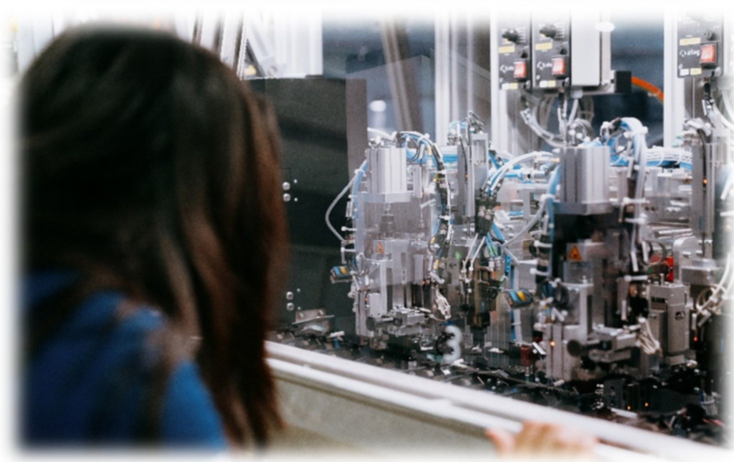
SUMITOMO ELECTRIC
BORDNETZE



Quality guidelines for suppliers

Wolfsburg, June 2025 – Version 1.1

Purpose

These quality guidelines describe the requirements to ensure the quality standards of purchased parts and material from suppliers to Sumitomo Electric Bordnetze SE and from the subsidiaries of Sumitomo Electric Bordnetze SE.

Scope

These quality guidelines are applicable for all suppliers of parts and materials that are used to produce Sumitomo Electric Bordnetze finished products or products that are sold as Sumitomo Electric Bordnetze products.

The regulations of this guideline apply to all suppliers of safe and marketable goods and services, in particular for production parts that the SUPPLIER delivers to SEBN and SEBN locations.

If certain points of this guideline cannot be complied with or are not reasonable from the supplier's point of view, SEBN must be informed in writing.

If the Supplier recognizes that the design specified in the technical documents or the prescribed test procedures can be replaced by suitable, more economical and/or more effective ones, SEBN expects corresponding proposals.

Protocol of amendment

Edition	Version	Type of modification	Creator
October 2017	1.0	First version / Approval	Central Quality Management (CQM)
June 2025	1.1	Document update according to the requirements	Supply Chain Management (SCM)

The newest version of this document can be found on www.sebn.com under the point "Supplier area".

List of abbreviations

CQM	Central Quality Management
CSR	Customer Specific Requirements
D-TLD	Documentation obligation/Technical guideline for documentation
ESD	Elektro Static Discharge
FMEA	Failure Mode and Effect Analysis
1st Tier	Direct supplier of the customer
IMDS	International Material Data System
KTR	Complaints database for purchased parts
LSA	Supplier Self-Assessment
OEM	Original Equipment Manufacturer
PCN	Product Change Notification
QMS	Quality Management System

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1 Offer and general requirements

Before a quotation can be prepared, the production and development-related locations must enter the complete supplier details via the supplier self-assessment (LSA). The details must then be sent to SEBN together with the DUNS number. This includes:

- the name of the Product Conformity Representative (PSCR),
- the name of the Q contact person and
- information on the quality management, environmental and TISAX certificates issued.

These requirements must also be passed on by the supplier to its subcontractors. All entries in the LSA must be kept up to date. If the information is incomplete, inclusion in the group of bidders will be suspended.

All requirements of the inquiry documents must be checked by the supplier for completeness, consistency, feasibility and state-of-the-art. The customer must be notified in writing of any deviations.

1.1 Quality Management System

The supplier is fully responsible for the products and materials it supplies. To fulfill this responsibility, the supplier must maintain a quality management system in accordance with IATF 16949 or VDA Volume 6.1 through recognized certification bodies (minimum ISO 9001).

1.2 CSR

If further OEM requirements have been announced as customer-specific requirements, the supplier is obliged to provide evidence of these on a project-specific basis or to consider their feasibility and integration into the QMS. The current versions can be downloaded from the IATF website (www.iatfglobaloversight.org).

