THOMAS KEATING
QUALITY MANUAL

CONFIDENTIALITY

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1. MANUAL ISSUE AND CONTROL

1.1 Identification
Manuals shall be issued either as controlled or uncontrolled:

- **Controlled manuals** shall be
  - Identified as controlled
  - Individually numbered
  - Issued to registered holders
  - Kept up-to-date with any revisions.

- **Uncontrolled Manuals** shall be
  - Clearly marked 'uncontrolled'
  - Issued for information purposes only
  - Not be updated with any revisions.

1.2 Manual Issue
The Quality Assurance Manager shall be responsible for the issue of all Quality Manuals. All hard copies and or access to the networked computer manual will be given to members of the company or other authorized individuals according to the distribution list. It will be the responsibility of the registered holder to ensure that all amendments are incorporated and that the Quality Manual is maintained up-to-date and is available to all relevant staff for which he has responsibility.

The Quality Assurance Manager will retain a list of uncontrolled Quality Manuals. Serialization and accountability of Quality Manuals are the responsibility of the Quality Assurance Manager, who will retain a complete register of Quality Manual holders and those with network access.

1.3 Amendment and Re-issue
The Quality Manual shall be periodically reviewed to re-affirm its adequacy and conformance to internal and customer requirements. Amendments to the Manual shall be carried out as required to reflect the current Quality Assurance Programme. Each amended procedure will be logged on the master Issue and Revision Status index and will be numbered consecutively until such time as an issue of a new Quality Manual incorporates all amendments.

Issues of Quality Manuals are identified in alphabetical order. Each issue cancels and supersedes all previous issues and amendments. The amendment list indicates all the amendments to the latest issue of the Quality Manual. Amendments will not be implemented until the relevant section has been rewritten, approved by the Quality Assurance Manager and issued. The Quality Assurance Manager distributes amendments and reissues of the Manual to all registered holders.

1.4 Internal Availability
The Quality Manual is available through the computer network to the following personnel. There are also additional numbered hard copies.

- Quality Assurance Manager/Operations Director. (Plus Hard copy Number 1)
- Managing Director.
- Sales Manager/Estimator.
- Sales Director.
- Designer.
# Indicates a member of the Quality Review Committee

## 1.5 Approvals and revision history

<table>
<thead>
<tr>
<th>Designation</th>
<th>Comments and changes</th>
<th>Approval date</th>
</tr>
</thead>
<tbody>
<tr>
<td>TK-QM-A0</td>
<td>Initial (incomplete) draft of Quality Manual for ISO9001: 2000 standard 24/4/03</td>
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</table>
2. THE THOMAS KEATING QUALITY SYSTEM

In today’s competitive market place, survival and success depend on the company’s ability to satisfy all of the customer’s technical and timing requirements, whilst continually improving the effectiveness and efficiency of the internal processes.

The ultimate differentiation in such a market is to be acknowledged as the most technically innovative Quality Company. The ability to maintain or improve quality standards, whilst pushing the frontiers of technology, is a major factor in maintaining the company’s market share. Thomas Keating Limited recognises the need to focus its activities on achieving real customer satisfaction and continual improvement.

This Quality Manual is intended to clearly demonstrate the quality profile of the Company and to show that the approach has the full support of the Management of the company.

2.1 Overview of Thomas Keating

Thomas Keating Limited is a trading subsidiary of the Churchwood Trust Limited a private limited company (Company Registration Number 00298734). We are involved in precision engineering, toolmaking and the manufacture of specialist scientific instrumentation. We aim to design and manufacture press tools, moulds, jigs & fixtures and MM-wave and Microwave components to the highest possible standard in keeping with the specifications required by our customers. The company ethos is one of continual improvement and customer support through all stages of design and manufacture including full support for employees with regard to training.

We are committed to being the preferred supplier in each of the markets we serve. To this end, our customers are our primary concern. We aim not only to satisfy them, but also to earn their loyalty through forming long-standing, ethical relationships with them. We will continue to develop processes for understanding their needs and expectations. We measure their perception of our services through regular customer satisfaction surveys. We actively involve all of our employees in assessing and refining the internal quality systems. We also take prompt action on what we learn from these.

