

BOLLINGER MOTORS



SUPPLIER QUALITY REQUIREMENTS MANUAL

Mission

Our mission is to build trucks locally and make a positive impact globally. We're not striving for pie in the sky here. We are making a truly evolved electric truck at the highest quality possible. We are living proof that showing up every day, working hard, and keeping to standards that do not waver to outside influences bring excellence to whatever the focus is. In our case, it's trucks. It's infectious. We are a growing team of solution-driven, problem solvers. We know how to duck and weave. Plainly put, we're obsessed with it and wouldn't have it any other way.

Scope

In the global manufacturing environment, product that is identified to be non-conforming anywhere within the value stream causes serious disruptions to production and shipping schedules, resulting in increased costs. Therefore, Bollinger Motors requires suppliers to control the quality of their product that is produced and shipped.

This manual describes the expectations that Bollinger Motors has for its suppliers in order to ensure that purchased product meets our requirements with a common goal to achieve a high level of quality and customer satisfaction at the best possible cost. Acceptance of any purchase order constitutes acceptance and commitment on behalf of the supplier to comply with the intent of this supplier quality requirements manual. This manual describes the minimum requirements and expectations for the supplier's quality operating system (QOS). However, it is the belief of Bollinger Motors that QOS enhancements, to exceed the requirements specified within this manual, will be conducted as part, of the supplier's continuous improvement process.

This information applies to all suppliers who have interest in doing business with Bollinger Motors. Adherence to the guidelines described in this manual is required by all suppliers.

Quality Policy

Bollinger Motors consistently provides reliable, high-quality products and services, on time, that meet the requirements and expectations of our customers, while continually striving to improve.

To achieve this, we are strongly driven by the following management principles and behaviors:

- Build a mutually profitable relationship with our suppliers, ensuring their long-term success, through the understanding of their needs and the needs of their customers as well
- Achieve our commitments for quality, cost, and delivery
- Enhance the systematic development and use of best preventive practices at all levels
- Drive continual improvement and innovation based upon efficient business processes, well-defined measurements, best practices, and customer feedback surveys

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1.0 Quality Management System Requirements

1.1 Quality Management System

All Bollinger Motors suppliers are required to establish and maintain an effective quality operating system (QOS). It is preferred that the supplier has the appropriate quality system registration for the product or services being supplied to Bollinger Motors.

For suppliers providing product to Bollinger Motors, the supplier shall have at a minimum one of the following:

- Third party quality system registration to:
 - ISO 9001:2015 at a minimum with the goal of achieving IATF 16949:2016
 - Where appropriate ISO 14001
- In the absence of third-party certification, depending on the product, its use, value, and criticality, the Bollinger Motors Quality, Manufacturing, and Engineering Teams may authorize the acceptance of other evidence of compliance.
 - This should include an on-site Bollinger Motors assessment or a review of a self-assessment to the applicable criteria and show that an acceptable quality system is in place as determined by Bollinger Motors Quality, Manufacturing, and Engineering teams.

If third party registered, the supplier shall provide a copy of the quality system registration certificate to Bollinger Motors Quality Department. The supplier shall advise Bollinger Motors, in writing via email, of any changes to their registration status, including renewal, probation, revocation, upgrading or certification to additional standards.

All quality requirements detailed in this Supplier Quality Requirements Manual shall be considered mandatory unless a documented signed deviation or email has been issued by Bollinger Motors. In addition, the Purchase Order issued to suppliers may also waive requirements detailed in this Supplier Manual.

1.2 Quality Manual and Standards

The supplier, upon request, will provide Bollinger Motors with a copy of their Quality Manual and supporting procedures. This may include detailed documents and work instructions specific to production of products for Bollinger Motors.

IATF 16949, ISO9001, ISO14001, PPAP, APQP, FMEA, MSA, and other reference materials identified in this manual are available from the Automotive Industry Action Group (www.aiag.org). The current edition of all manuals and guides are to be utilized.

