



**EMI Conductive Rubber,
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QUALITY ASSURANCE MANUAL

ECR-DOC-2000 Rev NC

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REFERENCES

- 1.0 ISO 9001
- 2.0 MIL-DTL-83528C



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1.0 INTRODUCTION

ECR (EMI Conductive Rubber, LLC) was formed in 2009 manufacturing custom EMI/RFI gaskets and seals that meet or exceed customer requirements. The business is primary targeting several industries such as Aerospace, Electronics, Automotive and Medical Equipment. This business has expanded into development of EMI/RFI Conductive Elastomeric Gaskets to meet MIL-DTL-83528.

The company is engaged in Design, Engineering, Testing and Manufacturing of conductive and non-conductive elastomeric gaskets and seals. This Quality System relates to the full range of company activities.

2.0 POLICY and OBJECTIVES

ECR' (EMI Conductive Rubber, LLC) quality policy is to achieve profitable growth by providing highest quality products which consistently satisfy the needs and expectations of its customers. This level of quality is achieved through adoption of a system of procedures that reflect the competence of the Company to existing customers, potential customers, and independent auditing authorities. Achievement of this policy involves all staff, who are individually responsible for the quality of their work, resulting in a continually improving working environment for all. This policy is provided and explained to each employee by the President/General Manager. To achieve and maintain the required level of assurance the President/General Manager retains responsibility for the Quality System with routine operation controlled by the Quality Manager. The objectives of the Quality Assurance System are:

- A. To maintain an effective Quality Assurance System complying with International Standard ISO9001 (Quality Systems).
- B. To achieve and maintain a level of quality which enhances the Company's reputation with customers.
- C. To ensure compliance with relevant statutory and safety requirements.
- D. To endeavor, at all times, to maximize customer satisfaction with the products provided by ECR (EMI Conductive Rubber, LLC).



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3.0 DEFINITIONS

The terms and descriptions used in this Manual are generally defined within ISO9001 - Quality Systems.

4.0 QUALITY SYSTEM

The Quality Assurance System applies to all activities of the Company, and has been developed in accordance with ISO9001. The Quality Assurance System is fully documented and structured in 3 levels:

Level 1: Quality Manual

This document details the corporate quality policy and structure of the Company and references appropriate Operating Procedures.

Level 2: Operating Procedures

These documents describe the actual process, and controls applied, to all activities concerned with the attainment of a quality assured contracting service. A list of Operating Procedures is given in the Index Section of this Quality Assurance Manual.

Quality Planning

As the Company operates a standard type and customer satisfaction and quality are achieved by operation in accordance with the documented quality system. Specific customer requirements are identified and documented during the contract review process, allowing these requirements to be communicated and achieved, ensuring satisfaction of all customers declared needs.