Thomas Keating Limited is located at Station Mills, Billingshurst, West Sussex, RH14 9SH. The contact details are given below,

Tel: 01403 782045
Fax: 01403 451271
Web: www.terahertz.co.uk

2.2 Scope and Applicable standards

This Quality Manual documents quality system of Thomas Keating Limited, to demonstrate the company’s ability to consistently provide product that meets the customer and regulatory requirements and to continually improve the effectiveness of the internal processes.


The Quality Management System defined in this manual applies to all activities carried out within Thomas Keating Limited.

This manual may be submitted as evidence of the quality systems employed in the supply of product to customers.
2.3 Exclusions
There are no exclusions

3. MANAGEMENT
The senior management of Thomas Keating is committed to the development and implementation and continual improvement of an appropriate Quality Management system that complies with ISO9001: 2000 and forms the basis for the efficient operation of the business.

In particular the senior management is will enable the continual improvement in effectiveness by

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

3.1 Management Structure
An appropriate senior management structure will be maintained to allow the effective operation of the Quality Management System and facilitate the internal communication of the general approach, objectives and ongoing development of the system.

A key role within the management structure is the Quality Assurance Manager, who, with the support of the Managing Director, has the responsibility of structuring and improving the programme that will ensure compliance with all quality requirements.

The Quality Assurance Manager shall have the responsibility and authority to,

   a) Ensure that processes needed for the quality management system are established, implemented and maintained,
   b) Report to the senior management on the performance of the quality management system and any need for improvement, and
   c) Ensure the promotion of awareness of customer requirements throughout the organization.

3.2 Management Responsibilities
The management structure of Thomas Keating is given below together with a summary of the responsibilities of the roles.
3.2.1 Managing Director
The role of the Managing Director is broad but covers areas such as,

- The formulation of all major policies.
- Ensuring the provision of adequate services to allow the business to perform efficiently.
- Dealing with all matters of Company business such as tax, banking, insurance, pensions and legal requirements.
- The formulation of general policies for pricing based on the current market position and to direct effort toward new market sectors.
- The identification of skills required to address new markets and to satisfy these new customers.
- Selection and promotion of senior members of staff and the over-seeing of all appointments to the work force.
- Agreeing re-numeration for all employees.
- Adjudicating in all serious matters of discipline.
- Dealing with all major personnel problems.
- Evaluation of new manufacturing and computing techniques and to allocate the necessary capital expenditure.

3.2.2 Sales Director
The role of the Sales Director covers areas such as,

- The formulation and maintenance of a strategy for the contact and development of new customers and to investigate new business opportunities in connection with the core Toolmaking activities of the company.
• Working in conjunction with the Sales Manager in liaising with existing customers and
designers to meet new tooling requirements and to place external design work when
necessary, working with the designer and customer to achieve design approval.
• Overseeing the Sales Manager in providing estimates of hours, deliveries and prices based
on the company pricing policy in conjunction with the Managing Director.
• Placing new jobs on the shop floor after the receipt of customer orders. This is a joint
responsibility with the Sales Manager.
• Maintaining dialogue with the customer throughout tooling manufacture.
• Submitting post delivery and customer visit reports to the Operations Director in electronic
form.
• Analysing the customer satisfaction information and responding accordingly.

3.2.3 Sales Manager/Estimator
The role of the Sales Manager/Estimator covers areas such as
• Liaising with existing customers, designers and new customers once they have become
established to meet new tooling requirements and to place external design work when
necessary, working with the designer and customer to achieve design approval.
• Providing estimates of hours, deliveries and prices based on the pricing policy of the
company in conjunction with the Sales Director.
• Placing new jobs on the shop floor after the receipt of customer orders. This is a joint
responsibility with the Sales Director.
• Maintaining dialogue with the customer throughout tooling manufacture.
• Assisting the Sales Director in the execution of his duties.

