



KONGSBERG
AUTOMOTIVE

Supplier Quality Manual

Kongsberg Automotive



Enhancing the driving experience

2019

Preface

This manual has been created to assist our suppliers in understanding the purchasing expectations and quality requirements for products supplied to the Kongsberg Automotive Group. The manual is also a tool to assist Kongsberg Automotive in complying with the IATF 16949 Quality Management System standard and to develop our suppliers.

In order for Kongsberg Automotive to maintain compliance to the IATF 16949 requirements, suppliers to Kongsberg Automotive must achieve certification by an accredited certification body to a current version of the ISO 9001 Quality Management System (at minimum), or Kongsberg Automotive to demonstrate a written approval from an OEM approving the use of suppliers without Quality Management system certification.

When circumstances dictate the requirements and expectations of this manual may be extended to comply with customer specific requirements, statutory and regulatory requirements.

Through implementation and adherence to the standards stated herein, Kongsberg Automotive looks forward to a long and mutually beneficial relationship with our suppliers.

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SECTION 1: Introduction

1.1 Scope

This manual has been developed to communicate the operating principles, general expectations, requirements, and procedures of Kongsberg Automotive. Adherence to the guidelines described in this manual is required by all Kongsberg Automotive suppliers. Acceptance of any and/or all purchase orders constitutes acceptance and commitment on behalf of the recipient to comply with this manual's content. This manual is provided as a supplement to, and does not replace or alter, any purchase agreement the general purchase conditions. This manual describes the minimum requirements and expectations for which the supplier has responsibility, further requirements may be applicable depending on Kongsberg Automotive end customer requirements. However, system improvements that exceed the requirements specified within this manual are always encouraged.

1.2 Purpose

We expect that KA suppliers support our commitments as described in latest version of Kongsberg Automotive's Quality Policy (<http://www.kongsbergautomotive.com>). In order to fulfill this objective, it is necessary that all functions within Kongsberg Automotive and their business associates operates with a "Zero Defect" strategy. We must both strive for a fundamental quality management system that provides for continuous improvement in the quality of products. Emphasis shall be on defect prevention and the reduction of variation and waste in the supply chain.

1.3 Application

The expectations and requirements described in this manual apply to all suppliers of prototype and serial production products. Suppliers must meet all applicable requirements specified herein including all product related Customer Specific Requirements as required. Kongsberg Automotive highly recommends the use of all standard AIAG core tools (APQP, PPAP, FMEA, MSA and SPC) and CQI special process requirements as the basis for all process and product quality assurance.

1.4 Implementation

Suppliers are responsible for the development, documentation, implementation, and maintenance of an ISO 9001 Quality Management System according to the latest revision (at minimum). Suppliers are encouraged to become certified to the quality management system standard IATF 16949, and the environmental management system ISO 14001.

When circumstances dictate additional requirements to this manual may be required to comply with Kongsberg Automotive specific customer requirements, statutory and regulatory requirements.

SECTION 2: Kongsberg Automotive Expectations

2.1 Engineering / Technical Support

Kongsberg Automotive is dedicated to the manufacture of the highest quality products. In order for this objective to be achieved, all suppliers shall offer engineering and technical support to Kongsberg Automotive when said support is requested.

2.2 Manufacture Capability / Capacity / Location

Suppliers are expected to have the resources necessary (people, property, facilities, equipment, and materials) to supply the products required to accommodate Kongsberg Automotive's project and production schedule.

2.3 Consistent Quality

Zero-defect products are required from suppliers to Kongsberg Automotive. Any deviation from this will result in rejection and return of the product to the supplier with subsequent charges attached. The supplier is expected to reduce any ongoing fault rates by half year by year, failure to improve may mean invoking the KA escalation process. Payment by Kongsberg Automotive shall not constitute acceptance. Even after acceptance of a shipment, Kongsberg Automotive reserves the right to return any material that proves to be defective for full credit. Defective material shall be returned at the supplier's expense and account debited accordingly. Additional charges for sorting, administrative fees and other related costs (extra transport, end customer charges, etc.) will also be added.