1.3 Sub-Supplier Management

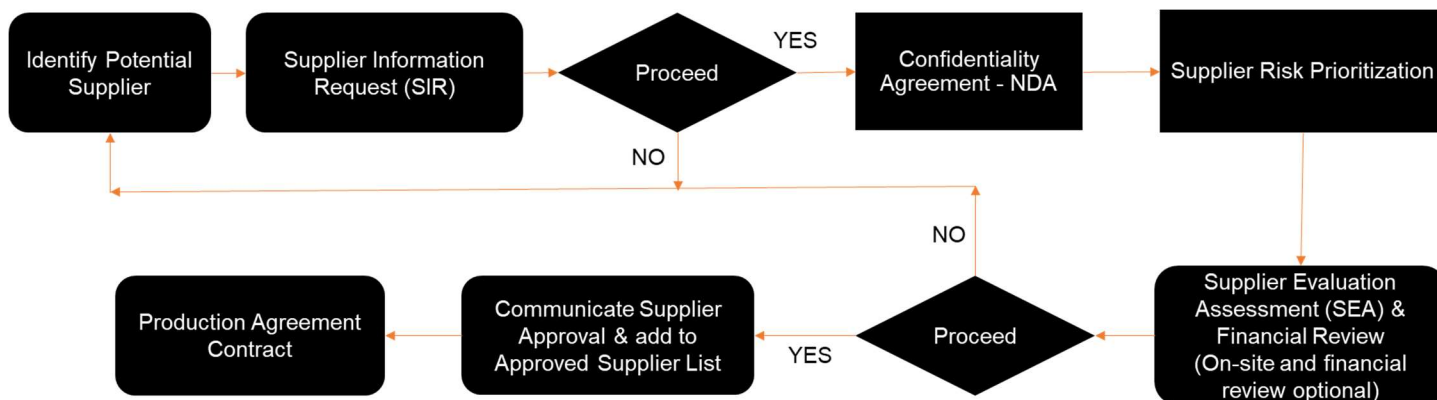
Suppliers are responsible for the quality of materials and products provided by their sub-tier suppliers. Bollinger Motors suppliers must enforce controls on their sub-tier suppliers that provide quality results and documentation like the requirements applied to suppliers by Bollinger Motors. The extent of the controls will differ, depending on the type and complexity of the product and/or processes, but should normally include:

- Evaluation and qualification of sub-tier supplier manufacturing facilities
- Controls to ensure that raw materials used meet the suppliers and Bollinger Motors requirements
- Ensure that sub-tier suppliers have an ESD control program that meets or exceeds the needs of Bollinger Motors if the products or materials are ESD sensitive
- Product qualification, including dimensional inspections and process capability studies of as applicable
- Drawing and Revision control
- Controls to handle non-conforming product
- Corrective action and preventive action programs
- A continuous quality improvement program such as Six-Sigma, Lean, Kaizen, and 5S.

At times, Bollinger Motors may specify the sub-tier suppliers that may be used and assist the supplier in controlling the sub-tier supplier. Typically, this occurs when the sub-tier supplier is an essential component of the supply-chain process. This process will be defined utilizing a roles and responsibilities matrix.

Bollinger Motors reserves the right to evaluate the quality system and records of any sub-tier suppliers as necessary. In the event of Bollinger Motors involvement, it does not excuse suppliers of their responsibility for the quality performance at the sub-tier suppliers.

2.0 Supplier Selection, Performance, and Monitoring



2.1 New Supplier Information Request

When a new supplier is being considered, they will be sent a Supplier Information Request (SIR) form. This form requests general information about the company such as manufacturing location(s), size, capabilities, and financial information as well as questions regarding the Company's quality management system (QOS) and quality history. The supplier completes the Supplier Information Request and returns it along with a copy of their quality manual and any relevant supporting documentation. Bollinger Motors will review the quality manual, procedures, and supplier information request to determine if the quality system meets Bollinger Motors's requirements and the next steps moving forward.

2.2 On-Site Assessment

For certain suppliers, an on-site assessment of the supplier's facility to understand their quality operating system will be performed. The on-site assessment will include a deep dive into the Supplier Evaluation Assessment.

If the assessment team determines that the supplier meets Bollinger Motors's requirements, Bollinger Motors will qualify the supplier and add them to the approved supplier list. This will allow the supplier to quote new business.

2.3 Supplier Audits and Monitoring

Bollinger Motors shall periodically reevaluate production suppliers using quality performance data and/or on-site assessments. If requested, the supplier shall make their manufacturing location available for the on-site process verification by the Bollinger Motors team, with reasonable notice. The intention of these audits is to review and evaluate any changes that may have occurred in the supplier's quality management system, and to assess the supplier's continuing commitment to quality improvement from the previous assessment.

