systems – Variation management of Key Characteristics
DIN EN 9131	Aerospace series – Quality Management Systems – Nonconformance Documentation
pr EN 9134	Aerospace series – Quality Management Systems – Supply Chain Risk Management Guidelines
EN 9136	Aerospace series - Root Cause Analysis and Problem Solving (9S Methodology)
EN 9145	Aerospace series – Requirements for Advanced Product Quality Planning and Production Part
ISO 9001	Quality Management Systems – Requirements
ISO 14001	Environmental management systems – Requirements with guidance for use
ISO/IEC 27002	Information technology – Security techniques – Code of practice for Information Security Management
ISO 45001	Occupational Health and Safety Management Systems – Requirements with Guidance for Use

5 Why	Methods for Cause and Effect Determination
CI	Critical Item in accordance with EN 9145
CoC	Certificate of Conformity
COTS	Commercial off the Shelf, Catalog Parts
ECHA	European Chemicals Agency
FAI	First Article Inspection acc. to DIN EN 9102
FAIR	First Article Inspection Report acc. To DIN EN 9102
FiFo	First in, First out
FMEA	Failure Mode and Effects Analysis
FOD	Foreign Object Damage
Ishikawa	Cause and Effect Diagram
KC	Key Characteristic per EN 9145
MSA	Measurement System Analysis
NoE	Notification of Quality Escape
OR	Only Representative for REACH
PCN	Product-/ Process Change Notification
PDN	Product Discontinuation Notification
PPAP	Production Part Approval Process
QMS	Quality Management System
QSV	Quality Assurance Agreement
RCA	Root Cause Analysis
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
SCR	Supplier Change Request
SVHC	Substances of Very High Concern

4 GENERAL REQUIREMENTS

4.1 Quality Management System

The Purchaser requires a quality management system according based on DIN EN ISO 9001 or another QM-system with the same efficacy. The Supplier shall apply procedures and means to conform the quality management system to DIN EN 9100. A certification acc. to DIN EN 9100 or equivalent of suppliers whose main field of business is within the aerospace industry is required.
The Supplier is obligated to notify the Purchaser within 14 days should their QMS Certificate be suspended or expired. After renewal of their QMS Certificate, the Supplier shall immediately and without request, send a copy of their certificate to the Purchaser.

4.2 Supplier Approval

Supplier approval is based on the supplier self-assessment questionnaire. The Supplier must fill in this questionnaire prior to receiving approval and submit it signed to the Purchaser along with copies of their QM certificates. The Purchaser reserves the right to conduct an on-site inspection prior to supplier approval in order to investigate the effectiveness of the implemented system, if required together with the customer of the Purchaser. In case of approval, the Supplier is added to the Purchaser´s approved suppliers list

4.3 Environmental Management System

To manage their duties concerning environmental protection, the Supplier shall introduce and maintain an environmental management system according to ISO 14001 or a comparable standard. Certification of the environmental management system is recommended. The Supplier further commits to observing the applicable environmental laws and regulations.

It is especially important for the Supplier to comply with European Community Regulation (EC) 1907/2006 on the registration, evaluation, authorisation and restriction of chemical substances (REACH). Information on REACH is available from the ECHA webpage (*http://echa.europa.eu*).The Supplier must meet the obligations for pre-registration, registration and/or notification of substances with the European Chemicals Agency (ECHA) including the intended areas of use by the Purchaser. Suppliers from outside the European Economic Area (EEA) need to conform to these obligations through an authorized only representative (OR).
The Supplier provides the Purchaser with a complete list of all substances contained in the delivery item with reference to the Purchaser´s material number, at least, however, of the substances listed in annex XIV of the REACH regulation, and, from a concentration of 0.1 per weight (w/w) on, of substances listed in the "candidate list", indicating CAS number, concentration, total weight and the pertaining information on the safe handling of the delivery items. Such information shall be sent to the Purchaser.
Forms 'Material Declaration Form (MDF) for Articles' and 'Material Declaration Form (MDF) for Preparations' are available from the Purchaser´s web page
https://www.diehl.com/aviation/de/presse-und-medien/downloadcenter/.
Delivery items, the contents of which are not communicated to the customer, shall be considered free of the substances listed in Annexes XIV and XVII of REACH, the substances listed in Annex I of the POP Regulation (EU 2019/2021) and the substances listed in the "candidate list".

4.4 Health and Safety

The Supplier ensures their employee working conditions fulfill the requirements of ISO 45001 with regard to health and safety, in which the applicable legal regulations define the minimum requirements. Appropriate measures shall be taken to prevent work accidents and occupational diseases.

4.5 Information Security

The Supplier ensures to set up appropriate procedures and means to ensure information security to protect the Purchaser´s interest. The DIN ISO/IEC 27002 standard can serve as a guideline.

4.6 Resource Security

To fulfill the delivery scope equivalent to the communicated orders and commissions of the Purchaser, the Supplier has to ensure a full availability of all resources (materials, parts, machines, etc.) necessary to produce the deliverables. Deviations from this shall be communicated to the Purchaser in good time.

5 REQUIREMENTS TO SUPPLIERS

See:

Annex E: 18
Annex P: 15
Annex S: 12

5.1 Traceability

The Supplier is to establish a procedure ensuring the traceability of manufacturing and testing processes (operator, machine) and of material (serial number, batch, date code) of the delivery item. If the product is accompanied by a CoC or superior graded delivery documents, a reference to the pertaining delivery note must be visible.

