QUALITY ASSURANCE 1st TIER POLICY MANUAL

Dayton, N.J.

Per ANSI/ISO/ASQ Q9001-2000

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Quality Assurance Manual

Richmond Industries Inc.

Quality Policy

Richmond Industries Inc. is dedicated to supplying customers with high quality, cost-effective products and value-added services. In support of this policy, we will:

- Manufacture products and provide services in accordance with agreed-to specifications, standards and documented Richmond Industries procedures.
- Continually improve all aspects of our business including safety, the environment, product quality, service to our customers, cost of manufacturing and technology.
- Focus on customer satisfaction through employee involvement, leadership and personal responsibility.

Richmond Industries Quality Policy is fully endorsed by top management and reflects the commitment of all its employees to performance excellence.

K. DiGrazio
General Manager, Richmond Industries Inc.

PURPOSE

Richmond Industries Quality Management System complies with ANSI/ISO/ASQC Q9001 (2000) Quality Management System Requirements.

The purpose of this manual is to:

- Describe Richmond Industries' quality management system
- Define responsibilities, authorities, and the interrelationships if the key operating management segments,
- Provide the direction for each of the functional activities, and
- Provide controls to ensure the requirements for quality that will be met.

The manual is divided into sections that relate directly to the applicable elements of the ANSI/ISO/ASQC Q9001-2000 standard.

This manual is also used for external purposes such as third party audits and to provide customers with information concerning the quality system in place at Richmond Industries.

COMPANY OVERVIEW

Richmond Industries Inc. is a privately held company owned by Keith DiGrazio. The company operates a modern foundry producing cast components in a variety of non-ferrous metals including but not limited to various brasses and bronzes, pure copper and aluminum alloys. All castings are produced in molds made from silica sand in a clay-bonded green sand mixture. Richmond Industries is capable of furnishing pattern equipment, castings, heat treatment, NDT, chemical and physical analysis, machining and other services required to satisfy our customers.

Richmond Industries supplies castings to commercial customers, OEM's, aftermarket dealers, and others with unique engineering applications.

1. SCOPE

The quality system defined in this manual applies to all materials and products, purchased or produced by Richmond Industries, which affect the quality of the final product.

The facilities included in the scope of this quality management system are located at:

Richmond Industries Inc.
1 Chris Court
Dayton, NJ 08810

Richmond Industries is claiming exclusion to one standard requirement:

- 7.3 Design and Development – Richmond Industries makes products to its customers designs. While Richmond Industries may participate with the customer in the design process, design responsibility remains with the customer in all cases.

2. REFERENCES

ANSI/ISO/ASQ Q9001-2000 Quality Management System Requirements

3. TERMS AND DEFINITIONS

- Appropriate Management: General Manager, Quality Manager (Management Representative), Foundry Manager
- Contract: An accepted order from the customer
- Controlled Document: Any document that affects the quality of the product and is reviewed and approved prior to release for use or reference.
- Customer: The recipient of a product provided by the organization.
- Organization: The organization that provides the product, that is Richmond Industries.
- Process: A set of interrelated resources and activities that transform inputs into outputs.
- Process Leader: Person with primary process responsibility to document and maintain its procedures, work instructions, and forms; to control quality records; and to train process users. Selected by management based on primary job responsibilities.
- Product: The result of activities or processes.
- Proposal: Offer or quote made by an organization in response to a request for quote to satisfy a contract to provide a product.
- Quality Assurance: All the planned and systematic activities implemented within the quality system and demonstrated as needed, to provide adequate confidence that the company or activities will fulfill requirements for quality.
- Quality Control: Operational techniques and activities that are used to fulfill requirements for quality.
- Vendor: The organization that provides a product to an organization; also referred to as a supplier.