3.2.4 Office Manager
The role of the Office Manager covers areas such as
• Attending to the every-day running of the General Office.
• Checking and adjusting bank account levels on a day-to-day basis.
• Invoicing and arranging for the packaging and dispatch of finished items in conjunction with
the Operations Director.
• Preparation of the final cost summaries of completed jobs.
• Issuing statements each month and chase over-due accounts.
• Processing the management accounts.
• Preparing all end-of-year accounts for the annual audit.
• Preparing a daily attendance sheet and pass it to the Operations Director.

3.2.5 Operations Director
The role of the Operations Director covers areas such as
• Overseeing the day-to-day running of the company at factory floor level.
• Liaising with customers with regard to technical questions about work in progress, and
delivery schedules as required.
• Planning and implementing the work through the respective toolmakers and to liaise with
them as to the preferred method of manufacture.
• Liaising with all employees with regard to setting machining priorities/work loading.
• Requisitioning steel (following discussions with the Technical Manager if necessary),
materials and bought out items.
• Requisitioning drills, cutters and other small tools to retain a sufficient stock in the stores to
meet normal requirements.
• Ensuring that all job envelopes are suitable for the shop floor when received from the office manager and to ensure that on job completion they are signed off and cleared to the General Office.
• Notifying the Office Manager when items are ready for dispatch.
• Ensuring all the requirements of the Quality Management System, in connection with the shop floor are correctly complied with.
• Storing customer reports raised by the Sales Director in electronic form on computer.
• Setting daily delivery and collection schedules for the company transport.
• Attending Management Meetings when required to do so.
• Maintaining shop floor discipline.
• Investigating all matters concerning Health and Safety.
• Setting permissible overtime hours for shop floor staff on a weekly basis or as required.
• Assessing performance with regard to time, quality, and delivery on completion of all major jobs and profitability with the toolmaker concerned and Sales Person.
• Ensuring an adequate level of cleaning throughout the factory.

3.2.6 Technical Manager
The role of the Technical Manager covers areas such as
• Resolving any technical production problems that involve techniques not previously used.
• Proving alternative methods of production, when necessary.
• Training apprentices and to liaise with Crawley College on their development.
• Assisting in the selection and interviewing of potential apprentices.
• Liaising with local schools and to promote the company when looking for new apprentices.
• Assisting the Operations Director when ordering steel and other materials.

3.2.7 Toolroom Supervisor
The role of the Toolroom Supervisor covers areas such as
• Acting as assistant to the Operations Director and as such to be directly responsible to him and to assist him in the execution of his duties.
• Generally assisting toolmakers and machinists with technical queries, drawing interpretations, etc.
• Assisting in the general running of the Toolroom with particular emphasis on production, delivery and maintaining discipline.
• Assuming the responsibilities of the Operations Director in his absence.
• Holding a position on the Health and Safety committee.

3.2.8 Science Instrumentation Supervisor
The role of the Scientific Instrumentation Supervisor covers areas such as
• Acting as assistant to the Operations Director in all matters concerning Science Instrumentation manufacture and as such to be directly responsible to him and to assist him in the execution of his duties.
• Generally assisting Toolmakers and machinists with technical queries and drawing interpretation concerning Science Instrumentation products.
• Assuming the responsibility of the Toolroom Supervisor in his absence.
3.3 Quality Policy and Objectives

Our aim is to be acknowledged as the most technically innovative Quality Company in our markets.

By focusing our resources on determining and fulfilling customers' expectations, Thomas Keating Limited will provide services of the highest quality, on time and with ever-improving levels of customer satisfaction.

It will achieve this through the application of continual improvement, process control, employee empowerment and management commitment.