5.2 Documentation and Archiving

The Supplier is obligated to document the materials used and to archive this documentation for a minimum of 10 years from the date of delivery of the respective delivery item. This includes the traceability of the material batches pertaining to the respective lots delivered to the Purchaser. The Supplier commits to archiving delivery documents and quality records to ensure traceability of production and approval for a minimum of 10 years and, upon request, make copies of such documentation available to the Purchaser without undue delay.
The requirements set forth above shall be included in the Suppliers direct supply contracts as well as the obligation that they be flowed to the sub-tier supply chain.
Destruction of the documents after expiration of the compulsory archiving is to be indicated to the Purchaser and has to be approved by the Purchaser. The Purchaser reserves the right to request such records before destroying them. In the event that the Purchaser exercises this right, the Supplier shall make such records available.

Changes or corrections to records, regardless of the media, shall be made as follows:
Draw a single line through the old data, enter the correct data, the date and a traceable signature of the individual making the correction. No erasures, covering, or "white-out" allowed.

5.3 Measuring and Test Equipment

See:

Annex P: 15.1
Annex S: 12.1

5.3.1 Calibration

The Supplier is to establish a monitoring procedure for the measuring and test equipment used and to periodically calibrate the measuring equipment. The measuring standards used for calibration must be based on international or national measuring standards. Should such measuring standards not be available, the calibration or verification basis must be documented. As a minimum requirement the expiry of the calibration interval must be visible on the test equipment.

5.4 Planning Process and Workmanship

See:

Annex E: 18.2

5.5 Procedure Documentation

See:

Annex E: 18.1

5.6 Information Obligation

In the following cases, the Supplier is to notify the Purchaser prior to execution of:

a) Change of production site from one supplier organization facility to another, from the organization to a sub-supplier, or from one sub-supplier to another
b) Process change[1]
c) Material change
d) Design change
e) Change of manufacturer part number
f) Change of sub-supplier in case of customer-specific components
g) Change of staff in key position if such position was specified
h) Alteration of QM-system
i) Alteration of top level organisation, Q-organisation and company / owner structure (including location of company headquarters)
j) Alteration of ERP and/or production planning and shop floor control systems
k) Contradiction between delivery plan or purchase order and drawings (e.g. due to variations from standards or standards rendered invalid)

The Supplier shall promptly notify the Purchaser

l) When the supplier notices that nonconforming product has been shipped. The notification (NoE) shall include part numbers, traceability (lot, serial, manufacturer numbers), ship dates, quantities, and a description of the nonconformance. This applies to any nonconformance that departs from drawing, specifications or purchase order requirements.
m) About fault messages for components or product families used in the Purchaser´s products

The Purchaser has to be notified of changes according to a) to g) by using the 'Supplier Change Request' (SCR) form. The form is available from the Purchaser´s web page *https://www.diehl.com/aviation/en/press-and-media/downloadcenter/*.

Note:
Optimizations[2] of the production process are not notifiable but need to be fully documented by the Supplier and submitted for inspection upon Purchaser´s request.

5.7 Product Termination Notification, Product- and Process change Notification

See:

Annex D: 22
Annex P: 15.2

5.7.1 Transfer Of Work

In case of complete or partial transfer of work the Supplier shall monitor during the complete process for the entire time. This includes a risk & opportunity evaluation of the planned transfer of work as well as – with participation of the Purchaser - a definition of fallback solutions for any possible occurrences of a risk scenario.

[1] Definition *'Process Change'* (notifiable via SCR): Significant change of production process such as omission or addition of production process steps or alteration of process sequence.

[2] Definition *'Process Optimization'*: Adaptation of process parameters for improvement of results.

For every transfer of work activity, the supplier shall communicate a project leader or a project team as long as they differ to the existing communication breakdown.
In addition to the requirements and deliverables mentioned in 5.4, following documents have to be delivered to the Purchaser by the Supplier:

a) Last Article Inspection
b) Schedule for the transfer of work activity

The scope of the documents to be delivered by the Supplier can be increased by the Purchaser driven by the transfer of works relevance to the product.

5.8 Obsolescence Management

See:

Annex D: 23
Annex P: 15.3
Annex S: 12.2

5.9 Rework, Repairs

See:

Annex E: 18.4
Annex P: 15.4
Annex S: 12.3

5.10 Continuous Improvement

The Supplier will continuously work at achieving a zero-fault-quality. He steadily improves his processes by applying systematic methods, in order to exclude repetition or faults or interferences from identified risks. The supplier implements a lessons-learned-process.

5.11 Prevention of Counterfeit Parts

The Supplier shall plan, implement, and control processes, appropriate to the Supplier and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product(s) delivered to the Purchaser. Counterfeit part prevention processes should consider:

a) Training of appropriate persons in the awareness and prevention of counterfeit parts;
b) Application of a parts obsolescence monitoring program;
c) Controls for acquiring externally provided product from original or authorized manufacturers, authorized distributors, or other approved sources;
d) Requirements for assuring traceability of parts and components to their original or authorized manufacturers;
e) Verification and test methodologies to detect counterfeit parts;
f) Monitoring of counterfeit parts reporting from external sources;
g) Quarantine and reporting of suspect or detected counterfeit parts

5.12 Order By Means

See:

Annex S: 12.4

5.13 No Delivery to Third Parties

See:

Annex E: 18.5

6 GENERAL REQUIREMENTS TO THE DELIVERY ITEM

See:

Annex E: 19
Annex P: 16
Annex S: 13

6.1 Incoming Inspection

The Supplier has to make sure to plan suitable inspection procedures and supplier control to ensure that only order-compliant material is used.