4. QUALITY MANAGEMENT SYSTEM

4.1 GENERAL REQUIREMENTS

Establish document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard.

a. identify the processes needed for the quality management system and their application.
b. determine the sequence and interaction of these processes,

c. determine criteria and methods needed to ensure that both the operation and control of these processes are effective,
d. ensure the availability of resources and information necessary to support the operation and monitoring of these processes,
e. monitor, measure and analyze these processes and
f. implement actions necessary to achieve planned results and continual improvement of these processes.

Manage these processes in accordance with the requirements of this International Standard. Where any processes are outsourced that affects product conformity with requirements, control will be ensured over such processes. Control of such outsourced processes shall be identified within the quality management system

4.2 DOCUMENTATION REQUIREMENTS

4.2.1 General

The quality management system documentation will include:

a. Documented statements of a quality policy and quality objectives
b. A quality manual
c. Documented procedures required by this International Standard
d. Documents needed to ensure the effective planning, operation and control of its processes and
e. Quality records required by this International Standard. (see 4.2.4)

4.2.2 Quality Manual

Establish and maintain a quality manual that includes:

a. The scope of the quality management system, including details of and justification for any exclusions (see 1.2)
b. The documented procedures established for the quality management system, or references to them,
c. A description of the interaction between the processes of the quality management system.

4.2.3 Control of documents

Control documents required by the quality management systems. Quality records are a special type of document and will be controlled according to the requirements given in 4.2.4. Establish a documented procedure to define the controls needed:

a. To approve documents for adequacy prior to issue
b. To review and update as necessary and re-approve documents
c. To ensure that changes and the current revision status of documents are identified
d. To ensure that relevant versions of applicable documents are available at points of use
e. To ensure that documents remain legible and readily identifiable.

f. To ensure that documents of external origin are identified and their distribution controlled and

g. To prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

4.2.4 Control of quality records

Establish and maintain quality records to provide evidence of conformity to requirements and of the effective operation of the quality management systems. Quality records will remain legible, readily identifiable and retrievable. A documented procedure will be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of quality records.

5. MANAGEMENT RESPONSIBILITY

5.1 MANAGEMENT COMMITMENT

Top management will provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by:

a. Communicating the importance of meeting customer as well as statutory and regulatory requirements
b. Establishing the quality policy.
c. Ensuring that quality objectives are established
d. Conducting management reviews and
e. Ensuring the availability of resources

5.2 CUSTOMER FOCUS

Top management will ensure that customer requirements are determined and fulfilled with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1)

5.3 QUALITY POLICY

Top management will ensure that the quality policy:

a. Is appropriate to the purpose of the organization
b. Includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system
c. Provides a framework for establishing and reviewing quality objectives
d. Is communicated and understood and
e. Is reviewed for continuing suitability

5.4 PLANNING

5.4.1 Quality objectives

Top management will ensure that quality objectives, including those needed to meet requirements for product (see 7.1) are established at relevant functions and levels within the organization. The quality objectives will be measurable and consistent with the quality policy.

5.4.2 Quality management system planning

Top management will ensure that:

a. the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives and
b. the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented

5.5 RESPONSIBILITY, AUTHORITY AND COMMUNICATION

Top management will ensure that the responsibilities, authorities and their interrelation are defined and communicated.

5.5.2 Management representative

Top management will appoint a member of management who, irrespective of other responsibilities, will have responsibility and authority that includes:

a. ensuring that processes needed for the quality management system are established, implemented and maintained
b. reporting to top management on the performance of the quality management system and any need for improvement and
c. ensuring the promotion of awareness of customer requirements

5.5.3 Internal communication

Top management will ensure that appropriate communication processes are established and that communication takes place regarding the effectiveness of the quality management systems.

5.6 MANAGEMENT REVIEW

5.6.1 General

Top management will review the quality management system, at planned internals, to ensure its continuing suitability, adequacy and effectiveness. This review will include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management reviews will be maintained (see 4.2.4).

