Quality Assurance Requirements for GKN Aerospace – Portsmouth Suppliers

GKN/QM7

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Distribution: Approved Suppliers (Ref. QM6)
GKN Aerospace – Portsmouth QMS Portal

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If you have any queries about this document, then please contact the GKN **Supplier Team. Your Procurement Manager will be able to put you in contact with the appropriate person(s).**

Scope:
This GKN Aerospace - Portsmouth Supplier Quality Assurance requirements (QM7) applies to all suppliers and their sub-contract-tors (each being referred to as the "**Supplier**") who provide Products (as defined below) to GKN Aerospace Services Limited ("**GKN**") irrespective of (i) where the Supplier is located; (ii) the industry within which the Sup-plier operates; and/ or (iii) any certifications and/or accreditations which the Supplier may have.

QM7 shall be in addition to any other agreement or terms and conditions which may be in place between GKN and the Supplier.

This Document Contains No Technical Data Subject To UK Export Control Regulations
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1. Record of Revisions

Issue	Nature of Revision	Date
14	Para 4.16 added.	Oct-11
15	Para 4.13 terms of right of access amended.	Aug-12
16	Para 4.14 Changes in manufacturing location added Para 4.15 First Article Inspection Reports amended Paragraphs renumbered	Nov-12
17	Para 4.18 Potential Counterfeit Parts added.	May-14
18	Para 4.19 contribution to conformity, safety and ethical behaviour added.	Aug-17
19	Document updated to reflect document identification changes. Reference to GKN/QM3/20 added at para 4.1	Feb-19
20	Para 4.5 requirements for storage of records added. Para 4.6 calibration system requirements added. New Para 4.4 added. Original para 4.4 re-numbered as 4.4.1.	Jul-19
21	New Para 4.1.1 added. Para 4.4 amended. Para 4.4.1 Added Para 4.5 Changed to Documented Information Para 4.20 added Whole document GKN Aerospace – Portsmouth changed to GKN AP	Dec-19
22	Para 4.16.2 Updated. Appendix A. Approval of Sub Tier Supplier and sub-contractors updated.	Dec-20
23	Complete rewrite of the document.	Jul-22

2. Contents

3. Purpose

QM7 and any documents referenced herein specify the minimum standards and/ or requirements that GKN requires a Supplier to meet. These are in addition to any other requirements that GKN and the Supplier have agreed. In the event of a conflict between the contents of QM7 and the terms of any other Agreement, the terms of such other Agreement shall prevail.

GKN's rights and remedies in connection with QM7 are in addition to any and all other rights and remedies that GKN may have available to it at law or otherwise. Where a Supplier does not understand the extent of any obligation imposed on it by GKN, whether in QM7 or any other Agreement, it must immediately seek clarification from GKN. Failing to understand its obligations shall not allow a Supplier to be discharged from its obligations to GKN.

Any approval which GKN gives to the Supplier under or pursuant to QM7 is solely for the purposes of ensuring that the Supplier meets the minimum quality standards required by GKN and shall not discharge the Supplier from any liability or responsibility relating to the Product under the Agreement and/or QM7 and the Supplier shall remain fully responsible for the Product. The Supplier shall not be entitled to claim that a delay or refusal by GKN in providing any approval required under QM7 discharges the Supplier from the performance of its obligations under the Agreement and/or QM7.

4. Reference Documents

The Supplier shall comply with:

(a) The requirements specified in the latest revisions of each of the documents listed below (As appropriate to the products or services being provided);

(b) Any additional requirements which the Supplier is required to comply with by the authorities of the country from which it is supplying GKN; and

(c) Any other requirements which GKN may notify the Supplier of from time to time.

In the event of any conflict between the provisions of any of those requirements listed at (a) to (c) inclusive above, the Supplier shall be obliged to meet the more onerous of the requirements.

Document reference	Document name (document as may be amended/ updated from time to time)
DS100	Protective Finishes
GKN/QM3/20	Approval of Suppliers and Purchase Orders
AS9120	QMS – Aerospace requirements for Stockists and Distributors
ASTM E2782	Standard guide for Measurement Systems Analysis
CAP747	CAA Mandatory Requirements for Airworthiness
EN4179	Standard for the Training, Qualification and Certification of NDT personnel
AS/EN9100	Quality Management Systems — Requirements for Aviation, Space and Defence Organizations
EN9102	Quality systems — First article inspection
AS/EN9103	Quality management systems — Variation management of key characteristics
AS/EN9132	Aerospace series. Quality management systems. Data matrix quality requirements for parts marking
ISO 10005	Quality management — Guidelines for quality plans
ISO 11462	Guidelines for implementation of statistical process control (SPC) Capitalize Statistical Process Control
ISO 14001	Environmental management systems
ISO 17025	General requirements for the competence of testing and calibration laboratories
ISO 9001	Quality Management Systems

It is each Supplier’s responsibility to:

(a) Access these documents and familiarise itself with their contents;

(b) Ensure that they are complying with the latest version of each of these documents; and

(c) Ensure that where there is an obligation on the Supplier in QM7, the Supplier ensures that each of its Supplier Personnel complies with these obligations as a reference to Supplier in QM7 was deemed to be interpreted as a reference to the Supplier Personnel.

Failure by the Supplier to access these documents shall not discharge the Supplier from having to comply with the obligations which are specified in each of the documents.

5. Definitions /Abbreviations

The following words and expressions appear throughout QM7. On each occasion they appear, they have the meaning set out below:

ADP	Means the Acceptance Demonstration Plan as further described in paragraph 7.6
Agreement	Means any agreement or terms and conditions between GKN and the Supplier in relation to the Products, materials or services
Approval	Means a formal notification from GKN to the Supplier that it meets the GKN Approval Standards in respect of a Product (or any part of it). Such approval may be limited in terms of scope or duration
Authorised Release Signatory	Means a person that has been trained, assessed and qualified by the Supplier through a regulated process to release Products to GKN.
CAA	Means Civil Aviation Authority
Class 1 part	Means a part that has been defined as “critical” by GKN’s design engineers in terms of safety, performance and service life.
CofC	Means the certificate of conformity issued by the Supplier to GKN
Concession Disposition	Means the documented response made to a concession request submitted by the Supplier in accordance with paragraph 11
CoS	Means condition of supply
Cpk	The process capability index or process capability ratio
EASA	Means the European Aviation Safety Agency
FAA	Means the Federal Aviation Administration
FAI	Means First Article Inspection, which shall include a complete and documented physical and functional inspection process to verify that prescribed production methods have produced an acceptable item as specified by engineering drawings, planning, purchase order, engineering specifications, and/or other applicable design documents
FAR	Means First Article Review, which shall include a complete review of all aspects of the FAI process
FAIR	Means First Article Inspection Report
FOD	Means foreign object damage
GD&T	Means Geometric Dimensioning & Tolerancing
GKN	Means GKN Aerospace Services Limited
GKN Approval Standards	Means the minimum standards and/or requirements that GKN requires a Supplier to meet, including but not limited to those specified in paragraph 7.1

