Quality Guideline

for Suppliers of Production Materials

of

Nexans autoelectric GmbH
Vohenstraußer Straße 20, 92685 Floß

Nexans autoelectric (Tianjin) Co. Ltd.,
15th Plant, Xinyesan Street 18, West District of TEDA,
CN 300462 Tianjin, China

herein referred as „ae“

Change Documentation

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1.3	Delite aeA as contractual partner; change ISO/TS 16949 into IATF 16949; include last sentences in 4.3	Ellert	APR	06.2019

List of Abbreviations

Cpk	Long-Term Processing Capability
FMEA	Failure Mode and Effects Analysis
GADSL	Global Automotive Declarable Substance List
IMDS	International Material Data System
MSA	Measurement System Analysis
OEM	Original Equipment Manufacturer
PPAP	Production Part Approval Process
Ppk	Preliminary Processing Capability
PPM	Parts Per Million
REACH	Regulation (EC) No. 1907/2006 Registration, Evaluation, Authorization and Restriction of Chemicals
VDA	Association of the German Automotive Industry

Definitions

D-parts	Parts Subject to Documentation (D-parts)
In writing	Letter or Textform (E-Mail, Fax)
Business Day	Monday to Friday

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1. Introduction

This document shall define the minimum requirements for the Quality Management System of the Supplier on the basis of a common understanding of quality in order to produce the highest quality goods for the automotive industry, to minimize costs and to further enhance the supply relationship between the partners.

2. Scope of Application and Contract Structure

These provisions shall apply to the entire contractual relationship between the Supplier and ae and shall compliment the General Terms and Conditions of Purchase of ae in its currently valid version and supersede these provisions, should any terms contradict each other.

By sending an offer, the Supplier undertakes to observe the described quality requirements set out in this document.

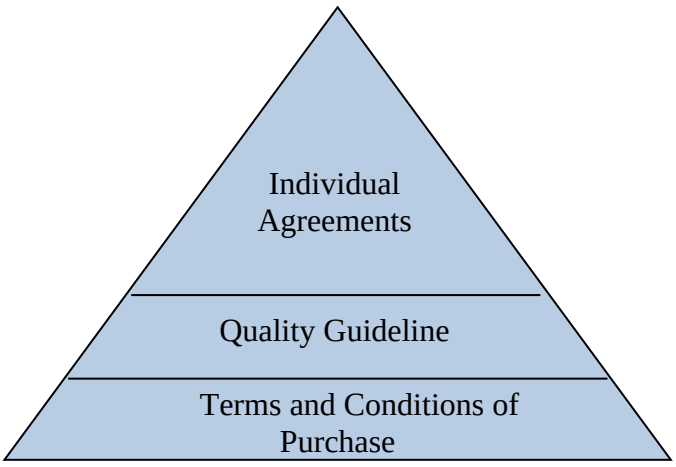

Image 1: ae Contract Structure

3. Quality Management System

The responsability for the quality of the goods delivered lies with the Supplier.

The characteristics and requirements for the Quality Management System (QM-System) are to be set out in writing into a Quality Guideline (e.g. Quality Manual) by the Supplier.

A certification proof of the QM-System, which at least corresponds to DIN EN ISO 9001, is required. A certification to IATF 16949 is desirable and provides certain benefits in the ternder process. The advancement of the QM-System, involving the requirements of VDA and IATF 16949, is in any case required.

ae maintains an Environmental Management System according to DIN EN ISO 14001 and expects a responsible approach to the environment from its Suppliers. This, as well as the compliance with all relevant regulations, shall be ensured by preferably using an Environment Management System.

Especially from Suppliers dealing with customized parts we expect autonomous care of and compliance with requirements of the respective customer or OEM.

The elements of quality control, quality assurance measures and responsibilites set out in the Quality Guideline shall include all areas of the company. The compliance with the Quality Guidelines shall be monitored by a department of the Supplier, which is organizationally independant from production and order processing. The Supplier shall monitor the effectiveness of all actions in order to ensure the quality and provide proof upon request of ae.

For customer service purposes as to quality, the Supplier shall appoint an expert contact partner as well as a deputy. In the event of change, the Supplier shall immediately inform ae and submit the new contact data without undue delay.

Communication languages are German and/or English.

