



CURTIS INSTRUMENTS INC.
200 KISCO AVE
MOUNT KISCO, NY 10549 USA

BUSINESS SYSTEM MANUAL

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BUSINESS QUALITY MANUAL

DISTRIBUTION

This manual is a Curtis corporate document located on the Curtis corporate server and receives regular system backup. Copies of this document are uncontrolled and may not contain the latest Curtis business quality system information.

This document is formally reviewed on an annual basis to ensure that revisions to Curtis business quality management processes are documented per the requirements of Curtis and ISO 9001.

Note: The revision level of this document and any referenced documents must be verified for latest issue before use.

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	APPROVALS	DATE	REVISIONS (SEE SHEET 2)
WRITER	JCAR	4/23/18	
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SCOPE

Curtis Instruments Inc. is headquartered in Mount Kisco, New York, USA. Its primary focus is providing integrated systems consisting of controllers, instrumentation and power conversion products for the global electric vehicle (EV) industry. Vehicle designers at major OEMs depend on Curtis technology to enhance and develop their vehicles. Curtis provides cutting-edge integrated system solutions for electric and hybrid-powered vehicles, equipment and machinery, including:

- Traction, Steering and Pump Motor Speed Controllers
- Powered Wheelchair Control Systems
- Programmable CAN & Serial Instrumentation and Hour Meters.
- Battery-State-of-Charge Instruments and Battery Monitoring Systems
- DC/DC Converters and Battery Chargers.
- CAN I/O Modules including I/O expansion and hydraulic control
- Programmers and Programming Software
- Input Devices - Switches, Throttles, Foot Pedals, Tiller Heads, Senders and Potentiometers, Warning Devices
- Contactors and Disconnect Switches

History

Founded in 1960, Curtis is a privately-held corporation and has been under family management since its inception. Curtis currently operates three manufacturing plants and serves a global market from the US, Europe and Asia. Curtis employs approximately 1,000 staff members. Curtis operates four engineering centers located in New York, California, Switzerland and China. The company has a global network of wholly-owned sales and service offices, serving Curtis customers worldwide.

Curtis Operating Principles

The Curtis '10-Point' principles (Appendix A) are formally documented corporate guidelines which cover all employees and operations worldwide. Every Curtis employee is held to this standard to assure that these points are put into practice as systems and strategies. They must be nurtured as an inherent, integrated and routine element of our positive corporate culture. We hold each other to these high standards and we consistently hold ourselves to the same standards, to respect our own culture.



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Business Quality Management System

Curtis is committed to a coordinated and integrated process for “building quality in”, starting from design, to product delivery. The Curtis business quality management system (BQMS) applies quality management methodology to the design, development and manufacture of controllers, instrumentation and power conversion products.

Compliance

It is the policy of Curtis to fully understand and comply with all regulatory and statutory requirements, where applicable and necessary.

This manual describes the Curtis implementation of its corporate business quality management system plan. The scope of the quality management system applies to designing and manufacturing instrumentation, power conversion products and controls. This plan is shared by all Curtis sites and is intended to drive consistency into company business practices, increase the use of common processes and improve sharing of best practices across the business system.

Curtis site management also determines the particular extent of the scope boundaries for their site according to ISO 9001 and this manual. This can be accomplished through identification and addition of a site’s own particular context, relevant interested parties, products and services, risks and includes, when designated, the use of shared services from other Curtis business units.



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4. Context of the Organization

Each Curtis site, department and organization identifies to its fullest capability its **internal and external issues, or context**. Context describes who we are and what issues we face the global, national, company, department and organizational level.

Examples are listed in the table below:

Internal/External Issues (Context)	
Internal Issues	External Issues
Core competencies limiting ability to provide technology breakthroughs	Regional economic status not conducive to grow business
Product and service capability and performance	Highly fluctuating exchange rates
Top management changes	Availability of skilled employees
Cultural challenges in sharing the same vision	Political instability, peace and security of business regions
Delays in product and service validation, not economically scalable within scheduled timeframe	Uncertain continuity of trade agreements and tariffs
Employee performance issues, safety culture	Stringent regulatory requirements