GKN's Customer	Means anyone that places an order with GKN for Products
GKN Personnel	Means GKN's employees, agents and/ or representatives, customers, sub-contractors and suppliers other than the Supplier
GKN Property	Means any free issue materials, jigs, fixtures and gauges that have been provided or loaned to a Supplier by or on behalf of GKN for use in the Supplier's Product, including any tooling supplied, bailed and/or otherwise owned or supplied by GKN or GKN's Customer to the Supplier in accordance with paragraph 10
GKN Quality Approval Process	Means the on-going GKN approval process to ensure that all Suppliers meet the criteria required to be able to supply Products to GKN
GKN EHS Site Rules	All visitors to any GKN site must report to reception where they will be briefed on the EHS rules applicable to the site they are visiting.
GR&R	Means Gauge Repeatability & Reproducibility
History Card	Means a standard document demonstrating the manufacturing history and traceability of the Product from raw material to the end product.
HS&E	Means Health, Safety & Environment
ISO	Means the International Organisation for Standardisation
Infrastructure	Means anything that is associated with the manufacture of the product, including but not limited to machinery, buildings and environment
ITAR	Means the International Traffic in Arms Regulations (as may be amended and supplemented from time to time)
KCs	Means Key Characteristics
Kit List	Means a list of items that form a kit of parts and has been supplied under a single part number described as a kit.
KPI	Means a Key Performance Indicator
MSA	Means Measurement Systems Analysis
NADCAP	Means the National Aerospace and Defence Contractors Accreditation Program
NDT	Means Non Destructive Testing
OEM	Means the original equipment manufacturer
PPE	Means Personal Protective Equipment that is not Standard PPE
Products	Means any and all parts, materials, goods or services supplied by a Supplier to GKN, including parts, components and materials or sub contract operations
Production Permit	Means the positive GKN response given to a Supplier when requesting to manufacture a part that cannot conform to the Specification
POA	Means Production Organisation Approval

PO	Means a purchase order, vendor schedule, delivery schedule or any other note, order or other written instruction issued by GKN to the Supplier in respect of an order of the Products
QMS	Means the Quality Management System
Quality Plan	Means the documented evidence that all aspects of the Suppliers Process has been assessed by the Supplier for any risks to product quality/integrity and that any risks identified have been mitigated.
SPC	Means the Statistical Process Control
Specification	Specification means the design definition, data file, drawings, models, process specifications etc., standard that the Product is required to meet
Special Process Suppliers	Means Suppliers whose processes fit under NADCAP approval systems and/or whose processes are required to comply with special GKN and/or GKN's Customer requirements in accordance with paragraph 13.4
Standard PPE	Means safety glasses, safety footwear and ear defenders
Supplier Personnel	Means the Supplier's employees, agents and/ or representatives, subcontractors and suppliers
Supplier	Means the Supplier and their sub-contractors any sub-contractor used by the Supplier must be approved by the GKN Quality Approval process)
Supplier's Facility	Means any premises owned or leased by the Supplier for the purpose of performing its obligations in connection with the Products
TC	Means a Type Certificate
Source Inspection	Means, Inspection of GKN material and process at suppliers premises.

6. General Requirements

6.1 Continuous Improvement

GKN is required by its Customers to remain competitive and embody a culture of continuous improvement. The Supplier acknowledges that GKN's failure to embody this culture will have an impact on GKN's ability to sell its Products or services as well as GKN's Customers imposing financial liabilities on GKN. Suppliers are therefore required to continuously use every effort to:

(a) Maximise the quality and efficiency of each Product; and

(b) Minimise the acquisition, development, manufacturing, operating and other costs, which arise in connection with the Product.

The Supplier undertakes to improve, at its own cost and expense, the overall competitiveness level of the Product throughout the term of its supply to GKN to ensure that GKN has the most competitive Products in the marketplace.

6.2 Purchasing, Supply & Training

Where GKN issues any PO, such PO shall be deemed to be accepted unless Supplier's rejection of such PO is received, by GKN in writing within 7 business days of Supplier's receipt of the PO.

Suppliers must manage their business in a manner that is conducive to uninterrupted supply and shall ensure that it takes all steps to avoid any disruption or delays to the delivery schedules agreed with GKN. The Supplier shall bear all costs of taking such steps. Disputes of any kind (including disputes between the Supplier and GKN) shall not entitle a Supplier to suspend deliveries and/or performance of any of its obligations.

All records needed for qualification, manufacturing, verification and/or acceptance of the Product or for any other reason shall be written in English and must be supplied by the Supplier to GKN along with the Products. Where there are legal requirements for such documents to be in a language other than English, then the Supplier shall supply such documents in the language that such documents are required to be in, as well as providing an English translation of such documents. In the event of any conflict between the English translation and the version in a foreign language, the English translation version shall prevail.

Compliance with QM7 shall not relieve the Supplier from meeting all other requirements stipulated in the PO issued by GKN or any other Agreement.

All Supplier Personnel performing work on the Products shall have the appropriate qualifications, training and certifications required in order for them to perform the tasks that they are required to do. The Supplier shall maintain qualification and training records for all Supplier Personnel and shall provide copies of such records to GKN upon request.

6.3 Health & Safety

The Supplier must ensure that prior to visiting any GKN facility it:

(a) Familiarises itself with GKN EHS Site Rules where such GKN EHS Site Rules have not been provided to the Supplier, the Supplier must request a copy from GKN; and

(b) equips itself with Standard PPE. GKN shall:

- (i) Be under no obligation to provide Supplier with Standard PPE; and
- (ii) Reserves the right to refuse the Supplier entry to GKN's facility where the Supplier fails to bring (and wear) the Standard PPE. Any costs associated with or resulting from such refusal, including any costs which GKN incurs due to delays caused due to Supplier not being granted entry to GKN's facility shall be borne by Supplier.

Whilst at GKN's facility, Supplier's Personnel must comply with GKN EHS Site Rules.

Where GKN Personnel are visiting a Supplier's Facility, the Supplier must ensure that prior to
GKN Personnel visiting, that the GKN Personnel are made aware of any relevant Supplier's Facility site rules and regulations regarding HS&E that may be applicable. Supplier shall provide GKN Personnel with a copy of any and all such rules and regulations prior to their visit. Supplier shall ensure that any necessary PPE that is not Standard PPE is provided to GKN Personnel for use whilst at the Supplier's Facility (at no charge).

6.4 Warehousing & Distribution

The Supplier must ensure that any conditions for distribution and/or storage conform to AS9120 Standards. GKN shall be entitled to audit any Supplier's Facility at any point in time in order to check the Supplier's compliance with AS9120 Standards and any additional requirements which GKN may specify from time to time.

6.5 Specification

Suppliers, sub-contractors and stockists are to be in possession of the relevant specifications, as referenced on GKN AP purchase orders and any further relevant specifications referred to in the purchase order specifications, at the time of the execution of the order. Specifications may take several forms, including manufacturing drawings.

Particular care must be taken to ensure that the specifications used are current or of the issue status referenced on the purchase order.