4. Quality Assurance Prior to Serial Production

4.1 Advanced Quality Planning

It is a fundamental requirement when developing new parts, to perform an Advance Quality Planning (AQP) which shall be carried out by the Supplier based on its own responsibility.

For the planned procedures, processes and machines, the required capabilites are to be proven under serial conditions, documented and to be presented ae upon request.

The Supplier shall set up and maintain FMEAs and grant ae access upon request.

The Supplier undertakes to revise the technical data for completeness, relevance and correctness on a continuous basis.

4.2 Pre-Serial Samples

Should pre-serial samples or development samples be required, these are to be delivered upon request along with the measurement report. Measurement points shall be determined together with the development department of ae.

4.3 Initial Sample Inspection

Prior to serial production an initial sampling of each part to be supplied shall be presented to ae´s quality management. Possible triggers for an inspection are described in VDA 2 or in the PPAP manual. In individual cases ae may restrict the scope of the sampling.

Scope of the initial sample inspection:
An Initial Sample Inspection Report according to VDA 2 submission level 3 resp. PPAP according to IATF submission level 3 is to be issued in compliance with the following points:

- Initial Sample Inspection Report including all product characteristics from the relevant technical drawing and the specification, as well as a material inspection.
- Ingredients in bought-in parts are to be entered into the IMDS.
  The IMDS-Company-IDs of ae are:
  349 for Nexans autoelectric GmbH
  22611 for autoelectric of America, Inc.
- Sample quantity: 5 parts or 5 parts per nest of injection molding tools or 20 m of wires/cables or according to separate agreement.
- Process Flow Diagramm and Control Plan (with the Control Plan the Supplier confirms all production steps, corresponding inspection characteristics, random sampling, test equipments and test frequencies and the settings of regular requalifications).

Initial sample deliveries shall be clearly marked as such.

The release of initial samplings is made by ae.

Releases performed by ae are not discharging the Supplier from its responsibility for the quality of his products, i.e. compliance with all relevant specifications (e.g. technical drawings, specification book, material data, contained substances etc.) as well as of standards, laws and regulations.

If parts have to be delivered before an initial samples report has been released the supplier is obliged to seek for an interim release. For OEM driven parts the interim release has to be requested in time at the OEM. For all other parts the interim release request has to be adressed to ae`s quality department.

4.4 Procurement

The Supplier shall ensure that the materials supplied by its sub-suppliers meet the required and stipulated specifications and that its sub-supplier also analogously meets the quality requirements of the present Guideline.
Should a material be subject to an expiration date or a minimum durability, this period has to be set out in the offer documents with regards to the delivery date.

The Supplier commits its sub-suppliers to establish, maintain and to continually develop appropriate quality management systems, to ensure the fault-free nature of parts bought-in, of raw materials and/or of externally processed parts.

The Supplier is responsible for the implementation and the operative handling of the quality assurance at its sub-suppliers. This, in particular, implies the integration of all systems and processes of its sub-suppliers into its own internal quality assurance processes. The entire flow of information shall be passed on from ae, along the supply chain to the Supplier and then to its sub-suppliers.

4.5 Emergency Management

The Supplier shall carry out a risk assessment of his entire process and delivery chain within the framework of a suitable risk analysis and, derived thereof, define appropriate emergency strategies. The results of the risk assessment and the emgercency plans have to be presented to ae upon demand.

5. Assurance of Quality with Serial Deliveries

5.1 Zero-Error Strategy

The supplier is committed to the zero-defect objective and therefore is obliged to constantly control, optimize and improve its products and processes within the scope of a continuous improvement process. The Supplier has to comply at least with current state of the technology for all products and processes.

ae expects continuous delivieries free from defects i.e. each product shall comply with the agreed-upon specifications and shall be available in the agreed-upon quantity, with the agreed-upon consistently high-level of quality and at the agreed-upon time and place. The responsability of the Supplier for the faultless conditions of its products also includes the performance of his vicarious agents (e.g. refining processes, electroplating, curing etc.).

By means of appropriate actions (e.g. inspections, control of the process parameters and others) the faultlessness of the products shall be guaranteed. These actions have to be documented.

Characteristics, which for ae or for the use of the part are of particular importance and have to be documented, shall be agreed upon on a project basis.

