



Carpenter Technology Corporation

Specialty Alloys Operations

Quality Manual

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Introduction

Carpenter Technology Corp. has developed and implemented a Quality Management System (QMS) to document best business practices, better satisfy the requirements and expectations of our customers and to continually improve the overall management of our business operations.

The QMS of Carpenter Technology Corp. is written to meet the requirements of the International Standards SAE AS9100D., AS9120 Rev B., and ISO 9001:2015, plus 10CFR 50, Appendix B. This system addresses the development and production of Carpenter Technology Corp.'s products and processes.

This Quality Manual describes the QMS, delineates authorities, interrelationships and responsibilities of the personnel responsible for performing within the system.

This Quality Manual is used externally to introduce our QMS to our customers and other external organizations. The Quality Manual is used to familiarize them with the controls that have been implemented and to assure them that the integrity of the QMS is maintained and focused on customer satisfaction, continual improvement, organizational environment and associated risks, varying needs and objectives, our products and processes and our organizational structure.

The following appendices are stand-alone documents under separate revision control:

Appendix A- Certifications by Site

Appendix B- Site Scopes with Exclusion Justification

Appendix C- Quality Policy

1. Scope

1.1. General

This Quality Manual outlines the policies, procedures and requirements of the Carpenter Technology Corp. Quality Management System. The system is structured to comply with the conditions set forth in the International Standard SAE AS9100D, AS9120 Rev. B, ISO 9001:2015, and 10CFR50, Appendix B.

1.2. Application

This Quality Manual describes all aspects of the QMS for the sites identified in Appendix A. This encompasses administration, control of purchases, control of vendors and subcontractors, quality development, process and quality control systems for manufacturing, problem analysis and corrective action, programs for checking test instruments and personnel, and audits.

Department and/or position titles referenced here-in are typical for Reading operations. Non-Reading sites covered by this manual conduct the same responsibilities as they apply to their facility but may be performed by other positions/titles.

1.3. Individual Site Scopes

Individual site certificate scopes are maintained in Appendix B, Site Scopes with Exclusion Justification.

2. Quality Management System References

The quality system requirements imposed by the applicable regulatory authorities and those applicable government and industry standards were considered during the development of the Carpenter Technology Corp. QMS and shall be used for continuous updating of this Quality Manual and applicable procedures. A list of these authorities and standards is maintained by Quality Assurance.

3. Deliberate Malpractice

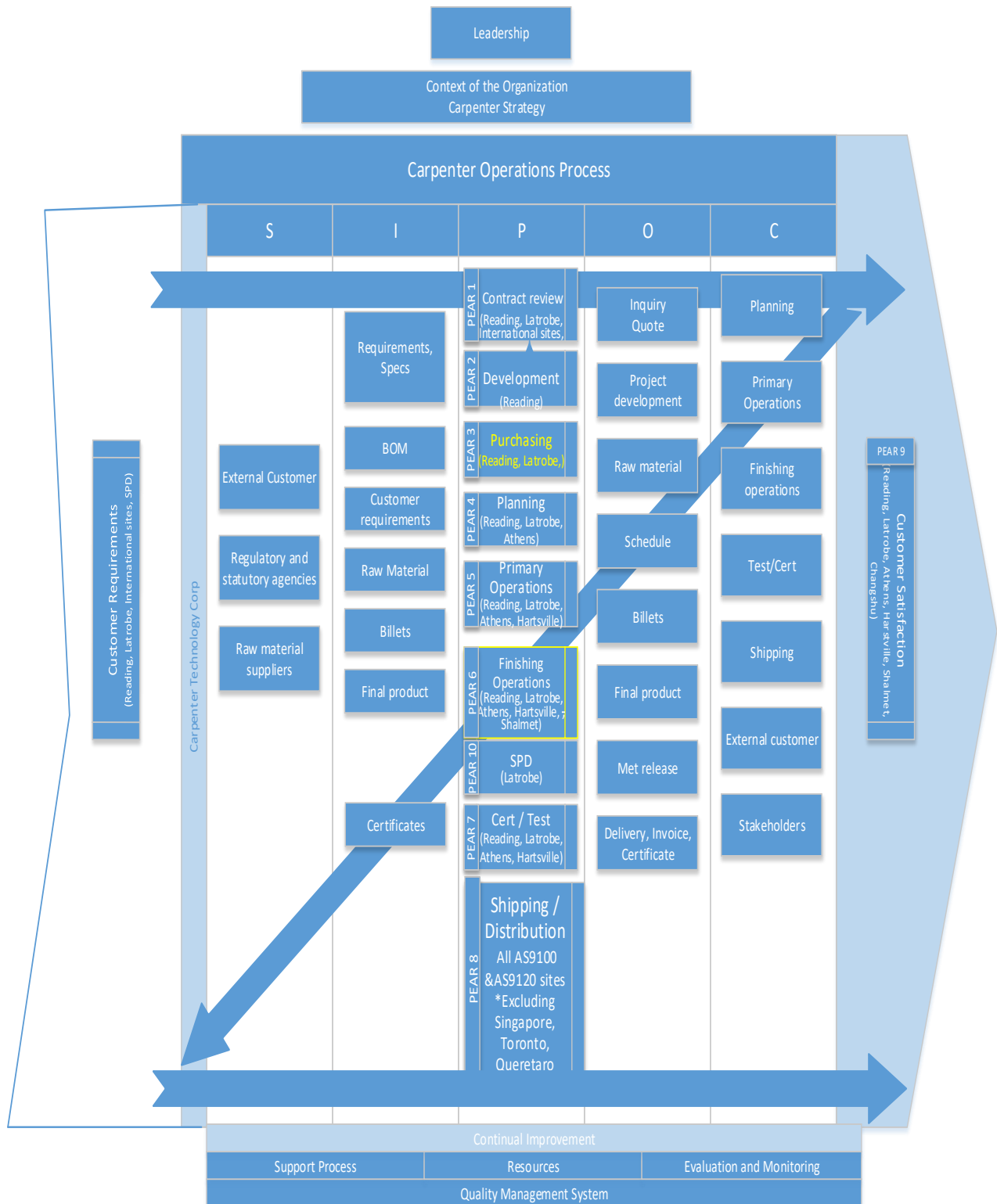
Deliberate Malpractice is an intentional deviation from documented and approved procedures that could affect the quality or performance of product. Areas most sensitive to deliberate malpractice include:

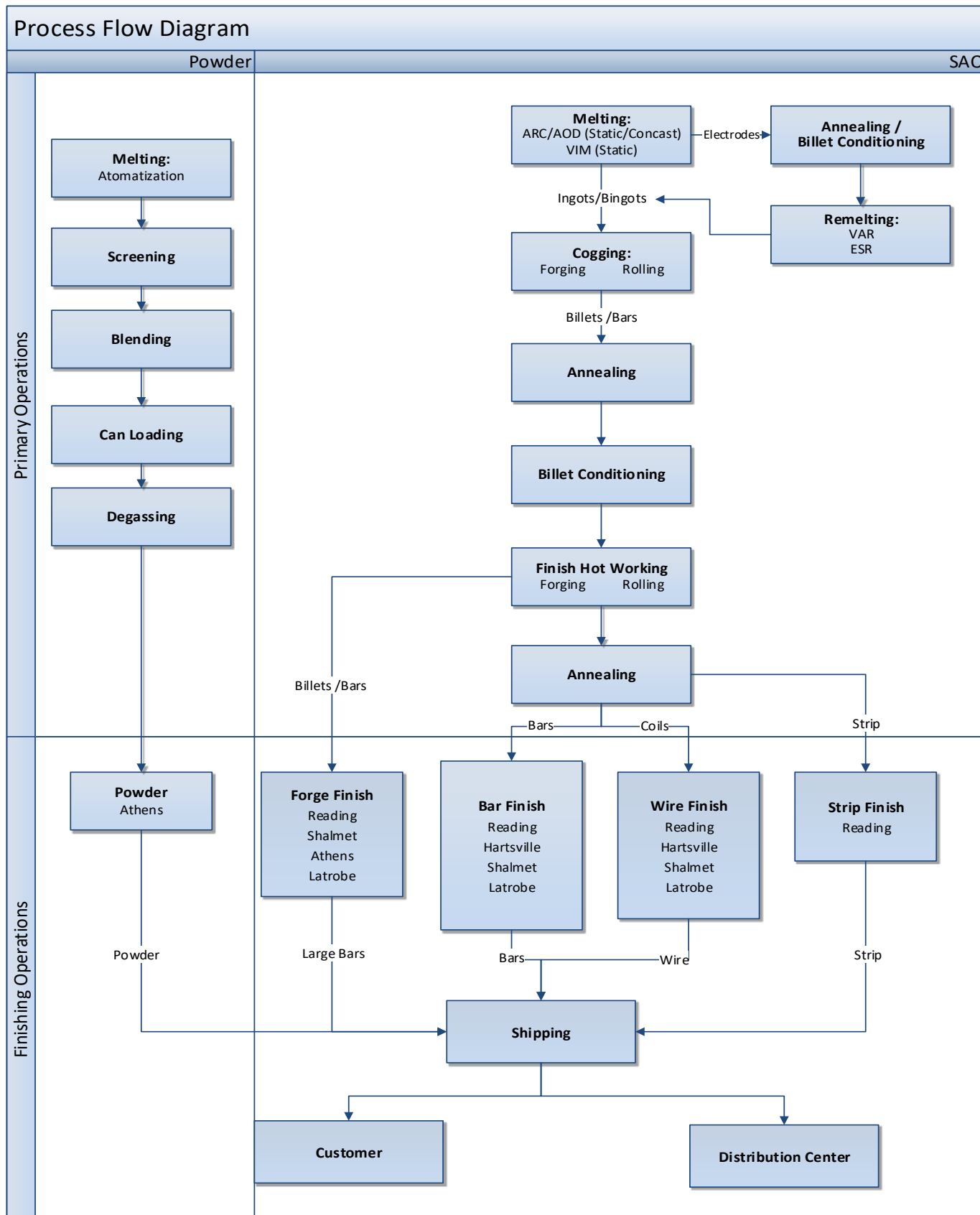
- Falsification of processing or inspection records.
- Failure to follow procedural steps in the prescribed order and within specified limits.
- False identification of work in process or final product.
- Substitution of alternate materials without correction of records.
- Substitution of retest data without documentation and approval.
- Failure to document inadvertent departure from approved specifications or procedures.

