General Quality Requirements for Suppliers

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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

1 VALIDITY

This document is valid for all locations of Diehl Aviation and Diehl Aerospace.
This document is divided into five parts. The first part represents the basic quality assurance requirements for suppliers. The requirements defined there apply to all suppliers, regardless of the type of assignment.
The other four levels 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 to Suppliers (GQRS) emphasize the minimum standards required by Diehl Aviation, hereafter referred to as the "Purchaser", intended to ensure the quality capability of the Supplier and its sub-suppliers. The QSF applies in addition to the conditions of purchase of Diehl Aviation. 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://www2.diehl.com/aviation/de/diehl-aviation/press-and-media/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 joint 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, drawings
2. General product and material specifications
3. Quality Assurance Agreement (QSV)
4. These Quality Requirements to Suppliers (GQRS)

3 TERMS, ABBREVIATIONS, APPLICABLE DOCUMENTS

DIN EN 9100	Aerospace – Quality management systems – Requirements
DIN EN 9102	Aerospace series – Quality systems – First article inspection
DIN EN 9103	Aerospace series – Quality systems – Variation management of Key Characteristics
DIN EN 9131	Aerospace series – Quality management systems – Nonconformance documentation
DIN EN 9132	Aerospace series – Quality systems – Data Matrix
ASD-STAN prEN 9134	Aerospace series – Quality systems – Supply Chain Risk Management Guidelines
DIN EN 61340-5-1	Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements
DIN EN 61340-5-2	Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – User guide
DIN EN ISO 9001	Quality Management Systems – Requirements

DIN EN ISO 14001	Environmental management systems – Requirements with guidance for use
DIN ISO/IEC 27002	Information technology – Security techniques – Code of practice for Information security management
Coc	Certificate of Conformance
COTS	Commercial off the Shelf
ECHA	European Chemicals Agency
ESD	Electrostatic Discharge
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
IPC / JEDEC J-STD-03	Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices
LOP+6	Lifetime of Product + 6 years
MSA	Measurement System Analysis
OR	Only Representative
PCN	Product-/ Process Change Notification
PPAP	Production Part Approval Process
ARP9134	Supply Chain Risk Management Guidelines
PTN	Product Termination Notification
QMS	Quality Management System
GQRS	Quality Requirements to Suppliers
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

Diehl Aviation requires a quality management system according to DIN EN ISO 9001 or another QM-system with the same efficacy. The Supplier shall apply procedures and measures to conform the quality management system to DIN EN 9100. We require a certification acc. to DIN EN 9100 or equivalent of suppliers whose main field of business is within the aerospace industry.
The Supplier undertakes to notify the Purchaser within 14 days should his QMS Certificate be suspended or expired. After renewal of his QMS Certificate the Supplier shall immediately and unrequested send a copy of his certificate to the Purchaser.

4.2 Supplier Approval

Supplier approval is based on the 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 his 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 its customer.
In case of approval, the Supplier is added to the Purchaser´s approved suppliers list

4.3 Environmental Management System

To manage his duties concerning environmental protection the Supplier shall introduce and maintain an environmental management system according to DIN EN 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://www2.diehl.com/aviation/de/diehl-aviation/press-and-media/downloadcenter*.
If the Purchaser is not notified of substances contained in a delivery item, he will classify this item as free from any substances listed in annex XIV of the REACH regulation and in the "candidate list".

4.4 Health and Safety

The Supplier ensures his employees working conditions fulfilling the requirements acc. To EN 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 undertakes to set up appropriate procedures and take measures 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.

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 documents, a reference to the pertaining delivery note must be visible.

5.2 Documentation and Achiving

The Supplier is to document the materials used and to archive this documentation for a minimum of LOP+6 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, quality records and product samples to ensure traceability of production and approval for a minimum of LOP+6 and, upon request, make copies of such documentation available to the Purchaser without undue delay. At the expiration of such period, the Purchaser reserves the right to request delivery of such records. In the event the Purchaser chooses to exercise this right, the Supplier shall promptly deliver such records to the Purchaser. 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. An elimination of the documents after expiration of the compulsory archiving is to indicate to the Purchaser and has to be approved by the Purchaser.
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