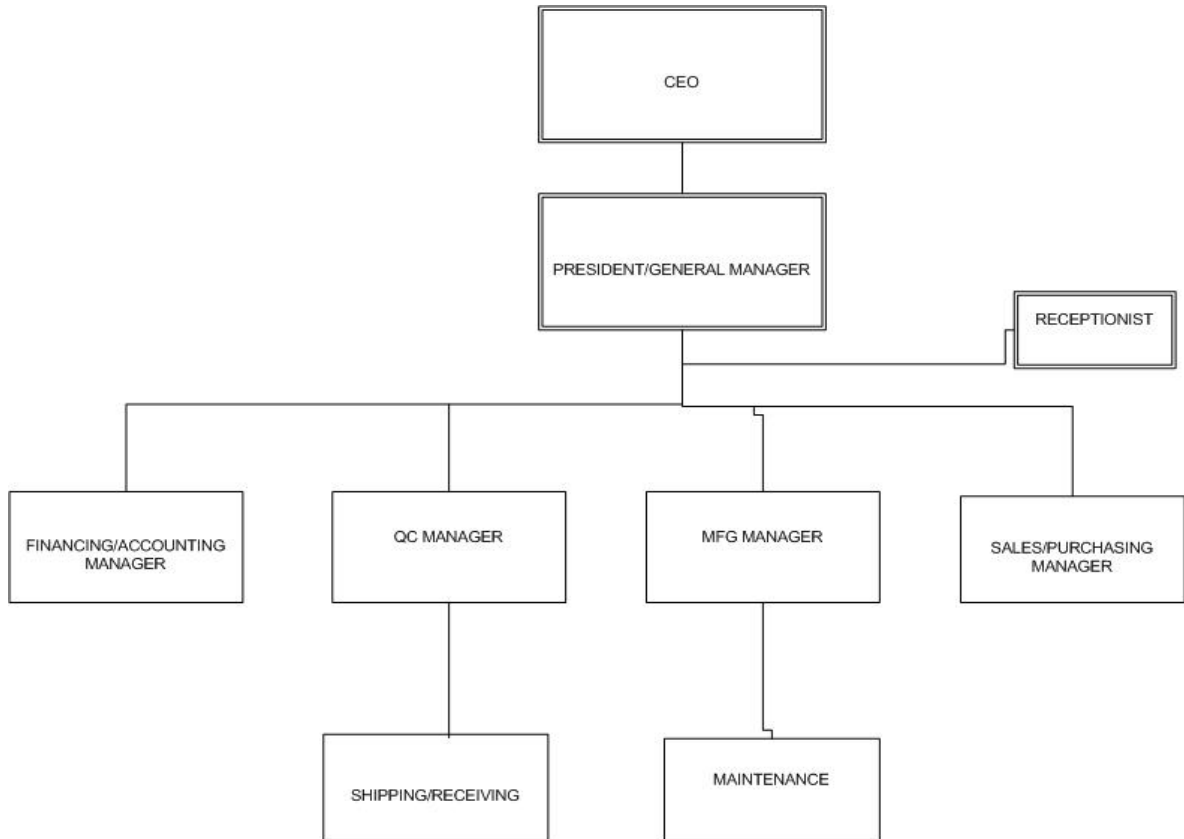


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5.0 ORGANIZATION



6.0 AUTHORITY & RESPONSIBILITIES

6.1 Authority

6.1.1 All staff are allocated with authority to perform their allocated responsibilities. The following provides a summary of the principal responsibilities of each job role, and these are clarified in greater detail within the Operating Procedures.

6.1.2 All staff share the authority and responsibility of identifying non-compliances or possible improvements, and recording these instances such that corrective action can be taken, both to rectify the immediate situation and to prevent recurrence.

6.1.3 The President/General Manager continually reviews the company's resources to ensure that adequate staff, equipment and materials are available to meet customer requirements.



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6.2 RESPONSIBILITIES

6.2.1 President/General Manager

- Approval of the Quality Assurance System
- Management Review
- Design Control
- Supplier Selection & Purchasing
- Contract Management & Control
- Training

6.2.2 Quality Manager

- Internal Audit
- Resolution of Quality Assurance System Discrepancies
- Control & Maintenance of the Quality Assurance System
- Documentation & Change Control (Quality System Documents)

6.2.3 Sales/Purchasing Manager

- Management & Co-ordination of Sales and Support Functions
- Contract Review
- Sales Order Processing
- Supplier Selection and Purchasing
- Quotation
- Estimating
- Project Management
- Control of Contract Documentation
- Planning & organization

6.2.4 Financial/Accounting Manager

- Control of Finance, Accounts and Warehouse Operations
- Training
- Budget Management
- Cash flow Management
- Project Management

6.2.5 Manufacturing Engineering Manager

- Control operation of work flow in the shop
- Project Management
- Product Improvement
- Planning & Organization
- Resolution of Manufacturing issues



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6.2.6 Receptionist

- Sales Database Administration
- Checking of Sales Orders
- Allocation of Order Reference Numbers
-

6.2.6 Shipping /Receiving

- Establish and Implement Procedures for shipping and receiving materials from/to customers.
- Establish and Implement procedures for handling Hazardous, non-compliance and damaged materials.

6.2.6 Maintenance

- Establish and Implement the Maintenance Schedule
- Planning and Organization all maintenance activities in the company
- Support Services
- Capital Projects

7. COMPLIANCE WITH ISO9001

This Quality System is structured with policy statements relating to each area of activity being within the relevant Operating Procedure. However, the following items of ISO9001 are not addressed within the operating procedures as they are not applicable to this Company:
Statistical Techniques

8. MANAGEMENT REVIEW and INTERNAL AUDIT

Management review of the suitability and effectiveness of the Quality System take place at least once per year. During the management meetings actions are allocated and minutes to record the development of the Company's management system.

The objectives of Management Review are:

- A. To establish that the Quality (Management) System is achieving the expected results and meeting the Company's requirements, continuing to conform to the Standard, continuing to satisfy the customer's needs and expectations, and functioning in accordance with the established Operating Procedures.
- B. To expose irregularities or defects in the System, identify weaknesses and evaluate possible improvements.