Employees are made aware of their responsibilities concerning deliberate malpractice through several means.

- A posting which includes Section 206 of the Energy Reorganization Act of 1974 and Title 10, Chapter 1, Code of Federal Regulations Part 21 10 CFR Part 21 is maintained on all permanent boards within all locations.
- Carpenter Technology Corp. maintains a procedure to further support this posting titled "Federal Laws and Regulations Regarding Reporting of Defects in Products, Noncompliance with Specification and Deliberate Malpractice".
- Reading Quality Assurance shall review 10 CFR Part 21 annually, and updated notices defining deliberate malpractice are issued and posted on bulletin boards as required.
- Internal quality systems audits address the topic of deliberate malpractice.

Carpenter Process Interaction Diagram





4. Context of Carpenter Technology Corp.

4.1 Understanding Carpenter Technology Corp. And Its Context

Carpenter Technology Corp. has determined external and internal issues that are relevant to our purpose and our strategic direction and that affect our ability to achieve the intended result(s) of our quality management system.

Carpenter Technology Corp. monitors and reviews information about these external and internal issues.

To ensure future success for Carpenter, our Corporate Strategy helps to solidify our position as the industry leader by being the preferred solutions provider. This is expressed in our Business Purpose:

We will grow in market segments where we can provide differentiated and value-added solutions to complex problems. We will solidify our position as the industry leader by being the preferred solutions provider and providing our customers a competitive advantage.

More information on our Areas of Excellence can be found on our corporate website:

- Technology Development
- Operational Excellence
- Strategic Marketing
- Talent Engagement

Carpenter's Core Values are the foundation of everything we do and provide a guidepost for achieving excellence. More information on our Core Values can be found on our corporate website:

- Zero Injury Workplace
- Transparency
- Above the Line Accountability
- Performance
- Professional Confrontation
- Collaboration
- Dignity and Respect
- Integrity and Ethics

4.2 Understanding the Needs and Expectations of Interested Parties

Due to their effect or potential effect on Carpenter Technology Corp.'s ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, Carpenter Technology Corp. has determined:

- a. the interested parties that are relevant to the quality management system. Interested parties include our shareholders, customers, employees, and community members.
- b. the requirements of these interested parties that are relevant to the quality management system.

Carpenter Technology Corp. monitors and reviews information about these interested parties and their relevant requirements. More information on our Strategy, Core Values and our Vision are available on our corporate website.

4.3 Determining the Scope of the Quality Management System

Carpenter Technology Corp. has determined the boundaries and applicability of the quality management system to establish its scope. When determining this scope, we considered:

- a. the external and internal issues referred to in 4.1;
- b. the requirements of relevant interested parties referred to in 4.2;
- c. the products and services of Carpenter Technology Corp.

Carpenter Technology Corp. has applied all the requirements of this International Standard if they are applicable within the determined scope of its quality management system.

The scope of Carpenter Technology Corp.'s Quality Management System is available and maintained as documented information. The scope states the types of products and services covered and provide justification for any requirement of this International Standard that Carpenter Technology Corp. determines is not applicable to the scope of its quality management system.

Conformity to this International Standard may only be claimed if the requirements determined as not being applicable do not affect Carpenter Technology Corp.'s ability or responsibility to ensure the conformity of its products and services and the enhancement of customer satisfaction.

4.4 Quality Management System and Its Processes

- 4.4.1 Carpenter Technology Corp. shall establish, implement, maintain, and continually improve a quality management system, including the processes needed and their interactions, in accordance with the requirements of this International Standard.

Carpenter Technology Corp.’s quality management system shall also address customer and applicable statutory and regulatory quality management system requirements.

Carpenter Technology Corp. shall determine the processes needed for the quality management system and their application throughout Carpenter Technology Corp. and shall:

- a. determine the inputs required and the outputs expected from these processes;
- b. determine the sequence and interaction of these processes;
- c. determine and apply the criteria and methods (including monitoring, measurements and related performance indicators) needed to ensure the effective operation and control of these processes;
- d. determine the resources needed for these processes and ensure their availability;
- e. assign the responsibilities and authorities for these processes;
- f. address the risks and opportunities as determined in accordance with the requirements of 6.1;
- g. evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results;
- h. improve the processes and the quality management system.

4.4.2 To the extent necessary, Carpenter Technology Corp. shall:

- a. maintain documented information to support the operation of its processes;
- b. retain documented information to have confidence that the processes are being carried out as planned.

Carpenter Technology Corp. shall establish and maintain documented information that includes:

- *a general description of relevant interested parties (see 4.2 a);*
- *the scope of the quality management system, including boundaries and applicability (see 4.3);*
- *a description of the processes needed for the quality management system and their application throughout Carpenter Technology Corp.;*
- *the sequence and interaction of these processes;*

- *assignment of the responsibilities and authorities for these processes.*

5. Leadership

5.1 Leadership and Commitment

5.1.1 General

Top management shall demonstrate leadership and commitment with respect to the quality management system by:

- a. taking accountability for the effectiveness of the quality management system;
- b. ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the context and strategic direction of Carpenter Technology Corp.;
- c. ensuring the integration of the quality management system requirements into Carpenter Technology Corp.'s business processes;
- d. promoting the use of the process approach and risk-based thinking;
- e. ensuring that the resources needed for the quality management system are available;
- f. communicating the importance of effective quality management and of conforming to the quality management system requirements;
- g. ensuring that the quality management system achieves its intended results;
- h. engaging, directing, and supporting persons to contribute to the effectiveness of the quality management system;
- i. promoting improvement;
- j. supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

5.1.2 Customer Focus

Top management shall demonstrate leadership and commitment with respect to customer focus by ensuring that:

- a. customer and applicable statutory and regulatory requirements are determined, understood, and consistently met;

- b. the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed;
- c. the focus on enhancing customer satisfaction is maintained;
- d. product and service conformity and on-time delivery performance are measured and appropriate action is taken if planned results are not, or will not be, achieved.**

5.2 Policy

5.2.1 Establishing the Quality Policy

Top management shall establish, implement, and maintain a quality policy that:

- a. is appropriate to the purpose and context of Carpenter Technology Corp. and supports its strategic direction;
- b. provides a framework for setting quality objectives;
- c. includes a commitment to satisfy applicable requirements;
- d. includes a commitment to continual improvement of the quality management system.

5.2.2 Communicating the Quality Policy

The quality policy shall:

- a. be available and maintained as documented information;
- b. be communicated, understood, and applied within Carpenter Technology Corp.;
- c. be available to relevant interested parties, as appropriate.

5.3 Organizational Roles, Responsibilities, and Authorities

Top management shall ensure that the responsibilities and authorities for relevant roles are assigned, communicated, and understood within Carpenter Technology Corp.

Top management shall assign the responsibility and authority for:

- a. ensuring that the quality management system conforms to the requirements of this International Standard;

- b. ensuring that the processes are delivering their intended outputs;
- c. reporting on the performance of the quality management system and on opportunities for improvement (see 10.1), in particular to top management;
- d. ensuring the promotion of customer focus throughout Carpenter Technology Corp.;
- e. ensuring that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

Executive Management appointed the –Quality Manager, QMS and Accreditations a specific member of Carpenter Technology Corp. 's management, as the management representative, who shall have the responsibility and authority for oversight of the above requirements.

The management representative shall have Carpenter Technology Corp. the freedom and unrestricted access to top management to resolve quality management issues.

The responsibility of the management representative includes liaison with external parties on matters relating to the quality management system.

6. Planning

6.1 Actions to Address Risks and Opportunities

6.1.1 When planning for the quality management system, Carpenter Technology Corp. shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to:

- a. give assurance that the quality management system can achieve its intended result(s);
- b. enhance desirable effects;
- c. prevent, or reduce, undesired effects;
- d. achieve improvement.

6.1.2 Carpenter Technology Corp. shall plan:

- a. actions to address these risks and opportunities;
- b. how to:
 - 1. integrate and implement the actions into its quality management system processes (see 4.4);

2. evaluate the effectiveness of these actions.

Actions taken to address risks and opportunities shall be proportionate to the potential impact on the conformity of products and services.

