DO supplier requirement

This document defines the quality requirements applicable to Kopter DO suppliers.

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Author	**bertuccip**		**21. Mar 22**
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1 Introduction

1.1 Scope

This document describes the supplier quality requirements.

1.2 Summary and purpose

The present document 10167421 of Kopter Group AG describes the applicable requirements related to design services delivered to Kopter Group AG Design Organisation, based on EASA Part 21 requirements.

1.3 Applicability

The requirements within this document regulate the essential aspects of the working relationship between Kopter Group AG and the design (DO)-supplier. It defines Kopter Group AG requirements, responsibilities and expectations that have been entrust to the DO-supplier for the delivering of design services.
Therefore, the supplier shall review the requirements as stipulated below and apply all the applicable requirements of the contract. In case of any questions, Kopter Group AG supplier Quality Engineer SQE (sqe@koptergroup.com) shall be contacted for clarification and guidance.
In case the DO-supplier also manufacture its design (DO component supplier), the requirements for the manufacturing, as production (PO)-supplier are dealt with in the Kopter Group AG document `PO Supplier Quality Requirements` [Ref. 1]. The DO-PO aspects within the DO component supplier shall always be dealt with by the Kopter Group AG DO-PO level, unless explicitly delegated to the DO component supplier. Where applicable, to be determined by Kopter DO, FAI shall be used by the DO-component supplier to validate or verify its design.
The requirements shall be applied by the supplier and all its sub-tier suppliers.

1.3.1 Effective date

This document is effective starting from 3rd July 2023.

Exceptions
None.

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2 Design Assurance System Requirements

2.1. Organisation Approvals

The supplier's Quality Management System (QMS) shall comply with ISO 9001 (or equivalent) with the applicable scope.

In case the DO-supplier provides design data related to Part Class (PC) CR items and equipment or major assemblies (structural elements affecting safety-of-flight according to EASA definition), the supplier shall aim to have an approval complying with the following:

- EASA Part 21 [Ref. 2]
- FAA Part 21 [Ref. 3]

or as alternative, at a minimum

- EN9100 [Ref. 4]

To demonstrate compliance, the supplier shall submit a QMS accreditation or approval, issued by the applicable certification body or authorities, and encompassing the applicable design scope.

2.2. Onsite surveillance

Kopter Group AG reserves the right to perform visits of the supplier facilities, assessment as well audits at the supplier sites including sub-tier suppliers, to validate the integrity of Kopter Group AG products and services.
The supplier shall grant Kopter Group AG, Civil regulatory Authorities or Agency and/or customer representative's access to his facilities including to the relevant design data. In cooperation with the supplier, this right of access is extended to sub-tier suppliers.
The surveillance does not relieve the supplier of contractual responsibilities.

3 Responsibilities

The DO Supplier shall maintain its quality management System as defined in chapter 2.1:

- Remain in compliance with the requirements defined herein, including systematic self-review and audit; and
- monitor and control all levels of design data and the data from its sub-tiers.

The DO Supplier shall have total responsibility for any and all design data deliverables, and where applicable the deliverables throughout its sub-tiers, to comply with these Design Assurance System Requirements.

DO Component Suppliers who provide components to Kopter Production Organisation shall also comply with Kopter production Organisation quality assurance requirements defined in Kopter Supplier Quality document `PO Supplier Quality Requirements` [Ref.1].

All data provided by Kopter to the DO Supplier shall be treated in a manner maintaining its legibility, and conforming to any applicable copyright, non-disclosure agreements or similar. Where appropriate non-disclosure agreements shall be established between Kopter and DO Supplier and its sub-tiers.

Where any point of any requirement or process (including but not limited to Contract, Purchase Order, Technical Requirements or Design Assurance Requirements) is unclear or

contradictory, the DO Supplier is responsible to highlight these to Kopter DO (DAS Monitor) for clarification.

4 Requirements

4.1. Technical Requirements to DO Supplier

DO Suppliers shall comply with all Kopter technical requirements, as defined in, but not limited to:

- Technical Requirements Documents (TRD), and/or similar; or
- Statements of Work (SOW) and/or similar; or
- Contract; or
- Purchase Order.

The above documents take precedence where stated requirements contradict the design assurance requirements defined herein for the specific defined purpose.

4.2. Design Assurance System Requirements to DO Supplier

Additional to the organizational requirements of chapter 2, the following requirements, as given in the paragraphs below are applicable to DO Service - and DO Component Suppliers and their sub-tiers, unless specifically stated.