6.1.1 Incoming Inspection for Supplied Materials

See:

Annex E: 19.1
Annex P: 16.1

6.2 Manufacturing Process

See:

Annex P: 16.2
Annex S: 13.1

6.3 In-Process Inspections

See:

Annex E: 19.2
Annex P: 16.3
Annex S: 13.2

6.4 Labelling of Delivery Item

The delivery item has to be labelled as specified in the drawing, specification or order.

6.5 Packaging and Storage

6.5.1 General

Irrespective of special regulations, packaging and preservation of the delivery item are to be carried out such that quality is maintained during transit and storage. Packaging made of recyclable material or returnable packaging is preferable. General or individual packaging guidelines are to be observed. The FiFo Principle shall be applied.

6.5.2 N/A

6.5.3 N/A

6.5.4 Shelf Life

When delivering items with a limited period of use or lifetime, the remaining period of use shall be 70% of the total period of use at least, unless otherwise defined for a specific material.

The Supplier shall maintain a documented system for identification and control of limited shelf life compounds so that compounds with expired shelf life are not used on products shipped to the Purchaser. (Examples of limited shelf life compounds are adhesives and paints.)

6.6 Risk Analysis, FMEA

See:

Annex P: 16.4
Annex S: 13.3

6.7 First Article Inspection

See:

Annex P: 16.5
Annex S: 13.4

6.7.1 Component Approval

See:

Annex P: 16.5.1
Annex S: 13.4.1

6.7.2 Revision of First Article inspection

See:

Annex P: 16.5.2
Annex S: 13.4.2

6.8 Capacity Planning

The Supplier shall establish a process to manage its capacity. The short, medium, and long-term planning of the Purchaser must be taken into account. The planning for the product should reflect:

a) Available Resources,
b) Required capacity
c) Identified bottlenecks.

The capacity plan shall be reviewed and updated on a regular basis.

6.9 Treatment of Broker Goods

See:

Annex D: 24
Annex P: 16.6
Annex S: 13.5

6.10 Concession

If noticed prior to delivery that a delivery item does not conform to the specifications and if such component cannot be made to conform to the specified conditions by rework, a concession has to be applied for in writing with the Purchaser not later than four (4) working days prior to the planned shipment.
The concession form is available on the Purchaser's website: *https://www.diehl.com/aviation/en/press-and-media/downloadcenter*. The error coding shall be carried out according to EN 9131, Tables 1 and 2.
Delivery can only be made after a signed, approved concession is received from the Purchaser. The concession document has to be included with the delivery.

6.11 Management of Unsalvageable Items

See:

Annex E: 19.4
Annex P: 16.7
Annex S: 13.6

6.12 Foreign Object Damage (FOD) Control

The supplier shall ensure that Foreign Objects and subsequent Foreign Object Damage (FOD) are eliminated from all parts prior to shipment. The supplier shall maintain a FOD free environment during machining, manufacturing, assembly, maintenance, inspection, storage, packaging and shipping. Supplier shall ensure that the responsibility for the FOD prevention program is clearly defined and appropriate personnel have received FOD awareness training.

6.13 Conflict Materials (Dodd-Frank-Act)

The Purchaser requires the delivery free of Conflict Materials according to Section. 1502 of the Dodd-Frank-Act (see there). This is currently applicable for Tin, Tantalum, Gold and Tungsten mined in the Democratic Republic of Congo and their neighbouring countries.
The Supplier is to notify the Purchaser latest by order confirmation in written form in case the delivery item contains a Conflict Material. In that case the Purchaser has the right of withdrawal from the purchase order, being declared within one (1) month.

7 DELIVERIES

Accompanying delivery documents and packaging have to indicate the manufacturing date, serial number (if applicable), number of delivered items, date of expiration date (if applicable). Each position on the accompanying delivery document has to consist of one production lot (date of production/ lot number/ date code). In the case of multiple production lots, each lot must be individually packaged.
Each delivery must be accompanied by a certificate of conformity 2.1 in accordance with EN 10204. An EASA Form 1 or higher quality certificate according to EN 10204 (acceptance test certificate 3.1 for surfaces and raw Material) shall be enclosed with the delivery item in each case, when they are required by the Purchaser.
Components with an FAI are to be labelled and packaged separately.

7.1 Root Cause Analysis and 8D Report

When a non-conformity is discovered, or the Supplier is notified of a discrepancy, the Supplier must take immediate action to determine if the condition exists on any other work-in-process, in stores at the Supplier's facility, or in prior shipments. Immediate containment actions must be taken and documented prior to the next shipment of the part number involved.
The Supplier shall not wait for the discrepant hardware to be returned to begin an investigation.
The Supplier will carry out a structured root cause analysis by applying suitable methods such as Ishikawa or 5 Why, in order to analyse the cause of the problem and to identify the reason why the defect was not discovered.

Suitable containment actions are to be defined and permanently implemented to ensure the conformity of the delivery item in the long term.

If requested, the Supplier will inform the Purchaser via the supplied 8D report within:

a) T0 + 2 working days regarding steps:
   D1 Team Building
   D2 Problem Description
   D3 Immediate Actions
b) T0 + 10 working days regarding steps:
   D4 Root Cause Analysis (Root Cause Origin and Non-Discovery)
   D5 Planned Corrective Actions
c) T0 + 20 working days regarding steps:
   D6 Implemented Corrective Actions and Verification of their Effectiveness
   D7 Actions to Prevent the Recurrence of the Failure
   D8 Conclusion of the Report

Should it not be possible to complete the 8D report within 20 working days, the Purchaser shall be informed as soon as possible. The deadline begins with the first notification of the defect to the Supplier (T0). Any immediate actions taken (D3) shall be maintained until the effectiveness of the containment actions have been demonstrated.
With the agreement of the Purchaser, the Supplier may use their own form templates, provided that the report is complete in terms of content and methodology. As an alternative to the 8D method, the 9S method according to EN 9136 may be used.