7. Quality Requirements

7.1 Supplier Assessment – Quality Approval

GKN shall be entitled to continuously assess its Suppliers to ensure that they continue to meet the GKN Approval Standards. Such assessment criteria shall include but not be limited to the following:

- Contract review;
- Facility HS&E requirements;
- Organisational structure, human resources, staff development;
- Risk analysis & risk prevention/mitigation;
- Manufacturing process control & technical capabilities;
- Configuration management;
- Sub-tier supplier management;
- Project management;
- Special process controls & approvals (OEM, NADCAP etc.);
- Quality Plan – specific to Product package(s);

- Export control / ITAR;
- Corporate social responsibility; and
- Distribution and warehousing.

Approval

Procedures for the approval of suppliers and sub-contractors are contained in document reference GKN/QM3/20 Quality Standing Instruction for the Approval of Suppliers and Purchase Orders. Approval of suppliers, sub-contractors and stockists by GKN AP is normally facilitated by completion of a questionnaire and acceptance of these requirements by the supplier.

In addition, supplier's visits, audits or other forms of evaluation may be used at the discretion of GKN AP Quality Department. The questionnaire, including acceptance, must be returned to GKN AP for approval. Suppliers, sub-contractors and stockists may not be used until they have been approved.

Supplier Grading

To assist with the decision making process as to what SQA activities are required against various suppliers, GKN AP will grade suppliers utilizing GKN/QM6 Quality and Commercial risk assessments.

Any Approval granted shall extend to the Supplier's sub-tier supplier or sub-contractors, pending QM6 review of communicated Sub-tier supplier. GKN will notify the Supplier of such as part of GKN's Quality Approval Process.

It is the responsibility of the supplier to ensure GKN have full visibility of the sub-tier supply chain, and any changes thereafter.

GKN may conduct either a remote assessment or an on-site assessment at the Supplier's Facilities. The Supplier agrees to take any and all corrective action that GKN determines to be necessary following such assessment.

GKN Personnel, their customers, and regulatory authorities shall have a right to access the Supplier's Facilities and the Supplier shall procure GKN and GKN Personnel the right to access any of the Supplier's sub-contractors' or sub-suppliers' facilities and to applicable documented information at a mutually agreed time to review the Supplier's performance in respect of PO's. Supplier shall co-operate with GKN Personnel (and shall procure its sub-contractors and sub-suppliers co-operate) to ensure that GKN Personnel are given access to all areas and data deemed necessary for review by the relevant GKN Personnel.

The Supplier shall be subject to continuing KPI performance level reviews as part of an ongoing approval assessment. Quality and performance data analysis will form a key part of the performance review and failure by the Supplier to maintain an acceptable level of performance in the areas specified above shall be deemed a material breach of contract, entitling GKN, by notice in writing to the Supplier, to terminate any Agreement with a Supplier.

A successful Supplier will be formally advised of the outcome of its GKN Quality Approval Process and will be granted an Approval. The Supplier is not permitted to carry out any work that is not covered by the scope of the Approval granted to it.

The grant of any Approval shall not oblige GKN to accept or purchase any Products from the Supplier or to place any POs. GKN may revoke any Approval granted at any time. In the event of any problems with the Products, without prejudice to any other rights or remedies available to GKN, the Supplier shall perform timely root cause corrective action on the Product(s).

7.2 Process Assurance

Critical to manufacture of the Product is the capability of a Supplier to meet stringent controls governing the manufacturing or supporting processes that it employs. The Supplier must adopt process controls that are designed and implemented to reduce or eliminate the risk of failures occurring.

The Supplier shall define its process steps in a controlled document, assess each step for potential risk(s) and develop appropriate controls that reduce the occurrence of any potential failure modes. The Supplier shall provide a copy of such controlled document to GKN. The Supplier shall use every effort to eliminate any risks associated with or connected to the Product and shall supply a Product that meets the standards required by GKN.

It is essential that the Supplier ensures that the every aspect associated with the Product meets adequate processes, including but not limited to the technical design, processes and materials. The Supplier agrees that it is, and shall remain fully responsible for all such matters.

7.3 Process Change and Sub-contracting

A process change may affect the Products and / or the infrastructure being assessed. The Supplier must obtain GKN's prior written approval for any process changes before implementing any such changes.

Process changes include but are not be limited to the following:

- Changes in the inspection and testing process
- A change in design;
- A change in manufacturing source, process, inspection method, location of manufacture, tooling or materials;
- A change in numerical control program or translation to another media; and
- A natural man-made event which may affect a manufacturing process.
- Change of manufacturing facility
- Changes to external providers

Any approval which GKN gives to the Supplier shall not discharge the Supplier from any liability or responsibility associated with the change and the Supplier shall remain fully responsible for the Product.

The Supplier must obtain GKN's prior written approval before sub-contracting any of its requirements under the Agreement and/or QM7.

The Supplier shall ensure flow down to external providers applicable requirements including customer requirements.

7.4 QMS

The Supplier shall have and maintain its own QMS, this QMS will be subject to review via QM2-11 Supplier questionnaire, where a suppliers QMS is not externally validate by a certifying body, it will be deemed as appropriate by the SQE. This assessment may include, but not be limited too: Onsite audit of supplier, detailed risk assessments and request for additional control measures. (Source Inspection)

7.5 Quality Plans

A Quality Plan, dedicated to the article concerned, may be required. Where required the Quality Plan will be subject to approval by GKN AP Quality Department.

Where the Supplier has been awarded the supply of more than one Product or range of Products from GKN, the Supplier is required to have a Quality Plan for each Product and each Product range that will control the various aspects that are in place to ensure that the Supplier's processes are adequate for each Product.

As a minimum the Quality Plan shall:

(a) be prepared in accordance with ISO10005/AS9145: and

(b) prescribe ways of dealing with the following:

- Quality objectives & KPI's (including process improvements);
- Management responsibilities;
- Configuration management of documents and data control of records;
- Resources;
- Requirements;
- Customer communication;
- Design and development;
- Purchasing;
- Production and service provision;
- Identification and traceability;
- Customer property;
- Preservation of Product;
- Control of nonconforming Product (including customer feedback);
- Monitoring and measurement; and
- Audits

The Quality Plan should be documented and submitted to GKN's Personnel in the quality department for approval before the Supplier can start any work or production on, or perform any services in relation to, the Product. GKN shall provide the Supplier with the details of how to contact the GKN Personnel in the quality department following the date of the Agreement.

Once approved in writing by GKN, the Quality Plan shall become part of the Supplier's QMS to ensure appropriate management of the Product.

If at any point in time, GKN deems the Quality Plan to be inadequate (including after GKN has approved such Quality Plan) GKN may request that such Quality Plan be amended and Supplier shall amend such Quality Plan until it reaches a standard that is acceptable to GKN. Once the amendments have been agreed between GKN and the Supplier, the Supplier shall forward a final version of the Quality Plan to GKN. No amendment to the Quality Plan will be made unless GKN confirms its acceptance to such amendment in writing. Failure by GKN and the Supplier to agree a Quality Plan shall not discharge the Supplier from its obligation to provide one.

7.6 Inspection & Test

The Supplier must prove to GKN's satisfaction that there are controls surrounding aircraft part production to ensure that parts manufactured are within the Specifications defined during the Product's TC. The verification of control systems related to aircraft part production must continue after the first article has been produced and inspected under the FAI process to ensure that the first production and every subsequent part is manufactured using the same controls. The Supplier shall prepare a process map in a form acceptable to GKN. The links between the process map, the risks analysed for this process and the subsequently defined controls are of paramount importance in defining the inspection and test and should be instrumental as inputs to the development of the inspection and test philosophy, methods, training and tools. The Supplier shall undertake to comply with EN9102 shall apply.

