



Shaping the way our world moves

SUPPLIER QUALITY AND MANAGEMENT SYSTEM REQUIREMENTS
MOOG CONSTRUCTION



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1.1 PURPOSE

At Moog Construction, we prioritize quality to ensure lasting excellence. Our relentless commitment to enhancing processes, products, services, and expertise positions us as industry leaders. Customers rely on our continuous world-class performance for seamless operations and exceptional features. Meeting their expectations drives our daily pursuit of improvement. Our success hinges on collaboration with all quality-critical supply partners, regardless of their Tier-N level, to build a resilient, high-performing supply network. Transparency and control over critical components, production processes, and supply partners are essential pillars of our approach.

1.2 CONTENTS, SCOPE & RESPONSIBILITY

This Document (SQR-C) specifically applies to supply partners of Moog Construction, while SQR-1 remains in effect for other groups in Moog.

It is important to note that the requirements outlined here may be modified by flow-downs on the Moog purchase order (PO). These flow-downs can either add additional requirements or allow exceptions to existing ones. Therefore, suppliers must carefully review the purchase order for all contractual flow-downs. Unless explicitly stated otherwise in this document or modified by the purchase order, these requirements apply to all direct procurement purchase orders, including Standard Catalog Hardware (COTS) and Supplier Intellectual Property (Supplier IP). However, they do not apply to Moog's Constructions indirect procurement of general supplies unless specified in the contract or purchase order.

1.3 DEFINITIONS

The following terms used throughout this document are consistent with ISO9000:2015 definitions.

Key Characteristics – An attribute or feature whose variation has a significant effect on product fit, form, function, performance, service life, or producibility, that requires specific actions for the purposes of controlling variation.

Product Safety – The state in which a product can perform to its designed or intended purpose without causing unacceptable risk of harm to persons or damage to property.

Special Requirements – Those requirements identified by the customer, or determined by the organization, which have high risk of not being met, thus requiring their inclusion in the operational risk management process. Factors used in the determination of special requirements include product or process complexity, experience, and product or process maturity.

Lot – Defined as all parts manufactured at the same time from the same materials, or processed together through all operations, unless otherwise specified in the Moog drawing.

Standard Catalog Hardware or COTS – Standard Catalog Hardware is defined as a part or material (such as a chemical) that conforms to an established industry or national authority published specification, having all characteristics identified by text description, National/Military Standard Drawing, or catalog item.

Deviation – A non-conformance or non-compliance with Moog requirements as defined on drawings, specifications, SQR-C, supplementary quality clauses, and any other purchase order flow-downs.

Records- Controlled historical evidence documenting the design, manufacture, test, inspection, disposition, or acceptance of parts, material, or other deliverables. Records include but are not limited to: Approved Certificates of Conformity, Test Reports, Raw Material Certifications, Special Process Certifications, First Article Inspection Reports (FAIR), Route Cards/Travelers, and Calibration Records.

General Supplies – Items purchased that do not appear on the Bill of Materials

2.1 PERFORMANCE EXPECTATIONS

2.1 Performance Expectations

Supply partners must strive for zero defects and consistently meet high-quality standards to ensure customer satisfaction. Target performance level for Moog Construction is as follows:

Zero safety issues, Zero Field issues, Zero production impact, Zero PPM, meets reaction and resolution lead time, zero recurrence.

2.2 Continuous Improvement

Supply partners should prioritize continuous improvement, proactive risk management, and swift issue resolution to uphold high performance and reliability within the supply network.

3.0 SOURCING PROCESS

Moog's sourcing process ensures the selection of supply partners who can meet quality, reliability, and performance standards. It involves active participation from supply partners in evaluation audits and action plans.

3.1 Quality Management System Requirements

All suppliers must be certified to the latest version of ISO 9001 and are strongly encouraged to implement IATF 16949, ISO 14001, and ISO 45001 certifications.

3.2 Business Ethics

At Moog, we expect our supply partners to collaborate with us in fostering an environment built on mutual trust and confidence, grounded in individual integrity. Our Statement of Business Ethics, referenced below, outlines the fundamental principles guiding our business conduct.

www.moog.com/investors/corporate-governance/moog-statement-of-business-ethics.html

3.3 Confidentiality Requirements

Before receiving a Request for Quotation (RFQ), supply partners must sign a confidentiality agreement to protect sensitive information.

3.4 Supplier Profile

Supply partners complete a short profile to provide general data about their company and organization, including points of contact, products, and capabilities. This profile also covers quality systems, performance, and reliability. Supply Partner should update the short profile annually or as required to ensure accuracy.

3.5 Request for Quotation (RFQ)

Supply partners must fully address each section of the RFQ, including preliminary APQP, technical specifications, and capacity assessments, by completing forms and providing required documentation. Moog may audit the evidence related to fulfilling these requirements.