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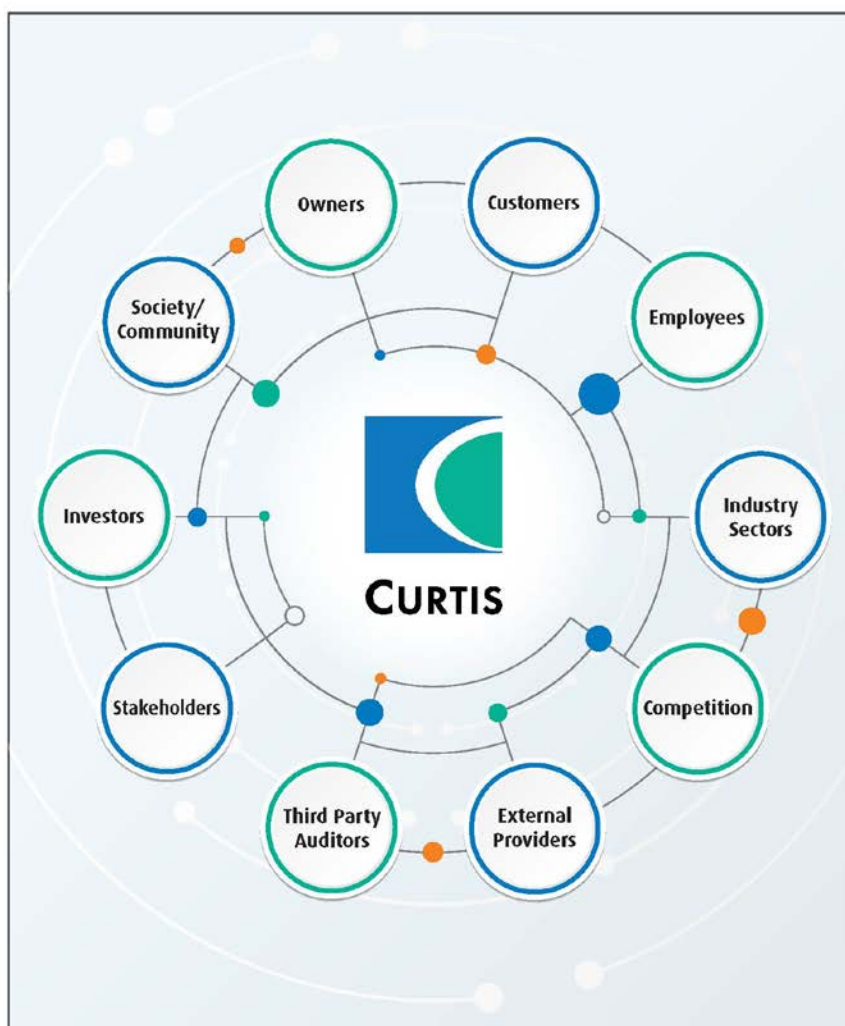
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Each Curtis site, department and organization also identifies, interacts, links together and provides knowledge and management of its **internal and external interested parties**. Identifying and integrating this knowledge enables greater efficiencies between these interested parties.



Internal/External Interested Parties



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Requirements of Interested Parties	
Interested Party	Requirements
Customers	Quality, price and delivery of products and services
Owners	Sustained profitability, transparency
Bankers, Investors	Contracts, bankability of projects
External Providers (suppliers and partners)	Material service agreements, NDA, service-level agreements, vendor-managed inventory agreements
Third Party Auditors	Regulation, contract and project requirements, risk assessment, management system standards (ISO), finance and project contracts, corporate social responsibility
Industry groups, associations and action committees	R&D, standards development, publications, best practices, early warning, participation
Employees	Improved standard of living, benefits, and compensation, safe workplace, geographical employment regulations, social accountability, job satisfaction, morale, work-life balance, career progression, recognition and reward
Society	Bylaws, sustainability, local business and economy, local labor, corporate citizenship, education and charitable foundations
Competition	Market intelligence, customer perception, competitive benchmarking
Opposing groups	Public policy, industry-specific subsidies, tariffs, regulations

Business performance involves receiving inputs and providing outputs, or both. Output of a process or procedure is often directed to the input of another process or procedure. In this manner, Curtis and its customers are internally and externally linked through written policies and procedures intended to detail the obligations required and the conduct of our company business.

This manual plus any relevant site policies collectively define the Curtis business quality management system, in accordance with ISO 9001.



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5. Leadership

Top management demonstrates leadership and commitment with respect to the Business Quality Management System, by:

- Taking accountability for the effectiveness of the quality management system
- Ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the strategic direction and the context of Curtis
- Ensuring the integration of the quality management system requirements into Curtis's business processes
- Promoting awareness of the process approach ensuring that the resources needed for the quality management system are available
- Communicating the importance of effective quality management and of conforming to the quality management system requirements
- Ensuring that the quality management system achieves its intended results; engaging, directing and supporting persons to contribute to the effectiveness of the quality management system
- Promoting continual improvement
- Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility

Top Management demonstrates leadership and commitment with respect to Customer focus by ensuring that:

- Customer requirements and applicable statutory and regulatory requirements are determined and met
- Focus on enhancing customer satisfaction is maintained
- Risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed;
- Focus on consistently providing products and services which meet customer and applicable statutory and regulatory requirements is maintained



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Quality Policy

Curtis endeavors to meet or exceed expectations from our customers for Curtis products and support and to comply with all customer statutory and regulatory requirements.

Curtis strongly supports ISO9001 Quality Management Standard requirements and is committed to continually improve its products, support and its Business Quality Management System (BQMS).