<table>
<thead>
<tr>
<th>OBJECTIVE:</th>
<th>METRIC:</th>
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<tr>
<td>High quality products</td>
<td>Quality index data</td>
</tr>
<tr>
<td>On-time delivery</td>
<td>Delivery history data</td>
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<tr>
<td>Customer satisfaction</td>
<td>Satisfaction data</td>
</tr>
<tr>
<td>Continual improvement</td>
<td>Internal audit reports</td>
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<td>CAR trend analysis</td>
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We appreciate that complete customer satisfaction is not achieved solely by ensuring the excellence of the product; we know that Total Quality must be an essential and integral part of everything we do. To do this we will,

- Ensure that every employee is aware of the importance of determining and fulfilling customers’ expectations.
- Sustain and enhance our reputation for quality and reliability of our services.
- Only supply goods and services that fall within our area of expertise and that will ensure customer satisfaction.
- To focus our resources on fulfilling customers’ expectations.
- Design, manufacture, supply and products that meet all of the relevant regulatory standards.
- Maintain systems and processes that help us to run all operations efficiently and effectively.
- Aim to be error free in our work and do everything right first time.
- Monitor performance and act to continually improve the effectiveness of our systems.
- To ensure the continued suitability of the objectives, processes and systems in the ever-changing business environment.

3.4 Provision and Management of Resources

The Company will determine and provide the internal resources required to implement, maintain and continually improve the effectiveness of, the Quality Management System. The primary aim of this approach is to enhance customer satisfaction by meeting the explicit and implicit customer requirements.
A primary resource for achieving our aims is our people. We will ensure that all personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives. The competence of all personnel performing work that affects product quality shall be assessed on the basis of appropriate education, training, skills and experience.

All staff carrying out tasks that require special skills and qualifications that could be adversely effected by the lack of such skills, shall be identified, documented and remedied with in-house or external training. A training log of all such staff shall be maintained and kept in the personnel records of the general office, this will record both the training that occurs and an evaluation of the effectiveness. Details of how the training of staff shall be identified and implemented are contained in written Procedure Staff Training TK-QP-009.

The Company will determine, provide and maintain the infrastructure required to enable to effectively achieve conformity to product requirements. This will include,

a) Buildings, workspace and associated utilities
b) Process equipment used in the design and manufacture of the products
c) Supporting services such as ITC and transport.

In order to ensure that the work environment continue to be suitable to achieve conformity to product requirements, due consideration will be given to the quality requirements during the regular health and safety workplace reviews. Any problems will be reported via the normal non-compliance channels.

4. PROCESSES

This section of the Quality Manual provides details of the process approach that is used within Thomas Keating Limited. It identifies the key processes that operate within the business and the linkage and interaction between them. The overall system of processes provides a useful operational model for the business such that control, monitoring and continual improvement of the system of processes will ensure the continual improvement and optimization of the overall business.

For documentation purposes, the internal processes are split into two main types, those associated with providing control, monitoring and improvement and those associated with product realization. In reality there will tend to be substantial overlaps between the two types.

4.1 Process management

The process approach acknowledges that a desired result is achieved more efficiently when activities and related resources are managed as a process. A common definition of a process is

“A sequence of related tasks and decisions which act on inputs to add value to create outputs. It uses resources and is subject to controls”

The advantage of the process approach is the ongoing control that it provides over the linkage between the individual
processes within the system as well as over their combination and interaction.

The Quality Management System for Thomas Keating Limited has been established to comply with the requirements of ISO9001: 2000 and has followed the following guidelines in accordance with the standards general requirements. Thomas Keating Limited has,

a) Identified the processes needed for the quality management system and their application throughout the business.

b) Determined the sequence and interaction of these processes

c) Determined criteria and methods needed to ensure that both the operation and control of these processes are effective,

d) Ensured the availability of resources and information necessary to support the operation and monitoring of these processes,

e) Monitored, measured and analyzed these processes, and

f) Implemented actions necessary to achieve planned results and continual improvement of these processes.

The overall process model of the Quality Management system is given in section 4.2 and is operated by the application of the “Plan-Do-Check-Act” method, described below,

**Plan:** Establish the objectives and processes necessary to deliver results in accordance with customer requirements and the Company’s policies

**Do:** Implement the processes

**Check:** Monitor and measure processes and product against policies, objectives and requirements for the product and report the results.