2.4 Cooperative Management Attitude

Kongsberg Automotive expects our supplier's top management to share our commitment to meet or exceed our customer's quality expectations through continuous improvements. It is also expected that the entire supplier organization will give their full support to the relationship that exists between our companies and demonstrate flexibility in assisting Kongsberg Automotive in meeting all of our customer's requirements.

The Supplier is required to maintain a Kongsberg Automotive plant contact, who can be readily available to assist in solving problems when needed.

2.5 Rights of Verification of Products/Processes

Kongsberg Automotive reserves the right to verify the products and manufacturing processes at the supplier's premises by Kongsberg Automotive representatives, our customer and/or their customer. This can be done by different kinds of audits and the supplier will be notified in advance.

SECTION 3: Supplier Selection and Monitoring

3.1 Supplier Assessment and Selection

Kongsberg Automotive's supply base shall consist of organizations supportive of our business needs. Kongsberg Automotive utilizes controlled methods through which suppliers are evaluated, selected, developed and monitored.

Criteria for assessment and selection of suppliers, for placement on Kongsberg Automotive's Preferred Suppliers List, is based on the supplier's abilities to meet and/or exceed minimum quality and purchasing requirements and expectations.

3.2 Supplier monitoring

All claims related to suppliers will be reported into the Kongsberg Automotive global computer system. On a monthly basis the quality department will present internal reports based on this data (e.g. PPM and number of claims) and follow up the suppliers that cannot meet our requirements. As needed Kongsberg Automotive will call these suppliers for meetings and will expect that the top management is involved and can show us their action plans to solve the problem. New Business on Hold status and escalation can be raised if there is a shortcoming in the supplier's performance, audit result and/or their ability to solve the problems.

All suppliers can apply for access to the Kongsberg Automotive supplier portal (<https://supplierportal.ka-group.com/>) where suppliers can review and assure their supplier related performance scorecard along with other relevant information. An agreement needs to be signed by the supplier and approved by Kongsberg Automotive Purchasing in order to receive access.

SECTION 4: Quality Requirements

4.1 Quality Management System

Our suppliers are required to be certified to the latest revision of ISO 9001 Quality Management System by an accredited 3rd party registration body. Suppliers are however encouraged to implement an IATF 16949 Automotive Quality Management System (unless otherwise authorized by KA customer). Suppliers Quality Management System shall be formally documented, implemented and maintained to ensure that supplier's products conform to the identified purchase specifications, engineering or material specifications and/or contract requirements. The system shall be defined and documented in the supplier's own Quality Manual. This manual shall be made available to Kongsberg Automotive for review upon request.

4.2 Product Quality

Suppliers are fully responsible for the quality of their products including their sub-suppliers. All suppliers are responsible for providing products that meet all Kongsberg Automotive requirements, specifications, and drawings as identified on the purchase order and that the products are free from defects as warranted in Kongsberg Automotive General Purchasing Conditions. Zero-defect products are required from all suppliers.

4.3 Quality Planning (QAP/APQP)

All suppliers are required to complete, sign and return a QAP/APQP on all projects (new or changed parts) according to the provided time schedule, and report on the activities as requested. Any change in the time schedule needs to be approved by Kongsberg Automotive. This process will be followed up by the Kongsberg Automotive responsible Project Supplier Quality Engineer as identified in the QAP.

4.4 Handling of Non PPAP Approved Parts

If requested, for all deliveries of prototype, first off tool and pre-series components, the supplier must provide an inspection report detailing:

- Five parts per batch: full 100% control on all characteristics (must be separately identified).
- The remaining parts: inspection of all key characteristics defined on the drawing, specification or as detailed in the QAP/APQP process.

4.5 Production Part Approval Process (PPAP)

The PPAP with all requested documentation and samples according to the QAP/APQP process shall be available or submitted on the agreed date, failure to meet agreed project timing (QAP timing) may mean escalation process being invoked. This documentation shall show that all requirements specified in our drawings and specifications are fulfilled.

The supplier can apply for an Interim approval (identified in the PSW) if the part or documentation cannot conform to all specified requirements. The supplier must apply for this as soon as they see that they cannot present a complete PPAP on the agreed date. The Interim approval shall specify what requirement the supplier cannot fulfill and an action plan showing how and when the part (e.g.: 100% sorting before shipping to KA) or documentation will be according to specification. An interim approval is always restricted for a limited number of parts or time period.