8 SUPPLIER RATING

The Purchaser performs a continuous supplier rating and informs the Supplier in regular intervals on their quality and delivery performance. Should the ratings not correspond to the agreed goals, or should the Supplier´s evaluation of customer satisfaction indicate to the Supplier that they have failed to reach the agreed goals, the Supplier has to take adequate actions in order to achieve the required quality level as quickly as possible.
In the same way, the Supplier is to rate their sub-suppliers and sub-contractors with at least the same indicators and take action based on the results of such rating. The Purchaser reserves the right to review such ratings and actions and to participate, in agreement with the Supplier, in sub-supplier audits or to carry out own audits with the sub-supplier.

9 RIGHT OF ACCESS

The Supplier shall grant the Purchaser, its customers, and the regulating authorities[3] the right of access to all facilities and associated records in connection with the order, at all levels of the supply chain[4]. In addition, the Supplier gives their consent to quality audits, at all levels of the supply chain, carried out by the Purchaser, its customers and the regulating authorities to assess the effectiveness of their quality assurance system.

10 SEVERABILITY CLAUSE

Should any provision of this agreement be or become invalid, this shall not affect the validity of the remaining provisions of this agreement. The parties are obliged, within reason, to replace the invalid provision with a suitable provision which is equivalent in intended purpose.

[3] Agencies, e.g. EASA, LBA,…

[4] Cascades to suppliers and their sub-suppliers to the end of the supply chain

ANNEX S FOR “BUILD-TO-SPEC.”

11 VALIDITY

This Annex is valid only in conjunction with the General Quality Requirements for Suppliers (GQRS).

12 REQUIREMENTS TO SUPPLIERS

Product requirements and product-specific quality assurance requirements can be found in the design documents (drawings, specifications, instructions etc.) and purchase orders. The Supplier shall ensure that all parts delivered to the Supplier by retailers or distributors, are sourced from distributors with EN9120 certification or authorized by the manufacturer.

The Supplier is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should the Supplier not be in possession of the valid documents or should the Supplier discover discrepancies, they are obligated to demand the valid documentation from the Purchaser.
The Supplier shall handle drawing documents rendered invalid in such a way that further unintended use within their organisation as well as within their sub-supplier´s organisation is impossible.

12.1 Measuring and Test Equipment

The Supplier has to ensure that the measuring and test equipment used is suitable for testing the characteristics specified in the design documents.

The capability of measuring and test equipment shall be proven by a measurement system analysis (MSA). MSA shall, at a minimum, be performed on the measurement methods for KCs (product and process) identified in the control plan (reference ASTM E2782). The organization shall establish and implement corrective action plans when MSA results do not satisfy the internal and/or customer acceptance criteria.

12.2 Obsolescence Management

The Supplier has to implement a process to prevent, perceive, identify and eliminate obsolescence.

12.3 Rework, Repairs

Rework means the corrective execution of a process due to its prior non-conformity by using the original or an equivalent process. It serves to achieve complete conformity of the product with the respective drawings and documentation. Rework is to be carried out by appropriately trained staff. Rework processes must be documented and approved by authorized personnel. The process approval documents shall be submitted to the Purchaser upon request. Rework is only permitted with written approval by the Purchaser. A written approval for rework is not necessary if a released rework procedure was provided by the Purchaser and if the supplier is qualified.

Repairs, in regards to series production, mean the restoration of the functional properties of a defective product, whereby complete conformity with drawings and documentation is not guaranteed. Repairs are carried out by appropriately trained personnel and require a concession from the Purchaser (see paragraph 6.10).

12.4 Order by Means

In case of an order by means of specification, the Supplier shall inform the Purchaser of the planned materials and standardized parts prior to start of production.
The use of materials and standardized parts must be approved for use by the Purchaser.

13 GENERAL REQUIREMENTS TO THE DELIVERY ITEM

General and product-specific process requirements are defined in the delivery and material specifications of the Purchaser and must be applied accordingly.

13.1 Manufacturing Process

Before commencing series production the Supplier shall ensure that:

a) The staff involved in the manufacture of the delivery item optains and maintains the necessary qualifications
b) The manufacturing processes and the required facilities are qualified accordingly
c) The manufacturing and test equipment are properly maintained

The Supplier will furthermore document the following requirements for the delivery item in a control plan according to EN 9145:

d) Manufacturing and test steps (if applicable including sub-groups),
e) Acceptance criteria for the product, the inspection equipment used, and the related records
f) Specific product and process characteristics,
g) Process steps requiring specially qualified staff

If the Supplier is not the manufacturer of the delivery item, they shall ensure compliance with the above requirements through adequate process control at the manufacturer´s facility.

13.2 In-Process Inspections

The Supplier shall ensure that the finished component is manufactured according to the assignment instructions/work order documents. If a defect is discovered, the manufacturing of the components shall be stopped immediately and the Supplier shall perform a root cause analysis with containment actions to eliminate the defect. Once production has been resumed, a 100% quality inspection shall be performed until final elimination of the defect has been completely ensured.
The Supplier must ensure, that defective components are removed immediately from the manufacturing process and declared as "nonconforming". The quantity and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be created by the Supplier. These reports shall be included with the deliveries. The report has to clearly mark any deviations from target specifications. The inspection equipment used must be clearly specified and listed in the inspection reports.