3.6 Supplier Capability Assessment (SCA)

Supply partners will complete a comprehensive self-assessment, followed by a Moog cross-functional on-site audit evaluating management, quality, logistics, and product development. They must achieve a minimum score to be considered for business.

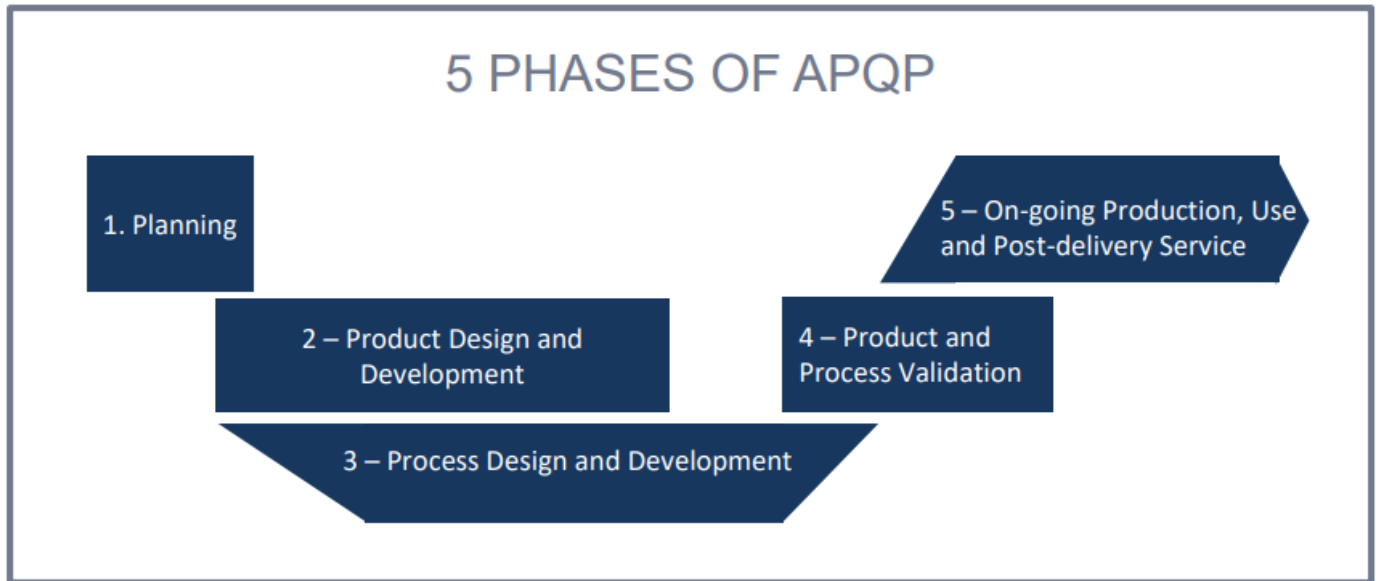
3.7 Sustainability and CSR

Refer to the Moog website: www.moog.com/sustainability.html Moog requires its supplier partners to demonstrate responsible business operations by measuring and reporting sustainability efforts. Environmental, Social, and Governance (ESG) initiatives measure and aim to improve the impact a company has on its employees, consumers, the environment, and the community. Upon request, suppliers may be asked to send Moog a copy of any annual reports involving corporate social responsibility, corporate sustainability, or ESG goals and performance data that the supplier partner submits to its customers or to any regulatory body.

4.0 ADVANCED PRODUCT QUALITY PLANNING (APQP)

Moog Construction requires supply partners to follow the AIAG guideline for APQP to ensure high-quality product development and launch. APQP launch plans should be created to support:

- Launch of new components for serial production
- Significant changes to existing products or process
- Development of new manufacturing processes



4.1 Responsibilities in APQP

Supply partners must assign a project manager, organize a cross-functional team, and develop an APQP plan. Moog Construction will provide support through assigned team members.

4.2 APQP Reviews

Supplier partners should conduct regular reviews to ensure the project remains on track. These reviews occur at key milestones and, at a minimum, take place at the end of each APQP phase. The review should involve stakeholders from various departments to ensure comprehensive quality planning and control. Attendees usually include:

- **Product Engineering Team:** Responsible for product design and development.
- **Quality Assurance (QA) Team:** Ensures the product meets quality standards.
- **Manufacturing Team:** Provides insights on production capabilities and constraints.
- **Supplier Representatives:** If applicable, suppliers can offer valuable input on materials and components.
- **Project Management:** Oversees the project timeline and coordination.
- **Customer Representatives:** Provides feedback on customer requirements and expectations.
- **Management Team:** Ensures alignment with organizational goals and resources.