The provision of a First Article Inspection Report, for the manufacture of a new item (part or tooling etc.) is required upon delivery to GKN AP. This is essential to ensure conformity of the part prior to acceptance and shall include an evaluation of all features defined on the relevant drawings or specifications.

A new FAI Report shall be required every time the process is amended i.e. up-issue of drawing, alternative method of manufacture/machine, change of manufacturing location etc.

Where GKN or GKN's Customer have a specific requirement and the Supplier is notified of such requirement by GKN, then the Supplier must weigh the components in accordance with both the FAI protocol, and GKN's or GKN's Customer requirements. The results shall be recorded and reported as part of the FAI pack to GKN's Customer (if applicable) via GKN's Personnel in the Procurement function.

GKN reserves the right to verify the source of deliveries at the Supplier's premises prior to shipment.

All inspection and testing activities which the Supplier is required to carry out must be included within the process map, risk analysis and control plan which is submitted to GKN by the Supplier. Where required by GKN, an ADP shall also be provided. An ADP is GKN's opinion on the Supplier's activities and its inspection and test methodology and devices. It shall contain the following information as a minimum:

- inspection philosophy for each characteristic type;
- list of devices to be utilised for the different characteristic types;

- typical accuracy of the devices (OEM specification);
- calibration process for the devices; and
- MSA or GR&R results against the specification(s) intended to be used for the Product.

Suppliers and sub-contractors will perform appropriate inspection/checks and/or tests to ensure conformance to specification at the following stages:

Goods Inwards:	Goods/services obtained for incorporation into products for Supply to GKN AP.
In-Process:	After all operations/processes that cannot be verified at final Inspection.
Final Inspection:	On completion of all operations/processes, prior to dispatch, to ensure complete conformance to purchase specification.

Stockists/Agents are to ensure conformance of goods at goods inwards and immediately prior to dispatch to ensure that goods have been adequately stored and are fit for supply.

Records are to be maintained of all of the above inspections/checks/tests: records are to be traceable to each unit/batch supplied to GKN AP and vice versa.

All Supplier Personnel engaged in visual inspection tasks on Products shall have regular eye sight assessments, which must as a minimum be in accordance with the relevant national standard.

No sampling inspection is acceptable on GKN Products unless the details of any sampling plan have been formally approved by GKN in writing. Where GKN does approve a sampling inspection, then in addition to any other matters which GKN may prescribe, the Supplier will be required to document the process to cover the sampling process.

Source Inspection

GKN AP reserves the right to inspect goods for supply to GKN AP at the supplier’s premises prior to dispatch. Under normal circumstances, this would only apply to particularly expensive, critical or complex supplies.

Mutually agreeable arrangements would be made between GKN AP and the supplier for source inspection.

7.7 NDT

A Supplier supplying Product which involves NDT shall ensure that such tests comply with the requirements of the mandatory CAA requirement of CAP747 GR23.

NDT Personnel shall as a minimum be qualified and certificated in accordance with the appropriate levels as stated in EN4179. The Supplier shall designate an individual qualified at NDT Level 3 in the appropriate Product sector as the Responsible Level 3 (for UK Based suppliers, as the Nominate Level 3), with responsibility for all NDT methods used.

Where the Supplier is not able to perform NDT, the Supplier must submit any alternative process requirements to GKN for GKN's prior written approval. The Supplier must not employ such processes until it has obtained GKN's prior written approval. For the avoidance of doubt, GKN assumes no liability for such approval and such approval shall not discharge the Supplier from complying with its obligations under the Agreement or QM7. The Supplier shall be solely responsible for any delays in production as a result of its failure to obtain GKN's prior written approval and shall not be entitled to claim that a delay or refusal by GKN in providing its approval discharges the Supplier from the performance of its obligations under the Agreement and/or QM7.

7.8 Calibration

The Supplier shall ensure that all devices used to measure a recorded characteristic that verifies that the Product meets a specification are compliant with ISO17025 for sub-contract laboratory services & ISO10012 internal system requirements. Any Supplier that cannot demonstrate this accreditation must apply to the GKN Certification Manager (details of whom will be supplied to Supplier upon request) with full details of the Supplier's own method of qualification and await GKN's approval before continuing with manufacture. The Supplier shall be solely responsible for any delays in production as a result of its failure to obtain GKN's prior written approval and shall not be entitled to claim that a delay or refusal by GKN in providing its approval discharges to the Supplier from the performance of its obligations under the Agreement and/or QM7.

All devices shall have a suitable means of identifying its calibration status to the user. For example this may be in the form of a sticker affixed on the device stating a calibration expiry date (such as 'DO NOT USE AFTER…').

All devices used in the calibration process shall have a unique identification reference number that is kept within a database which accurately records the device calibration history.

The Supplier shall record the calibration device identification reference number against the measurements taken during the process. Unless GKN otherwise agrees in writing, it is mandatory to record each calibration for KC measurement results. The Supplier shall upon request provide GKN with this information and any other information that GKN may require in order to verify the calibration tests.

7.9 MSA

The Supplier shall ensure that any devices that are used to measure KCs shall be subject to an MSA that determines its ability to measure the following specific characteristics:

- Device;
- Qualifications of relevant Supplier Personnel;
- Part; and • Environment.

The Supplier shall comply with the following standards as a minimum requirement:

(a) ASTM E2782 –Standard Guide for MSA; and

(b) Minitab – Problem Solving & Data Analysis

The results of an MSA shall be assessed by GKN and the Supplier will be required to take actions to improve where it achieves a result of GR&R >10%. The Supplier shall not proceed until all actions are completed and a GR&R rate of ≤10% which has been ratified by GKN Personnel in the Quality department and who confirm GKN's approval in writing to the Supplier. The Supplier shall be solely responsible for any delays in production as a result of its failure to obtain GKN's prior written approval and shall not be entitled to claim that a delay or refusal by GKN in providing its approval discharges the Supplier from the performance of its obligations under the Agreement or QM7 GKN may but is not obliged to accept a GR&R that is ≤30% where the device is not being used to control a KC and where GKN confirms in writing to the Supplier that such a rate is acceptable. This will be considered an exception. The Supplier shall upon request provide GKN with such information and any other information that GKN may require in order to verify the MSA tests.

The Supplier shall ensure that any Supplier Personnel conducting any inspection and tests are competent and have obtained adequate training in order for them to perform the tasks required of them to allow Supplier to meet its obligations hereunder and under the terms of the Agreement. The Supplier shall ensure that it maintains a record of all such training in order to demonstrate compliance with QM7 Copies of such records shall be supplied to GKN upon request.

7.10 Part Identification, Traceability & Counterfeit Part Prevention

The Supplier must ensure that GKN is able to identify the origin of all parts that form part of or are used in the supply of the Products. GKN should be able to identify the origins of such parts even after any processes are carried out. The final part identification format will be defined in GKN or OEM specification(s) referenced in the design data or other supporting documentation.