13.3 Risk Analysis, FMEA

In order to identify and evaluate potential errors and risks in the design, process, as well as the supply chain, and to derive measures to avoid or reduce such potential errors and risks, the Supplier shall conduct a risk analysis in accordance with AS 13004, pr EN 9134 or a risk analysis of a comparable standard.
The risk analysis shall be reassessed in the event of changes. Likewise, the necessity of a re-evaluation in the context of an 8D-report has to be examined.

Process KCs (Key Characteristics) shall be identified using PFMEA or other methods in order to establish variation control of product KCs and CIs (Critical Items).
Key product / process characteristics shall be traceable from their originating document through the process flow, PFMEA and control plan. Traceability may be achieved by using the same characteristic identifiers in all documents.

13.4 First Article Inspection

The qualification of customer-specific parts shall be verified by conducting a first article inspection according to DIN EN 9102. Prototypes or one-off deliveries of spare parts are excluded from the FAI requirement.
The Purchaser reserves the right, to attend an FAI at the Supplier´s premises through authorized representatives. The Supplier will inform the Purchaser in due time regarding an appointment.
The results of the first article inspection must be recorded for all specified characteristics indicating their nominal and actual values. Any variations have to be clearly marked. For all key characteristics, the first article inspection report shall include proof of process capability as well as the MSA.
The first article inspection report has to be submitted, at the latest, with the first delivery of the product to the incoming goods department of the Purchaser.

Documents listed below are part of the Production Part Approval Process (PPAP) and shall be submitted to the customer as agreed to.

1. Design Records
2. Design Risk Analysis (e. g. DFMEA); only applicable to design organization
3. Process Flow Diagram
4. Process Failure Mode and Effects Analysis (PFMEA)
5. Control Plan
6. Measurement System Analysis (MSA)
7. Initial Process Capability Studies
8. Packaging, Preservation and Labelling Approvals
9. First Article Inspection Report (FAIR) acc. to EN 9102
10. Customer PPAP Requirements
11. PPAP Approval Form (or equivalent)

13.4.1 Component Approval

The Supplier may only commence series deliveries once the Purchaser has approved the first article inspection in writing. In the event, that the first article inspection has not been finally approved at the date of the order, the Supplier will inform the Purchaser and request special release of the required quantity before delivery.

13.4.2 Revision of First Article Inspection

The first article inspection has to be fully or partly repeated according to 13.4 in coordination with the Purchaser if one of the following applies:

a) Production interruption of more than 2 years
b) Change of installations and inspection equipment within the design and manufacturing process
c) Alteration of design (fit/ form/ function)
d) Alteration of process (as defined in 5.6).
e) Alteration of material
f) Design change
g) Change of staff in key position if specified
h) Change of production site
i) Change of sub-contractor

13.5 Treatment of Broker Goods

The Purchaser only accepts goods of the original manufacturer if the certificate of origin can be claimed at any time. Should the Supplier not be able to produce such certificate of origin, the Purchaser must be informed prior to delivery in writing of the source of the component (supplier, manufacturer, manufacturer part number, date code, quantity and condition). The Purchaser must give written confirmation of approval and delivery. By no means does a lack of response imply tacit consent to such notification by the Purchaser.

The components must be checked for authenticity and function prior to delivery. Delivery or integration of used components is in no case permitted.

13.6 Management of Unsalvageable Items

In accordance with Aviation Authorities Regulations and International Aerospace Requirements, it is the responsibility of the Purchaser and of its suppliers to ensure that all aircraft items and material declared as unsalvageable[5] cannot

a) Be used for aircraft, parts or equipment manufacturing,
b) Resurface or be sold as airworthy at a later date on the aviation parts market.

To secure these objectives, the following basic rules are applicable to suppliers and their sub-suppliers:

All aircraft items and materials declared as unsalvageable:

c) Shall be physically identified,
d) Shall be handled and stored in secured/quarantine areas,
e) Shall be destroyed (when feasible) prior to transfer for scrapping/recycling. The destruction shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
f) When the destruction is not feasible prior to the transfer for scrapping/recycling processes, proof of scrapping or recycling shall be provided.

[5] *Unsalvageable material is a component or material assessed as no longer suitable for its intended flyable use.*

ANNEX P FOR BUILD-TO-PRINT

14 VALIDITY

This Annex is valid only in conjunction with the General Quality Requirements for Suppliers (GQRS).

15 REQUIREMENTS TO SUPPLIERS

Product requirements and product-specific quality assurance requirements can be found in the design documents (drawings, specifications, instructions etc.) and purchase orders. The Supplier shall ensure that all parts delivered to the Supplier by retailers or distributors, are sourced from distributors with EN9120 certification or authorized by the manufacturer.

The Supplier is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should the Supplier not be in possession of the valid documents or should the Supplier discover discrepancies, they are obligated to demand the valid documentation from the Purchaser.
The Supplier shall handle drawing documents rendered invalid in such a way that further unintended use within their organisation as well as within their sub-supplier´s organisation is impossible.

15.1 Measuring and Test Equipment

The Supplier has to ensure that the measuring and test equipment used is suitable for testing the characteristics specified in the design documents.

The capability of measuring and test equipment shall be proven by a measurement system analysis (MSA). MSA shall, at a minimum, be performed on the measurement methods for KCs (product and process) identified in the control plan (reference ASTM E2782). The organization shall establish and implement corrective action plans when MSA results do not satisfy the internal and/or customer acceptance criteria.