Organizational roles, responsibilities and authorities

- Curtis shall provide experienced staff to manage its entire business function according to Curtis organizational charts maintained on the Curtis corporate server
- Responsibilities for staff functions are assigned by management so that staff roles and responsibilities are clear
- Written job descriptions are maintained with personnel records and copies made available to employees during each performance appraisal
- A department-managed skill matrix is maintained and monitored to ensure adequate staff performance
- Job titles/role definitions are consistent with those used in company procedures and work instructions

Any staff member managing, performing or verifying work affecting quality has the authority to initiate action in order to prevent the occurrence of any product or service non-conformity, including issues related to product, process or the management system, verifying corrective actions and control of further processing activity, until the nonconforming condition has been corrected.



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6. Planning

Actions to Address Risks and Opportunities

Explicit risk analysis is incorporated into the requirements of the Curtis business quality management system. Curtis business groups enhance their processes by driving accountability and risk analysis throughout the company. This risk management approach consists of:

- Gathering of risks by department, throughout the company, based on context and the needs and expectations of interested parties
- Obtaining and analyzing results of process performance and the effect that potential risks may have on that performance
- Fostering risk mitigation and opportunities for improvement through planning of actions and changes

Curtis has adopted the use of the Risk Register format as a simplified FMEA-style tracking tool to be used for communicating risks and opportunities.

Curtis reviews significant identified risks and opportunities during its management meetings. Both the Management Review Minutes template and the Risk Register template can be found in Appendix C and Appendix D respectively.



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Quality Objectives and Planning to Achieve Them

Quality Objectives

- Constantly demonstrate our ability to consistently provide products and services which meet both customer and statutory/regulatory requirements
- Ensure that a high level of customer satisfaction is attained
- Ensure that measurable objectives are planned, reviewed and adjusted by management in order to facilitate continual improvement
- Comply with requirements of the ISO 9001 Standard
- Achieve the Curtis Quality Policy

It is the role of top management to periodically define and drive efforts to achieve the quality objectives and ensure that employees are provided with tools and resources necessary to achieve the goals set by the quality objectives.

Curtis processes, operating procedures, work instructions and guidelines provide critical direction and when necessary, documented evidence. Top management defines and produces criteria and metrics to assess its attainment of business quality goals.

Top management facilitates implementation of the business quality management system to achieve the desired Quality Objectives. All departments and functions in the company are responsible for implementing, maintaining, and improving the business quality management system.

Planning for Changes

Top management shall identify, plan and provide the resources needed to achieve the quality objectives and ensure continual improvement of the system. Regular, periodic review of progress toward these goals forms a key part of the Curtis business management review.



7. Support

Resources needed to develop, implement and continually improve the processes of the business quality management system are reviewed, determined and provided in a timely manner to ensure business requirements are met. Capabilities of existing internal resources are considered, including what needs to be obtained from external providers.

People

Curtis shall determine and provide the persons necessary for effective implementation of the business quality management system and for the operation and control of its processes.

Personnel who are assigned responsibilities defined in the quality management system are competent on the basis of applicable education, training, skills and experience.

Written job descriptions for each employee are maintained with personnel records and reviewed with each employee during yearly performance appraisals.

Infrastructure

Curtis shall determine, provide and maintain the infrastructure necessary for the operation of its processes and to achieve conformity of its processes and services, including:

- Buildings and associated utilities
- Equipment, including software and hardware
- Business transportation needs
- Information and communication technology

Environment for Operation of Processes

Curtis shall determine, provide and maintain the environment necessary for the operation of its processes and to achieve conformity of products and services.

A suitable environment can be a combination of human and physical factors, such as:

- a) Social (e.g. non-discriminatory, calm, non-confrontational);



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- b) Psychological (e.g. stress-reducing, burnout prevention, emotionally protective),
- c) Physical (e.g. temperature, heat, humidity, light, airflow, hygiene, noise),

These factors can differ substantially depending on the products and services provided.

Monitoring and Measurement Resources

If monitoring and measurement is required to ensure valid and reliable business results, Curtis shall determine and provide the resources needed to verify the conformity of its products and services to specified requirements.

Curtis shall ensure that the resources are suitable for the monitoring and measurement undertaken and they are maintained to ensure continuing fitness for their purpose. Appropriate documented maintenance information shall be retained as evidence of fitness.

Measurement Traceability

When measurement traceability is a requirement, or is considered by Curtis to be an essential part of providing confidence in the validity of measurement results, measuring equipment shall be:

- Calibrated, verified, or both, at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards; when no such standards exist, the basis used for calibration or verification shall be retained as documented information
- Identified in order to determine their status
- Safeguarded from adjustments, damage or deterioration that would invalidate the calibration status and subsequent measurement results

Curtis shall determine if the validity of previous measurement results has been adversely affected when measuring equipment is found to be unfit for its intended purpose, and shall take appropriate action as necessary.

Organizational Knowledge

Curtis evaluates and determines minimum knowledge and competencies required for each job position when performing activities affecting the business quality management system. Curtis shall determine the knowledge necessary for the operation of its



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processes and to achieve conformity of products and services. This knowledge shall be maintained and be made available to the extent necessary.