The initial APQP review meeting (Kick-Off review) should occur after the award of business. The final review is concurrent to the launch of the product (PPAP Approval)

Moog requires that Form 810-2110 (Supplier APQP Checklist), or an equivalent form, be completed by the supplier partner; a copy is available upon request from Moog. Moog will conduct a joint review of the deliverables for each APQP phase using Form 810-2110 to ensure alignment between the supplier partner and Moog regarding all required deliverables.

4.3 Process Audit

The Process Audit in series production aims to prevent quality issues in supplier processes by verifying the alignment of inputs (from sourcing and Program Reviews) with actual implementation. This audit is a crucial part of Advanced Product Quality Planning (APQP) and applies during the Production Phase. Moog, or its designated entities, can inspect the supplier's manufacturing processes and facilities to ensure compliance with customer requirements. The supplier must grant access for these audits with a maximum of three working days' advance notice

4.4 Software APQP

Similar to hardware, software development follows a structured APQP process with joint reviews at various stages to ensure quality and compliance.

5.0 PRODUCTION PART APPROVAL PROCESS (PPAP)

5.0 Purpose

The Production Part Approval Process (PPAP) ensures that the manufacturing process for parts supplied to Moog is fully developed, rigorously tested, and capable of producing parts that meet technical specifications in serial production.

For both PPAP and APQP, Moog requires supply partners to adhere to AIAG standards.

Sample parts and accompanying documentation must demonstrate that:

- Design records and specifications are correctly understood and met.
- The manufacturing process can produce conforming parts in the actual production environment.
- The manufacturing process can consistently support production quantities at the required quality level.

5.1 Applicability

PPAP shall apply to internal and external organization sites supplying production parts, materials and bulk materials. PPAP is not required for bulk materials unless specified by Moog on the PO.

Moog can formally waive PPAP or PPAP elements, waivers must be in writing and documented on the face of the Moog purchase order.

5.2 Submission of PPAP

Moog mandates that its supply partners adhere to the Customer Notification and Submission requirements outlined in the AIAG PPAP Manual. These requirements include, but are not limited to:

- Introduction of new components
- Changes to existing parts
- Drawing or specification modifications
- Corrections of prior discrepancies
- Changes in supply partner processes
- Material changes or substitutions
- Changes in sub-suppliers

5.3 PPAP Process

5.4 Significant Production Run

Once the design is deemed sufficiently firm, the Buyer will issue a Sample Order to notify the supply partner that a PPAP is required. At this point, supply partners are authorized to place tooling orders and begin the production process design and development. The Sample Order will be for between 1 hour and 8 hours of production with the quantity to total a minimum of 30 consecutive parts unless otherwise specified.

The supply partner is responsible for preparing the PPAP for submission to Moog and for planning, approval, corrective actions, follow-up, and retention of PPAPs submitted by sub-supply partners and sub-contractors.

5.5 PPAP requirements

The required PPAP elements and levels, as outlined in the AIAG PPAP manual (Revision 4), include:

	Requirement	Level 1	Level 2	Level 3	Level 4	Level 5
1	Design records	Retain	Submit	Submit	Retain	Retain
2	Engineering change documents	Retain	Submit	Submit	Retain	Retain
3	Customer engineering approval	Retain	Retain	Submit	Retain	Retain
4	Design FMEA	Retain	Retain	Submit	Retain	Retain
5	Process flow diagrams	Retain	Retain	Submit	Submit	Retain
6	Process FMEA	Retain	Retain	Submit	Submit	Retain
7	Control plan	Retain	Retain	Submit	Submit	Retain
8	Measurement System Analysis (MSA)	Retain	Retain	Submit	Retain	Retain
9	Dimensional Results	Retain	Submit	Submit	Submit	Retain
10	Material performance results	Retain	Submit	Submit	Submit	Retain
11	Initial process studies	Retain	Retain	Submit	Retain	Retain
12	Qualified laboratory documentation	Retain	Submit	Submit	Retain	Retain
13	Appearance Approval Report (AAR)	Submit	Submit	Submit	Submit	Retain
14	Sample product	Retain	Submit	Submit	Retain	Retain
15	Master sample	Retain	Retain	Retain	Retain	Retain
16	Checking aids	Retain	Retain	Retain	Retain	Retain
17	Moog specific Requirements	Retain	Submit	Submit	Retain	Retain
18	Part Submission Warrant (PSW)	Submit	Submit	Submit	Submit	Retain

Depending on the type of risks, Moog SQE will determine the required submission levels necessary to evaluate and qualify parts and will communicate these requirements to the supplier. Modifications to the submission level may be applied during the APQP reviews based on risk evaluation.