5.6.2 Review Input

The input to management review will include information on:

a. Results of audits
b. Customer feedback
c. Process performance and product conformity
d. Status of preventive and corrective actions
e. Follow-up actions from previous management reviews
f. Planned changes that could affect the quality management system and
g. Recommendations for improvement

5.6.3 Review output

The output from the management review will include any decision and actions related to:

a. Improvement of the effectiveness of the quality management system and its process
b. Improvement of product related to customer requirements and
c. Resource needs

6. RESOURCE MANAGEMENT

6.1 PROVISION OF RESOURCES

Determine and provide the resources needed:

a. To implement and maintain the quality management system and continually improve its effectiveness, and
b. To enhance customer satisfaction by meeting customer requirements.

6.2 HUMAN RESOURCES

6.2.2 General

Personnel performing work affecting product quality will be competent on the basis of appropriate education, training, skills and experience.

6.2.2 Competence, awareness and training

a. Determine the necessary competence for personnel performing work affecting product quality
b. Provide training or take other actions to satisfy these needs
c. Evaluate the effectiveness of the actions taken
d. Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objective and
e. Maintain appropriate records of education, training, skills and experience (see 4.2.4)

6.3 INFRASTRUCTURE

Determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, for example:

a. Buildings, workspace and associated utilities
b. Process equipment, both hardware and software and
c. Supporting services such as transport of communication.

6.4 WORK ENVIRONMENT

Determine and manage the work environment needed to achieve conformity to produce requirements.

7. PRODUCT REALIZATION

7.1 PLANNING OF PRODUCT REALIZATION

Plan and develop the processes needed for product realization. Planning of product realization will be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, determine the following, as appropriate:

a. Quality objectives and requirements for the product
b. The need to establish processes, documents, and provide resources specific to the product
c. Required verification, validation, monitoring, inspection and test activities specified to the product and the criteria for product acceptance
d. Records need to provide evidence that the realization processes and resulting product fulfill requirements (see 4.2.4)

The output of this planning will be in a form suitable for operations.

7.2 CUSTOMER-RELATED PROCESSES

7.2.1 Determination of requirements related to the product

Determine:

a. Requirements specified by the customer, including the requirements for delivery and post-delivery activities
b. Requirements not stated by the customer but necessary for specified use or known and intended use (This Section has been excluded in accordance with 1.2 Application and does not apply)
c. Statutory and regulatory requirements related to the product and
d. Any additional requirements determined by the organization

7.2.2 Review of requirements related to the product

Review the requirements related to the product. This review will be conducted prior to commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and will ensure:

a. Product requirements are defined
b. Contract or order requirements differing from those previously expressed are resolved and
c. The ability to meet the defined requirements

Records of the results of the review and actions arising from the review will be maintained (see 4.2.4). Where the customer provides no documented statement of requirement, the customer requirements will be confirmed before acceptance. Where product requirements are changed, ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

7.2.3 Customer communication

Determine and implement effective arrangements for communicating with customers in relation to:

a. Product information
b. Inquiries, contracts or order handling, including amendments and

c. Customer feedback, including customer complaints

7.3 DESIGN AND DEVELOPMENT

Richmond Industries makes products to its customer's designs. While Richmond Industries may participate with the customer in the design process, design responsibility remains with the customer in all cases.

7.4 PURCHASING

7.4.1 Purchasing process

Ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product will be dependent upon the effect of the purchased product on subsequent produce realization on the final product.

7.4.2 Purchasing information

Purchasing information will describe the product to be purchased, including where appropriate:

a. Requirements for approval of product, procedures, processes and equipment
b. Requirements for qualification of personnel and
c. Quality management system requirements

Ensure the adequacy of specified purchase requirements prior to their communication to the supplier.

7.4.3 Verification of purchased product

Establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. When it is intended to perform verification at the suppliers' premises, state the intended verification arrangements and method of product release in the purchasing information.