When addressing changing needs and trends, Curtis shall consider its current knowledge and determine how to acquire or access any necessary additional knowledge and required updates.

Organizational knowledge is based on internal sources (e.g. intellectual property, knowledge gained from experience, lessons learned from failures and successful projects, capturing and sharing undocumented knowledge and experience, the results of improvements in processes, products and services, and external sources such as standards; academia; conferences; gathering knowledge from customers or external providers.

Competence

A documented procedure exists for the induction of new employees and for training existing staff in order to achieve Curtis business objectives for mandatory processes and business quality system elements.

Curtis management shall assess staff competence toward satisfying business requirements. Staff performance evaluations shall be conducted at least annually to assess whether the employee is sufficiently competent and/or skilled to perform the job function for which he or she was trained. Curtis shall maintain results of this evaluation.

Curtis provides training to satisfy business needs if determined to be necessary and assesses the qualifications of incumbents and candidates against those identified criteria.

Records are maintained of all education, experience and training.

Awareness

Curtis shall ensure that persons doing work under Curtis' control are aware of:

- a) The Curtis Quality Policy;
- b) Relevant Quality Objectives;
- c) Their contribution to the effectiveness of the business quality management system, including the benefits of improved performance;



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- d) The implications of not conforming to the business quality management system requirements;

Communication

Curtis management shall determine the internal and external communications relevant to the business quality management system, including:

- a) What it will communicate;
- b) When to communicate;
- c) With whom to communicate;
- d) How to communicate;
- e) Who communicates;

Documented information – Requirements, Updates and Control

The Curtis business quality management system shall include two types of documented information:

1. Required by this International Standard
2. Determined by Curtis as being necessary for the effectiveness of the Curtis business quality management system

When creating and updating documented information, Curtis shall ensure appropriate:

- Identification and description (e.g. a title, date, author, or reference number)
- Format (e.g. language, software version, graphics) and media (e.g. paper, electronic)
- Review and approval for suitability and adequacy

Documented information required by the Curtis business quality management system and by ISO 9001 shall be controlled to ensure it is available and suitable for use, where and when it is needed, and it is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity)

For the control of documented information, Curtis shall address the following activities, as applicable:

- Distribution, access, retrieval and use
- Storage and preservation, including preservation of legibility
- Control of changes (e.g. version control)
- Retention and disposition



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Documented information of external origin determined by Curtis to be necessary for the planning and operation of the business quality management system shall be identified as appropriate and be controlled. Documented information retained as evidence of conformity shall be protected from unintended alterations.



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8. Operation

Planning and control

Curtis plans, implements and controls the processes needed to meet requirements for the provision of products and services and to implement the actions determined from business planning, by:

- Determining requirements for the product and services
- Establishing criteria for the processes and for the acceptance of products and services
- Determining the resources needed to achieve conformity to product and service requirements
- Implementing control of the processes in accordance with the criteria
- Retaining documented information to the extent necessary to have confidence that the processes have been carried out as planned, and to demonstrate conformity of products and services to requirements

The output of this planning shall be suitable for all Curtis operations

Curtis shall control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary

Based on the location, Curtis shall ensure that all external outsourced processes required for that business location are monitored and controlled.

Customer communication

Communication with Curtis customers includes:

- Providing information relating to products and services
- Handling enquiries, contracts or orders, including changes
- Obtaining customer feedback relating to products and services, including customer complaints
- Handling or controlling customer property
- Establishing specific requirements for contingency actions, when relevant



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Determining the requirements related to products and services

When determining the requirements for the products and services to be offered to customers, Curtis ensures that:

- Requirements for the products and services are defined, including any applicable statutory and regulatory requirements and those considered necessary by Curtis
- Curtis can meet the claims for the products and services it offers

Review and change of requirements related to products and services

Curtis ensures that it has the ability to meet the requirements for products and services to be offered to customers. Curtis conducts a review before committing to supply products and services to a customer, to include:

- Requirements specified by the customer, including the requirements for delivery and post-delivery activities
- Requirements not stated by the customer, but necessary for the specified or intended use, when known;
- Requirements specified by Curtis
- Statutory and regulatory requirements applicable to the products and services
- Contract or order requirements differing from those previously expressed

Curtis ensures that contract or order requirements differing from those previously defined are resolved.

Curtis customer requirements are to be confirmed by Curtis before acceptance, when the customer does not provide a documented statement of their requirements.

Curtis shall retain documented information, as applicable, on the results of the review, and any new requirements for the products and services.

Changes to requirements for products and services

Curtis shall ensure that relevant documented information is amended, and that relevant persons are made aware of the changed requirements, when the requirements for products and services are changed.



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Design and Development of Products and Services

Curtis provides a robust design and development process that is appropriate to ensure the subsequent provision of products and services.