2.4 Supplier Performance

Bollinger Motors will calculate both PPM and on time delivery metrics based on the below calculations. The results will be available upon request from the supplier. In addition, Bollinger Motors requests that suppliers monitor their own performance of these two metrics as well.

Metrics Calculations are as follows:

- Quality
 - Products per Million (PPM) Calculation:
$$\text{PPM (n)} = \frac{R}{P} \times 1,000,000$$
 where:
n = The number of months over which the PPM is being calculated, usually 1, 3, and 12 months
R = The total number of rejected products delivered by supplier in the last n months
P = The total number of products received from this supplier in the last n months
 - PPM should be calculated for 1, 3, and 12-month intervals and monitored for trend analysis
- Delivery
 - Delivery Score: 100%-Score calculated based on number of deliveries on time
 - Calculation is:
$$\text{Deliverable score} = 100 - \left(\frac{\text{\#Late Deliveries}}{\text{\#Total Deliveries}} \times 100 \right)$$

- Delivery should be calculated for 1, 3, and 12-month intervals and monitored for trend analysis
- Quality and Delivery will not be calculated if a month has zero Products Received

3.0 Product Realization

3.1 Advanced Product Quality Planning (APQP)

APQP is a structured method of defining and establishing the stages necessary to assure that a product satisfies the customer requirements. APQP is meant to be a cross-functional process that includes product design, manufacturing, quality and other functions as required.

During the APQP process the customer specific requirements will be identified. The supplier must have resources available and identified to support the quality planning and product launch efforts.


- When the supplier is providing product or services the following Automotive Industry Action Group (AIAG) Core Tools documents must be used as an extension of this Supplier Quality Requirements Manual. The Core Tool reference manuals are as follows:
 - Advanced Product Quality Planning (APQP)
 - Failure Mode and Effects Analysis (FMEA)
 - Measurement Systems Analysis (MSA)
 - Fundamentals of Statistical Process Control (SPC)
 - Production Product Approval Process (PPAP)

Suppliers are responsible for obtaining and ensuring the current editions of these Reference Manuals are utilized. They can be obtained at the Automotive Industry Action Group website (www.aiag.org).

3.2 Characteristic Classifications

Bollinger Motors Engineering will define on the drawing (where design responsible), the features that are designated as special characteristics. For supplier designed products, the supplier is responsible for the designation of all special characteristics but must attain concurrence from Bollinger Motors Engineering.

- Suppliers are responsible for reviewing all drawings for special characteristics and take appropriate actions as required
- Suppliers must ensure that special controls are in place and verified to prevent pass through characteristics from their sub-tier suppliers
- Special Characteristics must be manufactured utilizing a process that contains special control methods identified in the Control Plan
- If the Process Capability does not meet the Capability requirements specified in this manual, all product must be 100% sorted
 - If a sort is required Bollinger Motors must be notified that product has fallen outside the PPAP'd Control Plan
- If the process, which was PPAP'd goes out of control, all product manufactured since the last good (in control) inspection point must be 100% sorted
 - The special cause, which caused the process to run out of control, must be identified for root cause and corrective actions implemented and verified for effectiveness
- Statistical Process Control (SPC) may not be feasible for all defined Special Characteristics such as but not limited to cleanliness, chemical composition, and hardness
 - In these situations, the supplier shall identify the special controls utilized in the control plan

Bollinger Motors Symbol	DFMEA Callout	PFMEA Callout	Description	Capability - initial	Capability - Long Term	Control Strategy
	BCC	CC	Critical Characteristic - A failure could potentially lead to Injury or Death. Required to meet Government Regulations.	$P_{pk} 1.67$	$P_{pk} 1.67$	SPC with Batch & Hold, 100% gauging (inline or offline)
None	BSC	SC	Significant Characteristic - A failure could potentially lead to the part/product not functioning as intended. Customer satisfaction issue.	$P_{pk} 1.67$	$P_{pk} 1.33$	SPC, Batch & Hold, 100% gauging (inline or offline)

3.3 Manufacturing Feasibility

Suppliers shall document the feasibility to manufacture product as specified on drawings and/or specifications utilizing the Manufacturing Feasibility form. Forms must be signed off by the Supplier and Bollinger Motors Engineering and Supplier Quality Department, once they are considered acceptable. If deviations are requested, they must be documented in writing and approved by the Bollinger Motors Engineering Department.

