SMR Global Supplier Manual Appendix S –Volvo Customer Specific Requirements for Suppliers

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SMR Global Supplier Manual
Appendix S – Volvo CSR

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SMR Global Supplier Manual - Additional Customer Specific Requirements

Scope of this document

The scope of this document is to ensure compliance to customer requirement by sub-suppliers of SMR Automotive who are supplying for any Volvo project. This document is listing requirements for these suppliers in addition to standard IATF16949 requirements and in addition to standard SMR requirements.

Responsibility

Suppliers who are supplier for SMR of a component for a Volvo product shall meet all requirements listed in this document during the whole project lifetime. This includes but not limited to:

- Regularly check for updates of this document on www.smr-automotive.com
- Ensure availability and awareness of related Volvo standards and requirements mentioned in this document
- Ensure requirements are met in their supply chain

1. Calibration/Verification Records (IATF 16949 section 7.1.5.2.1/ 7.1.5.3.1)

All suppliers' laboratories or contract laboratories used to evaluate VOLVO products must comply with the requirement of Chapter 7.6 "Control of monitoring and measuring devices" of the ISO/TS 16949. Laboratory and measurements reports must comply with the requirement of Section 4.2.4 "Control of Records".
In particular, laboratory and measurement reports shall include:

- The identity and location of the laboratory used
- References to the test methods used
- Any deviation to the test method shall be noted

2. Record Retention (IATF 16949 section 7.5.3.2.1)

The minimum requirement for storage of information related to safety critical parts is 15 years from date of manufacturing. Any additional requirements related to storage related to applicable legal requirements must be maintained.
Document Type: Examples: Maintenance Interval

- PPAP: Documentation Drawings, Process Flow Charts, Control Plans, FMEAs, PSWs, Manufacturing Instructions, etc.: Duration of production and service activity Plus 1 year unless otherwise specified by VOLVO.
- Quality Records: Inspection Records, Functional Test Results, Material Certifications, Torque Records Other Test Results (Cleanliness, etc.): 3 years from date of production.
- Quality System Documents: Internal quality system audits, Product Audits, Management Reviews: 3 years from date of creation.
- Product Safety Related Records: Inspection Records, Test Results, Material Certifications, Torque Records, and Traceability Records: 15 years from date of product manufacture.

3. Review of Requirements Related to Products and Services (IATF 16949 section 8.2.3)

- The Review of Technical Specification ensures that all the technical information defining the part or component has been thoroughly reviewed, clearly understood by the supplier and is feasible. The RTS process also provides the opportunity to collect and incorporate the supplier's comments and suggestions into the drawing and technical specification.
- The RTS template is included with the RFQ documentation. The supplier is to complete the RTS compliance matrix and return with the RFQ documentation package. As part of this review, suppliers must determine if any of the technical areas included in the Index Audit section of this document apply to their products.
- Suppliers must be prepared to prove or plan activities to ensure that all processes covered by a one of these technologies are performed by approved suppliers unless approved by the appropriate technology specialist.

4. Design and Development Planning Supplemental (IATF 16949 section 8.3.2.1)

In addition to the requirements described in the AIAG APQP reference manual, VOLVO requests the planning and completion of the following cross-functional activities:

- Review of Technical Specifications
- Product Application Agreement
- Part Handling Review
- Process Audit

5. Special Characteristics (IATF 16949 section 8.4.2.4.1)

While all characteristics of a part are required to conform to specifications, there are a few characteristics that are selected as special characteristics. The selection criteria and guidelines related to special characteristics are based on the VOLVO specification: 'Critical Characteristics of Design Products – Identification & Grading', STD 105-0001. This standard describes the system used by VOLVO to highlight and grade critical characteristics appearing in drawings and technical specifications.