Planning

In determining the stages and controls for design and development, Curtis considers the:

- Nature, duration and complexity of the design and development activities;
- Requirements that specify particular process stages, including applicable design and development reviews
- Required design and development verification and validation
- Responsibilities and authorities involved in the design and development process
- Need to control interfaces between individuals and parties involved in the design and development process
- Need for involvement of customer and user groups in the design and development process
- Requirements for subsequent provision of products and services;
- the level of control expected for the design and development process by customers and other relevant interested parties
- Documented information needed to demonstrate that design and development requirements have been met

Inputs

Curtis determines the requirements essential for the specific types of products and services to be designed and developed. Curtis considers:

- Functional and performance requirements
- Information derived from previous similar design and development activities
- Statutory and regulatory requirements
- Standards or codes of practice that Curtis has committed to implement
- Potential consequences of failure due to the nature of the products and services

Inputs shall be adequate for design and development purposes, complete and unambiguous and conflicting design and development inputs shall be resolved.



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Curtis shall retain documented information on design and development inputs.

Controls

Curtis applies controls to the design and development process to ensure that:

- The results to be achieved are defined
- Reviews are conducted to evaluate the ability of the results of design and development to meet requirements
- Verification activities are conducted to ensure that the design and development outputs meet the input requirements
- Validation activities are conducted to ensure that the resulting products and services meet the requirements for the specified application or intended use
- Any necessary actions are taken on problems determined during the reviews, or verification and validation activities

Documented information of these activities is retained

Outputs

Curtis ensures that design and development outputs:

- Meet the input requirements for design and development
- Are adequate for the subsequent processes for the provision of products and services;
- Include or reference monitoring and measuring requirements, and acceptance criteria, as applicable
- Ensure products to be produced, or services to be provided, are fit for intended purpose and their safe and proper use

Curtis shall retain documented information resulting from the design and development process.

Changes

Curtis identifies, reviews and controls changes made to design inputs and design outputs during the design and development of products and services or subsequently, to the extent that there is no adverse impact on conformity to requirements.



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Curtis then retains documented information on design and development changes, results of reviews, authorization of the changes and the actions taken to prevent adverse impacts.

There is no requirement for design and development activities within the Curtis Instrument Puerto Rico facilities. Therefore, this statement of the standard is a permissible exclusion for that facility only. This exclusion does not affect Curtis' ability, or responsibility to provide services that meet customer and applicable statutory and regulatory requirements. This statement does apply to Curtis Instruments Inc. and Curtis Livermore.

On occasion Curtis Instruments manufacturing facilities implement customer-requested design changes. Curtis retains documented information on these changes, authorization of the changes, change performance and the actions taken to prevent adverse impacts to Curtis' ability, or responsibility to provide services that meet customer and applicable statutory and regulatory requirements.

Control of externally provided products and services

Curtis ensures that externally provided processes, products, and services conform to specified requirements. Curtis then applies the specified requirements for the control of externally provided products and services when:

- Products and services are provided by external providers for incorporation into Curtis's own products and services
- Products and services are provided directly to the customer(s) by external providers on behalf of Curtis
- A process, or part of a process, is provided by an external provider as a result of a decision by Curtis to outsource a process or function

Curtis establishes and applies criteria for the evaluation, selection, monitoring of performance and re-evaluation of external providers based on their ability to provide processes or products and services in accordance with specified requirements

Curtis shall retain appropriate documented information of the results of the evaluations, monitoring of the performance and re-evaluations of the external providers.



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Type and extent of control

Curtis ensures that externally provided processes, products and services do not adversely affect Curtis's ability to consistently deliver conforming products and services to its customers. Curtis:

- Ensures that externally provided processes remain within the control of its quality management system
- Defines both the controls that it intends to apply to an external provider and those it intends to apply to the resulting output
- Takes into consideration the potential impact of the externally provided processes, products and services on Curtis's ability to consistently meet customer and applicable statutory and regulatory requirements, and the effectiveness of the controls applied by the external provider
- Determines the verification, or other activities, necessary to ensure that the externally provided processes, products and services meet requirements

Information for external providers

Curtis ensures the adequacy of requirements prior to their communication to the external provider. Curtis communicates to external providers its requirements for:

- Processes, products and services to be provided
- Approval of products and services, methods, processes and equipment and release of products and services
- Competence, including any required qualification of persons
- The external providers' interactions with Curtis
- Control and monitoring of the external providers' performance to be applied by Curtis
- Verification or validation activities that Curtis, or its customer, intends to perform at the external providers' premises



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Production and service provision

Curtis implements production and service provision under controlled conditions.

Controlled conditions include, as applicable, the availability of documented information that defines:

- Characteristics of the products to be produced, the services to be provided, or the activities to be performed
- Results to be achieved
- Availability and use of suitable monitoring and measuring resources
- Implementation of monitoring and measurement activities at appropriate stages to verify that criteria for control of processes or outputs, and acceptance criteria for products and services, have been met
- Use of suitable infrastructure and environment for the operation of processes
- Appointment of competent persons, including any required qualification
- Validation, and periodic revalidation, of the ability to achieve planned results of the processes for production and service provision, where the resulting output cannot be verified by subsequent monitoring or measurement
- Implementation of actions to prevent human error
- Implementation of release, delivery and post-delivery activities

Identification and traceability

Curtis uses suitable means to identify outputs when it is necessary to ensure the conformity of products and services.