5.2 Statistical Process Regulation, Process Control

The Supplier is responsible for the implementation of effective systems to control the process and product quality ensuring stable, process-ready and controllable conditions for series production.

The Supplier is obliged to supervise the quality with appropriate proceedures e.g. processing control, statistical process control etc. and, in case of quality deviations, to timely initiate corrective actions. All testings and actions are to be documented. The Supplier has to provide evidence of its process control and process capability and provides ae insight into the data upon demand.

The following values apply:	long-term process capability	Cpk ≥ 1,33
	temporary process capability	Ppk ≥ 1,67

For D-parts, customer-specific higher indices may apply. These shall be agreed upon on a project basis, if needed.

Exceptions have to be justified and require the written consent of ae.

5.3 Handling of Defective Units

Defective units (units deviating from the agreed-upon specification) have to be clearly labelled for identification purposes, removed and stored separately. Confusion with approved units has to be excluded and non-delivery of decommissioned units has to be ensured. Reworked units are to be re-examined.

Delivery of out-of-specification units is only admissible with the written exemption from ae´s quality management.

5.4 Handling of Units in Case of Process Disturbances

In the event of process disturbances, units shall be checked for quality deviations and defective units are to be removed. The causes for disturbances shall be analysed, corrected and the effectiveness of the actions verified. The inspections and actions, as well as their effectiveness, have to be documented.

If the Supplier suspects or confirms that its units are defective following delivery, it is obliged to immediately inform ae in writing.

5.5 Control of Tools and Devices

The operation accuracy of the tools and machines shall be controlled by means of preventive maintenance and the results have to be documented.

5.6 Reliability

Substantial characteristics as indicators for reliability shall be agreed upon with the quality management of ae and checked accordingly by Supplier if the technical drawing of parts contains a reference to the corresponding regulation.

5.7 Requalification

The Supplier has to perform annual requalifications for its products. Substantial inspection characteristics for this inspection have to be established and included into the control plan. ae gets insight in the results upon demand.

5.8 Certification upon Delivery

Inspection test records in accordance with DIN EN 10204 3.1 have to be attached to the delivery documents if specifically requested in the respective product specification.

5.9 Storage and Transportation

The Supplier has to establish a proceedure to exclude the improper handling such as damaging, exceeding storage capability or other impairments of quality due to storage, transport and delivery.

Special packaging requirements shall be set down in the project-specific contractual documentation, if needed.

5.10 Traceability

The Supplier shall guarantee full traceability of its products and their components along the whole process chain. All necessary information and data required for traceability shall be provided by the Supplier to ae upon demand and without delay.

5.11 Documentation of Quality Control Measures

The Supplier shall be obliged to keep records of all quality control measures performed (from the receipt of order to delivery). In the event of damage, an impeccable and complete demonstration must be possible.

The entire proof of evidence is to be provided at ae´s disposal upon demand, in particular, in order to enable the defense against claims by third parties.

Supplier's quality recordings have to be evaluable and enable an assignment without doubt to the appropriate product, production place and date. The quality records shall be securely stored in such way that they can be easily located at any time and be made available on short notice upon request of ae. The record retention period is at least 15 years.

5.12 Measuring and Testing Devices

It is the Supplier´s sole responsablity to equip itself with appropriate measuring and testing equipments to the extent that all in accordance with the technical specification agreed-upon characteristics can be controlled internally and externally.

In order to ensure the accuracy, reliablity and usability of the measuring and testing equipment an effective monitoring system in accordance with IATF 16949 or DIN EN ISO 9001 have to be present.

Capability analyses in accordance with VDA or MSA shall prove the suitablity of the measuring and testing equiment.

6. Goods receipt at ae

ae checks in the course of incoming goods control delivered goods against the accompanying shipping papers with regard to identity, quantity, packaging as well as transport damages. The Supplier shall be notified in case of detected deviations immediately within the ordinary course of business.

ae is exempted from the obligation to carry out immediately further incoming goods inspections. Any defects detected at a later point shall be reported to the Supplier immediately after identification within the ordinary course of business. To this respect the Supplier waives the objection to delayed complaints.

7. Information Requirements

ae shall be timely notified in advance in case of modifications of parts or changes in processes, e.g. production and inspection proceedures, operational proceedures, materials, change of Suppliers, relocation of production sites etc. (for grounds refer to VDA Volume 2 or PPAP manual) and are subject to prior approval.