Special characteristics are identified using the symbols [1], [2], [3], [SC] or [CC] next to a feature in a VOLVO technical document. For all features identified as a special characteristic, the following requirement applies:

- Process under statistical control Normally distributed Cpk≥1,67
  1. Critical Characteristics level [1], [CC] (Cpk≥1,67)
     Cpk≥2,0 for electronic components
     Checking frequency adequate to demonstrate
     - On-going process control
     - Compliance to capability requirement
  2. Critical Characteristics levels [2],[3] or [SC] (Cpk≥1,33)
     Checking frequency adequate to demonstrate
     - On-going process control
     - Compliance to capability requirement
- Control not achieved Preferred alternative
  1. Critical Characteristics level [1], [CC]
     - Electronic or Automated Poka Yoke Effectiveness verified once per shift
  2. Critical Characteristics levels [2], [3] or [SC]
     - Electronic or Automated Poka Yoke Effectiveness verified once per shift
- Control not achieved accepted alternative
  1. Critical Characteristics level [1], [CC]
     - Process 100% automatic check 100 % control/inspection, full traceability
  2. Critical Characteristics levels [2], [3] or [SC]
     - Process 100% automatic check

6. Prototype Program (IATF 16949 section 8.3.4.3)

Suppliers are required to develop a Prototype Control Plan to support the production, inspection and testing activity.
Prototype parts, where the part or any of the features of the part fall under the requirements for Conformity of Production, Safety Critical or special characteristics, must meet the requirements as defined in the related section of this manual. The section of the capability requirements chart “Process control not achieved” shall be applied. All special features must be clearly identified in the Prototype Control Plan.
Unless otherwise agreed between the supplier and VOLVO, suppliers of prototype parts are required to perform 100% measurement evaluation prior to shipment to VOLVO. The documentation demonstrating the inspection and the actual measurement values must be recorded and copies of the records forwarded to VOLVO at the time of shipment. All shipments of prototype parts must be clearly identified as a shipment of prototype parts using an orange label with the word PROTOTYPE prominently displayed on the exterior of the shipping skid or container. Specific details related to shipment guidelines, the prototype identification label and documentation requirements can be obtained by visiting the VOLVO Supplier Portal or by contacting the buyer that placed the prototype order.
Prototype parts must be clearly identified with the part number, the part version and marking that allows the part to be identified as a prototype after installation. The purpose is to identify prototype parts so they are clearly identifiable in the production environment and on vehicles. The intention is to insure that prototype parts can be easily differentiated from PPAP approved P release parts. Prototype specific identification should be appropriate to the part and agreed between the supplier and VOLVO engineering.
Unique requirements related to prototype parts specific to a VOLVO plant, business unit or region are available on the supplier portal or by contacting the buyer.

7. Product Approval Process (IATF 16949 section 8.3.4.4)

Volvo Requires PPAP approval prior to shipment of any products for use in customer vehicles, PPAP to AIAG PPAP manual latest edition.
VOLVO Purchasing requires suppliers to the AIAG Production Part Approval Process (PPAP) and that this requirement is applied suppliers of products be used in VOLVO products. Suppliers have the responsibility for managing their suppliers and maintain evidence of compliance.
Once a part is approved, changes at sub -tier suppliers that affect fit, form or function must be documented and approved by VOLVO using the Product Process Change notification process.

8. Statutory and Regulatory Requirements (IATF 16949 section 8.4.2.2)

Suppliers are required to conduct a criticality analysis for features of the product design and production process that could result in a safety effect. For suppliers having design responsibility, special characteristics related to safety must be clearly identified within their design specifications, verification/validation plans, drawings and technical documentation. Suppliers of products impacting safety and who are design responsible suppliers are required to develop System, Sub-System, Design and Process Failure Modes Effects Analysis to assist in the analysis, and identification of potential safety effect features of the product.
Suppliers are responsible to ensure that all sub-suppliers and contractors are aware of and comply with the requirements related to safety requirements. Tier I suppliers must have procedures and practices to ensure an adequate level of control and requirements are deployed at all suppliers or sub-suppliers whose product or processes could have an effect on safety related features.

- Feature Identification

A safety critical characteristic is identified when Non-compliance with the requirement has the potential to lead to a Safety Customer effect.
If any feature of a part is identified as having an impact on safety, the parts is considered safety critical. Suppliers of a safety critical part are categorized as a Safety Part Supplier. Safety Critical related features are designated by the presence of the symbol [1] next to the feature on the drawing or in a specification.
The VOLVO standard, ‘Critical Characteristics of Design Products – Identification & Grading’, STD 105- 0001, describes the system used by VOLVO to identify, highlight and grade critical characteristics.