Curtis identifies the status of outputs with respect to monitoring and measurement requirements throughout production and service provision.

Curtis controls the unique identification of the outputs when traceability is a requirement, and shall retain the documented information necessary to enable traceability.

Property belonging to customers or external providers

Curtis exercises care with property belonging to the customer or external providers while it is under Curtis' control, or being used by Curtis.



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Curtis identifies, verifies, protects and safeguards the customer's or external provider's property provided for use or incorporation into the products and services.

When property of the customer or external provider such as material, components, tools and equipment, customer premises, intellectual property and personal data, is incorrectly used, lost, damaged or otherwise found to be unsuitable for use, Curtis reports this to the customer or external provider.

Product and service preservation

Curtis preserves its outputs through identification, handling, contamination control, packaging, storage, transmission or transportation, and protection during production and service provision, to the extent necessary to ensure conformity to requirements.

Post-delivery activities

The Curtis organization endeavors to meet requirements for post-delivery activities such as warranty provisions, maintenance services, recycling or final disposal associated with the products and services, etc. In determining the extent of post-delivery activities that are required, the organization considers:

- Statutory and regulatory requirements
- The potential undesired consequences associated with its products and services
- The nature, use and intended lifetime of its products and services
- Customer requirements
- Customer feedback

Control of changes

Curtis reviews and controls changes for production or service provision, to the extent necessary to ensure continuing conformity with requirements and shall retain documented information describing the results of the review of changes, the person(s) authorizing the change, and any necessary actions arising from the review.

Release of products and services

Curtis implements planned arrangements, at appropriate stages, to verify that the product and service requirements have been met. A release of products and services to the customer does not proceed until such planned arrangements have been



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satisfactorily completed, unless otherwise approved by Curtis management and, as applicable, by the customer. Curtis retains documented information on the release of products and services. This documented information shall include evidence of conformity with the acceptance criteria and traceability to the person(s) authorizing the release.

Control of non-conforming outputs

Curtis ensures that outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery. Curtis takes appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services. This applies to nonconforming products and services detected after delivery of products, during or after the provision of services.

Curtis manages nonconforming outputs in one or more of the following ways:

- a) Correction;
- b) Segregation, containment, return or suspension of provision of products and services;
- c) Informing the customer;
- d) Obtaining authorization for acceptance under concession;

Conformity to the requirements is verified when nonconforming outputs are corrected.

Information is retained which describes the nonconformity, actions taken, and any concessions obtained and identifies the authority deciding the action in respect of the nonconformity.



9. Performance Evaluation

Monitoring, measurement, analysis and evaluation

The organization shall determine:

- What needs to be monitored and measured
- Methods for monitoring, measurement, analysis and evaluation needed to ensure valid results
- When the monitoring and measuring shall be performed
- When the results from monitoring and measurement shall be analyzed and evaluated

The organization shall evaluate the performance and the effectiveness of the quality management system and retain appropriate documented information as evidence of the results.

Customer satisfaction

The organization shall monitor customers' perceptions of the degree to which their needs and expectations have been fulfilled. Examples of monitoring customer perceptions can include customer surveys, customer feedback on delivered products and services, meetings with customers, market-share analysis, compliments, warranty claims and dealer reports.

The organization shall determine the methods for obtaining, monitoring and reviewing this information.

Analysis and evaluation

The organization shall analyze and evaluate appropriate data and information arising from monitoring and measurement. The results of analysis shall be used to evaluate:

- Conformity of products and services
- The degree of customer satisfaction
- The performance and effectiveness of the quality management system
- If planning has been implemented effectively
- The effectiveness of actions taken to address risks and opportunities



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- The performance of external providers
- The need for improvements to the quality management system

Internal Audit

Curtis conducts internal audits at planned intervals to assess compliance with its quality management system, the requirements of this International Standard, and its effective implementation and maintenance.

Curtis:

- a) Plans, establishes, implements and maintains an audit program including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the importance of the processes concerned, changes affecting the organization, and the results of previous audits;
- b) Defines the audit criteria and scope for each audit;
- c) Selects auditors and conduct audits to ensure objectivity and the impartiality of the audit process;
- d) Ensures that the results of the audits are reported to relevant management;
- e) Takes appropriate correction and corrective actions without undue delay;
- f) Retains documented information as evidence of the implementation of the audit program and the audit results;

Management Review

Top management shall review the organization's quality management system at planned intervals decided by the business location to ensure its continuing suitability, adequacy, effectiveness and alignment with the strategic direction of the organization.