The following table serves as a guide for the applicability of the submission levels:

Product Group	Product-Process Characteristics	Submission Level
A	Complex product AND elevated risk inherent in part AND/OR production process AND/OR production location	3,4 or 5
B	Medium to high complexity products, Moog owned design parts, or parts supplied by active suppliers with proven quality and delivery performance.	2 or 4
C	Simple product; Off-the-shelf part OR catalog item	1 or 4

The supplier may use its own PPAP forms as long as they comply with AIAG standards, or they can use forms provided by Moog.

5.6 Key Characteristics

Moog specifies the use of symbols to identify key product characteristics that affect safety, regulations, fit, form, function, and appearance. These characteristics shall be identified on drawings prior to quoting and marked with unique symbols. Symbols may vary by Moog design authority location.

It is important that the supplier identifies these special characteristics in their FMEA, Control Plan, and Work Instructions, ensuring that appropriate controls are in place. The assignment of key product characteristics does not reduce the importance of any other characteristic on a drawing. Every tolerance is absolute and shall not be exceeded, regardless of classification.

5.7 Process Capability

Supplier partners must have a process to ensure and monitor ongoing process capability as per the AIAG Reference Manual. An SPC Plan and supporting data for Key Characteristics must be kept on file as required. All significant or critical drawing characteristics (unless otherwise specified) shall be controlled with SPC and variable gauging as applicable. These capabilities must be identified in the Control Plan and adhered to. This data may be required with each shipment at the discretion of the Moog SQE. The supplier partner shall use a minimum sample size of 30 parts unless approved by Moog SQE. Product family data using the same process may support capability analysis. The supplier shall identify, evaluate, and eliminate special causes of variation prior to PPAP submission. The supplier shall notify Moog of any unstable processes and submit a corrective action plan.

The initial process capability study aims to understand process variation. When at least 100 samples of historical data are available, control charts can show stability and an in-control process. Once stable, Ppk and Pp can be calculated. If less than 100 samples are available, consult with your Moog SQE for a suitable plan. Capability studies for prototype builds must be based on a minimum sample size of 30, with clear communication of whether prototype or production tooling was used.

The supplier shall use the following as minimum acceptance criteria for evaluating the initial process capability study:

Results	Interpretation
PPK, CPK >1.67 FOR KEY CHARACTERISTICS PPK, CPK >1.33	The process is capable and meets the minimum customer requirements. Upon approval, begin production and adhere to the Control Plan.
1.00 ≤ PPK, CPK <1.33	The process capability is marginal and needs immediate improvement. Contact your Moog SQE to review the study results and update the Control Plan. If not improved before production starts, Moog may require 100% inspection.
PPK, CPK < 1.00	The process capability is unacceptable and does not meet the acceptance criteria. 100% inspection is required until capability is proven. Error-proofing may be needed until a Ppk of 1.33 is demonstrated.

5.8 Part Submission Warrant

The Supplier partner must ensure that all measurements and test results meet the required standards, and that all necessary documentation is included in the submission. The Supplier partner should complete the relevant information on the Part Submission Warrant and/or the Software Submission Warrant (PSW/SSW) Form 810-1744

A separate PSW or SSW must be completed for each Moog part number unless otherwise specified in writing by the Moog Quality Engineer.

A responsible official from the Supplier partner must approve the PSW or SSW and provide contact details.

The (PSW/SSW) must be submitted to Moog for approval. Only after Moog has reviewed and approved the PSW/SSW, and it has been received back at the Supplier partner, can production shipments begin. This ensures that all parts meet the necessary quality and specification standards before they are shipped.

5.9 Customer PPAP Status

The SQE will review all PPAP packages and assign one of the following statuses:

- Fully approved and in compliance with all specifications
- Conditional or interim approval
- Not approved

If interim approval is granted, it must be accompanied by an approved deviation. All deviation requests must be reviewed and approved by Moog. Full approval of the deviation also requires the supply partner to provide a plan that addresses the correction of all open issues

6.0 MOOG SPECIFIC REQUIREMENTS

6.1 Review of technical Specifications (RTS) (Applicable when the supplier is a design partner)

This process ensures that supply partners thoroughly review all technical documents, standards, and specifications defining the product. During the RTS process, Moog encourages supply partner suggestions to enhance product quality or reduce costs related to tooling or the product itself.

Supply partners should submit a compliance matrix for joint review with Moog, confirming that all technical requirements, standards, and specifications have been received, understood, and are achievable.

The RTS will be signed by both parties to signify mutual agreement that the technical requirements are understood and achievable. This signed RTS will be included in the PPAP documentation package

6.2 Product Application Agreement (PAA) (Applicable when the supplier is a design partner)

The PAA ensures that supply partners involved in the joint development of components fully understand and accept the installation and operating conditions of their components. This process includes a joint review by the supply partner and Moog of the performance requirements and physical installation of the product. By signing the PAA, the supply partner agrees to the environment and application in which their product will be used.