1.3 Quality assurance goals

The zero-defect strategy must be realized through consistent quality planning and series monitoring with a focus on defect avoidance.

If no agreement or ppm rate is specified, the supplier is obliged to halve the number of defects every year. This means that there must be a reduction in the number of complaints.

To reduce the incoming goods inspection, SEBN reserves the right to request test results (material certificates, acceptance test certificates) and process capability certificates for critical/special characteristics from the purchasing parts suppliers if necessary. The delivery of the requested certificates is free of charge for SEBN.

1.4 Quality assurance agreements

The Supplier is responsible to SEBN for ensuring that the delivered quality of the product and its documentation comply with the specifications. He controls and coordinates the sub-suppliers who are integrated into the production and supply chain.

Appropriate contractual regulations ensure that the documents applicable in the relationship between SEBN and the supplier are also considered and complied with in the relationship with the sub-suppliers in the production and supply chain.

SEBN reserves the right to enter into separate quality assurance agreements with suppliers to define quality responsibility on a product-specific basis.

Deviations from the quality guidelines requested by the supplier require written confirmation by SEBN.

1.5 Material conformity of the delivered products

The requirements can be found on the Supplier portal under Guidelines for SEBN Suppliers on Submitting Data to IMDS database.

1.6 Usage of recycled material

Unless specified in the OEM's technical documents (drawing or component specification sheet), the use of recycled material (including re-granulates) is only permitted with the written approval of the OEM's development and quality department. The manufacturer must enter this information into the IMDS database.

1.7 Requirements for compliance with ESD regulations by suppliers

The requirements of the component specification sheet, the technical drawing, DIN EN 61340 and the “ESD Guideline for Automotive Manufacturers” must be complied with during the assembly, packaging and logistics of ESD-relevant products, assemblies and purchased parts.

1.8 Cybersecurity Management

The development supplier commissioned by SEBN must prove that its cyber security management system complies with the requirements of ISO 21434 (cybersecurity in automotive vehicle development) in addition to the customer requirements.

The supplier is obliged to have the TISAX certification. “High Availability” is expected for production and delivery sites, and “Strictly confidential” is required for development sites.

2 Supplier Selection, Supplier Approval

The following quality criteria, among others, play a role in the selection of suppliers:

- QMS/UMS certification.
- Q-ranking resulting from the process audit in accordance with VDA 6.3 or a potential analysis. Results of the OEM/1st tier qualification according to the same regulations and for the material group concerned are recognized by SEBN.
- Previous quality performance to which the results of the supplier assessment refer.

If the supplier's production site cannot prove the required qualification or required quality performance, it must carry out an internal self-assessment in accordance with VDA 6.3 and report the result to SEBN. The fulfillment of the SEBN Q-Guideline and OEM requirements must be demonstrated by this assessment. This includes remote functions and externally contracted resources (services and added value).

2.1 Quality criteria for awarding contracts

If a positive quality classification, A or stable B, is available, so a process assessment of the corresponding production facility is not required. SEBN reserves the right to carry out its own process assessments.

An award is not possible if the Q process capability and Q performance are rated as insufficient. To secure the further procedure, the SEBN C-classification must be communicated to the OEM immediately - in the case of directed part suppliers.

If, after the contract has been awarded, a nominated manufacturing site is set to “New Business on Hold” (C classification), the company management must immediately qualify the manufacturing site, with external support if necessary.

2.2 Supplier audit

SEBN reserves the right to carry out a potential analysis or process audit as well as technical revisions/technical assessments at the supplier.

An audit may be necessary for the following reasons

- a new supplier,
- New production location of known supplier
- New product group/expansion of the product portfolio
- Unsatisfactory quality performance
- Other.

The supplier will be informed in good time about a planned audit activity, namely in relation to the reason for the audit by the SEBN auditor. For the audit to be carried out properly, the supplier is responsible for preparing for it thoroughly. This means that he must complete self-assessment in advance and communicate the results to SEBN.

Reason for a Technical Revision/Technical Assessment

- if the quality level of the delivered products is persistently or repeatedly negative. The technical revision is carried out in accordance with the OEM TRL.

If the supplier delays the follow-up after the audit, potential analysis, TRL or refuses the plausibility of the measures in coordination with SEBN, he can be downgraded to C-Level by an escalation procedure. This must be confirmed in writing to SEBN by the Supplier's management.

