



Florida Quality Components Inc.

Quality Control Programs

ISO 9001: 2000 Compliant

Measurement Programs

Quality Reporting

Florida Quality Components uses a variety of quality measurement systems in all areas of the company, especially in the warehouses for the handling of materials. Internal measures include Statistical Process Control of non-conformances identified during audit processes, inventory accuracy, and same-day shipment percentage. External or customer-reported measures include reviews of shipment to the customer, customer returns, on-time delivery, cost of quality, and customer satisfaction surveys. Supplier quality and on-time delivery performance is monitored and recorded for thorough review our suppliers. Quality and service statistics and trends are summarized and distributed to all levels of management on a quarterly basis.

Supplier Rating

Supplier performance is tracked and analyzed through our supplier rating system. This system rates suppliers on both quality and delivery performance. Suppliers are measured on lot acceptance at receiving inspection, on-time delivery, and defective line items shipped to customers. This data is provided to suppliers and is used to identify problem areas and track improvement efforts.

Corrective Action

There are various types of formal corrective action that must be implemented to continuously improve the quality programs.

These corrective actions include:

- **Customer corrective actions**- formal responses to customers on orders in which their requirements were not fully met. These may be thought of as customer complaints.
- **Internal corrective actions** - generated by the quality department and sent to another department requesting a written response.
- **Internal audit corrective actions** - issued to facility management based on internal audits in order to ensure that facility quality systems are in compliance with Florida Quality Components quality policies and ISO 9001: 2000 standards.
- **Supplier corrective actions** - issued to both suppliers and subcontractors based on supplier rating system data and customer complaints, if applicable.
- **Management review/quality report corrective actions** - summaries of actions taken and status of quality objectives and plans from management review meeting and of recurring quality problems documented in quality review report. The typical processes involved in implementing corrective actions are:
 - Analyze entire process, including quality records and customer complaints in order to pinpoint problem area
 - Investigate root cause of problem. Root cause generally must be process-related rather than operator-related
 - Initiate corrective action to process to prevent recurrence of problem

Military Standard Compliances

Florida Quality Components meets the requirements, where applicable, of the latest revisions of the following industry and military standards and specifications:

ANSI-J-002 Solderability
ANSI/NCSS Z 540-1 (formerly MIL-STD-45662) Calibration system requirements
EIA/JEP124 Guidelines for the packing, handling, and repacking of moisture-sensitive components
EIA-481 Taping of surface mount components for automatic placement
EIA-556-A Outer shipping container bar code label standard
EIA-625 Requirements for handling Electrostatic-Discharge-Sensitive (ESDS) Devices
IPC-786-A Procedures for characterizing and handling of moisture/reflow sensitive ICs
JEDEC Publication 109 General requirements for distributors of military semiconductor devices
JEDEC Standard 31 General requirements for distributors of commercial semiconductors
MIL-PRF-19500 General specification for semiconductor devices
MIL-PRF38534 Microcircuits, Hybrids
MIL-PRF38535 Microcircuits, General Specification (QML)
MIL-S-19491 Semiconductor devices; packaging of
MIL-STD-105 Sampling procedures and tables for inspection by attributes
MIL-STD-129 Marking for shipping and storage
MIL-STD-130 Identification marking of U.S. military property
MIL-STD-1686 Electrostatic Discharge Control Program
MIL-STD-202 Test methods electronic components
MIL-STD-55565 Microcircuits; packaging of
MIL-STD-750 Test methods for electronic components
MIL-STD-790 Reliability Assurance Program for Electronic Parts Specifications
MIL-STD-883 Test methods and procedures for microelectronics
RSD-296 Tape and reel axial

Material Handling and Shipping

Each warehouse has a separate area for packing and shipping. All orders are checked for part identity, packaging, and documentation. Proper ESD protective packaging and labeling is prepared in accordance with the proper packaging and labeling standards. Military products are packaged with proper documentation.

Inventory

Product in stock is generally kept in the manufacturers' original packaging, and at all times is maintained in ESD-protective packaging using a Faraday cage (conductive or static-shielding). Internal audits are performed to verify proper packaging. Military product is segregated by date code/lot code. Date codes on commercial product are also recorded. First in first out (FIFO) system of stock rotation is used for picking product. If the wrong parts or mixed parts are found in a stock location or identified by a quality audit, the material is purged, properly identified and segregated, and placed in the proper stock location. The system is adjusted accordingly.

Inspection Program

Inspections are performed by Quality personnel on an audit basis at predetermined points (Receiving, In-process, Final) in the process flow. The sample size selected is based on SPC data and can only be adjusted by the Quality Manager. In value-added operations (Assembly, Programming, Kitting, Computer Integration) there can be more in-process inspection points due to the complexity of the process flow. The Quality Manager is responsible for identifying the points in these processes in which inspections are to be performed and SPC charts maintained.