7.5 PRODUCTION AND SERVICE PROVISION

7.5.1 Control of production and service provision

Plan and carry out production and service provision under controlled conditions. Controlled conditions will include, as applicable:

a. The availability of information that describes the characteristics of the product
b. The availability of work instructions
c. The use of suitable equipment
d. The availability and use of monitoring and measuring devices
e. The implementation of monitoring and measurement and
f. The implementation of release, delivery and post-delivery activities

7.5.2 Validation of processes for production and service provision

Validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered. Validation will demonstrate the ability of these processes to achieve planned results. Establish arrangements for these processes including, as applicable:

a. Defined criteria for review and approval of the processes
b. Approval of equipment and qualification of personnel
c. Use of specific methods and procedures
d. Requirements for records (see 4.2.4) and
e. Revalidation

7.5.3 Identification and traceability

Where appropriate, identify the product by suitable means throughout product realization. Identify the product status with respect to monitoring and measurement requirements. Where traceability is a requirement, control and record the unique identification of the product (see 4.2.4).

7.5.4 Customer Property

Exercise care with customer property while it is under control or being used. Identify, verify, protect and safeguard customer property provided for use or incorporation into the product. If any customer property is lost, damaged or otherwise found to be unsuitable for use, this will be reported to the customer and records maintained (see 4.2.4).

7.5.5 Preservation of product

Preserve the conformity of product during internal processing and delivery to the intended destination. This preservation will include identification, handling, packaging, storage and protection. Preservation will also apply to the constituent parts of a product.

7.6 CONTROL OF MONITORING AND MEASURING DEVICES

Determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements (see 7.2.1). Establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements. Where necessary to ensure valid results, measuring equipment will:

a. Be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification will be recorded;
b. Be adjusted or re-adjusted as necessary
c. Be identified to enable the calibration status to be determined
d. Be safeguarded from adjustments that would invalidate the measurement result
e. Be protected from damage and deterioration during handling, maintenance and storage

Assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. Take appropriate actions on the equipment and any product affected. Maintain records of the results of calibration and verification (see 4.2.4). When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application will be confirmed. This will be undertaken prior to initial use and reconfirmed as necessary.

8. MEASUREMENT, ANALYSIS AND IMPROVEMENT

8.1 GENERAL

Plan and implement the monitoring, measurement, analysis and improvement processes needed.

a. To demonstrate conformity of the product
b. To ensure conformity of the quality management system and
c. To continually improve the effectiveness of the quality management system.

This will include determination of applicable methods, including statistical techniques and the extent of their use.

8.2 MONITORING AND MEASUREMENT

8.2.1 Customer satisfaction

As one of the measurements of the performance of the quality management system, monitor information relating to customer perception as to whether customer requirements are fulfilled. Determine the methods for obtaining and using this information.

8.2.2 Monitoring and measurement of processes

Apply suitable methods for monitoring and where applicable measurement of the quality management system processes. These methods will demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action will be taken, as appropriate, to ensure conformity of the product.

a. Current certification of thermocouple tips in house to be maintained on record.
b. Upon replacement of a thermocouple tip, maintenance personnel will verify the accuracy of the installed thermocouple by simultaneously testing the metal temperature with the spare unit. The date, unit changed, and temperature variance between the two units to be recorded on a spreadsheet and stored with the thermocouple certification records.
c. OEM serviceman to verify that Furnace cabinet meters are accurate and submit with preventative maintenance reports generated during annual inspections. These reports will be maintained on file in the maintenance supervisor's office.

8.2.3 Monitoring and measurement of product

Monitor and measure the characteristic of the product to verify that product requirements are fulfilled. This will be carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1). Evidence of conformity with the acceptance criteria will be maintained. Records will indicate the person(s) authorizing release of product (see 4.2.4). Product release and service delivery will not proceed until all the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and where applicable by the customer.