NOTE 1: Options to address risks can include avoiding risk, taking risk in order to pursue an opportunity, eliminating the risk source, changing the likelihood or consequences, sharing the risk, or retaining risk by informed decision.

NOTE 2: Opportunities can lead to the adoption of new practices, launching new products, opening new markets, addressing new customers, building partnerships, using new technology and other desirable and viable possibilities to address Carpenter Technology Corp.'s or its customers' needs.

6.2 Quality Objectives and Planning to Achieve Them

6.2.1 Carpenter Technology Corp. shall establish quality objectives at relevant functions, levels, and processes needed for the quality management system.

The quality objectives shall:

- a. be consistent with the quality policy;
- b. be measurable;
- c. take into account applicable requirements;
- d. be relevant to conformity of products and services and to enhancement of customer satisfaction;
- e. be monitored;
- f. be communicated;
- g. be updated, as appropriate.

Carpenter Technology Corp. shall maintain documented information on the quality objectives.

6.2.2 When planning how to achieve its quality objectives, Carpenter Technology Corp. shall determine:

- a. what will be done;
- b. what resources will be required;

- c. who will be responsible;
- d. when it will be completed;
- e. how the results will be evaluated.

6.3 Planning of Changes

When Carpenter Technology Corp. determines the need for changes to the quality management system, the changes shall be carried out in a planned manner (see 4.4).

Carpenter Technology Corp. shall consider:

- a. the purpose of the changes and their potential consequences;
- b. the integrity of the quality management system;
- c. the availability of resources;
- d. the allocation or reallocation of responsibilities and authorities.

7. Support

7.1 Resources

7.1.1 General

Carpenter Technology Corp. shall determine and provide the resources needed for the establishment, implementation, maintenance, and continual improvement of the quality management system.

Carpenter Technology Corp. shall consider:

- a. the capabilities of, and constraints on, existing internal resources;
- b. what needs to be obtained from external providers.

7.1.2 People

Carpenter Technology Corp. shall determine and provide the persons necessary for the effective implementation of its quality management system and for the operation and control of its processes. Personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience. To ensure competence of our personnel, job descriptions have been prepared identifying the qualifications required for each position that affects conformity to product requirements. Qualifications include requirements for education, skills and experience. Appropriate qualifications, along

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with required training, provide the competence required for each position.

7.1.3 Infrastructure

Carpenter Technology Corp. shall determine, provide, and maintain the infrastructure necessary for the operation of its processes and to achieve conformity of products and services.

NOTE: Infrastructure can include:

- a. buildings and associated utilities;
- b. equipment, including hardware and software;
- c. transportation resources;
- d. information and communication technology.

7.1.4 Environment for the Operation of Processes

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

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

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

7.1.5 Monitoring and Measuring Resources

7.1.5.1 General

Carpenter Technology Corp. shall determine and provide the resources needed to ensure valid and reliable results when monitoring or measuring is used to verify the conformity of products and services to requirements.

Carpenter Technology Corp. shall ensure that the resources provided:

- a. are suitable for the specific type of monitoring and measurement activities being undertaken.
- b. are maintained to ensure their continuing fitness for their purpose.

Carpenter Technology Corp. shall retain appropriate documented information as evidence of

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fitness for purpose of the monitoring and measurement resources.

7.1.5.2 Measurement and Traceability

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

- a. calibrated or 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;
- b. identified in order to determine their status;
- c. safeguarded from adjustments, damage, or deterioration that would invalidate the calibration status and subsequent measurement results.

Carpenter Technology Corp. shall establish, implement, and maintain a process for the recall of monitoring and measuring equipment requiring calibration or verification.

Carpenter Technology Corp. shall maintain a register of the monitoring and measuring equipment. The register shall include the equipment type, unique identification, location, and the calibration or verification method, frequency, and acceptance criteria.

NOTE: *Monitoring and measuring equipment can include, but are not limited to: test hardware, test software, automated test equipment (ATE), and plotters used to produce verification data. It also includes personally owned and customer supplied equipment used to provide evidence of product and service conformity.*

Calibration or verification of monitoring and measuring equipment shall be carried out under suitable environmental conditions (see 7.1.4).

Carpenter Technology Corp. 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.

7.1.6 Organizational Knowledge

Carpenter Technology Corp. shall determine the knowledge necessary for the operation of its processes and to achieve conformity of products and services.

This knowledge shall be maintained and be made available to the extent necessary.

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

NOTE 1: Organizational knowledge is knowledge specific to Carpenter Technology Corp.; it is generally gained by experience. It is information that is used and shared to achieve Carpenter Technology Corp. 's objectives.

NOTE 2: Organizational knowledge can be based on:

- a. 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);
- b. external sources (e.g., standards; academia; conferences; gathering knowledge from customers or external providers).

7.2 Competence

Carpenter Technology Corp. shall:

- a. determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the quality management system;
- b. ensure that these persons are competent on the basis of appropriate education, training, or experience;
- c. where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;
- d. retain appropriate documented information as evidence of competence.

NOTE: Consideration should be given for the periodic review of the necessary competence.

NOTE: Applicable actions can include, for example, the provision of training to, the mentoring of, or the re-assignment of currently employed persons; or the hiring or contracting of competent persons.

7.3 Awareness

Carpenter Technology Corp. shall ensure that persons doing work under Carpenter Technology Corp.'s control are aware of:

- a. the quality policy;

- b. relevant quality objectives;
- c. their contribution to the effectiveness of the quality management system, including the benefits of improved performance;
- d. the implications of not conforming with the quality management system requirements;
- e. relevant quality management system documented information and changes thereto;**
- f. their contribution to product or service conformity;*
- g. their contribution to product safety;*
- h. the importance of ethical behavior.*

7.4 Communication

Carpenter Technology Corp. shall determine the internal and external communications relevant to the quality management system, including:

- a. on what it will communicate;
- b. when to communicate;
- c. with whom to communicate;
- d. how to communicate;
- e. who communicates.

NOTE: Communication should include internal and external feedback relevant to the quality management system.

7.5 Documented Information

7.5.1 General

Carpenter Technology Corp.'s quality management system shall include:

- a. documented information required by this International Standard;

- b. documented information determined by Carpenter Technology Corp. as being necessary for the effectiveness of the quality management system.

NOTE: The extent of documented information for a quality management system can differ from one organization to another due to:

- the size of organization and its type of activities, processes, products, and services;
- the complexity of processes and their interactions;
- the competence of persons.

7.5.2 Creating and Updating

When creating and updating documented information, Carpenter Technology Corp. shall ensure appropriate:

- a. identification and description (e.g., a title, date, author, or reference number);
- b. format (e.g., language, software version, graphics) and media (e.g., paper, electronic);
- c. review and approval for suitability and adequacy.

NOTE: Approval implies authorized persons and approval methods are identified for the relevant types of documented information, as determined by Carpenter Technology Corp.

7.5.3 Control of Documented Information

7.5.3.1 Documented information required by the quality management system and by this International Standard shall be controlled to ensure:

- a. it is available and suitable for use, where and when it is needed;
- b. it is adequately protected (e.g., from loss of confidentiality, improper use, or loss of integrity).

7.5.3.2 For the control of documented information, Carpenter Technology Corp. shall address the following activities, as applicable:

- a. distribution, access, retrieval, and use;
- b. storage and preservation, including preservation of legibility;
- c. control of changes (e.g., version control);

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- d. retention and disposition;
- e. **prevention of the unintended use of obsolete documented information by removal or by application of suitable identification or controls if kept for any purpose.**

Documented information of external origin determined by Carpenter Technology Corp. to be necessary for the planning and operation of the quality management system shall be identified as appropriate and be controlled.

Documented information retained as evidence of conformity shall be protected from unintended alterations.

When documented information is managed electronically, data protection processes shall be defined (e.g., protection from loss, unauthorized changes, unintended alteration, corruption, physical damage).

Documented information that provides evidence of product origin, conformity, and shipment shall be retained.

Note: Examples of documented information that is retained may include, but not limited to:

- **manufacturer, distributor, and inspection reports;**
- **purchase orders / contracts;**
- **certificates of conformity;**
- **nonconformances, concessions, and corrective actions;**
- **documented information of lot or batch traceability;**
- **documented information of storage, preservation or shelf life condition;**

NOTE: Access can imply a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information.