**Act:** Take actions to continually improve process performance.
4.2 Process Interactions and controls

The key processes and the interaction between them are given in diagrammatic format in section 5. These are,

1. The Thomas Keating Limited Quality Management System – Top-Level Process
2. Operational Processes - Overview
3. The Quotation Process
4. The Order Entry Process
5. The Manufacturing Process
6. The Design Process
7. The Purchasing Process
8. The Job Completion Process

4.3 Quality Management Processes

Detailed control of the Operational Processes that result in the realization of the product is accomplished via the Quality Management and Control Processes.

4.3.1 Management Review

In addition to the day-to-day involvement in the Quality Management system that is required to operate the business, the Management will review the system at planned intervals to ensure its continued suitability, adequacy and effectiveness. These reviews shall include the assessment of opportunities for improvement and the need for any other changes to the system, including the policy and objectives.

The reviews shall consider a wide range of inputs including,

- Results of internal and external audits
- Customer feedback in the form of survey results, complaints and general comments
- Process performance and product conformity information
- Information on the status of preventative and corrective actions
- Actions arising from previous reviews
- External in internal factors that could affect the quality management system
- Other recommendations for improvement

Results from the reviews will include actions related to,

- Improving the effectiveness of the system and its processes
- Product improvements addressing current and future customer requirements
- Current and future resource requirements.

The actions arising from these reviews will be recorded.

4.3.2 Planning, Control and improvement

The Management will ensure that adequate planning of the Quality Management system is carried out to meet the general requirements, the quality objectives and the business objectives of the Company. In addition, the Management will ensure that the integrity of the system is maintained during periods of change arising from external factors or from changes to the quality management system itself.

This approach is covered in the procedure Planning, Review And Improvement Of The Quality Management System TK-QP-010, this covers all of the internal controls that monitor the Quality Management System itself namely,

a) Quality management system planning
b) Management review
c) Internal Auditing  
d) Continual improvement

Thomas Keating Limited plans and conducts internal audits at planned intervals for the following purposes:

- To verify whether quality activities and related results comply with planned arrangements, ISO 9001 and quality management system requirements.
- To determine the overall effectiveness of the quality management system as implemented and maintained.
- To identify opportunities for continual improvement

4.3.3 Document Control

Documents required by the quality management system must be controlled. Provision is made for adequate control of all documents that have an effect on the quality of product as specified in the Documentation Control Procedure (TK-QP-008). The purpose of this procedure is to define the controls required needed,

- to approve documents for adequacy prior to issue
- to review and update as necessary and re-approve documents
- to ensure that changes and the current revision status of documents are identified
- to ensure that relevant versions of applicable documents are available at points of use
- to ensure that documents remain legible and readily identifiable
- to ensure that documents of external origin are identified and their distribution controlled, and
- to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

4.3.4 Records Control

Records have been established and maintained that provide evidence of the conformity to requirements of the quality management system. These records are in a variety of formats including paper and electronic.

Records have been established to provide evidence of the conformity to requirements and of the effective operation of the quality management system. The Control of records procedure TK-QP-102 defines the method of identification, storage, protection, retrieval, retention period and disposition of records. It also provides guidance on the review of record requirements. The records shall be periodically reviewed and evaluated by the Quality Assurance Manager for the purpose of improving both records and systems.

A list of records is maintained TK-QF-101 and detailed documentation, forming the basis of Quality system records, is referenced in the written procedures.

4.3.5 Process Control

The key processes and the interaction between them are given in diagrammatic format in section 5. The control of the processes is accomplished by a combination of,

- Documented procedures
- Auditing of processes for effectiveness
- Management review
- Analysis of data.

