

MICRO CONTACTS, INC.
62 Alpha Plaza, Hicksville, NY 11801

QUALITY MANUAL

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I. THE COMPANY OVERVIEW

Micro Contacts, Inc. is a mature company founded in 1963. It is a privately held company of which the president, Mr. Gerald F. Tucci, the founder of the company, is intimately involved in the overall operation of the business.

The company manufactures precision metal stampings, wire brush contacts and packaged plastic assemblies for the automotive, aerospace, electronics, and general industrial markets. Geographically the markets are throughout the United States, Canada, Western Europe and Japan.

Micro Contacts is located at 62 Alpha Plaza, Hicksville, New York.

II. STRUCTURE AND FORMAT OF QUALITY MANUAL

This quality manual is structured in accordance with ISO 10013 "Guidelines for developing quality manuals." It describes Micro Contacts' quality system which is based on ISO-9001 requirements. The structure of the quality manual is as follows:

1. Each element of the quality system is summarized within the Quality Manual.
2. References to existing Micro Contacts Quality Assurance Procedures (QAP) covering the detail requirements and conformance are given in Appendix 1 "ISO 9001 Baseline."

III. QUALITY POLICY AND OBJECTIVES

Micro Contacts, Inc. is committed to provide total customer satisfaction in product quality and service. This commitment starts with the supply of products and services which conform to established standards and comply with contractual requirements. From this begins the baseline of continuous improvement in everything we do in our never-ending quest for zero defects.

It is the objective of Micro Contacts, Inc. to be recognized as the premier international supplier of sophisticated electromechanical products utilizing metal and plastic technology.

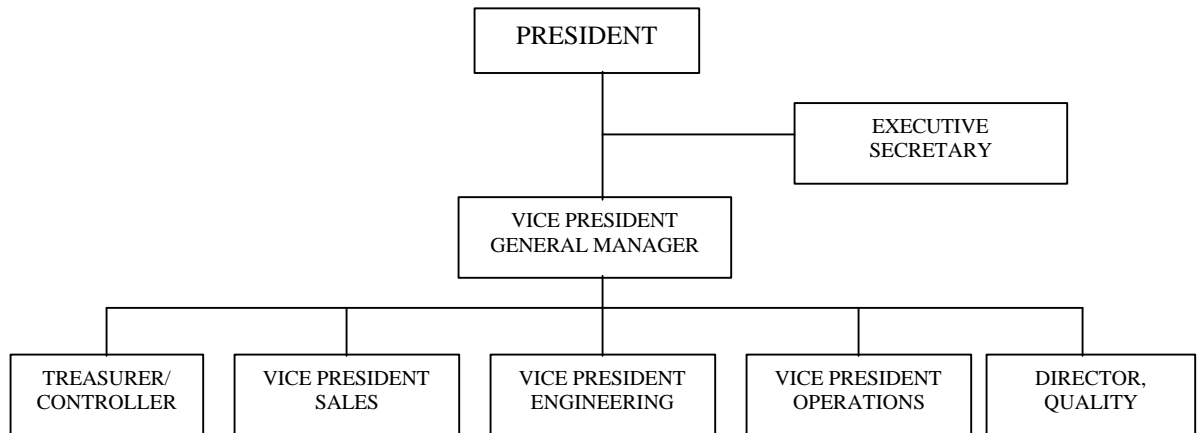
It is also our objective to provide added value to our customers in their production process and final product performance. We pursue these objectives through:

- Listening to our customers and being in concert with their goals.
- Aiding in our customer's design through innovative methods and procedures.

- Emphasizing prevention of non-conformance rather than detection.
- Utilizing collected data for product and/or process improvement decisions.

IV. ORGANIZATIONAL STRUCTURE

The organizational structure of Micro Contacts, Inc. is documented on formal Organizational Charts. The Quality function is executed by the Director of Quality who reports directly to the Vice-President / General Manager. Organizational chart for the Executive Staff is shown below.