2.3 Selection of sub-suppliers

When selecting sub-suppliers, the customer's specifications must be considered, i.e. the supplier is responsible for passing on and implementing the SEBN requirements in the supply chain.

The results of assessments of sub-suppliers must be handed over to SEBN or made available for inspection upon request if there is a legitimate interest. Proven site qualification in accordance with VDA 6.3 is also required here.

The supplier will ensure that SEBN is granted appropriate access to the business premises of sub-suppliers.

3 Technical documentations

The supplier shall ensure that documents related to the drawing, e.g. SEBN/OEM test specifications etc., if not available, are requested in writing.

The Supplier shall ensure via a distribution system that the latest documents provided by SEBN are always available to all departments concerned. Invalid/outdated documents must be destroyed or archived and marked accordingly.

The supplier must provide SEBN with the required specifications and assembly instructions upon request.

4 Quality Planning

4.1 Time Schedule

The Supplier will prepare a time schedule when the order is received. After consultation with SEBN this is binding and is a part of the contract.

The following key points, depending on the project, are to be included in the time schedule:

- Preparation for Process FMEA
- Preparation of a quality control plan including product audit and requalification
- Conducting machine and process capability analysis
- Initial sampling dates by SEBN
- Ramp-up plan, based on the project phases
- 2-day production, Performance test, Run@Rate

Any changes to the time schedule may only be made with prior agreement from SEBN.

4.2 Failure, Mode and Effect Analysis

The FMEA must be carried out in accordance with AIAG & VDA-FMEA manual. A process FMEA must always be created. This must be accessible to SEBN. The supplier is responsible for its preparation.

A design FMEA must only be carried out by the supplier in the case of new development/design or major changes to a component. The main objective of the design FMEA is to check the fulfillment of the specifications and the feasibility of efficient production.

The manufacturer or supplier must also create a process FMEA at the start of process planning for the required production and testing facilities if the design is not his responsibility and no design FMEA is available.

4.3 Products with documentation requirements and special verification

Process capability tests must be carried out for critical and functionally important characteristics or for the associated quality requirements and must meet customer requirements.

A 100% test is required if a capability is requested for features that cannot be verified.

If supplier uses a different marking for the documentation and records of special characteristics as defined by customer, the supplier must keep a correlation diagram for the above-mentioned marking obligation (e.g. overview matrix with the markings for all customers and the internal marking in the control plan, drawings or FMEA) as controlled document.

4.4 Testing Schedule

The manufacturer must draw up inspection plans for incoming goods inspection, parts production, assembly and outgoing goods inspection, as well as for requalification and for product audit. Outsourced processes must be considered.

All important part characteristics from the drawings and technical specifications must be included in the documents. When submitting an offer, the supplier must indicate which parts-related test equipment/measuring equipment is required. The testing and measuring equipment must be available before the start of pilot production.

4.5 Product audit

Product audit must be carried out in accordance with VDA 6.5. Customer requirements must be considered.

5 Product and process release (PPF)

The product will be delivered to SEBN suppliers in accordance with the “PPA-procedure of purchased parts - Guideline for Suppliers”. Following a request by SEBN, the supplier must notify SEBN in writing of the initial sampling date.

The initial sampling shall be carried out in accordance with VDA Volume 2 and customer specific requirements. The PPA documents and the sample parts are to be presented to SEBN free of charge.

5.1 Reference Sample

The supplier is to maintain a clearly defined reference sample that meets all requested specifications from SEBN. The reference samples are to be made available for SEBN at any time.

5.2 IMDS Entries

The supplier is obliged to inform SEBN of the IMDS ID of the purchased parts presented and to activate the parts in the IMDS system for SEBN account.

Please note the currently valid version of the requirements published on https://www.sebn.com/en/supplier-area/.

5.3 Layout inspection (Requalification Test)

The supplier is obligated to conduct a complete requalification test according to the OEM requirements for its products. The additional requirements regarding the requalification in the SEBN Group can be found in the “PPA-procedure of purchased parts - Guideline for Suppliers”.