8.3 CONTROL OF NONCONFORMING PRODUCT

Ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use of delivery. The control and related responsibilities and authorities for dealing with nonconforming product will be defined in a documented procedure. Deal with nonconforming product by one of more of the following ways:

a. By taking action to eliminate the detected nonconformity
b. By authorizing its use, release or acceptance under concession by a relevant authority and where applicable by the customer
c. By taking action to preclude its original intended use or application

Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, will be maintained (see 4.2.4). When nonconforming product is corrected it will be subject to re-verification to demonstrate conformity to the requirements. When nonconforming product is detected after delivery or use has started, take action appropriate to the effects, or potential effects, of the nonconformity.

a. Any product produced at Richmond Industries that does not conform to customers requirements must be tagged and quarantined. The tag must contain the Customers name, part # identification, and the reason for the non-conformity. The Foundry Manager must be notified of the issue.
b. Parts will remain tagged until the Foundry Manager determines disposition through communications with the Customer representative. Upon disposition of non- conforming product a copy of all communications and actions will be maintained in the customers correspondence filed located in the Foundry Managers office.

8.4 ANALYSIS OF DATA

Determine, correct and analyze appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate when continual improvement of the quality management system can be made. This will include data generated as a result of monitoring and measurement and from other relevant sources. The analysis of data will provide information relating to:

a. Customer satisfaction (see 8.2.1)
b. Conformance to product requirements (see 7.2.1.)
c. Characteristics and trends of processes and products including opportunities for preventive action, and
d. Suppliers

8.5 IMPROVEMENT

8.5.1 Continual Improvement

Continually improve the effectiveness of the quality management system throughout the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

8.5.2 Corrective Action

Take action to eliminate the cause of nonconformities in order to prevent recurrence. Corrective actions will be appropriate to the effects of the nonconformities encountered. A documented procedure will be established to define requirements for:

a. Reviewing nonconformities (including customer complaints)

b. Determining the causes of nonconformities
c. Evaluating the need for action to ensure that nonconformities do not recur
d. Determining and implementing action needed
e. Records of the result of action taken (see 4.2.4) and
f. Reviewing corrective action taken.

1. Currently all external corrective actions are maintained in the Customers Corrective Action files maintained in the Foundry Managers Office. Upon contact regarding a product issue the following steps are taken: 1. Request of a sample displaying the non conformity is requested. 2. The pattern equipment is pulled and reviewed with the sample part. 3. Root cause of the defect is determined and appropriate action is taken to eliminate reoccurrence.
2. Upon successful completion of resolving the non-conforming issue all documentation including Scar's are stored in the Customer Corrective Action files located in the Foundry Managers Office.