1.0 MANAGEMENT RESPONSIBILITY

The management of Micro Contacts provides leadership and participation in order to achieve an environment conducive to error-free work.

The responsibility, authority and the inter-relation of personnel who manage, perform and verify work affecting quality are defined and documented as follows:

- Organizational charts specify the delegated authority and interrelationships within the departments.
- The responsibilities of personnel are defined in the job descriptions for employees who manage, perform and verify work affecting quality.

Primary quality related responsibilities of the Executive Staff are as follows:

President - Defines quality policy, objectives and management responsibilities relevant to the organizational goal.

Vice-President / General Manager - Establishes quality system based on the quality policy and directs the management in pursuing them.

Director of Quality - Coordinates overall activities pertaining to the quality system. Maintains control of Documentation and Data, Inspection and Testing, Calibration, Inspection and Test Status, Nonconforming Product, Corrective and Preventive Action, Quality Records, Internal Quality Audits, Training, and Statistical Techniques.

Vice-President, Operations - Coordinates activities pertaining to Purchasing, Customer-supplied product, Product Identification and Traceability, Process Control, Handling, Storage, Packaging, Preservation and Delivery.

Vice-President, Sales/Marketing - Coordinates activities pertaining to Contract Review and Servicing.

Vice-President, Engineering - Coordinates activities pertaining to Design Control.

- Resource requirements are developed within the budget schedule. They are based on the thorough evaluation of needs required to maintain adequate work performance and verification (including internal quality audits).

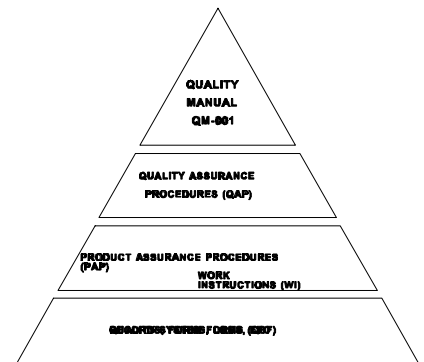
The Director of Quality is assigned as the Management Representative who has authority for ensuring that the quality system is established, implemented, and maintained.

Management reviews are conducted on a semi-annual basis to review the quality system and ensure its continuing conformance and effectiveness. Records of the Management Reviews are maintained.

2.0 QUALITY SYSTEM

Micro Contacts' Quality System is designed in conformance to ISO 9001 requirements.

The structure of Micro Contacts' quality system is summarized within this quality manual. Documented Quality Assurance Procedures (QAP) provide the required conformance to individual ISO 9001 system elements (see Exhibit 1).



Furthermore, when detailed work instructions are required for specific product or function, Product Assurance Procedures (PAP) or Work Instructions (WI) are generated.

Quality System Forms (QSF) are formal logs, records and/or forms that provide objective evidence of the quality system implementation. Responsible departments, retention time and indexing method are established.

Quality Assurance is responsible for Quality Planning. Quality Planning activities include the development and preparation of the Process Flow Charts and Quality Control Plans (QCP). Process Flow Chart is developed at the early stage based on any process and inspection assumptions. QCP is developed during the design verification process. The Process Flow Chart and QCP are submitted to the customer during the final validation step.

3.0 CONTRACT REVIEW

Micro Contacts performs a detailed review of any applicable quotation requests and all customer purchase orders and specifications. The review of the quotation request, purchase order or contract begins with the Sales Representative who has the responsibility for initiating the review cycle, coordinating and disseminating contractual information. This responsibility is focused to ensure that the customer's requirements are adequately defined and documented and that Micro Contacts has the capability to meet the contractual requirements.

Any differences between proposals and purchase orders shall be resolved. Any changes to initial contracts shall be documented, reviewed and approved prior to acceptance. Channels for communication and interface with our customers are established and coordinated through the Sales/Marketing department.

4.0 DESIGN CONTROL

All elements of the design control process are initiated through the contract review system. Each new product design requires a detailed plan for all design activities. Elements of the design activities are assigned to qualified personnel which have direct responsibility to complete their respective tasks. The design development progress is monitored on a design developer tracking record (DDTR) which is updated as required.