6.3 Cleanliness Requirements

Cleanliness is essential for the proper functioning of components. When cleanliness requirements are specified in drawings or technical specifications, supply partners must conduct cleanliness testing at intervals that ensure effective control of the cleaning process in accordance with ISO 16232. Even if not explicitly mentioned, parts must be delivered free from dirt, machining chips, burrs, or rust. Rust preventative substances must be compatible with Moog lubricants and hydraulic fluids. Safety Data Sheets (SDS) must be submitted to Moog prior to their use in the manufacturing process.

6.4 Glass Beads Usage

Glass beads are prohibited from use in the processing or manufacturing of parts related to Moog Purchase Orders unless explicitly allowed by a specific note on the Moog drawing or Purchase Order. Requests for exemptions or deviations must be submitted to Moog for approval for each specific part number. Supplier Partners who use glass beads in their normal processing must have an effective method of segregation to prevent contamination of Moog hardware.

6.5 Electrostatic Discharge Protection

Devices designated by the drawing as static sensitive, or those utilizing static sensitive technology, must be properly handled, packaged, and labeled in accordance with ANSI/ESD S20.20, BS EN 100015-1, or MIL-STD-1686.

6.6 Life-limited Items

Any items that are life-limited or subject to a shelf-life must be clearly identified on the delivery paperwork and packaging. The expiration date, along with any special storage and handling conditions, should be prominently displayed. Unless otherwise agreed with Moog, at least 75% of the shelf-life must remain upon receipt at the Moog site.

6.7 Counterfeit Parts Prevention

The supplier shall establish and maintain a counterfeit parts prevention program to ensure that counterfeit or suspect counterfeit parts are not used in the products delivered to Moog.

This program must include:

Supplier Evaluation and Selection: Evaluate and select suppliers based on their ability to provide authentic and conforming parts.

Inspection and Testing: Implement inspection and testing procedures to detect counterfeit parts.

Traceability: Maintain traceability of parts and materials to the original manufacturer.

Training: Provide training to personnel on counterfeit parts prevention and detection.

Reporting: Report any suspected counterfeit parts to Moog immediately and take appropriate corrective actions.

6.8 Substances of concern & Compliance

Moog is committed to eliminating harmful substances from our products and complying with regulations such as REACH, SCIP, RoHS, PFAS and California Prop 65. We expect our supplier partners to proactively collaborate with us in phasing out substances of concern wherever possible, reducing our

dependency on these materials, and supporting a circular economy.

6.9 Cyber Security Requirements

Supplier partners are required to either hold ISO 27001 certification or develop a cybersecurity management system based on ISO 27000. This system should include, but is not limited to:

- An IT policy that specifically addresses cybersecurity areas
- Self-assessment and testing for resistance to internal and external threats
- Internal cybersecurity training
- A mitigation plan in case of an attack

6.10 System or organizational changes

Moog has experienced production and delivery disruptions due to changes at supply partners' facilities. Therefore, it is required that supply partners notify Moog of any pending changes to systems (ERP/MRP), ownership, management, or management structure. Supply partners should inform the Buyer or SQE when such changes are anticipated.

6.12 Prototype Parts

Supply partners may need to deliver prototype parts for design verification testing or early build trials. According to Moog, prototype parts are defined as parts built on a production process other than the final PPAP-approved process. These parts must fully conform to Moog's dimensional specifications and undergo 100% measurement/verification before shipment but are exempt from APQP and PPAP requirements. Prototype parts will be identified as such on the Moog PO and should be clearly labeled on supply partners' delivery documentation. Any non-compliant prototype parts require Moog's approval prior to shipment.

7.0 PRODUCTION REQUIREMENTS

7.1 Product or Process Change Process

In accordance with the PPAP guidelines and Moog's Standard Terms and Conditions of Purchase, supply partners must obtain prior written approval from Moog before implementing any changes to a product or production process after PPAP approval. This requirement applies, but is not limited to, the following cases:

- Transferring the production line: Whether partially or fully, to a new or existing location, plant, or building.
- New production layout or changes to the production line
- Change of a sub-supplier
- Changes to a process at a contract supply partner (e.g., surface treatment, machining).
- Changes at sub-suppliers that affect the fit, form, or function of the product
- Renewal of non-consumable tooling
- Change to the raw material
- Outsourcing all or part of production to a sub-supplier
- Request for changes to product design, including dimensions, tolerance, function, and appearance.

Supply partners must submit a completed Product or Process Change Notification Form 810-1743 (PPCN) form at least 12 weeks before the intended change. Supply partners may be required to submit additional information to support the evaluation of the proposed change, such as product validation testing, dimensional reports, or functional reports. Introducing changes without Moog's approval may lead to the following actions:

Cost Recovery: All costs associated with rectifying the situation caused by an unauthorized change will be charged back to the supply partner, as per the agreement with Moog.