8. Operation

8.1 Operational Planning and Control

Carpenter Technology Corp. shall plan, implement, and control the processes (see 4.4) needed to meet the requirements for the provision of products and services, and to implement the

actions determined in clause 6, by:

- a. determining the requirements for the products and services;

NOTE: Determination of requirements for the products and services should include consideration of:

- *personal and product safety;*
- *producibility, availability and inspectability;*
- *reliability, availability, and maintainability;*
- *suitability of parts and materials used in the product;*
- *selection and development of embedded software;*
- *product obsolescence;*
- *prevention, detection, and removal of foreign objects;*
- *handling, packaging, and preservation;*
- *recycling or final disposal of the product at the end of its life.*

- b. establishing criteria for:

- *the processes;*
- *the acceptance of products and services;*

NOTE: According to the nature of the product and depending on the specified requirements, statistical techniques can be used to support:

- *design verification (e.g., reliability, maintainability, product safety);*
- *process control;*
 - *selection and verification of key characteristics;*
 - *process capability measurements;*
 - *statistical process control;*
 - *design of experiments;*

- *verification;*
- *failure mode, effects, and criticality analysis.*
- c. determining the resources needed to achieve conformity to the product and service requirements ***and to meet on-time delivery of products and services;***
- d. implementing control of the processes in accordance with the criteria;
- e. determining, maintaining, and retaining documented information to the extent necessary:
 1. to have confidence that the processes have been carried out as planned;
 2. to demonstrate the conformity of products and services to their requirements;
- f. determining the processes and controls needed to manage critical items, including production process controls when key characteristics have been identified;***
- g. engaging representatives of affected organization functions for operational planning and control;***
- h. determining the process and resources to support the use and maintenance of the products and services;***
- i. determining the products and services to be obtained from external providers;***
- j. establishing the controls needed to prevent the delivery of nonconforming products and services to the customer.***

NOTE: One method to achieve operational planning and control can be through using integrated phased processes.

As appropriate to Carpenter Technology Corp., customer requirements, and products and services, Carpenter Technology Corp. shall plan and manage product and service provision in a structured and controlled manner including scheduled events performed in a planned sequence to meet requirements at acceptable risk, within resource and schedule constraints.

NOTE: This activity is generally referred to as project planning, project management, or program management.

The output of this planning shall be suitable for Carpenter Technology Corp.'s operations.

NOTE: As an output of this planning, documented information specifying the processes of the quality management system and the resources to be applied to a specific product, service, project, or contract can be referred to as a quality plan.

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

Carpenter Technology Corp. shall ensure that outsourced processes are controlled (see 8.4).

Carpenter Technology Corp. shall establish, implement, and maintain a process to plan and control the temporary or permanent transfer of work, to ensure the continuing conformity of the work to requirements. The process shall ensure that work transfer impacts and risks are managed.

NOTE: For the control of work transfer from Carpenter Technology Corp. to an external provider, or from an external provider to another external provider, see 8.4. For the control of work transfer from one organization facility to another, or from an external provider to Carpenter Technology Corp., see 8.5.

8.1.1 Operational Risk Management

Carpenter Technology Corp. shall plan, implement, and control a process for managing operational risks to the achievement of applicable requirements, which includes as appropriate to Carpenter Technology Corp. and the products and services:

- a. Assignment of responsibilities for operational risk management;***
- b. Definition of risk assessment criteria (e.g., likelihood, consequences, risk acceptance);***
- c. Identification, assessment, and communication of risks throughout operations;***
- d. Identification, implementation, and management of actions to mitigate risks that exceed the defined risk acceptance criteria;***
- e. Acceptance of risks remaining after implementation of mitigating actions.***

NOTE 1: While clause 6.1 addresses the risks and opportunities when planning for the quality management system of Carpenter Technology Corp., the scope

of this clause (8.1.1) is limited to the risks associated to the operational processes needed for the provision of products and services (clause 8).

NOTE 2: *Within the aviation, space, and defense industry, risk is generally expressed in terms of the likelihood of occurrence and the severity of the consequences.*

8.1.2 Configuration Management

Carpenter Technology Corp. shall plan, implement, and control a process for configuration management as appropriate to Carpenter Technology Corp. and its products and services in order to ensure the identification and control of physical and functional attributes throughout the product lifecycle. This process shall:

- a. control product identity and traceability to requirements, including the implementation of identified changes;**
- b. ensure that the documented information (e.g., requirements, design, verification, validation and acceptance documentation) is consistent with the actual attributes of the products and services.**

8.1.3 Product Safety

Carpenter Technology Corp. shall plan, implement, and control the processes needed to assure product safety during the entire product life cycle, as appropriate to Carpenter Technology Corp. and the product.

NOTE: *Examples of these processes include:*

- assessment of hazards and management of associated risks (see 8.1.1);**
- management of safety critical items;**
- analysis and reporting of occurred events affecting safety;**
- communication of these events and training of persons.**

8.1.4 Prevention of Counterfeit Parts

Carpenter Technology Corp. shall plan, implement, and control processes, appropriate to Carpenter Technology Corp. and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product(s) delivered to the customer.

NOTE: *Counterfeit part prevention processes should consider:*

- *training of appropriate persons in the awareness and prevention of counterfeit parts;*
- *application of a parts obsolescence monitoring program;*
- *controls for acquiring externally provided product from original or authorized manufacturers, authorized distributors, or other approved sources;*
- *requirements for assuring traceability of parts and components to their original or authorized manufacturers;*
- *verification and test methodologies to detect counterfeit parts;*
- *monitoring of counterfeit parts reporting from external sources;*
- *quarantine and reporting of suspect or detected counterfeit parts.*

8.2 Requirements for Products and Services

8.2.1 Customer Communication

Communications with customers shall include:

- a. providing information relating to products and services;
- b. handling enquiries, contracts, or orders, including changes;
- c. obtaining customer feedback relating to products and services, including customer complaints;
- d. handling or controlling customer property;
- e. establishing specific requirements for contingency actions, when relevant.

8.2.2 Determining the Requirements for Products and Services

When determining the requirements for the products and services to be offered to customers, Carpenter Technology Corp. shall ensure that:

- a. the requirements for the products and services are defined, including:
 1. any applicable statutory and regulatory requirements;
 2. those considered necessary by Carpenter Technology Corp.;

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- b. Carpenter Technology Corp. can meet the claims for the products and services it offers;
- c. **special requirements of the products and services are determined;**
- d. *operational risks (e.g., new technology, ability and capacity to provide, short delivery time frame) have been identified.*

8.2.3 Review of the Requirements for Products and Services

8.2.3.1 Carpenter Technology Corp. shall ensure that it has the ability to meet the requirements for products and services to be offered to customers. Carpenter Technology Corp. shall conduct a review before committing to supply products and services to the customer, to include:

- 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 the specified or intended use, when known;
- c. requirements specified by Carpenter Technology Corp.;
- d. statutory and regulatory requirements applicable to the products and services;
- e. contract or order requirements differing from those previously expressed.

This review shall be coordinated with applicable functions of Carpenter Technology Corp.

If upon review Carpenter Technology Corp. determines that some customer requirements cannot be met or can only partially be met, Carpenter Technology Corp. shall negotiate a mutually acceptable requirement with the customer.

Carpenter Technology Corp. shall ensure that contract or order requirements differing from those previously defined are resolved.

The customer requirements shall be confirmed by Carpenter Technology Corp. before acceptance, when the customer does not provide a documented statement of their requirements.

NOTE: In some situations, such as internet sales, a formal review is impractical for each order. Instead, the review can cover relevant product information, such as catalogues.

8.2.3.2 Carpenter Technology Corp. shall retain documented information, as applicable:

- a. on the results of the review;

- b. on any new requirements for the products and services.

8.2.4 Changes to Requirements for Products and Services

Carpenter Technology Corp. 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.

8.3 Design and Development of Products and Services

8.3.1 General

Carpenter Technology Corp. shall establish, implement, and maintain a design and development process that is appropriate to ensure the subsequent provision of products and services.

8.3.2 Design and Development Planning

In determining the stages and controls for design and development, Carpenter Technology Corp. shall consider:

- a. the nature, duration, and complexity of the design and development activities;
- b. the required process stages, including applicable design and development reviews;
- c. the required design and development verification and validation activities;
- d. the responsibilities and authorities involved in the design and development process;
- e. the internal and external resource needs for the design and development of products and services;
- f. the need to control interfaces between persons involved in the design and development process;
- g. the need for involvement of customers and users in the design and development process;
- h. the requirements for subsequent provision of products and services;
- i. the level of control expected for the design and development process by customers and other relevant interested parties;
- j. the documented information needed to demonstrate that design and development requirements have been met.

When appropriate, Carpenter Technology Corp. shall divide the design and development effort into distinct activities and, for each activity, define the tasks, necessary resources, responsibilities, design content, and inputs and outputs.

Design and development planning shall consider the ability to provide, verify, test and maintain products and services (reference output of 8.1 a).

8.3.3 Design and Development Inputs

Carpenter Technology Corp. shall determine the requirements essential for the specific types of products and services to be designed and developed. Carpenter Technology Corp. shall consider:

- a. functional and performance requirements;
- b. information derived from previous similar design and development activities;
- c. statutory and regulatory requirements;
- d. standards or codes of practice that Carpenter Technology Corp. has committed to implement;
- e. potential consequences of failure due to the nature of the products and services;
- f. when applicable, the potential consequences of obsolescence (e.g., materials, processes, components, equipment, products).**

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

Conflicting design and development inputs shall be resolved.

Carpenter Technology Corp. shall retain documented information on design and development inputs.

NOTE: The organization can also consider as design and development inputs other information such as benchmarking, external provider feedback, internally generated data, and in-service data.

8.3.4 Design and Development Controls

Carpenter Technology Corp. shall apply controls to the design and development process to ensure that:

- a. the results to be achieved are defined;

- b. reviews are conducted to evaluate the ability of the results of design and development to meet requirements;
- c. verification activities are conducted to ensure that the design and development outputs meet the input requirements;
- d. validation activities are conducted to ensure that the resulting products and services meet the requirements for the specified application or intended use;
- e. any necessary actions are taken on problems determined during the reviews, or verification and validation activities;
- f. documented information of these activities is retained;
- g. progression to the next state is authorized.**

Participants in design and development reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed.