Receiving Inspection

A documented system and separate area exist for receiving inspection. Inspectors inspect to written instructions, including up-to-date prints and specifications, where applicable. There is no functional (electrical) inspection. One hundred percent of all incoming receipts are visually inspected at receiving inspection for identity, count, packaging, condition, and documentation. A more in-depth physical inspection is performed on a sampling of incoming supplier receipts based on supplier historical performance. MIL-Std-105 sampling plans are used. Receiving inspection data is collected and used for statistical process control. The data is also sorted by supplier and used to prepare a supplier rating report. Inspection for a particular supplier may be loosened or tightened based on the supplier rating. Accepted material is clearly identified and sent to stock. Rejected material is also clearly identified and placed in a segregated "defective" location to prevent use before being dispositioned.

In-Process Inspection

Predetermined in-process inspection points are set up after the receiving, storing, and picking processes. This inspection is performed by an in-process inspector who collects the data and uses it for statistical process control. The purpose of the in-process inspection is to further pinpoint problems with the system that need correction and also to identify errors earlier in the process. The receiving, storing, and picking operators have also been trained to perform their own in-process inspections before they perform their normal tasks. The procedure requires them to verify part number, packaging, and documentation before continuing their work. When an error is identified, a reject ticket and a data collection form are completed. The rejected material is identified by the reject ticket and segregated. The errors are corrected by the operator at the previous operation and corrective action is annotated on the reject ticket. The corrected items are then re-inspected.

Final Inspection

A documented system is in place in accordance with MIL-I-45208. Inspection is performed by trained inspectors who have not performed the work. A detailed inspection is performed on outgoing orders using a checklist for both picking and packing inspection criteria. Some criteria are inspected 100 percent and others are inspected in accordance with MIL-STD-105. Although a random sampling of outgoing orders is generally chosen for final inspection, the QA Manager may determine that 100 percent inspection is warranted. The loosening/tightening of the sampling plan is the responsibility of the QA Manager. The data collected at final inspection is used for statistical process control and quality reporting. All special handling orders are inspected 100 percent for the special customer requirements in addition to the normal inspection criteria. Rejected material is identified, documented, and segregated. Items are then corrected by the pick/pack operator and re-inspected.

Additional Programs

Nonconforming Material Control

A documented system exists which outlines how nonconforming material is dispositioned and how discrepancies are resolved. Nonconforming material is identified and segregated to prevent mixing or use. Disposition of receiving inspection discrepancies is the responsibility of the Product Manager. The Product Manager must work through the franchised supplier and QA to resolve the discrepancy. Final inspection discrepancies are resolved through definitive procedures and supervisory involvement. The ability to pinpoint errors through operator accountability and SPC data aids in the corrective action process.

Customer Returns

All customer returns are sent by the customer to designated Return Centers and are inspected 100 percent for identity, count, packaging, damage, documentation, and reason for return. All returns are dispositioned within 24 hours. Credit data is captured and used for quality and cost of quality measurements.

Calibration Program

The Quality organization maintains a documented system for the periodic inspection and calibration of all measuring and test equipment in accordance with ANSI/NCCL Z 540-1. All calibration is performed by an accredited outside calibration service whose calibration standards are traceable to the National Institute of Standards and Technology (NIST).

ESD Control

A documented system to prevent electrostatic discharge (ESD) damage to devices exists.

This control system is in compliance with EIA-625 and includes:

ESD warning signs displayed

ESD-protective apparel: heel and wrist straps, smocks

ESD-protective equipment: conductive flooring, static-dissipative work surfaces or mats, grounded equipment

ESD-protective packaging: static shielding bags, conductive totes

ESD work area kept clear of all unnecessary static hazards

All operators handling parts out of ESD-protective packaging do so only at a static-free workstation. The operators also wear gloves to prevent inducing solderability problems onto the leads of the parts. ESD-sensitive product is always transported in static-shielding bags or conductive packaging.

ESD training is given to all operators, who are ESD-certified for one year. The ESD coordinator, who monitors heel and wrist strap effectiveness and ESD-awareness operator discipline, performs the ESD audits. These records are kept on file. Corrective action is taken when needed to enforce ESD rules.

Special Customer Handling

Customer orders with special requirements, such as selective date codes, special packaging and labeling, bar code labels, etc., are processed accordingly. Customers set up on special handling are assigned a three-digit code to each applicable account number. All special handling orders are automatically diverted off of the conveyor system into the special handling area, where trained operators perform the necessary operations and/or verifications per the special handling instructions. Special handling instructions are prepared and controlled by the Quality Department.