Kongsberg Automotive reserves the right to inspect these samples for conformance and will return a signed Warrant indicating whether it is approved to produce parts for serial production purposes. This report will be submitted to the Supplier. Shipping of serial production material is only allowed with an approved PSW (Part submission Warrant) or a signed Interim Approval by Kongsberg Automotive.

4.6 Serial Production Ramp Up Inspection

At the Start Of Production (SOP) the Supplier is required to implement a reinforced inspection according to agreed Quality Assurance Plan (QAP), this might be related to a period of time or a specific number of produced parts. The reinforced inspection shall continue until no defects are found according to the agreement. This reinforced inspection plan must contain all key characteristics defined on the drawing as a minimum requirement and will require submission and approval by the receiving Kongsberg plant before the SOP. It must be submitted during the QAP/APQP process and is a part of the PPAP submission.

The reinforced inspection plan will as a minimum be subject to the following rules:

- 100% inspection of all key characteristics based on the Kongsberg Automotive requirements and/or non-conforming capability results.
- The production control plan frequency shall be doubled for all other characteristics.
- For appearance items 100% inspection shall be based on the approved Boundary and Master Samples.

4.7 Product Re-Validations

When Kongsberg Automotive requests a product re-validation of serial parts, all supplier part approval documents must not be more than one year old. Standard product re-validation documents as measurement reports, material certificates, control plan, FMEA, etc. are to be submitted upon request.

4.8 Statistical Process Control (SPC)

Statistical data shall be provided as required by the Kongsberg Automotive representative, as identified by the respective engineering drawing, applicable specifications or standards, and/or the purchase order.

Critical Characteristics:

Designated critical characteristics shall be subject to continuous ongoing Statistical Process Control. Other characteristics may be called out for initial or continues ongoing SPC control.

Customers generally select special characteristics (dimensions, material, ...) impacted by safety standards and/or critical to fit or function. Those are identified by symbols in product drawings and specifications.

Capability Studies and Statistical Process Control shall be performed in accordance with the rules defined in the latest edition of the AIAG PPAP and SPC manuals.

Initial Capability:

Products are taken from pre-production at the manufacturing location(s) and analyzed statistically. Parts from each unique production process e.g. duplicate assembly line and/or work cell, each position of a multiple cavity die, mold or pattern, shall be measured and representative parts tested. Kongsberg Automotive requirement on initial capability studies are Min 1,67 Ppk. A Pp of minimum 2,0 can also be required.

For non-critical dimensions a minimum Ppk of 1,33 may be required.

On-going Control:

For critical or agreed characteristics where the process can be adjusted during the production run, SPC will be used to control the process output. If nothing else is agreed the Kongsberg Automotive requirement on serial production capability is Min 1,33 Cpk.

In the event of noncompliance with the capability requirements, the supplier is required to perform 100% sorting (visual sorting is not accepted) and/or to implement a mechanical Poka-Yoke on the corresponding characteristics until the agreed action plan is completed and the capability results fully comply with the requirements. These actions (100% sorting or addition of mechanical Poka-Yoke) will have to be fully documented in the Control Plan

and the process FMEA.

4.9 Process Records

Process verification and inspection records shall be maintained and be available for Kongsberg Automotive upon request. All records shall be retained for a time period of minimum 3 years after production end or for an agreed period of time.

As a minimum or as designated in the QAP / CSR's, during the serial production, the supplier shall maintain:

- Process change record
- Ongoing quality control records
- Production record

4.10 Non-Conforming Product Control

If a supplier's parts are found to be out of agreement the supplier will be notified by Kongsberg Automotive personnel to provide immediate containment and support to resolve the problem using the 8D format and Root Cause Analysis tools.