The Supplier shall have a counterfeit detection process for all Products supplied to GKN.

The Supplier must upon request supply to GKN all component certifications from an approved source. If evidence of supply chain traceability to an approved source is not available, the Supplier must notify GKN immediately and obtain authorisation from GKN prior to purchasing and incorporating the Product or any such component in its manufacturing process.

Where GKN identifies, or reasonably suspects a Product (or any part thereof) at any of its own or customer's sites to be a counterfeit part then GKN shall isolate the counterfeit part and the Supplier shall immediately replace it with a part that can be traced to an approved source. Such replacement shall be at the sole cost to the Supplier.

The counterfeit part will be quarantined until the Supplier arranges collection or destruction of such part in accordance with QM7. Suspect or confirmed counterfeit parts will not be returned to the Supplier except under controlled conditions which would preclude the resale or re-introduction of the counterfeit part into the supply chain. This means that where GKN agrees to return the counterfeit parts, it will, at Supplier's cost, destroy the part to prevent its reintroduction into the supply chain before the Supplier collects it.

Class I Parts shall have detailed traceability in accordance with all applicable laws and/or regulations including the latest EASA/FAA rules applicable at the time of the Supplier performing its obligations.

The Supplier shall clearly mark batch and/or serial numbers on both the Product being delivered to GKN and all associated certifying documentation. Where possible, batch numbers of fasteners shall be recorded against any supplied assembly to aid in any traceability event.

Without prejudice to any other requirements which the Supplier is required to meet, in order for the Supplier to meet its traceability requirement, a Supplier must be able to demonstrate the following to GKN:

(a) Operations performed on a Product;

(b) Consumables consumed in processing;

(c) Details of the operators that performed activities in connection with the Product; and

(d) Raw materials involved in the certifying of the Product.

Where GKN issues a Specification which states that data matrix markings are utilised, such data matrix markings shall comply with the requirements of AS/EN9132 – 'Quality management systems — Data matrix quality requirements for parts marking'.

All part marking is required, as a minimum, to be tested and validated as being legible after exposure to:

- Aerospace hydraulic fluid;
- Kerosene; and
- Methyl Ethyl Ketone (MEK),

(Each being referred to as the "**Fluids**").

N.B. Where HS&E laws and legislation prevent the Supplier from using the above Fluids, then GKN and the Supplier shall agree suitable substitutes in order to avoid contravention of HS&E laws and regulations. The Supplier is responsible for ensuring its compliance with all HS&E laws and regulations. The Supplier shall ensure that all part identification shall comply with and match the statements made on any release documentation.

The Supplier shall pay particular attention to part identification during process mapping, risk analysis and control planning phases of a Product as the incorrect identification and documentation of parts accounts for a high degree of delay or rejection of Products on receipt across the aerospace industry.

7.11 Delivery certification

All Products supplied to GKN shall have all the necessary documentation with them at the point of delivery. The elements that make up the documentation pack will depend on the Product being supplied. As a minimum, unless otherwise specified by GKN in writing, the Supplier shall provide the following documentation with any Product:

- EASA/FAA Form 1 (for POA organisations);
- Traceability records (i.e. History Cards, mill certification etc.) (where applicable);
- FAI Forms;
- A CofC detailing GKN and PO Number, Supplier name, part number, quantity dispatched, country of origin, commodity code, a “kit list” if a kit of parts have been supplied in one box and under one part number, GKN part description, serial number/batch number, cure date, date of assembly or manufacture (applicable to items subject to ageing restrictions), and References (as applicable) to Concession’s or Production Permit approved by GKN; Parts subject to DS100 shall state the date of treatment applied. The CofC shall in all cases for Machined Alloy state the material and the condition of the material used. (Temper or Ageing)
- Certification signed by an Authorised Release Signatory employed by the Supplier, that materials and/or process items comply in every aspect with the requirements of the PO and Specification contained in the PO;
- For detail parts (fabrications or machining) that have been subjected to sub-contract operations or special processes, the CofC (or Kit List) must define the special process description, specification and the process source for each individual part.

Unless otherwise specified by GKN in writing, the form of the documentation shall be agreed between the Supplier and GKN.

To ensure an acceptable delivery, particular attention shall be given to the process controls that surround the creation of release documentation and the formal dispatch of Products. Final checks shall be performed by the Supplier to ensure that the documentation, Product identification and any other associated elements are in accordance with the requirements of QM7 and the Agreement. Unless otherwise agreed in writing by GKN, these checks shall be recorded in Product inspection records.

7.12 Documented Information

The Supplier shall have a systematic process for ensuring that all manufacturing and release records are retained in a manner that guarantees traceability appropriate to its importance.

Materials for incorporation into products for supply to GKN AP shall only be obtained from sources that can trace materials back to their sources and provide documented verification of conformance to specification.

Documented Information is to be maintained tracing all materials used in each unit/batch back to the original supplier of the materials. These materials must be identified in records using unique references for each batch of material (i.e. all material/product incorporated into the item delivered to GKN AP by the supplier).

Documented Information is to be maintained for a period of two years after the product type has been completely and permanently withdrawn from service and for a minimum of 15 years. Where such information cannot be accurately or economically determined then the records shall be retained indefinitely.

Where approved sources are specified in the contract requirements (e.g. customer approved for raw material/processing of etc.), the supplier is responsible for providing the necessary documentation to GKN AP for onward transmission to the approval authority.

Documented information may be stored using optical or electronic storage systems where appropriate. The legibility and completeness of the information to be retained by the storage system shall be verified prior to the disposal of the original record.

Where hard copy records are scanned for electronic storage audits will be conducted to ensure accuracy of the scanning process.

Irrespective of the storage method, Documented Information shall be stored and maintained in such a way as to:

1. Be readily retrievable.

2. Minimize deterioration and damage.

3. Prevent loss by fire, flood or theft.

4. Ensure that access by people who would normally require the information can be restricted or readily challenged.

Electronic storage media are the preferred method for documents relating to airworthiness. Where it is considered impractical or uneconomic to electronically scan hard copy records they may be stored in a document archive store provided that requirements 1 – 4 above are met.

Documented Information stored electronically shall be backed up with copies stored at a separate location so as to ensure they can be retrieved in the event of catastrophic damage to the primary records.

Documented information shall be available to GKN AP, their customers or representatives, as well as applicable regulatory authorities, throughout the agreed period of storage, for evaluation purposes, at reasonable notice.

Direct tooling suppliers must store all tooling related documents (excluding tool drawings) for a minimum of 4 years. This requirement is secondary to any overriding requirements such as health and safety or contractual requirements that may be invoked.

Should technical data (E.G. intellectual property) be withheld by the supplier, it will be the supplier’s responsibility to retain this information in line with any legal or end customer requirements.

7.13 Storage Conditions for Archived Documents

In order to protect the aforementioned documents, the Supplier must ensure that storage areas are protected against fire, water damage or other physical risks of loss or damage. The Supplier must keep all documentation in connection with the Agreement and GKN confidential and unless otherwise agreed in writing by GKN, the Supplier must not share such information with any third party without GKN's prior written consent. To ensure security and confidentiality of data, storage conditions shall only allow authorised persons access to archived documents. Archived original documents shall be physically removed from the archive only if their removal is required for disposal or in case of legal dispute, only copies shall be retrieved in other circumstances. Any copies made must match the original document, be traceable and must not be amended.