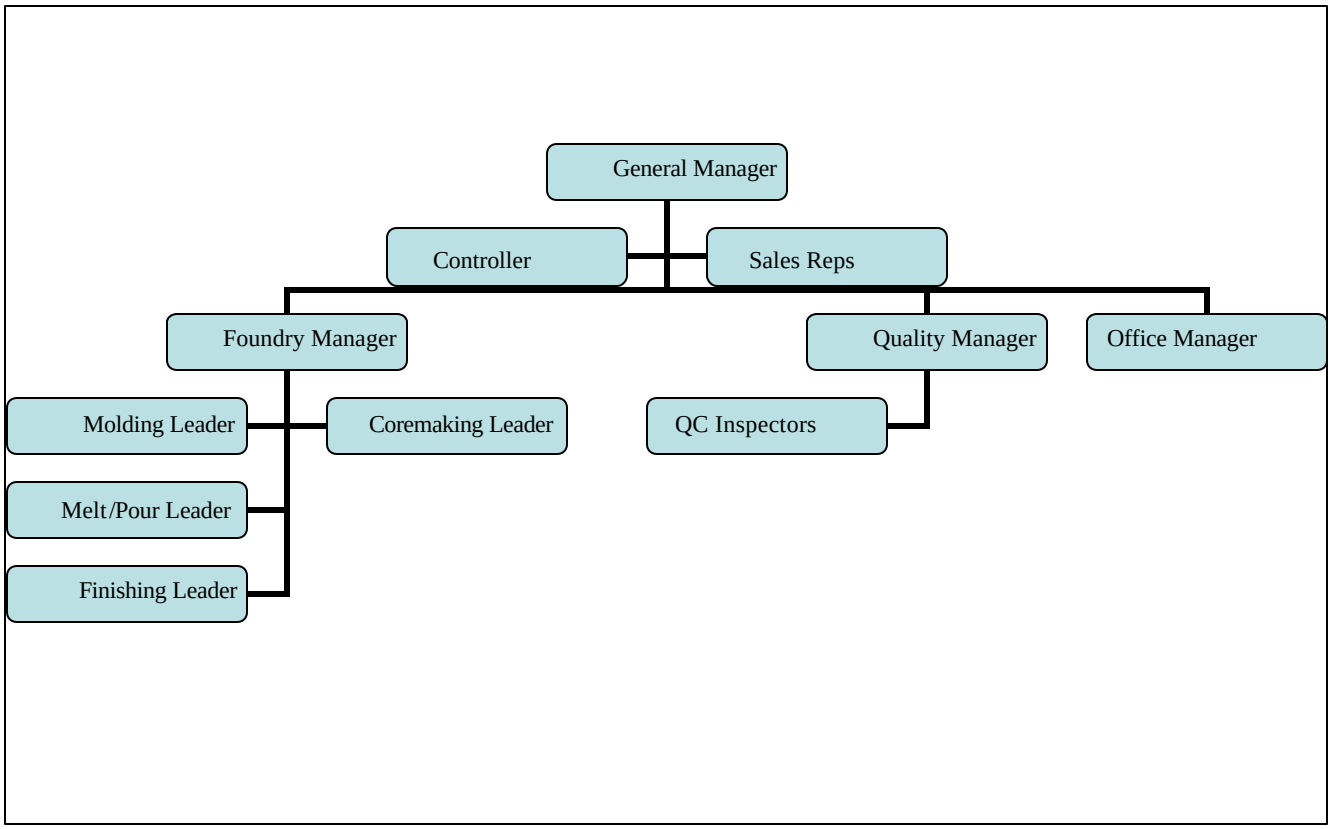
8.5.3 Preventive Action

Determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions will be appropriate to the effects of the potential problems. A documented procedure will be established to define requirement for:

a. Determining potential nonconformities and their causes
b. Evaluating the need for action to prevent occurrence of nonconformities
c. Determining and implementing action needed
d. Records of results of action taken (see 4.2.4)
e. Reviewing preventive action taken.

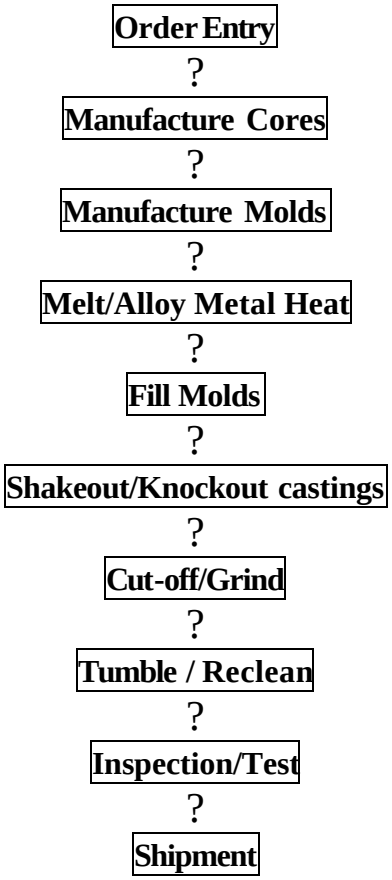
9. ATTACHMENTS

9.1 ORGANIZATION CHART



9.2 SEQUENCE AND INTERACTION OF MANUFACTURING PROCESSES

Sequence and Interaction of Richmond Industries Manufacturing Processes



NOTE: Those products with a process flow that differs from the standard process flow shown above shall have the correct sequencing identified in the part number specific instructions.