- Product Identification

The methods used for marking lot/serial numbers on safety critical parts must support identification, traceability and failure investigation through all phases of the products life. In principle, the serial number or lot number should be applied to the actual part and preferably should be easily visible when mounted on the vehicle.
Unless otherwise specified in product documentation, the preferred method for marking is:

- Item serialization
- Bar code (In Accordance with VOLVO STD 103-0013 or VOLVO approved alternative)
- Recording of safety critical product or process parameters (Preferred)
- Recording OK/not OK is acceptable with evidence of 100% effectiveness

9. Supplier quality Management System Requirements (IATF 16949 section 8.4.2.3)

All sub-suppliers are 3rd party registered to 9001 with a plan for achieving ISO/TS 16949. VOLVO strongly encourages our suppliers to support ISO TS 16949 certification of their suppliers. Suppliers have full responsibility for the quality assurance and corrective action of products delivered from suppliers for in VOLVO products.
VOLVO Purchasing reserves the right to have direct access to sub-tier suppliers and processes that could have significant impact on final product quality. This will generally concern technical processes like surface treatment, heat treating, forging, casting etc. Please check with your SQE to determine if your sub-tier or contract suppliers would fall into one or more of these categories. Access to sub-suppliers or approval of sub-tier suppliers by a VOLVO Technical Specialist, does not change or reduce the supplier's responsibility for quality of products supplied by those sub-suppliers.

10. Control Plan (IATF 16949 section 8.5.1.1)

Suppliers are expected to use pre-launch control plans to increase the level of quality controls applied during ramp up and early production stages of new part launch. A prelaunch control plan is defined by increased frequency, levels of inspection and increased controls during the early stages of production. The purpose is to protect the customer from problems until process controls can be refined and start-up problems can be identified and resolved. The level of controls within the control plan should be adjusted once the production process has been stabilized and process control can be assured. Additional information regarding VOLVO expectations and requirements for control plan development can be obtained from the SQE assigned to your organization.
Suppliers may be required to implement a separate inspection activity at process start up that is independent of the inspections and controls required by the control plan. The purpose is to verify the affectivity of the control plan, and determine the capability of the production process. The application of this additional control may be required by the VOLVO SQE for early production when a supplier's performance indicates that current controls are not adequate to identify and address problems prior to reaching the customer. Shipments of products that have been through additional process controls should display prominent notification on each shipping unit (box, package or skid).

11. Identification and Traceability (IATF 16949 section 8.5.2)

The basic requirements for lot traceability are covered under the section on Production Requirements. The following requirements apply to safety critical parts, components or assemblies in addition to the basic traceability requirements. Suppliers shall have an effective system of traceability that ensures delivered product can be traced from a finished product in the customer application back to specific lots, sub-components, parts, blanks and material.
In addition to component/materials traceability, the system must be capable of providing the production history of a lot or serial number. This history must include:

- Rework operations or activity
- Product and process special characteristics
- Test records
- Process parameters influencing conformance
- Machine settings influencing conformance
- Maintenance activity of machines, equipment, jigs, gages and test equipment
- Operators and personnel qualification records for operators performing the work

If product is controlled in lots or batches, a risk analysis related to severity of Non-conformance and probability of occurrence must be conducted and used in establishing the lot sizes to minimize the impact of product recall.

The minimum requirement for storage of information related to safety critical parts is 15 years from date of manufacturing. Any additional requirements related to storage related to applicable legal requirements must be maintained.
Lot control and should be established to limit the size and impact in event of need for product recalls or campaigns. The control system must be capable of linking production quantities to production processes to support root cause analysis activity.
When lot control is utilized, the system must establish and maintain one-to-one relationship between a lot/batch traceability number and a certain quantity of produced parts. If a traceability number, other than the serial number, is used for identifying serialized parts, a one-to-one relationship between the traceability number and the serial number must be maintained.
The extent of definition and control shall be based on risk analysis of the product and the impact to customers. Suppliers are responsible to ensure that the lot traceability system maintains its integrity through-out the entire supply chain, including raw material, purchased components/products, and sub contracted operations.