The Supplier shall have suitable procedures to ensure the adequate and effective control of all software and/or electronic data or other information that is used for or provided by GKN for the purpose of design, manufacture, or inspection of all Products supplied to GKN. Such procedures must be adequate to protect such information/ software and/or data from an actual cyber-attack or a threat of such attack.

7.14 Product Safety

Product safety is defined as "The state in which a product is able to perform to its designed or intended purpose without causing unacceptable risk of harm to persons or damage to property". (AS9100 definition)

Why This Matters

Products manufactured by GKN and its supply chain will be fitted to flying aircraft, and any issue affecting Product Safety (no matter how small or seemingly important) can put the safety of aircraft structures at risk. Worst case would be catastrophic failure of an aircraft resulting in multiple fatalities and / or life changing injuries

Requirement

The supplier shall plan, implement and control suitable processes to satisfy Product Safety of either its products or services as per AS9100.
This should be achieved through,

- Individual's awareness and individuals contribution to product safety
- Determining the requirements of the products and services through operational planning and control
- Establishing criteria for the acceptance of products and services through design verification
- Ensuring Product safety considerations exist throughout the entire product lifecycle
- The communication and adequacy of external providers of their contribution to Product safety

Standards

(1) Follow processes / procedures correctly each and every time whether carrying out production or office-based support activities *(If in doubt….Ask)*

(2) Ensure the appropriate storage and handling of product at all times

(3) Provide accurate and forthright information regarding the status of product including the reporting of actual or potential non-conformities

(4) Complete product safety briefings

(5) Be aware that human factors such as environment, tiredness, complacency, distraction, etc. can have an adverse effect on product safety

7.15 Prevention of Counterfeit Parts

A counterfeit part is an unauthorised copy, imitation, substitute or modified part (e.g material part, component) which is knowingly misrepresented as a specified genuine part of an original or authorised manufacturer (AS9100 definition)

Why This Matters

- Counterfeit / suspect parts unlikely to meet specification requirements resulting in non-conforming parts that may not be fit for use in aircraft, and if undetected could have life or death consequences within the aerospace industry
- Rework and/or corrective action activities could be costly in monetary terms as well as disruption to production activities

Standards

Use the following strategy for the prevention of counterfeit / suspect parts.

(1) ***Avoidance*** *of receiving counterfeit / suspect parts by*

- ➢ Only source parts from approved suppliers and ongoing monitoring of suppliers
- ➢ Flow down of counterfeit parts prevention requirements to the supply chain

(2) ***Detection*** *of receiving counterfeit / suspect parts through*

- ➢ Employee awareness, training, and responsibility
- ➢ Robust goods receipt and inspection process to identify suspect / counterfeit parts (eg) unknown supplier, missing or incorrect documentation, poor quality and/or out of specification parts, incorrect part marking, packaging issues, etc.

(3) ***Mitigation and Disposition*** *to minimise the impact of counterfeit / suspect parts*

- ➢ If a part is identified as suspect or counterfeit, then
  - Quarantine all affected parts (including parts in stock and on assemblies)
  - Retain all associated documentation and notify the Procurement function so that they can inform the supplier and put future deliveries on hold
- ➢ Conduct investigation to verify that the part is or is not suspect / counterfeit
- ➢ If parts are confirmed as suspect / counterfeit then a plan will be initiated for the rework / replacement of all affected parts.

7.16 Ethical Behaviour

The Supplier shall implement appropriate actions to ensure that all staff understand the importance of ethical behaviour. By general definition ethical behaviour means acting consistently with what society considers as good values. Additionally, it aims to include fairness, honesty, dignity, equality, diversity and individual rights.

8. FOD

The Supplier shall have appropriate processes and process controls in place to ensure that FOD is prevented and that no FOD is present on any Product supplied to GKN. The Supplier shall ensure that during the risk analysis process, it takes measures to prevent the likelihood of any FOD and implements and defines appropriate process controls.

A final check that FOD is not present should be conducted before supply of the Product to GKN. Any risks identified shall be recorded in inspection records.

9. Governance and Communications

The Supplier shall at all times:

(i) ensure that GKN Personnel, their customer and regulatory authorities have the right of access to Supplier's Facility; and

(ii) procure such access rights for GKN Personnel to the Supplier's Facility and the premises of the Supplier's sub-suppliers and sub-contractors,

In order to allow GKN to audit Supplier's compliance with the Agreement and/or QM7

The Supplier shall notify GKN Personnel in the quality department immediately of any changes in the Supplier's ability to meet the requirements of QM7 or the Agreement. Such notification shall not discharge Supplier of its obligations to meet such requirements.

The Supplier shall notify GKN of the individual designated as the Supplier's quality manager. Such individual shall be regarded as the principal link between the Supplier and the GKN Personnel in the quality department on all matters affecting the quality of the Product supplied to GKN.

The Supplier shall maintain an up to date list of those sub-contractors that GKN has approved as being ones that Supplier is able to use on GKN programs (including Special Process Suppliers). The list shall include details of the Supplier approvals and any approved processes. The Supplier shall make this list available to GKN on request.

GKN reserves the right to source inspect deliveries at the Supplier's Facility prior to shipment. The Supplier will be notified by GKN if source inspection is to be undertaken.

GKN shall be entitled to share any information which it receives from the Supplier in connection with the Agreement or QM7 with any third party, including a GKN Customer.

10. Tooling Specific Requirements

Any GKN Property supplied by GKN or GKN's Customer to the Supplier and used in the execution of the Agreement or QM7 shall remain, without limitation, the property of GKN and/ or GKN's Customer (as applicable). The Supplier shall protect GKN's or GKN's Customer's title in the GKN Property and keep it free and clear of any liens, encumbrances, mortgages or other charges or rights of any kind whatsoever and the Supplier shall not do or permit to be done any act or thing which may jeopardise the title rights or interest of GKN or the GKN's Customer to the GKN Property. Supplier shall store GKN Property separately from the property of any other party. The Supplier shall treat GKN Property with care and professionally maintain and safely store it (at Supplier's own expense). At GKN's request, the exact place and type of storage must be advised to GKN and supported by appropriate proof. The Supplier shall insure GKN Property against loss or damage. The cost of insurance shall be borne by the Supplier and GKN must be expressly named in the insurance policy as a beneficiary.

In the event that GKN Property is damaged whilst on the Supplier premises the Supplier shall be responsible for repairing said GKN Property but only when the type and source of repair has been permitted by GKN.

Where the Supplier reasonably believes that normal wear and tear of GKN Property is likely to affect the quality of the Product, the Supplier must obtain GKN's prior consent as to the type and source of the maintenance before instructing a third party to perform any maintenance on the GKN Property where not already done, the Supplier shall upon obtaining prior written permission from GKN, attach to each item of GKN Property and maintain a metal fireproof nameplate in a reasonably prominent position bearing the inscription "PROPERTY OF GKN" (or, where required by GKN identifying the item as "Property of" the relevant GKN Customer).