NOTE: Design and development reviews, verification, and validation have distinct purposes. They can be conducted separately or in any combination, as is suitable for the products and services of Carpenter Technology Corp.

8.3.4.1 When tests are necessary for verification and validation, these tests shall be planned, controlled, reviewed, and documented to ensure and prove the following:

- a. test plans or specifications identify the test item being tested and the resources being used, define test objectives and conditions, parameters to be recorded and relevant acceptance criteria;***
- b. test procedures describe the test methods to be used, how to perform the test, and how to record the results;***
- c. the correct configuration of the test item is submitted for the test;***
- d. the requirements of the test plan and the test procedures are observed;***
- e. the acceptance criteria are met.***

Monitoring and measuring devices used for testing shall be controlled as defined in clause 7.1.5.

At the completion of design and development, Carpenter Technology Corp. shall ensure that reports, calculations, test results, etc., are able to demonstrate that the design for the product or service meets the specification requirements for all identified operational conditions.

8.3.5 Design and Development Outputs

Carpenter Technology Corp. shall ensure that design and development outputs:

- a. meet the input requirements;
- b. are adequate for the subsequent processes for the provision of products and services;
- c. include or reference monitoring and measuring requirements, as appropriate, and acceptance criteria;
- d. specify the characteristics of products and services that are essential for their intended purpose and their safe and proper provision;
- e. specify, as applicable, any critical items, including any key characteristics, and specific actions to be taken for these items;**
- f. are approved by authorized person(s) prior to release.***

Carpenter Technology Corp. shall define the data required to allow the product to be identified, manufactured, verified, used, and maintained.

NOTE: Data can include:

- the drawings, part lists, and specifications necessary to define the configuration and the design features of the product;***
- the material, process, manufacturing, assembly, handling, packaging, and preservation data needed to provide and maintain a conforming product or service;***
- the technical data and repair schemes for operating and maintaining the product.***

Carpenter Technology Corp. shall retain documented information on design and development outputs.

8.3.6 Design and Development Changes

Carpenter Technology Corp. shall identify, review, and control changes made during, or subsequent to, the design and development of products and services, to the extent necessary to ensure that there is no adverse impact on conformity to requirements.

Carpenter Technology Corp. shall implement a process with criteria for notifying its customer, prior to implementation, about changes that affect customer requirements.

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Carpenter Technology Corp. shall retain documented information on:

- a. design and development changes;
- b. the results of reviews;
- c. the authorization of the changes;
- d. the actions taken to prevent adverse impacts.

Design and development changes shall be controlled in accordance with the configuration management process requirements.

8.4 Control of Externally Provided Processes, Products, and Services

8.4.1 General

Carpenter Technology Corp. shall ensure that externally provided processes, products, and services conform to requirements.

Carpenter Technology Corp. shall be responsible for the conformity of all externally provided processes, products, and services, including from sources defined by the customer.

Carpenter Technology Corp. shall ensure, when required, that customer-designated or approved external providers, including process sources (e.g., special processes), are used.

Carpenter Technology Corp. shall identify and manage the risks associated with the external provision of processes, products, and services, as well as the selection and use of external providers.

Carpenter Technology Corp. shall require that external providers apply appropriate controls to their direct and sub-tier external providers, to ensure that requirements are met.

Carpenter Technology Corp. shall determine the controls to be applied to externally provided processes, products, and services when:

- a. products and services from external providers are intended for incorporation into Carpenter Technology Corp.'s own products and services;
- b. products and services are provided directly to the customer(s) by external providers on behalf of Carpenter Technology Corp.;
- c. a process, or part of a process, is provided by an external provider as a result of a decision by Carpenter Technology Corp.

Carpenter Technology Corp. shall determine and apply criteria for the evaluation, selection,

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monitoring of performance, and re-evaluation of external providers, based on their ability to provide processes or products and services in accordance with requirements. Carpenter Technology Corp. shall retain documented information of these activities and any necessary actions arising from the evaluations.

NOTE: During external provider evaluation and selection, Carpenter Technology Corp. can use quality data from objective and reliable external sources, as evaluated by Carpenter Technology Corp. (e.g., information from accredited quality management system or process certification bodies, external provider approvals from government authorities or customers). Use of such data would be only one element of an organization's external provider control process and Carpenter Technology Corp. remains responsible for verifying that externally provided processes, products, and services meet specified requirements.

8.4.1.1 *Carpenter Technology Corp. shall:*

- a. define the process, responsibilities, and authority for the approval status decision, changes of the approval status, and conditions for a controlled use of external providers depending on their approval status;*
- b. maintain a register of its external providers that includes approval status (e.g., approved, conditional, disapproved) and the scope of the approval (e.g., product type, process family);*
- c. periodically review external provider performance including process, product and service conformity, and on- time delivery performance;*
- d. define the necessary actions to take when dealing with external providers that do not meet requirements;*
- e. define the requirements for controlling documented information created by and/or retained by external providers.*

8.4.2 Type and Extent of Control

Carpenter Technology Corp. shall ensure that externally provided processes, products, and services do not adversely affect Carpenter Technology Corp.'s ability to consistently deliver conforming products and services to its customers.

Carpenter Technology Corp. shall:

- a. ensure that externally provided processes remain within the control of its quality management system;
- b. define both the controls that it intends to apply to an external provider and those it

intends to apply to the resulting output;

c. take into consideration:

1. the potential impact of the externally provided processes, products, and services on Carpenter Technology Corp.'s ability to consistently meet customer and applicable statutory and regulatory requirements;
2. the effectiveness of the controls applied by the external provider;
3. **the results of the periodic review of external provider performance (see 8.4.1.1 c);**

d. determine the verification, or other activities, necessary to ensure that the externally provided processes, products, and services meet requirements.

Verification activities of externally provided processes, products, and services shall be performed per the risks identified by Carpenter Technology Corp. These shall include inspection or periodic testing, as applicable, when there is high risk of nonconformities including counterfeit parts.

NOTE 1: Customer verification activities performed at any level of the supply chain does not absolve Carpenter Technology Corp. of its responsibility to provide acceptable processes, products, and services and to comply with all requirements.

NOTE 2: Verification activities can include:

- review of objective evidence of the conformity of the processes, products, and services from the external provider (e.g., accompanying documentation, certificate of conformity, test documentation, statistical documentation, process control documentation, results of production process verification and assessment of changes to the production process thereafter);*
- inspection and audit at the external provider's premises;*
- review of the required documentation;*
- review of production part approval process data;*
- inspection of products or verification of services upon receipt;*
- review of delegations of product verification to the external provider.*

When externally provided product is released for production use pending completion of all

required verification activities, it shall be identified and recorded to allow recall and replacement if it is subsequently found that the product does not meet requirements.

When Carpenter Technology Corp. delegates verification activities to the external provider, the scope and requirements for delegation shall be defined and a register of delegations shall be maintained. Carpenter Technology Corp. shall periodically monitor the external provider's delegated verification activities.

When external provider test reports are utilized to verify externally provided products, Carpenter Technology Corp. shall implement a process to evaluate the data in the test reports to confirm that the product meets requirements. When a customer or organization has identified raw material as a significant operational risk (e.g., critical items), Carpenter Technology Corp. shall implement a process to validate the accuracy of test reports.

8.4.3 Information for External Providers

Carpenter Technology Corp. shall ensure the adequacy of requirements prior to their communication to the external provider.

Carpenter Technology Corp. shall communicate to external providers its requirements for:

- a. the processes, products, and services to be provided *including the identification of relevant technical data (e.g., specifications, drawings, process requirements, work instructions)*;
- b. the approval of:
 - 1. products and services;
 - 2. methods, processes, and equipment;
 - 3. the release of products and services;
- c. competence, including any required qualification of persons;
- d. the external providers' interactions with Carpenter Technology Corp.;
- e. control and monitoring of the external providers' performance to be applied by Carpenter Technology Corp.;
- f. verification or validation activities that Carpenter Technology Corp., or its customer, intends to perform at the external providers' premises
- g. **design and development control;**
- h. *special requirements, critical items, or key characteristics;*

- i. test, inspection, and verification (including production process verification);*
- j. the use of statistical techniques for product acceptance and related instructions for acceptance by Carpenter Technology Corp.;*
- k. the need to:*
 - implement a quality management system;*
 - use customer-designated or approved external providers, including process sources (e.g., special processes);*
 - notify Carpenter Technology Corp. of nonconforming processes, products, or services and obtain approval for their disposition;*
 - prevent the use of counterfeit parts (see 8.1.4);*
 - notify Carpenter Technology Corp. of changes to processes, products, or services, including changes of their external providers or location of manufacture, and obtain Carpenter Technology Corp.'s approval;*
 - flow down to external providers applicable requirements including customer requirements;*
 - provide test specimens for design approval, inspection/verification, investigation, or auditing;*
 - retain documented information, including retention periods and disposition requirements;*
- l. the right of access by Carpenter Technology Corp., their customer, and regulatory authorities to the applicable areas of facilities and to applicable documented information, at any level of the supply chain;*
- m. ensuring that persons are aware of:*
 - their contribution to product or service conformity;*
 - their contribution to product safety;*
 - the importance of ethical behavior.*

8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

Carpenter Technology Corp. shall implement production and service provision under controlled conditions.