To show compliance with those requirements, the DO Supplier shall agree with this document "DO supplier requirements", sign the "Supplier Quality Requirement Acceptance" form provided by Kopter (Ref. 5) and return it to the Kopter Supplier Quality Engineering (SQE)-team.

4.2.1. Engineering Organisation

The **DO Supplier** shall:

a. Provide copies of organizational charts with respect to design and development processes.
b. Provide the name(s) of design management staff and design key-personnel. In case applicable, submit:
   - EASA Form-4 qualifications;
   - CVE-nominations, including their technical disciplines.

   In case of changes thereto, the supplier shall inform Kopter DO.
c. Permit Kopter and/or Aviation Authorities to make any investigation (inspections, audits) necessary to determine compliance with Kopter requirements and/or airworthiness requirements.
   Kopter reserves the right to visit the DO Supplier for the purpose of performing audits, reviews or hold discussions, including all sub-tiers.
   Such visits
   - will be notified in writing in advance and shall identify the attending representatives of Kopter and where applicable, relevant authorities and/or Kopter customers.
   - shall not change any obligations of the DO supplier to meet the requirements defined in individual contracts and/or purchase Orders.
d. Provide a design quality management plan, which covers the applicable requirements of this document.
e. [**DO Component Suppliers** only] establish, document and maintain a configuration management process appropriate to the complexity of the component(s), as defined in [Ref.1] (e.g. following ISO 10007 Guidelines for Configuration Management [Ref.14]).

4.2.2. Design and Development Planning

The **DO Supplier** shall demonstrate appropriate processes for planning and controlling of design and/or development, including determination of

- Stages
- Reviews, verification and validation appropriate to each stage
- Responsibilities and authorisations/delegations
- Configuration Management concept.

The **DO Supplier** shall manage the interfaces between different groups involved in design and/or development with clear assignment of responsibilities to ensure effective communication.

The **DO Supplier** shall submit a design and, where applicable and delegated, a compliance demonstration plan. This plan shall include design and development reviews (such as requirement reviews, PDR`s and CDR(s)).

4.2.3. Design Inputs

The **DO Supplier** shall demonstrate the design inputs used as basis for its design deliverables, being *amongst others,* but not limited to:

- Kopter design and certification specifications.
- applicable authority requirements
- technical standards
- information derived from previous similar designs
- legal requirements
- DFMEA.

4.2.4. Design Deliverables to enable Production

The **DO Supplier** shall demonstrate that design, development and compliance demonstration products (where applicable) are in a format that enables Kopter to verify them against the design inputs, and:

- Meet the input requirements;
- Provide appropriate information for purchasing, production and service provisions.
- Contain or reference product acceptance criteria.
- Specify the characteristics of the product that are essential for its safe[4.2.4.1] and proper use.
- Specify key characteristics[4.2.4.2] in accordance with design or contract requirements.
- allow the product to be identified, manufactured, inspected, used and maintained are in accordance with the Kopter requirements
- Specify critical special processes[4.2.4.4]
- Configuration as Designed (Bill of Material).

4.2.4.1. Parts Classification and Traceability

Kopter DO uses the following definitions for Parts Classification

Table 1: part classification

Part Classification		Failure effect criticality from Safety Assessment on H/C, crew and occupants		Safety Class	FAI Required
CR (CRITICAL PARTS)		CAT	Catastrophic	A	YES
NON CRITICAL PARTS	**P (PRIMARY PARTS)**	CAT	Catastrophic	A	YES
		HAZ	Hazardous	B	YES
	S (SECONDARY PARTS)	MAJ MIN	Major Minor	C D	YES
	NC (NON SIGNIFICANT PARTS)	All parts that are not classified CR, P or S, including those with failure effect MAJ, MIN and with "no failure effect" criticality		C D E Non Safety Classified	NO

4.2.4.2. Key-Characteristics.

A Key-Characteristic is any characteristic to enable safe functioning of the part. Examples are: dimension, physical properties, special processes, NDT. Demonstrated conformance to the key-characteristics shall be required for the production organisation to issue a `Statement of Conformity`.

Note: The higher classification of the part, the more key-characteristics shall be defined to demonstrate conformity.

4.2.4.3. Traceability

The **DO Supplier** shall demonstrate that it has implemented a system that provides traceability of its design, relevant to the parts criticality definition of paragraph 4.2.4.1

4.2.4.4. Critical Special Processes

The **DO Supplier** shall demonstrate that all used critical special processes and its means of qualification have been defined in its design data.