Inputs

Management review shall be planned and carried out taking into consideration:

- a) The status of actions from previous management reviews;
- b) Changes in external and internal issues that are relevant to the quality management system;
- c) Information on the performance and effectiveness of the quality management system, including trends in:
 - 1) customer satisfaction and feedback from relevant interested parties;



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- 2) the extent to which quality objectives have been met;
 - 3) process performance and conformity of products and services;
 - 4) nonconformities and corrective actions;
 - 5) monitoring and measurement results;
 - 6) audit results;
 - 7) the performance of external providers;
-
- d) The adequacy of resources;
 - e) The effectiveness of actions taken to address risks and opportunities (see 6.1);
 - f) Opportunities for improvement

Outputs

Management review output shall include decisions and actions related to:

- a) Opportunities for improvement;
- b) Any need for changes to the quality management system;
- c) Resource needs;
- d) Curtis shall retain documented information as evidence of the results of management reviews;



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10. Improvement

Curtis determines and selects opportunities for improvement and implements necessary actions to meet customer requirements and enhance customer satisfaction. These actions include:

- Improving products and services to meet requirements as well as address future needs and expectations
- Correcting, preventing or reducing undesired effects
- Improving performance and effectiveness of the business quality management system

Examples of improvement include correction, corrective action, continual improvement, breakthrough change, innovation and re-organization

Nonconformity and Corrective Action

When non-conformity occurs, including those arising from complaints, Curtis:

Reacts to the non-conformity, take action to control and correct it, and deal with the consequences

Evaluates the need for action to eliminate the cause(s) of the non-conformity in order that it does not recur or occur elsewhere, by

- a) Reviewing and analysis;
- b) Determining the cause(s);
- c) Determining whether similar non-conformities exist, or could potentially occur (risk);
- d) Implement any action needed;
- e) Review the effectiveness of any corrective action taken;
- f) Update any risks and opportunities determined during planning;
- g) Make changes to the quality management system, if necessary;

Corrective actions are made appropriate to the effects of the non-conformities encountered.

Curtis selects and utilizes tools and methodologies for investigation of the causes of non-conformities, underperformance and for supporting continual improvement activities. Curtis shall retain documented information as evidence of the nature of the non-conformities, any subsequent actions taken and the results of any corrective action.



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Continual Improvement

Curtis endeavors to continually improve the suitability, adequacy and effectiveness of its business quality management system.



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Appendix A. The ‘CURTIS 10-POINTS’

1. Our people are our most important resource.
2. Our customers are the source of our well-being: every person in the company is responsible for exceeding customer expectations.
3. Our products must embody the best technology that is available, while meeting the needs of our markets.
4. We strive to design and manufacture only one level of quality—the highest.
5. Each person in the company is responsible for its progress, and each person must share in its success.
6. As a global company, we recognize that strength comes from the diversity of our culture.
7. We believe in a work environment that encourages and permits each person a sense of his/her own worth.
8. Relations with colleagues, with customers and with vendors must be conducted with integrity and fairness.
9. Creativity in our engineering and in all aspects of our activities is the most essential ingredient of our progress.
10. Curtis companies are citizens of the larger community and we have a responsibility to contribute to the well-being and progress of that community.



Appendix B. Curtis Operating Procedures

Curtis operating procedures are located on the Curtis network and can be accessed in three ways:

1. On the Curtis ERP Syteline system
2. On the web through the Curtis Lunarinside portal
3. On the intranet using Windows Explorer

To access using Syteline:

1. log into Syteline US using the proper credentials.
2. Choose the 'Items' form
3. Under Item (Filter In Place) type *OP-*. This will list all Curtis Operating Procedures. Activate the filter. See image below.
4. Click on the desired procedure. Click on the "Display Notes" icon to view.

The screenshot shows the Syteline 'Items (Filter In Place)' form. The 'Item' field is set to '*OP-*'. The form is divided into several sections: Required, Costs, Miscellaneous, Measure, and Quantities. The 'Required' section includes fields for U/M, Type, Source, Product Code, and ABC Code. The 'Costs' section includes Cost Type, Cost Method, Standard Unit Cost, and Current Unit Cost. The 'Miscellaneous' section includes Revision, Revision Track, ECN, Drawing Number, Alternate Item, Buyer, Stocked, Show In Drop-Down Lists, Allow on Pick Workbench, Low Level, and Active for Data Integration. The 'Measure' section includes Lot Size and Unit Weight. The 'Quantities' section includes Quantity On Hand, Non-Nettable Stock, Safety Stock, Quantity Ordered, Quantity WIP, Allocated To Prod, Allocated To Customer Orders, Reserved For Customer Orders, TO Qty Ordered, PO Blanket Qty Unreleased, and Allocated To Transfer Orders.