12. Control of Nonconforming Outputs (IATF 16949 section 8.7.1)

Suppliers shall take all necessary actions to respond to Nonconforming product that reach a VOLVO facility (production site, warehouse, etc). Every effort is taken to investigate and document Non-conformances and to notify the supplier immediately. When possible, suppliers will be given early notification of a problem prior to the issuing of an Inspection Report (IR).
VOLVO has developed a set of guidelines used by VOLVO plants in determining the Non-conformance quantity for each Inspection Report. These guidelines are referred to as the “Inspection Report Golden Rules” and are available on supplier portal.
All costs (administrative, sorting, handling, shipping, and rework) associated with addressing a Non-conformance will be the supplier’s responsibility. These costs may include any secondary costs incurred by VOLVO resulting from a Non-conformance. These include the costs associated with tear down, reassembly, re-testing, and logistics support.
Under Normal circumstances, suppliers are expected to respond immediately to any Nonconformance and ensure that all receiving plants are protected within 24 hours. Suppliers are required to notify VOLVO immediately if it is suspected that Non-conforming material has been shipped to a VOLVO facility.
Depending on the type of Non-conformance and material status, supplier parts may be sorted, reworked or adjusted. Supplier approval is required before any rework or adjustment will be performed. Suppliers should be prepared to take any or all of the following actions after Nonconforming material are identified at a VOLVO facility.
• Replacement Nonconforming material
- Provide resources to perform required sorting or rework
- Provide third party sorting resources
- Authorize VOLVO to begin third party activities on the supplier’s behalf
- Provide instructions and acceptance criteria required to support inspection, sorting, or rework

VOLVO has agreements with third party sorting companies who are capable of providing sorting activity on the part of the supplier. All costs associated with work and materials associated with the activity of this third party are the supplier’s responsibility. Suppliers have the option use this service or to contract a third party to do sorting or rework on their behalf. Third parties selected by the supplier must be approved by VOLVO prior to starting any sorting or rework.
Nonconforming parts or material will be returned to suppliers or scrapped at VOLVO based on supplier’s direction.

13. Manufacturing and Process Audit (IATF 16949 section 9.2.2.3)

VOLVO routinely conducts process audits as a prevention activity as well as tool to support corrective action. Process Audits may be performed under any of the following circumstances:

- During APQP
- During production ramp up
- New supplier evaluation
- Introduction of a new process
- Move production to a new location
- Poor quality performance.
- After a major incident

In addition to the situations listed, the production processes of components that have been identified as critical to the safe, reliable function of a vehicle are subjected to annual audits. These audits are to ensure that the production processes used during the “Significant Production Run” remain unchanged and capable of delivering consistent quality products.
VOLVO reserves the right to perform process audits whenever it is deemed necessary. Suppliers will be given reasonable advance notice of a pending audit. A copy of the Process Audit template used by VOLVO in conducting the audit is available for review on supplier portal.
One or more process audits may be required during the development and launch phases of the introduction of a new product or process. The respective VOLVO SQE will communicate this requirement to the supplier during the development of the APQP activities. In addition to audits conducted by VOLVO, suppliers are expected to routinely conduct internal audits of their production processes. Records of any findings from internal audits and actions taken in response to findings should be available for review during the VOLVO process audit.

14. Warranty Management System (IATF 16949 section 10.2.5)

Responding to field warranty claims remains a top priority at VOLVO. When Field failures are determined to be the result of a supplier’s product, suppliers will be notified through receipt of a warranty claim. It is expected that suppliers will fully participate in the investigation, root cause analysis and corrective action when field failures are identified. Suppliers should have an established process for the handling, analysis, investigation, reporting and corrective action of customer field returns. VOLVO has developed and conducts a warranty specific process audit of supplier’s capability to manage customer field returns.
If the non-conformance is generated by a supplier, a VOLVO warranty department may call the responsible supplier for immediate correction or replacement of products. The conditions defining response and responsibility are included in the Purchasing conditions, purchasing agreement and/or warranty charter. A copy of the warranty charter is included as part of the Request for Quotation

15. Continual Improvement (IATF 16949 section 10.3.1)

Suppliers are expected to use the lessons learned from each incident to improve production process, product design, or underlying business systems. The goal is to eliminate the possibility of similar incidents, not only by making procedural and processes adjustments on the manufacturing floor, but by removing the environment that allowed the issue to surface. Lasting improvement requires correcting the systems and strategies that support the production process.
In addition to isolated events, suppliers shall use statistical data to continually evaluate and refine their processes. This evaluation should include analysis of quality incidents, PPM, scrap, downtime, and warranty failures. The clear objective of this analysis must be reduction of variation with the finished product. The supplier shall have on-going, active improvement projects that target two or three of the largest problem areas and be able to demonstrate a positive trend in reducing incidents and repeat occurrences.

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History of Revision

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