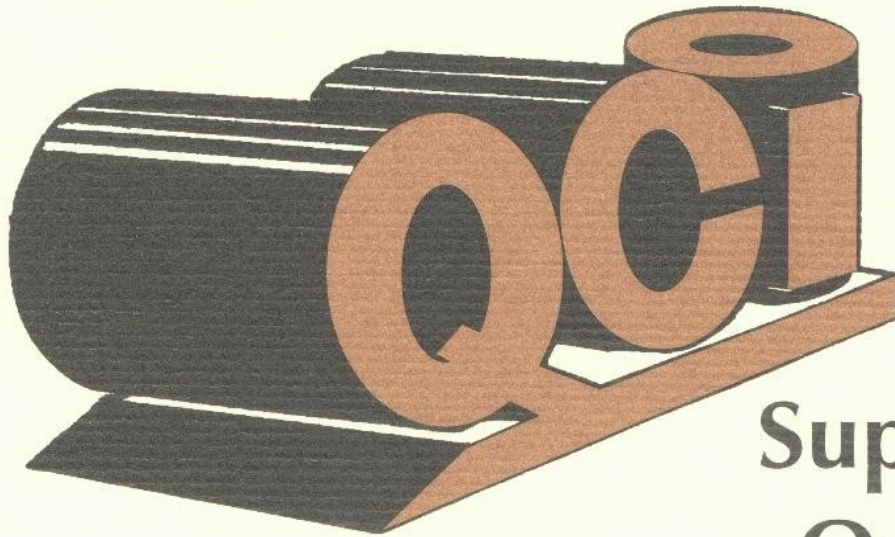


Quality Coils, Inc.



Supplier Quality Assurance Manual

Quality Coils, Inc.

748 Middle Street • Bristol, CT 06010
Phone: 860-584-0927 • Fax: 860-584-5954

Web Page: <http://www.qualitycoils.com>

Electro-Magnetic Coils • Transformers

Component Assemblies

Injection/Transfer Encapsulation

Established 1965





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INTRODUCTION

The requirements in this manual list the Quality Assurance Standards of Quality Coils, Inc. with our Supplier Quality Standards. This manual provides the supplier insight on how the Quality Coils, Inc. Quality System works and identifies specific requirements expected from our suppliers with guidelines on how to meet them. This manual applies to Quality Coils, Inc. suppliers of material or services used in the fabrication of Parts for our Customers.

The ultimate goal of this manual is to improve communication and understanding between Quality Coils, Inc. and all of our suppliers.

Quality Coils, Inc. Quality Policy is:

Service our customers with high performance in product quality and on-time performance at competitive prices through continuous improvement

A critical element to accomplish this is receiving parts/products and services from our suppliers on time and of the highest quality. Therefore, the supplier is empowered to initiate action to ensure both quality and continuous improvement for every part/product or service through the use of the procedures in this manual.

Quality Coils, Inc. expects all suppliers to have a quality system in place to meet or exceed the requirements set forth in this manual. Details on the requirements and expectations are contained in the sections within the manual.

RESPONSIBILITY: The Quality Assurance Manager is responsible for implementing and maintaining this program.

AUTHORITY: The President, Vice-President and Quality Assurance Manager are authorized to make additions and changes to this manual.

<i>Michael Orsini</i>	<i>2/9/1999</i>	<i>Keith Gibson</i>	<i>2/9/1999</i>
<hr/> <i>Quality Assurance Manager</i>	<hr/> <i>Date</i>	<hr/> <i>President</i>	<hr/> <i>Date</i>



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BASIC ELEMENTS OF THE PROGRAM

1.) Quality System Survey

Timely response
Acceptable Score

2.) Corrective Action

Timely response
Acceptable CAR

3.) Initial Sample Inspection Reports (ISIR)

On all new products
Upon any changes in production material, processes, etc.

4.) Responsiveness

Technical Assistance
Demonstrated commitment

5.) Certificate of Conformance

Received with each shipment
Accurate information supplied

6.) Statistical Process Control

For critical characteristics
Provided with shipments when requested

7.) Return Agreement

Agreement on method of return should any rejections occur

8.) Request for deviation or for engineering changes.

Form to be used by supplier to request deviations or engineering changes.



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1.) Supplier Quality Assurance Survey

The Quality Coils, Inc. survey system is an evaluation of a supplier's quality program and is used to quantify compliance of each facet of the quality system to QCI requirements.

Criteria for approved suppliers: A score of 126 or higher to be considered Certified. A score of 100 to 126 to be considered as a conditional approved supplier as long as an action plan with a time frame to address the low score is in place. Any supplier whose score falls below 100 cannot be considered for approved supplier status. Any suppliers who fail the survey will be given an opportunity to make improvements in their system and will be allowed to undergo the survey again at a later mutually agreed upon date. Conditional suppliers will have 100 % of lots received at QCI inspected.

This survey can be performed by either the supplier or by a representative from Quality Coils, Inc.