The documented procedures are listed below.
<table>
<thead>
<tr>
<th>Procedure Number</th>
<th>Title</th>
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<tbody>
<tr>
<td>TK-QP-001</td>
<td>Customer Enquiry and Contract Review process</td>
</tr>
<tr>
<td>TK-QP-002</td>
<td>Design Control</td>
</tr>
<tr>
<td>TK-QP-003</td>
<td>Control of purchased materials and goods inwards procedure</td>
</tr>
<tr>
<td>TK-QP-004</td>
<td>Monitoring and Measurement of Product</td>
</tr>
<tr>
<td>TK-QP-005</td>
<td>Control and Calibration of Inspection, measuring and test equipment</td>
</tr>
<tr>
<td>TK-QP-006</td>
<td>Nonconforming product and corrective action</td>
</tr>
<tr>
<td>TK-QP-007</td>
<td>Handling, Packing and Dispatch</td>
</tr>
<tr>
<td>TK-QP-008</td>
<td>Document Control Procedure</td>
</tr>
<tr>
<td>TK-QP-009</td>
<td>Staff Training</td>
</tr>
<tr>
<td>TK-QP-010</td>
<td>Planning, review and improvement of the Quality Management System</td>
</tr>
<tr>
<td>TK-QP-101</td>
<td>Internal Audit Procedure</td>
</tr>
<tr>
<td>TK-QP-102</td>
<td>Control of Records</td>
</tr>
<tr>
<td>TK-QP-104</td>
<td>Preventive Action</td>
</tr>
<tr>
<td>TK-QP-105</td>
<td>Control of Manufacturing</td>
</tr>
</tbody>
</table>

4.3.6 **Equipment control (including calibration)**

All measuring and test equipment used in both manufacture and inspection shall be calibrated in accordance with the procedure Control and Calibration of Inspection, measuring and test equipment TK-QP-005. This calibration applies to that equipment which is the property of Thomas Keating and the equipment that is purchased and owned by Thomas Keating personnel.

The Quality Assurance Manager shall be responsible for ensuring that calibration is done within the required time periods, as specified in the Thomas Keating Calibration Standard 1990/2002 and that all calibration records are kept up to date. The calibration records shall be periodically reviewed to ascertain adequacy of calibration.

4.3.7 **Communication**

The Company will determine and implement effective means of both internal and external communication.

A variety of means will be adopted for internal communication that will take into account both the message to be delivered and the target audience; these will include both written and verbal presentations. A primary aim of these approaches will be to allow dissemination and feedback on the effectiveness of the quality management system.

Effective arrangements for communicating with customers and prospective customers will be implemented relating to items such as the provision of product information, enquiries, contracts, order handling and amendments, and customer feedback including complaints. Methods involved will include brochures and other written material, presentations, web pages and other electronic forms of communication. Where appropriate the effectiveness of the communication method will be assessed by a variety of methods including surveys and web site statistics.

4.3.8 **Data Analysis**

Thomas Keating will determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system. This data analysis will be used to identify and evaluate opportunities for the continual improvement of the system. The data will be generated as a result of the normal monitoring and measurement of existing processes.
The data will be analysed and presented in a form for Management review. In addition to metrics devised for the main operational processes, a number of key performance indicators will be established which support the main Quality Objectives. These will be used as a communication tool to demonstrate the improvements in overall effectiveness of the quality management system.

4.3.9 Corrective and Preventive Action
Thomas Keating Limited has a nonconforming product and corrective Action procedure (TK-QP-006) to provide a method whereby any nonconforming detail, assembly or component may be recognized and a suitable record kept of those items and the appropriate action taken to either scrap, return to supplier, re-work or obtain a concession.

A further objective is to determine the cause of the nonconformity and to ensure that appropriate action may be taken to prevent a similar re-occurrence.

In addition Thomas Keating Limited has a Preventive Action procedure (TK-QP-104) in place to identify and eliminate the causes of potential nonconformities in order to prevent their occurrence. The procedure defines the requirements for,

a) Determining potential nonconformities and their causes
b) Evaluating the need for action to prevent the occurrence of nonconformities
c) Determining and implementing actions needed to eliminate or reduce the risk of occurrence.
d) Recording of the results of the action taken
e) Reviewing the effectiveness of the preventive actions taken.