Certification Notification: The supply partner's third-party certification body will be formally notified that the supply partner is not adhering to quality system or customer requirements.

Corrective Actions: The supply partner will be required to complete corrective actions and demonstrate effective controls to prevent recurrence.

Business Hold: The supply partner may be placed on hold for new business.

Upon receipt by the Moog, the request is submitted to a team for analysis. Based on the potential impact on Moog and the associated risk, the PPCN may result in one of the following decisions:

- **Authorize** the supply partner modification
- **Modify**: Request adjustments to the content of the supply partner modification.
- **Delay** implementation until additional actions or verifications are performed (such as audits, safety stock, testing, etc.).
- **Cancel** the proposed modification.

Once Moog approves the modification, supply partners will be notified via an official letter. Upon receiving this approval letter, supply partners should proceed with the modification project according to the agreed implementation plan.

The Supplier Quality Engineer (SQE) will determine the level of PPAP documentation required to support the change. Authorization to begin shipping with the implemented changes will only be granted upon the return of the signed PSW and/or SSW following PPAP approval.

7.2 Requesting Deviations to Specifications

If a supply partner wishes to request a deviation to supply parts that do not fully comply with Moog requirements, they must inform Moog and request approval. This request must be approved prior to shipment.

Supply partners can request a deviation using the Supplier Request for Deviation Form 119-22, available on request. The completed form should be submitted by email to the functional mailbox address listed on the deviation form, with a copy to the SQE.

Requests for approval are reviewed by the responsible Design Engineer and the SQE at Moog. If the deviation is approved, the supply partner will receive the completed Form 119-22 via email. All shipments made under a deviation must be identified on the exterior of the shipping container and must include a copy of the completed Form 119-22 which should be referenced on the packing slip. Shipments under deviation may be subject to additional inspection upon arrival at the Moog facility.

Supply partners requesting a deviation must complete the 8D section of Form 119-22, identifying the cause, corrective action, and measures taken to prevent recurrence.

7.3 Lot traceability

Lot control and traceability should be established to limit the size and impact of product recalls or campaigns. The control system must be capable of linking production quantities to production processes to support root cause analysis.

When lot control is utilized, the system must establish and maintain a one-to-one relationship between a lot/batch traceability number and a specific 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.

Supply partners are responsible to ensure that the lot traceability system maintains its integrity through the entire supply network, including raw material, purchased components/products, and sub-contracted operations.

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, gauges and test equipment
- Qualification records for personnel performing the work, calibrations/verifications and maintenance
-

7.4 First In, First Out (FIFO)

Supply partners must maintain inventory control systems to identify and manage obsolete materials, preventing inadvertent shipment to Moog. Where feasible, they should implement a First In, First Out (FIFO) inventory management practice.

7.5 Sub-supplier Requirements

All sub-suppliers are required to have robust quality management systems in place. All sub-suppliers must be certified to the latest version of ISO 9001 and are strongly encouraged to implement IATF 16949, ISO 14001, and ISO 45001 certifications. Supply partners are fully responsible for the quality and corrective actions of products from sub-suppliers. The Production Part Approval Process (PPAP) is required for products from sub-suppliers. Any changes at sub-suppliers affecting fit, form, or function must be documented and approved by Moog in accordance with section 7.1

7.6 Packaging and Circular Economy

In support of Moog's commitment to protecting the environment, supply partners are expected to package components according to the agreed and approved packaging instructions before shipment. Single-use plastics should be avoided in favor of reusable packaging. Reusable packaging should be clearly marked as reusable, with a return address permanently marked on the packaging.

Supply partners should verify that the agreed-upon packaging will effectively protect the parts during shipping and handling. Additionally, supply partners are required to provide appropriate cleaning, storage and protection for reusable packaging while it is under their control.

7.7 Laboratory Requirements

Any laboratory conducting confirmatory testing such as Inspection, testing, and calibration must be approved by Moog or hold certifications such as A2LA, NAVLAP, NADCAP, UKAS, NABL, ANSI/NCSL Z540.1, ISO/IEC 17025, ISO 10012, ANAB

7.8 Total Productive Maintenance

Supplier partners should implement a Total Productive Maintenance (TPM) program to emphasize operator involvement and ownership of equipment performance. They are required to perform preventive maintenance on equipment and tools, encouraging the use of predictive and autonomous maintenance in compliance with TPM

7.9 Moog owned Tooling, Measuring and Testing Equipment

All Moog-owned tools, manufacturing, test, or inspection equipment must be used exclusively for Moog products unless authorized in writing. These items must be identified with an asset number for tracking as per purchase order terms. Supplier partners must establish procedures for permanent identification and tracking of Moog-supplied products and equipment, including asset number preservation. Periodic audits of availability and condition will be conducted.