3.4 Measurement Systems Analysis (MSA)

Suppliers must perform a Measurement Systems Analysis (MSA) on all measuring and test devices that have been identified in the control plan.

An acceptable MSA is required to understand if the measurement system is repeatable and accurate. Gages must have the proper resolution for the feature that they are measuring.

- **Per AIAG Standards the acceptable limits for an MSA is as follows:**
 - Repeatability & Reproducibility (%R&R)
 - Less than 10% - Acceptable
 - Between 10% and 30% - Contact Bollinger Motors Supplier Quality
 - Greater than 30% - Unacceptable
 - Precision to Tolerance Ratio (P/T)
 - Less than 10% - Acceptable
 - Between 10% and 30% - Contact Bollinger Motors Supplier Quality
 - Greater than 30% - Unacceptable

Normally for variable gages, a 10X3X3 (three different operators measure ten samples three times each) study is required. For attribute gages, the Attribute Gage Study (long method) is required. Bollinger Motors Supplier Quality Department must approve any alternative methods.

- **Gage Correlation Studies**
 When possible, for characteristics identified on the control plan, the supplier must perform a gage correlation study. This correlation study consists of the supplier identifying, measuring and recording data on a specified number of production parts. The supplier then sends the parts to Bollinger Motors or a location they specify for measurement. The supplier and the Bollinger Motors Quality and Engineering teams will compare the measurements with the supplier's original measurements to determine the correlation between the gages. This should be done as early as possible during the APQP process.

3.5 Failure Mode and Effects Analysis (FMEA)

Supplier's must perform a Process Failure Modes and Effects Analysis (PFMEA) and submit and/or review it for approval with the Bollinger Motors Supplier Quality and Engineering Departments. For products and assemblies that are designed by the supplier, the supplier shall also perform a Design Failure Modes and Effects Analysis. The PFMEA considers all reasonably foreseeable potential failure modes of each process. Based on the potential significance and likelihood of the problem, the supplier develops appropriate manufacturing controls. The PFMEA shall be a living document, and updated when anytime a process change occurs, or when defective material is identified.

3.6 Control Plan

Suppliers must implement and maintain control plans in accordance with the current edition of the AIAG APQP manual.

- Supplier must provide documented control plans to Bollinger Motors upon request.

3.7 Process Flow Diagram

All suppliers must complete a process flow diagram. The Process Flow Diagram must include:

- All process operations the supplier uses to manufacture its products in sequential order
- Key Control Characteristics for each process operation
- Any potential sources of variation

Supplier's may use their own Process Flow Diagram format if it contains the required information. Supplier must provide documented control plans to Bollinger Motors upon request.

3.8 External Lab

In accordance with IATF 16949, "External Laboratory used for inspection, test and/or calibration" shall have: A defined laboratory scope that includes the capability to perform the required inspection, test and/or calibration, and either there shall be: Evidence that the external laboratory is acceptable to the Customer, or The laboratory shall be accredited to ISO/IEC 17025 or national equivalent. The supplier shall use only A2LA accredited laboratories for PPAP submission, as appropriate.

Suppliers may have the internal capability to conduct laboratory tests at their facility. However, Bollinger Motors has the authority to require laboratory tests be conducted by third-party accredited labs. The supplier will be responsible for all costs of the laboratory tests conducted by the accredited third-party lab.

3.9 Safe Launch

Bollinger Motors expects its suppliers to develop and implement a safe launch process for all new product launches. The safe launch process is intended to provide an enhanced inspection frequency or methodology to protect the product from non-conformances during the initial launch of a project. Safe launch is required when a process or product changes. Examples of these changes are below:

- **Process:** new, changed, moved or re-sourced processes
- **Product:** new, transferred or changed product

The safe launch process will include at a minimum:

- a control plan with additional or heightened inspection, increased sample sizes and frequencies
- 100 percent inspection of all production products with full traceability

4.0 Production Product Approval Process (PPAP)

The Production Product Approval Process (PPAP) defines the requirements for production product approval. The purpose of PPAP is to verify that all customer engineering design record and specification requirements are properly understood by the supplier. In addition, that all manufacturing process have the ability and capability to produce product that will consistently meet these requirements during production runs at the required production volumes. PPAP requirements must follow the latest AIAG reference manual.

