
# SUPPLIER QUALITY MANUAL

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# Supplier Quality Manual

## 1. Purpose

The purpose of this manual is to communicate Link Manufacturing's quality requirements and expectations to suppliers. It is the intent of Link Manufacturing to do business with suppliers who are able to provide parts/materials/processes and services consistently to specifications, at a competitive price, and in accordance with the defined delivery schedule. The manual is intended to assist suppliers in their understanding of requirements regarding specific management, communication, and reporting processes.

## 2. Scope

The contents of this manual apply to all Link Manufacturing suppliers of production material and services.

## 3.0 Quality System Requirements

Link Manufacturing encourages suppliers to develop fundamental quality systems that provide for continuous improvement and emphasize defect prevention while reducing variation and waste.

The Supplier's manufacturing system shall be compliant with the applicable requirements of the ISO 9001:2000 Standard with the goal of conformity to the TS 16949:2002 Technical Specification. Justification for non-compliant processes and an explanation of the controls that will be implemented to improve those processes must be provided in writing to Link Manufacturing.

A copy of the Supplier's certificate of registration to Quality System standards must be provided to Link Manufacturing. Subsequent updates to registration certificates must also be provided to Link Manufacturing.

Changes to the Supplier's Quality System registration status must be communicated immediately to Link Manufacturing.

### 3.1 RECORDS RETENTION

Production part approvals, tooling records, APQP records, purchase orders and amendments shall be maintained for the length of time that the part (or family of parts) is active for production and service requirements PLUS one calendar year unless otherwise specified by the customer.

NOTE: All customer purchase orders/amendments are included in this requirement. Organization purchase orders/amendments for customer-owned tooling are included in this requirement.

Quality performance records (e.g. control plans, inspection and test results) shall be retained for three calendar years after the year they were created unless otherwise specified.

Records of internal quality system audits and management review shall be retained for three years.

Retention periods longer than those specified above may be specified by an organization in their procedures. The organization shall eventually dispose of those records.

These requirements do not supersede any regulatory requirements. All specified retention periods shall be considered "minimums".

## 4.0 Approved Supplier List

Production parts/materials/processes and services will only be purchased from suppliers on the Link Manufacturing "Approved Supplier" list. Link Manufacturing evaluates and selects suppliers based on their ability to supply product/services in accordance with specified requirements. Failure to meet specified quality system and or performance requirements may result in removal from the bid list.

## 5.0 Supplier Assessments

With prior notification Link Manufacturing will conduct Quality System audits at supplier's facilities. The goal of the audits is to understand suppliers' capabilities and quality systems and identify continuous improvement opportunities.

Potential suppliers will be audited as part of Link Manufacturing sourcing process. Current suppliers may be audited if there are ongoing quality problems.

Tool moves to a different supplier manufacturing facility may require a Quality System audit of the new facility. Suppliers are prohibited from moving tools without prior notification and approval from Link Manufacturing.

Suppliers will be sent a Pre-assessment survey before the audit date. This pre-assessment should be returned prior to Link Manufacturing conducting the audit. Following the audit Link Manufacturing will forward our findings and any needed corrective actions on part of the supplier. Results of the audit will be used in the sourcing decision of potential suppliers.

## 6.0 Advanced Product Quality Planning (APQP)

When a supplier is selected to supply product Link Manufacturing may begin formal APQP activities with Suppliers. APQP is designed to communicate product quality expectations and verify that suppliers have adequate processes in place to assure smooth start-ups. Link Manufacturing will review APQP requirements with suppliers in advance.

Timing will be established and communicated during the source selection process. Link Manufacturing will determine which elements of APQP are required and determine timeline for completion. Link Manufacturing will work closely with suppliers in the development and implementation of all documents and processes for suppliers unfamiliar with APQP.

Suppliers must establish cross-functional teams to manage the requirements of APQP.

Link Manufacturing may conduct a Launch Readiness Review at the supplier's facility. This review will include inspections of the supplier's documents and processes associated with the production of parts for Link Manufacturing.

Suppliers may be required to run Production Trials (Run at Rate) prior to mass production in order to determine the capability of their processes to meet required production rate and quality levels. Should supplier trials prove unsuccessful corrective actions must be completed prior to start of mass production. Link requires immediate notification of any circumstance that jeopardizes the agreed timing plans. The supplier should prepare contingency plans to satisfy requirements in the event of an emergency such as utility interruptions, labor shortages, key equipment failure and field returns.