9.3 CONTINUAL IMPROVEMENT OF THE QUALITY MANAGEMENT SYSTEM

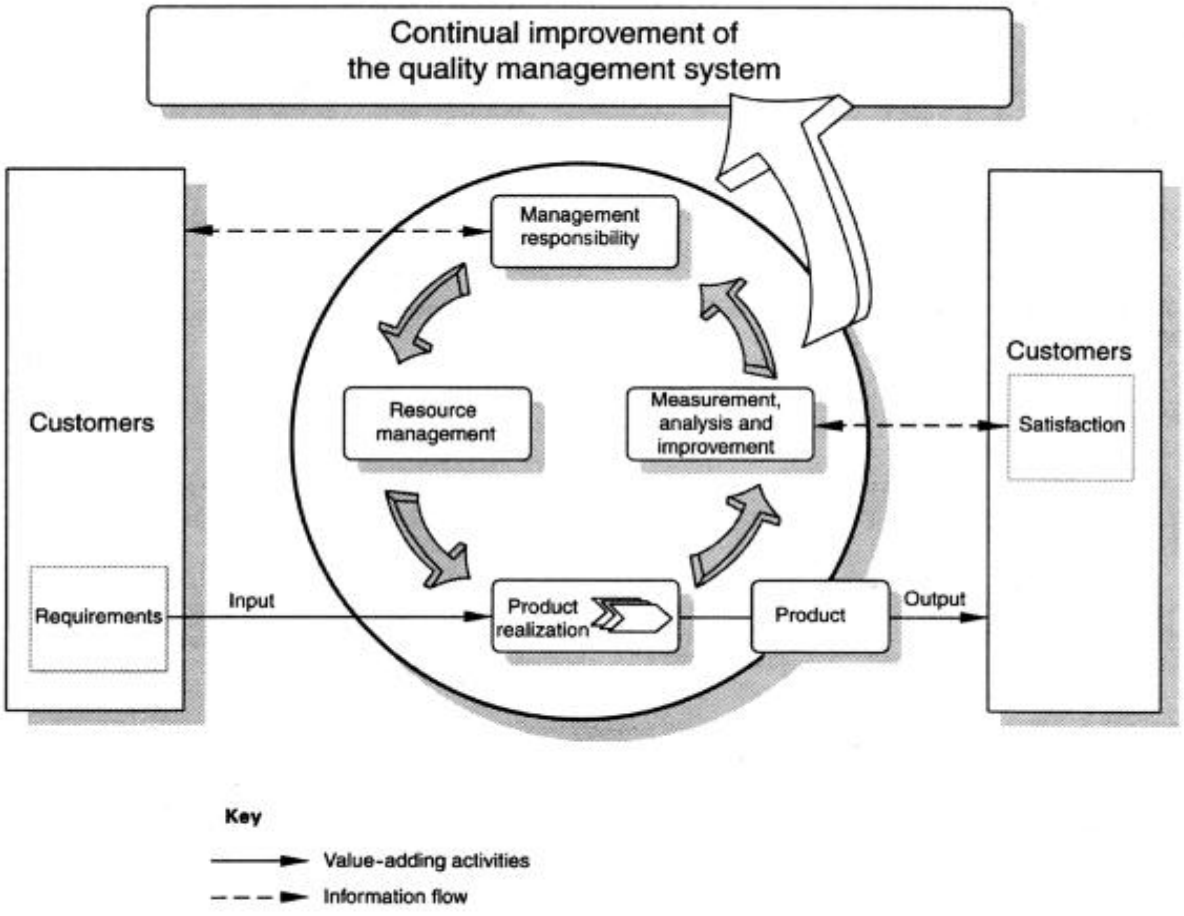


Figure 1 — Model of a process-based quality management system

10 SUMMARY OF CHANGES

REV	DESCRIPTION OF CHANGE	DATE	CHANGED BY
0	Release of Manual	2004	E. Chando
1	Revision of Sections	3-19-09	E. Chando
2	Gen'l Rev, Add Sec 1-3, 9-10	3-23-09	T. Shellhammer
3	Gen'l Rev, Sec 8.2 Monitor & Measure	4-13-09	T. Shellhammer