The design control process begins with the evaluation of design input requirements which may include customer specification, product usage and functional characteristics, design simulation such as Finite Element Analysis (FEA), prototype development, and results of the contract review activities. From the design inputs Micro Contacts Inc. converts the customer and product requirements into internal standards known as design outputs.

The design inputs are thoroughly evaluated and retained during the design review process. The inputs are utilized to develop the design output package which may be composed of Micro Contacts product and tooling prints, process flow charts, Quality Control Plans, and any other document required to assure product conformance.

Design outputs are verified during critical stages of the design development cycle. Representatives from Sales, Engineering, Operations and Quality departments participate in the design review. The applicable design output is verified to the design inputs as well as the requirements of the Design Failure Mode and Effect Analysis (DFMEA).

Design verification is performed by a variety of activities such as bend test, spring back test, prototype test, Finite Element Analysis (FEA), etc.

Finally, the design validation is performed to the customer requirements. This includes a formal Production Part Approval Process (PPAP) submission.

Any design change which occur after the final product validation step are processed through Micro Contacts document control system

5.0 DOCUMENT AND DATA CONTROL

Micro Contacts' document and data control system is an integral part of the quality system. Each document, either of internal or external origin, that forms a critical part of the quality system is reviewed and approved by authorized representatives from the relevant departments. A list of all relevant documents is utilized to illustrate the approved document status, revision level and all outstanding Engineering Change Notices (ECNs).

Documentation and data control is the responsibility of the Quality Assurance department. The Document Control Administrator maintains control over all document processing, distributing and filing activities. Micro Contacts' documents and data system is fully computerized and guarantees uniformity for different types of document.

The document and data control system assures that up-to-date documents are implemented and maintained, updated drawings are distributed promptly to all concerned users, and that out-of-date drawings are removed and destroyed upon receipt of the new drawings.

Any change to the original qualified baseline requires a formal Engineering Change Notice (ECN) prior to implementation. Major process and/or configuration changes that affect product form, fit or function require customer's participation and approval.

6.0 PURCHASING

The Purchasing department is responsible for the generation and issuance of all vendor purchase orders along with corresponding documentation. Procurement specifications are generated for all types of material (e.g., copper alloys, precious metal alloys, etc.). Specific material specifications define additional requirements for every material. The Purchasing department ensures that pertinent quality requirements are clearly stipulated and only suppliers listed on the Approved Vendor List (AVL) have been selected.

Micro Contacts verification of purchased product at subcontractor's premises and customer verification of subcontracted product are specified and controlled.

The Quality Assurance department is responsible for maintaining the Vendor Rating System on the basis of on-time delivery and product acceptance. Regular vendor surveys and evaluation of potential and current suppliers are performed. This provides the continued assurance regarding supplier capability and ability to comply with Micro Contacts' requirements.

7.0 CONTROL OF CUSTOMER SUPPLIED PRODUCT

Customer supplied product is separately identified and controlled by the Materials department. Except for the special identification, customer-supplied product is processed and controlled in the same manner as other supplied materials.

8.0 PRODUCT IDENTIFICATION AND TRACEABILITY

Micro Contacts maintains a detailed identification and traceability system starting from receipt of raw material and through product fabrication and final delivery to the customer.

Purchased material is identified with a unique "Tag Number". All product to be produced is assigned a unique Work Order Number listed on the Work Order Card.

Each production lot of piece parts or non-continuous strip is identified with a unique "Lot Number" which is recorded on the Production Lot Ticket and referenced on all relevant documents.

Each spool of continuous trip is identified with a unique "Spool Number" which is indicated on the Spool Tab and referenced on all relevant documents. All spools and production lots maintain traceability to the work order number and relevant Tag Number.

Each shipment is assigned a unique packing slip number.

9.0 PROCESS CONTROL

All manufacturing processes which affect the quality of product have documented process control procedures. Critical parameters are defined for each process and continuously being monitored.