Generally, APQP and PPAP is not required on industry standard parts or Commercial Off the Shelf (COTS) parts unless otherwise directed by the Bollinger Program Manager.

"Commercial Off the Shelf" Components are defined as: A part that is sold to the general public direct from the manufacturer or through a distributor network and is not being modified in any way to meet Bollinger Motors specific needs. These parts are commercially available as a catalog item.

The COTS approval process shall be as follows:

1. Suppliers providing off the shelf items to Bollinger Motors should be ISO9001 certified at a minimum.
2. Approved via a Part Submission Warrant (PSW) signed by Bollinger Engineering and Quality.
 - a. Supporting documentation as requested by Bollinger Motors:
 - i. First Article Inspection/Material Test Reports
 1. Product dimensional data
 2. Inspection data
 3. Test data

4.1 PPAP Run Size Expectation

The requirement for when the volume of a PPAP run or production run is less than 100 pieces:

- Supplier shall conduct 100% inspection on all special characteristics. This will be documented in the Control Plan.
- Initial process capability study on a minimum of 30 pieces.
- Over a period, that is agreed upon by supplier and Bollinger Motors Supplier Quality, a capability analysis with a total sample size greater than 30 and with same subgroup sizes until 125 products has been completed will be necessary to demonstrate process capability.

The requirement for when the annual volume is between 100 and 4999 pieces:

- Supplier shall document in their Control Plan that they will complete one of the following:
 - Conduct 100% inspection and record the results
 - Complete an Initial process study using a minimum of 100 production parts and maintain SPC control charts of all special characteristics during production runs
- Conduct first piece full layout to verify set-up parameters
 - 100% inspection or utilization of SPC Control Charts on Special Characteristics as well as set-up records containing the first piece inspection data shall be maintained per AIAG PPAP Record Retention requirements.

The requirement for when the annual volumes are over 5000 pieces:

- 300-piece run, with 125 of the 300 products collected and measured in consecutive order for statistical analysis

4.2 Submission Requirements

Element	Element Description	Submission Requirements
1	Design Record	Latest detailed print and material specifications reflecting product number and revision level. Each characteristic on the print shall be numbered and ballooned for reference.
2	Engineering Change Documents	The supplier shall have any authorized engineering change documents for those changes not yet recorded in the design record but incorporated in the product, product or tooling.
3	Customer Engineering Approval	If the sample products are required to be evaluated by Bollinger Motors Engineering, include the engineering sample evaluation report signed by the engineer.
4	Design FMEA	If supplier is design responsible, a DFMEA will be required to be reviewed. If not design responsible, provide documentation that a DFMEA was reviewed prior to development of PFMEA.
5	Process Flow Diagram	Process map of the manufacturing process showing all production streams and flows.

6	Process FMEA	Process FMEA identifying all critical process Failure Modes as well as special characteristics. A copy of the Process FMEA is to be included showing that various manufacturing issues were assessed at each manufacturing station and appropriate process controls established to ensure product quality to customer expectation level and manufacturing requirements.
7	Control Plan	Include the Control Plan. All CCs and SCs require a minimum inspection frequency of three (3) consecutive products per inspection frequency. Annual PPAP must be identified on the CP.
8	Measurement System Analysis Studies	Gauge R&R reports for the gauges that are identified in the Control Plan must be submitted. Per AIAG, the preferred method for calculating Gauge R&R is by using ANOVA method.
9	Dimensional Results	Summary of the full dimensional results measured on six (6) products from the production run. The sampling should be done from each unique manufacturing process - such as manufacturing cell(s) or production line(s) and all cavities, molds, patterns, dies. The results must include OK/NOK for all features.
10	Material, Performance Test Results	Data submitted needs to prove that component/material meets all material, performance and test requirements identified by Bollinger Motors and Supplier (internal). A minimum data set of 6 samples is required.
11	Initial Process Capability Studies	A minimum of 30 products is required. 10 sub-groups of 3 - (beginning of process / middle of process / end of process). Inspection quantity is determined by batch run size Process must be stable and in control to conduct a capability analysis.