2.) Corrective Action

Corrective Action requests will be generated on any defective material identified at receiving or in-process depending on the severity of the non-conformity. QCI's Quality Assurance Dept. will forward a copy of the Discrepant Material Report (DMR) requesting a corrective action. The bottom half of the DMR will have an area requesting the Corrective Action. (See page 10 for example).

Each supplier is given from 30 to 45 days to respond to requests for corrective action. Should excessive corrective action requests, (5 % of lots shipped within a one year period), be generated for any supplier, the supplier then will be considered a conditional supplier. This probation will result in 100 % of lots received by the supplier being inspected upon receipt at QCI. The supplier will not be removed from the conditional supplier category until a minimum of 5 successive lots have been received without a rejection. Any CAR's that go beyond the 30 days without a response may also cause the supplier to be placed on probation.

Any supplier placed on probation twice within a one year period will then be brought up for review and possible removal from the approved supplier list.

Criteria for Approved Suppliers is:

- * Timely responses to Corrective Action Requests
- * A review of the corrective action shows that it will be effective and subsequent lots prove that effectiveness.
- * Not more than 2 % of lots supplied within a one year period generate CAR's.



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3.) INITIAL SAMPLE INSPECTION REPORTS (ISIR)

Each time that a new product is tooled up with a supplier or any changes to process or materials is made an ISIR must be submitted to QCI with samples of the product **PRIOR TO** any production runs of the product. In addition the supplier must receive **written approval** of the samples prior to production runs. (See copy of ISIR form on page 9).

The ISIR must include the following:

- * Actual material and/or process certifications (heat treat, plating, etc.)
- * Minimum of five piece full dimensional layout for each cavity or tool.

The criteria for consideration of approved supplier status is:

- * All required ISIR's have been received with samples along with all other completed documentation (Certs etc.)
- * All verification checks performed by QCI agree with the ISIR submitted.

4.) RESPONSIVENESS

Quality Coils, Inc. depends upon its suppliers in order to keep our customers satisfied. When a problem occurs we would expect the supplier to actively participate in resolving the problem.

This cooperation should also apply to new projects, particularly when the supplier would have a better understanding of what may be required to fulfill any specifications. The technical expertise of each of our suppliers is relied upon to prevent problems that may have occurred on other similar projects. QCI values the knowledge that we know is out there in each of our suppliers organizations and we would like to utilize that knowledge to help us achieve our goals of satisfying our customers.

We know that with your help we can streamline the project planning phase of new operations and eliminate needless mistakes.



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5.) CERTIFICATE OF CONFORMANCE

Each lot received must be received with a certificate of conformance. This certificate should state the following as a minimum: (See page 8 for sample of C of C).

Date of shipment.

Lot number if applicable

Quantity

QCI part number as stipulated on purchase order

QCI purchase order number

Revision number or letter as stipulated on QCI purchase order.

The Statement that all products shipped must conform to the blueprints and specification.

Any lots received without a certificate of conformance may generate a request for corrective action. Should repeated requests for corrective action be generated due to lack of providing a C of C, then subsequent lots of material may be rejected back to supplier until C of C's are submitted.

6.) STATISTICAL PROCESS CONTROL

All suppliers who show a willingness to use SPC and to provide QCI with SPC data for lots produced will be given priority when new projects are begun.

Suppliers who do not utilize SPC to control their processes must show evidence that insures that the control methods used are sufficient to produce product that meets the required specifications and blueprints.

Statistical Process Control is the key to eliminating the need for incoming inspection. Suppliers with continued evidence of product produced that is in control due to the use of SPC will undergo fewer inspection audits.

Suppliers should be capable of showing that processes can be controlled to a minimum Cp and Cpk of 1.33. Plans should also show how the process will be improved to obtain Cp and Cpk of 2.0 within a given time frame.

Any supplier utilizing other statistical techniques or problem solving tools shall receive a higher score on the supplier survey, thereby putting themselves in a better position to quote on new projects.



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7.) AGREEMENT ON RETURN OF REJECTED MATERIAL

All suppliers who have material rejected shall be notified by either QCI's Quality Assurance Manager and/or the Purchasing Manager.

Each supplier shall be provided with a DMR (Discrepant Material Report) stating the problem, the sample size taken and the disposition made by QCI personnel. Typically a phone call shall precipitate parts being returned to any supplier.

QCI's customers expect their product to be delivered on time. In order for us to accomplish this we rely on our suppliers to deliver to QCI on time. When a lot is rejected it becomes imperative that the product rejected be reworked or replaced as quickly as possible.

(See copy of DMR form on page 10)

8.) Procedure for Deviation Requests or Engineering Changes.

Should a supplier find that they have produce a lot of material that is known to be out of specification, the supplier may contact QCI purchasing or quality departments to request a written response to a known deviation. This written response must be submitted to QCI using the form contained in the appendix of this manual and must be returned signed by appropriate personnel from Quality Coils, Inc. This request must be made prior to shipment of parts to QCI.