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- C. To review the effectiveness of previous corrective actions, and to review the adequacy and suitability of the management system for current and future operations of the Company.
- D. To review any complaints received, identify the cause and recommend corrective action if required.
- E. To review the finding of internal/ external audits and identify any areas of recurring problems or potential improvements.
- F. To review the reports of nonconforming items and trend information to identify possible improvements.

Internal audits of the Quality System are undertaken at least once per annum to confirm that the function concerned is adhering to the Company's Procedures. A comprehensive Audit Programmed is compiled at least a year in advance however, should particular needs be identified, the frequency of audit may be increased at the discretion of the Quality Manager. Audits are undertaken by auditors who are trained in auditing and not directly responsible for the functions being audited within that Company. Nonconformance observed is brought to the attention of the person responsible, and is recorded, documented and subject to timely corrective action to ensure full rectification.

9. CONTRACT REVIEW

The Company offers both standard and custom products to meet each customer's needs. Standard products are displayed in a catalogue for customer selection. Custom products requirements differ from one customer to another (and from one contract to another), therefore each tends to be quoted for the specific contract.

Once a proposal is accepted by the customer, or an order is placed, it is recorded and reviewed to establish that the requirements of the order are adequately defined and documented, any differences from the proposal are resolved, and the Company is capable of fully satisfying the customer's requirements.

In addition to the original order/ contract specification the customer may also request addition/ variation work to be undertaken by the Company. In these circumstances the work content is documented and agreed with the customer prior to execution to ensure that no ambiguity exists.

10. DESIGN CONTROL

All Design activities are strictly controlled to ensure that the design output information complies with customer/ contract requirements, and all design input data.



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Design activities are planned and normally executed by Engineering and are subject to regular management, review and verification by the General Manager, and where relevant, agreement with the Customer. The design input and output items are documented, and where ambiguity exists, will be clarified and documented. All items of design documentation and notes are recorded in a design project file. Design output documentation is produced and reviewed to ensure that it:

- meets the design input,
- references the design input or appropriate criteria,
- and identifies all of the characteristics which are critical to the safe and effective operation of the system(s).

Design output is reviewed and approved by the General Manager, and is also provided to the Customer for approval prior to use. Validation of the design is achieved during commissioning of the system to confirm compliance to the customer's requirements.

The designer is required to specify any inspections or tests which may verify the design, by practical means, at the earliest possible stage of development. All changes to the design criteria, input or output are subject to strict review and documentation control procedures.

11. DOCUMENTATION & CHANGE CONTROL

All documentation utilized within the Company related to the management system itself, or to the execution of individual customer contracts is controlled to ensure that it is issued to the appropriate personnel, under the correct level of authority, is revised and reissued as necessary, and all obsolete versions are removed from the point of use. Such documentation typically includes:

Specifications, Customer Orders, Plans/ Drawings, Quality Assurance Manual/ Operating Procedures, National/ International Standards and Codes of Practice.

The Quality Assurance Manual, Procedures and Quality Plans are maintained by the Quality Manager who ensures that the appropriate items, at the correct revision levels, are issued to all who need them within the Company. National/ International Standards, Codes of Practice are maintained by the Support Engineers who ensure that appropriate documents are available within the Company, and are issued at the correct revision levels. External suppliers of documentation are contacted regularly to ascertain that the documents held remain current. The distribution of standard documents is controlled and recorded on Distribution Lists, which also show the current issue status. The Distribution Lists are reviewed and updated as changes occur. All changes to documents are reviewed and approved by the person responsible for the original issue and, where appropriate, the nature of the change is indicated on the document. Master copies of the revised documents are retained as records of the changes and renewed .



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as necessary to ensure clarity. Each contract has a File which contains all relevant information.

12. PURCHASING

Suppliers of products, materials and services, where unspecified by a customer contract, are selected on their ability to meet the company's requirements given due consideration to the quality, statutory obligations, timescale and cost. A list of approved suppliers and sub-contractors is maintained which is compiled on the following criteria:-

- A. Previous performance in supplying to similar specifications and requirements.
- B. Stocking of high volume standard items conforming to a relevant British Standard, or supplied with a statement of conformity.
- C. Compliance with an approved third party product/ quality registration scheme.
- D. Recommendation by other similar purchasers or manufacturers of equipment.
- E. A trial order and evaluation of performance.

All supplies and sub-contracts are subject to an authorized Purchase Order providing full clarification of the type and extent of supply. Should a supplier, not appearing on the Approved Suppliers List be proposed, they will be analyzed by capability and subject to acceptance on the authority of a Manager.