The Supplier shall ensure that any GKN Property including gauging is satisfactory for the purpose intended and any damage or error identified during periodic inspection by the Supplier is to be formally reported to GKN immediately. Such reporting shall in no way discharge the Supplier from any liability that it may incur as a result of any damage to the GKN Property.

The Supplier shall ensure that GKN Property is not removed from the Supplier's Facility without GKN's prior written consent. GKN Property may only be used by the Supplier in connection with the supply of Products to GKN. GKN or GKN's Customer (as the case may be) is entitled at any time to withdraw the right to use GKN Property from the Supplier with immediate effect. However, GKN will not do this contrary to any existing contracts between the GKN and the Supplier on the supply of ordered Products. If so requested by GKN, the Supplier shall hand GKN Property over to GKN immediately without any delay.

A register of all GKN Property must be kept by the Supplier and audits must be carried out by the Supplier and supplied to GKN upon request. GKN reserves the right to audit the GKN Property, tooling inventory and register kept by the Supplier.

11. Product Non-Conformance and Request for Change

Without prejudice to any other rights and remedies that may be available to GKN, whether at law or otherwise, all Products supplied by the Supplier to GKN shall be:

- fit for purpose;
- of high quality;
- free from defects (latent or actual);
- of a standard expected by GKN; and
- in accordance with any and all instructions, descriptions or specifications supplied by GKN (including the Specifications).

Where a Supplier identifies that any Product does not meet GKN's requirements, then it must notify GKN immediately by contacting GKN Personnel in the Quality & Procurement function. The Supplier must not dispatch any non-conforming Products without GKN's prior consent. Such consent shall be without prejudice to GKN's rights and remedies in respect of a non-conforming Product.

Products that do not comply with the Specifications shall be considered as non-conforming and their acceptance must be subject to authorisation by GKN via the "Concession Process" as defined by GKN from time to time. Application for concessions must be made through the GKN Procurement Quality department who will forward them to the relevant design office. For the avoidance of doubt, GKN may, in its sole discretion, reject any such requests and/or impose any conditions it deems appropriate as part of its approved Concession Disposition.

Concession Disposition responses are the responsibility of the relevant design office. GKN shall return a copy of the approved Concession Disposition to the Supplier once it has sufficient time and information to properly evaluate the Supplier's request. The Supplier shall be solely responsible for any delays as a result of its failure to obtain GKN's prior written approval and shall not be entitled to claim that a delay or refusal by GKN in providing its approval discharges the Supplier from the performance of its obligations under the Agreement and/or QM7.

1. Application must be made in the first instance to the GKN AP Quality Manager. The application must include:
   MAIL BOX: <Supplier.PMH@gknaerospace.com>
   - Part number of affected goods/service
   - GKN AP purchase order number
   - Quantity involved
   - Accurate description of deviation
   - Cause of deviation.

2. Goods subject to concession action may not be supplied to GKN AP until written acceptance has been obtained.
3. If a concession is agreed by GKN AP, the release documentation supplied with the goods must make clear reference to the concession.
   If a deviation is foreseen ahead of its occurrence due to such factors as non-Availability of materials or urgency on the part of GKN AP, a Production Permit may be applied for, but subject to the requirements for concessions above.

Where GKN requires the Supplier to perform any repair or supply further Product as part of the approved Concession Disposition, the Supplier must perform such activities, delivering the Product to GKN. The Supplier shall document the actions taken to accomplish the required repair/ further work, including the re-inspection to verify the completion of the Product in accordance with the approved Concession Disposition in the Supplier's manufacturing records.

The Supplier shall not deliver Products to GKN with open concessions, i.e. unanswered concession applications. GKN will only consider shipment with open concessions in exceptional circumstances (but not without written authorisation from GKN in any event) and in such circumstance the Product shall be conspicuously tagged highlighting the condition.

The Supplier's CofC shall declare all applicable GKN concession numbers on delivery of nonconforming Product that has been accepted via approved Concession Dispositions. A copy of the approved Concession Disposition shall be included with the Supplier's delivery documentation.

Products that do not comply to the GKN's condition of supply requirements as referenced via the PO but do conform to the engineering design requirements (e.g. specific condition of supply requires pilot hole in lieu of drawing requirement for full size holes, or excess trim to be left on etc.), are considered as non-conforming to the condition of supply requirements and their acceptance must be subject to authorisation by GKN.

Any request to change GKN documentation or requirements or the Product must be made in writing and before incorporating any such change, formal approval from GKN in writing must be received. The Supplier shall be solely responsible for any delays as a result of its failure to obtain GKN's prior written approval and shall not be entitled to claim that a delay or refusal by GKN in providing its approval discharges the Supplier from the performance of its obligations under the Agreement and/or QM7.

Where a Supplier has design authority, any changes to Products controlled by Supplier drawings and incorporated into GKN assemblies/ systems must be subject to design review/ verification/ validation. GKN shall be notified of any such changes by the methods stated in the Agreement or Quality Plan.

Where Products are found to be non-conforming and need to be recalled, the Supplier shall contact GKN immediately.

MAIL BOX: <Supplier.PMH@gknaerospace.com>

In this situation, the Supplier must provide ongoing co-operation and support until the issue has been resolved, including the immediate supply of replacement Products to support GKN's programme requirements. Supplier shall promptly provide to GKN any information requested by it. GKN shall be entitled to resolve the issues itself but all associated costs shall be borne by the Supplier.

12. Corrective Action

If supplies provided to GKN AP are found not to conform to purchasing specifications and requirements, they may be rejected back to the supplier. GKN AP will then request information on corrective action.

The supplier will provide details of the corrective action taken to prevent recurrence of the non-conformance to assure GKN AP that the supplier has adequate control of its processes. This will be documented on form ref. QM2/32.

Items returned to sub-contractors (working to GKN AP drawings), after rejection by GKN AP, shall be controlled in the following manner:

1) If the rework required to bring the item back to specified requirements does not affect the structure of the material e.g. adding holes, increasing hole sizes etc., then the parts are not required to be covered by GKN AP agreement.
2) If the rework does affect the structure of the material e.g. holes in the metal filled in / welded, breaking through plies in a composite structure etc., then this rework needs to be defined and agreed by GKN AP. This may take the format of a GKN AP concession.

13. Production Engineering

13.1 Process Planning

The Supplier shall ensure that all manufacturing processes are as efficient as possible. The Supplier shall establish and maintain, for the Product (or Product family), a document setting out the Supplier's manufacturing process from source of material through to completion of the part. including the following information :

- Physical flow;
- Information flow;
- Measuring points for delivery performance (on time delivery) and rejection rate;
- Customer demand (quantity per week or month and lot size) and delivery frequency;
- Reject rate for every process step;
- Lead time for every process step; and
- Bottleneck identification.

If requested by GKN the Supplier shall provide an Industrial Process Layout equal to Production line layout (e.g.
Spaghetti Diagram, which depicts the physical movement of parts through the process and can highlight an inefficient process flow meaning that the lead-times are longer than they could be), mapping the overall Product flow from the receiving area to the shipping area.