Controlled conditions shall include, as applicable:

- a. the availability of documented information that defines:
 - 1. the characteristics of the products to be produced, the services to be provided, or the activities to be performed;
 - 2. the results to be achieved;

NOTE 1: Documented information that defines characteristics of products and services can include digital product definition data, drawings, parts lists, materials, and process specifications.

NOTE 2: Documented information for activities to be performed and results to be achieved can include process flow charts, control plans, production documents (e.g., manufacturing plans, travelers, routers, work orders, process cards), and verification documents.

- b. the availability and use of suitable monitoring and measuring resources;
- c. the 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;
 - 1. **ensuring that documented information for monitoring and measurement activity for product acceptance includes:**
 - *criteria for acceptance and rejection;*
 - *where in the sequence verification operations are to be performed;*
 - *measurement results to be retained (at a minimum an indication of acceptance or rejection);*
 - *any specific monitoring and measurement equipment required and instructions associated with their use;*

2. *ensuring that when sampling is used as a means of product acceptance, the sampling plan is justified on the basis of recognized statistical principles and appropriate for use (i.e., matching the sampling plan to the criticality of the product and to the process capability).*
- d. the use of suitable infrastructure and environment for the operation of processes;

NOTE: Suitable infrastructure can include product specific tools (e.g., jigs, fixtures, molds) and software programs.

- e. the appointment of competent persons, including any required qualification;
- f. the 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;

NOTE: These processes can be referred to as special processes (see 8.5.1.2).

- g. the implementation of actions to prevent human error;
- h. the implementation of release, delivery, and post-delivery activities;
- i. **the establishment of criteria for workmanship (e.g., written standards, representative samples, illustrations);**
- j. **the accountability for all products during production (e.g., parts quantities, split orders, nonconforming product);**
- k. *the control and monitoring of identified critical items, including key characteristics, in accordance with established processes;*
- l. *the determination of methods to measure variable data (e.g., tooling, on-machine probing, inspection equipment);*
- m. *the identification of in-process inspection/verification points when adequate verification of conformity cannot be performed at later stages;*
- n. *the availability of evidence that all production and inspection/verification operations have been completed as planned, or as otherwise documented and authorized;*
- o. *the provision for the prevention, detection, and removal of foreign objects;*
- p. *the control and monitoring of utilities and supplies (e.g., water, compressed air,*

electricity, chemical products) to the extent they affect conformity to product requirements (see 7.1.3);

- q. the identification and recording of products released for subsequent production use pending completion of all required measuring and monitoring activities, to allow recall and replacement if it is later found that the product does not meet requirements.*

8.5.1.1 Control of Equipment, Tools, and Software Programs

Equipment, tools, and software programs used to automate, control, monitor, or measure production processes shall be validated prior to final release for production and shall be maintained.

Storage requirements shall be defined for production equipment or tooling in storage including any necessary periodic preservation or condition checks.

8.5.1.2 Validation and Control of Special Processes

For processes where the resulting output cannot be verified by subsequent monitoring or measurement, Carpenter Technology Corp. shall establish arrangements for these processes including, as applicable:

- a. definition of criteria for the review and approval of the processes;*
- b. determination of conditions to maintain the approval;*
- c. approval of facilities and equipment;*
- d. qualification of persons;*
- e. use of specific methods and procedures for implementation and monitoring the processes;*
- f. requirements for documented information to be retained.*

8.5.1.3 Production Process Verification

Carpenter Technology Corp. shall implement production process verification activities to ensure the production process is able to produce products that meet requirements.

NOTE: *These activities can include risk assessments, capacity studies, capability studies, and control plans.*

Carpenter Technology Corp. shall use a representative item from the first production run of a new part or assembly to verify that the production processes, production

documentation, and tooling are able to produce parts and assemblies that meet requirements. This activity shall be repeated when changes occur that invalidate the original results (e.g., engineering changes, production process changes, tooling changes).

NOTE: This activity can be referred to as First Article Inspection (FAI).

Carpenter Technology Corp. shall retain documented information on the results of production process verification.

8.5.2 Identification and Traceability

Carpenter Technology Corp. shall use suitable means to identify outputs when it is necessary to ensure the conformity of products and services.

Carpenter Technology Corp. shall maintain the identification of the configuration of the products and services in order to identify any differences between the actual configuration and the required configuration.

Carpenter Technology Corp. shall identify the status of outputs with respect to monitoring and measurement requirements throughout production and service provision.

When acceptance authority media are used (e.g., stamps, electronic signatures, passwords), Carpenter Technology Corp. shall establish controls for the media.

Carpenter Technology Corp. shall control the unique identification of the outputs when traceability is a requirement, and shall retain the documented information necessary to enable traceability.

NOTE: Traceability requirements can include:

- *the identification to be maintained throughout the product life;*
- *the ability to trace all products manufactured from the same batch of raw material, or from the same manufacturing batch, to the destination (e.g., delivery, scrap);*
- *for an assembly, the ability to trace its components to the assembly and then to the next higher assembly;*
- *for a product, a sequential record of its production (manufacture, assembly, inspection/verification) to be retrievable.*

8.5.3 Property Belonging to Customers or External Providers

Carpenter Technology Corp. shall exercise care with property belonging to customers or

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external providers while it is under Carpenter Technology Corp.'s control or being used by Carpenter Technology Corp.

Carpenter Technology Corp. shall identify, verify, protect, and safeguard customers' or external providers' property provided for use or incorporation into the products and services.

When the property of a customer or external provider is lost, damaged, or otherwise found to be unsuitable for use, Carpenter Technology Corp. shall report this to the customer or external provider and retain documented information on what has occurred.

NOTE: A customer's or external provider's property can include materials, components, tools and equipment, premises, intellectual property, and personal data.

8.5.4 Preservation

Carpenter Technology Corp. shall preserve the outputs during production and service provision, to the extent necessary to ensure conformity to requirements.

NOTE: Preservation can include identification, handling, contamination control, packaging, storage, transmission or transportation, and protection.

Preservation of outputs shall also include, when applicable in accordance with specifications and applicable statutory and regulatory requirements, provisions for:

- a. cleaning;*
- b. prevention, detection, and removal of foreign objects;*
- c. special handling and storage for sensitive products;*
- d. marking and labeling, including safety warnings and cautions;*
- e. shelf life control and stock rotation;*
- f. special handling and storage for hazardous materials.*

8.5.5 Post-Delivery Activities

Carpenter Technology Corp. shall meet requirements for post-delivery activities associated with the products and services.

In determining the extent of post-delivery activities that are required, Carpenter Technology Corp. shall consider:

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- a. statutory and regulatory requirements;
- b. the potential undesired consequences associated with its products and services;
- c. the nature, use, and intended lifetime of its products and services;
- d. customer requirements;
- e. customer feedback;
- f. collection and analysis of in-service data (e.g., performance, reliability, lessons learned);**
- g. control, updating, and provision of technical documentation relating to product use, maintenance, repair, and overhaul;**
- h. controls required for work undertaken external to Carpenter Technology Corp. (e.g., off-site work);**
- i. product/customer support (e.g., queries, training, warranties, maintenance, replacement parts, resources, obsolescence).**

When problems are detected after delivery, Carpenter Technology Corp. shall take appropriate action including investigation and reporting.

NOTE: Post-delivery activities can include actions under warranty provisions, contractual obligations such as maintenance services, and supplementary services such as recycling or final disposal.

8.5.6 Control of Changes

Carpenter Technology Corp. shall review and control changes for production or service provision, to the extent necessary to ensure continuing conformity with requirements.

Persons authorized to approve production or service provision changes shall be identified.

NOTE: Production or service provision changes can include the changes affecting processes, production equipment, tools, or software programs.

Carpenter Technology Corp. 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.

8.6 Release of Products and Services

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Carpenter Technology Corp. shall implement planned arrangements, at appropriate stages, to verify that the product and service requirements have been met.

The release of products and services to the customer shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, as applicable, by the customer.

Carpenter Technology Corp. shall retain documented information on the release of products and services. The documented information shall include:

- a. evidence of conformity with the acceptance criteria;
- b. traceability to the person(s) authorizing the release.

When required to demonstrate product qualification, Carpenter Technology Corp. shall ensure that retained documented information provides evidence that the products and services meet the defined requirements.

Carpenter Technology Corp. shall ensure that all documented information required to accompany the products and services are present at delivery.

8.7 Control of Nonconforming Outputs

8.7.1 Carpenter Technology Corp. shall ensure that outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery.

NOTE: The term “nonconforming outputs” includes suspected unapproved, unapproved, counterfeit, and nonconforming product or service generated internally, received from an external provider, or identified by a customer.

Carpenter Technology Corp. shall take appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services. This shall also apply to nonconforming products and services detected after delivery of products, during or after the provision of services.