15.2 Product Termination Notification, Product- and Process change Notification

In the case of product termination notification of raw materials, COTS-components or product families or of announcement of product or process alterations to COTS-components, the Supplier is to notify the Purchaser without delay.
Product Termination Notifications (PTN) and Product-/ Process Change Notifications (PCN) for all delivery items ordered within the last 24 months, independent of their last delivery date, must be sent immediately to the Purchaser.
It is mandatory to secure material supplies for the following periods of time after receipt of such notification by the Purchaser:

PTN: 12 months
PCN: 6 months

The above-mentioned Product Termination or Product Change Notifications are subject to written approval by the Purchaser. By no means does a lack of response imply tacit consent to such notification. The Purchaser has to be notified of first deliveries of altered raw materials and components and the materials/ components must be marked accordingly.
In the case of a Product Termination Notification the supplier will support the Purchaser in selecting suitable alternatives and guarantee a last time buy option for the period of time mentioned above. The Supplier shall notify their Sub-suppliers in due manner of the above-mentioned requirements concerning PTN and PCN so that the PTN/ PCN process concerning information obligations and time periods can be secured for the entire supply chain.

15.3 Obsolescence Management

The Supplier has to implement a process for early detection, prediction, and elimination of obsolescence.

15.4 Rework, Repairs

Rework means the corrective execution of a process due to its prior non-conformity by using the original or an equivalent process. It serves to achieve complete conformity of the product with the respective drawings and documentation. Rework is to be carried out by appropriately trained staff. Rework processes must be documented and approved by authorized personnel. The process approval documents shall be submitted to the Purchaser upon request. Rework is only permitted with written approval by the Purchaser. A written approval for rework is not necessary if a released rework procedure was provided by the Purchaser and if the supplier is qualified.

Repairs, in regards to series production, mean the restoration of the functional properties of a defective product, whereby complete conformity with drawings and documentation is not guaranteed. Repairs are carried out by appropriately trained personnel and require a concession from the Purchaser (see paragraph 6.10).

16 GENERAL REQUIREMENTS TO THE DELIVERY ITEM

General as well as product-specific process requirements are defined in the delivery and material specifications of the Purchaser and must be applied accordingly.

16.1 Incoming Inspection for Supplied Materials

Products supplied by the Purchaser shall be inspected by the supplier. An identification and quantity check must be carried out. The Purchaser must be informed promptly of concrete facts in the case of abnormal products.

A system is to be implemented which describes a quantity deviation for each material provided, e.g. due to scrap, incoming parts, etc. A quantity deviation is communicated to the Purchaser immediately after use of the respective quantity provided.

16.2 Manufacturing Process

Before commencing series production the Supplier shall ensure that:

a) The staff involved in the manufacture of the delivery item optains and maintains the necessary qualifications
b) The manufacturing processes and the required facilities are qualified accordingly
c) The manufacturing and test equipment are properly maintained

The Supplier will furthermore document the following requirements for the delivery item in a control plan according to EN 9145:

d) Manufacturing and test steps (if applicable including sub-groups),
e) Acceptance criteria for the product, the inspection equipment used, and the related records
f) Specific product and process characteristics,
g) Process steps requiring specially qualified staff

If the Supplier is not the manufacturer of the delivery item, they shall ensure compliance with the above requirements through adequate process control at the manufacturer´s facility.

16.3 In-process Inspections

The Supplier shall ensure that the finished component is manufactured according to the assignment instructions/work order documents. If a defect is discovered, the manufacturing of the components shall be stopped immediately and the Supplier shall perform a root cause analysis with containment actions to eliminate the defect. Once production has been resumed, a 100% quality inspection shall be performed until final elimination of the defect has been completely ensured.

The Supplier must ensure, that defective components are removed immediately from the manufacturing process and declared as "nonconforming". The quantity and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be created by the Supplier. These reports shall be included with the deliveries. The report has to clearly mark any deviations from target specifications. The inspection equipment used must be clearly specified and listed in the inspection reports.

16.4 Risk Analysis, FMEA

In order to identify and evaluate potential errors and risks in the design, process, as well as the supply chain, and to derive measures to avoid or reduce such potential errors and risks, the Supplier shall conduct a risk analysis in accordance with AS 13004, pr EN 9134 or a risk analysis of a comparable standard.
The risk analysis shall be reassessed in the event of changes. Likewise, the necessity of a re-evaluation in the context of an 8D-report has to be examined.

Process KCs (Key Characteristics) shall be identified using PFMEA or other methods in order to establish variation control of product KCs and CIs (Critical Items).
Key product / process characteristics shall be traceable from their originating document through the process flow, PFMEA and control plan. Traceability may be achieved by using the same characteristic identifiers in all documents.

16.5 First Article Inspection

The qualification of customer-specific parts shall be verified by conducting a first article inspection according to DIN EN 9102. Prototypes or one-off deliveries of spare parts are excluded from the FAI requirement.
The Purchaser reserves the right, to attend an FAI at the Supplier´s premises through authorized representatives. The Supplier will inform the Purchaser in due time regarding an appointment.
The results of the first article inspection must be recorded for all specified characteristics indicating their nominal and actual values. Any variations have to be clearly marked. For all key characteristics, the first article inspection report shall include proof of process capability as well as the MSA.
The first article inspection report has to be submitted, at the latest, with the first delivery of the product to the incoming goods department of the Purchaser.

Documents listed below are part of the Production Part Approval Process (PPAP) and shall be submitted to the customer as agreed to.