A most serious concern is when a supplier product/process shuts down a Kongsberg Automotive production line making delivery to a Kongsberg Automotive customer late. Any condition causing line shutdown and late shipment warrants the supplier's immediate action to eliminate the condition. **The supplier is responsible to address containment of the problem at their facility, parts in transit, parts in Kongsberg Automotive stocks and at Kongsberg Automotive end customer(s), including Safety Stocks.**

If requested by Kongsberg Automotive a supplier or a supplier hired third party company (can be directed by Kongsberg Automotive) may send in a team to sort parts in house at the supplier expense. If Kongsberg Automotive must sort supplier parts in order to keep production supplied with defect free components, the Supplier will be charged for the sorting cost. This charge may be applied to both components and finished assemblies in which the components are used. If a supplier defect causes Kongsberg Automotive's finished product to be reworked or scrapped, all charges incurred will be the responsibility of the supplier. All other related costs will be charged to the supplier including eventual costs from Kongsberg Automotive customer.

If a supplier can not implement a permanent corrective action to supply zero defects to Kongsberg Automotive and problems continue, Kongsberg Automotive will implement a quality level 2 escalation. This shall include a containment process that must be implemented until the supplier has shown their ability to ship defect-free material on a continuous basis as outlined in escalation letter. A Kongsberg Automotive representative will follow up the containment actions.

If another defect is discovered within this containment period, Quality level 3 escalation (New Business on Hold) will be implemented at the Suppliers' expense. The escalation process is not designed to penalize suppliers but the purpose is to assist and support suppliers in their effort to achieve Kongsberg Automotive targets, requirements and to prevent any non conforming part to be delivered.

If a supplier detects non conforming products prior to shipment to Kongsberg Automotive, the supplier must immediately determine the extent of the problem and take actions to ensure no defective products are shipped to KA. If suspect material has been shipped, the supplier must notify all Kongsberg Automotive user plants and implement all necessary actions to prevent the material being used in production.

Any rework or repairs to suspect material must be conducted in a controlled manner that assures that the reworked or repaired product meets Kongsberg Automotive specifications. Written instructions should detail the rework or repair, the re inspection of reworked product and the return of this product to normal production flow.

A formal interim approval request that includes deviation and corrective action information from the supplier must be sent to Kongsberg Automotive, and an approval must be received from the user plant before any reworked material is shipped to Kongsberg Automotive.

A copy of the vendor complaint will be distributed to the supplier when defective material has been found, initial response with initial containment must be completed and returned latest within 24 hours, corrective actions must be defined and reported within 7 calendar days unless otherwise agreed. The supplier is expected to implement all necessary actions to close the 8D within 30 calendar days unless otherwise agreed. The supplier will be notified if any aspect of the 8D report is not acceptable and will be required to resubmit the updated report in a timely fashion. Failure to meet agreed timing in completing the 8D may invoke the KA escalation process.

4.11 Supplier Request for Change Approval

Any changes on the product, manufacturing process (including production location) or sub-supplier that may result in an impact on product quality and performance must be reviewed and approved with Kongsberg Automotive in writing. The supplier must send a notification specifying the change to Kongsberg Automotive (to responsible product buyer) and a change request form is available on www.kongsbergautomotive.com. Kongsberg Automotive will then investigate the possibility to implement the change and will inform the supplier when a decision has been taken. A re-validation PPAP of the part and manufacturing process will be requested if the change is accepted.

Any changes on serial products or serial manufacturing processes implemented without KA approval will be handled as a trust violation between our companies and invoking the KA escalation process.

4.12 IMDS and/or CAMDS report

As requested on drawing and/or QAP, components/Semi components/Materials delivered to Kongsberg Automotive (KA) must be declared by supplier in IMDS (International Material Data System), CAMDS (China Automotive Material Data System) or with a separate FMD (Full Material Declaration), FMD form can be downloaded from www.kongsbergautomotive.com. For each part, the supplier shall submit a MDS (Material Data Sheet) consisting of a declaration of all materials included and their weight. The MDS must be accepted by Kongsberg Automotive before the PPAP/PSW can be approved.

4.13 Special Processes

If required during the QAP/APQP process suppliers shall comply with the requested AIAG standards related to special processes, for example:

- CQI-9 Special Process: Heat Treat System Assessment
- CQI-11 Special Process: Plating System Assessment
- CQI-12 Special Process: Coating System Assessment

Full list of all AIAG CQI standards can be found and purchased at www.aiag.org/

4.14 REACH Report

As required during the QAP/APQP process suppliers shall comply with the EU **R**egistration **E**valuation **A**uthorization and restriction of **C**hemicals (REACH) requirement.