5.4 Change management – PCN

PCN refers to process-relevant changes to the production locations or to the product. Accordingly, the supplier is obliged to notify SEBN of the changes in writing. The notification must be sent to pcn@sebn.com. Please note the currently valid version of the requirements published on https://www.sebn.com/de/lieferantenbereich/.

6 Series Production Monitoring

6.1 Measuring and Test Equipment

To ensure the quality of the testing and measuring equipment the manufacturer is obliged to test the testing equipment on a regular basis and to document the result. The testing must be done based on the present state of the art and technology.

6.2 Testing

The supplier must ensure, using systematic quality control measures, that all finished goods meet the requirements as shown in the drawings and the specifications.
Quality assurance activities are to be used:

- Incoming goods inspection
- Monitoring of the process parameters
- Statistical process monitoring (SPC) of capable processes
- 100% monitoring of process that are not capable
- Materials testing
- Functional check
- Regular audits etc.

The choice of the necessary measures will be made according to the product requirements and production conditions.

6.2.1 Machine capability study (MFU)

The MFU analysis shows short-term influences on the product dimensions (short-term capability analysis). A machine capability study must always be carried out for new machines/systems, machine relocations and new/modified production processes.

The required machine capability values are defined in the “Specification of quality requirements”.

6.2.2 Process capability study (PFU)

The PFU analysis shows all significant influences on the product dimensions during a longer production period (over several shifts, days, employees).

The process capability analysis shows the extent of random fluctuations (non-random fluctuations must be analyzed and eliminated) and provides information on whether the process is within the required tolerance limits.

The required process capability values are defined in the “Specification of quality requirements”.

6.3 Preventive maintenance

Through preventive maintenance, the supplier ensures that the tools, machines and equipment used are always functional and ready for use.

7 Complaints

7.1 Quality and Delivery Problems

In case of production disturbances or incidents that could interfere with the quality, the delivery date or the delivery volume of the product ordered, the supplier is obligated to disclose this immediately (both verbally and in writing). The supplier must have measures in place to guarantee the continuous supply of material.

7.2 Deviations - early warning system

In the event of deviations from the current drawing status, reference sample, master sample, limit sample, the supplier must inform SEBN in writing immediately prior to delivery of the type and extent of the deviation.

Deviations shall also include material cut-outs, deviations from the pictorial representation, labeling changes and material changes.

If deviations are detected by the supplier or suspected of products already delivered, the individual SEBN plants affected must be informed immediately within the framework of a self-report. The further procedure will be coordinated between the supplier and SEBN. Defective parts or products in connection with timely self-report will not be evaluated by SEBN as relevant to ppm.

In the case of defective parts delivered, the supplier is responsible for carrying out the necessary rectification, repair, retooling and sorting work and bears the costs. The time frame for the action is specified by SEBN or agreed with SEBN. If a return shipment is made to the supplier, a new, binding delivery date for flawless goods will be specified.

7.3 Purchase parts complaints

Should defects in delivered products, parts or services be discovered during the incoming goods inspection or later, the respective SEBN location will inform the supplier immediately in the form of a purchase part complaint (KTR).

SEBN expects the following reaction from the supplier:

- immediate rectification of the fault within 24 hours and transmission of a written statement in the form of a 3D report. Immediate measures must extend to the supplier's stock, goods in transit to SEBN plants, as well as stocks in our company. They must be suitable to resume production as quickly as possible with defect-free goods:
- First error-free delivery number
- Risk assessment (please include all similar part numbers that may be affected)
- Information about the necessity to sorting action with a defined sorting method
- A complete 8D report is expected within 7 calendar days based on an internal analysis or within 14 calendar days after receipt of the samples.

Processing costs, costs due to transportation, return shipment, sorting, subsequent defects or reworking costs in connection with this claim will be charged to the supplier. In the event of failure to respond to our complaint within the time limit, SEBN reserves the right to arrange for the return shipment of the blocked goods at supplier expense.
Any necessary deadline extensions must be agreed with SEBN in advance.
Both parties undertake to inform each other comprehensively and to minimize the damage when processing the complaint.

Should additional costs be incurred by SEBN, e.g. for laboratory analyses, reworking, sorting activities or special measures at the customer's sites, SEBN will inform the supplier immediately and pass on the costs to him. The supplier will be given the opportunity to minimize the costs through his own efforts within the scope of possibilities and depending on the urgency.