Supplier partners must notify Moog in writing of any lost, damaged, or unsuitable tooling or gauges. Disposal of Moog-supplied tooling and gauges requires written authorization. Supplier partners are responsible for calibration, proper storage, and maintenance of the supplied products and equipment. Upon program completion, supplier partners must ensure gauges and tools are properly stored to prevent damage and are readily available for service requirements.

7.10 Business Continuity Plans

Moog's supply chain is complex and global, facing various risks that could impact operations and customer satisfaction. To minimize these risks, suppliers must establish Risk Management and Business Continuity Plans. These plans should include action plans, checklists, communication plans, escalation procedures, and team roles. Evidence of these plans must be provided upon request.

Plans should cover:

- Equipment failures
- Event-based risks (fires, chemical spills, natural disasters, terrorist threats, medical emergencies, strikes)
- Sub-supplier and sub-contractor continuity
- Trade and regulatory compliance
- Pandemic preparedness (e.g., COVID-19, Avian Flu)
- IT disaster recovery and security
- Financial and regulatory compliance
- Suppliers must notify Moog within 24 hours of any risk requiring contingency action. Moog will notify suppliers when identified as part of a risk situation.

7.11 Record Retention

Document Type	Example	Maintenance Interval
PPAP documentation	Drawings, process flow charts, control plans, FMEAs, PSWs, manufacturing instructions, etc	Duration of production and service activity plus 7 years (unless otherwise specified by Moog)
Quality records	Inspection records, functional test results, material certifications, torque, records other test results (cleanliness etc.)	7 years from date of production
Quality system documents	Internal quality system audits, product audits, management reviews	7 years from date of creation
Product safety related records	Inspection records, test results, material certifications, torque records, traceability records	Minimum 7 years after product phase-out or end of production. Any additional applicable legal requirements related to storage must be maintained
Conformity of Production parts	Inspection records, test results, material certifications, torque records	7 years from date of product manufacture

The specified time periods are considered minimum requirements. Organizations may establish longer retention periods in their procedures. These requirements do not override any applicable regulatory mandates

Records are to be retrievable upon request within 48hrs and provided to Moog at no extra charge. Documents / records requiring authorization by and/or submission to Moog shall be written in the English language

Storage, usage, and disposal of records is performed in a manner appropriate to their security classification and protected from unauthorized access and fraudulent use

8.0 PERFORMANCE MEASURES AND CORRECTIVE ACTIONS

Moog recognizes that supply base performance directly impacts organizational performance. To address this, Moog has implemented a system to measure and evaluate supply partner performance, with monthly indicators reviewed at all levels and accessible on the Moog Supplier Portal.

In case of suspected non-conforming components, immediate notification from the supply partner is expected to minimize impact. Moog evaluates supply partners based on their problem-solving cooperation, including promptness, timeliness, and effectiveness in resolving issues.

Moog encourages supply partners to collaborate in problem-solving, address all product process non-conformances, ensure horizontal and vertical deployment, and provide feedback to operators to prevent recurrence.

8.1 Non-conforming material

It is in the best interest of Moog and its supply partners to promptly identify and address non-conforming parts. Every effort is made to investigate, document, and immediately notify supply partners of non-conformances. Supply partners must take all necessary actions to respond to non-conforming products at any Moog facility as quickly as possible.

If non-conforming components are suspected to have been shipped, supply partners must notify Moog immediately. Non-conforming parts identified at Moog facilities will be documented in an inspection report, sent via a web portal and email. Supply partners are responsible for all costs associated with addressing non-conformance, including sorting, handling, shipping, and rework. Supply partners must respond promptly, ensuring containment within 24 hours, and may need to provide resources for sorting or rework.

Supply partners should be prepared to take the following actions when non-conforming material is identified at a Moog facility:

- Expedite replacement of non-conforming material
- Provide resources for sorting or rework, including third-party sorting resources
- Authorize Moog to initiate third-party activities on their behalf
- Provide instructions and acceptance criteria for inspection, sorting, or rework
- Supply product-specific gauging

8.2 Corrective Action Response

Moog requires supply partners to use the 8 Disciplines (8D) process for addressing quality issues. When a non-conformance or defect is documented, the cause must be investigated and reported in the 8D Format. Corrective action responses, including all supporting documentation (e.g., revised process control plans), should be submitted promptly and no later than the due date. Additionally, supply partners must conduct root cause analysis for major issues, evaluating organizational process or system weaknesses that allowed the problem to occur.

Supply partners must respond to non-conformance issues promptly, following a specific timeline for containment and corrective actions.