Note:
1. A Special Process is defined `critical` in case it may:
   - uncontrolled change the physical characteristics (such as welding); or
   - have impact at the safety or reliability of the design (such as `bonding`).
2. NDT is per definition a critical process

4.2.5. Design Deliverables to enable Maintenance and Repair

The **DO Supplier** shall provide Instructions for Continued Airworthiness (ICA) as part of its design to enable the execution of maintenance and repair i.a.w. EN/AS 9120 or Part 145 [Ref. 9 and 10].

4.2.6. Design Deliverables for Operational Suitability Data (OSD)

The **DO Supplier** shall provide, as applicable, operational suitability data, as part of its design i.a.w. Part 21 to enable the preparation of:

- Training syllabi for Maintenance Training (Part 147)
- Training syllabi for Cockpit Crew training (Part ARO-ATO)
- Master Minimum Equipment List (MMEL) (CS-MMEL).

4.2.7. Design Reviews

The **DO Supplier** shall organize and perform, as a minimum, the following design reviews before qualification/certification:

- Requirements review (end of requirements stage),
- PDR(s) – end of definition stage
- CDR(s) – end of design and development stage

The **DO Supplier** shall assure that all applicable disciplines are available during such reviews to adequately:

- evaluate whether the requirements of the stage are met
- identify problems and define necessary actions
- authorize progression into the next stage
- record the decisions as part of the design deliverable package

The **DO Supplier** shall notify the design review dates to Kopter in a timely manner, enabling Kopter to participate.

4.2.8. Compliance Demonstration

In case `compliance demonstration' is delegated, the **DO Supplier** shall

- Execute the appropriate compliance demonstration activities as defined in the certification plan; and
- Submit the compliance demonstration reports for verification by Kopter DO CVE(s).

Compliance demonstration could be, but is not limited to:

- Performing of analyses and calculations
- Comparing the new design with a similar proven design
- executing tests and demonstrations
- FAI (i.a.w. EN/AS 9102 [Ref. 8])

In case FAI is required to demonstrate the ability to produce against design data, the DO supplier shall:

- Takes care that a FAI is executed by the PO i.a.w. the PO Supplier Quality Requirements [Ref.1]
- Records the outcome of the FAI in a report as part of the compliance file
- Provides feed back to Kopter DO about the results of the FAI
- Provides root causes analysis in case of fail conditions and appropriate fix.

4.2.9. Preparation of Component Testing

The **DO Supplier** shall perform, where explicitly delegated, qualification/certification tests. Before such tests will be executed, the supplier shall:

- Indicate the purpose of the test (validation, qualification, certification);
- Prepare and submit a test plan for approval to Kopter DO;

- After receipt of the approval of the test plan[note], notify and invite Kopter DO or the competent authority for test witnessing.

Note: The test plan contains at a minimum the following information:

- the components, assy`s, or equipment to be tested, clearly identified;
- the resources to be used;
- the test objectives and conditions;
- the parameters to be recorded;
- the relevant acceptance criteria;
- the test procedures describing:
  - the method of Operation;
  - the performance of the test;
  - the recording of the results.

The **DO Supplier** shall inform Kopter at least 3 weeks in advance of tests required by certification requirements in order that arrangements for appropriate CVE/Authority witnessing of the tests can be arranged.

4.2.10. Execution of Component Testing

The **DO Component Supplier** shall execute, where explicitly delegated, qualification/certification tests.

Before component tests will be executed, the DO-supplier shall take care that:

- required test equipment and instrumentation has been calibrated i.a.w. ISO 17025 [Ref.12]
- test operators are qualified to execute the test i.a.w. the approved test plan
- test conditions are in conformity with the approved test plan;
- test articles are in conformity with the applicable released design data (PO conformity statement)
- appropriate CVE is present or a CVE-delegation is received for witnessing.

After execution of component tests, the DO-supplier shall take care that a test report [note]

- will be prepared, reviewed and signed;
- submitted for verification by the appropriate (Kopter) CVE.

Note: The test report contains at a minimum the following information:

- the reference to the test plan;
- the, to be tested, requirements;
- the pass/fail criteria;
- the identification and conformity statements of the test components;
- a calibration- and conformity statement of the used test equipment and instrumentation;
- the qualification of the test operators;
- the test conditions;
- the test results (measured values);
- in case applicable, observed non-conformances;
- in case applicable, proposed limitations;
- in case of certification tests, the name(s) of the witnessing CVE`s
- the conclusions of the test
- the verification statement of the applicable CVE`s

4.2.11. Format Design- and Compliance Demonstration documents and data

The DO Suppliers shall,

- Where explicitly contracted, demonstrate the use of:
  - The Kopter DO provided Forms and Templates including the requested means of identification.
  - The Kopter DO provided or requested Methods and Standards;
  - The Kopter DO requested paper or electronically format
- Provide Kopter DO with all produced design- and compliance demonstration documents and data in the requested format.
- Archive copies of the design- and compliance demonstration documents and data for 25 years in an all-time readable format and can be made available within 24 hours upon request of Kopter DO.
- Guarantee Kopter DO or Authorities unrestricted access to the Kopter applicable design- and compliance demonstration data.