4.4 Product and service realization processes

4.4.1 Realization planning
The Company will plan and develop its product realization processes in order to satisfy the Quality objectives and to increase customer satisfaction.


The Operations Director will issue adequately documented drawings and manufacturing instructions. The Operations Director is responsible for issuing the drawings to the toolmaker and ensuring that the necessary equipment is available. It is the responsibility of the Operations Director/Quality Assurance Manager to ensure that the correct Procedures are followed including those associated with special services, such as heat treatment.

Short and medium term production planning shall be the responsibility of the Operations Director working with information provided by the Sales Department.

The management will review the product realization plans in the light of changing business conditions such that future requirements for new processes, additional or replacement equipment and staff can be estimated.

4.4.2 Requirements Review
Thomas Keating ensures that the customer requirements are determined and met with the aim of enhancing customer satisfaction by carry out detailed reviews of the contract documents, together with customer specifications and drawings, on which the design and manufacture of
suitable tooling or components will be based shall be carried out in accordance with that stated in
TK-QP-001 Procedure for Contract Review. This process defines the controls required,:,

a) To determine the requirements specified by the customer, including requirements for
delivery and post-delivery activities where appropriate,
b) To determine the requirements not stated by the customer but necessary for the
specified or intended use, where known,
c) To identify any statutory and regulatory requirements related to the product
d) To ensure that the Company has the ability to meet the defined requirements
e) To identify any potential problems that would limit the Company’s ability to delivery
conforming product.
f) To identify any changes in contract or order requirements as compared with previous
communications.
g) To ensure that effective arrangement for communicating with the customer are
established.

4.4.3 Design
The responsibilities and actions required for controlling the design, distribution and correction of
drawings for the manufacture of tooling, gauges and scientific equipment are clearly defined and
are documented in TK-QP-002. The design process ensures that Thomas Keating is able to plan
and control its design and development stages, to review, verify and validate the design as
appropriate and that the responsibilities and authorities for design are established.

The process ensures that designs and development initiated as a result of any of the following are
covered,

a) Pre-order enquiries
b) Orders
c) Internally generated projects

4.4.4 Purchasing and Supplier Control
Thomas Keating has established a controlled method for the purchase of materials and services
and assigned responsibility for actions in connection with the purchase of materials and services.
This is defined in the procedure Control of purchased materials and goods inwards TK-QP-003.
Also we have outlined the basis for the evaluation, selection and continual monitoring of suppliers
based on their ability to supply product in accordance with the specified requirements. Existing
suppliers will be subject to a regular review based on their ability to supply product that fulfils the
following requirements,

a) Conformity to specified purchase requirements
b) On-time delivery
c) Price
d) General factors affecting the ease to do business with them.

Relevant information concerning the supplier’s ability to satisfy the requirements will be
maintained and analyzed by the Operations Director.

4.4.5 Identification and Traceability
Where appropriate finished product, constituent parts and raw materials will be identifiable and
traceable throughout the manufacturing process as detailed in Company Procedures Control of
Purchase Material TK-QP-003, Monitoring and Measuring of Product TK-QP-004, Nonconforming
product and Corrective action TK-QP-006 and Handling, Storage, Packaging & Delivery TK-QP-
007.
4.4.6 Control of Nonconforming Product

The control of non-conforming product and material is established through all stages of manufacture to prevent its unauthorized use or dispatch. Documented procedures a method whereby any nonconforming detail, assembly or component may be recognized and a suitable record kept of those items and the appropriate action taken to either scrap, return to supplier, re-work or obtain a concession. A further objective is to determine the cause of the nonconformity and to ensure that appropriate action may be taken to prevent a similar re-occurrence.


Any non-conforming product that is corrected will be subject to re-verification to demonstrate conformity to requirements.

4.4.7 Preservation

All packaging, storage, handling and delivery of finished product, constituent parts and raw materials will be carried out so as to ensure that that the conformity of the product is preserved throughout the process. This is specified in the procedure for Handling, Storage, Packaging and Delivery TK-QP-007.