1. Design Records
2. Design Risk Analysis (e. g. DFMEA); only applicable to design organization
3. Process Flow Diagram
4. Process Failure Mode and Effects Analysis (PFMEA)
5. Control Plan
6. Measurement System Analysis (MSA)
7. Initial Process Capability Studies
8. Packaging, Preservation and Labelling Approvals
9. First Article Inspection Report (FAIR) acc. to EN 9102
10. Customer PPAP Requirements
11. PPAP Approval Form (or equivalent)

16.5.1 Component Approval

The Supplier may only commence series deliveries once the Purchaser has approved the first article inspection in writing. In the event, that the first article inspection has not been finally approved at the date of the order, the Supplier will inform the Purchaser and request special release of the required quantity before delivery.

16.5.2 Revision of First Article inspection

The first article inspection has to be fully or partly repeated according to 16.5 in coordination with the Purchaser if one of the following applies:

a) Production interruption of more than 2 years
b) Change of installations and inspection equipment within the design and manufacturing process
c) Alteration of design (fit/ form/ function)
d) Alteration of process (as defined in 5.6).
e) Alteration of material
f) Design change
g) Change of staff in key position if specified
h) Change of production site
i) Change of sub-contractor

16.6 Treatment of Broker Goods

The Purchaser only accepts goods of the original manufacturer if the certificate of origin can be claimed at any time. Should the Supplier not be able to produce such certificate of origin, the Purchaser must be informed prior to delivery in writing of the source of the component (supplier, manufacturer, manufacturer part number, date code, quantity and condition). The Purchaser must give written confirmation of approval and delivery. By no means does a lack of response imply tacit consent to such notification by the Purchaser. The components must be checked for authenticity and function prior to delivery.
The test scope shall be defined with the Purchaser and encompasses:

a) Electrical Testing, 100% or according to agreed sampling plan
b) Solderability test
c) If necessary, additional tests listed in the order

The test protocols are to be enclosed with the delivery, as well as a confirmation form of the Supplier, which identifies the goods as original manufacturer´s goods and as new goods.
Delivery or integration of used components is in no case permitted.

16.7 Management of Unsalvageable Items

In accordance with Aviation Authorities Regulations and International Aerospace Requirements, it is the responsibility of the Purchaser and of its suppliers to ensure that all aircraft items and material declared as unsalvageable[6] cannot

a) Be used for aircraft, parts or equipment manufacturing,
b) Resurface or be sold as airworthy at a later date on the aviation parts market.

To secure these objectives, the following basic rules are applicable to suppliers and their sub-suppliers:
All aircraft items and materials declared as unsalvageable:

c) Shall be physically identified,
d) Shall be handled and stored in secured/quarantine areas,
e) Shall be destroyed (when feasible) prior to transfer for scrapping/recycling. The destruction shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
f) When the destruction is not feasible prior to the transfer for scrapping/recycling processes, proof of scrapping or recycling shall be provided.

[6] *Unsalvageable material is a component or material assessed as no longer suitable for its intended flyable use.*

ANNEX E FOR EXTENDED WORKBENCH

17 VALIDITY

This Annex is valid only in conjunction with the General Quality Requirements for Suppliers (GQRS).

18 REQUIREMENTS TO SUPPLIERS

Contractors, who are commissioned within the scope of EASA Part-21G approval of the Purchaser, are completely subject to the instructions and product requirements of the Purchaser within the scope of the respective commissioning. Product requirements and product-specific quality assurance requirements can be found in the design documents (drawings, specifications, instructions etc.) and purchase orders, and are to be taken accordingly from there. Deviations of any type require written approval from the Purchaser.

The Contractor is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should the Contractor not be in possession of the valid documents or should they discover discrepancies, they are obligated to request the valid documentation from the Purchaser.
The Contractor shall handle drawing documents rendered invalid in such a way that further unintended use within their organisation as well as within any sub-suppliers organisation is impossible.

Contractors who act as an extended workbench within the scope of the respective EASA Part-145 approvals of the Purchaser are obligated to fulfill official requirements in addition to the requirements specified in the GQRS. In addition, these are to be specified in a Quality Assurance Plan (QAP), which is mandatory for extended workbenches.

Contractors who are themselves holders of an EASA Part-145 approval, but are not commissioned as an extended workbench under this approval, must implement the official requirements in accordance with their management system. Excluded from this are the procedures and instructions specified by the Purchaser which are necessary for the fulfillment of the maintenance task.

18.1 Procedure Documentation

The Contractor will receive all required documentation and production processes from the Purchaser. Should there be any changes in the drawings, manufacturing processes, working procedures or work instructions, the Purchaser will forward the information to the Contractor. The Contractor shall exchange, mark as invalid, and archive old documents once any new documents are received.
The Contractor is obligated to review all working processes and procedures of the Purchaser, and to notify them of any deviations.

18.2 Planning process and Workmanship

Should any issues occur at any point during the work process, particularly ones that affect quality, delivery dates, and the environment, the Contractor must immediately notify the Purchaser. The Contractor shall seek approval from the Purchaser for any process deviations and/or any process improvements. Sub-contracting by the Contractor is not permitted.

18.3 Measuring and Test Equipment

The Contractor has to ensure that the measuring and test equipment used is suitable for testing the characteristics specified in the design documents.

18.4 Rework, Repairs

Rework means the corrective execution of a process due to its prior non-conformity by using the original or an equivalent process. It serves to achieve complete conformity of the product with the respective drawings and documentation. Rework is to be carried out by appropriately trained staff. Rework processes must be

documented and approved by authorized personnel. The process approval documents shall be submitted to the Purchaser upon request. Rework is only permitted with written approval by the Purchaser. A written approval for rework is not necessary if a released rework procedure was provided by the Purchaser and if the Contractor is qualified.
In addition, the Contractor shall keep records of non-conformities and provide a monthly report containing the quantity and root causes to the Purchaser. Defective goods shall be marked, the quantity and root causes shall be documented and reported to the Purchaser. The documentation for rework and scrap shall be part related and done separately, so that a systematic root cause of deviations and uncertainties in the manufacturing process can be known.