Carpenter Technology Corp.’s nonconformity control process shall be maintained as documented information including the provisions for:

- ***defining the responsibility and authority for the review and disposition of nonconforming outputs and the process for approving persons making these decisions;***
- ***taking actions necessary to contain the effect of the nonconformity on other processes, products, or services;***

- *timely reporting of nonconformities affecting delivered products and services to the customer and to relevant interested parties;*
- *defining corrective actions for nonconforming products and services detected after delivery, as appropriate to their impacts (see 10.2).*

NOTE: *Interested parties requiring notification of nonconforming products and services can include external providers, internal organizations, customers, distributors, and regulatory authorities.*

Carpenter Technology Corp. shall deal with 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 *by a relevant authority and, when applicable, by the customer.*

Dispositions of use-as-is or repair for the acceptance of nonconforming products shall only be implemented:

- *after approval by an authorized representative of Carpenter Technology Corp. responsible for design or by persons having delegated authority from the design organization;*
- *after authorization by the customer, if the nonconformity results in a departure from the contract requirements.*

Product dispositioned for scrap shall be conspicuously and permanently marked, or positively controlled until physically rendered unusable.

Counterfeit, or suspect counterfeit, parts shall be controlled to prevent reentry into the supply chain.

Conformity to the requirements shall be verified when nonconforming outputs are corrected.

8.7.2 Carpenter Technology Corp. shall retain documented information that:

- a. describes the nonconformity;

- b. describes the actions taken;
- c. describes any concessions obtained;
- d. identifies the authority deciding the action in respect of the nonconformity.

9. Performance Evaluation

9.1 Monitoring, Measurement, Analysis, and Evaluation

9.1.1 General

Carpenter Technology Corp. shall determine:

- a. what needs to be monitored and measured;
- b. the methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results;
- c. when the monitoring and measuring shall be performed;
- d. when the results from monitoring and measurement shall be analyzed and evaluated.

Carpenter Technology Corp. shall evaluate the performance and the effectiveness of the quality management system.

Carpenter Technology Corp. shall retain appropriate documented information as evidence of the results.

9.1.2 Customer Satisfaction

Carpenter Technology Corp. shall monitor customers' perceptions of the degree to which their needs and expectations have been fulfilled. Carpenter Technology Corp. shall determine the methods for obtaining, monitoring, and reviewing this information.

NOTE: 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.

Information to be monitored and used for the evaluation of customer satisfaction shall include, but is not limited to, product and service conformity, on-time delivery performance, customer complaints, and corrective action requests. Carpenter Technology Corp. shall develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations and assess the effectiveness of the results.

9.1.3 Analysis and Evaluation

Carpenter Technology Corp. shall analyze and evaluate appropriate data and information arising from monitoring and measurement.

NOTE: Appropriate data can include information on product and service problems reported by external sources (e.g., government/industry alerts, advisories).

The results of analysis shall be used to evaluate:

- a. conformity of products and services;
- b. the degree of customer satisfaction;
- c. the performance and effectiveness of the quality management system;
- d. if planning has been implemented effectively;
- e. the effectiveness of actions taken to address risks and opportunities;
- f. the performance of external providers;
- g. the need for improvements to the quality management system.

NOTE: Methods to analyze data can include statistical techniques.

9.2 Internal Audit

9.2.1 Carpenter Technology Corp. shall conduct internal audits at planned intervals to provide information on whether the quality management system;

- a. conforms to:

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1. Carpenter Technology Corp.'s own requirements for its quality management system;

NOTE: Carpenter Technology Corp.'s own requirements should include customer and applicable statutory and regulatory quality management system requirements.

2. the requirements of this International Standard;
- b. is effectively implemented and maintained.

NOTE: When conducting internal audits, performance indicators can be evaluated to determine whether the quality management system is effectively implemented and maintained.

9.2.2 Carpenter Technology Corp. shall:

- a. plan, establish, implement, and maintain an audit program(s) including the frequency, methods, responsibilities, planning requirements, and reporting, which shall take into consideration the importance of the processes concerned, changes affecting Carpenter Technology Corp., and the results of previous audits;
- b. define the audit criteria and scope for each audit;
- c. select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;
- d. ensure that the results of the audits are reported to relevant management;
- e. take appropriate correction and corrective actions without undue delay;
- f. retain documented information as evidence of the implementation of the audit program and the audit results.

9.3 Management Review

9.3.1 General

Top management shall review Carpenter Technology Corp.'s quality management system, at planned intervals, to ensure its continuing suitability, adequacy, effectiveness, and alignment with the strategic direction of Carpenter Technology Corp.

9.3.2 Management Review Inputs

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The 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;
 - 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;
 - 8. on-time delivery performance;**
- d. the adequacy of resources;
- e. the effectiveness of actions taken to address risks and opportunities (see 6.1);
- f. opportunities for improvement.

9.3.3 Management Review Outputs

The outputs of the management review 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. risks identified.**

Carpenter Technology Corp. shall retain documented information as evidence of the results of management reviews.

10 Improvement

10.1 General

Carpenter Technology Corp. shall determine and select opportunities for improvement and implement any necessary actions to meet customer requirements and enhance customer satisfaction.

These shall include:

- a. improving products and services to meet requirements as well as to address future needs and expectations;
- b. correcting, preventing, or reducing undesired effects;
- c. improving the performance and effectiveness of the quality management system.

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

10.2 Nonconformity and Corrective Action

10.2.1 When a nonconformity occurs, including any arising from complaints, Carpenter Technology Corp. shall:

- a. react to the nonconformity and, as applicable:
 - 1. act to control and correct it;
 - 2. deal with the consequences;
- b. evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:
 - 1. reviewing and analyzing the nonconformity;
 - 2. determining the causes of the nonconformity, *including, as applicable, those related to human factors*;
 - 3. determining if similar nonconformities exist, or could potentially occur;
- c. implement any action needed;

- d. review the effectiveness of any corrective action taken;
- e. update risks and opportunities determined during planning, if necessary;
- f. make changes to the quality management system, if necessary;
- g. flow down corrective action requirements to an external provider when it is determined that the external provider is responsible for the nonconformity;**
- h. take specific actions when timely and effective corrective actions are not achieved.***

Corrective actions shall be appropriate to the effects of the nonconformities encountered.

Carpenter Technology Corp. shall maintain documented information that defines the nonconformity and corrective action management processes.

10.2.2 Carpenter Technology Corp. shall retain documented information as evidence of:

- a. the nature of the nonconformities and any subsequent actions taken;
- b. the results of any corrective action.

10.3 Continual Improvement

Carpenter Technology Corp. shall continually improve the suitability, adequacy, and effectiveness of the quality management system.

Carpenter Technology Corp. shall consider the results of analysis and evaluation, and the outputs from management review, to determine if there are needs or opportunities that shall be addressed as part of continual improvement.

Carpenter Technology Corp. shall monitor the implementation of improvement activities and evaluate the effectiveness of the results.

NOTE: Examples of continual improvement opportunities can include lessons learned, problem resolutions, and the benchmarking of best practices.

Carpenter Technology – SAO Quality Manual Revision 37, July 31, 2019

QUALITY MANUAL REVISIONS

REV.	SECTION	SUB-SEC.	PARA.	CHANGE DETAILS	DATE	AUTHORIZED BY
30	Multiple			Update to AS9100C	9/28/11	R. A. Heckman
31	Table I Certs by Site	2.0		Include Athens, Mexico and Domestic facilities	8/23/13	R. A. Heckman
31	Process Flow Diagram			Include Athens	9/03/13	R. A. Heckman
31	Interaction Process Chart			Added customer's Input and feedback	9/03/13	R. A. Heckman
31	4.0	4.2	4.2.2 a)	7.5.4.1 b) is not exclusion	9/03/13	R. A. Heckman
31	7.5	7.5.4	7.5.4.1	Include post-delivery support through investigations after problem detection	9/03/13	R. A. Heckman
31	Appendix A			Include Athens, Mexico and Domestic facilities	9/03/13	R. A. Heckman
31	4.0	4.2	4.2.2a)	Added Site Scope reference.	11/13/13	Editorial change approved by: R.A. Heckman
32	1.0	1.2	Table 1	Change Suzhou for Changshu site Include Changshu finishing site in ISO 9001:2008	12/5/14	R. A. Heckman
32	4.0	Process flow diagram Interaction Process Chart		Include Changshu	12/5/14	R. A. Heckman
32	Appendix A			Include Changshu, modify scope for domestic sites	12/5/14	R. A. Heckman
33	Various			Include Latrobe	3/4/15	R.A. Heckman
34	Various			Remove 4 locations	11/18/15	R.A. Heckman
35	4.0, App A			Add PEAR and Exc.	11/7/16	R.A. Heckman
36	All			AS9100 Rev. D	12/15/17	R.A. Heckman
37	Table 1			Moved to Appendix A	7/31/2019	Penny Spurio
37	Appendix C			Removed: information is in the Process Interaction Chart	7/31/2019	Penny Spurio
37	All Appendices			All Appendices are revision controlled separately from the Quality Manual	7/31/2019	Penny Spurio
37	Approval Signatures			Updated	7/31/2019	Penny Spurio
37	Sec 4			Revised	7/31/2019	Penny Spurio
37	Appendix A			Corrected China Scope	7/31/2019	Penny Spurio
37	Appendix B			Corrected Site Exclusions	7/31/2019	Penny Spurio
37	Appendix C			Quality Policy	7/31/2019	Penny Spurio

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Carpenter Technology Specialty Alloys Operations	Quality Manual Appendices
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Appendix A Certifications by Site