Timing	8D Ref.	Activity
Immediately		Acknowledge receipt and initiate immediate containment
24 Hours:	D1 - D2	Begin sorting and holistic containment activities
48 Hours:	D3	Complete containment and implement short-term corrective actions
10 Working Days:	D4 - D5	Complete cause analysis and implement permanent corrective actions
20 Working Days:	D6 - D7	Verify effectiveness and prevent recurrence

If the time needed for a robust solution exceeds 20 days, the supply partner must submit a proposed timeline and reach an agreement with Moog SQE.

8.3 Supply Partner Scorecard & Performance Monitoring

Moog maintains a scorecard to track both operational (quality and delivery) and non-operational performance of each supply partner. This scorecard is updated monthly.

The scorecard includes information on both operational measures (such as quality and delivery) and non-operational measures. It should serve as the basis for action-oriented discussions to improve performance for Moog and its customers. Additionally, it serves as a crucial data point for Moog to make informed sourcing decisions.

Supply partner Senior Management shall commit to regularly reviewing their performance data to maintain and continuously improve the scorecard, proactively addressing any issues before Moog needs to intervene.

In the most serious cases of poor performance, Moog shall always have the right to place Supply partners in the new business hold status.

8.6 Problem Solving, Continuous Improvement and Data

Problem Solving

Supply partners should use lessons learned from each incident to improve production processes, product design, and underlying systems. The goal is to eliminate similar incidents by adjusting procedures and addressing root causes in the environment. Suppliers are required to demonstrate their capability to solve problems and improve using advanced problem-solving techniques within the PDCA approach (8D, Kaizen, Fishbone/Ishikawa, 5 Whys, etc.).

Continuous Improvement

Supply partners are expected to demonstrate a commitment to continuous improvement in the products and processes they provide to Moog. This involves focusing on the following areas:

Enhancing process control, quality systems, productivity, and capacity.

Reducing defects, delivery variation, costs, and lead time.

Optimizing supply chain effectiveness.

Providing ongoing training for personnel.

Data Availability

Upon request, Supply partners should provide quality or performance data (including, but not limited to, defects list, inspection history, first-time quality, reject data, capability indexes). This data is needed to identify trends and root causes of issues at Moog's or the Customer's Assembly Plant. Improvement plans are required for areas not meeting targets.

8.7 Field Quality Issues

To swiftly resolve customer product issues, Moog and its supply partners must collaborate effectively. When a customer quality issue is linked to supplied parts, supply partners receive a notification. If a formal investigation is required, a Kick-Off meeting is held to define the problem, plan the investigation, and set a resolution timeline. Supply partners are expected to fully participate, provide necessary support, and use the 8D methodology for problem-solving.

When a failure is related to a supply partner's part that deviates from technical specifications (e.g., manufacturing process deviation) The supply partner will lead the solving process, with Moog monitoring progress and verifying the solution. An 8D report is required. The expected solving lead time is the same as section 8.2

For critical and complex cases:

Supply partners will be notified by an official letter of the opening of a Customer Product Issue (CPI). The CPI will be led by Moog, with supply partners actively participating in the cross-functional work. The expected solving lead time is communicated in the notification letter.

8.8 Warranty

Supply partners must ensure their products meet all Moog specifications and requirements throughout the warranty period. They are responsible for addressing warranty claims promptly and effectively, including investigating root causes and implementing corrective actions. Supply partners will be held financially responsible for costs associated with warranty claims, including repairs, replacements, and related expenses. They are expected to use warranty data to drive continuous improvements in product quality and reliability.

8.9 Supplier Relationship Management and Supplier Portal

Suppliers shall comply with the requirements contained in the following documents available at Moog’s Supplier Portal website: <https://www.moog.com/suppliers.html>

Additionally, to enhance Supplier Relationship Management (SRM) with increased visibility and real-time access to information, suppliers must register with Moog’s web-based systems.

9.0 GLOSSARY

8D	8 Disciplines, a problem-solving method
AIAG	Automotive Industry Action Group
APQP	Advanced Product Quality Planning
CPI	Customer Product Issue
Cpk	Capability Analysis Index
ECHA	European Chemicals Agency
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
FIFO	First In First Out
FMEA	Failure Modes Effects Analysis
MRP	Material Resource Planning
OEE	Overall Equipment Effectiveness
Poka Yoke	A Japanese term for error proofing
PPAP	Production Part Approval Process
PPCN	Product or Process Change Notification
Ppk	Performance Analysis Index
PPM	Part Per million
PSW	Part Submission Warrant
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Quote
RTS	Review of Technical Specification
SOW	Statement of Work
SPC	Statistical Process Control
SPR	Significant Production Run
SQE	Supplier Quality Engineer
STD	Standard

10.0 Revision History

Revision Number	Date of Change**	Description of Change
1.0	20240801	Initial Release
1.1	20260223	Added use of Form 810-2110 (Supplier APQP Checklist) to section 4.2