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) Alteration of production process[1]
c) Alteration of material
d) Change of manufacturer part number
e) Change of sub-supplier in case of customer-specific components
f) Change of staff in key position if such position was specified
g) Alteration of QM-system
h) Alteration of top level organisation, Q-organisation and company / owner structure (including location of company headquarters)
i) Alteration of ERP and/or production planning and shop floor control systems
j) 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

k) when the supplier notices that nonconforming product has been shipped. The notification 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.
l) 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 f) by using the 'Supplier Change Request' (SCR) form. The form is available from the Purchaser´s web page *https://www2.diehl.com/aviation/de/diehl-aviation/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. 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.
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

[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.*

Annex P: 15.3
Annex S: 12.1

5.9 Rework

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-learn-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 Diehl Aviation. 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 Party

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 Provided Materials

See:

Annex E: 19.1
Annex P: 16.3

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 at least carried out such that a loss of quality is excluded during transit and storage. Packaging made of recyclable material or returnable packaging is preferable.

6.5.2 Dry-pack

Moisture-sensitive material is to be labelled and packaged according to IPC / JEDEC J-STD-033.

6.5.3 Packaging of Electronic Components

Electronic parts are to be packaged according to DIN EN 61340-5-2. The outer package must bear warnings indicating the risk of damage through electrostatic discharge. When handling ESD-sensitive components the requirements of DIN EN 61340-5-1 concerning protection from electrostatic discharge have to be met. Even parts that are not at risk of electrostatic discharge have to be supplied in a suitable (´low charging´) packaging.
As far as possible the tight as well as the enveloping packaging should consist of dust-free materials (avoid cardboard or pasteboard).

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. Unless otherwise stated in the product specification states, the date of manufacture at the time of delivery to the Purchaser shall not exceed one year. The period may be extended, if shelf life and usability are warranted by the Supplier and the warranty period remains unaffected. The FiFo principle has to be observed.
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 Supplier shall demonstrate for the product over short, medium and long terms

a) available Resources,
b) required capacity
c) bottlenecks identified.

The capacity plan shall be reviewed on a regular basis.

6.9 Treatment of Broker Goods

See:

Annex D: 24
Annex E: 19.3
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. The Purchaser will notify the Supplier if he is ready to accept the component. Delivery can only be made after written consent.
The concession has to be included with the delivery. All components with concessions have to be marked with a concession label.

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 actually is applicable for Tin, Tantal, 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 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 documents and packaging have to indicate the number of delivered items, date of manufacture or the serial numbers and expiration date if applicable. Each position on the accompanying document has to consist of one production lot (date of production/ lot number/ date code). In the case of several production lots, they are to be delivered in separate packaging.
A declaration of compliance with the order according to DIN EN 10204 (acceptance test certificate 3.1 for surfaces and Raw Material) is to be attached to each delivery.The component has to be delivered with EASA Form 1 or inspection certificate 3.1 or higher according to DIN EN 10204 if requested by the Purchaser. Components with FAI are to be labelled and packed 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. Containment action 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.

The Supplier will inform the Purchaser on a 8D form supplied with the complaint

a) within 10 working days on the containment action(s) taken and on the root cause(s) for the defect (4D),
b) after a maximum of 30 working days on the planned corrective action(s) to eliminate the defect (5D),
c) immediately after implementation and verification of the effectiveness of the corrective action on the conclusion of the 8D-report (8D).

Should it not be possible to complete the 8D report within six weeks, the Purchaser must be informed accordingly a.s.a.p. The deadline begins with the first notification of the defect to the Supplier. Any containment actions taken have to be maintained until the implementation of the final corrective measures.

8 SUPPLIER RATING

The Purchaser performs a continuous supplier rating and informs the Supplier in regular intervals on his quality- and supplier-performance. Should such rating not correspond to the agreed objectives or should the Supplier´s evaluation of customer satisfaction indicate to the Supplier that he fails to reach the agreed objectives, 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 his 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 customer and the public authorities[3] setting the regulations right of access to all facilities associated with the order, and to appertaining drawings. In addition, the Supplier gives his approval to quality audits carried out by the Purchaser, its customer and the public authorities setting the regulations to assess the effectiveness of his quality assurance system.

10 SEVERABILITY CLAUSE

Should any provision of this agreement be or become invalid, this shall not affect the validity of this agreement. The parties are obliged to replace the invalid provision with a permissible regulation which is equivalent to their economic success.