In these cases the quality management of ae decides if a new sampling is required.

The Supplier is be obliged to inform ae about the compliance with any terms imposed under current legislation (e.g. REACH, regulations referrring to environmental pollution or similar).

8. Supplier Assessment

8.1 Quality Audits

To assess the quality of the Supplier, especially but not limited to the case of repeated claims, ae is entitled to carry out quality audits at the Supplier´s premises at short notice, following prior announcement. These audits are usually product or process audits on which customers of ae may also attend. The right to audit also includes joint audits at the sub-suppliers. The execution of such audits will be coordinated with the Supplier in advance. The Supplier and its sub-suppliers shall take an active role in the audits. Should competition or confidentiality be of particular importance, necessary arrangements considering these issues could be made in the run-up to the audit.

8.2 Assessment of Delivery Quality

Compliance with delivery quality and specification requirements will be assessed with an ae-specific Supplier Assessment System. Criteria for the assessment are, amongst others, the quality of the materials received, ppm, delivery reliability, service (communication, reachability, reaction times, processing of claims etc.).

Is the Supplier graded with B- or C-supplier, ae grants the Supplier the possibility to regain its prior quality capability within a reasonable period of time appropriate for handling this issue.

8.3 ppm- Agreements

In order to render transpartent the quality performance with regard to delivery for both parties, individual ppm-agreements shall be made on an annual basis.

Individual ppm-values, with regard to intervention limits and actions, shall be individually agreed upon with ae's quality management. A value of 80 ppm is deemed to be binding, until an individual ppm-value has been agreed upon between ae and the Supplier.

Ppm-values shall have no influence on the warranty obligations of the Supplier for all defective parts and shall not constitute a release from the joint zero-error target.

9. Quality Deviations

9.1 Coordination of Immediate Actions

ae shall notify the Supplier of any defective goods in writing. Necessary immediate actions, in particular, sorting and rework or replacement deliveries shall be coordinated with the Supplier. The Supplier is expected to take an active part in the coordination and organization of immediate actions at short notice.

To some extent, however, a short-term coordination and organization of immediate actions with the Supplier may not be feasible, due to e.g. time difference when world-wide participation, initial unclear error indication or assignment of causes, missing sample parts etc.

In these cases ae may iniciate on its own all necessary actions in order to keep the economic effects of the defect to a minimum for all parties involved and shall inform the Supplier in a timely manner. After that ae expects active participation of the Supplier in the further coordination of ongoing and, if necessary, additional required actions.

9.2 8D-Report

The Supplier has to process the complaint as an 8D-Report. The following deadlines hereby apply:

1 day: Processing Status 3D (immediate actions defined)
5 days: Processing Status 5D (permanent corrective actions defined)
20 days: Completion 8D (final assessment, claim justified or not)

Only in justifiable cases longer processing period are admissable, especially when:

- Processing only possible after receipt of samples
- Cause analysis requires product-related statistical evaluations
- Corrective actions require, for example, extensive tool corrections

To identify the root cause, corresponding proceedures (e.g. Ishikawa Diagram; 5 Why) shall be applied and transferred to ae.

The verification of the specification documents (e.g. specifications, control plan, FMEA) are to be confirmed in the 8D-Report.

9.3 Costs Incurred

Any costs arising from unauthorized deviations from the agreed quality, for which the Supplier is solely responsible, will be debited to the Supplier.

In the event of justified complaints the Supplier has to bear any additional costs, including personnel costs, caused by a defect: rework and sorting costs, replacement costs, inspection costs, laboratory costs, scrap and transportation costs (internal transports and transports to the customer) as well as costs for production down-times.

The Supplier accepts insofar customary evidence by factory data or dealer data of the respective ae customers and limited parts submittal.

The fixed processing fee per claim is € 100 (onehundred) and has to be paid irrespective of any other damages claims.

10. Sustainability of the Suppliers´ Quality

The Supplier shall strictly observe the laws and directives of the European Union and it is the Supplier´s own responsablity to comply with any special requirements of the automotive industry (e.g. GADSL or similar). The Supplier shall also commit its sub-suppliers to adhere the laws and directives correspondingly.

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