12	Qualified Laboratory Documentation	Inspection and testing for PPAP shall be performed by a qualified laboratory as defined by customer requirements (e.g., an accredited laboratory). The qualified laboratory (internal or external to the organization) shall have a laboratory scope and documentation showing that the laboratory is qualified for the type of measurements or tests conducted.
13	Appearance Approval Report (AAR)	AAR shall be completed and submitted if the product has appearance requirements on the drawing.
14	Sample Product	Provide sample product as requested by Bollinger Motors.
15	Master Sample	Supplier is required to keep a PPAP Master sample.
16	Checking Aids	In order to avoid different measurement techniques on key-product features and special characteristics, document the method of measurement (i.e. Caliper, micrometer, height-gage, pin-gage, special gage) by feature. Checking aids can include fixtures, gages, models, templates, and mylars specific to the product being submitted.
17	Records of Compliance (Documented Information including customer specific requirements when applicable)	<p>Include the following as required:</p> <p>IMDS Certification Heat Treatment Assessment (CQI-9) Plating Assessment (CQI-11) Coating Assessment (CQI-12) Welding Assessment (CQI-15) Soldering Assessment (CQI-17) Molding Assessment (CQI-23)</p>
18	Product Submission Warrant	Must include a Supplier Management signed copy of the Product Submission Warrant (PSW). If material reporting has been submitted via IMDS, include module ID #, version, #, and creation date.
19	Bulk Material Requirements Checklist	Bulk Material Checklist if required by Engineering
	Additional Requirements	

20	Capacity Analysis	A completed Capacity Analysis including any shared loading.
21	Safe Launch Plan	A completed Safe Launch Plan and supporting control strategy

4.3 Initial PPAP Submission

The supplier shall have documented PPAP approval from Bollinger Motors prior to the start of mass production. Bollinger Motors will not be responsible for any product, which were produced prior to Bollinger Motors's approval. For PPAP, the supplier shall have the PSW approved by Bollinger Motors Quality and Engineer Departments before shipping products. If products are to be shipped prior to PPAP approval, it would require a written deviation from the Bollinger Motors Product Engineer which would authorize shipment of non-PPAP approved product.

- All PPAP samples must be clearly identified.
- Level 3 PPAP shall be the default requirement unless the supplier is notified otherwise in writing via email.
 - Level 1 - Submit a Product Submission Warrant (PSW) only.
 - Level 2 - Submit a PSW and supporting data as determined by Bollinger Motors.
 - Level 3 - All PPAP requirements submission.
 - Level 4 - Same as Level 3 except omit sample products.
 - Level 5 - Same as Level 3 except PPAP review is at supplier location.

All PPAP requirements should be reviewed in the current PPAP Reference Manual issued by AIAG (www.aiag.org) prior to any PPAP submission. Any questions regarding PPAP, contact the Bollinger Motors Quality Department for clarification.

4.4 Annual Layout

The supplier shall conduct an Annual layout. Annual layouts are due the month prior to the original PPAP approval signature date to ensure compliance prior to the original PPAP submission approval expiration date.

- All documents submitted cannot be more than one-year-old
- Failure to produce the annual layout may impact supplier's ability to ship
- Annual layouts shall be sent to the Bollinger Motors Quality Department

4.5 Low Volume or Service Production

When product is produced after the tooling has been inactive for mass production for 12 months or more Bollinger Motors requires a new level 3 PPAP.

4.6 PPAP Approval Process

Bollinger Motors PPAP documentation review will be conducted by the Quality and Engineering departments to produce one of the following outputs:

- Approved
- Rejected
 - Bollinger Motors informs the supplier of the rejection and rationale behind it
 - The product(s) are not acceptable for production
 - After resolving issue and identifying root cause, the supplier submits a new PPAP
- Interim Acceptance
 - If a non-conformance is found within the PPAP production run or submission, Bollinger Motors Engineering may issue a deviation for the non-conformance
 - This is for a limited time or specified quantity of products
 - The product will be given an Interim Acceptance PPAP status, indicating the product is considered acceptable for production for the duration of the deviation.
 - An Interim PPAP status is **NOT** an approval.
 - The supplier is required to correct the non-conformance and resubmit the PPAP prior to expiration of the deviation

4.7 Dimensional Inspection Report

Bollinger Motors notifies the supplier of the quantity of products to be inspected, typically six from each tool. The supplier inspects or tests each sample for all dimensions, drawing notes, and specification requirements listed on the current drawing revision. The supplier records the results on the dimensional inspection report. The supplier balloons and numbers a copy of the drawing and/or specification to correspond with the supplier's results.