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To access using Lunarinside:

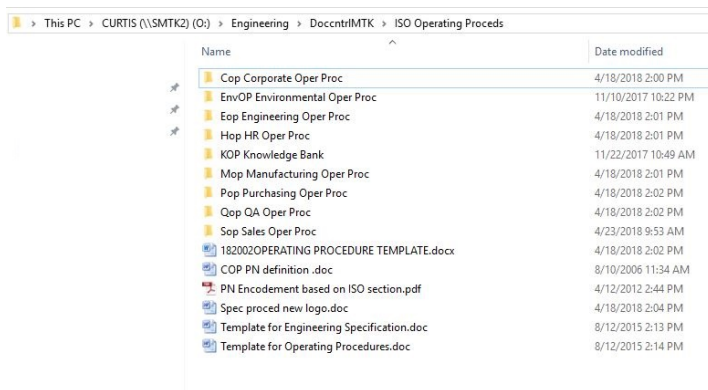
1. Log into Lunarinside using the proper credentials
2. On the left side of the page, mouse over ISO Procedures in the menu shown below



3. In the popup window select Corporate, Engineering, Human Resources, Manufacturing, Purchasing, QA, or Sales for the operating procedure desired.

To access using Windows Explorer:

1. Log into the Curtis MTK intranet using the proper credentials
2. On the CURTIS (\\SMTK2) drive open the “Engineering” folder
3. Open the “DoccntrlMTK” folder
4. Open the “ISO Operating Procceds” folder
5. Open the process folder containing the operating procedure desired





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Appendix C. Management Review Minutes Template

Review Input:

- I. Review Action List carryover from previous meeting
- II. Round robin with all representatives (regarding Section III).
- III. Present evidence of:
 - a. New/significant changes relevant to the business, by Context, Interested Parties (IP), Knowledge, Risk
 - b. Department (monitor/measurement or KPI) updates for:
 - Customer Satisfaction (from interested parties, both external and internal)
 - Dept. Business Quality Objectives
 - Dept. products (or services) performance/conformity indicators
 - Dept. Corrective Actions (caWeb)
 - Monitoring/Measurement Results – a dashboard of all these
 - Quality Audits - # of findings & status (open/closed)
 - Review of External Provider performance –supply chain and service providers
 - c. Adequacy discussion/review of site resources
 - d. Discuss all opportunities for improvement
 - e. Review current Risk Register for new inclusions, progress and closures

Review Output:

- I. Minutes report (with date, attendees, minutes taker, agenda and bullets, outputs-what do we gain, Action list)
- II. Monitor/Measurement and/or KPI dashboard or data
- III. Updated Risk Register



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Appendix D. Risk Register

The Curtis Risk Register template is used for documenting risk identification and management.

To access using Lunarinside:

1. Log into Lunarinside using the proper credentials
2. On the top menu bar, mouse over “Quality Assurance”
3. In the popup window select “Worldwide”
4. Click on “ISO 9001_2015”
5. Click on “Tools”
6. Click on “Risk Register.xlsx” and save a copy to your local desktop

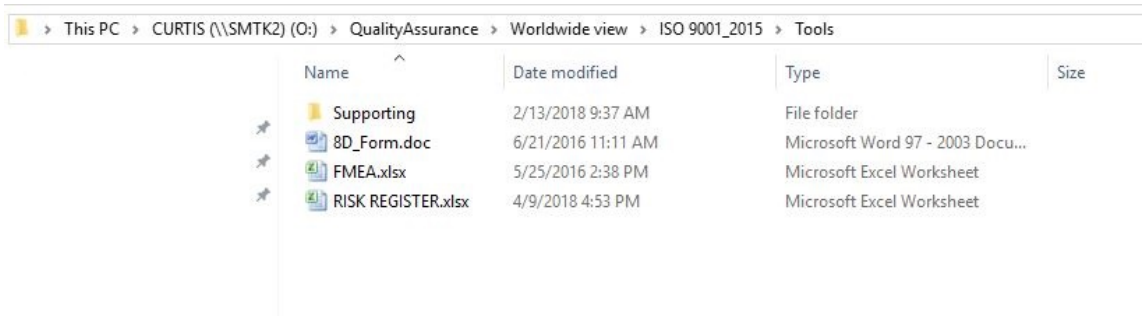
lunarinside.net - /MTKqa/ISO 9001_2015/Tools/

[\[To Parent Directory\]](#)

6/21/2016 11:11 AM	949248	8D_Form.doc
5/25/2016 2:38 PM	2264388	FMEA.xlsx
4/9/2018 4:53 PM	87480	RISK REGISTER.xlsx
2/13/2018 10:37 AM	<dir>	Supporting

To access using Windows Explorer:

1. Log into the Curtis network using the proper credentials
2. On the CURTIS (\\SMTK2) drive, open the “QualityAssurance” folder
3. Open the “Worldwide view” folder
4. Open the “ISO 9001_2015” folder
5. Open the “Tools” folder. Copy “Risk Register.xlsx” to your local desktop.





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RISK REGISTER												
Dept.	Risk ID	Description of Risk	Details	Risk Category (Compliance, Financial, Operational, Strategic)	Root Cause	Potential Triggers (Signals of Risk)	Potential Responses (Reducing Risk)	RISK			Close Date	
								Probability or Likelihood	Impact or Consequence	TOTAL		
								Level	Status Details	Start Date		
	1								0	Open		
	2											
	3											
	4											
	5											
	6											

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