13.2 Condition of Supply

GKN will purchase Products that meet a Specification. GKN may wish to amend the Specification. Where this right to amend is invoked, GKN will provide a 'Condition of Supply' document (the "**CoS**") that defines any special delivery requirements including packaging.

A CoS may include specific packaging requirements or standards. In any event, the Supplier has an obligation to use returnable or recyclable packaging where possible. All costs associated with such packaging shall be borne by the Supplier.

If bespoke packaging is required, the Supplier shall upon request from GKN design and develop all aspects including interior partitions. In all cases the packaging design must ensure that the Product performance and characteristics will remain unchanged during packing, transit and unpacking and be compatible with all material handling equipment. GKN should be consulted during the design process and requested to approve the design prior to use. Such approval shall not discharge the Supplier for having design responsibility for the packaging. The process of manufacturing packaging and any of its subcomponents must as a minimum comply with ISO 14001.

Any bespoke packaging designed by the Supplier must be manufactured in quantities that will support the GKN build rate. These quantities must also consider lead-time requirements to ensure continuous availability.

13.3 Key Characteristics

KC's may be defined and continually controlled by the design engineering team and the process engineering team. KC's are to be controlled for both design KC's which are set out by the design engineering team and process KC'S set out by the process engineering team to a minimum standard of AS/EN9103. A document relating to the variation management of KCs shall be compiled by the Supplier for definition and control of all KCs unless otherwise agreed in writing by GKN.

For guidance:

- design KCs are those that are defined as such in the Specification, typically this will be by the use of a KC designation on the Specification with a GD&T definition of the actual KC and its tolerance; and
- process KCs are defined by the Supplier following detailed analysis of the process through a process map and risk analysis. These should be defined parameters that a process must meet in order to supply a compliant Product.

KCs shall include documented controls and records of all results shall be maintained and reported as requested by GKN. The documentation of these controls shall define the following as a minimum:

- The characteristic to be controlled;
- The specification (including tolerances that apply);
- The frequency of measurement;
- The gauge/device used to measure it;
- Who is responsible for taking the measurement;
- Method of record; and
- Reaction if out of control.

The measurement and recording of KCs shall be continual, however sampling plans may be considered where statistical process controls can be demonstrated as meeting CpK>2.0. Sampling plans must be approved by in writing GKN and/or GKN's Customer prior to any reduction from continual process control.

The SPC shall be adopted for the control of KCs where possible. Where SPC is adopted it shall be used in accordance with the ISO 11462 standard.

13.4 Special Processes

Special processes are defined as those that are difficult to inspect during the process itself and thus the output is entirely dependent on good control of all process inputs. Examples of Special processes are defined to be:

- Chemical Processing (CP)– surface treatments, corrosion protection systems etc.;
- Coatings (CT);

- Composite materials (COMP);
- Conventional Machining as a Special Process (CMSP);
- Elastomer Seals (SEAL);
- Electronics (ETG);
- Fluid Distribution Systems (FLU);
- Heat Treating (HT);
- Materials Testing Laboratories (MTL);
- Measurement and Inspection (M&I);
- Nonconventional Machining and Surface Enhancement (NMSE);
- Non-Destructive Testing (NDT);
- Non Metallic Materials Manufacturing (NMMM);
- Non Metallic Materials Testing (NMMT);
- Sealants (SLT);
- Welding (WLD);
- Any processes identified as special processes in accordance with the NADCAP approval system; and
- Any additional special processes as mandated by GKN and/or GKN's Customers from time to time

A Supplier that uses these processes shall be expected to comply with NADCAP requirements and/or any other specific GKN or GKN's Customer requirements for each process. Exceptions to this may be approved by GKN in writing provided GKN is satisfied that appropriate process controls are in place and meet GKN's and/or GKN's Customer's requirements. In all cases process controls will be expected to be documented and any change to the documented control systems must be notified to GKN in accordance with the change process in QM7 **prior to any change being made.**

All special processes shall be subject to continual process controls. Sampling plans may be considered where statistical process controls can be demonstrated as meeting CpK>2.0. Sampling plans must be approved by GKN and/or GKN's customer prior to any reduction from continual process control.

13.5 Process Qualification

All special processes and other processes that GKN specifies shall be qualified. The Supplier must ensure that processes covering the following areas are qualified:

- Personnel;
- Materials;
- Equipment; and
- Inspection.

Processes that require qualification for any Product will be defined by GKN once the Supplier has submitted a detailed process map of how they intend to produce the relevant Products. GKN shall define any qualification requirements for each process defined in the Supplier's process map, typically this will be either a GKN, GKN's Customer or OEM process specification. Qualification shall be approved by GKN or GKN's Customers prior to commencement of production or supply through the relevant process.

In certain circumstances it may be accepted by GKN that Products may pass through processes that are not qualified but are in the process of becoming qualified (i.e. testing is underway but not complete). This will be based on the risk analysis and mitigation of those risks and confidence based on previous experience of both of GKN and the Supplier. However, any liabilities during this interim period are the responsibility of the Supplier and not GKN or GKN's Customers. Supplier shall not proceed with using processes that are not qualified without obtaining GKN's prior written consent.

A qualification plan shall be documented by the Supplier and submitted to GKN covering the following:

- List of certificates/approvals;
- List of material Products to be qualified (incl. qualification schedule);
- List of manufacturing special processes and inspection process and test methods to be qualified per manufacturing site (including qualification schedule);
  List of processes certified and/or scheduled to be certified by NADCAP (including associated schedule); and
- FAI planning and scheduling.
  The Supplier shall list in the qualification plan all material/source couples to be qualified which will be integrated into the Product and the associated qualification schedule.

The implementation of any qualification process pursuant to QM7 shall not discharge the Supplier from any liability or responsibility relating to the Product under the Agreement and/or QM7 and the Supplier shall remain fully responsible for the Product.

14. Software / Electronic Data

The Supplier shall have suitable procedures to ensure the adequate and effective control of all software and or electronic data used for the purpose of design, manufacture, or inspection of all parts manufactured for GKN. If required by GKN, the Supplier shall provide GKN with evidence of the same and shall take any additional precautions or measures which GKN may request from time to time in order to safeguard such data.

APPENDIX A

ADDITIONAL REQUIREMENTS RELATING TO PART 21 SUBPART G

Introduction
Additional requirements are placed on those suppliers working in support of GKN AP production under its Part 21 Subpart G approval.

Notification of applicability
GKN AP Quality Department will provide affected suppliers with an extract from the GKN/QM6 Approved Suppliers listing, identifying those part numbers which, when ordered by GKN AP, are in support of production under its Part 21 Subpart G approval. These additional requirements apply only to those items listed.

Approval Sub tier suppliers and subcontractors.
Sources of supply and sub-contractors must be approved by GKN AP prior to use. These will be listed in GKN/QM6 under Sub Tier Supplier and advised to the supplier by GKN AP Quality Department. Once approved the sub tier supplier will be added to the supplier audit schedule.

Flow down of requirements
The provisions of this document, and in particular these additional requirements, will be flowed down to all sub tier suppliers and sub-contractors.
Where sub-suppliers or sub-contractors are unable to comply with the specified document retention requirements then it is the responsibility of GKN AP'S supplier to retain the relevant documents for the required period.