Should a supplier find that an Engineering change could help in the production of parts or find that a change in a drawing or specification is warranted, the supplier may submit in writing a Engineering Change Request form. No Deviations will be allowed unless the Request for Engineering Change is returned to the supplier signed by the appropriate personnel from Quality Coils, Inc.



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SAMPLE CERTIFICATE OF CONFORMANCE

Certificate of Conformance

Today's date

Any Supplier
123 Main St
Anywhere, USA

ATTENTION: Q.A. MANAGER

This is to certify that all material purchased on

P.O. #: _____

For part number: _____

Revision: _____

Quantity: _____

Lot number: _____

Have been manufactured in accordance with all blueprint and/or specifications.

signature & title of company representative



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**SAMPLE DMR FORM
WITH CORRECTIVE ACTION**



748 MIDDLE ST.
BRISTOL CT. 06010
PHONE: (860)-584-0927
FAX: (860)-584-5954

QUALITY COILS, INC

DISCREPANT MATERIAL REPORT

DMR # 015901
PAWCATUCK CT. 06379
PHONE: (860)-599-1270
FAX: (860)-599-1404
REF. CAR #:

BRISTOL - PAWCATUCK SUPPLIER PART: QCI INTERNAL DMR:

DATE _____ PART NUMBER _____ QCI NUMBER _____ PART NAME _____ CUSTOMER OR SUPPLIER NAME _____

P.O. NUMBER _____ DATE RECEIVED _____ SHOP ORDER NUMBER _____ INSPECTOR _____ PRINT NUMBER _____ REVISION _____ LOT SIZE OR QTY RECD _____ QTY REJECTED _____ LAST OPERATION COMPLETED _____

ITEM #	CHAR.	SAMPLE SIZE OR QTY. REJ.	DESCREPIENCIES FOUND	PERCENT DEFECTIVE			DISPOSITION							
				MFG	ENG	PRD	ACCEPT	REWORK	REPLACE	SCRAP	COMPLETE			

DISPOSITION CODES: 1.) ACCEPT - USE AS IS 2.) REWORK - QCI 3.) REWORK - SUPPLIER 4.) RETURN - REPLACE 5.) SCRAP - COMPLETE

QUALITY CONTROL	DATE	MANUFACTURING MGR.	DATE	ENGINEERING DEPT.	DATE	WINDING DEPT. REP.	DATE
QUALITY ASSURANCE MGR.	DATE	FINISHING DEPT. REP.	DATE	MOLDING DEPT. REP.	DATE	INSPECTION DEPT. REP.	DATE

ITEM #	DISPOSITION AND REWORK PROCEDURE

DISTRIBUTION: WINDING FINISHING DEPT. 1ST 2ND MOLDING OPERATIONS SCHEDULING PURCH

QCI - CAUSE BASED ON INITIAL INVESTIGATION: _____

CORRECTIVE ACTION REQUIRED YES NO CAR NUMBER ASSIGNED: _____ SEE QA. PROC. 4.14 FOR C.A.R. PROC.

SUPPLIER CORRECTIVE ACTION REQUIRED: Y N ATTENTION ALL SUPPLIERS
 DATE CAR SENT TO SUPPLIER: _____
 NAME OF PERSON CAR SENT TO: _____
 CAR RESPONSE DATE: _____
 CAR NUMBER ASSIGNED: _____

IF YOU HAVE RECEIVED A REQUEST FOR CORRECTIVE ACTION YOU MUST RESPOND BY THE DUE DATE LISTED TO THE LEFT. FAILURE TO DO SO WILL AFFECT YOUR STATUS AS A QUALIFIED SUPPLIER TO QCI. SEND ALL CAR'S TO ATTENTION:Q.A. MANAGER



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Deviation Request

Deviation Number: _____

Requested By: _____ Date: _____

Part Numbers: _____ Description: _____

Requirements/Actual Condition: _____

Effectivity: _____ Quantity of parts: _____ PO #: _____

Cause or Justification:

Corrective Action:

- ___ Drawing Change
- ___ Document Procedure Change
- ___ Operator Instructed and/or Trained (for first time occurrence only)
- ___ Method Change
- ___ Tooling Change
- ___ Other - Describe: _____

Supplier Representative submitting deviation request:

Name: _____

Title: _____

Date: _____

APPROVALS:

Engineering Approval: _____ Date: _____

Customer/Sales Approval: _____ Date: _____

Quality Assurance Approval: _____ Date: _____



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Request For Engineering Change

ECN #: _____
(Assigned by Engineering)

Part Number: _____ Description: _____

Drawing Number: _____ Current Rev.: _____

Submitted By: _____

Date: _____ Company: _____

Description of Change:

Reason for Change:

Change Effective: _____

Disposition of Stock: Use As Is

Must Conform

Tools, Jigs, Fixtures, or Other parts
affected: _____

Engineering Acceptance by: _____ Date: _____

Engineering Rejection by: _____ Date: _____

Remarks: _____