7.3.1 Complaints from the field

In the case of complaints from the field, methodical analyses must be carried out by the supplier, for components for which no defect was found in the findings process (see VDA volume "Marketing and Customer Care - Defective Part Analysis Field").

8 Escalation procedure

In the event of unsatisfactory Q performance or communication problems with suppliers, the escalation procedure is applied:

Level 0 Supplier has problems, standard reaction required in 24 hours

Level 1 Formal escalation, 5 days for a corrective action plan, 30 days for closing short-term actions.

Level 2 Plant Management escalation, 10 days for an extended plan, 60 days for stabilization

Level 3 Top management escalation /The supplier is not capable of meeting SEBN's quality standards, 15 days for strategy, 90 days for full KPI stabilization

It is mandatory that suitable measures are defined by suppliers and implemented in a timely manner to avoid C-classification, which results in new business on hold.

9 Supplier Evaluation

SEBN regularly evaluates its suppliers based on standardized evaluation criteria in the interests of continuous improvement, but also to identify potential risks among suppliers at an early stage and take appropriate corrective action.

Quality performance is considered as a decision-making criterion when placing new orders.

In the event of unsatisfactory results, the respective supplier is informed of the results. This can be done both by the individual locations and by headquarters. Specific improvement measures are agreed or coordinated with the supplier at the quality meeting.

The supplier undertakes to improve its delivery performance by analyzing the causes and implementing appropriate corrective measures, specifying the parties responsible and deadlines. The supplier is also obliged to provide regular feedback on progress.

10 Sustainability and Environmental protection

Suppliers to the SEBN Group must meet the following sustainability standards: adherence to internationally recognized human and employee rights, the prohibition of child and force labor, observing and promoting ethical business conduct. Furthermore, SEBN requires compliance with legal standards and environmental regulations as well as preventive environmental protection: reduction of energy and water consumption, reduction of greenhouse gases, increased use of renewable energy, and suitable recycling/disposal concepts. Suppliers proactively promote the development and dissemination of environmentally friendly technologies in their market segment. Suppliers support all efforts to ensure responsible resource procurement.

The rules refer to the SEBN Code of Conduct for Business Partners, which is binding for SEBN suppliers.

11 Storage periods

For information on the retention periods for documents and reference samples, see VDA Volume 1 "Documented Information and Retention" and IATF 16949, unless otherwise agreed.

The supplier undertakes to maintain the documentation in such a way that it can be fully demonstrated at any time that the specifications have been met and that the corresponding test results have been recorded and documented. The documentation obligation extends over the term specified in the VDA volumes and the documents must be kept in a suitable form, whereby the care exercised must be proven if necessary.

The documents must be handed over to the SEBN representative immediately (within 24 hours) upon request.

12 Delivery and Identification

12.1 Identification of Series Product

The scope and design of the part marking can be found in the technical documentation (e.g. customer drawings and standards).

The traceability of the products must be guaranteed by the manufacturer in accordance with IATF and customer requirements.

12.2 Packaging and Delivery

The conditions for delivery, the packaging and the packaging quantity of purchased parts will be conveyed to the supplier by the SEBN Logistics Department. The packaging specifications must be strictly adhered to.

SEBN Logistics will inform the supplier of the delivery condition, the packaging and the packaging quantity for purchased parts. The packaging regulations must be complied with.

Please refer to the current version of the requirements published at https://www.sebn.com/de/lieferantenbereich/ under SEBN Logistics Manual.

13 Applicable Documents

The requirements of the following standards and directives in their respective current valid version are to be fulfilled, also when they are not specifically alluded to in this Quality Guideline for Suppliers:

- PPA procedure of purchased parts – SEBN Guideline for Suppliers
- SEBN Part Change Notification requirements
- Guidelines for SEBN Suppliers on Submitting Data to IMDS
- Logistics Manual
- VDA Series of publications „Quality Management in the Automobile Industry"
- ISO 9001„Quality Management and Quality Standards"
- ISO 19011 „Guideline for Quality Management System Audits"

Additionally, the further requirements of the OEM's who receive delivery of the product are also valid.