Heat treatment and welding operations are considered to be special processes requiring qualification in addition to constant monitoring.

Process books which include all documents, logs, charts, etc. required to produce specific product are developed for each part. All processes performed in-house meet county, state, and federal regulations regarding air contamination, sewer discharge, and waste removal.

Preventive Maintenance program is implemented and maintained for all tooling and machinery/equipment which directly affect the quality of Micro Contacts product.

10.0 INSPECTION AND TESTING

Micro Contacts maintains a strict Quality Control System for all inspection and testing activities. The overall inspection requirements for a specific part are documented in the Quality Control Plan (QCP).

Taking into account specifics of the various inspection areas and product type, separate procedures are developed for:

- Receiving Inspection and Testing for raw material, piece parts, and outside services.
- In-process Inspection and Testing for Stamping, Wire Assembly, and Plastic Assembly.

Final Inspection and Testing includes Final Quality Control Inspection of the parts and Final Quality Audit upon completion of packaging and prior to shipment.

Inspection and Test records are maintained and controlled by Quality Assurance.

11.0 CONTROL OF MEASURING AND TEST EQUIPMENT

Micro Contacts has a documented system for control, calibration and maintenance of inspection, measuring and test equipment utilized to verify product conformance or critical process characteristics. The calibration system is controlled and maintained by Quality Assurance.

A unique ID number is assigned to all measuring and test equipment which require calibration.

All equipment is calibrated at specified intervals with traceability to the National Institute of Standards and Technology (NIST). Any equipment requiring calibration is automatically recalled from point of usage before the calibration due date using Calibration Transaction Record. Equipment is calibrated in accordance with specific Calibration Instructions. Accuracy verification is performed to cover the full gauge application range. Colored descriptive labels are used to identify equipment calibration status.

12.0 INSPECTION AND TEST STATUS

The inspection and test status of materials, parts and assemblies is recorded on the applicable paperwork accompanying the product through the use of the quality inspection and identification stamps. All stamps have unique identifying numbers and controlled by Quality Assurance.

13.0 CONTROL OF NONCONFORMING PRODUCT

Micro Contacts maintains a formal system for identifying, reporting, segregating and controlling nonconforming product. The system requires the generation of a Non Conformance Report (NCR) for every non-conformance occurrence throughout the production process. Subsequent to generating the NCR, a technical evaluation is performed which includes root cause analysis and corrective action. All non-conforming product is quarantined until formal disposition by the Management Review Board (MRB).

The Management Review Board (MRB) is formed to review and properly disposition the nonconforming product. The MRB consists of disciplines of all applicable departments who are authorized to formally assign product disposition as: use as is, rework; 100% sort, and scrap. The Quality Assurance department coordinates all efforts of the MRB activities. When applicable, the customer is notified and participates in the decision making process. Any material dispositioned for rework, or 100% sort, is resubmitted for reinspection in accordance with the Quality Control Plan.

14.0 CORRECTIVE AND PREVENTIVE ACTION

Micro Contacts has an effective Internal, Supplier, and Customer initiated corrective / preventive action system:

If the non-conformance is related to the raw material and detected either during incoming inspection or in-line, the Supplier Corrective Action is initiated.

If the non-conformance is related to the product and detected during set-up, in-process, or final inspection, the Corrective Action is initiated as part of the processing of a Non-Conformance Report (NCR).

For system related and frequent product related non-conformances, the Internal Corrective Action is initiated.

Preventive Action is taken when all other measures have failed to positively prevent recurrence of the non-conformance. Preventive Action activities are recorded on the Eight-Discipline (8D) Report and the results reviewed at the regular Management Reviews.

For customer-initiated complaints, External Corrective Action Reports (ECAR) are prepared (unless otherwise specified by the customer).

15.0 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

All product is handled in a manner that prevents damage or deterioration from external handling and environmental effects. If standard handling methods are not sufficient, specific handling instructions are generated.