[3] *Agencies, e.g. EASA, LBA,…*

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 stockists or distributors, are sourced from sub-tier suppliers qualified by EN9120 or approved by the OEM. The Supplier is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should he not be in possession of the valid documents or should he discover discrepancies, he is 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 his organisation as well as within his sub-suppliers 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.

12.2 Obsolescence Management

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

12.3 Rework

Rework means the correction 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 requires appropriately trained staff. Unscheduled rework due to a retrospectively discovered non-conformity shall 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 Diehl Aviation. A written approval for rework is not necessary if a released rework procedure was provided by Diehl Aviation and if the supplier is qualified to apply it. In addition, the supplier shall keep record of non-conformities and provide a monthly report containing the quantity and root causes to Diehl Aviation SQD. Defective goods shall be marked, also the quantity and root causes shall be documented and reported to Diehl Aviation (SQD & M). The documentation for rework and scrap shall be done separately, so that a systematic root cause of deviations and uncertainties in the manufacturing process can be known.

12.4 Order by Means

In case of an order by means of specification the Supplier shall announce to the purchaser the planned use of materials and standardized parts prior to start of production.
The use of materials and standardized parts shall be released by the Purchaser.

13 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.

13.1 Manufacturing Process

Before commencing series production the Supplier will make sure that

a) The staff involved in the manufacture of the delivery item acquires and maintains the necessary qualification
b) the manufacturing processes and the required installations are qualified accordingly
c) the manufacturing and test equipment is serviced appropriately

The Supplier will furthermore document in a process flow diagram the following requirements for the delivery item:

d) Manufacturing and test steps (if applicable including subgroups),
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 trained staff

If the Supplier is not the manufacturer, he undertakes to ensure compliance to the above requirements through adequate process control at the manufacturer´s facility.

13.2 In-process Inspections

The supplier shall ensure that the 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 remedial 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.
Manufactured defective components shall be removed immediately and declared as "nonconforming components" by the supplier. The amount and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be set up by the Supplier. These reports have to be included with the deliveries. The report has to clearly mark any specification variations. The inspection equipment must be clearly specified and listed in the inspection reports.

13.3 Risk Analysis, FMEA

To recognize and evaluate potential design or process errors as well as risks in his supply chain and derive measures to avoid or reduce such potential faults and risks, the Supplier, conducts a risk analysis in accordance with VDA 4 / part 2, prEN 9134 or a risk analysis of a comparable standard.
The risk analysis shall be repeated when alterations are being made. Also, the necessity of a reevaluation in the context of an 8D report has to be examined.

13.4 First Article Inspection

The qualification of Purchaser-specific parts shall be verified by conducting a first article inspection according to DIN EN 9102. With special permission of the Purchaser the first article inspection may be conducted according to a recognized industrial standard, e.g. VDA 2 or PPAP. 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.
The results of the first article inspection must be recorded for all specified characteristics indicating their nominal and actual values, 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.

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 case, 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 at least.

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) Change of staff in key position if specified
g) Change of production site
h) 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 requested 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 tested prior to delivery. The extent of the inspection has to be agreed upon with the Purchaser and includes:

a) Electric testing, 100% or according to agreed sampling plan
b) Solderability test
c) Other tests as mentioned in purchase order, if applicable

The test protocols have to be included with the delivery along with a certificate of the Supplier confirming that the delivery item is an original and new product.
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[4] cannot

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

To secure these objectives, the following aeronautical 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 mutilated (when feasible) prior transfer for destruction/recycling. The mutilation shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
f) When the mutilation is not feasible prior to the transfer for destruction/recycling processes shall be secured with capability to demonstrate the destruction or the recycling.

[4] *Unsalvageable item is an item 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 ANFORDERUNGEN AN DEN LIEFERANTENREQUIREMENTS 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 stockists or distributors, are sourced from sub-tier suppliers qualified by EN9120 or approved by the OEM. The Supplier is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should he not be in possession of the valid documents or should he discover discrepancies, he is 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 his organisation as well as within his sub-suppliers 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.

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 Buyer 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 Diehl Aviation.
It is mandatory to secure material supplies for the following periods of time after receipt of such notification by the Buyer:

PTN: 12 months
PCN: 6 months

The above-mentioned Product Termination or Product Change Notifications are subject to written approval by the Buyer. By no means does a lack of response imply tacit consent to such notification. The Buyer 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 buyer in selecting suitable alternatives and guarantee a last time buy option for the period of time mentioned above. The Supplier shall notify his 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 to prevent, perceive, identify and eliminate obsolescence.