Revision B August 12, 2019

Site Location	Product	AS9100D Certification	AS9120 B Certification	ISO9001:2015 Certification	NADCAP Certification	ISO 17025 Certification
Main Manufacturing Reading, PA	Develop, Manufacture, Procurement, Processing and Warehouse of Specialty Steel Products	X	X	X	Materials testing - Mechanical testing Chemical Heat Treat NDT (Ultrasonic)	Materials testing - Mechanical testing Chemical
Athens, AL	Manufacture, Processing of Specialty Steel Products	X		X	Materials testing - Mechanical testing Chemical NDT (Ultrasonic) Heat Treat	Materials testing - Mechanical testing Chemical
Latrobe, PA	Manufacture, Processing and Warehouse of Specialty Steel Products	X		X	Materials testing - Mechanical testing Chemical NDT (Ultrasonic)	Materials testing - Mechanical testing Chemical
Sandycreek, PA	Manufacture, Processing and Warehouse of Specialty Steel Products	X		X	---	---
Shalmet – Deer Lake, PA	Processing of bar and wire specialty products	X		X	Materials testing - Mechanical testing	Materials testing - Mechanical testing
Shalmet – Elyria, OH	Processing of bar and wire specialty products	X		X	---	---
Hartsville, SC	Processing of bar and wire specialty products	X		X	Heat Treat NDT (Ultrasonic)	---
<u>International Service Centers</u> Brussels Changshu, China	Sales, Procurement and Warehousing	X	X X	X X	---	---
<u>International Sales Offices</u> Singapore Canada Mexico	Sales, Procurement		X X X	X X X	---	---
<u>Domestic Service</u> Rancho Cucamonga Hartsville Houston Bolingbrook Dundee Allentown	Warehousing and Distribution		X X X X X X	X X X X X X	---	---

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Appendix B - Site Scopes with Exclusion Justification

Revision B: August 12, 2019

ISO9001:2015 and AS9100 Rev D
Location / Scope / Exclusions
<p>Reading, PA</p> <p><u>Central Function Scope:</u> Development, Manufacture, Procurement, and Warehousing of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials and Titanium processing. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars in Various Sizes and Shapes.</p> <p>Not applicable: 8.5.5 (F, G, H) –Carpenter Technology Corporation is a raw material producer and supplier</p>
<p>Tanner, AL</p> <p>Manufacture of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Multi-Dimensional Bars, Hollow Bars in Various Sizes and Shapes, and Powdered Metals.</p> <p>Not applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, and 8.6 -These functions are performed at the central function. (Reading)</p> <p>8.5.5 (F, G, H) – Carpenter Technology Corporation is a raw material producer and supplier</p>
<p>Orwigsburg, PA</p> <p>Processing of Customer Owned Ferrous & Non-Ferrous Black Wire, Wire Rod and Bar into Bright Products. Product Forms Include Coil, Bar, Ingot and Billet Products and Conversion of Bar Forms into Hollows and Multi – Diameter Products.</p> <p>Not applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, and 8.6 -These functions are performed at the central function. (Reading)</p> <p>8.5.5 (F, G, H) – Carpenter Technology Corporation is a raw material producer and supplier</p>
<p>Elyria, OH</p> <p>Processing of Customer Owned Ferrous and Non- Ferrous Black Wire, Wire Rod & Bar into Bright Products, Product Forms include Coil, Bar, Ingot and Billet Products and Conversion of Bar Forms into Hollows and Multi – Diameter Products.</p> <p>Not applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, and 8.6 -These functions are performed at the central function. (Reading)</p> <p>8.5.5 (F, G, H) – Carpenter Technology Corporation is a raw material producer and supplier</p>
<p>Hartsville (McBee, SC)</p> <p>Processing of Hot and Cold Finished Products in Bar, Coil and Special Shapes.</p> <p>Not applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.2, 8.3*, and 8.4*, -These functions are performed at the central function. (Reading)</p> <p>8.5.5 (F, G, H) – Carpenter Technology Corporation is a raw material producer and supplier</p>
<p>Latrobe, PA and Sandycreek (Franklin, PA)</p> <p>Manufacture of Specialty Alloyed Ingot, Billet, Bar, Flat and Coil Products. Includes Processing and Testing by Carpenter-Latrobe Specialty Metals Manufacturing. Includes the Value-Added Services for Blanks and Finished Parts by Carpenter-Latrobe Specialty Metals Special Products Division (SPD).</p> <p>Sandycreek Service Center sub-scope: Finishing operations and Shipping/Distribution in support of Carpenter operations</p> <p>Non-applicable by site:</p> <p>Latrobe: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, and 8.3- These functions are performed at the central function. (Reading)</p> <p>8.5.5 (F, G, H) – Carpenter Technology Corporation is a raw material producer and supplier</p> <p>Purchasing: N/A with the exception of SPD.</p> <p>Sandycreek: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, and 8.6- These functions are performed at Latrobe or Reading</p> <p>8.5.5 (F, G, H)– Carpenter Technology Corporation is a raw material producer and supplier</p>

ISO9001:2015 and AS9120 Rev B	
Location / Scope / Exclusions	
Reading, PA	<p>Central Function Scope: Overall scope as stated. Procurement and Warehousing of Specialty Steel and Alloy Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials and Titanium Products. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars, in Various Sizes and Shapes.</p> <p>Non-applicable: 8.5.5 (F) –Carpenter Technology Corporation is a raw material producer and supplier</p>
Europe (Brussels, Belgium)	<p>Sales and warehousing of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars in Various Sizes and Shapes.</p> <p>Non-applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function. (Reading) 8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier</p>
Asia Pacific (Singapore)	<p>Sales of Specialty Steel and Alloy Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars in Various Sizes and Shapes.</p> <p>Non-applicable: 7.1.5.2, 8.5.1.1, 8.5.1.2, 8.5.1.3, 8.5.2, 8.5.3, 8.5.4, 8.7 - These sites are sales offices only and do not handle material. 4.1, 4.2, 4.3, 4.1, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, and 8.4 - These functions are performed at the central function. (Reading) 8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier</p>
Changshu, China	<p>Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars, in Various Sizes and Shapes.</p> <p>Non-applicable: 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6- <i>These functions are performed at the central function. (Reading)</i> 8.5.5 (F) – <i>Not applicable, Carpenter Technology Corporation is a raw material producer and supplier</i></p>
Canada (Canada)	<p>Sales of Specialty Steel and Alloy Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms include Ingot, Billet, Bar, Rod Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Bars, Hollow Bars, in Various Sizes and Shapes;</p> <p>Non-applicable: 7.1.5.2, 8.5.1.1, 8.5.1.2, 8.5.1.3, 8.5.2, 8.5.3, 8.5.4, 8.7 - These sites are sales offices only and do not handle material. 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, and 8.4 - These functions are performed at the central function. (Reading) 8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier</p>
Mexico (Queretaro)	<p>Sales of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include: Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate,</p>

Multi-Dimensional Bars, Hollow Bars in Various Sizes and Shapes;

Non-applicable:

7.1.5.2, 8.5.1.1, 8.5.1.2, 8.5.1.3, 8.5.2, 8.5.3, 8.5.4, 8.7 - These sites are sales offices only and do not handle material.

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, and 8.4 - These functions are performed at the central function. (Reading)

8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

USA (Rancho Cucamonga, CA)

Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.

Non-applicable:

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function. (Reading)

8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

USA (Hartsville, SC)

Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.

Non-applicable:

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function. (Reading)

8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

USA (Houston, TX)

Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.

Non-applicable:

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function. (Reading)

8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

USA (Bolingbrook, IL)

Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.

Non-applicable:

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function. (Reading)

8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

USA (Dundee, MI)

Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.

Non-applicable:

4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function.

<p align="center">Carpenter Technology Specialty Alloys Operations</p>	<p align="center">Quality Manual Appendices</p>
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(Reading)
8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier
<p>USA (Allentown, PA)</p> <p>Warehousing and Distribution of Specialty Steel Products, Including Stainless Steels, Tool and Alloy, High Temperature, Electronic and Magnetic, Plus Other Special Purpose Materials. Mill Forms Include Ingot, Billet, Bar, Rod, Wire, Coil, Flat Rolled Ribbon, Strip, Plate, Multi-Dimensional Hollow Bars in Various Sizes and Shapes.</p> <p>Non-applicable:</p> <p>4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 8.3, 8.4, 8.5.6, and 8.6 - These functions are performed at the central function.</p>
(Reading)
8.5.5 (F) – Not applicable, Carpenter Technology Corporation is a raw material producer and supplier

Revisions

Date of Revision	Approval	Description of Change
June 5, 2019	P. Spurio	Original revision of Appendix A
August 12, 2019	P.Spurio	Added to Hartsville, SC 8.2 and 8.4

Appendix C

Revision A: June 5, 2019

**PERMANENT
BULLETIN BOARD NOTICE**

August 13, 2015



QUALITY POLICY

As a leading manufacturer of specialty metals for critical end-use applications, Carpenter Technology Corporation is committed to Total Customer Satisfaction through Continual Improvement of the Quality of our processes and products.

We define Total Customer Satisfaction as Zero Customer Disappointments to Mutually Agreed-Upon Expectations.

**Tony R. Thene
President and CEO**

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