18.5 No Delivery to Third Parties

Within the contractual agreement, the Contractor shall only be allowed to deliver parts or services to the Purchaser. Delivery of the contracted parts or service from the Contractor to a third party is not allowed.

19 GENERAL REQUIREMENTS TO THE DELIVERY ITEM

General as well as product-specific process requirements are defined in the delivery and material specifications of the Purchaser and must be applied accordingly.

19.1 Incoming Inspection for Supplied Materials

Products supplied by the Purchaser shall be inspected by the supplier. An identification and quantity check must be carried out. The Purchaser must be informed promptly of concrete facts in the case of abnormal products.

A system is to be implemented which describes a quantity deviation for each material provided, e.g. due to scrap, incoming parts, etc. A quantity deviation is communicated to the Purchaser immediately after use of the respective quantity provided.

19.2 In-process Inspections

The Supplier shall ensure that the finished component is manufactured according to the assignment instructions/work order documents. If a defect is discovered, the manufacturing of the components shall be stopped immediately and the Supplier shall perform a root cause analysis with containment actions to eliminate the defect. Once production has been resumed, a 100% quality inspection shall be performed until final elimination of the defect has been completely ensured.
The Supplier must ensure, that defective components are removed immediately from the manufacturing process and declared as "nonconforming". The quantity and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be created by the Supplier. These reports shall be included with the deliveries. The report has to clearly mark any deviations from target specifications. The inspection equipment used must be clearly specified and listed in the inspection reports.

19.3 N/A

19.4 Management of Unsalvageable Items

In accordance with Aviation Authorities Regulations and International Aerospace Requirements, it is the responsibility of the Purchaser and of its suppliers to ensure that all aircraft items and material declared as unsalvageable[7] cannot

[7] *Unsalvageable material is a component or material assessed as no longer suitable for its intended flyable use.*

a) Be used for aircraft, parts or equipment manufacturing,
b) Resurface or be sold as airworthy at a later date on the aviation parts market.

To secure these objectives, the following basic rules are applicable to suppliers and their sub-suppliers:
All aircraft items and materials declared as unsalvageable:
c) Shall be physically identified,
d) Shall be handled and stored in secured/quarantine areas,
e) Shall be destroyed (when feasible) prior to transfer for scrapping/recycling. The destruction shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
f) When the destruction is not feasible prior to the transfer for scrapping/recycling processes, proof of scrapping or recycling shall be provided.

ANNEX D FOR DISTRIBUTORS

20 VALIDITY

This Annex is valid only in conjunction with the General Quality Requirements for Suppliers (GQRS).

21 INFORMATION OBLIGATION

The Supplier shall promptly notify the Purchaser:

a) When the supplier determines that nonconforming product has been shipped. The notification (NoE) must include part numbers, traceability information (lot, serial, manufacturer numbers), ship dates, quantities, and a description of the nonconformance. This applies to any nonconformance that departs from drawing, specifications or purchase order requirements.
b) About error indications for components or product families used in the Purchaser´s products

22 PRODUCT TERMINATION NOTIFICATION, PRODUCT- AND PROCESS CHANGE NOTIFICATION

In the case of product termination notification of raw materials, COTS-components or product families or of announcement of product or process alterations to COTS-components, the Supplier is to notify the Purchaser without delay.
Product Termination Notifications (PTN) and Product-/ Process Change Notifications (PCN) for all delivery items ordered within the last 24 months, independent of their last delivery date, must be sent immediately to the Purchaser.
It is mandatory to secure material supplies for the following periods of time after receipt of such notification by the Purchaser:

PTN: 12 months
PCN: 6 months

The above-mentioned Product Termination or Product Change Notifications are subject to written approval by the Purchaser. By no means does a lack of response imply tacit consent to such notification. The Purchaser has to be notified of first deliveries of altered raw materials and components and the materials/ components must be marked accordingly.
In the case of a Product Termination Notification the supplier will support the Purchaser in selecting suitable alternatives and guarantee a last time buy option for the period of time mentioned above. The Supplier shall notify their Sub-suppliers in due manner of the above-mentioned requirements concerning PTN and PCN so that the PTN/ PCN process concerning information obligations and time periods can be secured for the entire supply chain.

23 OBSOLESCENCE MANAGEMENT

The Supplier has to implement a process to prevent, perceive, identify and eliminate obsolescence.

24 TREATMENT OF BROKER GOODS

The Purchaser only accepts goods of the original manufacturer if the certificate of origin can be claimed at any time. Should the Supplier not be able to produce such certificate of origin, the Purchaser must be informed prior to delivery in writing of the source of the component (supplier, manufacturer, manufacturer part number, date code, quantity and condition). The Purchaser must give written confirmation of approval and delivery. By no means does a lack of response imply tacit consent to such notification by the Purchaser. The components must be checked for authenticity and function prior to delivery.
The test scope shall be defined with the Purchaser and encompasses:

a) Electrical Testing, 100% or according to agreed sampling plan
b) Solderability test
c) If necessary, additional tests listed in the order

The test protocols are to be enclosed with the delivery, as well as a confirmation form of the Supplier, which identifies the goods as original manufacturer´s goods and as new goods.
Delivery or integration of used components is in no case permitted.