15.4 Rework

Rework means the correction 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 requires appropriately trained staff. Unscheduled rework due to a retrospectively discovered non-conformity shall 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 Diehl Aviation. A written approval for rework is not necessary if a released rework procedure was provided by Diehl Aviation and if the supplier is qualified to apply it. In addition, the supplier shall keep record of non-conformities and provide a monthly report containing the quantity and root causes to Diehl Aviation SQD. Defective goods shall be marked, also the quantity and root causes shall be documented and reported to Diehl Aviation (SQD & M). The documentation for rework and scrap shall be done separately, so that a systematic root cause of deviations and uncertainties in the manufacturing process can be known.

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 Provided Materials

Products provided by Diehl Aviation shall be inspected by the SUPLLIER. An identification and quantity check must be carried out. Diehl Aviation must be informed promptly of concrete facts in the case of abnormal products. A system is to be implemented which provides for each provision a quantity deviation, e.g. by committee, drive-in parts, etc.
A quantity deviation is communicated to Diehl Aviation immediately after consumption of the respective supply quantity.

16.2 Manufacturing Process

Before commencing series production the Supplier will make sure that

a) The staff involved in the manufacture of the delivery item acquires and maintains the necessary qualification
b) the manufacturing processes and the required installations are qualified accordingly
c) the manufacturing and test equipment is serviced appropriately

The Supplier will furthermore document in a process flow diagram the following requirements for the delivery item:

d) Manufacturing and test steps (if applicable including subgroups),
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 trained staff

If the Supplier is not the manufacturer, he undertakes to ensure compliance to the above requirements through adequate process control at the manufacturer´s facility.

16.3 In-process Inspections

The supplier shall ensure that the 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 remedial 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.
Manufactured defective components shall be removed immediately and declared as "nonconforming components" by the supplier. The amount and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be set up by the Supplier. These reports have to be included with the deliveries. The report has to clearly mark any specification variations. The inspection equipment must be clearly specified and listed in the inspection reports.

16.4 Risk Analysis, FMEA

To recognize and evaluate potential design or process errors as well as risks in his supply chain and derive measures to avoid or reduce such potential faults and risks, the Supplier, conducts a risk analysis in accordance with VDA 4 / part 2, prEN 9134 or a risk analysis of a comparable standard.
The risk analysis shall be repeated when alterations are being made. Also, the necessity of a reevaluation in the context of an 8D report has to be examined.

16.5 First Article Inspection

The qualification of Purchaser-specific parts shall be verified by conducting a first article inspection according to DIN EN 9102. With special permission of the Purchaser the first article inspection may be conducted according to a recognized industrial standard, e.g. VDA 2 or PPAP. 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.
The results of the first article inspection must be recorded for all specified characteristics indicating their nominal and actual values, 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.

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 case, 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 at least.

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 15.2).
e) Alteration of material
f) Change of staff in key position if specified
g) Change of production site
h) 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 requested 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 tested prior to delivery. The extent of the inspection has to be agreed upon with the Purchaser and includes:

d) Electric testing, 100% or according to agreed sampling plan
e) Solderability test
f) Other tests as mentioned in purchase order, if applicable

The test protocols have to be included with the delivery along with a certificate of the Supplier confirming that the delivery item is an original and new product.
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[5] cannot

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

To secure these objectives, the following aeronautical 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 mutilated (when feasible) prior transfer for destruction/recycling. The mutilation shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
f) When the mutilation is not feasible prior to the transfer for destruction/recycling processes shall be secured with capability to demonstrate the destruction or the recycling.

[5] *Unsalvageable item is an item 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 Quality Requirements for Suppliers, GQRS.

18 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 stockists or distributors, are sourced from sub-tier suppliers qualified by EN9120 or approved by the OEM. The Supplier is responsible for the availability, actuality and feasibility of the design documents specified in the purchase order. Should he not be in possession of the valid documents or should he discover discrepancies, he is 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 his organisation as well as within his sub-suppliers organisation is impossible.