4.4.8 Monitoring and Measurement

4.4.8.1 Customer Satisfaction

The Sales Director is responsible for ensuring that customer communication is maintained and that customer satisfaction data is collected, analyzed. The following methodologies are used for monitoring and measuring customer satisfaction:

- Customer Requirements
- Customer Complaints
- Satisfaction Surveys
- Repeat Customers
- Current legislation, standards, codes
- Trend Analysis
- Reports from customers
- Direct Communication with Customers

The Sales Director is responsible for ensuring that the collected customer satisfaction data is appropriately tracked and maintained. Customer satisfaction data serves as a means to assess the overall performance and continual improvement of the quality management system at Thomas Keating Limited.

Customer feedback (including customer satisfaction measurement data and customer complaints) are utilized in the Management Review process.

4.4.8.2 Internal Audit

Thomas Keating Limited plans and conducts internal audits at planned intervals according to the Internal Audit Procedure TK-QP-101.

The Quality Assurance Manager produces an audit program, which identifies when each element or process of the quality management system will be audited. A minimum of two internal audits is conducted per year and every element or process of the quality management system is audited.
at a minimum of once per year. The frequency at which an individual element or process is audited is based upon the importance and status of the element or process and the results of previous audits.

The Quality Assurance Manager is responsible for organizing and coordinating the internal audit to ensure that the audit criteria, scope, frequency and methods are defined, and that the following requirements Internal Audit Procedure TK-QP-101 are met:

- Definition of audit responsibilities
- Definition of requirements for planning and conducting the audit, including follow-up activities
- Assurance of auditor independence
- Recording of audit results
- Communication of audit results to management

Only qualified personnel may perform internal auditing activities. These qualified personnel are classified as internal auditors and have received the following training as a minimum: 1 day training on internal auditing techniques, 1 day training on the ISO 9001 Standard, this training may be performed by previously trained internal auditors.

### 4.4.8.3 Monitoring and Measurement of Processes

Monitoring and, where applicable, measurement activities are performed on the quality management system processes necessary to meet customer requirements and track quality objectives and to additional processes where the potential benefit is identified. The responsibility to identify and apply suitable methods for monitoring and measurement of processes is assumed by department managers.

Monitoring and measurement of processes demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, action is taken to correct the immediate problem and, where appropriate, corrective action is initiated to eliminate the root cause of the problem and ensure conformity of product, according to the Nonconforming product and correction action procedure TK-QP-006.

### 4.4.8.4 Monitoring and Measurement of Product

Thomas Keating identifies and implements monitoring and measurement activities and related records used to verify that product characteristics and requirements are met at various stages in the manufacturing process.

Monitoring and measurement of product is carried out in accordance with procedure TK-QP-004 that provides a system of inspection and measurement and to provide adequate evidence of conformity to suit both manufacturing and customer needs. The responsibility for authorising the release of product is clearly identified and release will not occur until the appropriate stages have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.
5. PROCESS MAPS

5.1 The Thomas Keating Limited Quality Management System – Top-level process
5.2 The Operational Processes - overview
5.3 The Quotation process

Quotation process
5.4 The Order Entry Process

Order entry process
5.5 The Manufacturing Process

[Diagram of the manufacturing process]

Manufacturing process

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5.6 The Design Process

Design process

- Request for designs for prospect
- Review of requirements
- Initial designs for prospects
- Design
- Customer approval
- Design release
- Released drawings

- Designs for Order
- Design spec. for internal development
- Design review (against order or dev. spec.)
5.7 The Purchasing Process
5.8 The Job Completion Process

Job Completion

- Job approved for dispatch
- Generation of packing note, advice note and Invoice
- Completion of job details including total hours and costs
- Review of job file
- Job evaluation
- Update of drawing (if required)
- Filing of job details
- Packing and dispatch of item
- Dispatch

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## APPENDIX: ISO9001: 2000 CROSS REFERENCE

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