13. CUSTOMER SUPPLIED ITEMS

Goods received from customers (i.e. free issue items or equipment being serviced) are always visually inspected at the receipt stage, with any un-declared non-conformance being immediately reported to the customer.

14. PROCESS CONTROL

All productive work is planned and undertaken in accordance with the company's procedures, and any specific documents agreed for individual contracts (e.g. contract specifications). Work instructions are provided by the agreed contract specification and any documents referenced therein, alternatively work is performed in accordance with nationally accepted codes of practice.

15. RECEIVING INSPECTION

All stores areas are maintained as secure as practical. All items received by the Company are identified and verified in accordance with the requirements of the Delivery Note and Purchase Order, and are inspected for correct identity, quantity and any signs of damage. All goods received are documented and, in the event of non-conformance, the items are placed in a reject area or labeled to ensure identification. The extent of the non-conformance is noted and subject to disposition review by nominated personnel.



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16. INSPECTION AND TESTING

Inspection and testing is carried out on completion of installation and maintenance activities, with results being documented. Should items not be acceptable against the agreed contract criteria they will be repaired, replaced or identified for a subsequent evaluation and decision. All repaired items are subject to a re-inspection to ensure acceptability. On completion of installation and maintenance works, the customer is also invited to check the work performed to ensure full acceptability.

17. PRODUCTION & MEASURING EQUIPMENT

Production and measuring equipment held is maintained in good condition, and capable of safe and effective operation within a specified tolerance of accuracy. Test and measuring equipment is regularly inspected or calibrated to ensure that it is capable of accurate operation, by comparison with external sources traceable back to National Standards. Electrostatic protection equipment is utilized when handling sensitive component and this equipment is regularly checked to ensure that it remains fully functional.

18. INDICATION OF INSPECTION STATUS

As goods are inspected, the status is defined by location in stores, with all non-conforming items being placed in a reject area or marked as reject for review. The status of work in progress is established by markings or associated documentation recording the inspections undertaken and their acceptability.

19. NON-CONFORMING ITEMS, PREVENTIVE & CORRECTIVE ACTION

Once non-conforming items have been noticed they are identified by location, associated documents, or specific markings to prevent their inadvertent use. All non-conforming items and customer complaints are subject to review and rectification by nominated personnel. The type and extent of non-conformity is documented in order to establish trends and identify possible areas for improvement. The corrective action required to prevent recurrence is evaluated, documented, and its effective implementation is monitored. All rectification is subsequently re-inspected to ensure complete customer satisfaction. All employees are encouraged to suggest improvements in methods, materials, suppliers, and sub contractors. The Company has established procedures for review of all activities in order to identify and evaluate all possible improvements in methods/ materials and its procedures.



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20. HANDLING, STORAGE, PACKAGING, PRESERVATION & DELIVERY

The identification of materials/ equipment, where it is not obvious, is confirmed by the presence of a manufacturers/ suppliers part number or description label, or other marking for each item. The identification of the item may be on the packaging or on the item itself, and this identification remains in place for as long as possible, provided it does not hamper effective use of the item. Materials and consumables are not identified by the company where they are obvious to a trained/ experienced employee, however, should a risk of misinterpretation exist between two or more types of material these will be marked in a suitable manner to ensure that no ambiguity exists. All items with serial numbers are recorded individually. Materials and goods received, whether the property of the company or others, will, as far as practicable, be protected and their quality preserved until such time as they are transferred to a customer, or disposed of to a third party. The objective is to prevent deterioration and damage whilst in storage, or in the process of transportation, installation, commissioning or maintenance.

21. RECORDS

Storage facilities are allocated which ensure that all stored records are identifiable and retrievable, and the storage areas are free from damp and other agents which could cause premature deterioration. Where records are maintained on computer magnetic media, and these are subject to "back-up" at regular intervals, with the "back-up" information being stored in a protected location to ensure security from loss/ damage of active data. All records are retained for a minimum of 2 years.

22. TRAINING

The policy of the company is to ensure that all personnel are trained and experienced to the extent necessary to undertake their assigned activities and responsibilities effectively. The company generally procures and recruits employees capable of meeting the technical, skill, experience and educational requirements of the company's activities. All staff and senior employees are responsible for recommending the training needs of others, and for ensuring that all employees allocated specific tasks are suitably qualified and experienced to execute those tasks. Once training needs are identified these are provided under the responsibility of the Managers. Full records are maintained of all training undertaken by employees.

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