Products inspected for the dimensional inspection report are randomly selected from a production run of products.

4.8 Production Run

The minimum quantity of product for the production run is agreed up front between the supplier and Bollinger Motors. The products must be produced under quoted volume-production requirements, including material, machines, tooling, processing parameters, and cycle time.

Any exceptions to the volume-production requirements must be approved in writing by Bollinger Motors and included in the data package submitted to Bollinger Motors.

4.9 Material Certification/Test Report

When requested, the supplier must provide a material certification/test report. This report must include the specification number, specified material and/or physical requirements, and the inspection/test results. A simple statement that the material meets the requirements is **not** acceptable. Each report must be traceable to the supplier's material and must be signed by the organization that performed the testing.

4.10 Electrostatic Discharge (ESD) Susceptibility

When components or assemblies supplied to Bollinger Motors are susceptible to ESD, the supplier shall establish ESD susceptibility information for them. Procedures, methods, and equipment used for determining the ESD susceptibility shall be provided to Bollinger Motors. ESD failure modes shall be considered in FMEAs, and ESD controls shall be included in control plans and packaging.

4.11 Material Safety Data Sheets (MSDS)

As applicable, Material Safety Data Sheets (MSDS) must be provided during PPAP.

4.12 Agency Approvals and Compatibility Reports

The supplier is responsible to provide the proper agency approval test reports per Bollinger Motors requirement. Examples are UL, CE, FCC, TUV, etc. The supplier is also responsible for agency test reports from their sub-supplier or other outside test agencies.

The supplier is responsible to submit test results that verify compatibility as required (USB, 1394 etc.). Testing may be done by the supplier or by a test facility certified by the supplier.

4.13 Packaging

The supplier must plan for packaging of product shipped to Bollinger Motors. The supplier will provide a documented plan including container size, number of products per container, and packaging layout. Packaging will be designed to provide protection from any damage that may occur.

In product that is vulnerable to static, ESD packaging shall be required.

Packaging, labeling, and shipping materials must comply with the requirements of common carriers to secure the lowest possible shipping costs.

Whenever possible, only one-product number and one supplier lot is to be packaged in a shipping container. When more than one-product number or lot number is packaged in a shipping container, each product number and/or lot number must be separately packaged inside the container, with each labeled as to the contents.

4.14 Labeling

Each shipping container or inside package must contain the following information:

- Bollinger Motors product number
- Quantity
- Supplier's Name

- Purchase Order Number
- Lot identification
- Required ESD Susceptibility Label on packaging for ESD sensitive items, using the Electronic Industries Association Standard symbol or equivalent.

4.15 Traceability

The supplier must have a process for traceability of components. The supplier will provide a written plan specifying how components will be marked with serial or lot numbers and date codes if required, or how containers will be identified with lot numbers or date codes if component marking is not required. The plan will also include sizes of lots or batches. Where possible, batch sizes should be minimized to aid in containment should quality problems be found.

Traceability ties finished product back to the components used in the product. When traceability is specified, the traceability marking should be effective down to the individual component such as lot code, batch or serial number should be identifiable throughout Bollinger Motors's processes.

5.0 Drawings/Changes

5.1 Drawing and Change Control

The supplier must have a documented system for assuring that the latest Bollinger Motors drawings are utilized in their facility. The supplier's quality operating system must contain a documented procedure that describes the method used for the receipt, review, distribution, and implementation of all changes to drawings and specifications. In addition, the procedure must address the management of obsolete drawings and specifications. A documented procedure should also detail the method utilized to quarantine new or modified products until approved by the customer.

5.2 Process Changes, Engineering Changes

Suppliers must have systems in place to control changes to drawings, specifications, processes, or produced products. Systems should be capable of handling changes being requested by the customer, and changes requested by the supplier.

5.3 Supplier Request for Engineering or Process Changes

Suppliers are responsible for supplying products that meet the current revision level of all specifications. The Supplier shall seek written Engineering approval using the Supplier Request for Engineering or Process Changes document prior to making any process changes and attain full PPAP approval from Bollinger Motors prior to shipping product. Then and only then are suppliers authorized to implement the change into production.