Designated storage areas are used for product pending use or delivery. Appropriate methods for authorizing receipt and dispatch from these areas are defined and documented. An inventory system is established to continuously optimize inventory turns over time, assure stock rotation and minimize inventory levels.

All packaging requirements are identified and documented for individual part numbers.

Finished product prepared for shipment is preserved in accordance with specific packaging instructions. Finished product prepared for storage is preserved in the manner preventing

contamination and damage of parts.

16.0 CONTROL OF QUALITY RECORDS

All records that provide critical information assuring product conformance are identified and controlled.

Responsible department, active file retention time, storage retention time and indexing method are established.

The quality records are stored and retained in a manner that prevents damage, loss and deterioration. Records containing company confidential or classified information are identified all maintained in second files accessible only to authorized personnel. Obsolete legal documents (including prints) are retained for seven (7) years.

17.0 INTERNAL QUALITY AUDITS

The Quality Assurance department regulates and maintains the internal audit program. Internal Quality Audits are performed by Certified Internal Quality Auditors independent of areas being audited.

Internal Audits schedule is established. The audit process includes audit preparation, opening meeting, audit, closing meeting.

The Internal Audit Reports are documented and provided to responsible personnel. If applicable, Internal Corrective Actions Requests (ICAR) are assigned.

The auditor follows-up on the audit to evaluate both responses to corrective actions taken and their effectiveness.

18.0 TRAINING

Micro Contacts has a documented system for identifying training needs of all personnel performing activities affecting product quality and/or service.

The training program is designed to provide continuous knowledge of the latest available techniques to perform the individuals work function. There are four established training

categories at Micro Contacts:

- Quality orientation
- Quality system training
- Operator/Inspector training
- Safety (regulatory)

All training activities are conducted per a formal Employee Training Matrix.

19.0 SERVICING

In the event of a contract requirement for product servicing after shipment, a specific Product Assurance Procedure (PAP) is generated. A system for handling customer complaints and returns is established and maintained by Quality Assurance.

20.0 STATISTICAL TECHNIQUES

Statistical techniques are utilized to establish, control, and verify critical process characteristics and capabilities. The selection of appropriate statistical tools for each process characteristic is determined and included in the Quality Control Plan. Basic Statistical Process Control (SPC) knowledge is an essential part of the company's training program. Quality Assurance department is responsible for coordination and implementation of statistical techniques both in the production and inspection.

QUALITY MANUAL REVISION HISTORY

REV	CHANGE NUMBER(S)	DATE	DESCRIPTION
A	Initial Release	05/31/96	
B	ECN No. 7096	06/08/98	Complete Update.
C	ECN Nos. 7272 & 7286	04/01/99	Changes of Management Review schedule and organizational structure.
D	ECN No. 7593	10/31/00	Management Reviews are conducted every six months.

Section	Element Description	ISO 9001	Procedure
1.0	Management Responsibility	4.1	QAP-0100
2.0	Quality System	4.2	QAP-0200
3.0	Contract Review	4.3	QAP-0300
4.0	Design Control	4.4	QAP-0400
5.0	Document and Data Control	4.5	QAP-0500
6.0	Purchasing	4.6	QAP-0600
7.0	Control of Customer-Supplied Product	4.7	QAP-0700
8.0	Product Identification and Traceability	4.8	QAP-0800
9.0	Process Control	4.9	QAP-0900
10.0	Inspection and Testing	4.10	QAP-1000
11.0	Control of Inspection, Measuring and Test Equipment	4.11	QAP-1100
12.0	Inspection and Test Status	4.12	QAP-1200
13.0	Control of Nonconforming Product	4.13	QAP-1300
14.0	Corrective and Preventive Action	4.14	QAP-1400
15.0	Handling, Storage, Packaging, Preservation, and Delivery	4.15	QAP-1500
16.0	Control of Quality Records	4.16	QAP-1600
17.0	Internal Quality Audits	4.17	QAP-1700
18.0	Training	4.18	QAP-1800
19.0	Servicing	4.19	QAP-1900
20.0	Statistical Techniques	4.20	QAP-2000

Exhibit 1