Design and Compliance Demonstration documents and data could be, but are not limited to:

- Design drawings and parts lists
- Specifications
- Listings of design drawings, parts lists and specifications necessary to define the configuration and the design features of the product
- Engineering and certification reports (calculations, simulations, tests, etc.)
- Test data
- Engineering memorandums
- Change documentation (Change Requests, Change Notices, etc.)
- Technical publications for continued Airworthiness (AFM, AMM, SRM, CMM, SB, etc.)
- Information on material, processes, type of manufacturing and assembly of the product, necessary to ensure the conformity of the product
- Technical correspondence
- Meeting minutes.

Note: In the case a DO Component Supplier designs and produces a large part of an aircraft (i.e. as a risk sharing partner), it might be accepted that it uses his own set of drawings, parts lists, etc., as explicitly stated in a DO-DO agreement [Ref.6].

4.2.12. Changes to Approved Design Data

The **DO Service Supplier** shall demonstrate that it has implemented processes (and act to it) to ensure that requests for changes to Approved Design Data outside the scope of the current work package shall be formally requested in writing, whereby work on the changes to requirements are not initiated until approval is received from Kopter.

No change affecting the part conformity to the applicable design data is allowed before Kopter approval.

The **DO Service Supplier shall**, in case of changes, submit to Kopter DO a changed Bill of Material showing all affected design levels. In case of a change to critical items or critical special processes, the DO Supplier shall submit sufficient detailed information allowing the Kopter (nominated) CVE to verify. The deteailed change request shall be communicated to Kopter with the Supplier Design Change Request form (Ref. 15)

The **DO Component Supplier** shall demonstrate that it has implemented processes (and act to it) to ensure that approval from Kopter is obtained for changes to Approved Design Data for components used on Kopter aircraft (including DO Supplier created data) prior to execute the change.

Note: This excludes any changes covered by delegated approvals as defined in Section 5.1.

4.2.13. Second/Lower Tier DO Suppliers

The **DO Suppliers** shall in case it uses a second/lower tier DO Supplier to perform contracted design- or compliance demonstration activities:

- Inform Kopter DO of the use of the second/lower tier DO Suppliers; and all relevant information supporting the selection and suitability of second/lower tier DO Supplier to Kopter; and
- Assure and Demonstrate that the second/lower tier DO Supplier input and output fulfil Kopter DO requirements;
- Assure and demonstrate that appropriate quality assurance monitoring of second/lower tier suppliers is established and that findings identified within such monitoring are corrected within the timeframe as indicated in paragraph 4.2.14 below.
- Assure and demonstrate that an agreement is made with the second/lower tier DO supplier that Kopter and/or Aviation Authorities are allowed to perform any Investigation (inspections, audits) necessary to determine compliance with Kopter requirements and/or airworthiness requirements.

4.2.14. Audit Findings made by Kopter and/or Aviation Authorities

The **DO Suppliers** shall demonstrate that it has implemented processes (and act to it) to ensure that following an audit by Kopter and/or a relevant Authority, corrective actions are demonstrated to be completed as per QRSK-01.

Note: The definition of the finding levels is as per EASA Part 21.A.258

4.2.15. Handling of Non-Conforming Parts

The **DO Component Suppliers** shall demonstrate that it has implemented processes (and act to it) to comply with Kopter PO Quality Requirements [Ref.1], for reporting of `production non-conformances (NC)`, with respect to Aerospace Parts or Materials to be delivered to Kopter.

Supplier shall use the appropriate forms as reported in the QRS-107.

4.2.16. Further Requirements

The **DO supplier** shall submit a Supplier Design Change Request [Ref.15] to Kopter DO in case of problems, anomalies, obsolescence for which they require a disposition or change in the Design Data from Kopter DO.

The **DO Component Supplier** shall demonstrate that it has implemented processes (and act to it) to comply with production requirements of `Kopter PO Quality Requirements`[Ref.1].