The supplier shall take on responsibility for managing changes to product, material or services provided to Bollinger Motors. The supplier is responsible for the change management process throughout the entire supply chain including changes made at the supplier's facilities, as well as sub-suppliers and subcontractors.

For any product, material or service, which requires the supplier to subcontract to external facilities, the supplier shall be responsible for ensuring compliance to specifications and requirements. The Bollinger Motors supplier shall be responsible for all aspects of sub-tier supplier performance.

The supplier, prior to shipment of any non-conforming product, must receive Bollinger Motors written approval in the form of a deviation. It is at the choice of Bollinger Motors to request a formal corrective action to prevent recurrence of the non-conforming product. All product approved for shipment under deviation must be clearly identified.

5.4 Supplier Deviation Request

A supplier is never permitted to knowingly ship product that deviates from the print, specification limits, or design intent without written authorization from Bollinger Motors. If such a condition exists, the supplier may request Bollinger Motors to allow shipment of the product. This is accomplished by initiating a Deviation Request.

If directed by Bollinger Motors, the supplier must send samples of non-conforming items to Bollinger Motors for evaluation. The cost of any testing required to determine the acceptability of the product will be charged to the supplier. Bollinger Motors will determine the item's acceptability and what corrective actions (if any) are required beyond the deviation. If approved, Bollinger Motors will send a written deviation approval to the supplier.

The deviation is only intended to be an interim action and **is not** to be construed as an engineering change. The supplier must begin work immediately to correct the condition in question. This must be accomplished within the time frame stated

on the deviation. Failure to comply with the mutually agreed upon closure date for the deviation may result in the supplier's rating being affected.

In all cases, the supplier must fully contain all product suspected of being non-conforming at their facility. In addition, the supplier may be required to sort any suspect product at Bollinger Motors.

Any products sent to Bollinger Motors that have been approved on a Deviation must be clearly identified on the packaging with the appropriate markings decided jointly by Bollinger Motors and the supplier.

6.0 Corrective Action's

Bollinger Motors requires suppliers to utilize a closed-loop corrective action system when problems are encountered in their manufacturing facility, or after nonconforming product has been shipped to Bollinger Motors.

6.1 Corrective Action Methodology

The corrective action system utilized should be like the 8D process outlined below. The focus should be on identifying the root cause(s) of the problem and taking action to prevent its recurrence.

- Use a team approach
- Describe the problem
- Contain the problem
- Identify and verify root causes(s)
- Implement permanent corrective actions
- Verify corrective action effectiveness
- Close the corrective action

6.2 Supplier Corrective Action

Bollinger Motors issues a Corrective Action Request (CAR) to a supplier when non-conforming products are found at incoming inspection, in production, in test, by Bollinger Motors, or a Bollinger Motors customer. They can also be issued as a result of a non-conformance during a supplier assessment. The supplier is required to respond by returning an 8D back to Bollinger Motors. Suppliers to Bollinger Motors should comply with the following requirements:

- Bollinger Motors requires that the supplier take and implement immediate containment actions upon notification of the nonconformance. The supplier must submit a written response via email to Bollinger Motors, reporting the supplier's initial findings and containment activities within 24 hours of notification.
- The containment plan must clearly define all containment actions through the entire value stream to assure that no nonconforming product is shipped to or used at Bollinger Motors. If suspect product has already been shipped, the supplier must address all suspect stock in transit and any stock at Bollinger Motors. The supplier will assist Bollinger Motors in identifying customer risk by identifying all suspect lot numbers and associated quantities involved
- Within 2 weeks of the original notification, the supplier must report the results of the Supplier's investigation into the root cause analysis of the problem
- Within 3 weeks from the initial notification date, the supplier must submit the permanent corrective action to be taken to prevent recurrence of the issue, and the effectivity date (the date the corrective action will be implemented)
- Corrective actions that have been implemented may require a new PPAP submission
- Bollinger Motors must be informed of progress towards implementing the corrective action. When corrective action implementation is complete, the supplier and Bollinger Motors verify that the corrective action is effective in preventing the problem's recurrence

7.0 Revision History

Revision Level	Description	Date	Originator
00	Initial Release	February 7, 2020	Walter Collins
01	Addition of COTS, Section 4.0	July 27, 2020	Walter Collins