“REACH makes industry responsible for assessing and managing the risks posed by chemicals and providing appropriate safety information to their users. In parallel, the European Union can take additional measures on highly dangerous substances, where there is a need for complementing action at EU level.”

Reference: http://ec.europa.eu/growth/sectors/chemicals/reach_en

4.15 Material Safety Data Sheet

A material safety data sheet in accordance with GHS guideline must be sent and approved by the receiving Kongsberg Automotive plant before delivery, of any chemicals used in production processes is allowed. The Globally Harmonized System (GHS) is an international approach to hazard communication, providing agreed criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets.

4.16 Product Traceability

All Suppliers to Kongsberg Automotive must have an identification system that distinguishes one lot/batch/part from another when shipping finished product.

Each lot/batch/part of material should be clearly identified on the product (where applicable) according to the part drawing or as agreed if not specified on the drawing, and on the product packaging.

The traceability system must comply with the FIFO (First In – First Out) principles for incoming and outgoing material.

4.17 Tools & Gauges Labeling

All Tools and Gauges, property of Kongsberg Automotive, or belonging to Kongsberg Automotive on the behalf of Kongsberg Automotive Customers, must be properly labeled by the supplier according to Kongsberg Automotive requirements in tool purchasing order.

4.18 Continuous Improvement

Continuous improvement in the quality of products and/or manufacturing processes are key to be a supplier to Kongsberg Automotive. The supplier should maintain documented evidence of continuous improvement for review upon request by Kongsberg Automotive's representative. All suppliers shall show a proactive approach that supports driving the reduction of process variation and waste within their business, utilizing continuous improvement tools and techniques.

Kongsberg Automotive may offer a 360-degree Continuous Improvement workshop to our preferred partners to continue successful growth of the business and improve performance related to quality and delivery. We will need the supplier's full commitment in order to achieve a successful activity if agreed to this joint activity.

4.19 Product safety, product liability

Suppliers to Kongsberg Automotive has the responsibility for all product safety and product liability in delivered parts, including their Sub-suppliers that are used in finished KA products. The Supplier shall implement an organization, a process and tools to ensure the product safety of its parts and their sub-supplier's parts to minimize product liability risks.

All suppliers shall appoint and communicate a qualified PSR (Product Safety Responsible) contact person for KA, including emergency phone number (24/7) and e-mail. This appointed person shall be registered in KA supplier contact system and is shown in the supplier portal for suppliers. It is the responsibility of the supplier to ensure that KA has the correct information.

CHANGE RECORD

Version March 2019

- Quality Management System reference ISO/TS 16949 changed to IATF 16949.
- ¶ 1.3 – “including all product related customer specific requirements” added
- ¶ 2.3 – “Failure to improve may mean invoking the KA escalation process” added
- ¶ 4.1 – “KA to demonstrate a written approval” changed to “unless authorized by KA customer”
- ¶ 4.5 - Added “failure to meet agreed QAP timing may mean escalation process being invoked”.
- ¶ 4.7 – “part approvals” changed to “part approval documents”, reference to standard product re-validation documents added.
- ¶ 4.8 - Continuous Improvement removed (added as separate paragraph)
- ¶ 4.9 - Reference to QAP/CSR’s during serial production added
- ¶ 4.10 - “defective” changed to “out of agreement”, “zero defect quality” changed to “Kongsberg Automotive targets, requirements and to prevent any non-conforming part to be delivered” and “Failure to meet agreed timing in completing the 8D may invoke the KA escalation process” was added.
- ¶ 4.11 - Reference to change request form and consequences for unauthorized changes added
- ¶ 4.12 – “If required” changed to “As required”, link to CAMDS (China Automotive Material Data System) and FMD (Full Material Declaration) added.
- ¶ 4.17 - Reference to tool purchasing order added.
- ¶ 4.18 - Paragraph for continuous improvement expectation and KA 360-degree continuous Improvement workshop support added
- ¶ 4.19 - Product safety, product liability added



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