## 7.0 Production Part Approval Process

Suppliers are required to submit PPAP per the AIAG manual; PPAP level and/or other requirements as specified with the purchase order. If a third party lab is used for testing related to any aspect of the PPAP submission, the lab must be accredited to ISO / IEC 17025 or national equivalent.

## 8.0 Process control

The supplier must establish and maintain manufacturing documentation adapted to their manufacturing process. The supplier must document the inspection and test results, which show that the special (critical) characteristics meet the set requirements. The supplier must have capability data for special characteristics that are identified as such on the drawing.

Special characteristics will be identified on the drawing with the following symbol. 


Supplier is encouraged to use statistical techniques including:
• Gauge R&R Study • Predictive Maintenance
• Defect Analysis • Sampling and Process Analysis
• Process Analysis with Control Charting Methods
• And other Graphical Methods

Certain parts may have Safety Critical Characteristics identified on the vendor print. For purchased components special characteristic symbols must be present on all vendor FMEA's, Control Plans, Operator Instructions and other such documents and must be reviewed at time of vendor PPAP. In these cases the vendor will be notified of the special process documentation, training and identification required. This will typically require the vendor to submit additional documentation that is not typically submitted with a PPAP and may even require a Link audit of these special processes.

## 9.0 Temporary Deviation

If a supplier manufactures product that does not conform to Link Manufacturing specifications and lead-time does not allow permanent corrective action due to Link Manufacturing's production requirements a temporary deviation request must be submitted to Link Manufacturing and approved prior to shipping non-conforming material.

If a supplier manufactures product on a process other than the approved process a temporary deviation request must be submitted to Link Manufacturing and approved prior to shipping non-conforming material.

Link Manufacturing approval will be based on how deviations might impact the form, fit and function of the parts.

Deviation requests must include details of the non-conformance and the number of parts affected. E-mail is the primary tool for requests and approvals.

## 10.0 Process Change

A new PPAP must be submitted and approved by Link Manufacturing prior to any of the following changes being implemented:

- Change in the manufacturing process and or tooling
- Additional tooling or added cavities to tooling currently approved for mass production

- Manufacturing location changes
- Sub-supplier changes

***NONE OF THE ABOVE CHANGES CAN OCCUR PRIOR TO APPROVAL***

**11.0 Engineering Change Request (ECR)**

Should a supplier wish to make a permanent change to a part or drawing an Engineering Change Request (ECR) must be submitted to Link Manufacturing and approved prior to any change. E-mail is the primary tool for requests and approvals.

**12.0 Problem Resolution**

Upon receipt of nonconforming material Link Manufacturing may request a corrective action (CA). Nonconforming material can be found during incoming inspection, audit, assembly or warranty returns.

If problems are found during pre-production fitting trials or are considered minor issues Link Manufacturing will issue Quality Alerts to the supplier describing the problem.

Return Material Authorization (RMA) must be provided for material that is defective or considered suspect and needs to be returned to the supplier.

Link Manufacturing reserves the right to sort suspect material to avoid shutdown of its production lines.

After the request for a corrective action is requested, suppliers must:

- Implement containment actions to protect Link Manufacturing from receiving more nonconforming product
- Inform Link Manufacturing the plan to replace suspect material
- Identify short term corrective actions
- Send initial CA responses
- Define and verify Root Causes OCCURANCE of the defect and failures of detection
- Determine and Implement permanent corrective actions for Root Cause and Escape
- Verify and Validate permanent corrective actions

Link Manufacturing will analyze the final CA response and provide the supplier with a decision on closure of the CA. CA responses will be Accepted, Conditionally Accepted or Rejected. Link Manufacturing prefers the 8D problem solving process for documenting the CA.

Approval and closure of CAs will be at the discretion of Link Manufacturing QC.

Suppliers maybe placed into Controlled Shipping as a result of Link Manufacturing or Link Manufacturing's customer receipt of defective material. Suppliers will be required to take immediate actions to cease shipping defective material. These actions include:

- Sending 100% certified parts for all shipments to Link Manufacturing.
- Marking certified parts as agreed to by Link Manufacturing.
- Sending certified replacement parts to replace suspect parts in-transit and in Link Manufacturing inventory.
- Utilizing a Certified Part identification label to identify certified shipments.
- Collecting daily sort data and reporting findings to Link Manufacturing.