18.1 Procedure Documentation

The supplier shall maintain and implement the Diehl Aviation documentation and production processes. Should there be any changes in the drawings, manufacturing processes, working procedures or work instructions, the supplier will receive information through Diehl Aviation internal change management process. The supplier shall exchange and archive the old documents once any new documents are received.
The supplier is responsible to review all Diehl Aviation working processes and procedures. The supplier is responsible to review and announce any deviations which do not meet Diehl Aviation requirements. Deviations must be reported to Diehl Aviation (SQD) for further action.

18.2 Planning process and Workmanship

At any point during the process, the supplier shall immediately inform the purchaser of any delay caused by quality issues, environmental issues and/or delay in on-time-delivery. The supplier shall seek approval for any process deviations and/or any process improvements.
The supplier is not authorized to subcontract any part of this contract agreement.

18.3 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.

18.4 Rework

Rework means the correction 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 requires appropriately trained staff. Unscheduled rework due to a retrospectively discovered non-conformity shall 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 Diehl Aviation. A written approval for rework is not necessary if a released rework procedure was provided by Diehl Aviation and if the supplier is qualified to apply it. In addition, the supplier shall keep record of non-conformities and provide a monthly report containing the quantity and root causes to Diehl Aviation SQD. Defective goods shall be marked, also the quantity and root causes shall be documented and reported to Diehl Aviation (SQD & M). The documentation for rework and scrap shall be 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 Party

Within the contractual agreement, the supplier shall only be allowed to deliver parts or services to the purchaser. Delivery of the contracted parts or service from the supplier 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 Provided Materials

Products provided by Diehl Aviation shall be inspected by the SUPPLIER. An identification and quantity check must be carried out. Diehl Aviation must be informed promptly of concrete facts in the case of abnormal products. A system is to be implemented which provides for each provision a quantity deviation, e.g. by committee, drive-in parts, etc.
A quantity deviation is communicated to Diehl Aviation immediately after consumption of the respective supply quantity.

19.2 In-process Inspections

The supplier shall ensure that the 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 remedial 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.
Manufactured defective components shall be removed immediately and declared as "nonconforming components" by the supplier. The amount and the cause of the defect shall be determined and documented.
When requested by the Purchaser, inspection reports have to be set up by the Supplier. These reports have to be included with the deliveries. The report has to clearly mark any specification variations. The inspection equipment must be clearly specified and listed in the inspection reports.

19.3 Treatment of Broker Goods

The Purchaser only accepts goods of the original manufacturer if the certificate of origin can be requested 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 tested prior to delivery. The extent of the inspection has to be agreed upon with the Purchaser and includes:

a) Electric testing, 100% or according to agreed sampling plan
b) Solderability test
c) Other tests as mentioned in purchase order, if applicable

The test protocols have to be included with the delivery along with a certificate of the Supplier confirming that the delivery item is an original and new product.
Delivery or integration of used components is in no case permitted.

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[6] cannot

g) be used for aircraft, parts or equipment manufacturing,
h) resurface or be sold as airworthy at a later date on the aeronautical parts market.

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

All aircraft items and materials declared as unsalvageable

a) shall be physically identified,
b) shall be handled and stored in secured/quarantine areas,
c) shall be mutilated (when feasible) prior transfer for destruction/recycling. The mutilation shall be done in such way that the items or materials are beyond economic salvage or repair, including their potential subassemblies.
d) When the mutilation is not feasible prior to the transfer for destruction/recycling processes shall be secured with capability to demonstrate the destruction or the recycling.

[6] Unsalvageable item is an item assessed as no longer suitable for its intended flyable use.

ANNEX D FOR DISTRIBUTOR SUPPLIERS

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 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.
b) about fault messages 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 Buyer 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 Diehl Aviation.
It is mandatory to secure material supplies for the following periods of time after receipt of such notification by the Buyer:

PTN: 12 months
PCN: 6 months

The above-mentioned Product Termination or Product Change Notifications are subject to written approval by the Buyer. By no means does a lack of response imply tacit consent to such notification.
The Buyer 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 buyer in selecting suitable alternatives and guarantee a last time buy option for the period of time mentioned above.
The Supplier shall notify his 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 requested 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 tested prior to delivery. The extent of the inspection has to be agreed upon with the Purchaser and includes:

a) Electric testing, 100% or according to agreed sampling plan
b) Solderability test
c) Other tests as mentioned in purchase order, if applicable

The test protocols have to be included with the delivery along with a certificate of the Supplier confirming that the delivery item is an original and new product.

Delivery or integration of used components is in no case permitted.