The **DO Component Supplier** shall inform Kopter DO about the outcome of all internal supplier DO-PO MRB activities affecting the Kopter designs and deliveries.

The **DO Supplier** shall define the requirements for specific packaging to protect and transport its manufactured design. General Kopter requirements are described in `Kopter PO Quality Requirements [Ref.1].

5 DO Component Supplier Delegation

Depending on experience, work/System monitoring results and existing Company certifications and/or approvals, Kopter may delegate various tasks or responsibilities to an approved DO Supplier.

Delegations of tasks and responsibilities will be described and agreed using Kopter DO-DO arrangement [Ref.6].

6 Records keeping

The supplier is responsible to keep records of the documentation as following:

- Data considered essential for continuing airworthiness shall be kept **throughout the operational life** of the product, part or appliance.As for example but not limited to:
  - Technical data file that includes the type design drawings, specifications, reports on tests prescribed by this part, and the original type inspection report and amendments to that report,
  - The data, including amendments, required to be submitted with the original application for each production certificate
  - A record of any rebuilding and alteration performed by the manufacturer on products manufactured.

7 Document information

7.1 Definitions/ Abbreviations

Table 2: Abbreviations

Abbreviation	Meaning
AFM	Aircraft Flight Manual
AMM	Aircraft maintenance Manual
ATO	Approved Training Organisation (pilot training)
CDR	Critical Design Review
CMM	Component Maintenance Manual
CVE	Compliance Verification Engineers
DAS	Design Assurance System
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
FAI	First Article Inspection
MMEL	Master Minimum Equipment List
MO	Maintenance Organisation
MOA	Maintenance Organisation Approval
MRB	Material Review Board
MTOA	Maintenance Training Organisation Approval
NC	Non-Conformance
NDT	Non Destructive Testing
OSD	Operational Suitability Data
PDR	Preliminary Design Review
PO	Production Organisation
POA	Production Organisation Approval
SB	Service Bulletin
SFA	Supplier Frame Agreement
SRM	Structural Repair Manual
TC	Type Certificate
TDP	Technical Data Package

7.2 References

Kopter Documents

Reference description	Reference identifier	Name / Description
10144444	N/A	PO Supplier Quality Requirements
10170243	N/A	Supplier quality assurance requirements acceptance
10056273	N/A	DO-DO Arrangement

External Documents

Reference description	Reference identifier	Name / Description
EASA Part 21		Airworthiness and environmental certification - Certification of aircraft and related products, parts and appliances, and of design and production organization

Reference description	Reference identifier	Name / Description
FAA FAR 21		Airworthiness and environmental certification - Certification of aircraft and related products, parts and appliances, and of design and production organization
AS/EN9100		Quality Management Systems – Requirements for Aviation, Space and Defense Organizations
AS/EN9102		Aerospace series - Quality Systems – First Article inspection requirements
AS/EN9120		Quality Management Systems - Requirements for Aviation, Space and Defense Distributors
EASA Part 145		Approved Maintenance Organisation
EASA Part 147		Approved Maintenance Training Organisation
ISO 17025		General requirements for the competence of testing and calibration laboratories
Supplier individual		Supplier Framework Agreement (Kopter Group AG)
ISO 10007		Guidelines for Configuration Management

7.3 Revisions

Revision	Comment	Rev. Date	Name
A	Initial Issue		Rik van Zwol
B	Chapter 1.3: - 10170243 "supplier acceptance quality requirements" replaces "10043393: DO supplier Data Sheet". - 10158716: "Request for Disposition" has been renamed into "Supplier Quality Notification" Chapter 4.2: refers to "supplier quality acceptance requirements" instead of "DO supplier Data Sheet" Chapter 4.2.4.1: part classification updated Chapter 4.2.12: Refers to "Supplier Design Change Request form" Chapter 4.2.15: Refers to "Supplier Quality Notification" instead of "Request for Disposition" Chapter 4.2.16: Refers to "Supplier Design Change Request"		A. Colomar
C	Lay up correction		A. Colomar

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D	Chapter 4.2.12: the sentence "No change affecting the part conformity to the applicable design data is allowed before Kopter approval. " has been added		A. Daguenet
E	- Adapt lay up document to Kopter new template - Add chapter 6 "records keeping"	11.07.2019	A. Daguenet
F	Chapter 4.2.4: updated Table 1 "Part Classification" Chapter 4.2.14: called out QRSK-01 for corrective action timings Chapter 4.2.15: called out QRS-107 for NC Handling Added 1.3.1 "Effective date".	23.06.2023	P. Bertucci

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