Suppliers will be released from Controlled Containment once the CA has been approved.

## 12.1 Supplier Development

Link Manufacturing will provide assistance to suppliers having trouble meeting performance levels and specifications set by Link Manufacturing. Link Manufacturing will assist in:

- Resolution of critical issues
- Assist suppliers with improvement activities
- Work with potential suppliers to improve capabilities to be added to the Approved Supplier List
- Conduct specific training when a need has been identified.

## 12.2 Cost Recovery

Suppliers will be responsible for all costs associated with Link Manufacturing or Link Manufacturing's customers receiving defective material. Costs may include, but are not limited to:

- Administrative
- Sorting of suspect material
- Rework
- Customer Charges
- Premium Freight
- Production Downtime
- Third party containment
- Scrap
- First Article rejection
- Overtime
- Laboratory Testing
- Travel

All costs will be debited from the suppliers account. Upon notification of the intent to debit, suppliers will have 60 days to appeal the charges. If there is no response from the supplier Link Manufacturing will consider this lack of response as acceptance of the charges.

## 13.0 Delivery Requirements

Suppliers are required to achieve 100% on time delivery. If a supplier will be unable to deliver product by the required due date it is the responsibility of the supplier to notify Link Manufacturing. Expedite shipment may be required if Link's delivery performance is jeopardized.

## 14.0 Packaging

Each supplier must adequately plan for packaging. Link Manufacturing encourages supplier-initiated packaging improvements. Suppliers will provide packaging that provides protection from any damage that may occur. Packaging, labeling, and shipping materials must comply with the requirements of common carriers, in a manner to secure the lowest transportation costs.

Expendable materials and packaging must be legal and safe for standard "light industry" disposal. The preferred maximum weight of manually handled packs is 40 lbs. The maximum acceptable weight is 45 pounds, unless approved by Link Manufacturing in writing.

Whenever possible, only one part number and one supplier lot is to be packaged in a shipping container. When more than one part number or lot number is packaged in a shipping container, each part number and/or lot number must be separately packaged (i.e. bags or boxes) inside the container, with each labeled as to the contents.

**15.0 Labeling**

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

| | |
|---|---|
| • Part No. / Barcode 39 | From PO – NO Dashes |
| • Rev | From PO |
| • Unit | From PO |
| • Qty / Barcode 39 | Vendor – Actual Ship quantity |
| • PO No. / Barcode 39 | From PO |
| • Supplier | From PO |
| • Serial/Lot No. | Vendor – If Required |
| • Vendor Part No. / Barcode (optional) | From PO (Vendor Driven) |
| • Right Hand Margin | Vendor Info - Optional |

# Sample Label

## 16.0 Conflict Minerals Policy

Link Manufacturing, Ltd. is committed to sourcing responsibly and considers mining activities that fuel conflict as unacceptable. Our efforts related to conflict minerals are aligned to the work of the Electronic Industry Citizenship Coalition (EICC) and Global e-Sustainability Initiative (GeSI). The EICC's and GeSI's work includes the Conflict-Free Smelter Program and the Conflict Minerals Reporting Template current version; available at www.conflictfreesourcing.org/conflict-minerals-reporting-template.

If your products do not contain conflict minerals, you will still need to complete the Reporting Template; just complete the "Company Information" section and answer No to questions 1 and 2. When completing the Reporting Template, please note:

- All of Link's suppliers must complete and submit current revision of the Conflict Minerals Reporting Template, even if you submitted an earlier revision.
- If your products include conflict minerals, please use "B. Product (or list of Products)" for Declaration of Scope or Class and complete Product List tab. List only products that are supplied to Link Manufacturing, Ltd.

| **Company Information** | |
|---|---|
| **Company Name (*):** | Enter Company Name |
| **Declaration Scope or Class (*):** | B. Product (or List of Products) |
| **Go to Product List tab to enter products this declaration applies to** | |

- Complete mine and smelter location address must be submitted for any smelter that is not included in the dropdown menus in the Reporting Template.
- Training materials including a video and links to other support are available at www.conflictfreesmelter.org.